

## INTRODUCTION

### 1.1 General

Data required in the development planning among others is data of education, health, housing, consumption/expenditure of household. Such data is very useful for the Government in the planning of either sector or cross-sector development. In order to provide such data, Central Statistical Agency (BPS) conducts National Socioeconomic Survey (Susenas) almost every year since 1963. Susenas data currently is also the data that is highly required to fulfill the Millennium Development Goals (MDG's) data.

In year 2009, according to its rotation Susenas module is the module on socio-cultural and education. Module of Susenas samples as many as of 291,888 households are the same as Core Susenas so that the estimated numbers are expected to be obtained up to the level of district/city. Field implementation like last year shall be conducted by a team of one (1) Team Coordinator (Teamcoord) and two (2) Enumerators (PCS). By this system, it is expected that the field implementation can be accelerated and the quality result of field census can be improved.

Lately BPS is demanded to be able to present data up to the smallest level namely sub-district (*kecamatan*) level and even to village level. This requirement of data is inseparable from the quality data results. For 2009 Susenas, presentation up to the level of district/city might cause problems if the samples are not met (high RSE) or rare cases that cannot represent, so that the data do not correspond to the actual condition. To anticipate this, there is an activity that have to be conducted by District/City BPS or Provincial BPS namely verification of data quality prior to sending / presenting data to BPS. This activity is critical as BPS data quality depends on data quality generated by District/City BPS as well as Provincial BPS. In order to achieve an accurate and timely data, coordination between units in the regions seems very influential.

This guidelines book contains field organization and methodology of survey implementation which is continuously being perfected so that data to be generated is timely and high quality.

### 1.2 Purpose

Development of this Guideline book for the Office Head is intended to describe July 2009 Susenas activities to the Head of Provincial BPS and District/City BPS as the persons in charge and activity executors in the regions. Susenas activities discussed in this guidelines book among others are team formulation, training organization, document management, schedule arrangement of field implementation, field supervision, data processing, and data allocation.

### 1.3 Scope

Implementation of July 2009 Susenas covers 291,888 sample households spreading in the entire regions of Indonesia. Data of census result can be presented at national, provincial, and district/city levels.

### 1.4 Type of Data Collected

July 2009 Susenas collects Core data and Module of Socio-culture and Education.

#### 1. Core data collected includes:

- a. General information of household (art), i.e. name, relation to household head, gender, age, marital status, crime victims, reporting of crime victims, traveling frequency, main purpose of travelling and participation in pre-school education for residents aged 0-6 year(s);
- b. Information on health for all ages, covering information on health complaints, sickness duration, medication/treatment method and medical facilities;
- c. Information on toddlers' health, covering assistant in baby delivery process, immunization, and breastfeeding;
- d. Information on education of household members aged 5 years and older, covering participation in education, level of education, reason for not/never been going to school or stop going to school, certificates/diplomas possessions, and literacy;
- e. Information on the employment of household members aged 10 years and up, covering main activities, job seekers, business field, job status and working hours;
- f. Information on fertility for women that had been married, covering age of marriage, children born / still alive, participation in Family Planning program, use of contraceptive devices, and the wants in having children.
- g. Description on housing, covering ownership of residential building, types of roof, wall, floor, floor size, drinking water source, drinking water facility, toilet facility, lighting source and fuel/energy for cooking;
- h. Information on household expenditure, covering expenditure for food and expenditure for non-food;

- i. Information on other socioeconomic, covering free health care services, health care benefit/insurance, receiving rice for the poor (*raskin*), and business credit.
  - j. Information on information and communication technology, covering utilization and possession of landline telephone, possession of cellular phones (total HP numbers), computer, and internet access.
2. Data of Educational and Socio-cultural Module collected include:
- a. Information on household members covering household members' names, relations to household head, gender, age, marital status, disability, the existence of natural/biological father and mother and participation in education.
  - b. Information on household members of all ages covering health complaints, clothing possession, frequency of eating basic meals, vegetables, high protein dishes (vegetable and animal), and availability of permanent sleeping quarters/place.
  - c. Information on household member aged 0-6 year(s) covering to whom children aged 0-6 be entrusted if the mother or the responsible person for the children works outside home, and birth certificate possession.
  - d. Information on household members aged 5-18 years and not yet married, covering activities conducted together with parents/guardians at the time of eating, playing/recreation, studying, praying/reciting Qur'an, discussing and helping in adding income.
  - e. Information on household members aged 5 years and older covering activities in watching TV, listening to the radio, reading habit, participation in functional literacy, participation in A/B/C Package programs and Madrasah Diniyah, participation in courses, activity in smoking, sports, watching/performing arts/exhibitions, expenses for cultural products, and membership in art gallery/cultural activity.
  - f. Information on household members aged 10 years and older covering participation in community social activities, and social organization / political party membership.
  - g. Information on household members aged 5 years and older still in school covering current level of education, BOS receipt by the school, setting up student savings program at school, closest distance routinely taken to go to school, routine transport facilities to go to school, time length of travel to school, school transportation costs, obtaining scholarship/assistance for education, source of scholarship/assistance for education, utilization of scholarship/assistance money for education, tuition fees, and other costs for education.
  - h. Information on social capital covering trust in somebody, group or institution, relation between two parties (individual/group), attitude in accepting and respecting diversity related to race,

ethnicity, religion, gender, socioeconomic status, and also regarding networks within and outside the community.

