RELATIVE RISK OF HOUSEHOLDS DRINKING WATER CONSUMPTION IN INDONESIA
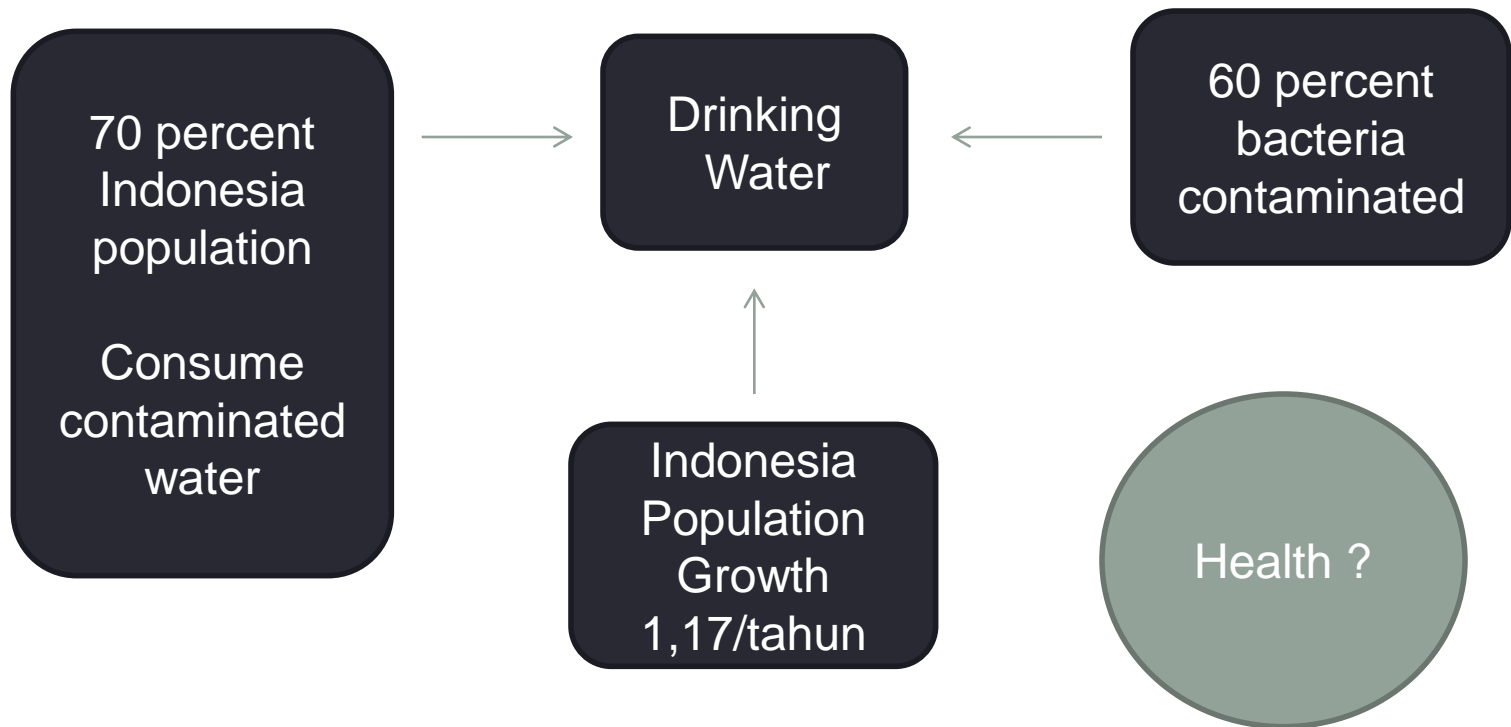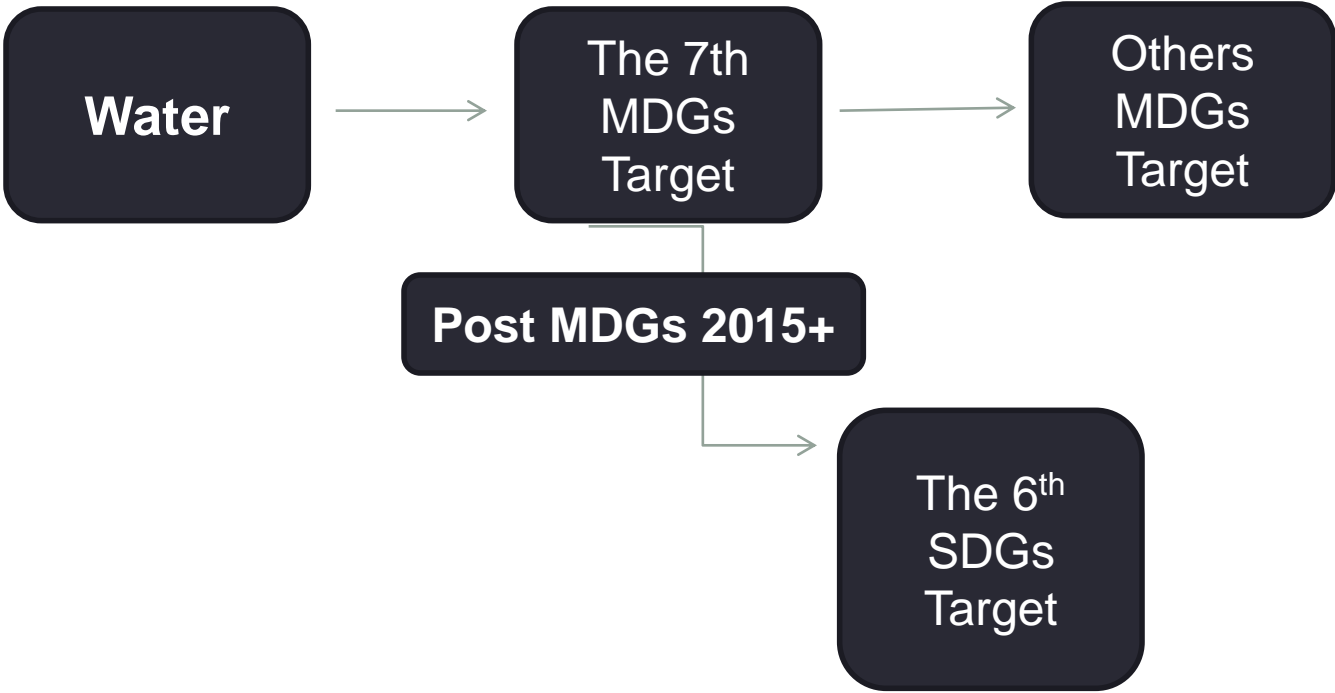
PS1.1 Water Supply and Demand: The Domestic Dimension
at the World Water Congress on Tuesday 26th May 12:00.

