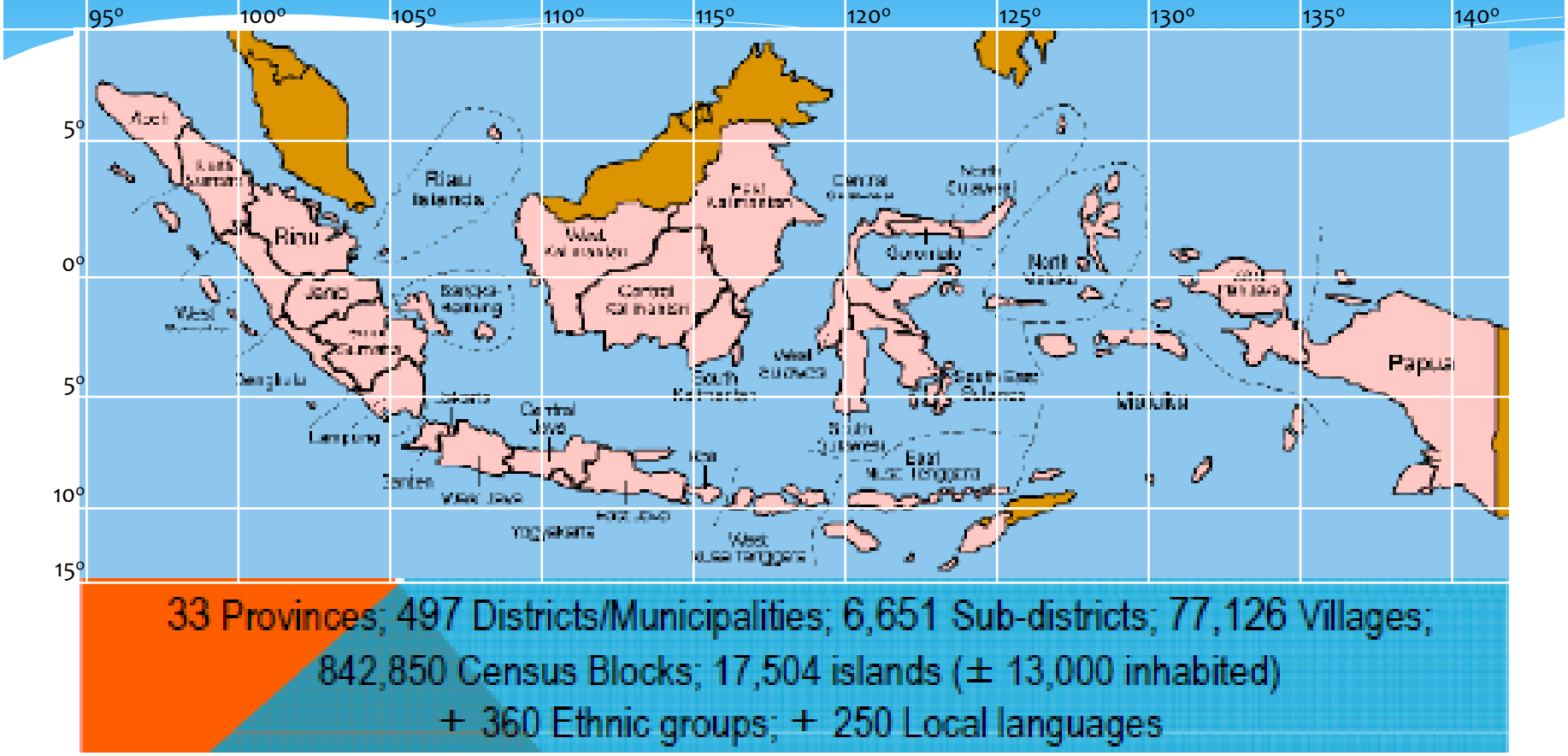
The Indonesian Population Census 2010 : Challenges and innovations

Teguh Pramono, MA

BPS – STATISTICS - INDONESIA

Indonesian regional diversity



The diversity is also happening in regional demographic indicators

ADMINISTRATIVE AREA

NO	ISLAND	PROVINCE	REGENCY/ MUNICIPALITY	KECAMATAN	VILLAGES
1	SUMATRA	10	151	1.794	23.979
2	JAWA	6	118	2.136	25.202
3	NUSA TENGGARA	3	40	460	4.517
4	KALIMANTAN	4	55	587	6.821
5	SULAWESI	6	73	950	9.710
6	MALUKU & PAPUA	4	60	724	6.897
	TOTAL	33	497	6.651	77.126

Facts and Geography challages

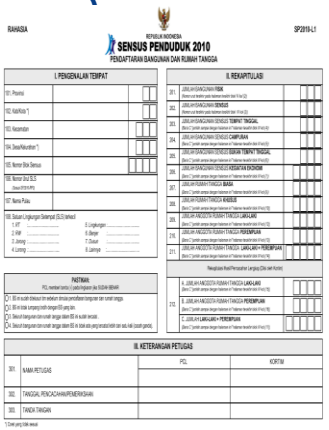
- From the skycrapper to the shelter.
- From the top of the mountain to the surface of the sea.

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

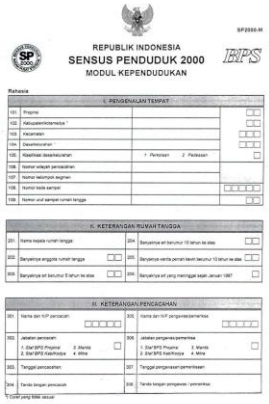
Censuses in Indonesia

- Two censuses during Dutch Administration: in 1920 & 1930.
- Five censuses after the independence (1945): in 1961, 1971, 1980, 1990 and 2000.
- The 2010 census is the eight census.

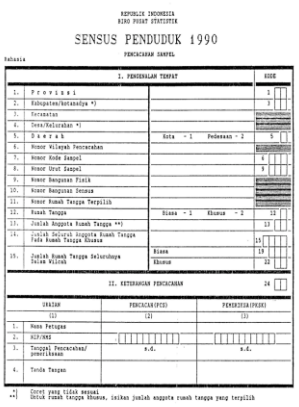
- Quest 2010



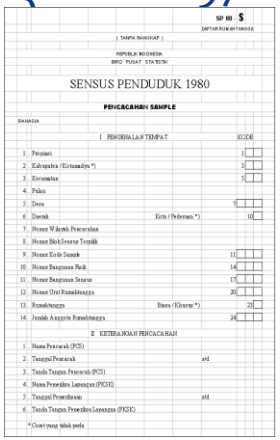
Quest 2000



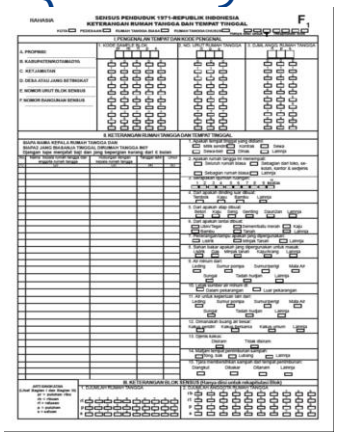
Quest 1990



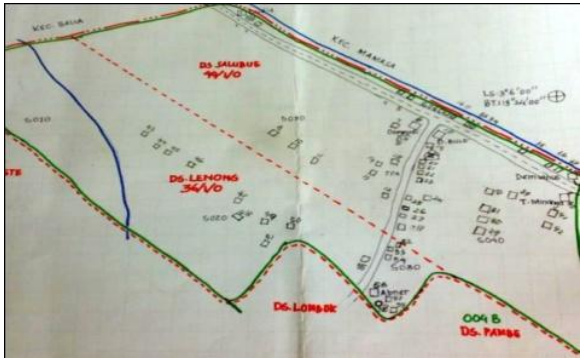
Quest 1971



Quest 1961



Mappings



- Mapping region is to ensure all households are covered and the borders between two areas do not cross over.

