

UNFPA Indonesia Monograph Series:

No.4

# Urbanization in Indonesia



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Authored by

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#### **DISCLAIMER**

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The findings, interpretations and conclusions presented in this document are those of the authors, not necessarily those of UNFPA, and do not reflect the policies and positions of the Government of Indonesia



### Foreword

Urbanization in Indonesia, as in most developing countries today, is rapid, with the rate of urban growth significantly higher than the growth rate of the population as a whole. The next 25 years will see this process continue, with a growing majority of the population living in urban environments and the rural population declining in absolute numbers.

Urbanization has the potential to usher in a new era of well-being, resource efficiency and economic growth for Indonesia. However cities are also home to high concentrations of poverty; nowhere is the rise of inequality

clearer than in urban areas, where wealthy communities coexist alongside, and separated from, slums and informal settlements. If not managed well, urbanization can put considerable pressure on urban infrastructure and social services, such as housing, education, health care, electricity, water and sanitation and transportation.

UNFPA, the United Nations Population Fund, works with partners in Government, the UN system and civil society to advocate for the welfare and sustainability of rapidly urbanizing communities. UNFPA believes that people who move to urban areas should have access to essential social services. In Indonesia, women of reproductive age and young people make up large numbers of those moving to urban centres each year. Such groups require special attention from policymakers to ensure that they retain access to social support systems such as education and healthcare, including reproductive health care.

UNFPA firmly believes that population and development policies are needed to ensure that the development of economic corridors occurs in a way that is socially equitable and environmentally sustainable. This will protect the Indonesian population from some common social ills that often accompany accelerated economic development and urbanization.

The formulation and implementation of good population development policy depends on policymakers having a true understanding of the way population-related factors are causally connected in the real world, and on widespread access to good population data. This will ensure population and development policies are evidence-based and will help minimize the risk of undesirable and unintended consequences. Therefore UNFPA, as the United Nations development agency concerned with population and development issues, has developed a strong strategic partnership with Government of Indonesia agencies concerned with the collection and use of population data in the country.

The monograph on "Urbanization in Indonesia" is the fourth monograph in this series. It makes extensive use of data from the 2010 Population Census and other authoritative official statistics in order to provide policy makers, academicians, and practitioners with the most up-to-date information about Indonesia's urbanization situation. This monograph is a reservoir of knowledge, it entails a compendium analysis of urbanization trends and other socio-demographic outcomes, and a literature review which highlights the inter-relationship between demographic and social change on the one hand, and policies on the other hand. The monograph also recommendations that development policies pay more attention to current urbanization patterns in Indonesia, to make sure migration and urbanization contribute in the best way possible to growth and socio-economic development in Indonesia.

I would like to thank the authors, Professor Gavin W. Jones and Mr. Wahyu Mulyana for their expertise in researching, writing and finalizing this monograph. I also would like to thank UNFPA Country Office staff members for managing its production. In this regard, I especially thank colleagues from the Population and Development Unit, headed by Mr Richard Makalew, with the support of Mr Dedek Prayudi, Mr Dikot Harahap, and Mr Elvince Sardjono for their technical assistance to the authors, and Ms Jumita Siagian and Ms Meilawati Maya Dewi for their administrative support. My gratitude also goes to the Advocacy and Communications Unit, Mr Samidjo and Ms Satya Nugraheni for their timely support in ensuring the quality of the monograph's layout and printing.

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Finally, I wish to thank BPS-Statistics Indonesia for the access to a wide range of data, the 2010 Population Census and other authoritative data files that have been central to the production of this monograph.

In conclusion, we are honoured to introduce this compendium publication with an in-depth look into urbanization, which is now a topic of interest among policy makers, academicians, development partners and practitioners

Jakarta, September 2015

**Jose Ferraris** 

**UNFPA** Representative

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# Abbreviations And Acronyms

Al	Agglomeration Index							
ANU	Australian National University							
BAPPENAS	Badan Perencanaan Pembangunan Nasional (National Development Planning Agency)							
BKSP	Badan Kerjasama Pembangunan (Jabodetabek Development Cooperation Agency)							
BPS	Badan Pusat Statistik (Statistics Indonesia)							
DHS	Demographic Health Surveys							
DKI	Daerah Khusus Ibukota (Capital Special Region)							
ESCAP	Economic and Social Commission for Asia and the Pacific							
GDP	Gross Domestic Product							
Gerbangkertasusila	The Surabaya mega-urban region: Gresik, Bangkalan, Mojokerto, Surabaya, Sidoardjo, Lamongan							
GHG	Green House Gases							
IDR	Indonesia Rupiah							
IKK	lbukota Kabupaten (District Capital Town)							
Jabodetabek	The Jakarta mega-urban region: Jakarta, Bogor, Depok, Tangerang, Bekasi							
Kedungsepur	The Semarang mega-urban region: Kendal, Ungaran, Semarang, Purwodadi							
Krismon	Krisis Moneter (Monetary Crisis)							
KSN	Kawasan Strategic Nasional (National Strategic Areas)							
KSPN	Kebijakan dan Strategi Perkotaan Nasional (National Urban Strategy and Policy)							
Maminasata	The Makasar mega-urban region: Makasar, Maros, Sungguminasa, Takalar							
Mebidangro	The Medan mega-urban region: Medan, Binjai, Deli Serdang, Karo							
MUR	Mega-Urban Regions							
NO	Nitrogen Oxide							
NO2	Nitrogen Dioxide							
NTT	Nusa Tenggara Timur (East Nusa Tenggara)							
NUDS	National Urban Development Strategy							
PM10	Particulate Matter up to 10 micrometers in size							
PM2.5	Particulate Matter up to 2.5 micrometers in size							
RTRWN	Rencana Tata Ruang Wilayah Nasional (National Spatial Plan)							
SAPOLA	Slum Alleviation Policy and Action Plan							
Sarbagita	The Den Pasar mega-urban region: Den Pasar, Badung, Gianyar, Tabanan							
SE	South East							
SUPAS	Survei Penduduk Antar Sensus (The Intercensal Population Surveys)							
SUSENAS	Survei Sosial Ekonomi Nasional (National Socio-Economic Survey)							
TFR	Total Fertility Rate							
UN	United Nations							
UNFPA	United Nations Population Fund							
URDI	Urban and Regional Development Institute							
USD	US Dollar							
WHO	World Health Organization							

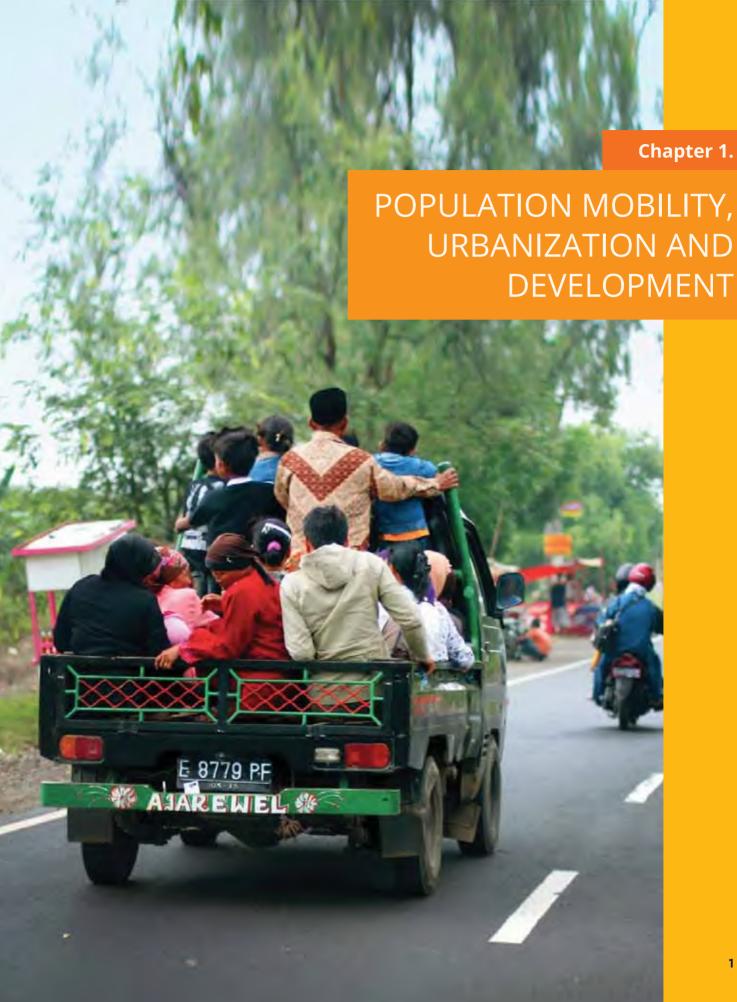
### Introduction

Indonesia has recently achieved a key milestone: the percentage of population living in urban areas has now passed 50 per cent. As this percentage is expected to keep increasing, we can safely conclude that never again will the majority of Indonesia's population live in rural areas. Instead, the majority will be living in a range of urban settlements, such as small towns, larger towns, cities and mega-urban regions (MUR). This has important implications not only for the kind of lives Indonesian people will live, but also for the planning issues facing government.

This report will outline the trends in urbanization in Indonesia, discuss the differences in aspects of people's lives in rural and urban areas, analyse trends in the distribution of people between different kinds of urban areas, and discuss particular issues facing Indonesia's mega-urban areas. These issues include infrastructure needs, liveability, sustainability and environmental concerns. This report will then provide a series of conclusions and policy recommendations, with a view to informing planning and practice for Indonesia's development in the future.

One key point must be kept in mind throughout this publication; it is no longer easy to identify exactly what constitutes an urban or rural area (see Champion and Hugo, 2004). Many localities – particularly those in the extended influence of large cities – are a mixture of urban and rural characteristics, so it is difficult to classify them as one or the other. Aside from this, even areas that might be considered truly rural are now linked to urban areas through communications – such as television, mobile phones, and better public transportation – in ways that were inconceivable four or five decades ago (Jones, 1997). 'Urban' characteristics have thus permeated rural areas in such a way that estimates of the Indonesian population living in rural areas – currently at 50 per cent – need to be carefully interpreted.

The classification of 'urban' areas varies from one country to another, largely because there is no standardized definition or administrative boundaries of urban and rural. This is particularly troublesome in the context of cross-country analysis, or to determine the aggregate urbanization status of a region. Whilst international reporting and comparison between urban populations can elicit a degree of conformity, it can also be misleading (Alkema et al, 2014; McGranahan and Satterthwaite, 2014). As the sophistication and availability of remote mapping improves, it will become increasingly feasible to apply definitions based on the density of populations, independent of administrative functions. Attempts to develop and apply more internationally comparable demographic definitions of 'urban' are already underway. A step in this direction was taken for the World Bank's 2009 World Development Report (Uchida and Nelson 2010; World Bank 2009). The resulting adjustments suggest that part of the explanation for Asia not being much more urban than Africa – despite higher incomes per capita – is that some of the key countries including India have relatively restrictive definitions of what constitutes 'urban'.



### 1. What is urbanization?

'Urbanization' is not the same as urban population growth. Urbanization refers to an increase in the proportion of a population living in urban areas. If population growth in a country is 2 per cent per annum, for example, and the growth of the urban population is also 2 per cent per annum, urbanization is not taking place. If, on the other hand, the urban population is increasing by 4 per cent per annum in a country where population growth is 2 per cent per annum, then urbanization – an increase in the urban share of the total population – is taking place.

In this example – an annual increase of 4 per cent in the urban population – there are three possible contributors to this rapid rate of growth. The first is the natural increase of the urban population through an excess of births over deaths in urban areas. The second is net migration from rural areas. The third is reclassification of rural areas to give them urban status. In the third case, urbanization occurs 'in situ', as an area which was formerly considered rural now meets the criteria for being considered urban. It is estimated that reclassification was a major factor in Indonesia's rapid urban population growth in the 1990s, accounting for around 30-35 per cent (Firman et al, 2007: 444).

These three categories may seem clear-cut, but in some ways they are not. Consider, for example, migration and natural increase. Net migration contributes directly to urban growth, but once the migrants are settled, their children born in a city add to the natural increase of the urban population. The contribution of migration to urban population growth is therefore greater than merely net migration. To the same effect, the natural increase of the rural population also contributes to the overall size of the rural population, through which rural-urban migrants are drawn. In this sense, the natural increase of the rural population fuels rural-urban migration.

# 2. Theoretical perspectives on the interrelationship between population mobility, urbanization, changing employment structure and development

As they undergo economic development, countries tend to experience a gradual shift in economic activity, and hence in population distribution towards urban areas. This is because development normally involves a decline in agriculture and a rise in industry and services. Industry and services can and do, of course, take place in rural areas, but their key concentration is in urban areas. Typically, product per worker is considerably higher in the industrial and services sectors than in agriculture. Whereas agriculture might be producing 30 per cent of national product, for example, it might employ over 50 per cent of the workforce. Gradually, however, as industry and services expand, surplus labour is drawn away from agriculture, and productivity in agriculture rises, partly out of necessity as rural wages are driven up by a growing shortage of labour in the sector.

In many cases, this transformation of the workforce has demographic as well as economic underpinnings. Fertility rates frequently fall as economic development proceeds, and

over time, young cohorts entering the workforce stop increasing in size, and eventually begin to contract. If economic development is rapid enough, the absorption of labour in other sectors leads to a shortage of workers in agriculture, driving up wages and requiring productivity advances in the sector if they have not already been taking place.