Sri Hartini Rachmad

I Gede Heprin Prayasta

BPS Statistics Indonesia

shrachmat2@gmail.com

Background

70 percent Indonesia population

Consume contaminated water

Drinking Water

60 percent bacteria contaminated

Indonesia Population Growth 1,17/tahun

Health ?

Background

Purposes

Assessing the relative risks of households' drinking water consumption access in Indonesia in order to support better policy on improving drinking water sources. Particularly:

a. Measuring the level of risk of household access to decent drinking water sources according to the socioeconomic characteristics of demographic and region.

b. The focus of the analysis of demographic and region, then the results of this study were able to provide a macro picture of the pattern of drinking water supply.

c. The findings of this study will be utilized for consideration of policy determination by all parties concerned and involved in the achievement of the Development sustainable

d. Promoting statistical measurements on relative risk of the theory of probability by odds ratio approach to see the level of vulnerability in terms of 'the availability of clean water in the review of access' for meeting public.

Data Source

- SUSENAS – Consumption Module 2011-2013
    Why ? SSN 2011-2013

    Variable demands for analysis
    Continuation of series data for monev-pattern

Note: packed-branded water and refill water are excluded into   statistical test of RR & OR due to been recognized at the prior cross tab analysis; do not classified into 'decent water drinking source concept of Susenas'

Methods

❖ *Relative Risk*

Klasifikasi		Variabel X		
		A	**B**	**Total**
Variabel Y	**1**	n_{11}	n_{12}	n_{1+}
	2	n_{21}	n_{22}	n_{2+}
	Total	n_{+1}	n_{+2}	n_{++}

$$Relative\ Risk\ (RR) = \frac{peluang\ untuk\ grup\ 1}{peluang\ untuk\ grup\ 2} = \frac{(n_{11}/n_{1+})}{(n_{12}/n_{2+})}$$

Methods

❖ *Odds Ratio*

$$Odds\ ratio\ (\theta) = \frac{odds\ for\ grup\ 1}{odds\ for\ grup\ 2}$$

$$Odds\ ratio\ (\theta) = \frac{(n_{11}/n_{++})(n_{22}/n_{++})}{(n_{12}/n_{++})(n_{21}/n_{++})} = \frac{n_{11}n_{22}}{n_{12}n_{21}}$$

Findings

Households Percentage Pattern of Decent Drinking Water by Region Administrative Category in 2009-2013

Region Administrative Category	2009	2010	2011	2012	2013
(1)	(2)	(3)	(4)	(5)	(6)
Urban	49,82	42,51	40,52	38,11	36,47
Rural	45,72	45,85	44,96	44,06	41,00
Indonesia	47,71	44,19	42,76	41,11	38,54

Findings

Percentage of Households' Drinking Water by Water's Quality and Urban-Rural in Indonesia 2013

Drinking Water Sources	Urban		Rural	
	Not poor	Poor	Not Poor	Poor
(1)	(2)	(3)	(4)	(5)
Packed water	15,88	1,28	1,97	0,30
Refil water	28,11	18,67	11,47	3,92
Tap with meter measurement	13,10	9,82	5,04	3,51
Tap in retail	2,95	4,28	1,35	0,99
Drill / pump	16,57	18,61	14,41	10,71
Protected wells	16,46	30,62	27,94	28,73
Un-protected wells	1,94	5,83	9,15	12,51
Protected springs	3,25	7,29	15,41	19,57
Un-protected springs	0,44	1,59	5,69	9,38
River	0,27	0,65	3,46	4,83
Rain water	0,95	1,12	3,91	5,45
Others	0,09	0,23	0,20	0,11

Findings

Cross Tab of Households Proportion by Economic Status, Administrative Region and Drinking Water Source, 2013

| Classification	Urban		Rural	
	Decent	Indecent	Decent	Indecent
(1)	(2)	(3)	(4)	(5)
Poor	1,86	1,27	3,64	2,30
Non-Poor	29,74	16,88	26,21	18,10

Findings

The Odds Ratio and Relative Risk of Prevalence Households' Drinking Water Source in Indonesia 2013

X - Variable	Y- Variabel	Odds Ratio	Relative Risk
(1)	(2)	(3)	(4)
Dringking Water Source (1 = Decent; 0 = In-decent)	Region type of administration (1 = Urban; 2=Rural)	0,84	0,90
Dringking Water Source (1 = Decent; 0 = In-decent)	Status Rumah Tangga (0 = Not-Poor; 1= Prosperous)	1,03	1,02
Tipe Daerah Perkotaan			
Dringking Water Source (1 = Decent; 0 = In-decent)	Status Rumah Tangga (0 = Not-Poor; 1= Prosperous)	0,84	0,93
Tipe Daerah Perdesaan			
Dringking Water Source (1 = Decent; 0 = In-decent)	Status Rumah Tangga (0 = Not-Poor; 1= Prosperous)	1,10	1,04

Findings

Proportion of Population by Income Level and Drinking Water Sources in Indonesia, 2013