Mappings

- **Citra Maps**
  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

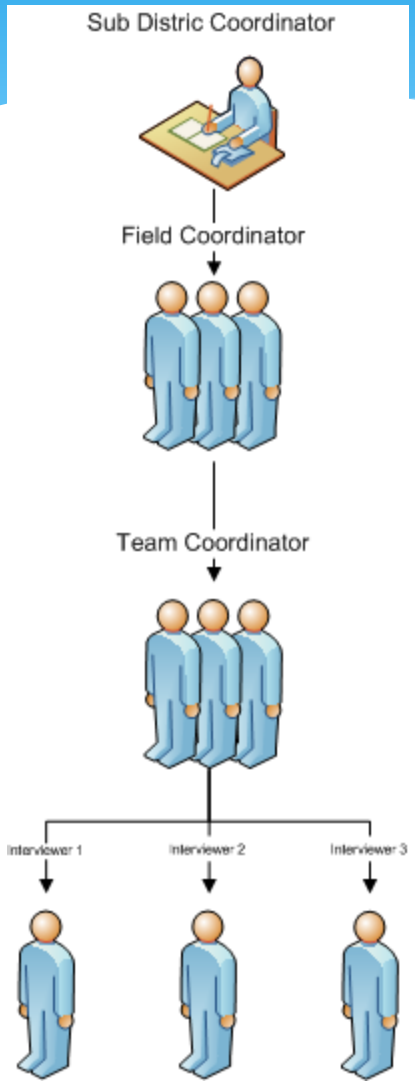
Preparation

- 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 (caledar, mug, t-shirt ect.)
- Public Service Ads
- Tea Walk (employee mobilization)
- 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, twiiter)

CAMPAIGN EFFECTS

* 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 distric 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 instructurs (700.000 people)

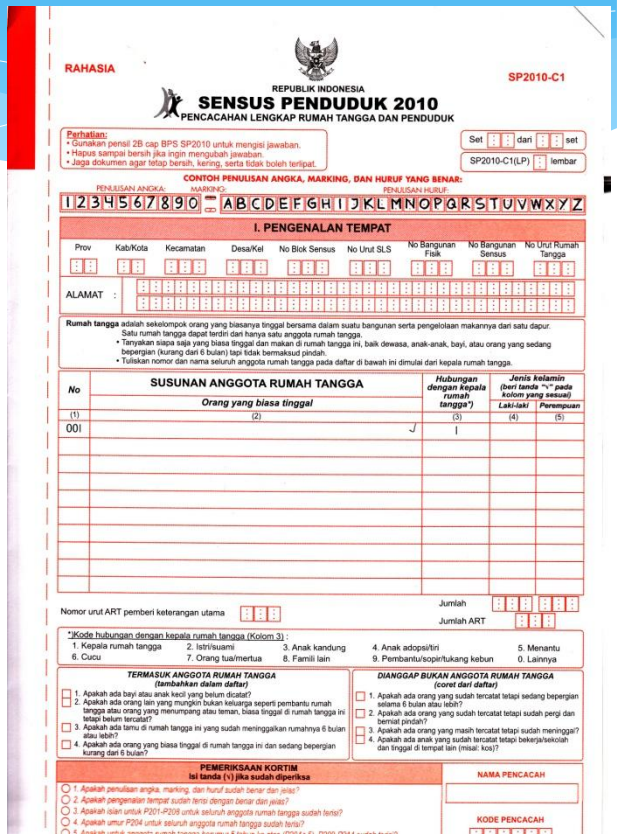
* The processes of data collection were monitored and supervised by 1.600 independent quality assurance team.

Data collection method

* Enumeration period: May 2010; census date 15 May
* 2-stage enumeration was employed:
  * 1st stage: listing procedure: name of HH heads, number of HH members by sex was listed by enumerator to every HHs in all CBs
  * 2nd 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

2010 Census Questionnaires

- 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.


RAHASIA

SP2010-C1

REPUBLIK INDONESIA

SENSUS PENDUDUK 2010

PENCACAHAN LENGKAP RUMAH TANGGA DAN PENDUDUK

I. PENGENALAN TEMPAT

SUSUNAN ANGGOTA RUMAH TANGGA

Orang yang biasa tinggal

Hubungan dengan kepala rumah tangga*)

Jenis kelamin (beri tanda "√" pada kolom yang sesuai)

Laki-laki

Perempuan

TERMASUK ANGGOTA RUMAH TANGGA (tambahkan dalam daftar)

DIANGGAP BUKAN ANGGOTA RUMAH TANGGA (coret dari daftar)

PEMERIKSAAN KORTIM

Isi tanda (√) jika sudah diperiksa

NAMA PENCACAH

KODE PENCACAH

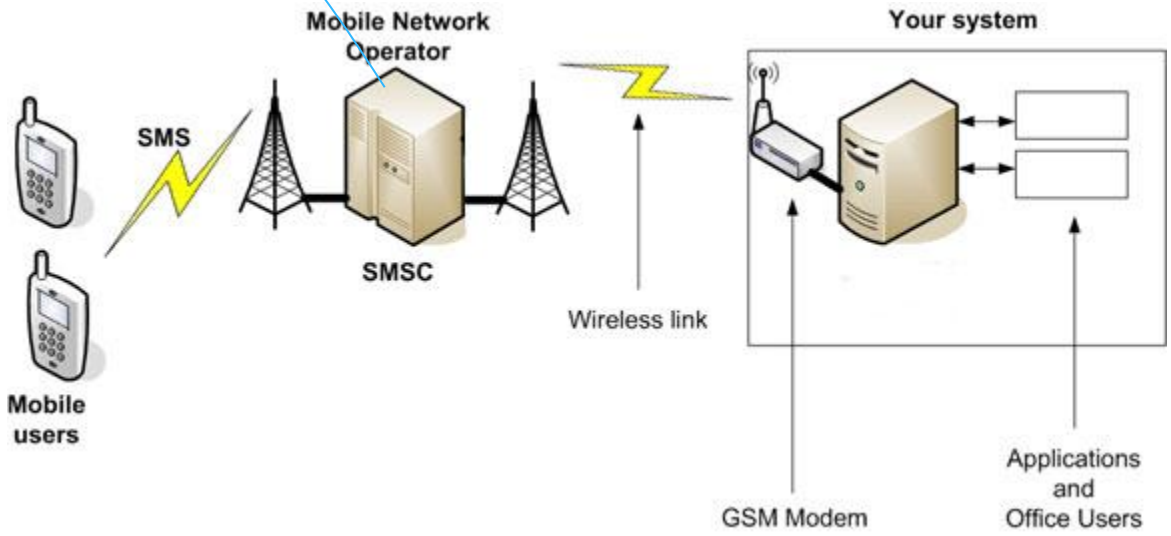
Variables Covered

Items	2000 Census	2010 Census
Major Questionnaire:		
1 No. of variables	15 variables	42 variables
2 No. of pages	2 pages	8 pages
Supporting data processing facilities		
1 No. of Scanner	79	54
2 No. of Guillotine	-	38
Map-base	Convensional	Satellite immage