## 1.5 Schedule

Implementation of July 2009 Susenas includes various activities conducted by Central and Regional BPS. Their activities and schedules cover all activities starting from preparation until publication, as follows:

July 2009 Susenas Activity Schedule

No.	Activity Description	Schedule
(1)	(2)	(3)
	A. Preparation	
1	Meeting with Diknas, Bappenas and Depag	20 January 2009
2	Meeting w/ Depsos, Depbudpar, Ministry of Women Empowerment, Commission of Indonesian Children Protection (KPAI), Minister of Youth and Sports	27 January 2009
3	Perfecting guidelines and questionnaire I	11 – 15 Feb.2009
4	Perfecting guidelines and questionnaire II	12 -16 March 2009
5	Workshop for Intama (Chief Instructor)	13 – 16 April 2009
6	Sending Susenas document softcopy to regions	1-8 Mei 2009
7	Printing Susenas documents for Innas Training	1 – 12 May 2009
8	Training of Innas (National Instructor)	18 – 20 May 2009
9	Training of Officers	1 – 13 June 2009
10	Training of Supervisors	1 – 13 June 2009
	B. Implementation	
11	Listing of Buiding and Household of Susenas and Sakernas	15 Jun – 14 Jul 2009
12	Supervision/Verification of Susenas and Sakernas Listing	15 Jun – 14 Jul 2009
13	Selection of samples households	18 Jun – 17 Jul 2009
14	Census of samples households	15 Jul – 7 Aug 2009
15	Supervision/Verification	15 Jul – 7 Aug 2009
16	Submission of census result to District/City BPS	22Jul – 14 Aug 2009
	C. Processing	
17	Receiving and Batching	22 – 24 July 2009
18	Data Processing (editing, coding, entry and validation) and verifying of data quality in District/City BPS	25 Jul – 25 Aug 2009
19	Verifying quality and completeness of data by Provincial BPS	26 Aug-12 Sep 2009
20	Sending raw data to Central	14 – 30 Sept 2009
21	Data compilation in Central	1 – 30 Oct 2009
	D. Result Evaluation and Publication	
22	Evaluation and Discussion of Results	Nov –Dec 2009
23	Publication	Jan 2010

## 1.6 Document Used

Document used in July 2008 Susenas field implementation covering guidelines book and lists.

The guidelines book consists of five (5) books:

- Book I, Guidelines for Head of Provincial/District/City BPS.  
(allocated to BPS-Province and BPS-District/City)
- Book II, Operational Guidelines for Team Coordinators  
(allocated to Teamcoord Officers and BPS-Province and BPS-District/City)
- Book III, Guidelines of Core Census  
(allocated to all officers, both Teamcoord and PCS)
- Book IV, Guidelines of Module Census  
(allocated to all officers, either Teamcoord or PCS)

Meanwhile, list used consists of nine (9) lists as stated in the following table:

No.	List Type	Description	Person in Charge	Archived in
1.	Census Block Map Sketch	Supporting tool for familiarization region	Teamcoord/PCS	BPS District/City
2.	VSEN2009.DSBS	Census Block Sample List	1. BPS-Province 2. BPS-Dist./City	BPS-Central
3.	VSEN2009.BDT	Bio Data of Officers	BPS District/City	BPS District/City
4.	VSEN2009.KBTT	Team Workload Composition	Teamcoord.	BPS-Province
5.	VSEN2009.LK	Working Sheet for forming census block with a total of household > 150	Teamcoord.	Central BPS, Dit.Dev. Method. Census & Survey, Subdit.Dev. Sample Framework
6.	VSEN2009.L	Listing (building and household)	Enumerator	BPS District/City
7.	VSEN2009.DSRT	Household Samples List	Teamcoord.	1. BPS-Province 2. BPS-Dist./City
8.	VSEN2009.K	Household Core Census	Enumerator	BPS District/City
9.	VSEN2009.MSBP	Census of Socio-cultural and Educational Module	Enumerator	BPS District/City

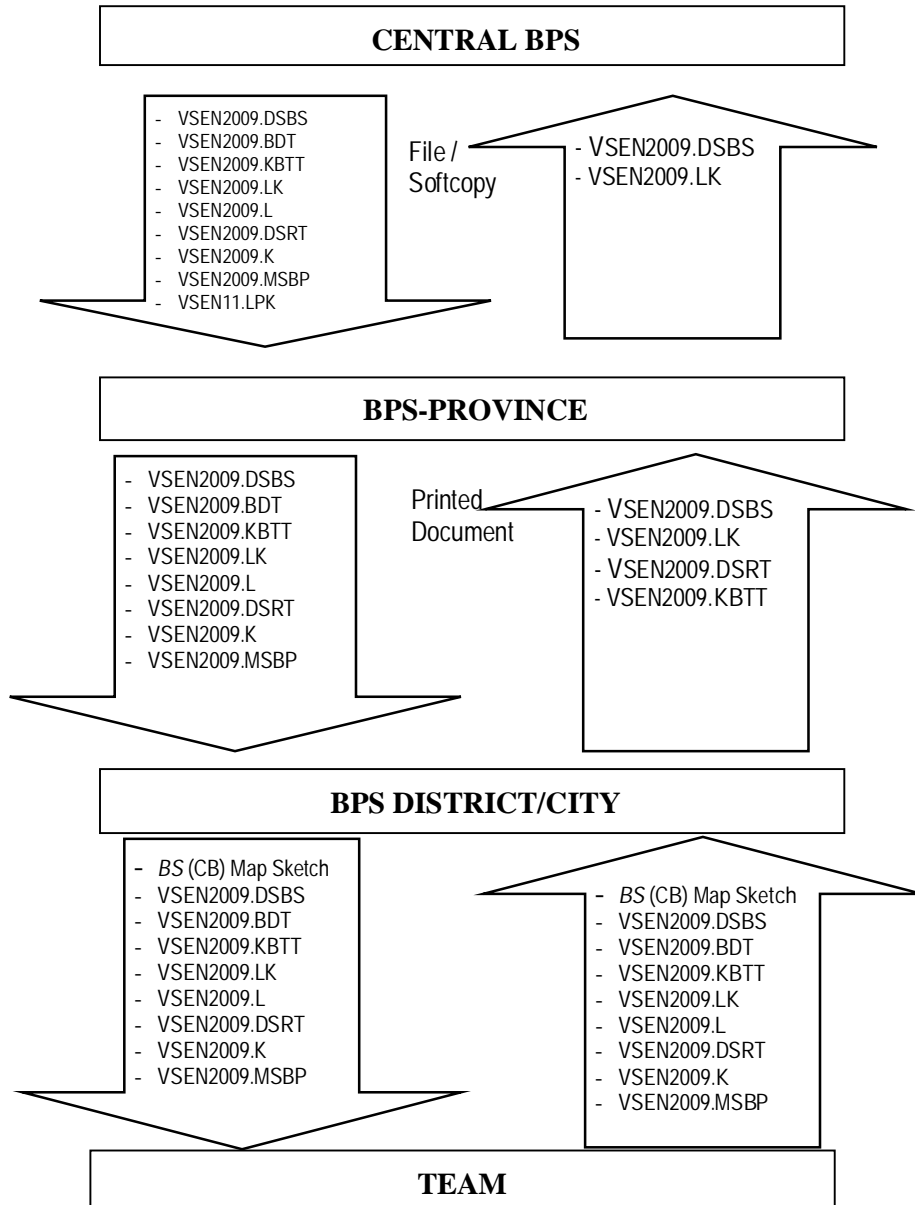
All documents above are prepared by Central BPS and distributed/sent via softlib folder *kesra* in softcopy forms

