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2012 SIZE ESTIMATION OF KEY AFFECTED POPULATIONS (KAPs)

Ministry of Health Indonesia
2014



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AEM	: Asian Epidemic Model
BNN	: Badan Narkotika Nasional (National Narcotics Bureau)
BPS	: Badan Pusat Statistik (National Statistics Bureau)
CI	: Confidence Interval
DAC	: District AIDS Commission
DFSW	: Direct Female Sex Worker
FSW	: Female Sex Worker
GFATM	: Global Fund AIDS Tuberculosis Malaria
HCPI	: HIV Cooperation Program Indonesia
HIV	: Human Immunodeficiency Virus
IBBS	: Integrated Biological Behavior Survey
IDFSW	: Indirect Female Sex Worker
IPPA	: Indonesia Planned Parenthood Association
KAP	: Key Affected Population
MoH	: Ministry of Health
MSM	: Men Sex with Men
NAC	: National AIDS Commission
NAP	: National AIDS Program (Sub-Directorate of AIDS and STIs, Ministry of Health, Indonesia)
NGO	: Non Governmental Organization
PAC	: Provincial AIDS Commission
PHO	: Provincial Health Office
PLHIV	: People Living with HIV
PODES	: Survei Potensi Desa (Village Potential Survey)
PWID	: People Who Injecting Drugs
SUM 1/FHI	: Scaling Up at Most at risk population/ Family Health International
UNAIDS	: Joint United Nations Programme on HIV/AIDS
WHO	: World Health Organization

ACKNOWLEDGEMENT

The progress of the HIV - AIDS epidemic in the world has become a global problem, including in Indonesia. Reports of new cases increase every year, but it is difficult to determine the actual number of HIV infections. To understand the epidemic that occurred in Indonesia, it is necessary to estimate the size of key populations affected by HIV AIDS. Estimated number of key populations is key to understand the potential for an epidemic in the area, to estimate the burden of disease, and to prioritize appropriate responses to HIV/ AIDS epidemic .

The Ministry of Health has conducted estimation for several times, namely in 2002 , 2004, 2006 and most recently in 2009. Report of Size Estimates HIV of Key Population in 2012 is a renewal of the report of Size Estimation of Most at Risk Population in 2009 issued by the Ministry of Health in year of 2010. This report describes a comprehensive situation and can understand in relation to the size of key affected population up to district/ city level.

The data used were obtained from various agencies, including the Ministry of Health, Ministry of Law and Human Rights, Central Bureau of Statistics, the Police, the National AIDS Control, the Regional AIDS Control Commission, Health Offices, Social Services, Tourism Offices, NGOs, and Network Organization, as well as the results of Integrated Biological and Behavioral Survey (IBBS), Village Potential Survey (PODES), and HIV Sero Surveillance.

The results of 2009 estimated between 5.1 to 8.1 million people with a median value of 6.3 million people at risk infected by HIV in Indonesia outside of the general population in Papua. Estimates of 2009 also produces estimates of the number of people living with HIV aged 15-49 years ranged between 132-287 thousand people with a median value 186 thousand. The estimation results of 2009 show that some of vulnerable sub population and people living with HIV are lower than the previous estimate made in 2006 .

The estimation results in 2012 showed that there were 7.4 to 10.2 million people with a median value around 8.8 million key population. The results of these estimates are then included in the calculation of estimation and projections of HIV / AIDS in Indonesia in 2011-2016 .


The process of size estimation of the key population has gone through a long and complex process involving a variety of associated partners. This estimation methodology and results have been reviewed by a group of experts and presented to stakeholders. The results of the reviews stated that with all the limitations that exist in the calculation of this estimate, the result is the best result that can be obtained with the data available at the time the calculation is done.

We express our deepest appreciation to all parties for the attention, assistance and contribution in the preparation, implementation, and improvement of the estimation activities.

Hopefully this book useful for the HIV-AIDS control program, not only for the Ministry of Health, but also to all work partners of HIV AIDS control.

Jakarta , March 2014

Director General of DC & EH,

A handwritten signature in black ink, consisting of a large, stylized 'T' followed by a horizontal line and a small flourish.

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EXECUTIVE SUMMARY

Population size estimates of key affected populations (KAPs) are a key input for any National AIDS Program (NAP) to set priorities and implement an effective response to their HIV epidemic. The uses of KAP size estimates include allocation of resources and epidemic modeling, such as estimating the number of people living with HIV and AIDS. Indonesia has been estimating the size of KAPs since 2002 and has updated the estimates periodically since that time. The KAPs estimated through this process include 1) direct females sex workers (DFSWs), 2) indirect female sex workers (IDFSW), 3) waria, 4) men who have sex with men (MSM), and 5) people who inject drugs (PWID).

Indonesia has used state of the art extrapolation techniques for estimating KAP sizes at provincial and national level. In particular, a significant methodological innovation adopted in the last round of estimates in 2009, was the use of regression modeling to improve the extrapolation process. The basic approach estimates population sizes in districts with no direct size estimates data, by creating a predictive regression model based on district characteristics available in all areas. The best fit model is developed by using data on KAP size from districts which have mapping based estimates and plotting these “known” population sizes against district characteristics thought to be associated with size of KAPs (e.g., proportion of villages in the district with presence of sex workers, bars, hotels, industry, etc.). The district level results are summed to form the provincial and national level estimates. The 2012 size estimation used the same approach, but with improvements to the model development process (i.e. better selection of predictor variables, more systematic assessment of how well model assumptions were being met, and more stringent criteria applied to the selection of values to be used for the outcome variable). An additional adjustment to account for the hidden portion of the MSM and PWID population were also applied to the estimated figures.

The results of the 2012 national population size estimates of KAP are summarized below:

- Among all KAPs estimated the group with the largest population size was clients of direct female sex worker (Range: 4.4-6.0 million) and clients of indirect female sex workers (Range: 1.2-1.9 million).
- Compared to the 2009 estimates, the 2012 estimate of clients of sex workers is much larger. This could represent a real increase in numbers, attributable to Indonesia’s steady economic boom, but the difference may also be due in part to revisions to the model.

- The number of waria and MSM in the 2012 estimates (Range:0.9-1.2 million) was larger than in the 2009 estimate, in part due to a different method of estimating the portion of the population who do not come to public venues to meet partners. However, this value as a percentage of the total adult male population (~1.6%) remains substantially lower than proportional MSM size elsewhere in the region (2.0-5.0%).
- The number of FSW (180,000-260,000) was about the same in the 2012 and 2009 estimates.
- The 2012 size of the number of PWID (Range: 60,000-80,000) also remained unchanged from 2009. And the figures estimated by the regression model for PWID was consistent with estimation from the National Narcotics Board (NNB).

Major limitations of the exercise include 1) the uneven quality of the mapping-based size estimates which are the basis of the development of the predictive regression model, 2) the unknown proportion of hidden, at-risk MSM and PWID members, and 3) the lack of validation of the model results against ground reality. These limitations can be addressed through introducing a standardized mapping protocol for use at district level, strengthening the documentation of mapping exercises conducted, and collecting direct size estimates in a diverse array of districts with no previous data to validate the regression model developed.

It is important to emphasize that the estimates produced through this exercise are considered robust at the national level, but should be interpreted as a range which includes the real number. They are deemed to be the best estimates possible at present, given the information available. Nevertheless, they are still approximations that are subject to error of unknown magnitude and direction. Given this variability in the estimate, MOH and the size estimate expert review team recommend the use of direct size estimates, such as those obtained through geographic mapping, for district level planning, budgeting, and target setting for program coverage.

2012 SIZE ESTIMATION OF KEY AFFECTED POPULATIONS (KAPS)

I. Background

Population size estimation of key affected populations (KAPs), specifically, female sex workers (FSW), waria (transgender), people who inject drugs (PWID), and men who have sex with men (MSM), is critical for understanding the potential for the HIV epidemic to grow in a country or geographic area. Population sizes of KAP are critical data for assisting HIV and AIDS programmes to allocate resources and mount an effective response to the epidemic. National level size estimates of KAP are important for epidemic models to track the epidemic, including projecting the number of people living with HIV and AIDS.¹ But a country as large and diverse as Indonesia requires KAP size estimates at the provincial and district/municipality levels to know where the HIV epidemic potential is greatest and to better focus efforts and optimize the distribution of available resources.

Population size estimates of KAP have been recognized by national AIDS programmes, development partners, and technical agencies as some of the most critical data needed to inform the HIV epidemic in Asia and the Pacific. However, the mobile and hidden nature of most KAP groups makes direct size estimation challenging and resource intensive. In most countries, national population size estimates depend heavily on extrapolation of size data available from limited areas of a country. Through the intensive collaboration of government, civil society, academic and international development partners, Indonesia has developed a sophisticated approach to extrapolating population size estimates to national and provincial level. Indonesia started its KAP size estimation exercises in 2002 and since then has updated and refined the methodology for these estimates in 2004, 2006, 2009. This report summarizes the methods and results of the most recent effort conducted by the National AIDS Program (NAP) Ministry of Health (MOH) in 2012. The KAP sizes presented in this report are at national and provincial levels

The 2012 estimate make use of the most recent and reliable epidemiological, behavioural, and socio-demographic data available in the country.

¹ The 2012 estimates of people living with HIV /AIDS are presented in the following report, “Estimates and Projection of HIV/AIDS in Indonesia, Year 2011-2016 (MoH, 2013).

II. Methods

2.1. Definitions of Key Affected Populations (KAPs)

The following are the definitions of the KAP groups included in this population size estimates exercise.²

- a. Direct FSW: Women who sell sex as their primary income. These women usually work in and around brothels and on the streets.
- b. Indirect FSW: Women who work in the entertainment industry, such as bars, karaoke bars, massage or beauty parlors and sell sex for extra income.
- c. Waria: Male to female transgender.
- d. MSM: Men who have sex with men.
- e. PWIDs: Persons who inject drugs
- f. Clients of FSW and Waria: persons who buy sex from FSW or Waria.

2.2. Overview of the methodology

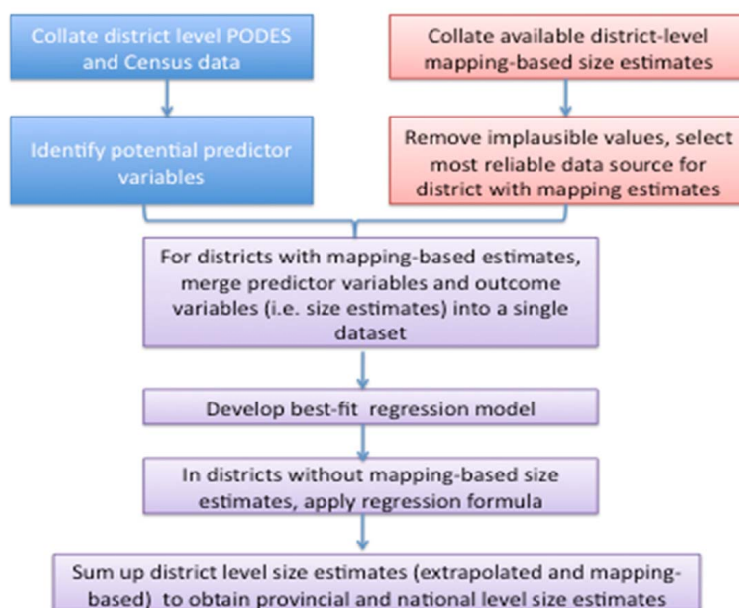
Indonesia has direct size estimates from geographic mapping for many districts/municipalities. However, due to the sheer number of districts/municipalities in the country, it is not possible to collect this data in all areas for all KAP groups. To estimate the size of KAP at the provincial and national level, it is necessary to extrapolate from areas where direct size estimates are available to areas where no direct size estimation data have been collected.

The extrapolation process in Indonesia makes use of a regular survey, known as the Village Potential survey (PODES) in every village in the country. The general intent of the PODES is to characterize local communities by social, cultural, and economic dimensions. As such, it has been possible for the national AIDS program to add a number of key variables associated with the presence of KAP in the PODES questionnaire. The PODES data provide a rich basis of information available for villages in every district/municipality. More details about the PODES data source are given in the subsequent section.

² In general, the definition of KAP groups used by the Ministry of Health includes a timeframe, i.e. individuals engaging in the defining risk behavior in the past 12 months. This has been the case for the operational definition of KAP used in the IBBS. However, the methods used in this PSE exercise is more accurately described as estimating the size of the KAP group at the “current” point in time. The actual number of individuals who meet the definition of KAP over a 12 month period is higher than the number of individuals meeting the definition at any one time, due to the natural turnover in the population, i.e. the number of KAP who leave the area or stop engaging in risk behavior to be replaced by new individuals.

Figure 1 shows the steps of the estimation process. In the districts/municipalities with mapping-based PSE, a regression model was developed for each KAP group, using Census data and the PODES data as predictor variables and the mapping-based PSE as the outcome variable. Extensive expert panel consultation was engaged to both identify the most plausible predictor variables for each KAP from among all the variables available through the PODES and Census data; and to select the most reliable mapping-based size estimates for districts/municipalities, especially in areas with multiple sources of mapping data. The expert panel also took part in reviewing the plausibility of mapping figures in each district.

Figure 1. The Estimation Process Workflow for each KAP group



The resulting best-fit regression model was then applied to districts/municipalities without mapping data (using their respective PODES results as inputs). The size estimates at district/municipality level were then summed up to form the provincial and national level estimates.

This formal regression model approach to extrapolation was first used by Indonesia in 2009. The current size estimation exercise has built on this previous round's experience, refining the model in terms of selecting the most reliable

source of available mapping data comprising the dependent variable, selection of the potential predictors, and consideration of the assumptions of the regression models used.