SMS Gateway

INTERNET

ISP



Enumerator

SMS Gateway

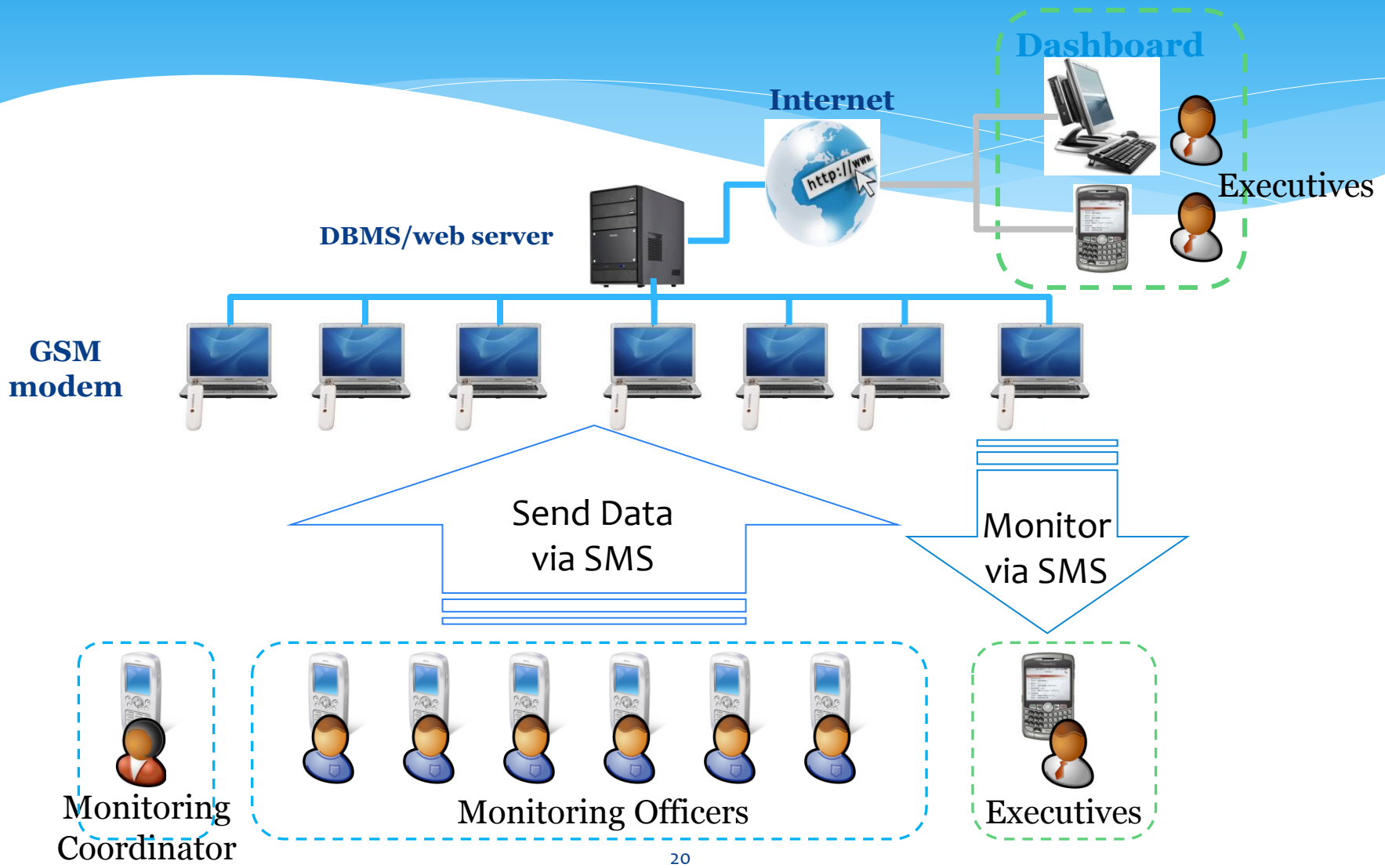
Sending data using SMS

* 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



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MONITORING LISTING (L1) MELALUI SMS

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

No. HP [ ] PIN [ ] Masuk

[Tutup Grafik]

Indonesia

Indonesia - Propinsi	%BS	%L1	%C1
00. INDONESIA	100.0	95.4	59.4
11. Nanggroe Aceh Darussalam (23)	100.0	91.9	97.4
12. Sumatera Utara (33)	100.2	97.4	88.0
13. Sumatera Barat (19)	100.0	98.4	11.0
14. Riau (12)	100.0	99.1	20.0
15. Jambi (11)	100.0	95.7	89.6
16. Sumatera Selatan (15)	100.0	95.4	23.2
17. Bengkulu (10)	100.0	98.1	97.4
18. Lampung (14)	100.0	98.0	76.0
19. Kepulauan Bangka Belitung (7)	100.0	103.3	100.6
21. Kepulauan Riau (7)	100.0	100.6	45.4
31. Dki Jakarta (6)	100.0	101.0	9.7
32. Jawa Barat (26)	100.0	96.2	43.9
33. Jawa Tengah (35)	100.0	92.2	95.5
34. D I Yogyakarta (5)	100.0	104.5	101.8
35. Jawa Timur (38)	100.0	93.5	45.2
36. Banten (8)	100.0	99.3	97.6
51. Bali (9)	100.0	101.7	101.3
52. Nusa Tenggara Barat (10)	100.0	92.5	45.6
53. Nusa Tenggara Timur (21)	100.0	93.0	30.2
61. Kalimantan Barat (14)	100.0	93.0	18.2
62. Kalimantan Tengah (14)	100.0	88.8	18.8
63. Kalimantan Selatan (13)	100.0	98.6	100.1
64. Kalimantan Timur (14)	100.0	96.4	61.2
71. Sulawesi Utara (15)	100.0	88.4	59.6
72. Sulawesi Tengah (11)	100.0	96.9	100.4