Example of list type used can be seen in the Attachment.

## 1.7 Document Flow

Document flow is as illustrated in Diagram 1. July 2009 Susenas Document Flows from Central to Team. Any text printed in bold indicates that the list already has entries.

Diagram 1: July 2009 Susenas Document Flows from Central to Team in the Field



Note: texts in bold indicate lists that already have entries

## 1.8 Resulted Statistic

Statistics resulted from July 2009 Susenas among others are statistic/indicator of people welfare, statistic of education, and statistic of socio-culture.

### a. Statistic/Indicator of People's Welfare (*Kesra*)

Statistic/Indicator of people's welfare that can be formulated from the core data collection result, among others are the Numbers of School Enrolment, Average of School Years/Length, Numbers of Literate People (education sector), Numbers of Sickness (health sector), Average Age at First Marriage, Numbers of *KB*/Family Planning (fertility sector), Average of Spacious Dwelling House per capita, Percentage of Clean Water Utilization (housing sector), etc.

### b. Statistic/Indicator of Education

Statistics/Indicators of Education that can be formulated from core and module data collection result, among others are Education Facility and Infrastructure such as facilities to go to school, costs of education and scholarship/assistance of education; Participation of Education such as Gross Enrollment Rate (*APK-Angka Partisipasi Kasar*), School Participation Rate (*APS-Angka Partisipasi Sekolah*) and Net Enrollment Rate (*APM-Angka Partisipasi Murni*); Result of Education Development such as literacy numbers, highest education attained and reasons for not enrolling in school; and Outside School Activity such as reading activity outside school hours, functional literacy activity, *A/B/C* Package activity, taking courses activity, and sports activity.

### c. Statistic/Indicator of Socio-culture

Statistics/Indicator of Socio-culture that can be formulated from the module data collection results among others are access in mass media, sports activity, community social activity, participation in becoming organization members, access to arts activity, costs to be spent for culture and arts activity, and participation to become member of art gallery/facility of cultural activity.

## 1.9 Financing

All costs for survey activities are to be charged to BPS budget. Detail of Central BPS costs is allocated in POK Sub Directorate of Social Welfare and Educational Statistic, Directorate of People Welfare Statistic. Detail of regional costs is allocated in the DIPA BPS-Province and District/City.





## METHODOLOGY

### 2.1 SAMPLE FRAMEWORK

Sample framework used in 2009 Susenas consists of 3 types, namely: sample framework for census block selection, sample framework for census sub-block selection (particularly for census block that contains households of more than 150 households), and sample framework for household selection in the selected census block/sub-block.

Census block sample framework is a list of normal census block of 2006 Economic Census result (BS SE06 Frame) completed with the total households of Registration of Voters and Sustainable Demography Data Collection (P4B) census result. This census block sample framework covers census block in 471 districts/cities and is segregated based on urban and rural regions.

Household sample framework is the list of households resulted from household listing using the list of VSEN2009.L. This household sample framework is differentiated based on three types of monthly household consumption category group.