Although there are many strengths to the regression modeling approach used, it is important to recognize that the accuracy of the results depends heavily on the quality of the data used to develop the model. Technical experts involved in the process concluded that the mapping-based PSE were of uneven quality. For this reason several adjustments were included in the process of preparing the available data for the regression analysis.

The mapping- based size estimates, which form the basis of the regression model, are also inherently limited to estimating the size of the KAPs who can be found gathering in public venues. This is perceived to be particularly problematic for MSM and PWID.³ The MSM and PWID sub-groups not found in publicly accessible venues make substantial contributions to the HIV epidemic potential in local areas and are important to include in size estimates to better allocate resources for services. To address this issue, the final extrapolated size estimates include further adjustments to account for the hidden portion of the population for these two groups.

2.3. Detailed steps in the estimation process

The following sections describe each of the steps in greater detail.

2.3.1. Collating mapping-based size estimate data

- District PHO estimates – These estimates are usually obtained from mapping conducted for sentinel surveillance data collection;
- Provincial AIDS Commission (PAC)/District AIDS Commissions (DAC) estimates – In Global Fund supported areas, DACs contacted key stakeholders in the districts to estimate the size of KAP in the district. This process included two rounds of stakeholders consensus meetings to agree on the final estimated figures and field visits by district officers to verify the plausibility of the estimates through direct observation. However, FSW size estimate data from this source did not differentiate between direct and indirect sex workers.

³ Due to the nature of soliciting clients, the vast majority of direct FSW, indirect FSW, and Waria in Indonesia are believed to be found at publicly accessible venues that are covered by mapping based size estimates.

- NGO estimates – These data come from NGOs working with KAPs in each district; This includes the approximately 13% of districts receiving program support from the Global Fund for AIDS, TB, and Malaria (GFATM). As the primary recipient of GFATM project, the International Planned Parenthood Association (IPPA) has conducted mapping of KAP in many of their project districts;
- Ministry of Tourism estimates – Estimates for direct and indirect FSW were available. These data were based largely on the number of massage parlors in the district;
- IBBS block mapping – These data are available for districts included in the 2011 FSW IBBS conducted by MoH which included mapping and hotspot listing as part of sampling frame development for direct and indirect sex workers.

Table 1 shows the number of districts with data according to the type of data sources and KAPs. ⁴

Table 1. Summary of Data Available: # of districts with specified source of mapping data

KAP	Public Health Office	Provincial/ District AIDS Commission	NGO	Ministry of Tourism	IBBS Block mapping
DFSW	238	96	63	15	13
IDFSW	198	96	81	47	9
Waria	189	96	93	NA	NA
MSM	141	87	88	NA	NA
PWID	115	70	57	NA	NA

2.3.2. Data cleaning and selection

Data cleaning began with a closer examination of available data on KAP sizes at the district level. The objective of the data cleaning process was to exclude poor quality data and in districts with multiple sources of size estimate data, to select the estimate which was likely to be of greatest reliability.

⁴ Data on the size of the direct FSW and Waria groups were also available from the Ministry of Social Affairs, however these data are based on the number of arrests among KAP and deemed to be unrepresentative of the majority of KAP.

Data selection and cleaning took place from 22-31 May, 2012, and involved a panel of experts from the MoH, the Scaling Up for Most-at-risk populations (SUM) intervention implemented by FHI360, WHO, national statisticians, epidemiologists and several international consultants. The process involved removing implausible district level KAP size estimates from the dataset (i.e. values that were far outside of expected values or reasonable regional norms). To drop any value, the panel had to reach consensus that an estimate was implausible. Examples of implausible data included unexpectedly large values (e.g., 5% or more women in a district being sex workers or 1% or more men being Waria) or unexpectedly low values (e.g., 0% of women being sex workers or 0% of men being MSM in large urban areas). If particular values were deemed to be implausible, a blank was inserted in the database in the place of the implausible value. Special attention was given in the data editing to differentiate between zero values and missing or blank values.

Once implausible values were removed, the expert panel selected which size estimate value should be used in the regression modeling, for districts where multiple data sources were available.⁵ The panel used the following set of decision rules:

- If a district had an IBBS block mapping, the value was selected as the most plausible estimate;
- If no IBBS mapping available, the NGO estimate was considered the next most valid.
- If no NGO estimate was available, then the PHO value was used;
- If no PHO value was available, then the PAC value was used;
- In a few cases, FSW data from the Ministry of Tourism was used, when no other source of data were available and the estimate met the test of plausibility.

⁵ This is a marked difference from how the regression model was developed in 2009. In the earlier round, all available KAP size estimates from all available data sources were used in the model. For example, if one district had four size estimate values from four different sources, the district was included in the model four times, with each value was included as independent record. This approach can bias the estimates by allowing districts with multiple sources of data to disproportionately influence the regression results in comparison with districts with fewer sources of data. Furthermore, this approach violated the assumption of independence required by the regression modeling, as size estimates from different sources were not independent because they estimated the same population in a particular district. To avoid these problems, the methodology was changed for the current size estimation process.

At the end of this process, the number of districts with data available for inclusion in the regression model varied from 24% for PWID to 52% for IDFSW and Waria, (See Table 2.)

Table 2. Number and percent of districts with usable mapping data, by KAP

KAP	Number of Districts	Percent of Districts
DFSW	251	51%
IDFSW	260	52%
Waria	259	52%
MSM	144	29%
PWID	119	24%

2.3.3. Predictor selection

Potential predictor variables from the 2011 PODES survey⁶ and the 2010 population Census were identified through consultation with the expert panel.⁷

The predictor variables selected were those believed to be correlated or influencing the population size of specific KAP. For example, districts with a high level of mining activity will attract FSWs but not MSMs; or Internet cafés are a known way/place for MSM to communicate with each other, but is not relevant for FSWs. Table 3 shows the list of predictors selected for each of KAP.

⁶ The PODES is conducted every three years among village heads asking them to characterize their village by a number of socio-economic-cultural dimensions. These data are then aggregated at the district level indicating the proportion of villages in that district that have the specified characteristic. The village is the lowest level of government administration in Indonesia. The PODES data are collected from approximately 68,000 villages in the country.

⁷ Both datasets are collected and maintained by the Central Bureau of Statistics (BPS).

Table 3. List of predictors for each KAP

Predictor by District	DFSW	IDFSW	Waria	MSM	IDU
Number of villages with brothels operated in the areas	√				
Number of villages with urban status	√	√	√	√	√
Number of villages with cinemas operated in the areas	√	√	√	√	
Number of villages with discotheques operated in the areas	√	√	√	√	
Number of villages with billiard lounge operated in the areas	√	√	√	√	
Number of villages with internet cafes operated in the areas	√	√	√	√	
Number of villages with reported rape cases	√	√			
Number of villages with reported narcotics cases	√				√
Number of villages with reported street children activities	√	√	√	√	√
Number of villages with hotel operated in the areas	√	√	√	√	
Number of villages with motel operated in the areas	√	√	√	√	
Number of villages with mining industry activities	√	√	√	√	√
Number of villages with manufacturing industry activities	√	√	√	√	√
Number of villages with trade industry activities	√	√	√	√	√
Number of villages with warehousing industry activities	√	√	√	√	√
Number of villages with service industry activities	√	√	√	√	√
Number of reproductive age male (15 – 49 years old)	√	√	√	√	
Number of reproductive age female (15 – 49 years old)	√	√	√	√	

Note: Highlighted cells reflect predictors included in the final regression model for each KAP.

The 2012 population size projections for each district were also included (i.e total, females 15-49 years of age, males 15-49 years of age) as predictor variable, as larger urban areas are often associated with larger concentrations of KAP. These population projections were based on the 2010 National Population Census taking into account the annual population growth rate.

2.3.4. Developing the regression models for each KAP group

Linear regression was selected as the initial model used in the analysis. Linear regression is an approach to modeling the relationship between a continuous dependent variable y and one or more explanatory variables denoted x .

In linear regression, data is modeled using linear predictor functions, and unknown model parameters are estimated from the data. Most commonly, linear regression refers to a model in which the conditional mean of y given the value of x is a parallel function of x .

The linear regression model takes the form:

$$Y_{(i)} = a + b_1x_{1i} + b_2x_{2i} + b_3x_{3i} + \dots + b_nx_{ni} + e_{(i)}$$

Where:

$Y_{(i)}$ = predicted population size for district (i)

a = regression intercept

$b_1, b_2, b_3, \dots, b_{(n)}$ = unstandardized regression coefficients (estimated)

$x_1, x_2, x_3, \dots, x_{(ni)}$ = values of the respective independent or predictor variables for district (i)

$e_{(i)}$ = residual error for district (i).

Several assumptions have to be met before running the regression model. First, the measurement scales of both dependent variable and predictor(s) are interval or ratio, therefore most of the predictor variables used were transformed into proportion forms (*see Table 3*). Second, the values of each predictor are assumed to follow a normal distribution, with mean equal to μ_{yx} and constant variance, σ_{yx}^2 . Third, is the assumption that the value of dependent variable is a linear function of the value of predictor. This assumption is confirmed by plotting the unstandardized predicted values against the predictor variable. Fourth, the

homoscedasticity assumption which implies that the value of the dependent variable is normally distributed and of constant variance for all values of the predictor variables. This assumption is confirmed by plotting standardized residuals against the predictor variable.

For each KAP group, regression diagnostics were examined for each potential predictor variable to confirm that regression assumptions were not violated. It was found that linear regression model was the most suitable analysis method for DFSW, IDFSW, Waria and MSM populations. The negative binomial regression model produced the best fit for PWID population, as the mean is less than its variance ($\mu < \sigma^2$.) and the data were overly dispersed. The negative binomial regression model takes the form:

$$Y_{(i)} = e^{(b_0 + b_1 x_{1i} + b_2 x_{2i} + \dots + b_n x_{ni})}$$

Where:

$Y(i)$ = predicted population size for district (i)

e = exponential function

b_0 = intercept

$b_1, b_2, b_3, \dots, b_{(n)}$ = regression coefficients (estimated)

$x_{1i}, x_{2i}, x_{3i}, \dots, x_{(ni)}$ = values of the respective independent or predictor variables for district (i).

All predictor variables were tested univariately to determine which should be initially included in the regression model. The statistically significant variables in the univariate analysis were entered into multivariable regressions. Both forward and backward regression approaches were used to find the best fitting models. Regression scatterplots were used to visually examine data outliers. Extreme outliers were dropped from the analysis in order to improve model fit. The resulting best-fit models for each of the KAP are described in **Table 4**.

Table 4. Regression Model for each KAP

KAP	Regression model
DFSW	$Y = 8.6 - 290.1(\text{Prop_urban}) + 4845.2(\text{Prop_cinema}) + 802.7(\text{Prop_discotheque}) + 364.9(\text{Prop_billiard}) + 953.8(\text{Prop_narcotics}) + 476.9(\text{Prop_street_children}) + 1035.3(\text{Prop_industry}) + 0.001(\#_reproductive_male)$
IDFSW	$Y = 26.6 + 4676.1(\text{Prop_cinema}) + 648.4(\text{Prop_discotheque}) + 410.7(\text{Prop_billiard}) + 0.0004(\#_reproductive_male)$
Waria	$Y = 20.4 - 63.7(\text{Prop_urban}) + 853.3(\text{Prop_cinema}) + 194.6(\text{Prop_billiard}) + 114.5(\text{Prop_street_children}) + 58.9(\text{Prop_hotel}) + 157.7(\text{Prop_industry}) + 157.8(\text{Prop_services}) + 0.0002(\#_reproductive_male)$
MSM	$Y = -24.1 + 4603.6(\text{Prop_cinema}) + 410.7(\text{Prop_internet_cafe}) - 187.4(\text{Prop_industry}) + 0.001(\#_reproductive_male)$
PWID	$Y = e^{(3.8 + 0.03(\text{Street_children}) + 0.1(\text{Trading}) + 0.4(\text{Warehouse}) + 0.04(\text{Service}))}$

Note:

Prop_urban	: proportion of villages with urban status
Prop_cinema	: proportion of villages with cinemas operated in a district
Prop_discotheque	: proportion of villages with discotheques in a district
Prop_billiard	: proportion of villages with billiard lounge in a district
Prop_narcotics	: proportion of villages with reported narcotics cases in a district
Prop_street_children	: proportion of villages with reported street children activities in a district
Prop_industry	: proportion of villages with manufacturing industry in a district
Prop_hotel	: proportion of villages with hotel operated in a district
Prop_services	: proportion of villages with service industry activities in a district
Prop_internet_cafe	: proportion of villages with internet cafes operated in a district
#_reproductive_male	: number of man age 15-49 years in a district
Street_children	: number of villages with reported street children activities
Trading	: number of villages with trade industry activities
Warehouse	: number of villages with warehousing industry activities
Service	: number of villages with service industry activities

Measures of goodness of fit, R^2 , are provided in the table 5 by KAP. Goodness of fit measures how good the predictors' variables in explaining/predicting the observed outcome.

Table 5. Measures of goodness of fit

KAP	R-Squared
DFSW	0.659
IDFSW	0.521
Waria	0.735
MSM	0.435
PWID	0.706

2.3.5. Development of unadjusted provincial and national level size estimates

The final regression model for each KAP was then applied in each districts without mapping data, i.e. using the values from the PODES as inputs, the regression formula was used to generate the predicted district level population size estimate. This dataset was then merged with the best quality mapping-based size estimates in districts with mapping data. The merged dataset represents population size estimates for all KAPs in each district in Indonesia. The estimates from each district were simply summed to obtain the provincial and national level size estimates.

2.4. Adjusting estimates for hidden MSM and PWID sub-populations

The population size estimates were further adjusted to take into account fractions of hidden sub-population of MSM and PWID, i.e. those who do not regularly go to publicly accessible venues to meet partners or socialize with other KAP. It was assumed that the available mapping estimates include the portion of the population who are most likely to be accessible to the interventions, i.e. those who are covered by NGO outreach efforts. In the 2009 population size estimate exercise, the inflation factor applied to all districts was 6 times the number estimated from the regression model.