Fill in mobile phone number and PIN

MONITORING LISTING (L1) MELALUI SMS

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

Mobile Call Center==>0812 8107 0701-05

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

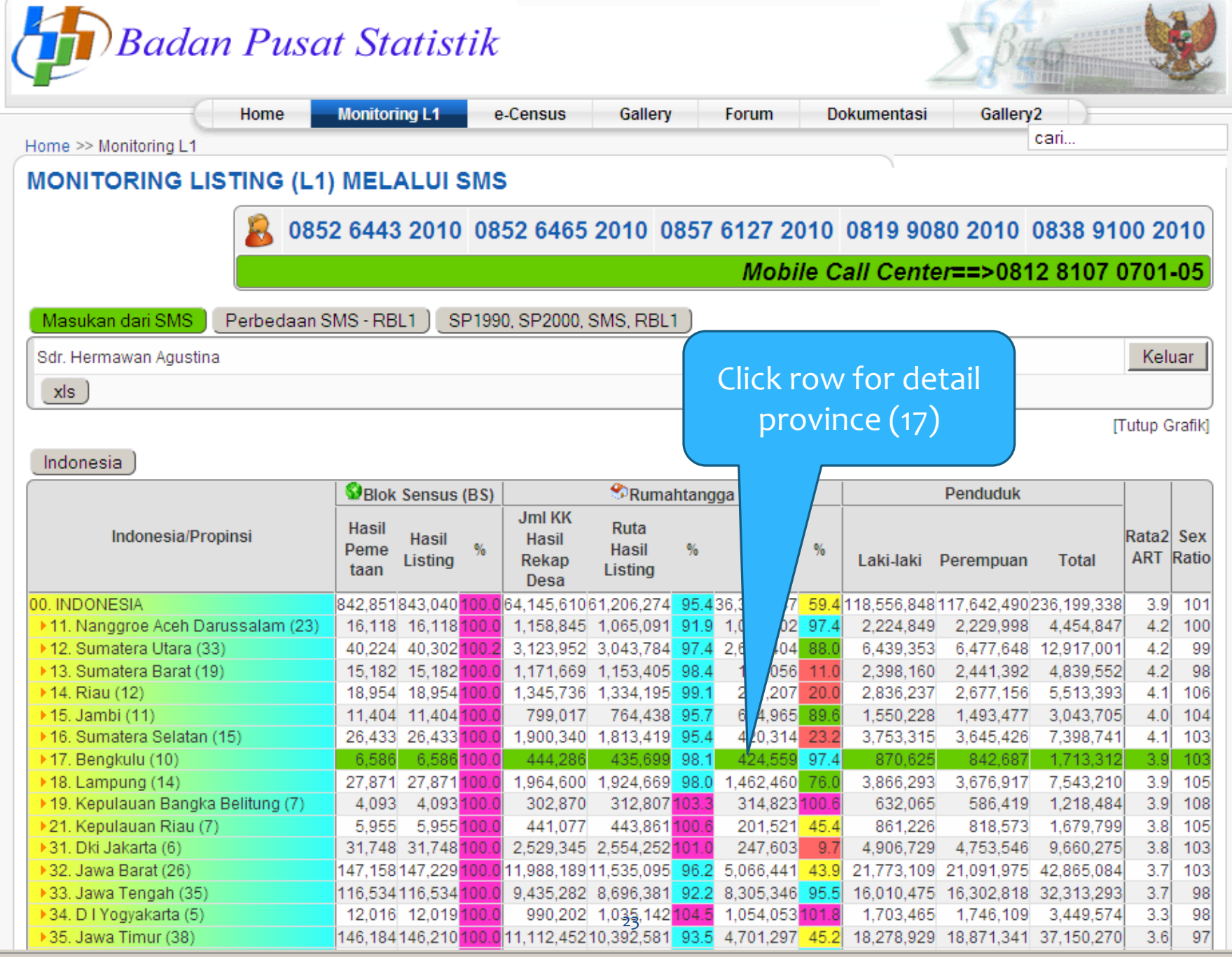
Sdr. Hermawan Agustina — Keluar

xls

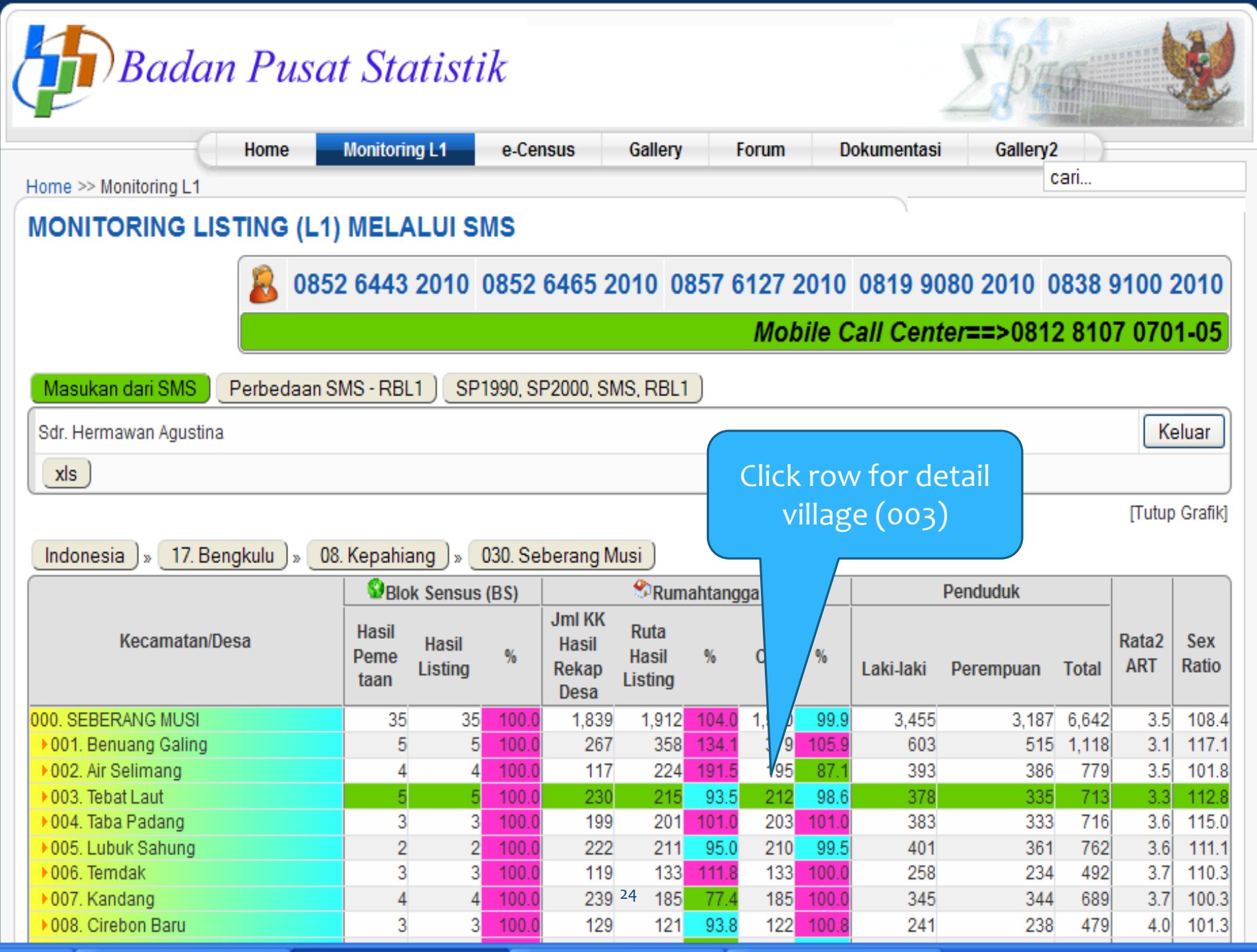
[Tutup Grafik]

Indonesia

Indonesia/Propinsi	Blok Sensus (BS)			Rumahtangga						Penduduk			Rata2 ART	Sex Ratio
	Hasil Pemetaan	Hasil Listing	%	Jml KK Hasil Rekap Desa	Ruta Hasil Listing	%	C1	%		Laki-laki	Perempuan	Total		
00. INDONESIA	842,851	843,040	100.0	64,145,610	61,206,274	95.4	36,386,147	59.4		118,556,848	117,642,490	236,199,338	3.9	101
11. Nanggroe Aceh Darussalam (23)	16,118	16,118	100.0	1,158,845	1,065,091	91.9	1,037,502	97.4		2,224,849	2,229,998	4,454,847	4.2	100
12. Sumatera Utara (33)	40,224	40,302	100.2	3,123,952	3,043,784	97.4	2,679,404	88.0		6,439,353	6,477,648	12,917,001	4.2	99
13. Sumatera Barat (19)	15,182	15,182	100.0	1,171,669	1,153,405	98.4	127,056	11.0		2,398,160	2,441,392	4,839,552	4.2	98
14. Riau (12)	18,954	18,954	100.0	1,345,736	1,334,195	99.1	267,207	20.0		2,836,237	2,677,156	5,513,393	4.1	106
15. Jambi (11)	11,404	11,404	100.0	799,017	764,438	95.7	684,965	89.6		1,550,228	1,493,477	3,043,705	4.0	104
16. Sumatera Selatan (15)	26,433	26,433	100.0	1,900,340	1,813,419	95.4	420,314	23.2		3,753,315	3,645,426	7,398,741	4.1	103
17. Bengkulu (10)	6,586	6,586	100.0	444,286	435,699	98.1	424,559	97.4		870,625	842,687	1,713,312	3.9	103
18. Lampung (14)	27,871	27,871	100.0	1,964,600	1,924,669	98.0	1,462,460	76.0		3,866,293	3,676,917	7,543,210	3.9	105
19. Kepulauan Bangka Belitung (7)	4,093	4,093	100.0	302,870	312,807	103.3	314,823	100.6		632,065	586,419	1,218,484	3.9	108
21. Kepulauan Riau (7)	5,955	5,955	100.0	441,077	443,861	100.6	201,521	45.4		861,226	818,573	1,679,799	3.8	105
31. Dki Jakarta (6)	31,748	31,748	100.0	2,529,345	2,554,252	101.0	247,603	9.7		4,906,729	4,753,546	9,660,275	3.8	103
32. Jawa Barat (26)	147,158	147,229	100.0	11,988,189	11,535,095	96.2	5,066,441	43.9		21,773,109	21,091,975	42,865,084	3.7	103
33. Jawa Tengah (35)	116,534	116,534	100.0	9,435,282	8,696,381	92.2	8,305,346	95.5		16,010,475	16,302,818	32,313,293	3.7	98
34. D I Yogyakarta (5)	12,016	12,019	100.0	990,202	1,035,142	104.5	1,054,053	101.8		1,703,465	1,746,109	3,449,574	3.3	98
35. Jawa Timur (38)	146,184	146,210	100.0	11,112,452	10,392,581	93.5	4,701,297	45.2		18,278,929	18,871,341	37,150,270	3.6	97