# 3. The role of population mobility, urbanization and changing employment structure in Indonesian development since the 1960s

Over recent decades, the structure of employment in Indonesia has changed considerably (see Table 1.1). In 1971, 66 per cent of the workforce was in employed in primary industry (mainly agriculture), 10 per cent in industry and 24 per cent in services. By 2010, these ratios had changed greatly; 38 per cent in agriculture, 19 per cent in industry and 42 per cent in services.

TABLE 1.1.

Distribution of the employed population across broad industry sectors, 1971-2010

Sector	1971	1980	1990	1995	2010
Agriculture	65.9	56.2	52.7	44.0	38.4
Industry	10.1	13.3	15.1	18.4	19.3
Services	24.1	30.5	32.2	37.6	42.3
Total	100	100	100	100	100

**Source**: Hugo et al., 1987, Table 8.7; Population Census reports for 1990, 2010; ESCAP 2013, Table G4.2. **Note**: 2000 census figures not used because of unreliable quality; for example, 'others' made up 11.4% of the total amount.

These changes were accompanied by considerable population redistribution through migration. The transmigration program played a major role in this up to the 1980s, oriented primarily on shifting people from agriculture in Java and Bali to the outer islands of Sumatra and Kalimantan, and to a lesser extent to Sulawesi and Papua. The program peaked in the 1970s, resulting in a substantial net shift of the Indonesian population (Hugo et al., 1987, Chapter 6). However, the flow of 'spontaneous' migrants – as opposed to those under the transmigration program – was much more oriented towards non-agricultural jobs in towns and urban centres. In all provinces except Lampung, the percentage of in-migrants living in urban areas in 1980 was higher – and frequently much higher – than the proportion of the total population already living in urban areas. Lampung and Jakarta dominated these net in-migration flows, and Central and East Java the net out-migration flows (Hugo et al., 1987, Table 6.12).

As well as spontaneous and planned migration patterns, a lot of movement throughout this period was to cities in Java. For example, whilst Sumatra was a major focus of the transmigration program, data in the 1970s showed that the outflow of Sumatra-born migrants was emphatically directed to urban centres, thus nullifying to some extent the redistribution of population achieved by transmigration (ESCAP 1981: 99).



As the official transmigration program has been near-dormant for many years, recent patterns of migration have been dependant on the economic interests of individuals and families, though in some cases – for example, out-migration from West Kalimantan – it has been triggered by communal violence (Tirtosudarmo, 2007; Davidson, 2008). As will be discussed extensively in this report, the heavy focus on urban areas has continued to characterize migration flows in Indonesia. In 2010, amongst recent inter-island migrants, the share of people moving to urban compared to rural areas was double, and for inter-provincial migrants, it was triple. Amongst inter-district migrants (the largest group of migrants), the share in urban areas was 1.7 times as high as that in rural areas (Muhidin, 2014: Table 13.2). Amongst inter-provincial and inter-district migration flows, however, there are complex differences. Whereas most of the districts in Java and Sumatra have a share of recent migrants exceeding 10 per cent of the population – and thus have high levels of urbanization – the pattern is much more mixed elsewhere (Muhidin, 2014: 330).

Regarding employment structure, there has been a substantial shift from agriculture toward industry and services as a share of GDP, although less as a share of employment. This is characteristic of most countries as they develop. As shown in Table 1.2, production per worker is much higher in the industry than in services sector, and in turn much higher in services than in agriculture. It is anticipated that increases in product per head in Indonesia could result from increases in any of these three sectors, but further shifts of labour from agriculture to other sectors would likely be a major component of increases to overall productivity. As shown in Table 1.3, the industry sector grew much faster than agriculture throughout the final decades of the 2000s.

TABLE 1.2.

Proportion of the GDP and of employment in each sector, 2010

Sector	Employment ('000)	GDP (billion rupiah)	Production per worker (million rupiah)
Agriculture	42,500	985,471	23
Industry*	18,348	3,028,793	165
Services	44,080	2.432,589	55
TOTAL	104,928	6,446,852	61

Source: BPS online data. \*Includes mining, manufacturing, construction, utilities, transport and communication.

TABLE 1.3.
Economic growth and transformation in Indonesia, 1965-1997

	Av	Average annual growth rate					% of GDP				
	1965-80	2000-2010	1965	1980	1997	2010					
GDP	7.0	6.1	7.7	5.1							
Agriculture	4.3	3.4	2.8		51	24	16	15			
Industry	12.0	12.6	10.8		8	13	43	47			
Services	7.3	7.3 7.0			36	34	41	38			

Source: World Bank, successive issues of World Development Indicators.

The urbanization that has accompanied this change in economic structure was slow to produce very large cities in Indonesia, and was characterized by continuing links between urban populations and the rural areas from which they originated. Only one city in Indonesia had reached a population of one million by 1950, with Jakarta reaching this mark in mid-1948 (Dick, 2003: 122-3). Surabaya's population reached one million only in 1958, then grew to almost two million in 1968, before falling to 1.5 million in 1970 as a result of a crackdown on squatter settlements and itinerants (Peters, 2013: 72-3). In the case of Jakarta, growth over the 1950s was spectacular, reaching a population of almost 3 million by 1961, and 8 million by 1990.

The large contribution of migration to the swelling of Indonesian city populations from the 1950s onwards meant that even by the year 2000, only a relatively small proportion of city dwellers were entirely divorced from their rural roots. This was evident in the large-scale emptying of these cities over *Lebaran*, as vast numbers returned to their place of birth. Thus only gradually did an 'urban proletariat' develop.

### 4. Brief survey of recent developments

The ill-effects of the Asian financial crisis in 1997-8 – referred to in Indonesia as *krismon* (monetary crisis) or *kristal* (total crisis) – had largely been resolved by the beginning of the 21st century, and the 2000-2010 decade was one of political consolidation, government decentralization and steady economic development, albeit at a pace that could not match that of China or India.

Over this decade, real per capita income grew by 4 per cent per annum, merchandise exports grew from USD 98.2 billion in 2000 to 227.4 billion in 2012 (ESCAP 2013, Table G4.2), car ownership increased from 3 million vehicles in 2000 to 9.7 million in 2010 (or by 12 percent annually), and motorcycle ownership increased at a double digit rate. By 2012, there were 77.8 million registered motorcycles in Indonesia, one for every two adults, making up 82.4 per cent of all registered vehicles. Motor vehicle ownership in Indonesia has also been increasing dramatically; by 23 per cent nationally between 2011 and 2013, 26 per cent in Jakarta, 56 per cent in Banten and 37 per cent in West Java (BPS, 2014, Table 10.1.3).

By contrast, infrastructure development has lagged; with no new railways being built, roads and ports becoming congested and poorly maintained, no development of a trans-Java freeway, and inter-provincial shipping facilities remaining poorly developed. Indeed, amongst the largest cities in the world, Jakarta is matched only by Dhaka in having no subway or light rail system.

The structure of employment in Indonesia also is not yet consistent with middle-income country status. Low value-added sectors – such as social and personal services and wholesale and retail trade – create the most jobs, and the informal sector is still large. According to World Bank estimates, over 60 percent of workers are either self-employed, casual workers, unpaid family workers, or employers who hire temporary workers. Amongst the rest of the workforce, only around 35 percent of employees have written contracts (World Bank, 2015: 18).

Access to means of communication has continued to change dramatically in Indonesia. Most notably, mobile phone usage has become almost universal. In 2013, there was exactly one mobile phone for every Indonesian, including children. Jakarta had the highest Twitter use among the world's cities, and was the second highest usage of Facebook.



# 1. Data issues in studying urbanization in Indonesia: sources, definitions, procedures

The criteria for being a municipality in Indonesia has changed over time, but there remains considerable inertia in according municipal status. This means that historical factors – which may no longer be considered relevant – continue to influence the recognition of certain towns as kota administratip. As outlined by Milone (1966):

"The regency or kabupaten towns – the administrative seats of them bupatis – which in some instances can at the same time be residency capitals, are also in the majority of cases without municipality status. This is true even in the instances in which they have over 50,000 population, as is the case for some of these cities on Java. Such kabupaten seats as Tjiandjur (62,546 inhabitants), Garut (76,244), Tasikmalaya (125,525), Purwokerto (80,556), Tjilatjap (55,333), Kudus (74,911), Djember (94,089), and Banjuwangi (72,467) have been denied municipality status to date. Since all these cities are on Java, the reason appears to lie in the political pressure to have a certain number of municipalities in newly-developing regions. At the same time it would appear that there is a desire to limit the number of municipalities on Java so that this kind of city will have equal representation throughout Indonesia" (Milone, 1966: 66).

While this explanation still appears to have considerable force – perhaps more as a result of administrative and legislative inertia than specific intention – it does not explain the dominance of West Sumatran towns among those which have long been recognized as kota madya. For example, amongst the towns which had not gained kota administratip status in 1980, a long list from Java with substantial populations could be found, including Cianjur, Majalaya, Purwakarta, Serang, Karawang, Pemalang, Kudus, Bojonegoro, Tulung Agung, Jombang, Banyuwangi and Situbondo. All of these are much more populous than towns in West Sumatra, such as Payakumbuh, Padang Panjang, Solok and Sawahlunto (see NUDS, 1954, Appendix E1).

The classification of urban areas in Indonesia starts from the decision to allocate urban or rural status to each of the 77,126 desa (village, or kelurahan) in Indonesia. The classification used in the 2010 Population Census regarded 20.5 per cent of desa in Indonesia as urban, and 79.5 per cent as rural. The average population of urban desa was considerably larger than that of rural desa. The number and proportion of urban and rural desa in each province is outlined in Table 2.1, and the trend between the number of urban and rural villages between 2000 and 2010 is summarized in Figure 2.1.

A few comments are in order. Firstly, the share of urban desa is generally higher in the provinces of Java-Bali (mostly in the 30-40 per cent range), consistent with a higher level of urbanization. Comparatively, the share of urban desa in the more isolated provinces of West and Central Sulawesi and Central Kalimantan is well below 10 per cent, particularly

so in West Papua and Papua (only 2-3 per cent). It is striking that all nine provinces in which the proportion of urban villages is less than 10 per cent are located in the Eastern part of Indonesia – East Nusa Tenggara, West Kalimantan, Central Kalimantan, Central Sulawesi, Southeast Sulawesi, West Sulawesi, North Maluku, West Papua and Papua. This shows the wide gap in urbanization between the Western and Eastern parts of Indonesia.

There are also some apparent anomalies in the data, such as the much higher proportion of urban villages in West Sumatra than in other Sumatran provinces.

TABLE 2.1: Number and percentage of urban and rural villages in Indonesia, 2000-2010

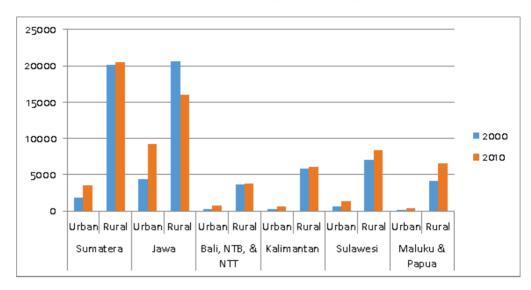
			2000		2010					
No	Province	% of v	illages	Number	% of	villages	Num	ber of villa	ges	
		Urban	Rural	of villages	Urban	Rural	Total	Urban	Rural	
1	Aceh	5.3	94.7	5595	11.3	88.7	6455	730	5725	
2	North Sumatera	10.1	89.9	5335	17.3	82.7	5744	996	4748	
3	West Sumatera	13.0	87.0	2176	34.6	65.4	1013	350	663	
4	Riau	10.7	89.3	1462	13.6	86.4	1643	223	1420	
5	Jambi	6.9	93.1	1161	12.8	87.2	1371	175	1196	
6	South Sumatera	9.1	90.9	2972	11.5	88.5	3157	362	2795	
7	Bengkulu	6.0	94.0	1160	10.6	89.4	1478	156	1322	
8	Lampung	5.4	94.6	2064	11.3	88.7	2404	271	2133	
9	Bangka Belitung	*	*	*	30.7	69.3	361	111	250	
10	Riau Islands	*	*	*	34.3	65.7	353	121	232	
11	Jakarta	100.0	0.0	265	100.0	0.0	267	267		
12	West Java	17.7	82.3	7222	45.2	54.8	5880	2659	3221	
13	Central Java	16.8	83.2	8543	31.7	68.3	8576	2715	5861	
14	Yogyakarta	28.3	71.7	438	43.6	56.4	438	191	247	
15	East Java	14.9	85.1	8457	33.3	66.7	8506	2836	5670	
16	Banten	*	*	*	37.2	62.8	1535	571	964	
17	Bali	15.8	84.2	678	37.6	62.4	715	269	446	
18	W Nusa Tenggara	10.8	89.2	703	28.1	71.9	966	271	695	
19	E Nusa Tenggara	4.3	95.7	2515	6.5	93.5	2836	184	2652	
20	West Kalimantan	4.1	95.9	1430	7.1	92.9	1894	134	1760	
21	Cent Kalimantan	2.3	97.7	1324	5.6	94.4	1511	85	1426	
22	S Kalimantan	4.5	95.5	2218	13.1	86.9	1981	259	1722	
23	East Kalimantan	8.3	91.7	1138	14.6	85.4	1435	210	1225	
24	North Sulawesi	8.7	91.3	1526	21.0	79.0	1658	349	1309	
25	Central Sulawesi	4.5	95.5	1435	7.4	92.6	1778	132	1646	
28	Gorontalo	*	*	*	20.8	79.2	619	129	490	

			2000		2010					
No	Province	% of villages		Number	% of villages		Num	ges		
		Urban	Rural	of villages	Urban	Rural	Total	Urban	Rural	
29	W Sulawesi	*	*	*	6.8	93.2	603	41	562	
30	Maluku	5.2	94.8	1433	10.5	89.5	906	95	811	
31	North Maluku	*	*	*	9.5	90.5	1063	101	962	
32	West Papua	*	*	*	2.1	97.9	1367	29	1338	
33	Papua	2.2	97.8	2846	3.2	96.8	3561	115	3446	
Indonesia		10.9	89.1	68769	20.5	79.5	77126	15786	61340	

Source: BPS, 2010. \*Not yet provinces in 2000.