For the 2012 population size estimate exercise, data from the IBBS was used to develop the inflation factor used for MSM & IDU. Although mapping is limited to the proportion of the population who come to public venues, in contrast, the KAP IBBS of IDU and MSM uses the respondent driven sampling methodology to recruit participants and is perceived to be more representative of the hidden portion of these communities. Based on this rationale, the predicted and mapping based size estimates were inflated by the proportion of MSM and PWID in the IBBS who reported that they were NOT contacted by outreach workers in the past 12 months.⁸ The percent not exposed to intervention were derived from both the 2009 and 2011 KAP IBBS because these two rounds included two different sets of survey districts. The IBBS sites which were included in the 2011 KAP IBBS are considered those with more severe HIV epidemics; while sites which were included in the 2009 KAP IBBS have more moderate HIV epidemics.

⁸ The specific question wording in the IBBS was -- MSM: Have you been contacted by an outreach worker in the past 12 months? IDU: Have you ever been contacted by an outreach worker?

Because each IBBS survey site had a different value for the percent unexposed to intervention, it was necessary to match IBBS districts to non-IBBS districts. For the purposes of planning GFATM activities, MOH and its partners had categorized districts according to epidemic severity, i.e. Category A for the most severe, Category B for districts of moderate severity, and Category C for lower severity epidemics and also the areas with the lowest levels of prevention coverage.⁹ The GFATM categorization also correspond to the districts included in different rounds of the IBBS, i.e. 23 of the 71 Category A districts were sites in the 2011 KAP IBBS, while 9 of the Category B districts were sites in the 2009 KAP IBBS. The following decision rules were used for applying the hidden population adjustments:

- Districts with IBBS data – direct estimate from IBBS data
- In districts without IBBS data, but where IBBS data were available from other districts in the same provinces - use the average of IBBS district estimates from the same province
- GFATM Category A districts – adjusted by the average value of 2011 IBBS district estimates
- GFATM Category B districts – adjusted by the average value of 2009 IBBS district estimates
- GFATM Category C districts – adjusted by doubling the inflation factor used for Category B districts.¹⁰

The actual inflation factors applied for each KAP and category of districts are shown in Table 6.

⁹ The GFATM categorization also reflects when districts were phased for programming, under the premise that districts/provinces with more severe epidemics should be prioritized for services first. Category A districts were selected for the GF Round 8 proposal and included 71 districts in 12 provinces (North Sumatera, Riau, Riau Island, South Sumatera, DKI Jakarta, West Java, Central Java, East Java, Bali, South Sulawesi, Papua and West Papua). Sixty-five districts comprise Category B, which were selected on the basis of high burden of disease (among the remaining non Category A districts) and capacity to conduct programs. Category C districts were selected from outside the initial 12 provinces, focusing on districts where HIV infection has been diagnosed in the other 21 provinces. A majority of these districts required additional capacity building before programs could be initiated.

¹⁰ This adjustment is based on the reasoning that KAP in the lowest burden districts are more hidden/less exposed to program. Because there are no IBBS districts in low burden provinces, it was necessary to apply adjustments from the moderate burden districts included in the 2009 IBBS.

Table 6. Inflation factors applied to MSM and IDU

	MSM inflation factor	IDU inflation factor
GFATM Category A districts	5 times	1.21 times
GFATM Category B districts	5.9 times	1.44 times
GFATM Category C districts	11.8 times	2.88 times

2.5. Estimating the number of clients of FSW and Waria

Mapping is not generally considered a feasible method to estimate the number of clients of sex workers. Instead, the estimation is based on a formula which considers:

1. the size estimates of FSW/Waria;
2. number of commercial clients reported by FSW/Waria in a defined period, as measured in the 2009 and 2011 IBBS;
3. number of working days per month and number of working months in the previous year reported by FSW/Waria, as measured in the 2009 and 2011 IBBS; and
4. number of FSW and Waria visited during the previous 12 months, measured in male (client) in selected occupational categories.

The following formula was used:

clients of FSW = [# FSW * Avg. clients/day * Avg. working days/month * Avg. working months/year * (1 - % foreign clients)]/ Avg. # FSW in last year among clients

The same formula was used to estimate the number of clients of Waria. Foreign clients of both FSW and Waria were excluded because they were excluded from high-risk men sample in the 2009 and 2011 IBBS. As foreign clients account only for 0.44% of the FSW reported clients in the 2011 IBBS, the proportion of foreign clients was considered negligible.

2.6. Estimating the precision of the population size estimates

Given the nature of the method used in mapping the population size of KAPs, estimating the error associated with the estimated size of KAPs in districts with mapping data is challenging. In order to be able to calculate the precision of the estimated sizes of KAPs in each district, it was assumed that the mapping-based estimates were subject to random measurement error. Therefore, it was assumed that the mapping counts used in the 2012 KAP size estimation update were comparable to a sample from random sampling distribution, and justifying the estimation of variance as the element variance among the KAP size estimates and predicted counts generated via regression.

Calculation of the 95% Confidence Interval (CI) for the national and provincial population size estimates is as follows:

$$(x)$$

Where:

$$(i)-x)^2/(n-1)$$

$x(i)$ = estimated size in district (i)

x = mean of district sizes

n = number of districts

The interpretation of CI is as follows. The actual size of the KAP population in question is likely to fall within the range indicated by the CI with 95% certainty. The point estimate indicates the best or most likely estimate of size, but it is not possible to determine a probability that the point estimate is the correct population size, only that it is the most likely of sizes that fall within the population sizes contained within the CI.

III. Results

Table 7 summarizes the results of the size estimation update at the national level. Provincial level size estimates are presented in Appendix I. District level size estimates are presented in Appendix II, however, these are intended primarily as a reference to show how the provincial level estimates were calculated. (The district level size estimates which are predicted from the regression models are not intended for use in district level planning, budgeting or target setting. The limitations of these data are given in further detail in the section 4. Discussion.)

The estimated total population size of the KAPs ranged from 7.4 to 10.2 million, with the best estimate of 8.8 million. The client of DFSWs had the highest population size of 5.3 million, followed by client of IDFSW (1.5 million).

Table 7. Summary of Updated Estimates, 2012: National level KAP Size estimates

KAP	Estimated KAP size		
	Point Estimates	Lower Estimates	Upper Estimates
DFSWs	124,996	105,996	143,996
IDFSWs	104,860	81,382	128,338
Clients of DFSWs	5,229,686	4,434,943	6,024,444
Clients of IDFSWs	1,517,858	1,177,982	1,857,729
Waria	37,998	33,828	42,172
Clients of Waria	597,062	531,541	662,657
MSM	1,095,970	962,251	1,229,670
PWIDs	74,326	61,901	88,320

Figures 2-5 show the differences in population sizes of FSW, Waria, MSM and PWID estimated in different rounds of the PSE exercise. Because both the quality of mapping-based size estimates and the process for extrapolation have changed, it is not possible to interpret these changes as a trend. Overall, the number of Waria and MSM population estimated was larger in each subsequent round of the PSE exercise. The estimates of FSW have been fairly stable over the last ten years period. In contrast, the PWID estimates have decreased from 2006 to 2009 but not from 2009 to 2012.

Figure 2. Size Estimates for Female Sex Workers in 2002-2011

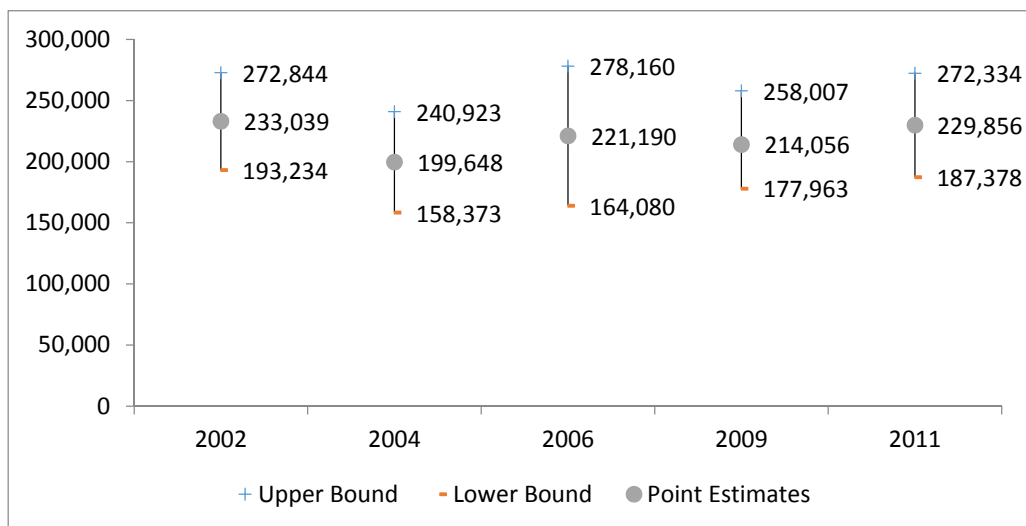


Figure 3. Size Estimates for Waria in 2002-2011

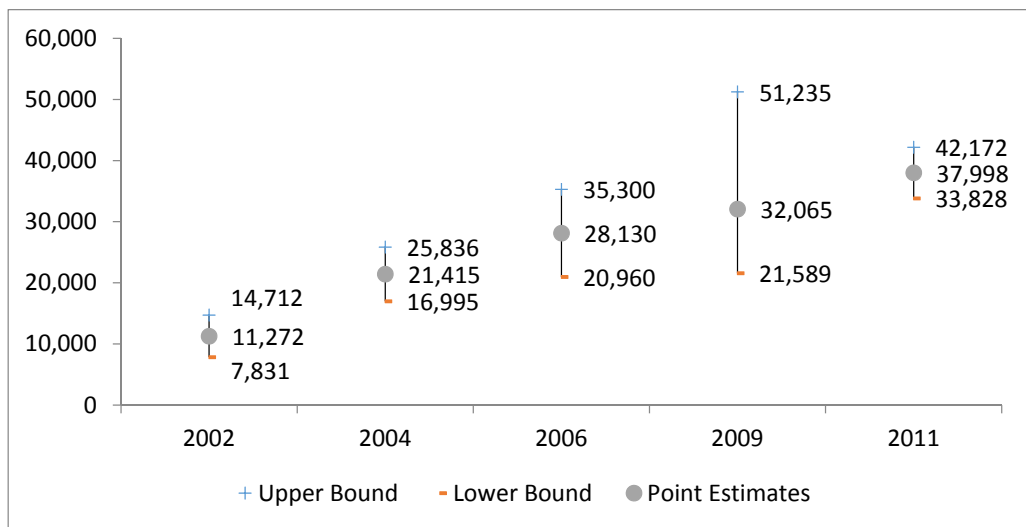


Figure 4. Size Estimates for MSM in 2002-2011

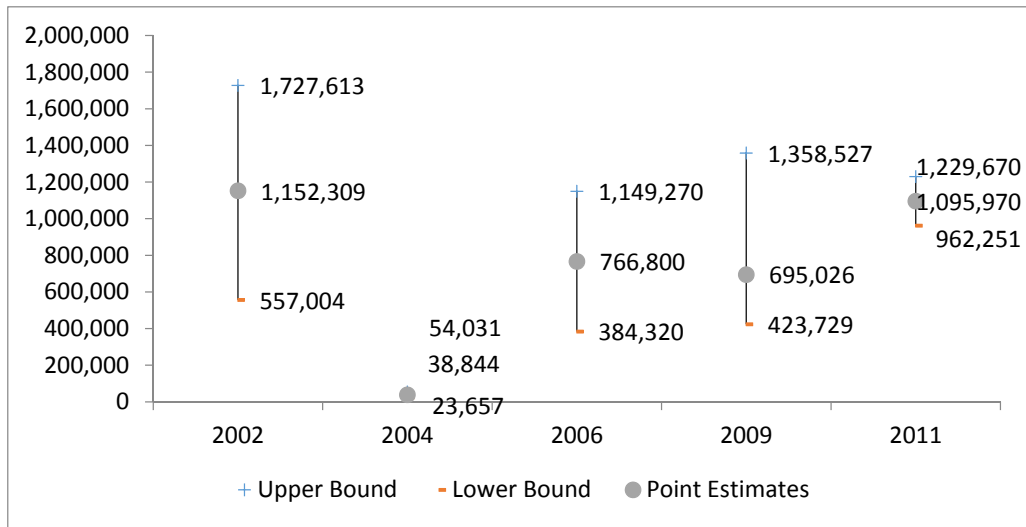
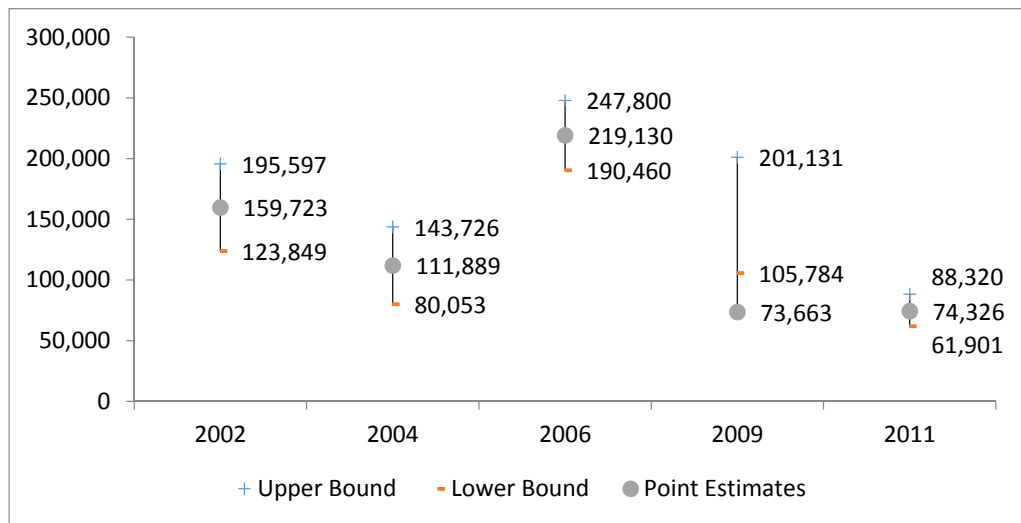


Figure 5. Size Estimates for PWID in 2002-2011



IV. Discussion

The method used to generate KAP population size estimates in Indonesia represents some of the most innovative and extensive, data-driven extrapolation approaches used globally. The resources and effort invested by MoH and its stakeholders in this process represent a strong commitment to evidence-based planning and resource allocation for the national AIDS strategy.