Indonesia/Propinsi	Blok Sensus (BS)			Rumahtangga					Penduduk			Rata2 ART	Sex Ratio
	Hasil Pemetaan	Hasil Listing	%	Jml KK Hasil Rekap Desa	Ruta Hasil Listing	%		%	Laki-laki	Perempuan	Total		
00. INDONESIA	842,851	843,040	100.0	64,145,610	61,206,274	95.4	36,3	59.4	118,556,848	117,642,490	236,199,338	3.9	101
11. Nanggroe Aceh Darussalam (23)	16,118	16,118	100.0	1,158,845	1,065,091	91.9	1,0	97.4	2,224,849	2,229,998	4,454,847	4.2	100
12. Sumatera Utara (33)	40,224	40,302	100.2	3,123,952	3,043,784	97.4	2,6	88.0	6,439,353	6,477,648	12,917,001	4.2	99
13. Sumatera Barat (19)	15,182	15,182	100.0	1,171,669	1,153,405	98.4	1	11.0	2,398,160	2,441,392	4,839,552	4.2	98
14. Riau (12)	18,954	18,954	100.0	1,345,736	1,334,195	99.1	2	20.0	2,836,237	2,677,156	5,513,393	4.1	106
15. Jambi (11)	11,404	11,404	100.0	799,017	764,438	95.7	6	89.6	1,550,228	1,493,477	3,043,705	4.0	104
16. Sumatera Selatan (15)	26,433	26,433	100.0	1,900,340	1,813,419	95.4	4	23.2	3,753,315	3,645,426	7,398,741	4.1	103
17. Bengkulu (10)	6,586	6,586	100.0	444,286	435,699	98.1	424,559	97.4	870,625	842,687	1,713,312	3.9	103
18. Lampung (14)	27,871	27,871	100.0	1,964,600	1,924,669	98.0	1,462,460	76.0	3,866,293	3,676,917	7,543,210	3.9	105
19. Kepulauan Bangka Belitung (7)	4,093	4,093	100.0	302,870	312,807	103.3	314,823	100.6	632,065	586,419	1,218,484	3.9	108
21. Kepulauan Riau (7)	5,955	5,955	100.0	441,077	443,861	100.6	201,521	45.4	861,226	818,573	1,679,799	3.8	105
31. Dki Jakarta (6)	31,748	31,748	100.0	2,529,345	2,554,252	101.0	247,603	9.7	4,906,729	4,753,546	9,660,275	3.8	103
32. Jawa Barat (26)	147,158	147,229	100.0	11,988,189	11,535,095	96.2	5,066,441	43.9	21,773,109	21,091,975	42,865,084	3.7	103
33. Jawa Tengah (35)	116,534	116,534	100.0	9,435,282	8,696,381	92.2	8,305,346	95.5	16,010,475	16,302,818	32,313,293	3.7	98
34. D I Yogyakarta (5)	12,016	12,019	100.0	990,202	1,035,142	104.5	1,054,053	101.8	1,703,465	1,746,109	3,449,574	3.3	98
35. Jawa Timur (38)	146,184	146,210	100.0	11,112,452	10,392,581	93.5	4,701,297	45.2	18,278,929	18,871,341	37,150,270	3.6	97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0852 6443 2010
0852 6465 2010
0857 6127 2010
0819 9080 2010
0838 9100 2010
Mobile Call Center==>0812 8107 0701-05
Masukan dari SMS
Perbedaan SMS - RBL1
SP1990, SP2000, SMS, RBL1
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[Tutup Grafik]
Indonesia » 17. Bengkulu » 08. Kepahiang » 030. Seberang Musi
Click row for detail village (003)
Kecamatan/Desa
Blok Sensus (BS)
Hasil Pemetaan
Hasil Listing
%
Rumahtangga
Jml KK Hasil Rekap Desa
Ruta Hasil Listing
%
%
Penduduk
Laki-laki
Perempuan
Total
Rata2 ART
Sex Ratio
000. SEBERANG MUSI 35 35 100.0 1,839 1,912 104.0 99.9 3,455 3,187 6,642 3.5 108.4
001. Benuang Galing 5 5 100.0 267 358 134.1 105.9 603 515 1,118 3.1 117.1
002. Air Selimang 4 4 100.0 117 224 191.5 87.1 393 386 779 3.5 101.8
003. Tebat Laut 5 5 100.0 230 215 93.5 212 98.6 378 335 713 3.3 112.8
004. Taba Padang 3 3 100.0 199 201 101.0 203 101.0 383 333 716 3.6 115.0
005. Lubuk Sahung 2 2 100.0 222 211 95.0 210 99.5 401 361 762 3.6 111.1
006. Temdak 3 3 100.0 119 133 111.8 133 100.0 258 234 492 3.7 110.3
007. Kandang 4 4 100.0 239 185 77.4 185 100.0 345 344 689 3.7 100.3
008. Cirebon Baru 3 3 100.0 129 121 93.8 122 100.8 241 238 479 4.0 101.3

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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

Click here to other comparison

Sdr. Hermawan Agustina

Keluar

RBL1 versi Jum'at 18 Juni 2010

Indonesia » 17. Bengkulu » 08. Kepahiang

Kab/Kec	Rumahtangga			Laki-laki			Perempuan			Penduduk		
	SMS	RBL1	Beda	SMS	RBL1	Beda	SMS	RBL1	Beda	SMS	RBL1	Beda
000. KEPAHIANG	31,665	31,660	5	63,986	63,492	494	60,674	60,539	135	124,660	124,031	629
010. Muara Kemumu	3,719	3,749	-30	6,972	6,605	367	6,094	5,942	152	13,066	12,547	519
020. Bermani Ilir	3,373	3,501	-128	6,870	7,056	-186	6,214	6,589	-375	13,084	13,645	-561
030. Seberang Musi	1,912	1,910	2	3,455	3,455	0	3,187	3,187	0	6,642	6,642	0
040. Tebat Karai	2,913	2,949	-36	6,124	6,261	-137	5,891	5,998	-107	12,015	12,259	-244
050. Kepahiang	9,812	9,815	-3	20,373	20,007	366	19,973	19,579	394	40,346	39,586	760
060. Kaba Wetan	2,777	2,794	-17	5,360	5,402	-42	4,917	4,949	-32	10,277	10,351	-74
070. Ujan Mas	4,802	4,548	254	9,868	9,716	152	9,569	9,438	131	19,437	19,154	283
080. Merigi	2,357	2,394	-37	4,964	4,990	-26	4,829	4,857	-28	9,793	9,847	-54