Increase in rural and urban villages in the period 2000-2010



Whether an area is classified as a town or city, however, is based on different criteria to determining the urban and rural status of a village. The National Development Planning Board (Bappenas) uses three administrative categories of urban areas referred to in Law No. 32/2004 on Local Governance (administrative decentralization). These include: i) urban areas as autonomous regions, known as city governments (*kota*), ii) urban areas within district boundaries (district capital towns), and iii) urban areas spilling over into one or more adjacent administrative areas. The procedure to have an urban area classified as a *kota* is quite complex, involving a proposal from the provincial parliament to the Ministry of Home Affairs for a particular town.

Bappenas also classifies *kota* based on population size determined through an urban area's classification in Law No. 26/2007 on Spatial Planning. This includes: i) metropolitan city with a population above 1 million, ii) large city with a population between 500,000 to 1 million, iii) medium city with a population between 100,000 to 500,000, and iv) small city with a population between 50,000 to 100,000. Thirty-four of Indonesia's *kota* were established in the period since decentralization (1999-2009), and their number is likely to increase in the future as a result of the continued upgrading of district capital towns (*ibukota kabupaten*, or IKK) to *kota* in order to provide them with an administrative powers commensurate with their population size and economic importance, thus separating them from their former districts. The number of IKK may also increase as a result of further subdivision of districts.

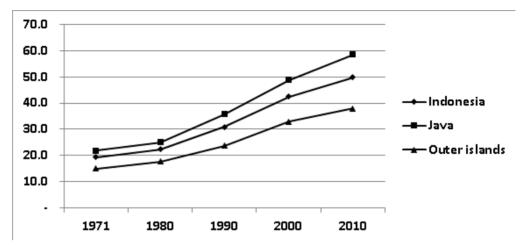
(See Annex 1 for further details of urban definitions).

### 2. Trends in the level of urbanization

Urbanization in Indonesia has increased steadily over time (see Figure 2.2 and Table 2.2). Even as recently as 1971, the proportion of the population living in urban areas was only 17 per cent, compared to 22 per cent in 1980.

FIGURE 2.2.

Trends in percentage of population living in urban areas, 1971-2010



Source: Population Censuses, 1971, 1980, 1990, 2000 and 2010.

The sharp increase in this figure to almost 50 per cent in 2010 reflects fundamental changes in the nature of the Indonesian economy and society. In only 30 years, Indonesia transformed from a nation with less than one quarter of its population living in urban areas, to one where half the population lived in urban areas. Not only this, but the urban areas were themselves changing remarkably. In 1980, high rise apartments and shopping malls were rare, even in the largest cities. More generally, the urban population was being gradually drawn into a modern, 'connected' world through the influence of longer periods spent in educational institutions and through the rise of modern communication media.

TABLE 2.2.
Urban growth and trends in urbanization, 1980-2010

			Census year	Percentage growth per annum					
	1971	1980	1990	2000	2010	1971- 80	1980- 90	1990- 2000	2000- 10
Urban population ('000)	20,465	32,846	55,434	85,381	118,320	5.4	5.4	4.4	3.4
Rural population ('000)	98,675	114,089	123,814	115,86	119,321	1.6	0.8	-0.7	0.3
Urban percentage	17.2	22.4	30.9	42.4	49.8	3.0	3.2	3.2	1.6
Rural percentage	82.8	77.6	69.1	57.6	50.2				
Urban/rural ratio	0.207	0.287	0.448	0.737	0.992				

**Source**: Population Censuses, 1971, 1980, 1990, 2000 and 2010.

### 3. Urban and rural population growth or decline

Until recently, the emphasis of Indonesia's population change has focused heavily on growth. In reality, the slowing of overall rates of population growth and significant shifts in population mean that in some parts of the country – particularly rural areas – population decline has now set in. Indeed, between the 2000 and 2010 censuses, the rural population grew by just 3.3 per cent compared to 39 per cent for urban areas, although it should be noted that there were considerable and significant differences across regions, provinces and districts. Nonetheless, population decline in many rural areas, and indeed in some urban areas, has major implications for the wellbeing of the populations concerned, and raises important issues for planning and development.

# 4. Provincial differences and their correlates; differences between Java and other areas

The highest levels of urbanization in Indonesia are in Jakarta, Banten, Yogyakarta, the Riau Islands, Bali and East Kalimantan. All of these provinces have over 60 per cent of their population living in urban areas. Indeed, if we consider the 63 million people living west of the Central Java-West Java border (i.e. in the provinces of West Java, DKI Jakarta and Banten), 71 per cent were living in urban areas in 2010, a remarkable change from roughly 35 per cent in 1980. The lowest levels of urbanization are in East Nusatenggara, Central Sulawesi and Western Sulawesi, all of which have fewer than 25 per cent of their population living in urban areas. In general, high levels of urbanization are found in provinces with very large cities (Jakarta, West Java, Banten), thriving tourism (Bali), or significant resource extraction (East Kalimantan). Low levels of urbanization are found in provinces 'off the beaten track', and lacking in resource extraction activities. A relatively high correlation is found between level of urbanization and the level of economic development as measured by the Gross Regional Domestic Product per capita in the provinces. The Spearman Rank Correlation between the two is 0.531 (Firman, forthcoming).

The size of the urban population, the percentage of the urban population and its growth rate in each province between 2000 and 2010 is shown in Table 2.4. The growth rates of the urban population between 2000 and 2010 were extraordinarily rapid in Banten, reflecting mainly the growth of the Jakarta mega-urban region, and above 60 per cent in Riau (including Riau Islands), South Kalimantan, Gorontalo, Maluku and Papua (including West Papua). Each case has specific reasons for rapid growth. For example, Riau and Riau Islands benefited from oil revenues and the growth of industry in Batam (neighbouring Singapore). Urban Gorontalo benefited from the creation of a new province. Rapid urban growth in Gorontalo, Maluku and Papua started from a small urban base. Among larger provinces, rapid urban growth in West Java, South Kalimantan and East Kalimantan is noteworthy.

TABLE 2.4.
Percentage of urban population by province, 2000-2010

Province	Urban population 2000 ('000)	Urban population 2010 ('000)	% increase 2000-10	% Urban 1990	% Urban 2000	% Urban 2010	% Urban 2035 (projected)
Aceh	486	1,263	159.9	15.8	28.0	28.1	43.2
North Sumatra	4,693	6,387	36.1	35.5	42.6	49.2	68.1
West Sumatra	1,228	1,875	52.7	20.4	28.9	38.7	63.8
Riau	2,147**	2,171	65.9**	31.9**	43.3**	39.2	41.8
Jambi	683	949	38.9	21.5	28.3	30.7	38.2
South Sumatra	2,380	2,667	12.1	29.3	34.5	35.8	40.1
Bengkulu	461	532	15.4	20.4	29.4	31.0	35.6
Lampung	1,429	1,955	36.8	12.5	21.2	25.7	42.4
Bangka Belitung	387	602	55.6		43.0	49.2	67.4
Riau Islands		1,390				82.8	85.3
SUMATRA	13,981	19,788	41.5	25.5	34.4	39.1	52.1
Jakarta	8,389	9,607	14.5	100.0	100.0	100.0	100.0
West Java	17,972	28,286	57.4	34.5	50.3	65.7	89.3
Central Java	12,554	14,799	17.9	27.0	40.2	45.7	60.8
Yogyakarta	1,801	2,295	27.4	44.4	57.7	66.4	84.1
East Java	14,226	17,839	25.4	27.4	40.9	47.6	66.7
Banten	2,770	7,123	157.1		34.2	67.0	84.9
JAVA	58,980	79,950	35.6	35.7	48.7	60.8	77.6
West Kalimantan	1,065	1,327	24.6	19.9	26.4	30.2	47.9
Central Kalimantan	672	741	10.3	17.5	36.2	33.5	52.9
South Kalimantan	829	1,527	82.0	27.1	28.1	42.1	59.8
East Kalimantan	1,419	2,245	58.2	48.8	57.8	63.2	77.7
KALIMANTAN	3,981	5,799	45.7	27.6	36.3	42.1	60.4
North Sulawesi	736	1,026	39.4	22.8	36.6	45.2	68.7
Central Sulawesi	444	640	44.1	16.5	20.0	24.3	43.1
South Sulawesi	2,385**	2,948	34.7**	24.1**	29.6**	36.7	59.6
SE Sulawesi	384	612	59.4	17.1	21.1	27.4	48.3
Gorontalo	213	354	66.2		25.5	34.0	58.4
West Sulawesi		265				22.9	23.1
SULAWESI	3,810	5,843	53.4	22.3	26.5	33.6	53.4
Bali	1,566	2,342	49.6	26.4	49.7	60.2	81.2
West Nusatenggara	1,407	1,877	33.4	17.3	35.1	41.7	62.7
East Nusatenggara	613	904	47.5	11.4	15.5	19.3	34.6
Maluku	304	569	87.2	19.0	25.2	37.1	42.1

Province	Urban population 2000 ('000)	Urban population 2010 ('000)	% increase 2000-10	% Urban 1990	% Urban 2000	% Urban 2010	% Urban 2035 (projected)
North Maluku	241	281	16.6		30.7	27.1	30.6
West Papua		227				29.9	44.4
Papua	553**	737	74.3**	24.3**	24.9**	26.0	41.5
INDONESIA	87,043	118,345	36.0	30.8	42.2	49.8	66.6

**Source**: Central Board of Statistics (http://www.bps.go.id) and CBS, 2012. \*\*Riau Included Riau Islands; South Sulawesi included West Sulawesi; Papua included West Papua. Urban population growth rates for 2000-2010 period are for the combined population in the 2000 boundaries.

Java overall is a highly urbanized region, but many provinces in the outer islands also experienced a considerable increase in the proportion of population living in urban areas over the 2000-2010 period. The sharpest increases were in Riau Islands, Maluku, Bali, and South Kalimantan. Riau Islands has attracted migrants from all over Indonesia to the city of Batam. Riau, from which it was split in 2002, also continues to urbanize rapidly. Bali is an international tourist destination capturing a remarkably high percentage of the foreign tourists who travel to Indonesia. Most provinces outside Java, however, continue to have relatively low levels of urbanization.



How large are individual urban areas in Indonesia, and how rapidly have individual towns and cities grown? This is not an easy question to answer, largely due to the lack of detailed data on urban populations. For this report, considerable effort was spent determining the population sizes of towns and cities from 2010 Census data – some of which had with populations exceeding half a million but were not included in the list of *kota administratip*. It is also very difficult to trace the populations of these towns back in time. Appendix Table 1 lists all cities in Java with populations above 100,000 people, as well as outer island provinces and larger towns, sometimes down to populations as small as 20,000 people. However, without access to the relevant data in BPS, as well as investing considerable time and effort, it is impossible to compare these 2010 populations with earlier statistics, except for those with official status as *kota administratip*. A start has been made with comparing the 2000 and 2010 Census data for towns and cities in Table 2.4, but caution is needed in interpreting the suspiciously high growth rates between 2000 and 2010 for some of these towns and cities.

Table 2.5 shows the growth of Indonesian cities with populations above half a million in 2010. There were 33 such cities, but as six of them (including DKI Jakarta) were located within the Jakarta mega-urban region, we could consider them separate nodes in one megacity. Similarly, two cities were located within the Surabaya mega-urban region, two within the Banding mega-urban region and three within the Yogyakarta mega-urban region. If we combine these cases into individual mega-urban regions, we can conclude that there were 24 separate mega-cities and other cities in Indonesia with populations exceeding half a million.

The growth rate over the 1990-2000 and 2000-2010 periods for Indonesia's largest cities – Jakarta, Surabaya, Bandung and Medan – was relatively slow, but this was largely due to the fact that rapid growth was taking place in areas outside their official boundaries. This will be discussed at greater length in Chapter 5. It can be noted here, however, that the population growth of the entire Jabodetabek mega-urban region over the 2010-2020 period was 37 per cent, or amongst the most rapid of Indonesian cities listed below. The growth rates of Depok and Bekasi were considerably above this figure, but if we accept that it is the growth rate of the entire population of the Jakarta mega-urban region that should be compared with the growth of other cities, then the rapid growth of Bekasi, Depok, etc. should not be considered independently of their role as part of this mega-urban region either.

TABLE 2.5.