The adjusted national-level size estimates resulting from this 2012 exercise have been examined by key stakeholders as part of the verification process undertaken by the MoH. Key stakeholders deemed the revised estimates plausible. The adjusted national estimates are also consistent with the patterns of other concentrated HIV epidemics Asian countries with regard to the proportion of the total population who are KAPs (Table 8). The MSM size estimate was the only group that was a significantly lower proportion of the total population as compared to other countries in the region. This is despite a large adjustment factor applied to address the sub-group of MSM who are not included in mapping-based size estimates, i.e. who are hidden.

Table 8. Comparison of 2012 Indonesia Size Estimates as a Percent of Total Population by Gender with Asian Regional Norms

KAP	2012 Estimates	Regional Patterns
FSWs	0.35% (0.28% -- 0.41%)	0.2 – 0.8%
Clients of FSWs	10.09% (8.40 – 11.79%)	1.0 – 20.0%
MSM	1.64% (1.44 – 1.84%)	2.0 – 5.0%
Waria	0.06% (0.05 – 0.06%)	Not available
PWID	0.11% (0.09 – 0.13%)	0.0 – 0.7%

Source of regional data: University of Hawaii, East-West Center, July 2012

The 2012 methodology for estimating population sizes of KAPs in Indonesia have undergone significant improvements compared to that used in the 2009 estimates.

In particular,

- Instead of using an a-priori assumption about the distribution of population estimates (i.e. a Poisson distribution as in 2009), different regression models for each of the KAP were explored. After checking model assumptions, it was found that the ordinary least squares regression was the most suitable regression model for most of the KAPs (direct and indirect FSW, Waria and MSM). Only PWID population used negative binomial regression.

- Where mapping-based size estimates were available, a single best estimate was selected for each district and used as the dependent variable value rather than including multiple data points for the same district (as was done in 2009). Decision rules for selecting the most reliable mapping-based size estimate was developed by the expert panel;
- More rigorous and extensive data cleaning was done before running regressions. Implausible mapping counts and extreme data points were excluded, resulting in improved fit of the regression models;
- Adjustments for the hidden sub-population of MSM and PWID population was systematically addressed. Despite the fact that the factors included in the adjustment were far from ideal, ignoring these factors would lead to gross underestimation. Furthermore, despite the aggressive adjustment made for MSM population, the estimated population proportion of MSM was significantly lower than current pattern found in other Asian countries.

The point estimate of PWID in 2012 shows a marked reduction compare to the 2009 point estimate. The figure is also within the range of PWID size estimation from the National Narcotics Board (BNN) using different sources of data and estimation methods. The estimates are also consistent with anecdotal evidence suggesting a continuing trend of substitution of oral methamphetamines for injected heroin among drug users. The reduction may also be due to fewer individuals injecting drugs or a higher mortality rate among PWID

There is a significant increase in the population size of clients of sex workers compared to the 2009 estimates. The significant increase may reflect the steady economic boom experienced in Indonesia, and the associated large migrant population in recent years. The revised estimation is consistent with the estimated proportion of men in the general population buying sex in the prior 12 months in other Asian countries. However, this increase could also be the result of changes in the estimation method.

The current national population size estimates should be interpreted carefully, in light of the potentially wide range associated with these estimates. While we are confident that the size estimation methods used in 2012 has further refined the methods used in the previous exercises, there are a number of important limitations to consider, such as:

- Despite efforts to choose the most reliable mapping-based size estimate, the mapping process used for obtaining those estimates were not well documented or standardized, and therefore their quality is unknown.
- The adjustments to account for the hidden sub-groups of MSM and PWID are based on survey data from a few IBBS districts. On a district by district basis it is not known how applicable these data were in representing the hidden portion of the population.
- The data used to develop the regression model are biased toward districts with higher numbers of KAP. This is because mapping and prevention interventions are prioritized in areas where KAP are perceived to be in larger numbers. In turn, the regression model results were applied to districts without mapping data and which were likely to have smaller numbers of KAP. The power of the model to predict population sizes in those districts may be limited.
- PODES has a limited number of “predictor” variables and there may be other characteristics of districts which would more accurately predict the size of the KAP.

A number of these limitations can be addressed as Indonesia prepares for the next round of size estimates and further refines the methodology used. Recommendations for follow-up work include:

- Development and adoption of a standardized protocol for conducting mapping of KAP at district level. This protocol would introduce minimum quality standards and tools for managing and documenting the process so the results are of greater benefit both for local program planners and in use in provincial or national level size estimation exercises in the future.
- Further analysis of the predictors included in the best-fit regression model, to determine how they perform in a variety of districts and with different outcome data sources and different time periods.
- Validation of the best-fit regression models in districts with smaller numbers of KAP. This would require mapping of KAP in a selection of districts where direct size estimates were not previously available. The resulting mapping based estimates could then be compared to the predicted value resulting from the regression models.

The methodology for national and provincial size estimates presented in this report are best described as an indirect method of size estimation. At these levels (i.e. provincial and national levels) this type of extrapolation approach is appropriate and practical for estimating higher level resource needs, however it should be recognized that for local level planning, budgeting, and target setting, KAP population size estimates should be based on directly obtained local data, e.g. mapping based size estimates.

Finally, the Size Estimation Team wishes to reiterate that the results presented in this report are exactly what the report title indicates – **estimates**. They are deemed to be the best estimates possible at present given the information available, but nevertheless are approximations subject to error of unknown magnitude and direction, and should be interpreted and used accordingly.

ANNEXES

Annex 1. Provincial level KAP size estimates

I. Direct female sex worker

Province	Size Estimation		
	Point	Lower	Upper
NAD	2,179	1,852	2,506
Sumatra Utara	9,032	7,677	10,387
Sumatra Barat	3,089	2,626	3,552
Riau	3,643	3,097	4,189
Jambi	3,937	3,346	4,528
Sumatra Selatan	3,740	3,179	4,301
Bengkulu	1,235	1,050	1,420
Lampung	1,172	996	1,348
Kep. Bangka Belitung	481	409	553
Kepulauan Riau	1,195	1,016	1,374
DKI Jakarta	15,395	13,086	17,704
Jawa Barat	18,106	15,390	20,822
Jawa Tengah	13,205	11,224	15,186
DI Yogyakarta	1,945	1,653	2,237
Jawa Timur	14,831	12,356	17,306
Banten	2,798	2,378	3,218
Bali	3,378	2,871	3,885
Nusa Tenggara Barat	2,888	2,455	3,321
Nusa Tenggara Timur	7,245	6,158	8,332
Kalimantan Barat	1,490	1,267	1,714
Kalimantan Tengah	1,695	1,441	1,949
Kalimantan Selatan	845	718	972
Kalimantan Timur	1,041	885	1,197
Sulawesi Utara	1,315	1,118	1,512
Sulawesi Tengah	983	836	1,130
Sulawesi Selatan	1,646	1,399	1,893
Sulawesi Tenggara	913	776	1,050
Gorontalo	486	413	559
Sulawesi Barat	344	292	396
Maluku	1,233	1,048	1,418
Maluku Utara	535	455	615
Papua Barat	777	660	894
Papua	2,199	1,869	2,529
Grand Total	124,996	105,996	143,996

II. Client of direct female sex worker

Province	Size Estimation		
	Point	Lower	Upper
NAD	78,239	66,503	89,975
Sumatra Utara	171,981	146,184	197,778
Sumatra Barat	110,915	94,278	127,552
Riau	136,458	115,989	156,927
Jambi	115,228	97,944	132,512
Sumatra Selatan	130,215	110,683	149,747
Bengkulu	44,342	37,691	50,993
Lampung	38,758	32,944	44,572
Kep. Bangka Belitung	9,695	8,241	11,149
Kepulauan Riau	42,908	36,472	49,344
DKI Jakarta	962,289	817,946	1,106,632
Jawa Barat	826,518	702,540	950,496
Jawa Tengah	448,446	381,179	515,713
DI Yogyakarta	60,743	51,632	69,854
Jawa Timur	702,735	587,035	818,450
Banten	47,819	40,646	54,992
Bali	214,876	182,645	247,107
Nusa Tenggara Barat	183,578	156,041	211,115
Nusa Tenggara Timur	237,283	201,691	272,875
Kalimantan Barat	53,499	45,474	61,524
Kalimantan Tengah	60,861	51,732	69,990
Kalimantan Selatan	63,508	53,982	73,034
Kalimantan Timur	90,254	76,716	103,792
Sulawesi Utara	13,603	11,563	15,643
Sulawesi Tengah	35,295	30,001	40,589
Sulawesi Selatan	108,179	91,952	124,406
Sulawesi Tenggara	32,783	27,866	37,700
Gorontalo	17,451	14,833	20,069
Sulawesi Barat	12,352	10,499	14,205
Maluku	56,605	48,114	65,096
Maluku Utara	19,210	16,329	22,092
Papua Barat	32,438	27,572	37,304
Papua	70,622	60,029	81,215
Grand Total	5,229,686	4,434,943	6,024,444

III. Indirect female sex worker

Province	Size Estimation		
	Point	Lower	Upper
NAD	929	725	1,133
Sumatra Utara	5,116	3,990	6,242
Sumatra Barat	2,197	1,714	2,680
Riau	2,785	2,172	3,398
Jambi	1,641	1,280	2,002
Sumatra Selatan	1,719	1,341	2,097
Bengkulu	1,403	1,094	1,712
Lampung	845	659	1,031
Kep. Bangka Belitung	472	368	576
Kepulauan Riau	1,312	1,023	1,601
DKI Jakarta	23,286	18,163	28,409
Jawa Barat	10,876	8,483	13,269
Jawa Tengah	10,023	7,818	12,228
DI Yogyakarta	706	551	861
Jawa Timur	10,557	8,234	12,880
Banten	1,365	1,065	1,665
Bali	3,464	2,702	4,226
Nusa Tenggara Barat	4,570	3,156	5,984
Nusa Tenggara Timur	6,427	5,013	7,841
Kalimantan Barat	1,071	835	1,307
Kalimantan Tengah	2,150	1,677	2,623
Kalimantan Selatan	1,476	1,151	1,801
Kalimantan Timur	759	592	926
Sulawesi Utara	1,360	1,061	1,659
Sulawesi Tengah	776	605	947
Sulawesi Selatan	1,627	1,269	1,985
Sulawesi Tenggara	1,096	855	1,337
Gorontalo	373	291	455
Sulawesi Barat	299	233	365
Maluku	1,082	844	1,320
Maluku Utara	635	495	775
Papua Barat	871	679	1,063
Papua	1,592	1,242	1,942
Grand Total	104,860	81,382	128,338

IV. Client of indirect female sex worker

Province	Size Estimation		
	Point	Lower	Upper
NAD	8,205	6,400	10,010
Sumatra Utara	90,881	70,887	110,875
Sumatra Barat	19,408	15,138	23,678
Riau	36,882	28,768	44,996
Jambi	17,021	13,276	20,766
Sumatra Selatan	47,812	37,293	58,331
Bengkulu	12,399	9,671	15,127
Lampung	6,789	5,295	8,283
Kep. Bangka Belitung	2,961	2,310	3,612
Kepulauan Riau	11,596	9,045	14,147
DKI Jakarta	481,394	375,487	587,301
Jawa Barat	120,296	93,831	146,761
Jawa Tengah	209,383	163,319	255,447
DI Yogyakarta	12,110	9,446	14,774
Jawa Timur	155,814	121,503	190,043
Banten	13,503	10,532	16,474
Bali	15,502	12,092	18,912
Nusa Tenggara Barat	57,351	38,819	75,960
Nusa Tenggara Timur	72,152	56,279	88,025
Kalimantan Barat	9,463	7,381	11,545
Kalimantan Tengah	18,997	14,818	23,176
Kalimantan Selatan	16,936	13,210	20,662
Kalimantan Timur	10,287	8,024	12,550
Sulawesi Utara	9,453	7,373	11,533
Sulawesi Tengah	6,859	5,350	8,368
Sulawesi Selatan	17,400	13,572	21,228
Sulawesi Tenggara	9,681	7,551	11,811
Gorontalo	3,298	2,572	4,024
Sulawesi Barat	2,645	2,063	3,227
Maluku	3,328	2,596	4,060
Maluku Utara	5,613	4,378	6,848
Papua Barat	5,491	4,283	6,699
Papua	6,948	5,419	8,477
Grand Total	1,517,858	1,177,982	1,857,729