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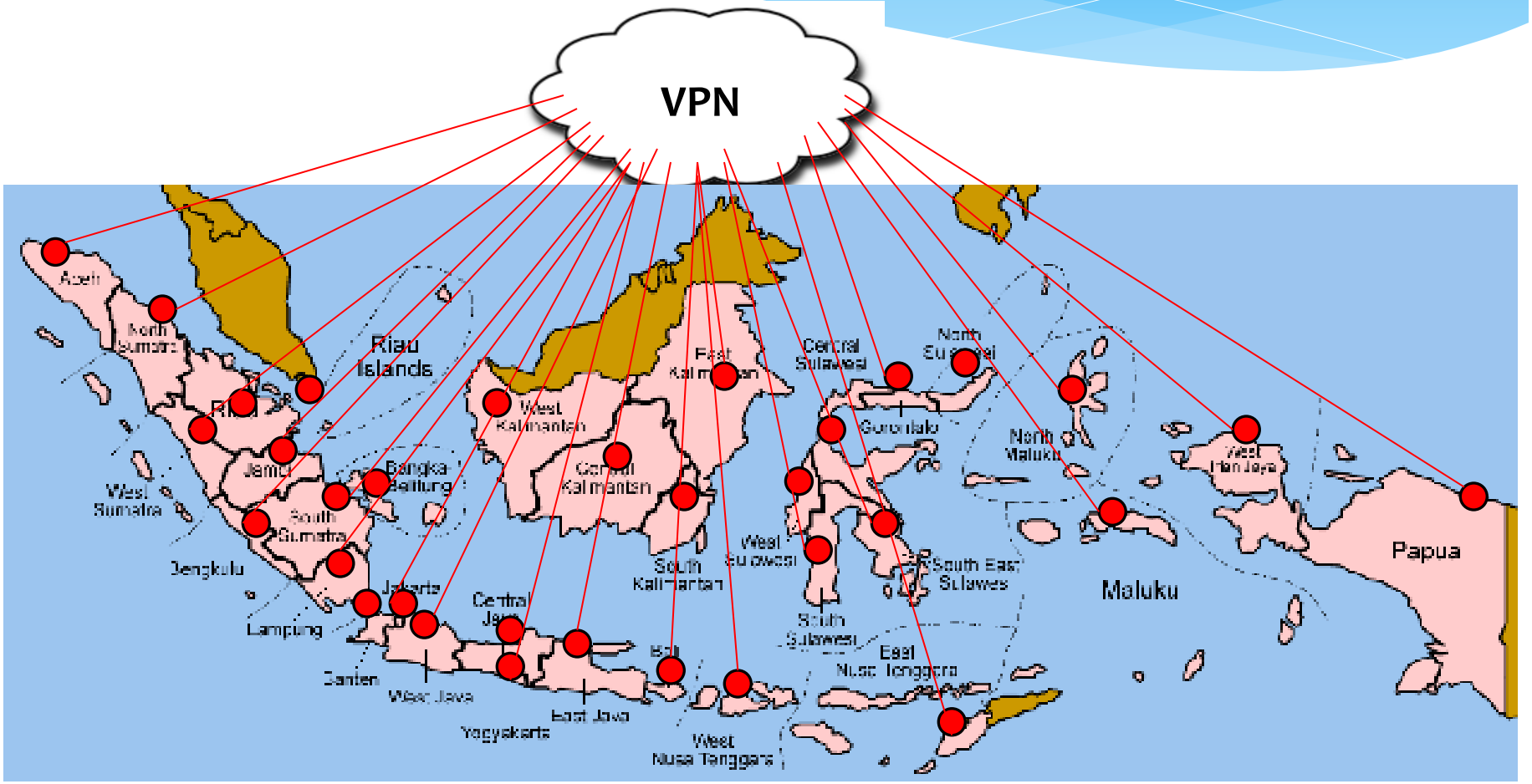
Data Processing Context

1971 : OMR Technology, mainframe;
1980 : data entry, mainframe
1990 : data entry, mainframe;

2000 : OCR technology, PC clusters
2010 : ICR and mobile technology, PC clusters

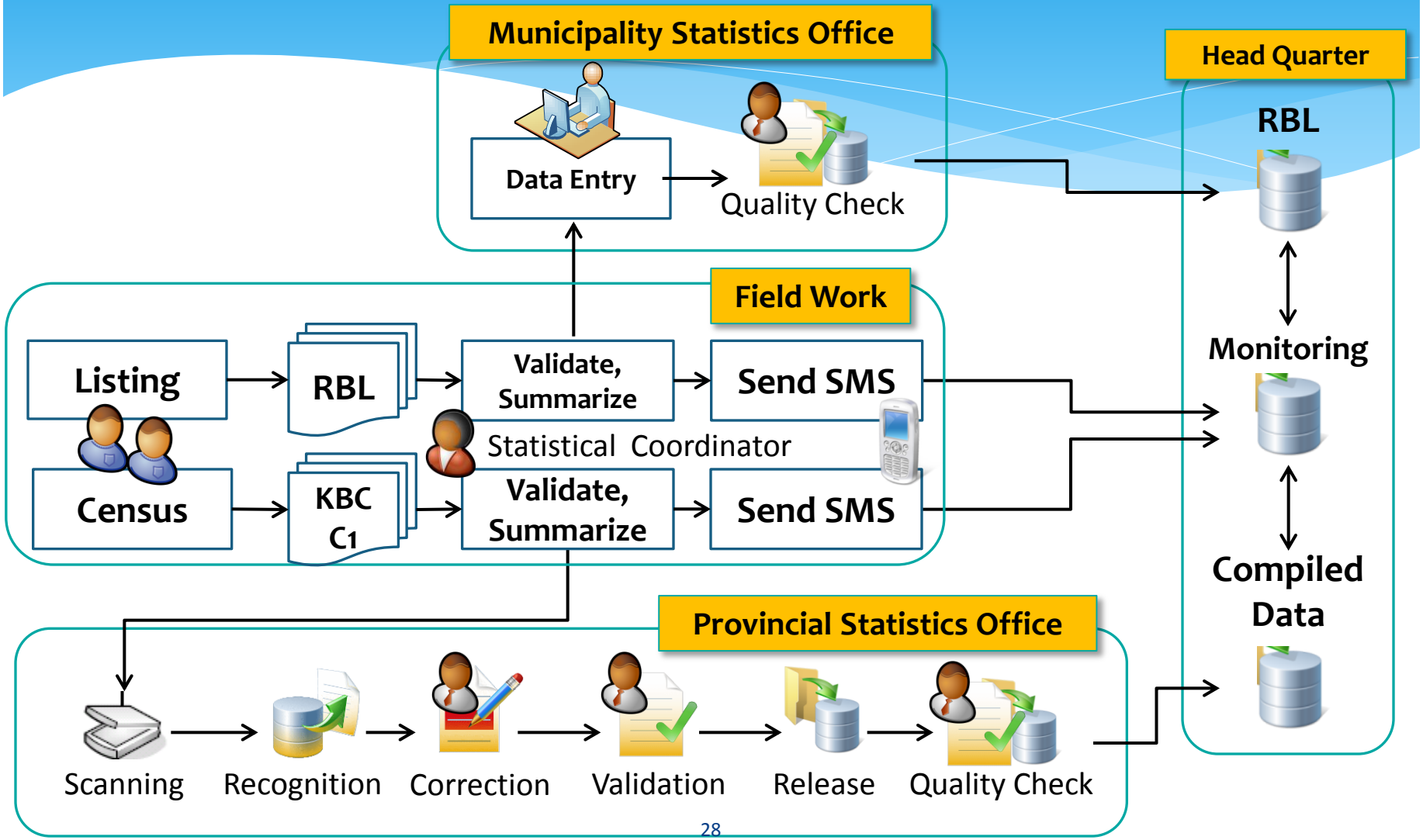
Located in 33 Provincial Statistical Offices



