The Indonesian Population Census 2010:
Challenges and innovations

Teguh Pramono, MA
BPS – STATISTICS – INDONESIA
The diversity is also happening in regional demographic indicators.
<table>
<thead>
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<th>NO</th>
<th>ISLAND</th>
<th>PROVINCE</th>
<th>REGENCY/MUNICIPALITY</th>
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Facts and Geography challenges

- From the skyscraper to the shelter.
- From the top of the mountain to the surface of the sea.

- Bajo people in Sulawasi live in the boat moves depending on the wind season.
Censuses in Indonesia

- Two censuses during Dutch Administration: in 1920 & 1930.
- The 2010 census is the eight census.
• Mapping region is to ensure all households are covered and the borders between two areas do not cross over.
Citra maps are used as support material mapmaking WA and WB. The mapmaking of Citra map has been started since the year 2008 from the beginning stages of preparation.

Global Positioning Sistem (GPS)
To get the exact location and precise position's map, SP2010 also uses GPS technology to maximize the quality of the map for the census implementation of the future.
TRAINING

- SUBJECT MATTER
- CHIEF INSTRUCTOR
- NATIONAL INSTRUCTOR
- REGIONAL INSTRUCTOR
- ENUMERATORS
Training of enumerators in Papua

* Enumerators & team leader
  * Vast effort to find adequately educated enumerator
  * Difficulty in constructing team
  * Facilities for training are varies.
Multichannel campaign:

* TV Spot (Public Service Announcements) TV blocking time Talkshow and interactive dialog and Radio Spot during the prime time program, 40 days broadcast.
* Printed media campaign in the most popular magazine and news paper.
* Special booklet for informal leaders to involve in the campaign.
* Banner for the whole villages (tens of banners, billboards, banner special car stickers, etc. were installed in each and every village in Indonesia.
* Plastic bags with the logo and slogan of 2010 Population Census were distributed to customers in several traditional and modern markets.
Campaign

- Campaign meeting
- Campaign Media
- On Spot Media
- On road Media (stiker on the car spread to the city)
- Various Souvenir for a variety of different purposes (calender, mug, t-shirt ect.)
- Public Service Ads
- Tea Walk (employee mobilization)

Preparation

- Public Expose
- Campaign to market, Mall, School, Public figures
- Bung Itung (mascot) in action
- Census Expose
- Campaign in mass Media
- Built program on TV
- Talkshow
- Print Media
- Internet (Social Media; Facebook, twitter)
The family of President was the first to be enumerated,
Throughout Indonesia, most people waited for the enumerators to come to their house and enumerate them.
Field Organization of 2010 Census

- Sub district coordinator (SC) handled all field coordinator.
- Field coordinator (FC) handled 10 team.
- Team coordinator (TC) handled 3 interviewers.
- Team covered 3 to 9 census block.
- 1 census block ± 80 - 120 households

- Total people in the field:
- 6.651 SC + 11.238 FC + 112.380 TC + 337.140 Intrv = 467.409 people
- 232.000 as the instructors (700.000 people)

- The processes of data collection were monitored and supervised by 1.600 independent quality assurance team.
Data collection method

- Enumeration period: May 2010; census date 15 May
- 2-stage enumeration was employed:
  - 1\textsuperscript{st} stage: listing procedure: name of HH heads, number of HH members by sex was listed by enumerator to every HHs in all CBs
  - 2\textsuperscript{nd} stage: every HH enumerated using Long form Q’naire (43 vars)

- Long form Questionnaire:
  - Individual level data: demographic, education, health, employment, fertility, mortality, migration, ethnicity/race, language
  - Household level data: housing: ownership, physical quality, utility

- Data collection for non-permanent residential people: homeless, boat-people, sailors,

- Quick count was done to recap people from census blocks up to village, sub district, district, province to be announced by August 2010
Three kinds of questionnaires were used to enumerate the population in the 2010 PC:

- **C1** – 42 questions, used for people living in households in areas covered by the census mapping;

- **C2** – 14 questions, used for people living in areas which were not included in the mapping, such as remote/isolated areas, Indonesian diplomats living abroad, etc.; and

- **L2** – 2 questions (number and sex), used for the homeless, people living on boats, crews of Indonesian ships, and isolated tribal population.
## Variables Covered

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<td>Convensional</td>
<td>Satellite immage</td>
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SMS Gateway

Data Processing

ISP

INTERNET

Enumerato
After one enumerator finish listing with one cluster, the Team Coordinator will send the summary result to the call center using SMS (Short Message System).

The resume encompasses:
- cluster identity,
- number of male, and
- number of female
Fields problems

* Area to monitor
* Geographical – mountain, coastal,
* Climate, high rainfall
* Distances between houses in rural area
* Condominium, luxurius appartement, high rank, popular
* Urban & Rural
* Team coordination
Mobile System Architecture

- Monitoring Coordinator
- Monitoring Officers
- Executives

Components:
- DBMS/web server
- Internet
- SMS

Process:
1. Monitoring Officers send data via SMS.
2. Executives monitor via SMS.
3. Executives access the dashboard.
**MONITORING LISTING (L1) MELALUI SMS**

To access the monitoring listing, fill in your mobile phone number and PIN.