V. Waria

Province	Size Estimation		
	Point	Lower	Upper
NAD	794	707	881
Sumatra Utara	2,866	2,551	3,181
Sumatra Barat	822	732	912
Riau	738	657	819
Jambi	869	773	965
Sumatra Selatan	1,477	1,315	1,639
Bengkulu	353	314	392
Lampung	1,265	1,126	1,404
Kep. Bangka Belitung	315	280	350
Kepulauan Riau	962	856	1,068
DKI Jakarta	1,502	1,337	1,667
Jawa Barat	3,850	3,427	4,274
Jawa Tengah	2,932	2,609	3,255
DI Yogyakarta	387	344	430
Jawa Timur	4,364	3,894	4,840
Banten	1,337	1,190	1,482
Bali	1,296	1,153	1,439
Nusa Tenggara Barat	1,043	928	1,158
Nusa Tenggara Timur	866	771	961
Kalimantan Barat	534	475	593
Kalimantan Tengah	414	368	460
Kalimantan Selatan	578	514	642
Kalimantan Timur	1,323	1,177	1,469
Sulawesi Utara	981	873	1,089
Sulawesi Tengah	558	497	619
Sulawesi Selatan	2,535	2,256	2,814
Sulawesi Tenggara	413	368	458
Gorontalo	339	302	376
Sulawesi Barat	256	228	284
Maluku	334	297	371
Maluku Utara	470	418	522
Papua Barat	248	221	275
Papua	977	870	1,084
Grand Total	37,998	33,828	42,172

VI. Client of Waria

Province	Size Estimation		
	Point	Lower	Upper
NAD	8,125	7,231	9,019
Sumatra Utara	45,044	40,089	49,999
Sumatra Barat	8,422	7,496	9,348
Riau	10,583	9,419	11,747
Jambi	8,885	7,908	9,862
Sumatra Selatan	35,472	31,570	39,374
Bengkulu	3,609	3,212	4,006
Lampung	9,853	8,769	10,937
Kep. Bangka Belitung	3,222	2,868	3,576
Kepulauan Riau	13,830	12,309	15,351
DKI Jakarta	28,070	24,982	31,158
Jawa Barat	44,414	39,528	49,300
Jawa Tengah	56,249	50,062	62,436
DI Yogyakarta	4,137	3,682	4,592
Jawa Timur	143,340	127,728	159,026
Banten	9,171	8,162	10,180
Bali	20,752	18,469	23,035
Nusa Tenggara Barat	10,669	9,495	11,843
Nusa Tenggara Timur	7,230	6,435	8,025
Kalimantan Barat	9,020	8,028	10,012
Kalimantan Tengah	4,229	3,764	4,694
Kalimantan Selatan	5,912	5,262	6,562
Kalimantan Timur	18,153	16,156	20,150
Sulawesi Utara	12,652	11,260	14,044
Sulawesi Tengah	5,708	5,080	6,336
Sulawesi Selatan	36,385	32,383	40,387
Sulawesi Tenggara	4,220	3,756	4,684
Gorontalo	3,466	3,085	3,847
Sulawesi Barat	2,614	2,326	2,902
Maluku	2,648	2,357	2,939
Maluku Utara	4,806	4,277	5,335
Papua Barat	4,388	3,905	4,871
Papua	11,784	10,488	13,080
Grand Total	597,062	531,541	662,657

VII. Men who have sex with men

Province	Size Estimation		
	Point	Lower	Upper
NAD	17,809	15,641	19,965
Sumatra Utara	45,263	39,750	50,785
Sumatra Barat	35,945	31,559	40,335
Riau	11,758	10,325	13,190
Jambi	11,386	9,994	12,776
Sumatra Selatan	20,760	18,230	23,285
Bengkulu	9,779	8,588	10,982
Lampung	16,268	14,271	18,271
Kep. Bangka Belitung	671	588	753
Kepulauan Riau	6,774	5,945	7,595
DKI Jakarta	27,706	24,324	31,086
Jawa Barat	300,198	263,588	336,800
Jawa Tengah	218,277	191,617	244,933
DI Yogyakarta	8,443	7,419	9,470
Jawa Timur	64,175	56,342	72,003
Banten	38,209	33,538	42,877
Bali	14,098	12,385	15,810
Nusa Tenggara Barat	4,982	4,382	5,582
Nusa Tenggara Timur	7,889	6,941	8,841
Kalimantan Barat	8,986	7,882	10,094
Kalimantan Tengah	4,442	3,906	4,982
Kalimantan Selatan	13,675	11,994	15,341
Kalimantan Timur	62,474	54,865	70,088
Sulawesi Utara	32,212	28,271	36,147
Sulawesi Tengah	8,175	7,182	9,176
Sulawesi Selatan	70,631	62,000	79,264
Sulawesi Tenggara	8,988	7,882	10,082
Gorontalo	4,406	3,865	4,947
Sulawesi Barat	2,093	1,835	2,353
Maluku	6,436	5,653	7,212
Maluku Utara	3,514	3,094	3,935
Papua Barat	3,495	3,070	3,920
Papua	6,053	5,325	6,790
Grand Total	1,095,970	962,251	1,229,670

VIII. People who inject drugs

Province	Size Estimation		
	Point	Lower	Upper
NAD	2,931	2,298	3,579
Sumatra Utara	3,990	3,061	4,919
Sumatra Barat	1,870	1,335	2,405
Riau	973	659	1,311
Jambi	1,046	736	1,356
Sumatra Selatan	1,686	1,294	2,108
Bengkulu	957	679	1,239
Lampung	696	401	1,090
Kep. Bangka Belitung	654	469	851
Kepulauan Riau	522	325	719
DKI Jakarta	7,245	7,076	7,414
Jawa Barat	13,391	12,659	14,123
Jawa Tengah	4,247	3,261	5,233
DI Yogyakarta	631	505	772
Jawa Timur	11,951	10,880	13,020
Banten	1,378	1,187	1,603
Bali	1,959	1,706	2,212
Nusa Tenggara Barat	1,046	779	1,328
Nusa Tenggara Timur	1,724	1,133	2,315
Kalimantan Barat	1,489	1,158	1,883
Kalimantan Tengah	1,080	686	1,474
Kalimantan Selatan	1,513	1,147	1,879
Kalimantan Timur	1,529	1,135	1,923
Sulawesi Utara	1,532	1,125	1,954
Sulawesi Tengah	1,014	704	1,324
Sulawesi Selatan	3,812	3,154	4,488
Sulawesi Tenggara	1,383	1,069	1,721
Gorontalo	97	4	266
Sulawesi Barat	386	245	527
Maluku	944	634	1,254
Maluku Utara	647	394	900
Papua Barat	1	1	311
Papua	2	2	819
Grand Total	74,326	61,901	88,320

Annex 2. District level KAP size estimates

Note: The district level KAP size estimates presented in these tables represent a combination of adjusted mapping-based size estimates (where available) and predicted size based on the regression models developed for this exercise (i.e. in districts where mapping-based estimates were not available). The predicted size is NOT intended to be used for district level planning, budgeting, or target setting for program coverage. Instead it is recommended that only direct size estimates, such as those obtained from geographic mapping be used for those purposes.

I. Nanggroe Aceh Darussalam

No	District	MSM	Indirect FSW	Client of IDFSW	Direct FSW	Client of DFSW	Waria	Client of Waria	PWID
1	SEMEULUE	90	30	265	266	9,551	13	133	73
2	ACEH SINGKIL	325	12	106	113	4,057	37	380	115
3	ACEH SELATAN	586	112	987	59	2,118	33	338	125
4	ACEH TENGGARA	328	18	159	132	4,740	30	310	84
5	ACEH TIMUR	615	69	612	191	6,858	33	341	96
6	ACEH TENGAH	432	84	740	172	6,176	17	174	131
7	ACEH BARAT	348	65	574	276	9,910	30	308	127
8	ACEH BESAR	844	39	345	102	3,662	29	297	153
9	PIDIE	353	45	402	13	467	27	276	193
10	BIREUN	717	17	150	185	6,643	60	614	187
11	ACEH UTARA	883	43	383	40	1,436	22	225	367
12	ACEH BARAT DAYA	536	43	380	11	395	17	173	105
13	GAYO LUES	179	26	230	65	2,334	24	250	79
14	ACEH TAMIANG	959	43	380	11	395	15	153	179
15	NAGAN RAYA	127	50	441	52	1,867	31	318	61
16	ACEH JAYA	264	41	362	29	1,041	29	295	86
17	BENER MERIAH	378	20	177	49	1,759	7	72	127
18	PIDIE JAYA	167	36	314	89	3,196	22	227	88
19	KOTA BANDA ACEH	3,275	40	357	44	1,580	159	1,626	196
20	KOTA SABANG	1,443	6	53	101	3,627	70	719	72
21	KOTA LANGSA	1,987	41	358	35	1,257	18	184	185
22	KOTA LHOKSEUMAWE	2,576	41	359	138	4,955	50	511	14
23	KOTA SUBULUSSALAM	396	8	71	6	215	20	201	88
	TOTAL	17,809	929	8,205	2,179	78,239	794	8,125	2,931

II. Sumatra Utara

No	District	MSM	Indirect FSW	Client of IDFSW	Direct FSW	Client of DFSW	Waria	Client of Waria	PWID
24	NIAS	27	45	802	42	798	28	437	52
25	MANDAILING NATAL	571	74	1,318	140	2,660	37	577	93
26	TAPANULI SELATAN	427	76	1,345	117	2,223	40	622	56
27	TAPANULI TENGAH	889	102	1,802	153	2,907	49	771	81
28	TAPANULI UTARA	555	60	1,068	78	1,482	30	475	91
29	TOBA SAMOSIR	453	43	762	35	665	22	344	94
30	LABUHAN BATU	350	292	5,172	608	11,552	101	1,587	139
31	ASAHAN	2,089	184	3,258	315	5,985	89	1,400	265
32	SIMALUNGUN	255	220	3,897	458	8,702	66	1,037	88
33	DAIRI	525	85	1,500	95	1,805	39	611	67
34	KARO	1,034	106	1,886	237	4,503	55	859	88
35	DELI SERDANG	475	185	3,277	275	5,225	247	3,882	209
36	LANGKAT	1,881	190	3,371	460	8,740	84	1,321	323
37	NIAS SELATAN	291	62	1,099	108	2,052	36	562	43
38	HUMBANG HASUNDUTAN	376	58	1,026	52	988	31	495	56
39	PAKPAK BHARAT	231	39	683	20	380	26	403	52

No	District	MSM	Indirect FSW	Client of IDFSW	Direct FSW	Client of DFSW	Waria	Client of Waria	PWID
40	SAMOSIR	351	71	1,260	63	1,197	46	728	68
41	SERDANG BEDAGAI	1,191	156	2,698	361	6,707	64	1,004	96
42	BATU BARA	1,302	186	3,295	318	6,042	85	1,336	80
43	PADANG LAWAS UTARA	181	63	1,114	79	1,501	36	572	52
44	PADANG LAWAS	242	64	1,139	98	1,862	37	574	59
45	LABUHAN BATU SELATAN	840	187	3,310	275	5,225	98	1,534	52
46	LABUHAN BATU UTARA	1,061	245	4,344	578	10,982	134	2,104	85
47	NIAS UTARA	27	54	948	53	1,007	26	412	52
48	NIAS BARAT	17	41	731	33	627	27	421	52
49	KOTA SIBOLGA	3,926	331	5,863	313	5,947	197	3,089	88
50	KOTA TANJUNG BALAI	3,623	91	1,608	410	7,790	13	197	68
51	KOTA PEMATANG SIANTAR	3,637	310	5,487	563	10,697	126	1,975	449
52	KOTA TEBING TINGGI	3,654	171	3,036	349	6,631	125	1,958	216
53	KOTA MEDAN	8,495	798	14,463	1,191	23,154	664	10,436	428
54	KOTA BINJAI	4,332	305	5,396	858	16,302	105	1,650	165
55	KOTA PADANGSIDIMPUAN	1,762	151	2,666	224	4,256	61	959	108
56	KOTA GUNUNGSITOLI	193	71	1,257	73	1,387	45	710	75
	TOTAL	45,263	5,116	90,881	9,032	171,981	2,866	45,044	3,990

III. Sumatra Barat

No	District	MSM	Indirect FSW	Client of IDFSW	Direct FSW	Client of DFSW	Waria	Client of Waria	PWID
57	KEPULAUAN MENTAWAI	83	138	1,219	287	10,305	42	432	65
58	PESISIR SELATAN	611	149	1,317	310	11,131	33	333	62
59	SOLOK	498	62	550	111	3,986	32	328	62
60	SAWAHLUNTO/SIJUNJUNG	302	61	535	152	5,458	19	195	115
61	TANAH DATAR	454	68	603	160	5,745	22	225	62
62	PADANG PARIAMAN	524	63	559	129	4,632	26	265	62
63	AGAM	627	592	5,232	450	16,158	22	224	62
64	LIMA PULUH KOTA	495	47	417	112	4,021	26	263	62
65	PASAMAN	364	58	509	114	4,093	24	242	62
66	SOLOK SELATAN	222	69	612	115	4,129	20	207	62
67	DHARMAS RAYA	323	60	533	145	5,206	-	-	62
68	PASAMAN BARAT	560	51	454	101	3,627	84	862	62
69	KOTA PADANG	5,759	42	369	76	2,729	139	1,432	225
70	KOTA SOLOK	6,285	49	430	52	1,867	67	684	89
71	KOTA SAWAH LUNTO	1,810	65	572	140	5,027	42	429	115
72	KOTA PADANG PANJANG	5,939	90	792	7	251	121	1,237	111
73	KOTA BUKITTINGGI	5,765	364	3,219	239	8,582	56	573	390
74	KOTA PAYAKUMBUH	3,229	134	1,181	195	7,002	34	343	32
75	KOTA PARIAMAN	2,094	35	305	194	6,966	15	149	108
	TOTAL	35,945	2,197	19,408	3,089	110,915	822	8,422	1,870