### 2.2 Sampling Design

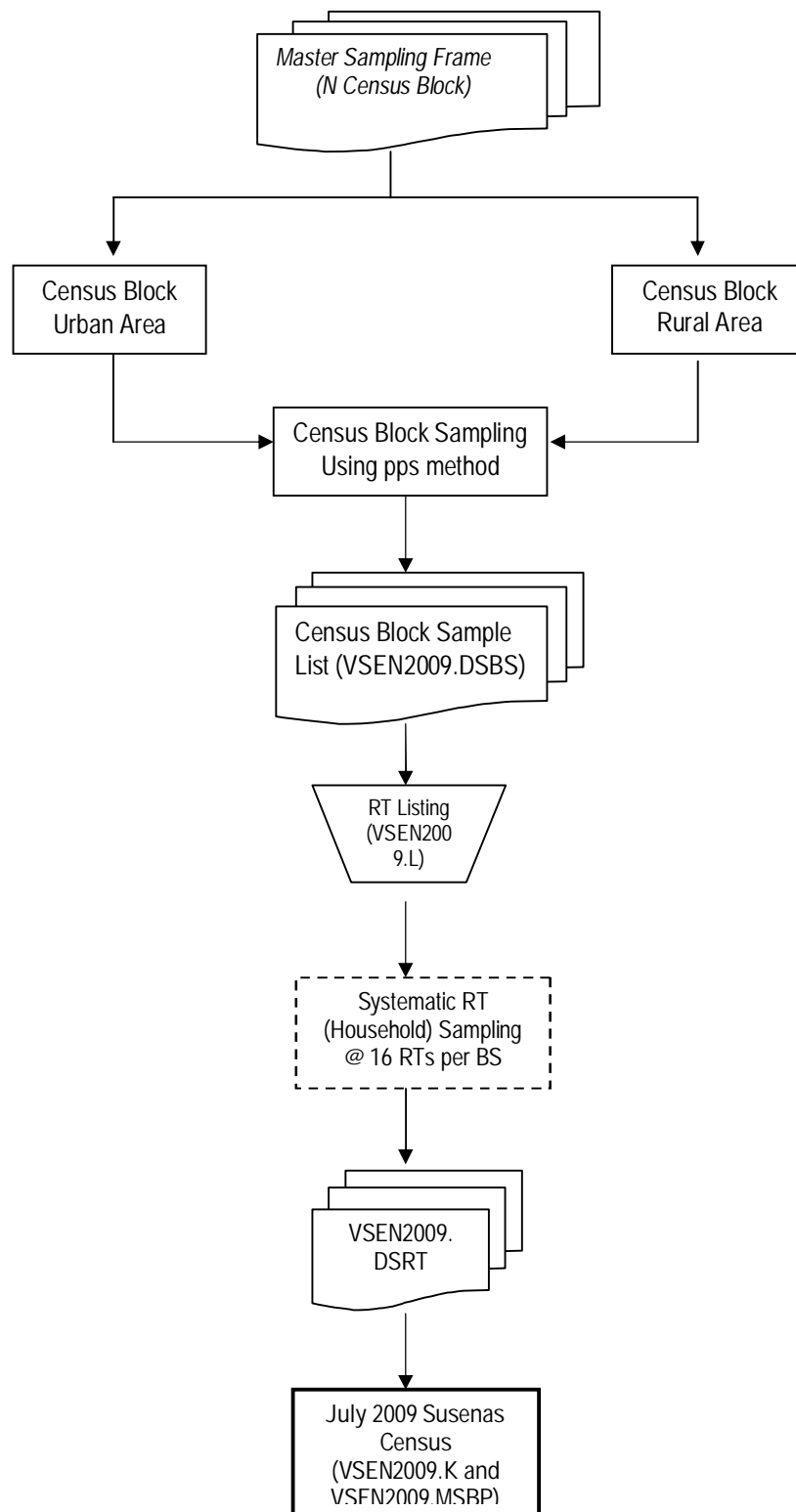
Design of 2009 Susenas sampling is a two-phase sampling design. Sampling for urban area and rural area is to be conducted separately. Procedure of 2009 Susenas sampling for a district/city is as follows:

- Phase 1, from master sampling frame (MSF) of normal census block of 2006 Economic Census result (SE06) are to be selected census block  $n_h$  ( $h = 1$ , for urban;  $h = 2$ , for rural) in a probability proportional to size (pps) method whereas size is the number of households from P4B census result (April 2003). For census block that has contents of more than 150 households, selection of one census sub-block in PPS-systematic is required with the size of household number of P4B census result. Household listing is conducted to all selected census blocks/sub-blocks.
- Phase 2, from every selected census blocks/sub-blocks, then, to be selected  $\bar{m} = 16$  households from the listing result systematically.

All 2009 Susenas selected households will be enumerated with core questionnaire (VSEN2009.K List) and questionnaire of socio-cultural and educational module (VSEN2009.MSBP List) in July 2009.

Flowchart of household and census block sample selection is as stated in Figure 1.

Figure 1. Flow Chart Selection of Samples Census Block (BS) and Household (RT) of 2009 Susenas



## 2.3 Census Block Map Sketch

Map sketch to be used in 2009 Susenas is the map sketch from scanning result (which identity already been adjusted) used in SE06 or if it is not possible, then, map sketch of ST2003-SWB or map sketch SP2000-SWB can be used. Prior to field implementation, enumerator officers shall be equipped with print out of census block/sub-block map sketch of the scanning result used by the enumerators to identify regional boundaries of census block/sub-block that become their work areas. If the identities of areas, legends or clear boundaries stated in the census block map sketch turn out not in accordance with the reality in the field, 2009 Susenas officers must correct those mistakes. Therefore, before listing the households, enumerators must conduct field orientation to recognize the boundaries of their work areas. In carrying out household registration using List of VSEN2009.L, enumerators must conduct a door-to-door census in every physical and census building and also households located in the selected census block/sub-block areas.

Prior to training the officers, 2009 Susenas checker/verifier (Teamcoord) must prepare map sketch of 2009 Susenas selected census blocks. For census blocks that have a more than 150 households (from P4B census result), forming and selecting of census sub-block must be carried out by the Checkers. Then the selected census sub-blocks of 2009 Susenas must be enlarged in VSEN2009.SWB based on census block map sketch used. If the census block map sketch of scanning result is available, copying of map sketch is not required.

Enumerator officers must take census block map sketch when conducting household registration (listing) and census of 2009

## 2.4 Forming and Selecting Census Sub-block

In 2009 Susenas activities census sub-blocks will be formed and selected from any census block containing more than 150 households. Information concerning the number of households in the selected census block can be found in the Census Block Sample List (DSBS), Column [5] marked with asterisk. Thus, although at this time (current condition) the number of household in the selected census blocks containing more than 150 households, yet if in the DSBS List Column [5] are without asterisk marks, census sub-blocks are not required to be formed (or still to be listed completely/entirely). Forming and selecting of census sub-blocks is carried out by Section Head of Social Statistics of BPS-District/City. The formed and selected of census sub-blocks are made in two copies, one copy as archive in BPS-District/City, while the second copy is to be sent to Directorate of Survey and Census Methodology Development, BPS (cq. Sub-Directorate of Sample Framework Development).