Indonesia Propinsi | %BS | %L1 | %C1
--- | --- | --- | ---
00. INDONESIA | 100.0 | 95.4 | 59.4

- 11. Nanggroe Aceh Darussalam (23)
- 12. Sumatera Utara (33)
- 13. Sumatera Barat (19)
- 14. Riau (12)
- 15. Jambi (11)
- 16. Sumatera Selatan (15)
- 17. Bengkulu (10)
- 18. Lampung (14)
- 19. Kepulauan Bangka Belitung (7)
- 21. Kepulauan Riau (7)
- 31. Dki Jakarta (6)
- 32. Jawa Barat (26)
- 33. Jawa Tengah (35)
- 34. DI Yogyakarta (5)
- 35. Jawa Timur (38)
- 36. Banten (8)
- 51. Bali (9)
- 52. Nusa Tenggara Barat (10)
- 53. Nusa Tenggara Timur (21)
- 61. Kalimantan Barat (14)
- 62. Kalimantan Tengah (14)
- 63. Kalimantan Selatan (13)
- 64. Kalimantan Timur (14)
- 71. Sulawesi Utara (15)
- 72. Sulawesi Tengah (11)
## Monitoring Listing (L1) Melalui SMS

### Masukan dari SMS
- Perbedaan SMS - RBL1
- SP1990, SP2000, SMS, RBL1

**Sdr. Hermawan Agustina**

![Excel link](xls)

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### Indonesia

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<th>Jml KK Hasil Rekap Desa</th>
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### Monitoring Listing (L1) Melalui SMS

**Mobile Call Center:** 0812 8107 0701-05

**Masukan dari SMS**

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**Indonesia**

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## Monitoring Listing (L1) Melalui SMS

### Mobile Call Center

Mobile Call Center: 0812 8107 0701-05

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### Data Table

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<td>689</td>
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<td>100.3</td>
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<td>008. Cirebon Baru</td>
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<td>100.0</td>
<td>129</td>
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<td>93.8</td>
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<td>241</td>
<td>238</td>
<td>479</td>
<td>4.0</td>
<td>101.3</td>
</tr>
</tbody>
</table>

---

Click row for detail village (003)
MONITORING LISTING (L1) MELALUI SMS

Masukan dari SMS

0852 6443 2010 0852 6465 2010 0857 6127 2010 0819 9080 2010 0838 9100 2010

Mobile Call Center ==> 0812 8107 0701-05

Perbedaan SMS - RBL1

SP1990, SP2000, SMS, RBL1

Sdr. Hermawan Agustina

RBL1 versi Jum'at 18 Juni 2010

Indonesia » 17. Bengkulu » 08. Kepehjang

Click here to other comparison
Data Processing Context

1971: OMR Technology, mainframe;
1980: data entry, mainframe
1990: data entry, mainframe;
2000: OCR technology, PC clusters
2010: ICR and mobile technology, PC clusters

Located in 33 Provincial Statistical Offices
Documents/Hardware distributed to 33 DPCs

<table>
<thead>
<tr>
<th>Items</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td># documents to be processed:</td>
<td></td>
</tr>
<tr>
<td>- households</td>
<td>66,000,000</td>
</tr>
<tr>
<td>- individual</td>
<td>261,579,368</td>
</tr>
<tr>
<td>Scanners</td>
<td>51</td>
</tr>
<tr>
<td>Servers</td>
<td>76</td>
</tr>
<tr>
<td>PCs</td>
<td>1,775</td>
</tr>
<tr>
<td>Networking:</td>
<td></td>
</tr>
<tr>
<td>- switch 48 nodes</td>
<td>39</td>
</tr>
<tr>
<td>- cables (m)</td>
<td>21,400</td>
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</tbody>
</table>
Data Processing Context

Municipality Statistics Office

Data Entry

Quality Check

Field Work

Validate, Summarize

Send SMS

Statistical Coordinator

Compiled Data

Head Quarter

RBL

Monitoring

Provincial Statistics Office

Scanning

Recognition

Correction

Validation

Release

Quality Check

Listing

RBL

KBC C1

Census

Validate, Summarize

Send SMS

Statistical Coordinator

Send SMS

KBC C1

Validate, Summarize

Send SMS

Census
Flow of Data in DPC
Monitoring and Quick Count Reporting

- Progress of enumeration can be monitored by BPS Districts, BPS Province, BPS Headquarter
- Facilitating quick reporting for preliminary results/figures
- Implementation:
  - Mobile phone of Field Coordinators, Sub-district Coordinators, and District Coordinators must be registered
  - After completing listing of CB, Field Coordinators sent messages (sms/text) to the BPS server.
  - Message: ID of CB, No. of HHs, Males, Females, Total
  - BPS disseminated all information on Website
  - Comparisons made between no. of HH in the mapping and census listing
  - District coordinators sent all completed listings through email from BPS District Offices everyday
Data Quality Monitoring

- Early warning system to locate the occurrence of possible non-sampling errors to indicate inconsistency between data collected by enumerators and monitoring officers => facilitate BPS district coordinator to take necessary measures

- Report the possible errors via SMS

- Control and monitor inconsistency
  - Household members: relationships between household members and their guardian, number of household members, sex, group of ages, education attainment, marital status, etc.
  - Housing: floor types, sources of drinking water, electricity sources, toilet facilities, dwelling ownership, etc.
  - Coverage: map quality, enumerating direction, enumerating procedures, pasting sticker, physical buildings, etc.