IV. Riau

No	District	MSM	Indirect FSW	Client of IDFSW	Direct FSW	Client of DFSW	Waria	Client of Waria	PWID
76	KUANTAN SINGINGI	836	50	662	190	7,117	5	72	105
77	INDRAGIRI HULU	844	70	927	100	3,746	67	954	91
78	INDRAGIRI HILIR	95	316	4,185	659	24,684	138	1,979	73
79	PELALAWAN	55	114	1,510	238	8,915	28	402	65
80	S I A K	974	150	1,987	150	5,619	71	1,012	67
81	KAMPAR	315	81	1,073	168	6,293	17	244	4
82	ROKAN HULU	1,094	153	2,022	200	7,491	73	1,045	67
83	BENGKALIS	365	322	4,265	505	18,916	27	387	89
84	ROKAN HILIR	250	345	4,569	415	15,545	96	1,377	89
85	KEPULAUAN MERANTI	512	50	662	80	2,997	5	72	75
86	KOTA PEKANBARU	3,565	815	10,795	614	22,999	182	2,610	171
87	KOTA DUMAI	2,853	319	4,225	324	12,136	30	430	77
	TOTAL	11,758	2,785	36,882	3,643	136,458	738	10,583	973

V. Jambi

No	District	MSM	Indirect FSW	Client of IDFSW	Direct FSW	Client of DFSW	Waria	Client of Waria	PWID
88	KERINCI	1,500	344	3,041	256	7,149	32	325	84
89	BANGKO	1,059	521	4,605	2,098	58,585	39	402	84
90	SAROLANGUN	566	121	1,070	298	8,321	51	523	74
91	BATANGHARI	235	63	558	23	642	50	511	86
92	MUARO JAMBI	147	91	806	42	1,173	23	235	76
93	TANJUNG JABUNG TIMUR	850	155	1,374	121	3,379	48	492	62
94	TANJUNG JABUNG BARAT	147	236	2,089	322	8,992	95	972	71
95	TEBO	811	22	702	187	6,495	61	621	64
96	BUNGO	300	10	319	141	4,897	124	1,268	110
97	KOTA JAMBI	5,683	53	1,691	314	10,906	176	1,798	168
98	KOTA SUNGAI PENUH	88	24	766	135	4,689	170	1,739	167
	TOTAL	11,386	1,641	17,021	3,937	115,228	869	8,885	1,046

VI. Sumatra Selatan

No	District	MSM	Indirect FSW	Client of IDFSW	Direct FSW	Client of DFSW	Waria	Client of Waria	PWID
99	OGAN KOMERING ULU (OKU)	994	18	574	311	10,802	2	23	13
100	OGAN KOMERING ILIR (OKI)	740	36	1,149	257	8,926	5	59	58
101	MUARA ENIM (ME)	1,391	34	1,085	64	2,223	69	810	95
102	LAHAT	619	13	415	131	4,550	46	538	146
103	MUSI RAWAS (MURA)	846	14	447	281	9,760	67	790	13
104	MUSI BANYUASIN (MUBA)	887	10	319	260	9,031	81	954	73
105	BANYUASIN (BA)	1,105	8	255	110	3,821	149	1,747	68
106	OGAN KOMERING ULU SELATAN (OKUS)	473	1,122	35,798	1,752	60,853	43	500	83

No	District	MSM	Indirect FSW	Client of IDFSW	Direct FSW	Client of DFSW	Waria	Client of Waria	PWID
107	OGAN KOMERING ULU TIMUR (OKUT)	1,027	45	1,436	166	5,766	91	1,064	97
108	OGAN ILIR	651	58	1,851	58	2,015	55	643	139
109	EMPAT LAWANG	474	56	1,787	84	2,918	42	495	59
110	KOTA PALEMBANG	5,540	125	1,105	113	4,057	694	26,287	409
111	KOTA PRABUMULIH	2,115	30	265	23	826	61	715	99
112	KOTA PAGARA ALAM	1,063	100	884	80	2,872	31	359	69
113	KOTA LUBUK LINGGAU	2,836	50	442	50	1,795	42	487	265
	TOTAL	20,760	1,719	47,812	3,740	130,215	1,477	35,472	1,686

VII. Bengkulu

No	District	MSM	Indirect FSW	Client of IDFSW	Direct FSW	Client of DFSW	Waria	Client of Waria	PWID
114	BENGKULU SELATAN	580	85	751	50	1,795	40	409	127
115	REJANG LEBONG	1,258	100	884	115	4,129	30	307	136
116	BENGKULU UTARA	606	90	795	80	2,872	42	433	25
117	KAUR	325	75	663	75	2,693	30	310	75
118	SELUMA	366	69	610	50	1,795	32	329	64
119	MUKOMUKO	489	50	442	60	2,154	47	485	101
120	LEBONG	318	137	1,211	130	4,668	50	511	83
121	KEPAHYANG	622	12	106	162	5,817	25	256	79
122	BENGKULU TENGAH	194	650	5,744	378	13,572	31	312	62
123	KOTA BENGKULU	5,020	135	1,193	135	4,847	25	256	205
	TOTAL	9,779	1,403	12,399	1,235	44,342	353	3,609	957

VIII. Lampung

No	District	MSM	Indirect FSW	Client of IDFSW	Direct FSW	Client of DFSW	Waria	Client of Waria	PWID
124	LAMPUNG BARAT	541	80	707	50	1,795	79	615	72
125	TANGGAMUS	435	68	601	231	8,294	96	748	10
126	LAMPUNG SELATAN	512	103	913	126	4,524	121	942	10
127	LAMPUNG TIMUR	524	87	766	162	5,817	45	350	16
128	LAMPUNG TENGAH	653	108	954	193	6,930	127	989	12
129	LAMPUNG UTARA	641	55	488	70	2,513	76	592	72
130	WAY KANAN	253	79	701	129	4,632	84	654	85
131	TULANG BAWANG	659	29	182	23	464	128	997	13
132	PESAWARAN	171	27	169	12	242	38	296	67
133	PRINGSEWU	512	43	270	38	766	124	966	86
134	MESUJI	297	33	207	31	625	27	210	62
135	TULANG BAWANG BARAT	805	67	420	49	987	18	140	65
136	KOTA BANDAR LAMPUNG	5,162	35	220	27	544	263	2,048	117
137	KOTA METRO	5,105	31	191	31	625	39	304	9
	TOTAL	16,268	845	6,789	1,172	38,758	1,265	9,853	696

IX. Kepulauan Bangka Belitung

No	District	MSM	Indirect FSW	Client of IDFSW	Direct FSW	Client of DFSW	Waria	Client of Waria	PWID
138	BANGKA	118	61	383	71	1,431	60	614	16
139	BELITUNG	88	16	100	11	222	40	409	72
140	BANGKA BARAT	47	39	245	26	524	40	409	75
141	BANGKA TENGAH	29	15	94	12	242	30	307	80
142	BANGKA SELATAN	106	71	445	5	101	25	256	62
143	BELITUNG TIMUR	47	252	1,581	344	6,933	30	307	69
144	KOTA PANGKALPINANG	235	18	113	12	242	90	921	280
	TOTAL	671	472	2,961	481	9,695	315	3,222	654

X. Kepulauan Riau

No	District	MSM	Indirect FSW	Client of IDFSW	Direct FSW	Client of DFSW	Waria	Client of Waria	PWID
145	KARIMUN	605	50	442	243	8,725	162	2,329	63
146	BINTAN	612	167	1,477	120	4,309	98	1,406	72
147	NATUNA	91	250	2,209	132	4,740	35	497	54
148	LINGGA	210	82	726	80	2,872	48	684	61
149	ANAMBAS	45	63	557	214	7,684	36	518	52
150	KOTA BATAM	3,451	200	1,767	203	7,289	215	3,091	137
151	KOTA TANJUNGPINANG	1,760	500	4,418	203	7,289	369	5,306	83
	TOTAL	6,774	1,312	11,596	1,195	42,908	962	13,830	522

XI. DKI Jakarta

No	District	MSM	Indirect FSW	Client of IDFSW	Direct FSW	Client of DFSW	Waria	Client of Waria	PWID
152	KEPULAUAN SERIBU	837	3,015	62,063	1,455	90,947	7	126	52
153	KOTA JAKARTA SELATAN	7,320	3,175	65,356	5,008	313,033	365	6,823	1,430
154	KOTA JAKARTA TIMUR	3,352	4,024	82,833	3,266	204,147	308	5,757	1,177
155	KOTA JAKARTA PUSAT	6,649	7,928	163,195	3,484	217,773	114	2,131	2,177
156	KOTA JAKARTA BARAT	6,290	5,215	107,349	2,140	133,764	315	5,888	1,522
157	KOTA JAKARTA UTARA	3,259	29	598	42	2,625	393	7,346	887
	TOTAL	27,706	23,386	481,394	15,395	962,289	1,502	28,070	7,245

XII. Jawa Barat

No	District	MSM	Indirect FSW	Client of IDFSW	Direct FSW	Client of DFSW	Waria	Client of Waria	PWID
158	BOGOR	22,024	702	7,474	1,635	74,596	297	2,847	966
159	SUKABUMI	11,051	300	3,189	769	35,085	129	1,240	149
160	CIANJUR	10,376	286	3,041	661	30,158	126	1,210	198
161	BANDUNG	15,740	410	4,365	1,145	52,240	182	1,749	99
162	GARUT	12,077	323	3,434	660	30,112	121	1,159	243
163	TASIKMALAYA	8,158	201	2,139	463	21,124	79	757	122
164	CIAMIS	7,689	197	2,093	416	18,980	88	846	119
165	KUNINGAN	5,694	156	1,661	268	12,227	57	549	220

No	District	MSM	Indirect FSW	Client of IDFSW	Direct FSW	Client of DFSW	Waria	Client of Waria	PWID
166	CIREBON	12,075	1,236	13,159	1,339	61,091	112	1,073	1,084
167	MAJALENGKA	6,703	162	1,727	312	14,235	59	566	216
168	SUMEDANG	5,996	193	2,052	357	16,288	77	740	193
169	INDRAMAYU	12,361	1,312	13,968	1,421	64,832	228	2,189	204
170	SUBANG	5,375	418	4,450	417	19,025	95	912	514
171	PURWAKARTA	3,250	474	5,046	204	9,307	40	384	167
172	KARAWANG	2,625	564	6,005	611	27,876	162	1,555	317
173	BEKASI	13,750	220	1,595	1,698	22,515	100	898	182
174	BANDUNG BARAT	9,313	261	2,781	532	24,272	107	1,025	136
175	KOTA BOGOR	31,063	339	3,609	699	31,891	314	3,015	587
176	KOTA SUKABUMI	10,261	177	1,884	152	6,935	103	992	197
177	KOTA BANDUNG	34,063	1,253	18,596	1,357	117,313	324	10,618	2,119
178	KOTA CIREBON	5,363	528	5,621	572	26,097	77	739	61
179	KOTA BEKASI	10,500	366	3,897	527	24,044	412	3,956	3,799
180	KOTA DEPOK	20,082	510	5,425	1,124	51,282	304	2,918	881
181	KOTA CIMAHI	9,458	121	1,288	499	22,766	188	1,810	107
182	KOTA TASIKMALAYA	7,875	124	1,320	228	10,402	42	403	440
183	KOTA BANJAR	7,278	45	477	40	1,825	27	263	71
	TOTAL	300,198	10,876	120,296	18,106	826,518	3,850	44,414	13,391

XIII. Jawa Tengah

No	District	MSM	Indirect FSW	Client of IDFSW	Direct FSW	Client of DFSW	Waria	Client of Waria	PWID
184	CILACAP	4,683	152	3,175	253	8,483	208	3,767	40
185	BANYUMAS	4,217	310	6,475	331	11,098	30	543	54
186	PURBALINGGA	5,701	114	2,376	239	8,014	52	941	83
187	BANJARNEGARA	5,733	143	2,989	280	9,388	59	1,071	153
188	KEBUMEN	6,395	145	3,038	306	10,260	69	1,243	89
189	PURWOREJO	4,227	95	1,986	154	5,164	44	799	124
190	WONOSOBO	5,647	843	17,607	962	32,255	64	1,151	108
191	MAGELANG	8,004	241	5,039	430	14,418	79	1,437	155
192	BOYOLALI	7,239	164	3,418	263	8,818	68	1,224	94
193	KLATEN	8,132	163	3,406	221	7,410	57	1,024	140
194	SUKOHARJO	8,616	182	3,809	301	10,092	80	1,447	108
195	WONOGIRI	5,778	131	2,741	229	7,678	64	1,153	96
196	KARANGANYAR	6,466	124	2,587	253	8,483	85	1,542	86
197	SRAGEN	7,261	215	4,489	294	9,858	89	1,604	87
198	GROBOGAN	8,052	120	2,506	121	4,057	84	1,514	94
199	BLORA	5,095	185	3,873	75	2,515	86	1,563	115
200	REMBANG	4,351	156	3,253	199	6,672	68	1,235	42
201	PATI	7,658	80	1,671	250	8,382	108	1,956	148
202	KUDUS	3,472	156	3,250	65	2,179	126	2,277	107
203	JEPARA	5,418	194	4,053	80	2,682	103	1,873	206
204	DEMAK	5,982	159	3,319	319	10,696	72	1,298	60
205	SEMARANG	917	407	8,501	847	28,399	30	543	110
206	TEMANGGUNG	4,876	111	2,318	175	5,868	52	942	157

No	District	MSM	Indirect FSW	Client of IDFSW	Direct FSW	Client of DFSW	Waria	Client of Waria	PWID
207	KENDAL	917	501	10,464	393	13,177	40	724	122
208	BATANG	1,683	272	5,652	307	8,187	75	1,304	103
209	PEKALONGAN	4,046	136	2,832	372	12,473	68	1,231	109
210	PEMALANG	8,908	249	5,201	424	14,216	87	1,570	157
211	TEGAL	8,987	244	5,096	508	17,033	23	417	178
212	BREBES	11,523	372	7,775	629	21,090	80	1,449	176
213	KOTA MAGELANG	3,659	366	7,637	856	28,701	267	4,841	110
214	KOTA SURAKARTA	12,674	2,067	43,172	700	23,471	57	1,032	194
215	KOTA SALATIGA	5,393	308	6,436	150	5,029	139	2,509	91
216	KOTA SEMARANG	14,174	756	15,872	1,055	43,172	89	4,817	220
217	KOTA PEKALONGAN	3,738	128	2,678	573	19,212	116	2,107	206
218	KOTA TEGAL	8,656	33	689	591	19,816	116	2,100	125
	TOTAL	218,277	10,023	209,383	13,205	448,446	2,932	56,249	4,247