Growth of Indonesia's largest cities (populations above 500,000), 1990-2010

City	Province	Population 1990	Population 2000	Population 2010	Av. Ann. % increase 1990-2000	Av. Ann. % increase 2000-10
DKI Jakarta	DKI Jakarta	8,259,288	8,356,489	9,607,787	0.2	1.4
Surabaya	East Java	2,483,871	2,599,796	2,765,487	0.4	0.6
Bandung	West Java	2,058,049	2,136,260	2,394,873	0.4	1.1
Bekasi*	West Java		1,663,802	2,334,871		3.4
Medan	North Sumatra	1,730,752	1,904,273	2,097,610	1.0	1.1
Tangerang*	Banten		1,325,854	1,798,601		3.1
Sidoardjo+	East Java		1,339,311	1,772,043		2.8
Depok*	West Java		1,143,403	1,738,570		4.3
Semarang	Central Java	1,250,971	1,298,643	1,555,984	0.8	1.8
Palembang	South Sumatra	1,144,279	1,451,419	1,455,284	2.4	0.0
Makassar	South Sulawesi	944,685	1,100,019	1,338,663	1.5	2.0
Tangerang Selatan*	Banten		863,575	1,290,322		4.1
Bogor*	West Java	++	750,819	950,334		2.4
Batam	Riau Islands	106,667	437,358	944,285	15.2	8.0
Pekan Baru	Riau	398,694	585,430	897,767	4.0	4.4
Bandar Lampung	Lampung	636,706	742,749	881,801	1.6	1.7
Padang	West Sumatra	631,543	713,242	833,562	1.2	1.6
Karawang	West Java		660,806	829,761		2.3
Malang	East Java	695,618	756,982	820,243	0.8	0.8
Den Pasar	Bali		532,440	788,589		4.0
Sleman**	Yogyakarta		738,623	782,701		0.6
Samarinda	East Kalimantan	407,339	521,619	727,500	2.6	3.4
Cikarang	West Java			712,111		
Tasikmalaya	West Java		602,145	635,464		0.5
Kudus	Central Java		477,509	629,011		2.8
Banjarmasin	S. Kalimantan	481,371	527,415	625,481	1.1	1.7
Jambi	Jambi	339,944	416,780	586,930	2.1	3.5
Serang	Banten		458,587	577,785		2.3
Balikpapan	East Kalimantan	344,405	409,023	557,579	1.7	3.1
Pontianak	W. Kalimantan	397,343	464,534	554,764	1.8	1.8
Bantul**	Yogyakarta		561,938	543,379		-0.3
Cimahi***	West Java		442,077	541,177		2.0
Garut	West Java		273,364	507,489		6.4

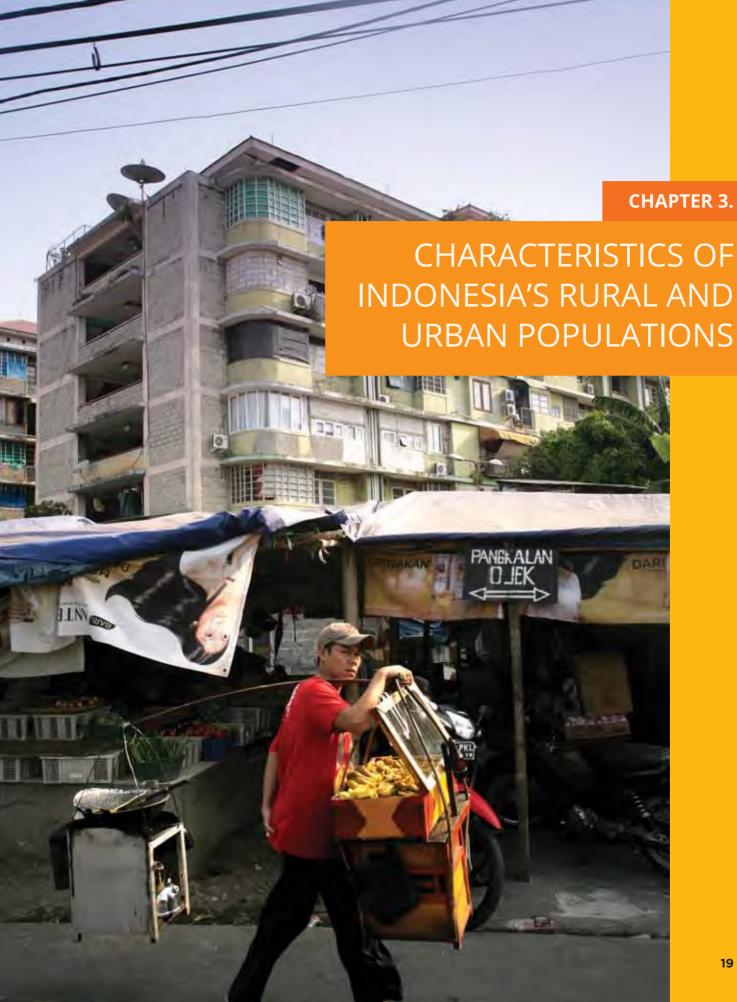
**Source:** Population censuses of 1990, 2000 and 2010. \*Located within the Jakarta mega-urban region. \*\*Located within the Yogyakarta mega-urban region. \*\*\*Located within the Bandung mega-urban region +Located within the Surabaya mega-urban region. ++Boundary changed between 1990 and 2000.

What is clear from Table 2.5 is that the majority of Indonesia's fastest-growing cities are outside Java, such as Batam, Pekan Baru, Samarinda, Balikpapan, Den Pasar and Jambi, all of which are located in provinces which, as noted above, were favourably placed for rapid economic growth.

### 5. Components of urban population growth

It is important to understand the extent to which urban population growth in any country or region results from (1) a rural/urban differential in natural increase in favour of urban areas, (2) a transfer of population from rural to urban areas through net migration gains in urban areas at the expense of rural areas, or (3) a reclassification of areas from rural to urban (what is sometimes referred to as 'in situ' urbanization). Can the relative contribution of these components to changing urban growth and levels of urbanization in Indonesia be determined?

It can be done, but only in a very rough way. In the 1961-71 and 1971-76 periods, natural increase contributed much more than either net migration or reclassification to the growth of municipalities in Indonesia (ESCAP, 1981: 69-75). Indeed, many of Java's municipalities actually lost populations through migration, though this was certainly not true of Jakarta or of the municipalities in Sumatra. In later periods, however, with the slowing rates of natural increase and the acceleration of economic development, migration came to play a more important role in the growth of urban areas, particularly in the largest cities of Java and outside the island.



### 1. Fertility and mortality trends

According to the 2012 DHS, the total fertility rate of women was 2.4 in urban areas, compared to 2.8 in rural. The main reason for this difference was higher fertility at younger ages for rural women, who have an average of 1.1 births before their 25<sup>th</sup> birthday, substantially above the 0.7 births urban women are having at the same age (Statistics Indonesia et al., 2013, p. 50-51). The median age for the first birth for women was 23.0 in urban areas, compared to 21.0 in rural. More than twice as many rural women aged 15-19 had had a live birth or were pregnant with their first child than their urban counterparts, at 13.1 per cent compared with 6.3 per cent respectively (Statistics Indonesia et al., 2013, p. 60-61).

How much does wanted fertility differ from actual fertility in urban and rural areas? It is possible to calculate wanted fertility rates in the same manner as the conventional age-specific fertility rates, except that births the mother indicated had been unwanted are omitted from the numerator, and the remainder cumulated to form a total wanted fertility rate. This is analogous to the conventional total fertility rate (TFR). The total wanted fertility rate may be interpreted as the number of wanted births that a woman would bear by age 50, if she experienced the wanted fertility rates observed for the past three years. As shown in Table 3.1, the wanted fertility rate was about half a child less than the actual fertility rate. In rural areas, the wanted fertility rate was just above replacement level (a total fertility rate of 2.1), in urban areas it was below replacement level at 1.9, and in DKI Jakarta slightly lower still, at 1.8.



TABLE 3.1.

Wanted fertility rates for the three years preceding the survey, 2012

	Total wantedertility rate	Total fertility rate
Rural	2.2	2.8
Urban	1.9	2.4
DKI Jakarta	1.8	2.3

Source: Statistics Indonesia et al., 2013, Table 6.6, Table A-6.3

Turning to mortality, early childhood mortality rates have been declining over time throughout Indonesia. However, substantial urban-rural differences remain, as shown in Table 3.2. These mortality rates are more than 50 per cent higher in rural than in urban areas.

TABLE 3.2.

Early childhood mortality for the 10-year period, preceding 2012

Type of mortality	Urban	Rural
Neonatal	15	24
Post-neonatal	11	16
Infant mortality	26	40
Under-5 mortality	34	52

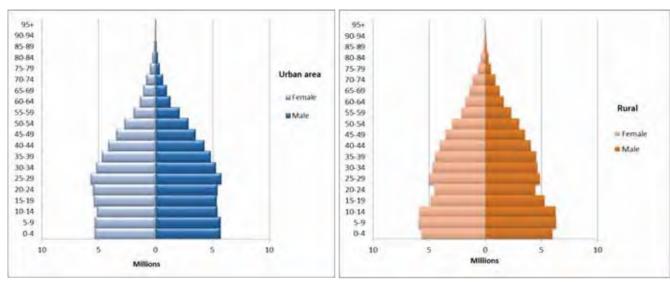
Source: Statistics Indonesia et al., 2013, Table 8.3. Note: Rates refer to deaths per 1,000 live births.

### 2. Differences in age and sex structure

There are important differences in the age structure between urban and rural areas of Indonesia. These differences result from different fertility and mortality rates, and well as patterns of migration. In general, one would expect that lower fertility rates in urban areas would result in an ageing population, but this is in fact offset by the 'younging' of the urban population as a result of rural-urban migration flows, which are heavily concentrated in young adult age groups.

Figure 3.1 shows the age pyramids for urban and rural areas of Indonesia, according to the 2010 Population Census. Important differences can be observed. Because migration flows are mainly in the young working ages, this section of the urban population is swollen relative to the rural population. Comparatively, the elderly population has a higher proportion in rural areas, partly because relatively few old people tend to migrate, and the flow among those who do migrate tend to be from urban to rural areas, sometimes because those who migrated to the cities when they were young want to return to their place of birth for retirement.

FIGURE 3.1.
Urban and rural age pyramids, 2010



Source: BPS website, 2010 Population Census.

Table 3.3 shows some indicators of urban-rural differences according to age structure. A number of indicators are outlined: the percentages of key functional age groups, the dependency ratio (a rough indicator of the proportion of the dependant age population to the working age population), and the support ratio (the ratio of the working age population to the elderly). Urban areas of Indonesia are at a considerable advantage in having a lower proportion of both young and old dependants compared to rural areas. This becomes clear in the age pyramid, where the considerably higher number of both children and elderly in rural areas is clearly apparent, offsetting the lower share of people of working age.

TABLE 3.3.
Indicators of age structure differences between urban and rural areas of Indonesia, 2010.

Indicator	Urban	Rural	Total
% aged 0-14	27.5	30.2	28.9
% aged 15-64	68.2	64.0	66.1
% aged 65+	4.2	5.8	5.0
Dependency ratio*	0.47	0.56	0.51
Support ratio**	16.1	11.0	13.1

<sup>\*</sup>Population (0-14)+(65+)/(15-64). \*\*Population (15-64)/(65+).

### 3. Household size

Changes in the average household size are very important for urban planners, affecting both the number and size of housing units required. The growth in the number of additional housing units needed can differ greatly from the growth rate of the population, if the average household size is changing. In the large cities of Indonesia – as across the country as a whole – the average household size declined sharply between 1990 and 2000, but between 2000 and 2010 there was very little change (see Table 3.4). This was largely due to the earlier decline in fertility, which levelled off over the 2000-2010 decade. The one city where there was noticeable change in average household size between 2000 and 2010 was Bandung, where it rose from 3.6 to 4.0.

TABLE 3.4.
Indonesia's largest cities, average number of household members, 1990-2010

City	1990	2000	2010
DKI Jakarta	4.7	3.7	3.8
Surabaya	4.5	3.6	3.6
Bandung	4.8	3.6	4.0
Medan	5.3	4.3	4.3
Semarang	4.6	4.6	3.8
Makassar	5.4	4.3	4.4
INDONESIA	4.5	3.9	3.9
INDONESIA URBAN			3.9

Source: Population Censuses, 1990, 2000 & 2010.

### 4. Educational characteristics

Most children in Indonesia attend school at the primary level, even if they do not complete it. Table 3.5 shows the proportion of different age groups who have never attended school across urban and rural areas. While the proportions who have never attended school are three to five times higher in rural compared to urban areas, even in rural areas they are quite low – below 2 per cent at ages 10-19. In urban areas, they are below 1 per cent at all ages, up to 35-39 years old.

TABLE 3.5

Percentage of the population who have never attended school, by age group, across urban and rural areas, 2010

Age group	Urban	Rural
10-14	0.41	1.18
15-19	0.40	1.52
20-24	0.42	2.22

Age group	Urban	Rural
25-29	0.56	2.72
30-34	0.66	3.51
35-39	1.10	4.61
40-44	2.30	8.04

**Source:** BPS website: http://www.bps.go.id/linkTabelStatis/view/id/1532

The more important statistic is the proportion of people who have reached various levels of education, as shown in Table 3.6. This table has the disadvantage of including all people aged 6 and above, even though many children aged 6-19 have not yet completed their education. However, the general picture reflects the higher educational attainment of the urban population, with more than twice as many people having completed secondary school than their rural counterparts, and a much lower proportion of the urban population with incomplete primary education or less. The educational attainment of women aged 15-49 (not much affected by the inclusion of people who have not yet completed their education) confirms the much higher average levels of education in urban areas, with almost half as many rural women falling into a lower education category. Women in this age group have completed, on average, 10.1 years of education if they live in urban areas, compared to 6.2 years for those living in rural areas.