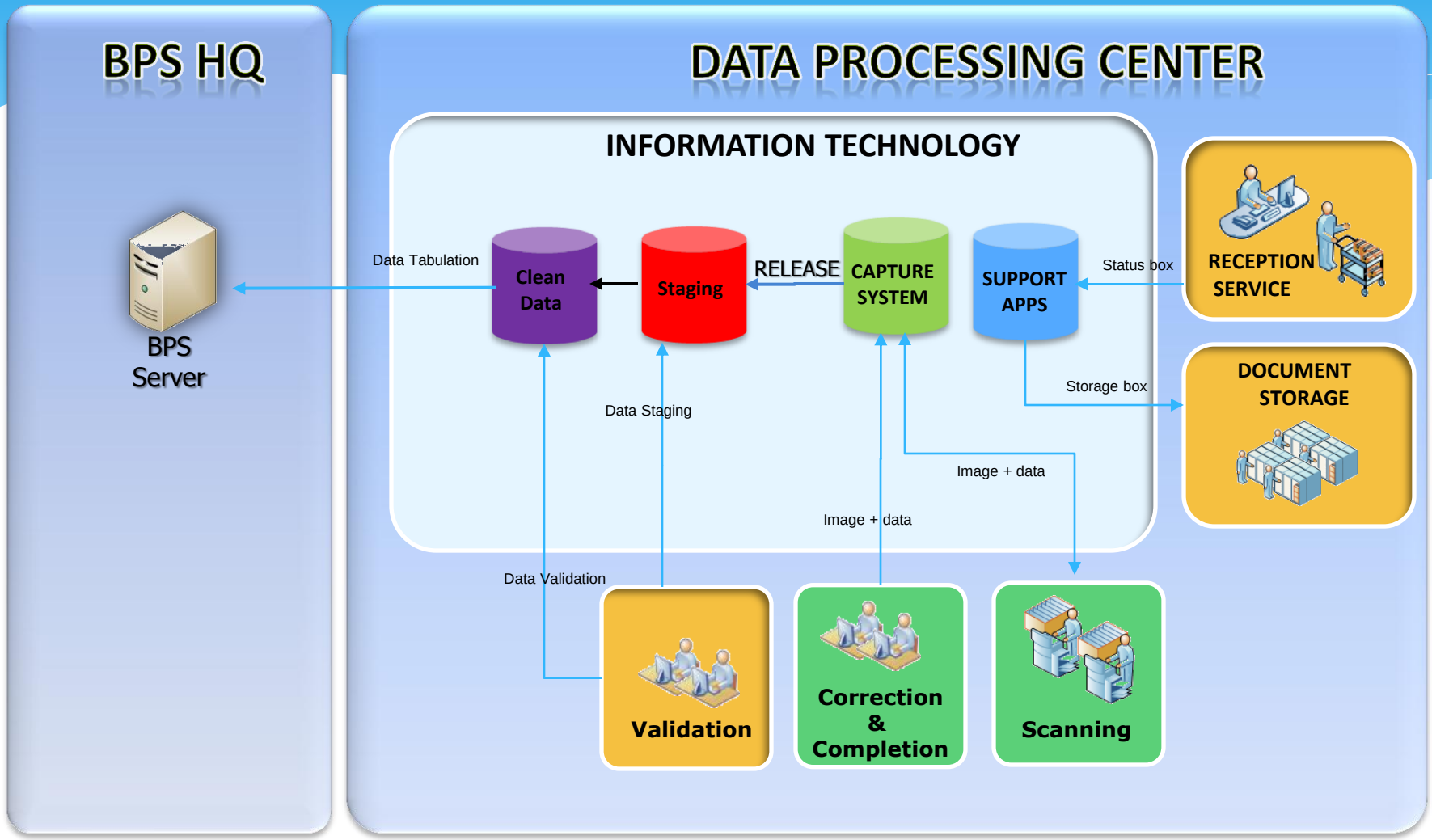
Documents/Hardware distributed to 33 DPCs

Items	Quantity
# documents to be processed:	
- households	66,000,000
- individual	261,579,368
Scanners	51
Servers	76
PCs	1,775
Networking:	
- switch 48 nodes	39
- cables (m)	21,400

Data Processing Context



Flow of Data in DPC



Monitoring and Quick Count Reporting

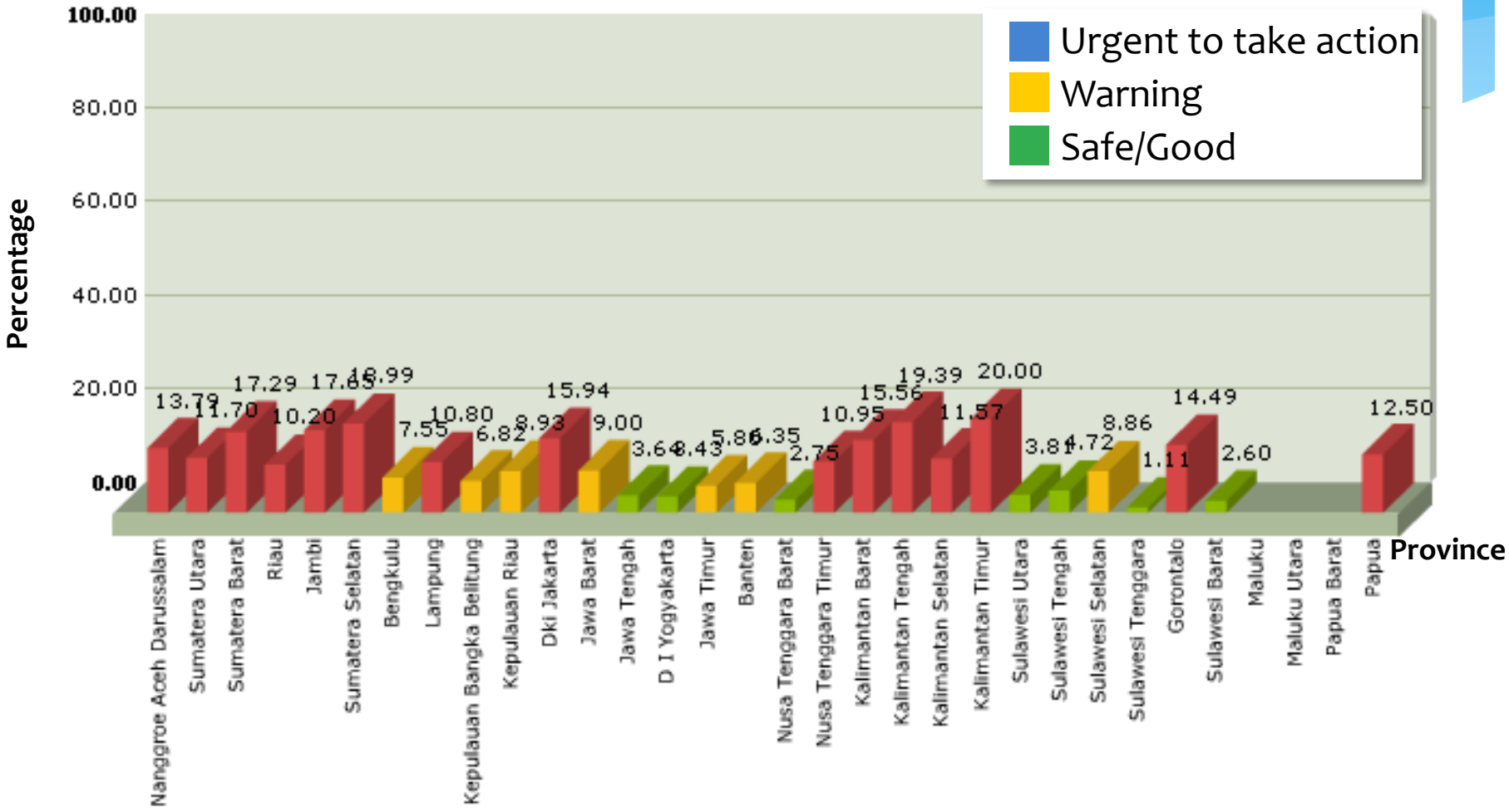
- Progress of enumeration can be monitores by BPS Districts, BPS Province, BPS Headquarter
- Facilitating quick reporting for preliminary results/figures
- Implementation:
  - Mobile phone of Field Coordinators, Sub-district Coordinators, and District Coordinators must be registered
  - After completing 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)