- Implementation
  - 382 districts, 1,146 sub districts; 7,772 census blocks
  - 1,600 monitoring officers (1,200 students of Statistical College and BPS HQ)
Dashboard

Inconsistency in Enumerating Direction

Percentage

Province

- Urgent to take action
- Warning
- Safe/Good
## Population of Indonesia

<table>
<thead>
<tr>
<th>Sources</th>
<th>Male (000)</th>
<th>Female (000)</th>
<th>Total (000)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preliminary figures</td>
<td>119,508</td>
<td>118,048</td>
<td>237,556</td>
</tr>
<tr>
<td>[Quick Count Reporting]</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Final figures</td>
<td>119,631</td>
<td>118,010</td>
<td>237,641</td>
</tr>
</tbody>
</table>

- **Preliminary figures**
  - Male: 119,508
  - Female: 118,048
  - Total: 237,556

- **Final figures**
  - Male: 119,631
  - Female: 118,010
  - Total: 237,641
Reliability: Indonesia's Population

Census Data Based on Age 1-2

- Myer Index: digit preference observation (0 to 90)

<table>
<thead>
<tr>
<th>last digit</th>
<th>blended population 2000 percent</th>
<th>blended population 2000 cum.</th>
<th>blended population 2010 percent</th>
<th>blended population 2010 cum.</th>
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</thead>
<tbody>
<tr>
<td>0</td>
<td>14.5</td>
<td>14.5</td>
<td>11.7</td>
<td>11.7</td>
</tr>
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<td>1</td>
<td>8.7</td>
<td>23.2</td>
<td>9.4</td>
<td>21.1</td>
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<tr>
<td>2</td>
<td>9.2</td>
<td>32.3</td>
<td>9.5</td>
<td>30.5</td>
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<tr>
<td>3</td>
<td>8.5</td>
<td>40.9</td>
<td>9.2</td>
<td>39.8</td>
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<tr>
<td>4</td>
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<td>10.2</td>
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<td>9.6</td>
<td>90.6</td>
<td>9.5</td>
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<tr>
<td>9</td>
<td>9.4</td>
<td>100.0</td>
<td>10.4</td>
<td>100.0</td>
</tr>
</tbody>
</table>

Myer index 2000 = 7.3
Myer index 2010 = 3.0

Note: calculated (2011) based on Indonesian Population Census 2000 & 2010
Reliability: Indonesia’s Population Census Data Based on Age

- It shows the better data quality of the latest Indonesia’s population census.

## Reliability and Comparability: Indonesia’s Population Census Data Based on Age and Sex Ratio

<table>
<thead>
<tr>
<th>Age Group</th>
<th>1990</th>
<th>2000</th>
<th>2010</th>
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</thead>
<tbody>
<tr>
<td>0-4</td>
<td>101</td>
<td>103</td>
<td>106</td>
</tr>
<tr>
<td>5-9</td>
<td>103</td>
<td>104</td>
<td>106</td>
</tr>
<tr>
<td>10-14</td>
<td>108</td>
<td>105</td>
<td>106</td>
</tr>
<tr>
<td>15-19</td>
<td>97</td>
<td>101</td>
<td>103</td>
</tr>
<tr>
<td>20-24</td>
<td>81</td>
<td>92</td>
<td>98</td>
</tr>
<tr>
<td>25-29</td>
<td>80</td>
<td>96</td>
<td>99</td>
</tr>
<tr>
<td>30-34</td>
<td>88</td>
<td>100</td>
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</tr>
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<td>40-44</td>
<td>101</td>
<td>107</td>
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</tr>
<tr>
<td>45-49</td>
<td>109</td>
<td>111</td>
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<td>75+</td>
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</table>

- Normal
- Sex ratio shows the tendency of ascending smooth among censuses

*Note: calculated (2011) based on Indonesian Population Census 1990, 2000 & 2010*
Relevant Important Events to 2010 Census

- Presidential Speech to launch the 2010 Census: 30 April 2010 at 8 PM
- Census enumeration: 1-31 May 2010
  - At President’s resident: 1 May 2010 at 10 AM
  - At Vice President’s resident: 1 May 2010 at 2 PM
- Census date: 15 May 2010
- Post Enumeration Survey (PES): June 2010
- Dissemination of Preliminary results: 17 August 2010 in front of the MPR (People’s Consultative Assembly)
- Data Processing: May-December 2010
Internet processing