The step in forming and selecting census sub-blocks on 2009 Susenas selected census blocks is as follows:

1. BPS-District/City shall prepare map sketch of 2009 Susenas selected census block, namely map sketch from the scanning result or ST03-SWB for updated census blocks at the time of ST03 or SP2000-SWB for any census block to which updating has been done.
2. Based on map sketch of the census blocks mentioned above, copies of map sketch of 2009 Susenas selected census blocks shall be made on a folio paper sheet and all at once shall also state the number of households for each segment/census sub-block based on P4B result. If in the copies of census block map sketch the number of household in each segment is unknown, then, to estimate the number of household for each segment shall be conducted by allocating the household content of P4B per segment based on the multiplication between the comparison of household content per segment and the total of households according to List of SP2000-L1 or List of ST03-L1 with the household of P4B (stated in the List of VSEN2009.DSBS Column [5]).
3. Activities in items 1 and 2 above are done by Checkers of 2009 Susenas.
4. Each census sub-block must have clear boundaries, either natural or artificial boundaries, and covers one or more segments which close to each other (one overlay). Number of household in each census sub-block is around 80 – 120 households.
5. After census sub-blocks are formed, checkers enter Columns [1] to [5] of VSEN2009.LK List (see Attachment-8).

Notes: On the census blocks where census sub-blocks already formed, activity of forming census sub-block is not required.

6. Selecting one census sub-block on each 2009 Susenas census block is done by PPS Sampling using Random Number Table (TAR), in determining selected random number.

*Procedure in selecting is as follows:*

1. Prepare Random Number Table (TAR) consisted of 2 pages (Attachment-11).
2. Each TAR page consists of 25 columns and 35 rows. Each page is given column number 1, 2, 3, .....25 and row number 1, 2, 3,.....35.
3. Get a pencil or other thing that has a sharp tip. Open one of the page out of the two TAR pages already prepared. For this requirement any TAR page can be used. Scuint your eyes or look the other way, and put the tip of the pencil on the TAR page. The nearest figure with the position of pencil tip is the starting point of random number reading to determine page, row, and column that

will be used to choose  $R_1$ . Starting from this point, read 5 figures to the right according to the needs.

For example, the page used for this reading is the first page of TAR and the pencil tip fell on a certain part of table as seen in the following illustration:

	14	15	16	17	18	19	20	21	22	23
25	9	6	9	1	0	8	2	5	3	7
26	2	6	4	1	1	1	2	6	7	1
27	9	1	9	7	4	6	6	0	2	9
28	2	5	1	●2	6	3	8	7	9	7
29	8	9	7	0	1	5	0	8	7	7
30	4	3	3	4	9	1	3	3	4	8

The five figures on the right of (●) are 26387.

- Determining page for TAR reading

As there are two pages of TAR, the random number used to determine the page is just one number only. To simplify, use number 0, 1, 2,....., 9 with the agreement that odd numbers for stating the first page of Random Number Table, while 0 (zero) and even numbers for second page.

On the above reading, i.e. 26387, the first digit is 2. Therefore, the page selected is the second page of Random Number Table.

- Determining row

Since on every page there are 35 rows, to determine this row figures that have 2 digits (2<sup>nd</sup> and 3<sup>rd</sup> digits) are used. To make it simple, an agreement is made that figures 01, 36, and 71 are used for stating row 1, figures 01, 37, and 72 used for stating row 2, and so on.

On the above reading (26387), second and third digits are 63, hence, the reading row falls on 28<sup>th</sup> row, as  $63 - 35 = 28$ .

- Determining column

As on every page there are 25 columns, to determine the column, figures consisted of 2 digits (4<sup>th</sup> and 5<sup>th</sup> digits) are used. To simplify, it is determined that figures 01, 26, 51, and 76 are used for stating Column 1, while figures 02, 27, 52, and 77 for Column 2, and so on.

On the above reading, 4<sup>th</sup> and 5<sup>th</sup> digits are 87, hence, the reading column falls on 12<sup>th</sup> Column, since  $87 - (25+25+25) = 12$ .

Thus, the TAR used is page 2, 28<sup>th</sup> row and 12<sup>th</sup> column. If the total households are hundreds (3 digits), in this case column to be used is 3 columns, i.e. Columns [12], [13], and [14].

## 2.5 Example of Census Sub-block Forming

Total of households of each segment is artificial (just for example). Number of household of each segment is as follows: segment 010 is 36 households, segment 20 is 71 households, segment 030 is 32 households, segment 040 is 42 households, segment 50 is 5 households, segment 060 is 16 households, and segment 070 is 3 households.

Based on census block sketch (see Figure on Attachment-7) and from the notes of total households of each segment of P4B listing result, following table can be made:

No. of Segment	010	020	030	040	050	060	070
Total Household	36	71	32	42	5	16	3

Based on the concept of census sub-block forming and by using data of total households stated in each segment, 2 census sub-blocks can be formed in the census block. Census sub-block number 1 is segment 020 and segment 030 with a total of 103 households. Census sub-block number 2 is segments 010, 040, 050, 060 and 070 with a total of 102 households. Result of census sub-block forming is recorded in VSEN2009.LK List as follows:

Province : [32] Jawa Barat  
District/City : [01] Bogor

Sub-district	: [071] Taman Sari			
Village/ <i>Kelurahan</i>	: [004] Sukaresmi			
Region	: Urban			
# Census Block	: 008 B			
NKS	: 20817			
Number of Census Sub-block	Number of Segment	Number of Household	Cumulative Nr. Of Household	Random Number
(1)	(2)	(3)	(4)	(5)
1	020, 030	103	1 - 103	021*)
2	010, 040, 050, 060 and 070	102	104 - 205	
<i>Random Number Table</i>				
Page: 2		Row: 28		Column 12 - 14

\*) To be filled after random number obtained

Number of household in the above census block is 205 (3 digits).