TABLE 3.6.
Percentage of educational attainment of household population, 2012

	Incomplete primary or less	Completed primary/ incomplete secondary	Completed secondary or more	Total
MALE (aged 6+)				
Urban	22.9	39.4	37.7	100.0
Rural	37.2	47.2	15.6	100.0
Total	30.0	43.8	26.8	100.0
FEMALE (aged 6+)				
Urban	27.2	39.5	33.3	100.0
Rural	42.1	45.0	12.9	100.0
Total	34.7	42.3	23.0	100.0
FEMALES AGED 15-49				
Urban	8.7	43.0	48.3	100.0
Rural	19.8	58.6	21.6	100.0

Source: Statistics Indonesia et al., 2013, Tables 2.10.1, 2.10.2 and 3.2.1

More detailed data on educational attainment from the 2010 Census is presented in Table 3.7. It is clear that roughly the same proportion of urban and rural dwellers have completed junior secondary school, yet a much higher proportion of rural dwellers have levels of education below this. Comparatively, a much higher proportion of the urban population have upper secondary education or higher levels, at 45 per cent compared to 16 per cent of rural dwellers.

TABLE 3.7.

Percentage of educational attainment, population aged 15+, 2010

Educational attainment	Males		Fem	ales	Both sexes		
Educational attainment	Urban	Rural	Urban	Rural	Urban	Rural	
No education	2.4	9.1	5.0	15.1	3.7	12.1	
Incomplete primary	4.1	9.3	5.4	10.3	4.7	9.8	
Completed primary	23.5	42.5	26.6	42.0	25.0	42.3	
Junior secondary	22.0	20.9	21.8	18.5	21.9	19.7	
Senior secondary	32.7	13.9	28.4	10.5	30.6	12.2	
Senior vocational	4.5	1.5	2.7	0.8	3.6	1.2	
Diploma 1/11/111	3.1	1.1	3.9	1.5	3.5	1.3	
Diploma 1V/University	7.6	1.6	6.1	1.3	6.9	1.5	
Total	100	100	100	100	100	100	

Source: BPS online data Census, 2010

### 5. The employment structure of rural and urban areas

It is a common misconception that most of the rural population is engaged in agriculture and that manufacturing and service sector employment is heavily concentrated in urban areas. In fact, although most agricultural employment is in rural areas, this does not necessarily mean that most rural dwellers are engaged in agricultural activities. This is clear from Table 3.8, which shows that in 2012, only 43 per cent of employed males and 36 per cent of employed females living in rural areas worked in agriculture. This is because there are many other activities taking place in rural areas, ranging from various kinds of manufacturing, to trade, repairs and service activities. Many rural dwellers also commute each day to work in urban areas, almost always in non-agricultural activities.

It is important to note that it is often difficult for respondents to identify their main economic activity in response to questions posed in censuses or surveys. In both urban and rural areas, many people are engaged in multiple activities, and the activity in which they spend the most time is not necessarily the one that brings them the most income. The 'missing information' values column in Table 3.8 may well reflect this problem. The distribution of workers across industries or occupations in Tables 3.8 and 3.9 can thus be considered only a rough indication of the actual structure of employment in Indonesia.

TABLE 3.8.

Occupation of those aged 15-49 who were employed in the previous 12 months, 2012

	Professional, Technical, managerial	Clerical	Sales and services	Agriculture	Industrial worker	Missing information	Total
MALES							
Urban	13.6	6.8	27.5	7.8	37.0	7.3	100.0
Rural	5.8	2.5	12.0	42.7	33.5	3.5	100.0
FEMALES							
Urban	13.8	8.7	45.5	4.5	23.6	3.9	100.0
Rural	7.5	2.2	25.4	35.7	26.5	2.7	100.0

Source: Statistics Indonesia et al., 2013, Tables 3.6.1 and 3.6.2.

There has also been a tendency for much manufacturing activity to move from large cities to the outskirts of these cities, including nearby rural areas. However, it is very difficult to answer the question of how much of manufacturing employment is in rural areas, and how this has changed over time. This is difficult to trace, given that the definition of rural areas in each census is based partly on the employment structure of each *desa*. Therefore, if manufacturing grows in a rural area, that area is likely to become urban by definition.

This discussion will therefore concentrate more on the structure of employment in urban areas. Tables 3.9 and 3.10 show data from the 1990 and 2000 Censuses on employment structure in urban areas. The industry categories changed between 1990 and 2000, making it very difficult to compare information from the two. In particular, the group 'others' expanded greatly, no doubt covering some of the industrial categories deleted from the 2000 Census. But even assuming that all those included in the 'mining', 'electricity, gas and water', 'construction', and 'finance, insurance and real estate' categories in 1990 went into the 'others' category in 2000, the numbers have still doubled in size over that period, which in real terms, seems unlikely. Therefore, we must concede that the changing definitions across the two censuses makes it impossible to compare the industrial structure of employment in rural and urban areas between 1990 and 2000.

TABLE 3.9.

Population aged 10 years and over who worked during the previous week by main industry, urban and rural areas, 1990

Industry	Urban	Rural	Total
Agriculture, forestry, hunting and fishing	9.4	64.9	49.9
Mining and quarrying	1.0	1.0	1.0
Manufacturing	17.8	9.1	11.4
Electricity, gas and water	0.5	0.1	0.2
Construction	6.3	3.3	4.1
Trade, restaurants, hotels	25.8	10.6	14.7

Industry	Urban	Rural	Total
Transport, storage and communication	7.2	2.4	3.7
Finance, insurance, real estate etc.	2.9	0.3	1.0
Community, social, personal services	27.9	7.6	13.1
Others and not stated	1.1	0.9	1.0
TOTAL	100.0	100.0	100.0

Source: 1990 Census Report, Series S2, Table 41.3, 41.6, 41.9

TABLE 3.10.

Population aged 10 years and over who worked during the previous week by main industry, urban and rural areas, 2000

Industry	Urban	Rural	Total
Agriculture, forestry, hunting and fishing	14.5	67.8	47.2
Mining and quarrying			
Manufacturing	14.0	4.5	8.2
Electricity, gas and water			
Construction			
Trade, restaurants, hotels	19.5	8.3	12.6
Transport, storage and communication	3.5	1.6	2.3
Finance, insurance, real estate, etc.			
Community, social and personal services	32.4	9.3	18.3
Others	16.0	8.5	11.4
TOTAL	100.0	100.0	100.0

**Source:** 2000 Census Report, Series L2.2S2, Table 26.7, 26.8, 26.9

The 2010 Census data, however, is more comparable with 1990 data. Helpfully, the categories of 'construction' and 'finance, insurance and real estate' were reinstated. When the 2010 employment structure is compared with that in 1990, it is clear that the employment structure within urban and rural areas did not change very much, at least in terms of these broad categories.

What is distinctive, however, was the overall employment structure in the country as a whole, mainly resulting from the shift in the urban-rural balance of the labour force. Whilst there was almost no change in the proportion of the rural labour force working in primary industries, a definite increase in the proportion of the urban labour force working in these industries is evident (perhaps because of a more generous classification of *desa* as urban in 2010). Overall, because of the sharp increase in the proportion of the labour force living in urban areas, the proportion of the total labour force working in primary industries fell from 49.9 per cent in 1990 to 40.5 per cent in 2010. This decline was offset by small increases in the percentages working in most other sectors. In urban areas, however, there was little change in employment structure across these broad categories, the main offset to the higher share in primary industries being evident in a small drop in manufacturing and non-trade services.

TABLE 3.11.

Population aged 15 years and over who worked during the previous week by main industry, urban and rural areas, 2010

Industry	Urban	Rural	Total
Agriculture, forestry, hunting and fishing	13.2	64.3	40.5
Mining and quarrying	1.0	1.2	1.1
Manufacturing	15.8	6.4	10.8
Electricity, gas and water	0.6	0.1	0.4
Construction	6.9	3.9	5.3
Trade	23.2	10.3	16.3
Hotels and restaurants	3.4	0.9	2.1
Transport and storage	6.4	2.9	4.5
Information and communication	1.2	0.1	0.6
Finance, insurance, real estate, etc.	2.0	0.2	1.1
Educational services	5.1	3.1	4.0
Health services	1.8	0.5	1.1
Community, social and personal services	16.9	5.2	10.6
Other	2.5	0.9	1.6
TOTAL	100	100	100

Source: BPS website, 2010 Population Census

### 6. Income levels and poverty; the 'urbanization' of poverty

Poverty rates are lower in urban than in rural areas; confirmed by World Bank data across 1993 and 2007 (World Bank et al, 2011: 13). Recent data on poverty shows that in September 2012, the percentage of poor people was 8.6 per cent in urban areas, compared to 14.7 per cent in rural (Kementerian Perencanaan Pembangunan Nasional, 2013: Table 2.5). Districts with a higher level of urbanization tended to have lower incidences of poverty, about 14 per cent less than rural districts (Sumarto, Vothknecht and Wijaya 2014: 309). As fast growing areas attract migrants, so too does the number of poor people in cities rise. Thus, although the rate of poverty in cities is relatively low, the proportion of the population living in urban areas is increasing, so the absolute number of poor people living in urban areas increased across the 2005-2010 period (Kementerian Perencanaan Pembangunan Nasional, 2013: 45), and it probably still is. What is less clear is how many of those who migrate to the city in order to escape poverty actually succeed in doing so.

Rural-urban differences in poverty are more pronounced in some provinces than in others. In the provinces of Papua and West Papua, for example, rural-urban differences in poverty are very marked. The urban poverty level is well below the national average, and poverty in rural areas is much higher. Although the rural poverty level is declining, in

2012 it was calculated at 41 per cent in Papua and 38 per cent in West Papua, compared with the national figure for rural areas of approximately 15 per cent (Resosudarmo et al, 2014: 443-4). Poverty in these two provinces is therefore very much a rural phenomenon.

It is clear from Table 3.12 that urban areas have much higher proportions of their populations in the two highest wealth quintiles than rural areas, at 59 per cent compared to 21 per cent. The nation's capital, Jakarta, has an even higher proportion in these highest wealth quintiles, at 75 per cent.

TABLE 3.12.

Percentage of the distribution of the de jure population by wealth quintiles, by residence, 2012

Aros	Wealth quintile						
Area	Lowest	Second	Middle	Fourth	Highest	Total	
DKI Jakarta	2.5	7.6	14.8	27.8	47.2	100.0	
Urban	6.4	13.6	21.0	26.4	32.7	100.0	
Rural	33.5	26.4	19.0	13.7	7.4	100.0	
Total	20.0	20.0	20.0	20.0	20.0	100.0	

Source: Statistics Indonesia et al., 2013, Table 2.5



#### 7. Household possessions

Table 3.13 shows the difference between urban and rural areas in ownership of various household possessions and means of transportation. The generally higher level of prosperity within the urban population is clearly evident in the ownership rate of refrigerators, cars/trucks and fixed telephones. However, although urban ownership rates of television, mobile phones and motorcycles are higher than in rural areas, it is remarkable that rural rates of ownership of these items are as high as they are, reflecting the general increase in income levels of the population, and the decline in prices of items such as mobile phones.

TABLE 3.13.

Percentage of households possessing various household effects and means of transportation, by residence, Indonesia, 2012

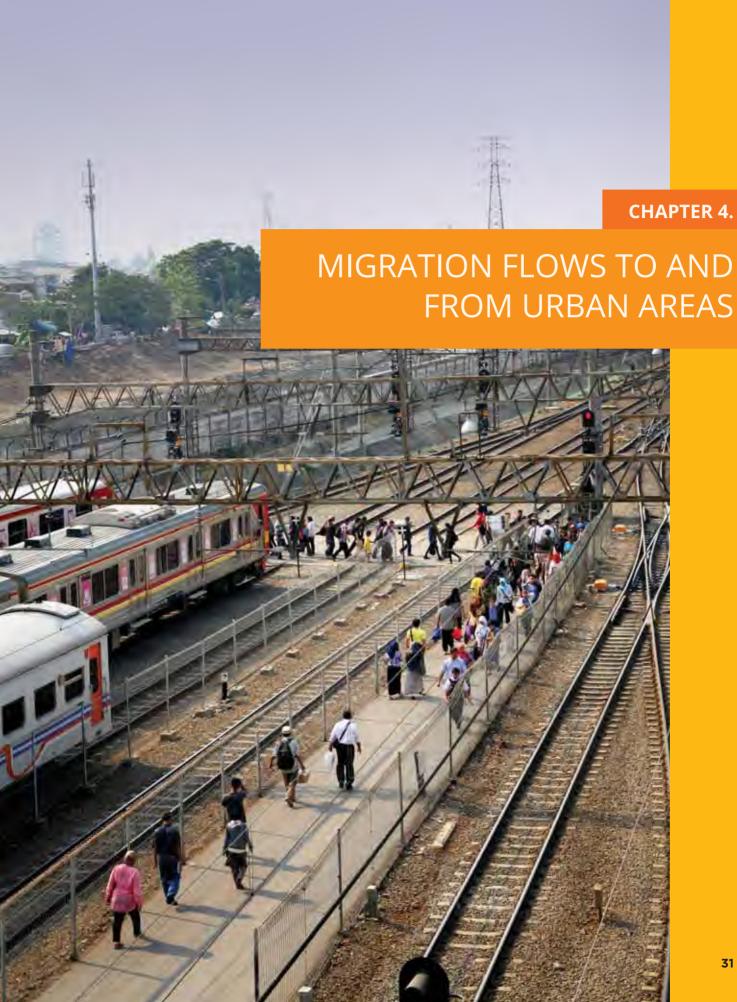
Possession	Urban	Rural	Total
Household effects			
Radio	39.6	27.8	33.6
Television	91.7	74.8	83.2
Mobile telephone	90.7	75.5	82.9
Non-mobile telephone	11.5	1.0	6.2
Refrigerator	55.5	24.7	39.8
Means of transport			
Bicycle	45.2	38.9	42.0
Motorcycle/scooter	73.2	60.7	66.8
Rowboat	0.6	2.4	1.5
Boat with a motor	0.7	1.6	1.1
Animal drawn cart	0.2	0.1	0.1
Car/truck	12.3	5.1	8.6
Ship	0.1	0.1	0.1

Source: Statistics Indonesia et al., 2013, Table 2.4

It is worth stressing the significance of the communications revolution in Indonesia, both in rural and urban areas (Hill and Sen, 2005). The possession of mobile phones is certainly a significant indicator. Whilst in 2012 not all households had a mobile phone (see Table 3.13), there was more than one mobile phone for every person in Indonesia, because many people carry more than one. The pattern of usage of such devices makes Indonesia one of the world's most active users of social media. In 2012, Indonesia had 64 million active Facebook users, and in June 2013, 7.5 per cent of the world's Tweets came from Indonesia.¹ In the first three months of 2013, 2.4 per cent of the world's tweets came from Jakarta alone.² It is said that in Jakarta, Twitter is used mainly for traffic information and for socializing.