Income Level approximated by Expenditure Group
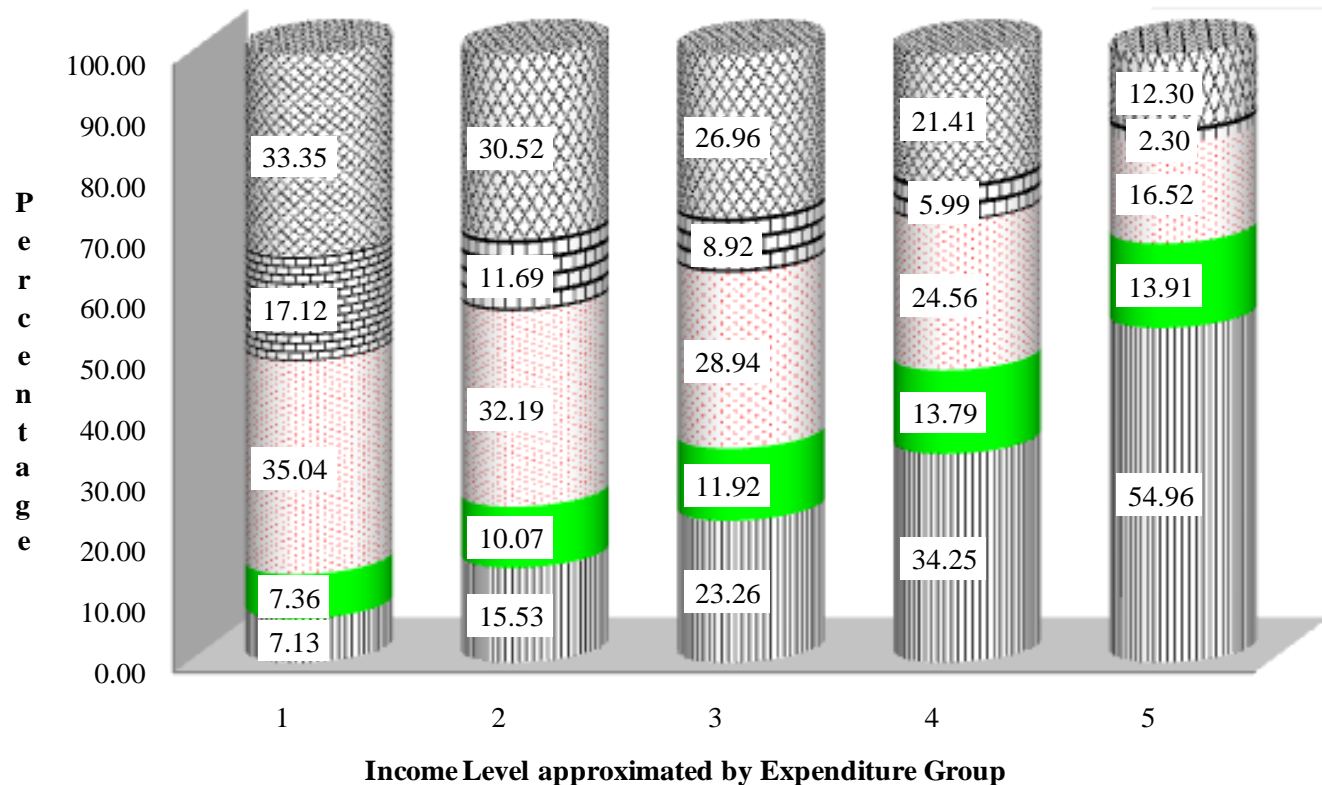
Legend:
- Packaged water
- Pipe
- Protected wells / drill / pump / decent protected springs
- Unprotected wells / springs unprotected
- Other (rivers / rain water)

Conclusion

- Water consumption pattern in rural and urban area have significant differences ..

- Poor economic status at Rural area shows insufficient enough to drive the choice of households drinking water.

- The more prosperous households tend to push consuming packed drinking water in their households (urban & rural).

Thank you