For instance random number used in page-2, row-28 and column-12, then number 012 will be obtained (smaller than 205), so that such figure can be used as the selected random number of census sub-block. Number 21 lies at cumulative interval of total household number 1 (1-103). Therefore, census sub-block number 1 is selected to be the sample.

	12	13	14	15	16
28	0	2	1	7	5
29	5	4	4	7	5
30	1	1	0	1	9
31	9	1	1	5	8

## 2.6 Total Samples of Census Block and Household

Total samples of census block and household of 2009 Susenas according to provinces are stated in Attachment-1. Number of census block samples for district/city estimation is the minimum sample for district/city level estimation. Allocation by urban and rural areas that have higher number of households will have higher number of census blocks.

## 2.7 List of Selected Census Block Samples (DSBS)

In 2009 Susenas DSBS (Attachment-4), every selected census block shall be given Sample Code Number (NKS). 2009 Susenas NKS consists of 4 digits which is a sequential number of selected census block in each district/city and formulated as follows:

0001-4999 is sequential numbers of rural area census block.

5001-9999 is sequential numbers of urban area census block.

Notes:

1. Column [5] DSBS of 2009 Susenas contains the number of households from P4B census result. This number of households must be used for verifying the correctness of number of households obtained from the same census block of 2009 Susenas household listing. Enter the number of household from the listing result into Column [6]. If there is a big difference found between P4B census result and 2009 Susenas listing result, the Checker must conduct checking on site in order to find out the cause of such difference. If the mistake lies on the regions to be enumerated, Enumerator must confirm the household listing result with the List of VSEN2009.L in accordance

with the actual area. If the census result already correct, record the finding/reason for the difference in Column [9] of 2009 Susenas DSBS.

2. Column [8] Susena DSBS contains Geographic Location according to Coastal Area and Non-coastal Area. Prior to handing over to Officers, BPS-District/City must fill out Code 1 = Coast and Code 2 = Non-coast of data source of 2008 Podes.
3. Result of household entries from listing result and Geographic Location on 2009 Susenas DSBS, must be sent to BPS cq. Subdirectorate of Sample Framework Development or via e-mail to the address: [kci@mailhost.bps.go.id](mailto:kci@mailhost.bps.go.id).

Enumerator officers may not replace the selected census block. Registration of household (listing) must be conducted in full (complete) on the census block areas

## 2.8 Household Sample Selection

As it has already been explained previously that the number of sample households that must be selected in each census block is 16 households. Selection of sample household in a systematic sampling manner is to be conducted by checker (teamcoord) after receiving household listing result on every census block (VSEN2009.L) from enumerators. Checker (teamcoord) must perform calculation of sample interval and first random number in each census block / census sub-block. Sample framework used for selecting households is list of normal households contained in Block IV, List of VSEN2009.L.

### *Procedure in Selecting Household Sample*

Phase of activities that must be done by checker (teamcoord) in the selection of sample households is as follows:

- a. Verify if the check marks (√) given by the enumerator in Columns [8] to [10] already correct, i.e. each row (normal household) should not be given more than one √ mark, or missed not be given √ mark.
- b. Give sequential numbers for the √ marks in Colum [8] on every row of the household starting from number one (1) up to the last one. If the numbering of the √ marks in Column [8] of the first page up to the last page that have entries already been done, proceed to the next number in Column [9] of the first page, first row that have √ marks up to the last row that have √ marks. Then, continue with the provision of sequential numbers to √ marks in Column [10], first page up to the last page marked √ with the same mechanism of Column [9].



- c. Check first, if the sequential number of the last  $\sqrt{\phantom{x}}$  mark in Column [10] is the same as the number of household in the census block (the entries must be the same as the last household sequential number in Column [5]. If the entries are not the same, then, either one of the entries in Column [5] is wrong or provision of sequential number of  $\sqrt{\phantom{x}}$  marks in Column [8] to [10] is wrong. Correct the mistake first prior to conducting sample selection.
- d. Calculate interval of sampling (I) for household selection by means:

$$I = \frac{\text{number of household from the result of household listing}}{16}$$

Interval of sample is calculated to two decimal places.

- e. Using Random Number Table (see Attachment-11), determine the first random number (R<sub>1</sub>) which value is smaller than or the same as sample interval (I).

Procedure of determining the first random number is conducted by the following steps:

1. Prepare Random Number Table (TAR) which consists of 2 pages (Attachment-11).
2. Each TAR page consists of 25 columns and 35 rows. Each page given column number 1, 2, 3, .....25 and row number 1, 2, 3, .....35.
3. Get a pencil or other thing that has a sharp tip. Open one of the page out of the two TAR pages already prepared. For this requirement any TAR page can be used. Scuint your eyes or look the other way, and put the tip of the pencil on the TAR page. The nearest figure with the position of pencil tip is the starting point of random number reading to determine page, row, and column that will be used to choose R<sub>1</sub>. Starting from this point, read 5 figures to the right according to the needs.

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On the above reading (26387), second and third digits are 63, hence, the reading row falls on 28<sup>th</sup> row, as  $63 - 35 = 28$ .