<sup>1</sup> https://ondeviceresearch.com/blog/indonesia-social-media-capital-world

<sup>2</sup> https://www.techinasia.com/indonesia-social-jakarta-infographic/



A companion publication to this report, *Internal Migration in Indonesia*, reviews the overall internal migration situation in Indonesia. It finds that there was a slowing down of all types of migration in Indonesia between the 1995-2000 and 2005-2010 periods, except for what it refers to as 'corridor migration'. Indonesia is divided into six economic corridors: (a) Sumatra, (b) Java, (c) Kalimantan, (d) Sulawesi, (e) Bali and Nusa Tenggara, (f) Maluku, and (e) Papua. In general, economic corridors represent large islands in Indonesia. From a geographic point of view, inter-economic corridor migration and inter-island migration are thus synonymous.

Each of the six corridors witnessed an increased net in-flow from or net out-flow to other corridors between 1995 and 2010. The most striking of these was an increase in net inflow to Sumatra. Indeed, cross-corridor in-migration into Sumatra during 2005-2010 was almost 10 times as much as in the 1995-2000 period. By contrast, Java experienced a net out-flow in both periods, with net out-migration increasing by more than 80% between 1995 and 2010. There was an increase in the net in-migration to Bali, Nusa Tenggara and Kalimantan. The net in-flow to Sulawesi during 1995-2000 changed to a net out-flow during 2005-2010. Maluku and Papua, on the other hand, witnessed the opposite – with a net out-flow shifting to a net in-flow from other corridors. In general, there was an increasing tendency for a higher proportion of migrants to move longer distances, a trend the report attributes to improved means of transportation and communication. In the present study, however, discussion will be confined to the rural-urban dimensions of migration.

## 1. Effect of population mobility on urban areas

In Indonesia, permanent migration is fairly well measured by population censuses, but there are also intense patterns of shorter-term mobility which link people and places over quite wide distances. The volume of daily commuting to big cities is very large, but this does not involve any change of residence. Circular migration, however, does involve periodic changes of residence. In particular, it affects large cities and the areas on which they draw seasonal and shorter-term labour (Hugo, 1982). This movement is not captured in censuses, but is very important nonetheless, as it greatly affects the de facto labour force in the cities.

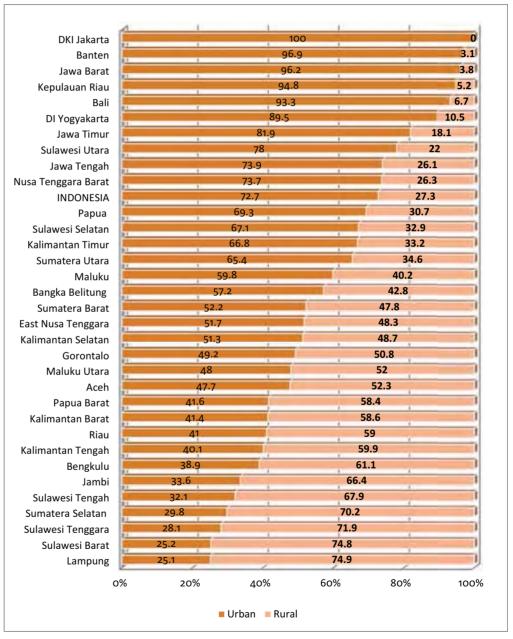
# 2. Volume of migration – urban and rural areas

Historically, substantial migration flows in Indonesia were directed to rural areas, particularly as a result of the transmigration program. However, not all of these migrants remained in rural areas. Further, spontaneous migration flows – even to provinces receiving many trans-migrants – tended to be more heavily oriented to urban areas. Migration to Papua is a good example if this. While trans-migrants – mostly from Java – were being settled in rural areas, some of them moved into towns such as Merauke from nearby transmigration areas where their living conditions were very difficult. At the same time, migrants from Sulawesi in particular were moving into the towns to engage in trade and other activities (Aditjondro, 1986).

Appendix Tables 2 and 3 show, for all Indonesian provinces, the proportion of the population in urban and rural areas who are lifetime and recent migrants. The definition of migrants are those who crossed *kabupaten/kota* boundaries (or, of course, provincial boundaries). As illustrated, there is a wide difference in the proportions, because naturally the number of migrants in the past five years is much less than the number of migrants over a lifetime. Figure 4.1 shows the percentage of lifetime migrants who lived in urban areas in 2010.

FIGURE 4.1.

Percentage of lifetime migrants who live in the urban areas, 2010



Source: Handiyatmo, 2011, p. 10

In 2010, lifetime migrants in Indonesia were primarily living in urban areas – with the ratio of urban to rural dwellers at 3:1. Whilst the ratio of the initial movement may have been less skewed to urban areas, by the time of the 2010 Census, it is possible that the area people had moved to had been declared urban. If we compare the proportion of lifetime migrants who are living in urban areas to the total urban population of that province, it is evident that across 16 provinces, the former exceeds the latter by more than 10 percentage points. In seven provinces – Kalimantan Barat, Kalimantan Tengah, Bengkulu, Sulawesi Tengah, Papua Barat, Aceh and Maluku Utara – it goes the other way; the proportion of migrants living in urban areas falls short of the urban population by more than five percentage points. In a further 12 provinces, the difference between the two proportions was less than five percentage points.

Most of the provinces where there is not much difference between the urban population and migrants living in urban areas are those with low levels of urbanization. By contrast, those where the urbanization of migrants exceeds that of the total population are more highly urbanized provinces. Overall, the tendency is clearly for an over-representation of lifetime migrants in urban areas, at the provincial as well as national level.

Appendix Tables 2 and 3 give details of lifetime and recent migrants amongst the general populations of Indonesian provinces. In Indonesia as a whole, the share of lifetime migrants is 11.8 per cent, compared to 2.5 per cent for recent migrants. The share of recent migrants in the population was more than three times as high in urban compared



to rural areas. The only province where migrants' share of the rural population was higher than their share of the urban population was Central Kalimantan, with relatively similar results in Riau, Jambi, South Sumatra and East Kalimantan. These are all provinces where opening of new rural areas for settlement is still going on. In all other provinces, the share of migrants is much higher in the urban population.

Drawing on Appendix Tables 2 and 3, Table 4.1 shows some extreme trends amongst Indonesian provinces in lifetime and recent migrants across urban and rural areas. The areas where the proportion of lifetime migrants is particularly high are those where inmigration has been ongoing for a long period, such as in Lampung, Riau, East Kalimantan and Papua, where many migrants were settled under the transmigration program. Other provinces, including Jakarta and Riau Islands, have large proportions of in-migrants because of migration to growing cities. Banten is an extreme example of this, with the proportion of lifetime migrants in urban areas far exceeding that in rural areas. Banten's urban areas –mainly on the fringes of the Jakarta metropolis – have a high proportion of recent migrants compared to rural areas. Bali, on the other hand, has a booming tourist industry which over a long period has drawn migrants to the greater Den Pasar area, including the Kuta-Legian-Seminyak, Sanur and Jimbaran-Nusa Dua areas.

TABLE 4.1.

Lifetime and recent migrants as percentage of total population, urban and rural areas, selected provinces, 2010

	Lifetime	migrants	Recent migrants		
Province	Urban	Rural	Urban	Rural	
North Sumatra	25.9	12.1	1.3	0.9	
Riau	47.2	36.9	6.7	5.6	
Lampung	30.1	29.2	2.1	1.1	
Riau Islands	60.6	17.8	16.6	3.3	
DKI Jakarta	44.6		7.3		
Banten	41.1	3.2	13.6	3.1	
Central Java	14.3	3.6	1.4	0.7	
East Java	20.4	3.6	4.3	1.2	
Bali	32.5	4.9	4.4	0.5	
West Nusatenggara	12.2	4.4	1.7	0.8	
South Kalimantan	35.4	18.5	4.7	2.6	
East Kalimantan	48.1	39.0	7.1	6.2	
South Sulawesi	28.1	7.9	2.9	1.0	
Southeast Sulawesi	38.4	24.4	4.6	2.7	
Papua	53.2	32.3	7.9	0.9	
INDONESIA	17.2	6.4	3.8	1.3	

Source: BPS website, 2010 Population Census

Central and East Java are large provinces more marked by out-migration than inmigration. In these two provinces (especially East Java), movement to the cities is much more prominent than that to the densely populated rural areas. South Sulawesi is a province with a reasonably high proportion of lifetime migrants in urban areas, but only a low proportion in rural areas, and low proportions of recent migrants in both urban and rural areas.

There is a fairly high degree of correlation between high proportions of both lifetime and recent migrants. This can be observed, for example, in the cases of Riau (including Riau Islands), Jakarta, East Kalimantan and Papua. There are, however, several exceptions. Lampung is a good example of this. The history of the transmigration program is evident in the high proportion of lifetime migrants, but the province's limited attraction in more recent times is reflected in the low proportion of recent migrants. A similar story, though less pronounced, is South Sumatra and Central Sulawesi, where even urban areas have failed to attract a large number of recent migrants.

Both lifetime and recent migration data show a strong concentration on urban areas, stronger in the case of recent migration than for lifetime migration. This no doubt reflects the drawdown of the transmigration program and the rapid urbanization in recent decades. Some of the key transmigrant-receiving provinces illustrate this trend. In 2000, for example, Lampung's rural areas had a slightly higher proportion of lifetime migrants, compared to a considerably higher proportion of recent migrants in urban areas. Over a decade, the 2010 figures showed this trend had continued to a more marked degree – even in lifetime migration. In the case of recent migration, the urban areas of Lampung retained their advantage, although neither urban nor rural areas of Lampung showed much power to attract inter-provincial migrants. In Southeast Sulawesi in 2000, lifetime migrants were a substantial proportion – more than 20 per cent – of both urban and rural populations, as were recent migrants. By 2010, however, the proportion of recent migrants had fallen to fairly low levels, twice as high in urban compared to in rural areas.

Provinces where the sources of growth in the past had been less dominated by transmigration, such as North Sumatra, East Kalimantan and Papua, show interesting contrasts. In North Sumatra, inter-kabupaten/kota or inter-provincial migration is contributing little to growth in urban or rural areas. In East Kalimantan, despite the importance of mining (which contributes mainly to the growth of urban areas) the proportion of recent migrants is quite high in both urban and rural areas. The same is true in Riau. This could be due to resource extraction industries in these provinces being located in rural areas. In Papua, by contrast, very few recent migrants have been going to rural areas.

# 3. Effect of migration on differences in age/sex, education structure of urban and rural areas

As already discussed in Chapter 3, section 2, migration has had a considerable influence on the demographic structure of urban and rural areas in Indonesia. The young working age population is over-represented amongst the urban population, while both children and the elderly are over-represented amongst the rural population.

Table 4.2 gives further information on the age structure of migrants and non-migrants in the capital city of Jakarta, and in a number of key provinces where recent migration has contributed strongly to growth, including Banten, Riau, Riau Islands, East Kalimantan and Papua. For comparison, some provinces where migration has played less of a role are also included, such as East Java, South Sulawesi and West Nusatenggara. Unfortunately, information is not available on the age structure of migrants in urban areas, however since migrants are heavily concentrated in urban areas (see Figure 4.1), the ratios in Table 4.2 can be expected to fairly closely represent the situation of both migrants and non-migrants in urban areas. Certainly, this is the case in Jakarta, which is wholly urban, and in Banten and Riau Islands, where migrants are almost exclusively living in urban areas. In all the provinces in the table, recent migrants are heavily concentrated in the young adult ages, 15-34 year old – far more so than the non-migrant population.

TABLE 4.2.