XIV. DI Yogyakarta

No	District	MSM	Indirect FSW	Client of IDFSW	Direct FSW	Client of DFSW	Waria	Client of Waria	PWID
219	KULON PROGO	1,278	373	6,082	777	21,588	65	695	67
220	BANTUL	2,690	75	1,079	156	3,803	63	674	13
221	GUNUNG KIDUL	1,112	69	1,190	188	5,473	48	510	83
222	SLEMAN	1,622	99	1,704	195	5,676	46	492	171
223	KOTA YOGYAKARTA	1,741	90	2,055	629	24,203	165	1,765	297
	TOTAL	8,443	706	12,110	1,945	60,743	387	4,137	631

XV. Jawa Timur

No	District	MSM	Indirect FSW	Client of IDFSW	Direct FSW	Client of DFSW	Waria	Client of Waria	PWID
224	PACITAN	923	151	2,082	240	10,544	59	1,295	80
225	PONOROGO	1,886	171	2,358	303	13,312	102	2,230	164
226	TRENGGALEK	1,446	69	951	69	3,031	104	2,268	86
227	TULUNGAGUNG	1,172	139	1,915	293	12,872	150	3,269	271
228	BLITAR	66	140	1,931	340	14,937	36	785	91
229	KEDIRI	2,425	208	2,861	90	3,954	152	3,313	72
230	MALANG	3,279	189	2,606	200	8,787	183	3,995	319
231	LUMAJANG	1,667	219	3,016	382	16,783	99	2,165	100
232	JEMBER	2,038	600	8,274	450	19,770	220	4,795	93
233	BANYUWANGI	879	166	2,285	288	12,653	76	1,568	353
234	BONDOWOSO	1,081	127	1,747	152	6,678	57	1,250	105
235	SITUBONDO	1,312	504	6,946	560	24,603	74	1,620	101
236	PROBOLINGGO	1,522	215	2,964	377	16,563	68	1,492	109
237	PASURUAN	579	161	2,220	174	7,644	384	8,370	545
238	SIDOARJO	490	428	5,902	464	20,385	163	3,553	190
239	MOJOKERTO	1,969	412	2,278	361	15,860	51	1,112	183
240	JOMBANG	2,272	387	5,337	533	18,897	103	2,235	205
241	NGANJUK	1,898	132	1,814	186	8,172	110	2,401	126

No	District	MSM	Indirect FSW	Client of IDFSW	Direct FSW	Client of DFSW	Waria	Client of Waria	PWID
242	MADIUN	941	168	2,313	208	9,138	56	1,221	560
243	MAGETAN	1,498	175	2,413	190	8,347	86	1,883	128
244	NGAWI	1,484	230	3,167	463	20,341	98	2,126	120
245	BOJONEGORO	1,623	297	4,092	408	17,925	137	2,986	210
246	TUBAN	1,616	273	3,768	445	19,550	122	2,658	171
247	LAMONGAN	1,739	187	2,585	170	7,469	20	436	81
248	GRESIK	1,564	194	2,672	332	14,586	116	2,528	279
249	BANGKALAN	1,046	370	5,099	507	22,274	73	1,588	195
250	SAMPANG	1,042	277	3,823	395	17,354	69	1,500	70
251	PAMEKASAN	1,485	233	3,219	529	23,241	73	1,591	74
252	SUMENEP	1,291	143	1,968	249	10,939	71	1,546	53
253	KOTA KEDIRI	2,705	196	2,707	280	12,301	48	1,046	449
254	KOTA BLITAR	2,470	154	2,118	285	12,521	112	2,431	205
255	KOTA MALANG	2,734	183	2,523	198	8,699	120	4,844	1,295
256	KOTA PROBOLINGGO	2,323	304	4,196	689	30,270	15	327	185
257	KOTA PASURUAN	2,252	295	4,068	108	3,901	83	1,807	228
258	KOTA MOJOKERTO	1,769	134	1,846	222	9,753	57	1,241	102
259	KOTA MADIUN	776	64	888	455	19,990	52	1,133	555
260	KOTA SURABAYA	4,571	391	40,821	59,237	186,126	604	59,237	3,733
261	KOTA BATU	2,342	293	4,041	286	12,565	160	3,495	65
	TOTAL	64,175	10,557	155,814	14,831	702,735	4,364	143,340	11,951

XVI. Banten

No	District	MSM	Indirect FSW	Client of IDFSW	Direct FSW	Client of DFSW	Waria	Client of Waria	PWID
262	PANDEGLANG	3,261	93	920	224	3,828	72	495	87
263	LEBAK	3,367	149	1,471	38	649	79	543	142
264	TANGERANG	2,177	163	1,614	309	5,281	398	2,730	212
265	SERANG	3,940	170	1,685	233	3,982	152	1,043	10
266	KOTA TANGERANG	7,400	394	3,897	1,144	19,552	238	1,633	783
267	KOTA CILEGON	3,121	54	534	564	9,639	25	172	29
268	KOTA SERANG	3,201	106	1,048	216	3,692	15	103	12
269	KOTA TANGERANG SELATAN	11,741	236	2,334	70	1,196	357	2,451	103
	TOTAL	38,209	1,365	13,503	2,798	47,819	1,337	9,171	1,378

XVII. Bali

No	District	MSM	Indirect FSW	Client of IDFSW	Direct FSW	Client of DFSW	Waria	Client of Waria	PWID
270	JEMBRANA	100	130	582	161	10,241	5	80	71
271	TABANAN	210	241	1,078	29	1,845	38	609	87
272	BADUNG	4,890	185	828	200	12,722	298	4,773	428
273	GIANYAR	285	925	4,139	1,003	63,801	251	4,018	71
274	KLUNGKUNG	100	165	738	283	18,002	74	1,183	117
275	BANGLI	161	85	382	130	8,269	70	1,114	63

No	District	MSM	Indirect FSW	Client of IDFSW	Direct FSW	Client of DFSW	Waria	Client of Waria	PWID
276	KARANGASEM	382	112	501	116	7,379	122	1,961	80
277	BULELENG	2,060	350	1,566	293	18,638	49	785	287
278	KOTA DENPASAR	5,910	1,271	5,688	1,163	73,979	389	6,230	755
	TOTAL	14,098	3,464	15,502	3,378	214,876	1,296	20,752	1,959

XVIII. Nusa Tenggara Barat

No	District	MSM	Indirect FSW	Client of IDFSW	Direct FSW	Client of DFSW	Waria	Client of Waria	PWID
279	LOMBOK BARAT	194	1,024	19,821	691	67,199	14	143	153
280	LOMBOK TENGAH	894	899	9,516	599	31,730	77	788	14
281	LOMBOK TIMUR	694	321	3,398	270	14,302	59	604	292
282	SUMBAWA	1,029	291	3,080	260	13,773	35	358	110
283	DOMPU	118	470	4,975	305	16,156	150	1,534	62
284	BIMA	176	333	3,525	213	11,283	400	4,092	77
285	SUMBAWA BARAT	59	445	4,710	201	10,647	30	307	31
286	LOMBOK UTARA	306	259	2,742	120	6,357	15	153	51
287	KOTA MATARAM	1,276	239	2,525	108	5,721	63	644	111
288	KOTA BIMA	235	289	3,059	121	6,410	200	2,046	145
	TOTAL	4,982	4,570	57,351	2,888	183,578	1,043	10,669	1,046

XIX. Nusa Tenggara Timur

No	District	MSM	Indirect FSW	Client of IDFSW	Direct FSW	Client of DFSW	Waria	Client of Waria	PWID
289	SUMBA BARAT	251	222	2,350	81	4,291	39	325	71
290	SUMBA TIMUR	465	299	3,165	197	10,436	39	326	91
291	KUPANG	59	121	1,281	54	2,860	7	58	87
292	TIMOR TENGAH SELATAN	902	359	2,608	221	8,044	20	167	94
293	TIMOR TENGAH UTARA	478	200	2,349	390	12,264	27	225	74
294	BELU	65	357	4,194	421	13,239	54	451	74
295	ALOR	512	1,235	14,508	1,453	45,692	33	279	92
296	LEMBATA	225	316	3,712	372	11,698	25	209	77
297	FLORES TIMUR	469	299	3,512	352	11,069	30	250	104
298	SIKKA	595	215	2,526	253	7,956	120	1,002	63
299	ENDE	530	177	2,077	208	6,541	55	459	81
300	NGADA	540	198	2,326	234	7,358	41	345	75
301	MANGGARAI	502	103	1,210	122	3,836	64	533	73
302	ROTE NDAO	396	61	717	72	2,264	42	352	75
303	MANGGARAI BARAT	348	548	6,438	645	20,283	49	409	64
304	SUMBA TENGAH	53	668	7,847	786	24,717	23	190	62
305	SUMBA BARAT DAYA	340	247	2,902	570	17,925	37	311	73
306	NAGEKEO	158	460	5,404	542	17,044	41	339	62
307	MANGGARAI TIMUR	200	106	938	53	1,903	45	374	70
308	SABU RAIJUA	58	62	550	27	969	41	339	70
309	KOTA KUPANG	741	174	1,538	192	6,894	34	286	192
	TOTAL	7,889	6,427	72,152	7,245	237,283	866	7,230	1,724

XX. Kalimantan Barat

No	District	MSM	Indirect FSW	Client of IDFSW	Direct FSW	Client of DFSW	Waria	Client of Waria	PWID
310	SAMBAS	235	84	744	25	898	76	1,082	87
311	BENGKAYANG	706	24	212	474	17,019	14	199	13
312	LANDAK	786	63	553	180	6,463	23	327	50
313	KABUPATEN PONTIANAK	1,054	54	478	50	1,795	15	214	60
314	SANGGAU	852	312	2,757	276	9,910	57	811	86
315	KETAPANG	849	47	417	23	826	63	897	112
316	SINTANG	675	88	781	50	1,795	59	840	95
317	KAPUAS HULU	354	131	1,160	82	2,944	34	484	45
318	SEKADAU	417	98	866	22	790	18	256	7
319	MELAWI	330	84	744	117	4,201	16	228	10
320	KAYONG UTARA	337	10	88	61	2,190	16	228	19
321	KUBU RAYA	1,408	30	265	30	1,077	57	811	66
322	KOTA PONTIANAK	882	20	177	75	2,693	70	2,414	577
323	KOTA SINGKAWANG	99	25	221	25	898	16	228	262
	TOTAL	8,986	1,071	9,463	1,490	53,499	534	9,020	1,489

XXI. Kalimantan Tengah

No	District	MSM	Indirect FSW	Client of IDFSW	Direct FSW	Client of DFSW	Waria	Client of Waria	PWID
324	KOTAWARINGIN BARAT	65	10	88	10	359	20	205	111
325	KOTAWARINGIN TIMUR	963	15	133	10	359	23	235	102
326	KAPUAS	793	20	177	10	359	24	245	51
327	BARITO SELATAN	313	30	265	15	539	20	205	126
328	BARITO UTARA	254	10	88	10	359	6	61	67
329	SUKAMARA	376	50	442	100	3,591	10	102	69
330	LAMANDAU	88	200	1,767	607	21,795	10	102	67
331	SERUYAN	419	30	265	30	1,077	25	256	64
332	KATINGAN	267	750	6,627	310	11,131	20	205	69
333	PULANG PISAU	250	50	442	400	14,362	69	702	64
334	GUNUNG MAS	107	560	4,948	85	3,052	69	704	67
335	BARITO TIMUR	209	115	1,016	22	790	27	276	64
336	MURUNG RAYA	64	60	530	35	1,257	25	256	64
337	KOTA PALANGKA RAYA	274	250	2,209	51	1,831	67	675	95
	TOTAL	4,442	2,150	18,997	1,695	60,861	414	4,229	1,080

XXII. Kalimantan Selatan

No	District	MSM	Indirect FSW	Client of IDFSW	Direct FSW	Client of DFSW	Waria	Client of Waria	PWID
338	TANAH LAUT	378	50	442	20	718	25	256	86
339	KOTA BARU	377	70	619	30	1,077	40	409	125
340	BANJAR	754	80	707	50	1,795	40	409	212
341	BARITO KUALA	329	170	1,502	20	718	15	153	81
342	TAPIN	148	230	2,032	42	1,508	20	205	83
343	HULU SUNGAI SELATAN	209	50	442	30	1,077	40	409	96
344	HULU SUNGAI TENGAH	258	15	203	7	607	25	256	93
345	HULU SUNGAI UTARA	197	171	2,311	52	4,508	40	409	152

No	District	MSM	Indirect FSW	Client of IDFSW	Direct FSW	Client of DFSW	Waria	Client of Waria	PWID
346	TABALONG	244	282	3,822	255	22,109	30	307	91
347	TANAH BUMBU	342	137	1,857	146	12,658	58	593	108
348	BALANGAN	49	128	1,741	131	11,358	20	205	65
349	KOTA BANJARMASIN	5,560	66	892	39	3,381	175	1,790	259
350	KOTA BANJARBARU	4,830	27	366	23	1,994	50	511	62
	TOTAL	13,675	1,476	16,936	845	63,508	578	5,912	1,513