- Determining column

As on every page there are 25 columns, to determine the column, figures consisted of 2 digits are used. To simplify, an agreement has been determined that figures 01, 26, 51, and 76 are used for stating Column 1, while figures 02, 27, 52, and 77 for Column 2, and so on.

On the above reading, 4<sup>th</sup> and 5<sup>th</sup> digits are 87, hence, the reading column falls on 12<sup>th</sup> Column, since  $87 - (25+25+25) = 12$ .

Thus, the TAR used is page 2, 28<sup>th</sup> row and 12<sup>th</sup> column. If the interval has a value of tens (2 digits), in this case column to be used is Column [12], and Column [13].

f. Note random numbers in page, row, and column obtained on item 3 above. If the random number is smaller or the same as household interval ( $AR \leq I$ ), use that number as the number of the  $\surd$  mark selected as household sample of 2009 Susenas. If the number is bigger, find a smaller number or the same with interval in the same column on the row below it. Circle the sequential number of the same  $\surd$  mark with the first random number ( $R_1$ ), then, use the sample interval to calculate the next random number, namely  $R_2, R_3, \dots, R_{16}$  as follows:

$$R_2 = R_1 + I;$$

$$R_3 = R_1 + 2 I;$$

.

$$R_n = R_1 + (n-1) I;$$

.

$$R_{16} = R_1 + 15 I.$$

- g. Circle the same sequential number of  $\sqrt{\quad}$  marks in Columns [8] to [10] as the selected random number. When the figures in Columns [8] to [10] already been circled, the sequential numbers of physical building, census building, and numbers of households which respectively are in Column [3], [4], and [5] must be circled as well.

These sixteen households are recorded in the List of VSEN2009.DSRT.

- h. In the event that the selected households really cannot be found during census, the sample can be replaced by the closest household from the same expenditure group in VSEN2009.L (either above or under the selected household sequential number) that has not been selected as sample from other expenditure group.

*Example of household sample selection*

For instance the total number of 2009 Susenas household listing result stated in the List of VSEN2009.L is 84 households and as many as 16 households will be taken as samples. The phases of sampling can be described as follows:

- Interval of the household sample selection is:

$$I = \frac{N}{n} = \frac{84}{16} = 5.25$$

- As the interval value of the sample is only one digit, column to be used in TAR is one column. If the TAR used as the above example, i.e. Page-2, Row-28, Column-12, the first random number encountered is 0 number. Since the sequential number of the first household is 1 (not zero), find another number in the next row which has less value than the sample interval ( $I$ ). In the same column in row-29 figure 5 is obtained. Since 5 is smaller than the sample interval ( $I$ ), then  $R_1 = 5$ .

	12	13	14	15	16
26	7	9	9	1	6
27	7	7	5	4	1
28	0	2	1	7	5
29	5	4	4	7	5
30	1	1	0	1	9

- Circle the sequential number of the fifth  $\surd$  mark as the sample selected household.
- Determine  $R_2$  up to  $R_{16}$  as follows:

$$R_2 = R_1 + I = 5 + 5.25 = 10.25 \approx 10$$

$$R_3 = R_1 + 2I = 5 + (2 \times 5.25) = 15.5 \approx 16$$

$$R_4 = R_1 + 3I = 5 + (3 \times 5.25) = 20.75 \approx 21$$

$$R_5 = R_1 + 4I = 5 + (4 \times 5.25) = 26$$

$$R_6 = R_1 + 5I = 5 + (5 \times 5.25) = 31.25 \approx 31$$

$$R_7 = R_1 + 6I = 5 + (6 \times 5.25) = 36.5 \approx 36$$

$$R_8 = R_1 + 7I = 5 + (7 \times 5.25) = 41.75 \approx 42$$

$$R_9 = R_1 + 8I = 5 + (8 \times 5.25) = 47$$

$$R_{10} = R_1 + 9I = 5 + (9 \times 5.25) = 52.25 \approx 52$$

$$R_{11} = R_1 + 10I = 5 + (10 \times 5.25) = 57.5 \approx 58$$

$$R_{12} = R_1 + 11I = 5 + (11 \times 5.25) = 62.75 \approx 63$$

$$R_{13} = R_1 + 12I = 5 + (12 \times 5.25) = 68$$

$$R_{14} = R_1 + 13I = 5 + (13 \times 5.25) = 73.25 \approx 73$$

$$R_{15} = R_1 + 14I = 5 + (14 \times 5.25) = 78.5 \approx 78$$

$$R_{16} = R_1 + 15I = 5 + (15 \times 5.25) = 83.75 \approx 84$$

- Hence, the selected household is the household with  $\surd$  marks of sequential number 5, 10, 16, 21, 26, 31, 36, 42, 47, 52, 58, 63, 68, 73, 78, and 84.
- Circle sequential numbers of physical buildings, census buildings, and households that are in row with circled  $\surd$  marks.
- Copy the sixteen sample households of 2009 Susenas to VSEN2009.DSRT List.

## 2.9 Estimation Method

Estimation method used in 2009 Susenas is utilizing indirect method (indirect estimate), namely ratio estimate, whereas the weight is the ratio between total households of projection result and total sample households to estimate characteristic of the households. As for estimating characteristic of the population, the weight is the ratio between total households of projection result and total population in the sample households.

### 1. Household Characteristic Estimation

Estimation of Y characteristic average value is

$$\bar{y}_{kh} = \frac{1}{16 b_h} \sum_{i=1}^{b_h} \sum_{j=1}^{16} y_{hij}$$

Estimation of Y characteristic total value is

$$\hat{Y}_{kh} = \tilde{P}_{kh} \times \bar{y}_{kh}$$

Whereas,

$\bar{y}_{kh}$  : estimation of Y characteristic average value in  $k$  district/city of  $h$  area ( $h$  urban = 1,  $h$  rural = 2)

$\hat{Y}_{kh}$  : estimation of Y characteristic total value in  $k$  district/city of  $h$  area

$y_{hij}$  : Y characteristic value in the  $j$ -th selected household in the  $i$ -th selected census block.