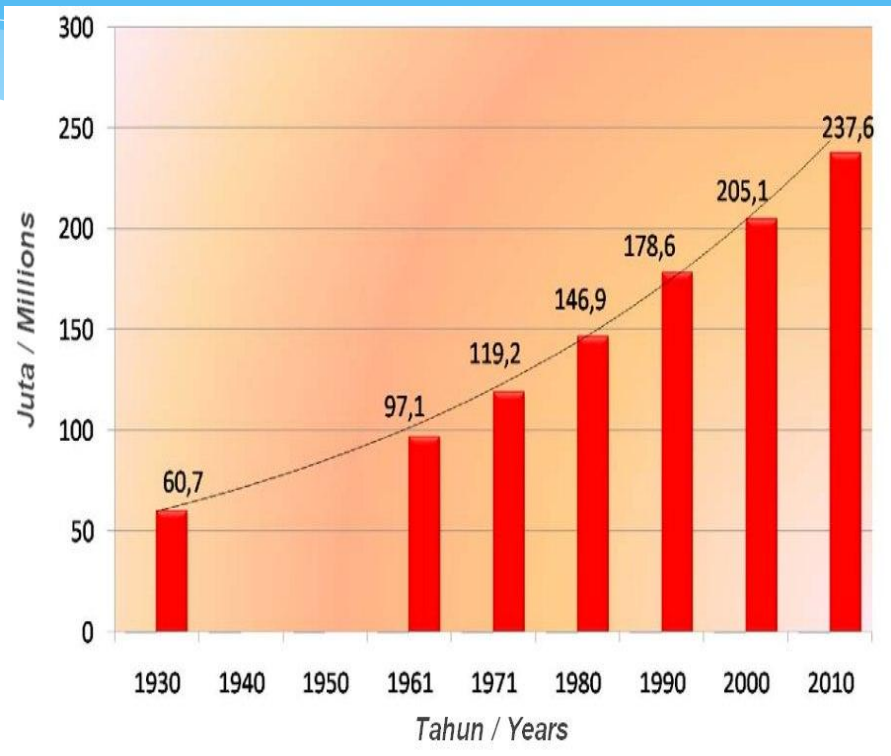
Dashboard

Inconsistency in Enumerating Direction



Population of Indonesia

Sources	Male (000)	Female (000)	Total (000)
Preliminary figures [Quick Count Reporting]	119,508	118,048	237,556
Final figures	**119,631**	**118,010**	**237,641**



Reability (Myer index)

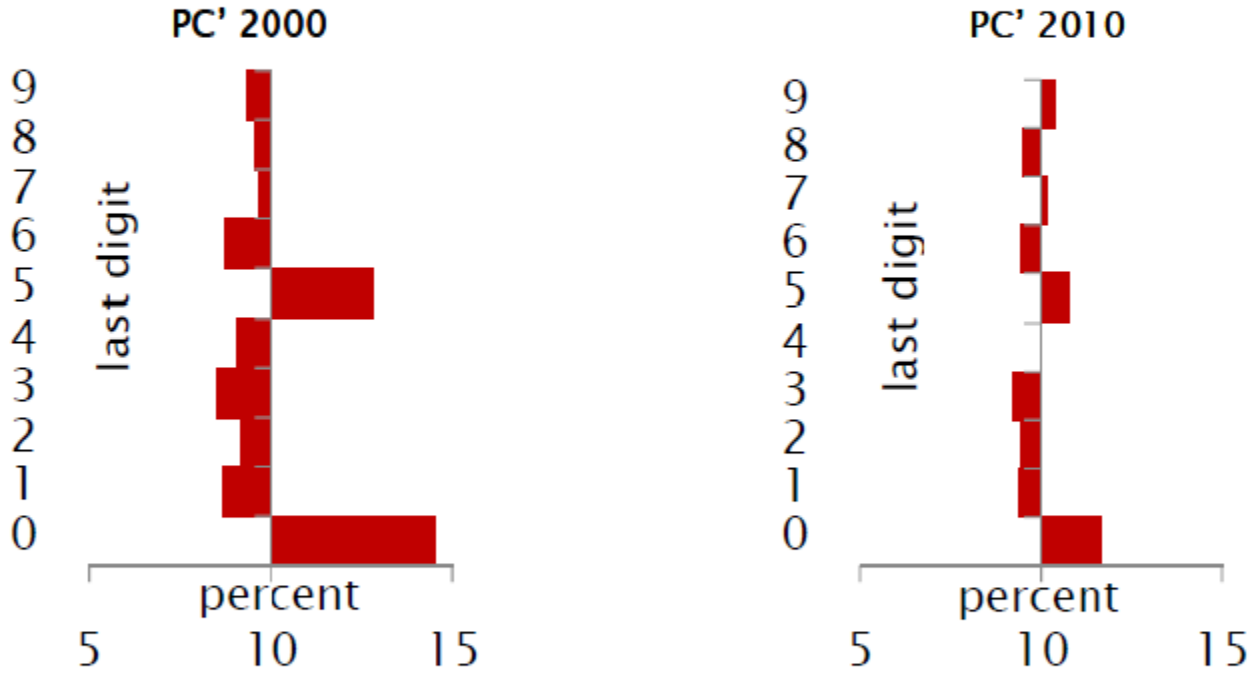
Reliability : Indonesia's Population Census Data Based on Age 1-2

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

last digit	blended population 2000		blended population 2010	
	percent	cum.	percent	cum.
0	14.5	14.5	11.7	11.7
1	8.7	23.2	9.4	21.1
2	9.2	32.3	9.5	30.5
3	8.5	40.9	9.2	39.8
4	9.1	49.9	10.0	49.8
5	12.8	62.7	10.7	60.5
6	8.7	71.4	9.5	70.0
7	9.6	81.1	10.2	80.1
8	9.6	90.6	9.5	89.6
9	9.4	100.0	10.4	100.0
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

Note : calculated (2011) based on Indonesian Population Census 2000 & 2010

Reliability and Comparability : Indonesia's Population Census Data Based on Age and Sex Ratio 3- 3

- Normal
- Sex ratio shows the tendency of asending smoth among censuses

Age Group	sex ratio		
	1990	2000	2010
0-4	101	103	106
5-9	103	104	106
10-14	108	105	106
15-19	97	101	103
20-24	81	92	98
25-29	80	96	99
30-34	88	100	100
35-39	98	99	101
40-44	101	107	101
45-49	109	111	100
50-54	97	105	103
55-59	102	103	109
60-64	86	95	94
65-69	93	88	92
70-74	97	93	81
75+	94	86	72

- *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 10AM
  - At Vice President's resident :1 May 2010 at 2PM
- 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