XXIII. Kalimantan Timur

No	District	MSM	Indirect FSW	Client of IDFSW	Direct FSW	Client of DFSW	Waria	Client of Waria	PWID
351	PASIR	2,529	81	1,099	101	8,757	58	613	99
352	KUTAI BARAT	1,176	77	1,040	109	9,450	60	631	70
353	KUTAI KARTANEGARA	2,121	20	271	186	16,126	310	3,261	143
354	KUTAI TIMUR	5,294	63	860	52	4,508	66	698	79
355	BERAU	4,588	13	176	40	3,468	52	549	86
356	MALINAU	353	67	903	79	6,849	20	210	75
357	BULUNGAN	2,824	57	767	86	7,456	40	421	67
358	NUNUKAN	1,647	32	434	12	1,040	10	105	95
359	PENAJAM PASER UTARA	1,706	58	789	37	3,208	60	631	77
360	TANA TIDUNG	176	57	778	87	7,543	5	53	62
361	KOTA BALIKPAPAN	13,588	76	1,024	95	8,237	291	3,057	111
362	KOTA SAMARINDA	17,941	66	899	78	6,763	211	6,450	379
363	KOTA TARAKAN	4,941	33	441	3	260	80	842	96
364	KOTA BONTANG	3,588	59	806	76	6,589	60	631	90
	TOTAL	62,474	759	10,287	1,041	90,254	1,323	18,153	1,529

XXIV. Sulawesi Utara

No	District	MSM	Indirect FSW	Client of IDFSW	Direct FSW	Client of DFSW	Waria	Client of Waria	PWID
365	BOLAANG MONGONDOW	827	78	544	116	1,200	51	652	84
366	MINAHASA	2,848	95	663	57	590	43	554	231
367	KEPULAUAN SANGIHE	339	58	402	20	207	33	431	90
368	KEPULAUAN TALAUD	201	71	496	60	621	31	394	69
369	MINAHASA SELATAN	1,735	67	469	112	1,159	38	494	123
370	MINAHASA UTARA	1,931	84	581	42	434	48	622	107
371	BOLAANG MONGONDOW UTARA	171	39	269	25	259	34	436	67
372	SIAU TAGULANDANG BIARO	231	43	300	10	103	23	298	62
373	MINAHASA TENGGARA	1,520	54	374	53	548	27	344	64
374	BOLAANG MONGONDOW SELATAN	164	46	317	31	321	28	360	62
375	BOLAANG MONGONDOW TIMUR	419	82	573	59	610	45	579	62
376	KOTA MANADO	15,647	239	1,661	259	2,679	390	5,031	351
377	KOTA BITUNG	1,065	260	1,807	281	2,907	147	1,896	13
378	KOTA TOMOHON	1,735	65	452	70	724	18	232	73
379	KOTA KOTAMOBAGU	3,379	78	545	120	1,241	25	328	74
	TOTAL	32,212	1,360	9,453	1,315	13,603	981	12,652	1,532

XXV. Sulawesi Tengah

No	District	MSM	Indirect FSW	Client of IDFSW	Direct FSW	Client of DFSW	Waria	Client of Waria	PWID
380	BANGGAI KEPULAUAN	348	50	442	51	1,831	25	256	62
381	BANGGAI	147	200	1,767	106	3,806	60	614	185
382	MOROWALI	374	130	1,149	84	3,016	65	665	83
383	POSO	627	25	221	56	2,011	39	399	99
384	DONGGALA	537	51	451	31	1,113	23	235	82
385	TOLI-TOLI	809	75	663	28	1,005	48	491	71
386	BUOL	281	52	460	38	1,364	22	225	75
387	PARIGI MOUTONG	1,084	48	424	25	898	110	1,125	79
388	TOJO UNA-UNA	347	32	283	65	2,334	52	532	67
389	SIGI	88	15	133	179	6,427	32	327	67
390	KOTA PALU	3,533	98	866	320	11,490	82	839	144
	TOTAL	8,175	776	6,859	983	35,295	558	5,708	1,014

XXVI. Sulawesi Selatan

No	District	MSM	Indirect FSW	Client of IDFSW	Direct FSW	Client of DFSW	Waria	Client of Waria	PWID
391	SELAYAR	2,145	53	567	25	1,643	26	226	67
392	BULUKUMBA	2,973	68	727	20	1,314	32	279	83
393	BANTAENG	2,809	50	535	23	1,512	27	235	85
394	JENEPONTO	6,109	48	513	50	3,286	336	2,925	10
395	TAKALAR	2,964	51	545	26	1,709	28	244	83
396	GOWA	3,618	74	791	100	6,572	38	331	98
397	SINJAI	2,245	47	503	23	1,512	10	87	74
398	MAROS	2,782	48	513	50	3,286	29	252	127
399	PANGKAJENE DAN KEPULAUAN	3,109	51	545	20	1,314	31	270	93
400	BARRU	2,645	46	492	50	3,286	26	226	79
401	BONE	2,918	70	749	40	2,629	16	139	83
402	SOPPENG	2,855	65	695	10	657	28	244	85
403	WAJO	2,845	66	706	20	1,314	16	139	92
404	SIDENRENG RAPPANG	591	52	556	50	3,286	437	3,804	255
405	PINRANG	136	50	535	38	2,498	213	1,854	75
406	ENREKANG	2,336	47	503	23	1,512	26	226	70
407	LUWU	2,445	66	706	25	1,643	29	252	69
408	TANA TORAJA	2,818	54	578	20	1,314	30	261	82
409	LUWU UTARA	2,364	72	770	50	3,286	30	261	65
410	LUWU TIMUR	2,236	71	759	85	5,587	28	244	63
411	TORAJA UTARA	2,800	53	567	25	1,643	30	261	82
412	KOTA MAKASSAR	9,791	262	2,802	738	48,504	895	22,109	1,656
413	KOTA PARE-PARE	936	78	834	75	4,929	94	818	111
414	KOTA PALOPO	4,158	85	909	60	3,943	80	696	225
	TOTAL	70,631	1,627	17,400	1,646	108,179	2,535	36,385	3,812

XXVII. Sulawesi Tenggara

No	District	MSM	Indirect FSW	Client of IDFSW	Direct FSW	Client of DFSW	Waria	Client of Waria	PWID
415	BUTON	388	101	892	30	1,077	32	327	4
416	MUNA	704	115	1,016	50	1,795	58	593	75
417	KONAWE	403	20	177	77	2,765	13	133	148
418	KOLAKA	861	67	594	87	3,124	10	102	138
419	KONAWE SELATAN	417	350	3,094	264	9,479	5	51	86
420	BOMBANA	320	205	1,808	101	3,627	33	332	114
421	WAKATOBI	126	14	124	120	4,309	63	645	128
422	KOLAKA UTARA	276	25	221	15	539	27	277	69
423	BUTON UTARA	95	55	486	40	1,436	45	460	62
424	KONAWE UTARA	74	23	203	42	1,508	41	419	94
425	KOTA KENDARI	3,324	47	413	15	539	48	491	293
426	KOTA BAU-BAU	1,999	74	653	72	2,585	38	389	172
	TOTAL	8,988	1,096	9,681	913	32,783	413	4,220	1,383

XXVIII. Gorontalo

No	District	MSM	Indirect FSW	Client of IDFSW	Direct FSW	Client of DFSW	Waria	Client of Waria	PWID
427	BOALEMO	712	58	514	52	1,867	85	869	12
428	GORONTALO	835	74	654	85	3,052	36	368	32
429	POHUWATO	465	48	422	56	2,011	68	696	20
430	BONE BOLANGO	476	77	679	109	3,914	37	378	13
431	GORONTALO UTARA	218	48	428	116	4,165	35	357	3
432	KOTA GORONTALO	1,700	68	601	68	2,442	78	798	17
	TOTAL	4,406	373	3,298	486	17,451	339	3,466	97

XXIX. Sulawesi Barat

No	District	MSM	Indirect FSW	Client of IDFSW	Direct FSW	Client of DFSW	Waria	Client of Waria	PWID
433	MAJENE	677	27	239	35	1,257	31	321	72
434	POLEWALI MANDAR	1,020	56	495	83	2,980	35	361	102
435	MAMASA	166	37	327	74	2,657	29	296	71
436	MAMUJU	141	51	453	24	862	110	1,125	75
437	MAMUJU UTARA	88	128	1,131	128	4,596	50	511	66
	TOTAL	2,093	299	2,645	344	12,352	256	2,614	386

XXX. Maluku

No	District	MSM	Indirect FSW	Client of IDFSW	Direct FSW	Client of DFSW	Waria	Client of Waria	PWID
438	MALUKU TENGGARA BARAT	127	514	1,582	456	20,934	17	135	62
439	MALUKU TENGGARA	194	90	277	67	3,076	37	293	68
440	MALUKU TENGAH	858	20	62	23	1,056	44	348	261
441	BURU	96	104	320	131	6,014	15	119	74
442	KEPULAUAN ARU	77	45	138	40	1,836	35	277	67
443	SERAM BAGIAN BARAT	136	59	182	190	8,723	26	208	62

No	District	MSM	Indirect FSW	Client of IDFSW	Direct FSW	Client of DFSW	Waria	Client of Waria	PWID
444	SERAM BAGIAN TIMUR	85	28	86	62	2,846	26	206	70
445	BURU SELATAN	55	46	140	85	3,902	5	40	70
446	MALUKU BARAT DAYA	44	100	306	70	3,214	48	383	65
447	KOTA AMBON	4,185	58	177	47	2,158	51	408	72
448	KOTA TUAL	579	19	58	62	2,846	29	232	73
	TOTAL	6,436	1,082	3,328	1,233	56,605	334	2,648	944

XXXI. Maluku Utara

No	District	MSM	Indirect FSW	Client of IDFSW	Direct FSW	Client of DFSW	Waria	Client of Waria	PWID
449	HALMAHERA BARAT	453	56	496	47	1,688	34	346	58
450	HALMAHERA TENGAH	252	50	441	35	1,257	27	279	69
451	KEPULAUAN SULA	125	50	440	43	1,544	29	298	70
452	HALMAHERA SELATAN	315	66	587	77	2,765	33	340	62
453	HALMAHERA UTARA	207	68	597	73	2,621	34	343	83
454	HALMAHERA TIMUR	221	118	1,046	108	3,878	29	301	62
455	PULAU MOROTAI	64	55	486	39	1,400	39	399	67
456	KOTA TERNATE	1,567	109	960	86	3,088	219	2,240	124
457	KOTA TIDORE KEPULAUAN	310	63	560	27	969	25	259	52
	TOTAL	3,514	635	5,613	535	19,210	470	4,806	647

XXXII. Papua Barat

No	District	MSM	Indirect FSW	Client of IDFSW	Direct FSW	Client of DFSW	Waria	Client of Waria	PWID
458	FAKFAK	294	130	820	150	6,262	20	354	-
459	KAIMANA	44	105	662	30	1,252	21	371	-
460	TELUK WONDAMA	74	24	151	13	543	27	484	-
461	TELUK BINTUNI	54	311	1,961	336	14,028	16	283	-
462	MANOKWARI	295	34	216	20	835	25	442	-
463	SORONG SELATAN	31	10	63	36	1,503	10	177	-
464	SORONG	157	123	776	37	1,545	3	53	-
465	RAJA AMPAT	73	50	318	106	4,425	33	583	-
466	PEG. TAMBRAUW	5	25	158	20	835	21	366	-
467	MAYBRAT	31	27	172	10	417	22	390	-
468	KOTA SORONG	2,438	31	194	19	793	50	884	1
	TOTAL	3,495	871	5,491	777	32,438	248	4,388	1

XXXII. Papua

No	District	MSM	Indirect FSW	Client of IDFSW	Direct FSW	Client of DFSW	Waria	Client of Waria	PWID
469	MERAUKE	381	77	331	98	2,860	33	395	-
470	JAYAWIJAYA	244	55	235	84	1,071	36	346	-
471	JAYAPURA	106	54	232	396	11,558	30	361	-
472	NABIRE	863	129	553	140	4,086	36	436	-
473	KEPULAUAN YAPEN	100	57	245	51	1,489	25	305	-

No	District	MSM	Indirect FSW	Client of IDFSW	Direct FSW	Client of DFSW	Waria	Client of Waria	PWID
474	BLAK NUMFOR	180	60	258	44	1,284	34	412	-
475	PANIAI	123	58	248	102	2,977	44	533	-
476	PUNCAK JAYA	89	40	173	43	1,255	26	312	-
477	MIMIKA	542	144	520	183	4,173	51	614	-
478	BOVEN DIGOEL	115	44	188	25	730	33	401	-
479	MAPPI	50	48	205	52	1,518	33	391	-
480	ASMAT	15	38	164	31	905	26	356	-
481	YAHUKIMO	143	47	202	62	1,810	29	346	-
482	PEGUNUNGAN BINTANG	17	37	158	31	905	25	295	-
483	TOLIKARA	63	41	178	67	1,956	31	370	-
484	SARMI	69	31	133	13	379	23	278	-
485	KEEROM	48	33	142	24	701	23	275	-
486	WAROPEN	6	29	127	45	1,313	29	353	-
487	SUPIORI	3	28	121	5	146	24	283	-
488	MAMBERAMO RAYA	4	29	123	13	379	25	303	-
489	MAMBERAMO TENGAH	19	36	154	31	905	22	269	-
490	YALIMO	108	48	205	60	1,751	23	277	-
491	LANNY JAYA	10	32	135	21	613	33	395	-
492	NDUGA	14	33	143	25	730	24	289	-
493	PUNCAK	72	38	164	37	1,080	26	317	-
494	DOGIYAI	20	36	155	32	934	25	299	-
495	INTAN JAYA	10	32	136	21	613	22	269	-
496	DEIYAI	15	34	145	186	5,429	46	555	-
497	KOTA JAYAPURA	2,625	226	1,175	277	17,072	139	1,750	2
	TOTAL	6,053	1,592	6,948	2,199	70,622	977	11,784	2



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