Age structure of recent migrants and non-migrants, selected provinces, 2010

Province	% aged 5-14			% aged 15-34			% aged 35-44		
Province	Migrant	Non- migrant	Ratio	Migrant	Non- migrant	Ratio	Migrant	Non- migrant	Ratio
Riau	15.3	20.7	0.74	63.0	34.2	1.84	13.1	13.5	0.96
Riau Islands	7.4	16.4	0.5	79.0	33.1	2.39	8.8	13.9	0.64
DKI Jakarta	6.8	14.8	0.5	76.5	36.1	2.12	10.0	15.3	0.65
Banten	12.0	19.5	0.6	64.0	35.8	1.79	14.8	14.4	1.03
E. Java	13.6	16.7	0.8	59.3	31.3	1.89	16.6	15.7	1.06
E. Kalimantan	11.9	18.9	0.6	63.7	33.9	1.88	15.4	14.5	1.06
S. Sulawesi	17.1	20.8	0.8	59.4	32.7	1.82	14.5	13.8	1.04
W. Nusatenggara	9.9	20.5	0.5	57.7	34.4	1.68	20.3	7.3	2.79
Papua	10.5	23.8	0.4	67.3	36.8	1.83	14.5	15.0	0.97
INDONESIA	12.8	19.0	0.7	63.9	33.0	1.94	14.3	14.4	0.99

**Source:** BPS website and unpublished tabulation supplied by BPS.

There is not much difference in the predominance of migrants and non-migrants in the 15-34 age group in the provinces where recent in-migration has been limited (in particular, East Java, South Sulawesi and West Nusatenggara), compared to the provinces with heavy in-migration to urban areas. This seems to indicate that the heavy concentration

of migrants at the young adult age is characteristic of migrants in general, irrespective of where they are moving to. It should also be kept in mind that the volume of migration is far larger to provinces such as Jakarta, Banten and Riau Islands than it is to provinces such as South Sulawesi and West Nusatenggara.

As for education, migrants to urban areas tend to be better educated on average than their rural counterparts, largely because of the lack of appropriate rural employment opportunities, as well as the fact that urban employment opportunities tend to attract those who have higher level of education. It could also be due to the fact that many rural young people leave their hometowns in order to move to the city and continue their education (McDonald et al., 2013; Xin Meng and Manning, 2010). However, towns and cities also attract less-educated migrants, so more study is needed to understand the motivations and aspirations of migrants to different cities and towns.



Before examining the city size distribution and the extent of urban primacy in Indonesia in the next chapter, it is necessary to first discuss the growth and size of Indonesia's mega-urban regions. This is because it is not possible to get a realistic picture of city size distributions without coming to terms with the growth of vast urban complexes, particularly in the national capital, DKI Jakarta. Table 2.5 showed the populations of Indonesia's largest cities according to their official boundaries. The fact is, however, that five of Indonesia's 11 'million cities' are located within the Jakarta mega-urban region; which greatly complicates calculating city size hierarchies as described by rank-size distributions or primacy indices. The key issues are two: (1) whether cities that are part of mega-urban regions should be considered as separate entities or part of the mega-urban region population, and (2) whether revised populations for the largest cities should be used in recognition of the fact that the built-up areas of some of these cities have greatly over-spilled their official boundaries.

Before focusing on these key issues of measurement, however, we must first examine the ongoing debate about the benefits and costs of urban agglomeration.

# 1. Theoretical perspectives on the benefits and costs of urban agglomerations

Governments of Southeast Asian countries, along with those in most parts of the developing world, have historically tended to consider the growth of large cities in negative terms. During decades of very rapid population growth – across the 1960s, 1970s and 1980s - the high rate of natural increase within the population as a whole, together with rural-urban migration, was leading to very rapid population growth in some of the regions' large cities. The negative aspects of this were clear, including crowding, the growth of slums, an increase in crime, traffic congestion and environmental problems. Politicians, policy makers and planners – primarily drawn from the more privileged social classes – found it hard to see the positive aspects of city growth, and tended to take a perspective on the issues heavily influenced by the attitudes of their peer group. From the perspective of poor and disadvantaged rural dwellers, however, movement to the city offered possibilities of employment and escape from poverty, which while often unrealistic, was appealing enough to fuel the rural-urban migration flow. Economists Harris and Todaro (1970) captured these expectations from a theoretical viewpoint, when they argued that the decision to move to the city was dependent not only on differences in urban and rural incomes, but on the perceived likelihood (on the part of the migrant) of finding work within a given time period.

What planners often failed to realize was that even without much migration, high fertility was itself leading to substantial population increase in urban areas. Further, as migration flows contributed to city growth by their initial impact on the city population, so too did their children born in urban areas. As urban fertility rates declined, the role of migration in driving city growth increased.

Attitudes to city growth gradually shifted over time, as the positive role of large cities in national development was elaborated by many researchers (Overman and Venables, 2005). Authors such as Henderson (1988), Mera (1982) and Kelley and Williamson, 1984) queried whether it was possible to demonstrate that the population of any megacity could be too large. Despite the challenges faced by rapidly expanding cities, they do enable most migrants to better their economic situation, and enable agglomeration economies to be realized, with their contribution to national production and to national economic growth well in excess of their proportion of the national population. The World Bank (2009) argued strongly, at an international level, for the benefits of large urban agglomerations, and they have continued to promote the benefits of urban agglomerations with respect specifically to Indonesia (World Bank et al., 2011).

# 2. What is a mega-urban region? Relationship to 'national strategic areas' in Indonesian government usage

A number of terms are used internationally to describe large city regions focused on major cities. The term 'megacity' has long been in use to refer to very large cities. 'Urban agglomeration' is usually taken to mean a built-up or densely populated area containing the city proper, suburbs and continuously settled commuter areas or adjoining territory inhabited at urban levels of residential density. The term 'mega-urban region' (MUR) or 'extended metropolitan area' is used to refer to a region focusing on a major city, but also including the built-up areas of the urban agglomeration, as well as rural-urban fringe areas with a complex mix of activities and changing physical environment – sometimes referred to as *desa kota* (see McGee, 1991: 5-8).

How does the concept of a mega-urban area relate to the concept of 'National Strategic Areas' (*Kawasan Strategic Nasional*, or KSN) in Indonesian government usage? As shown in detail in Annex 2, seven metropolitan areas are included as KSN in the National Spatial Plan, including Jakarta, Surabaya, Bandung, Medan, Semarang, Makassar and Den Pasar. These areas spread well beyond urban agglomerations, and are therefore consistent with the concept of a mega-urban region. One of these KSN - Den Pasar – had a city population of less than one million in 2010, while one city with a population exceeding this – Palembang – was not included as a National Strategic Area. Whilst it is not clear why Den Pasar was included and Palembang not, it is clear that the criteria for defining National Strategic Areas are much broader than simply the population size of the city core. These areas are considered to have significant influence on national sovereignty, national defence, security, social, economic cultural and environmental aspects, as well as world heritage sites.



# 3. Studies of Indonesian Mega-Urban Regions (MURs)

In 2010, there were 11 cities in Indonesia with population of over one million: Jakarta, Surabaya, Bandung, Medan, Palembang, Semarang, Bekasi, Tangerang, Tangerang Selatan, Depok, and Makasar. However, five of these cities – Jakarta, Bekasi, Tangerang, Tangerang Selatan and Depok – are in the hinterland of Jakarta, and are therefore part of the Jakarta MUR. This leaves seven large cities in Indonesia which could perhaps be considered as the cores of mega-urban regions. One other city – Batam – was rapidly approaching a population of one million in 2010, and as already mentioned, another – Den Pasar – was included in the government's list of National Strategic Areas, presumably because its population would be well over one million if adjoining built-up areas were taken into consideration. The same point can be made for Yogyakarta, if the adjoining urban areas of Bantul and Sleman are included in its population. The acronyms referring to the mega-urban regions focusing on most of these cities have already become commonplace: Jakarta (Jabodetabek), Surabaya (Gerbangkertasusila), Bandung (Cekungan Bandung), Medan (Mebidangro), Semarang (Kedungsepur), Makassar (Maminasata).

In an earlier study of the 'million cities' (excluding Palembang) based on the 1995 Intercensal Survey, it was found that by adding to the urban core groups of *desa* that met the

BPS criteria for urban areas and were contiguous to the city or to other groups of *desa* that met the criteria, large populations were added to the official population living in the administrative boundary of the metropolitan area.<sup>3</sup> Thus MUR's were mapped whose populations were much larger to that of the official metropolitan area (see Table 5.1, col. 4). However, in the case of Semarang, Makassar and Medan, the average urban score of the *desa* added to the core was well below the score of 18, which at that time was the minimum in order to be considered urban. This resulted from the need to include some rural *desa*, in order to bring them within the inner zone of the mega urban region.

TABLE 5.1.

Million cities in Indonesia – populations of cores and core plus inner zone, and average score of *desa* included in core and inner zone, 1995

	Population ('000)		(2)/(2)	Average score	
City	Core	Core plus inner zone	(3)/(2)	Core	Inner zone
(1)	(2)	(3)	(4)	(5)	(6)
Jakarta	9,112	16,389	1.80	27.3	22.0
Surabaya	2,695	5,511	2.04	24.4	18.2
Bandung	2,356	5,039	2.14	26.2	18.9
Semarang	1,346	3,013	2.24	20.4	14.8
Makassar	1,066	1,621	1.52	23.8	12.8
Medan	1,066	3,593	3.37	24.2	15.5

Source: BPS, UNFPA and ANU, 2000.

Another way of examining these large cities was to compare the population density of their cores (i.e. the official metropolitan areas in each case). Semarang shows up as having a much less densely populated core than the other cities. This, plus the fact that the average urban score of *desa* in its inner zone was less than 15 suggests a population 3 million in the core plus the inner zone was somewhat exaggerated compared with the population of the other cities in the study.

TABLE 5.2.

Population and densities in 7 city cores (within official boundaries), 1995

City core	Area (sq. km.)	Population (million)	Density (per square km)
Jakarta	661	9,113	13,787
Bandung	167	2,356	14,136
Semarang	374	1,346	3,604
Surabaya	326	2,695	8,256
Makassar	176	1,086	6,179
Medan	265	1,902	7,177

Source: BPS, UNFPA and ANU, 2000

<sup>3</sup> The BPS criterion for an urban *desa* are given in detail in the Annex.

The National Urban Development Strategy project, completed in 1985, also produced estimates of urban agglomerations, which in some cases were much larger than the populations of the *kota madyas* concerned. A striking example was Tegal in Central Java. The *kota madya* of Tegal had a population of only 131,728, but the contiguous urban area, stretching mainly to the South and West, had a population of 326,803, raising Tegal from 27<sup>th</sup> to 14<sup>th</sup> place among Indonesian cities at that time (Kingsley, Gardiner and Stolte, 1985: 5-6, 16).

A recent World Bank study on Indonesia (World Bank, 2011) used a different method of estimating the population of urban agglomerations. Before presenting its findings, some discussion of its methodology is needed. The study adopted and modified a functionally-based definition (see Uchida and Nelson, 2010) to measure urban concentration in Indonesia, called an Agglomeration Index (AI). This method uses three factors: population density, the population of a large urban centre and travel time to that centre. A population threshold of 50,000 was used to define the central city; a population density of 700 persons per square kilometer for Java and 200 for other islands; a 90 minute commute for Jakarta and 60 minutes for other agglomerations across the country. The measure thus estimates the population of metropolitan areas as what it refers to as "both city and suburban districts with high population density and proximity to the central city (based on commuting time)" (World Bank, 2011b: 13).

Using the AI method, the study identifies 44 agglomeration areas in Indonesia (see Table 5.3). The great majority of these are located in Java, Bali and Sumatra, in which most of the urban population now resides. In other islands, the study identifies only a limited numbers of agglomeration areas. There is only one agglomeration (Jayapura) on the vast island of Papua, and also only one in the Maluku archipelago, while Kalimantan and Sulawesi have five and six agglomeration areas respectively. In terms of population size, the study concluded that Indonesia has two megacities with populations of more than 10 million (Jakarta and Surabaya), four metropolitan areas with populations in the 5-10 million range, 13 metropolitan areas with populations in the 1-5 million range, and eight medium-sized metropolitan areas with populations ranging from 0.5-1 million.

TABLE 5.3.
Indonesian Agglomerations: Estimated Populations 1996, 2002 and 2007: World Bank Study

Agglomeration	1996	2002	2007
Jakarta	17,771,825	23,925,397	26,750,001
Surabaya	7,563,077	9,851,508	10,501,043
Bandung	4,643,009	6,478,492	7,156,927
Yogyakarta	4,840,456	6,345,099	6,653,353
Cirebon	4,448,249	6,113,864	6,451,311
Semarang	3,640,644	4,878,561	5,049,775
Medan	3,090,761	4,216,854	4,634,417

Agglomeration	1996	2002	2007
Kediri	3,034,169	3,716,133	3,829,444
Pekalongan	2,204,073	3,103,484	3,152,589
Mataram	1,934,520	2,912,095	3,038,078
Surakarta (Solo)	2,320,839	2,930,166	2,995,529
Makassar	1,653,147	2,240,979	2,378,334
Bandar Lampung	2,115,166	1,927,206	2,153,552
Padang	1,225,900	1,567,594	1,788,924
Tegal	1,233,268	1,648,116	1,648,185
Denpasar	922,205	1,324,885	1,431,525
Palembang	1,068,496	1,512,424	1,396,823
Tanjung Balai	793,043	1,148,347	1,211,994
Payakumbuh	767,416	972,931	1,022,116
Malang	648,424	766,867	810,651
Madiun	682,457	774,668	799,756
Pekan Baru	440,808	660,229	781,126
Banjarmasin	431,230	539,060	616,018
Manado	406,846	536,287	596,134
Samarinda	422,206	543,713	593,827
Pontianak	361,713	482,890	513,315
Balikpapan	337,185	421,177	501,150
Jambi	332,770	431,709	458,226
Pare-Pare	276,429	339,289	342,625
Sukabumi	106,029	261,861	311,496
Palu	188,994	275,186	303,547
Kupang		254,053	284,895
Bengkulu	204,028	304,188	268,276
Ambon	250,296	178,084	256,887
Kendari		211,881	251,725
Pemat. Siantar	184,938	246,739	234,416
Probolinggo	158,435	193,816	221,916
Banda Aceh	234,004	220,593	219,336
Jayapura	144,123	170,158	214,991
Tarakan		125,988	175,038
Gorontalo	106,190	137,650	160,360
Pangkal Pinang	99,143	127,942	154,830
Tebing Tinggi	102,672	126,570	139,428
Sibolga	57,125	83,991	90,618

Agglomeration	1996	2002	2007	
Total agglomerations	71,446,308	95,228,724	102,544,507	
Small kota	1,937,781	3,134,664	3,490,274	
Urban areas	73,384,089	98,363,388	106,034,781	
Rural areas	81,100,919	105,862,085	120,037,139	
Total population	154,485,008	204,225,473	226,071,920	

Source: World Bank, 2011, Table 2.4

Some of the findings of this study are surprising. These are mostly to do with the estimated size of some of the agglomerations in Java, such as Cirebon (6,451,311), Yogyakarta (6,653,353), Kediri (3,829,444), and Pekalongan (3,152,589), as well as Mataram in Lombok (3,038,078) and Payakumbuh in West Sumatra (1,022,116).