$b_h$  : number of selected census block in  $k$  district/city  $h$  area.

$\tilde{P}_{kh}$  : projection of total household in  $k$  district/city  $h$  area.

Estimation of Y characteristic average value in  $k$  district/city urban area (1) and rural area (2) is

$$\bar{y}_k = (\hat{Y}_{k1} + \hat{Y}_{k2}) / (\tilde{P}_{k1} + \tilde{P}_{k2})$$

Estimation of Y characteristic total value in  $k$  district/city of urban area ( $\hat{Y}_{k1}$ ) and rural ( $\hat{Y}_{k2}$ ) is

$$\hat{Y}_k = \hat{Y}_{k1} + \hat{Y}_{k2}$$

Estimation of Y characteristic total value at provincial level of urban area ( $\hat{Y}_{p1}$ ) or rural ( $\hat{Y}_{p2}$ ) is calculated with formula

$$\hat{Y}_{ph} = \sum_{k=1}^T \hat{Y}_{kh}$$

Whereas,

$T$  is number of districts/cities in  $p$  province.

Estimation of Y characteristic total value at provincial level of urban ( $\hat{Y}_{p1}$ ) and rural ( $\hat{Y}_{p2}$ ) areas is

$$\hat{Y}_p = \hat{Y}_{p1} + \hat{Y}_{p2}$$

Estimation of Y characteristic average value at provincial level of urban (1) and rural (2) areas is

$$\bar{y}_p = (\hat{Y}_{p1} + \hat{Y}_{p2}) / (\tilde{P}_{p1} + \tilde{P}_{p2})$$

Estimation Y characteristic total value at national level is calculated using formula

$$\hat{Y}_n = \sum_{p=1}^L (\hat{Y}_{p1} + \hat{Y}_{p2})$$

Whereas,

$L$  is the number of provinces in Indonesia.

Estimation  $Y$  characteristic average value at national level is calculated using formula

$$\bar{y}_n = \hat{Y}_n / \tilde{P}_n$$

Whereas,

$\tilde{P}_n$  is the estimation of number of households in urban and rural areas of Indonesia.

## 2. Estimation of Individual Characteristic

Estimation of  $Y$  characteristic average value is:

$$\bar{y}_{kh} = \frac{1}{16 b_h} \sum_{i=1}^{b_h} \sum_{j=1}^{16} \frac{1}{a_{ij}} \sum_{h=1}^{a_{ij}} y_{hij}$$

Estimation of  $Y$  characteristic total value is:

$$\hat{Y}_{kh} = \tilde{Q}_{kh} \times \bar{y}_{kh}$$

Whereas,

$\bar{y}_{kh}$  : estimation of  $y$  characteristic average value in  $k$  district/city of  $h$  areas ( $h=1$ urban,  $h=2$  rural).

$\hat{Y}_{kh}$  : estimation of  $y$  characteristic total value in  $k$  district/city of  $h$  area.

$y_{hij}$  : characteristic value on the number of  $i$ -th selected household members in selected number of  $j$ -th census blocks.

$b_h$  : number of census block selected in  $k$  district/city of  $h$  area.

$a_{ij}$  : number of individuals (household members) in the  $j$ -th selected household of  $i$ -th census block.

$\tilde{Q}_{kh}$  : projected number of population in  $k$  district/city of  $h$  area.

Estimation of  $Y$  characteristic average value in  $k$  district/city of urban area (1) and rural area (2) is

$$\bar{y}_k = \hat{Y}_{k1} + \hat{Y}_{k2} / \tilde{P}_{k1} + \tilde{P}_{k2}$$

Estimation  $Y$  characteristic total value in  $k$  district/city of urban area ( $\hat{Y}_{k1}$ ) and rural area ( $\hat{Y}_{k2}$ ) is

$$\hat{Y}_k = \hat{Y}_{k1} + \hat{Y}_{k2}$$

Estimation of  $Y$  characteristic total value at provincial level of urban area ( $\hat{Y}_{p1}$ ) or rural area ( $\hat{Y}_{p2}$ ) is calculated with formula:

$$\hat{Y}_{ph} = \sum_{k=1}^T \hat{Y}_{kh}$$

Whereas,

$T$  is the number of districts/cities in  $p$  province.

Estimation of Y characteristic total value at provincial level of urban area ( $\hat{Y}_{p1}$ ) and rural area ( $\hat{Y}_{p2}$ ) is

$$\hat{Y}_p = \hat{Y}_{p1} + \hat{Y}_{p2}$$

Estimation Y characteristic average value at provincial level of urban area (1) and rural area (2) is

$$\bar{y}_p = \hat{Y}_{p1} + \hat{Y}_{p2} / \tilde{Q}_{p1} + \tilde{Q}_{p2}$$

Estimation of Y characteristic total value at national level is calculated with formula:

$$\hat{Y}_n = \sum_{p=1}^L (\hat{Y}_{p1} + \hat{Y}_{p2})$$

Whereas,

L is the number of provinces in Indonesia.

Estimation Y characteristic average value at national level is calculated using formula

$$\bar{y}_n = \hat{Y}_n / \tilde{Q}_n$$

Whereas,

$\tilde{Q}_n$  = estimation of total households in urban and rural areas of Indonesia.

## 2.10 Data Collection Method

Data collection in each selected household is conducted through direct interview between enumerator and respondent. Individual information is collected through interview with relevant individuals, while information on household is collected through interview with household head, husband/wife of household head, or other household member who knows the characteristic in question.