The reason for these somewhat anomalous findings clearly lies in the Al used in the study. While such an index may be relevant for some purposes, it has some clear limitations when applied to densely populated parts of Indonesia. Java is one of the most densely populated regions on earth, comparable to Bangladesh, parts of the Gangetic plain in India and parts of China. In the Indonesian context, the Al has the weakness of ignoring the nature of employment in densely populated areas, and the level of interaction with the city from people living beyond it. For example, the projected population of 6.5 million for the Cirebon Metropolitan Agglomeration no doubt includes large numbers of farmers who rarely, if ever, make a visit to Cirebon. It is hard to see the merit of defining Cirebon as a metropolitan agglomeration comparable in population to Surabaya or Bandung. The same point can be made about Kediri and Yogyakarta. In the case of Mataram, it is even harder to justify claiming such a large metropolitan population – constituting more than 70 per cent of the entire population of West Nusatenggara at that time – even though more than half of the province's workforce were employed in primary industry, and most did not have easy access to the city.

This is not to deny that the estimated populations of many Indonesian urban agglomerations need to be increased considerably if the figures are to reflect the actual functionality of these towns and cities, nor to ignore the importance of potential accessibility. As it stands, however, the vast increase in populations of some Indonesian cities using the AI method over-emphasizes potential accessibility, and under-emphasizes the vast difference in objective circumstance – such as methods of making a living and poverty levels – of people living within 60 minutes travelling time of Indonesian towns and cities.

Despite its shortcomings, the approach of the World Bank report is somewhat consistent with evidence that urban corridors are tending to develop along transportation links between a number of large cities in Java. Firman (forthcoming) argues that the main urban corridors are those linking Jakarta to Bandung, Cirebon to Semarang, Semarang to Yogyakarta and Surabaya to Malang. To some degree, an urban corridor can be detected running all the way from Jakarta to Surabaya, across northern coastal regions between



Jakarta and Semarang (with an offshoot to Bandung), through Yogyakarta and Solo to Surabaya. To the west of Jakarta, too, it is not unrealistic to perceive an extension of the urban corridor through Serang and Cilegon to Merak, across the sea to Bandar Lampung in Sumatra.

Speculation such an urban corridor is tending to emerge does not, however, infer acceptance of Java as an 'island city'. Density-wise, of course, such a perception may seem to have some validity. However, population density alone does not make an area urban, and there are substantial regions of Java – mostly southern coastal regions and volcanic areas such as the Ijen plateau – where urbanization can hardly be said to have progressed very much.

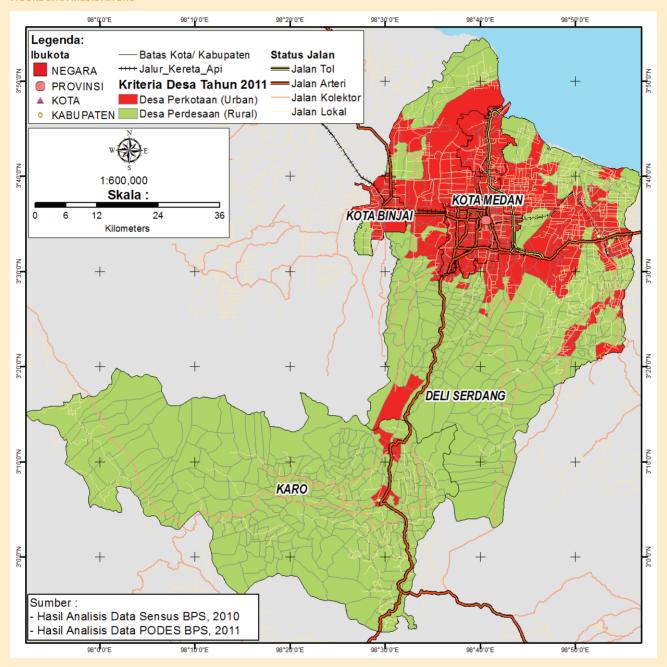
### 4. Trends in mega-urban region growth 2000-2010

For the purposes of the present study, it is not possible to conduct a major new analysis of the growth of mega-urban regions, since it would have had to involve detailed analysis of maps of the areas surrounding the major cities, and tabulations based on boundaries determined using appropriate criteria. This was done in the BPS-ANU-UNFPA study (2000) and for Jakarta using the 1990 and 2000 census data by Mamas and Komalasari (2008). This approach needs to be applied to the 2010 Census data, but requires a broader and more in-depth study than is possible for this report. However, maps of the main megaurban regions in Indonesia are shown in Figure 5.1, which can be read in conjunction with the analysis that follows.

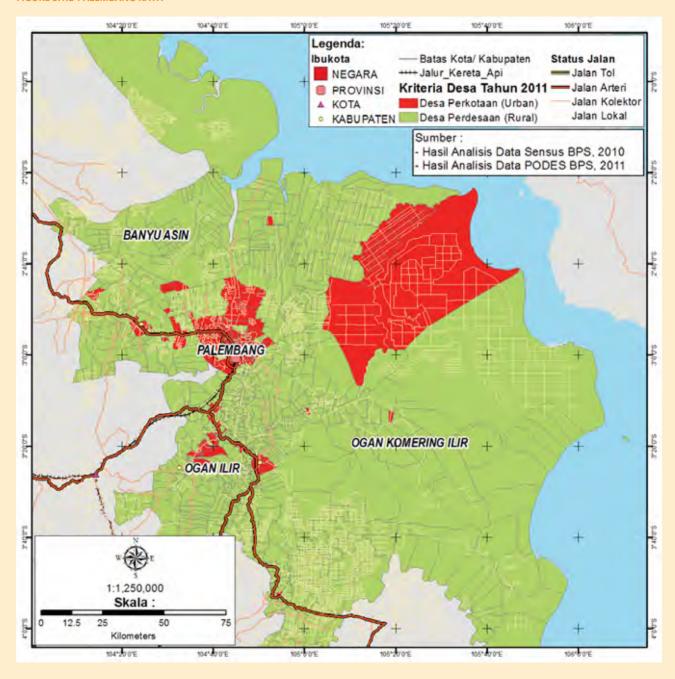
FIGURE 5.1.

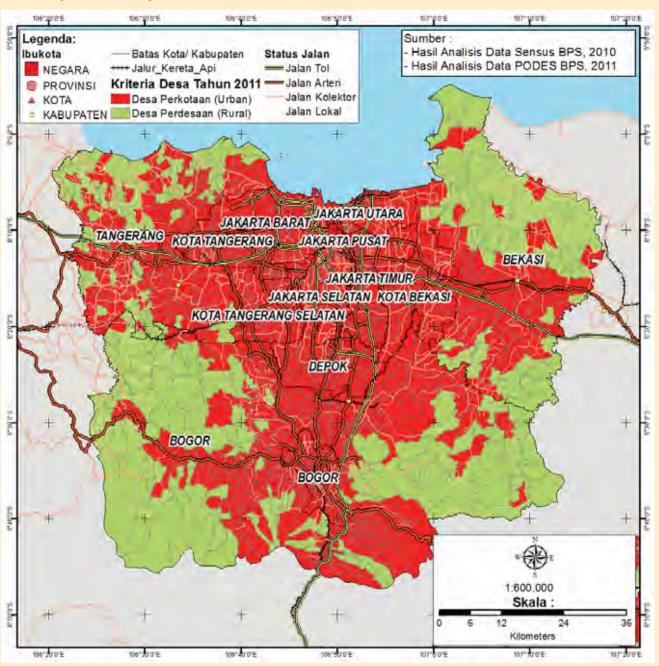
#### Maps of the main mega-urban regions in Indonesia

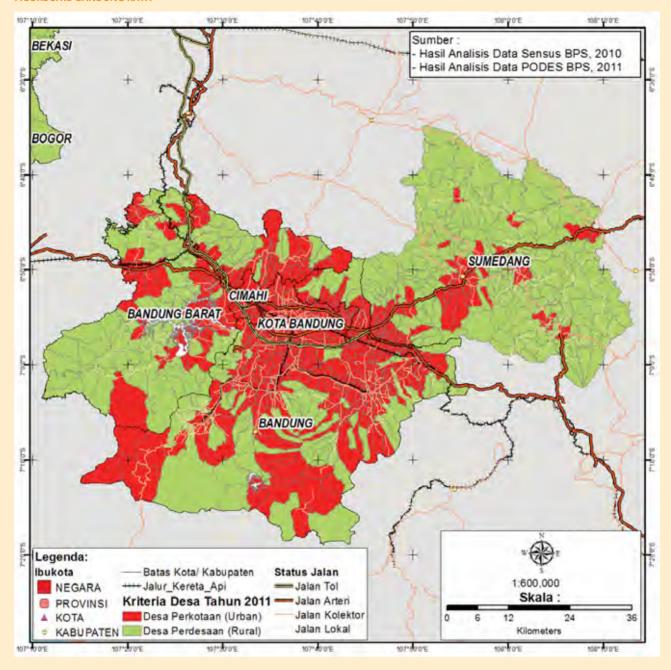
#### **FIGURE 5.1.A MEBIDANGRO**



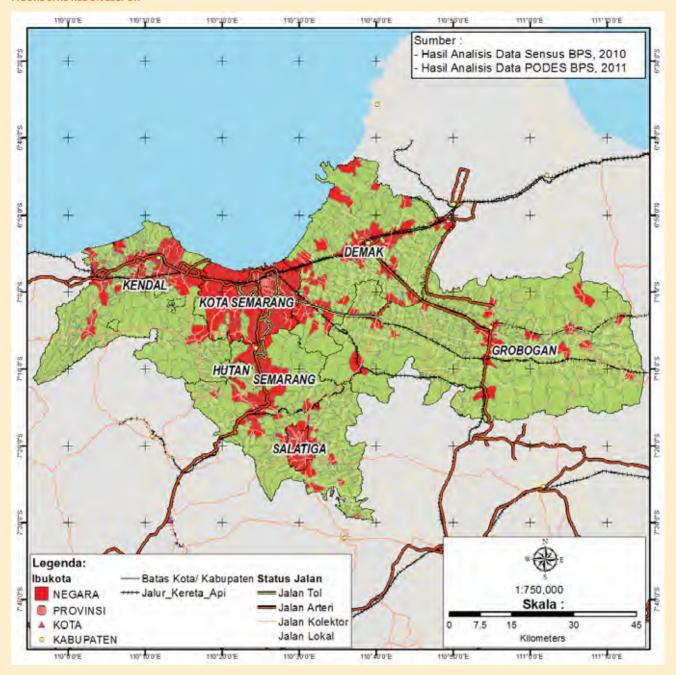
#### **FIGURE 5.1.B PALEMBANG RAYA**

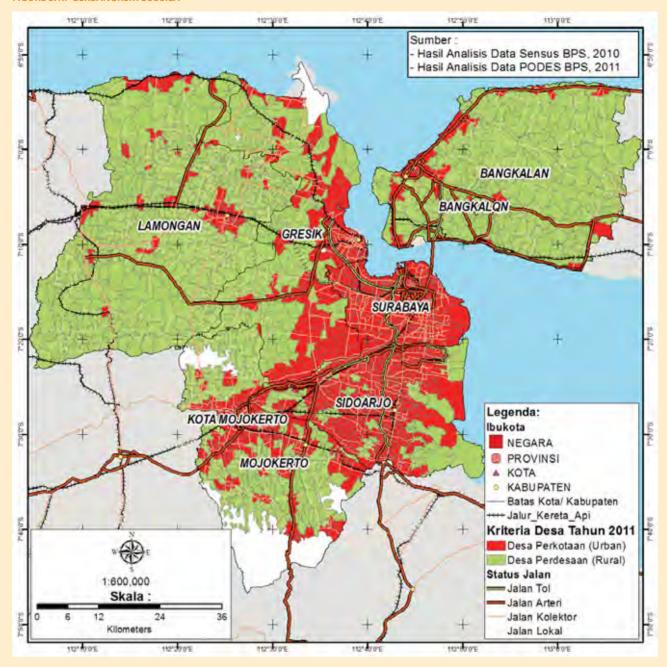




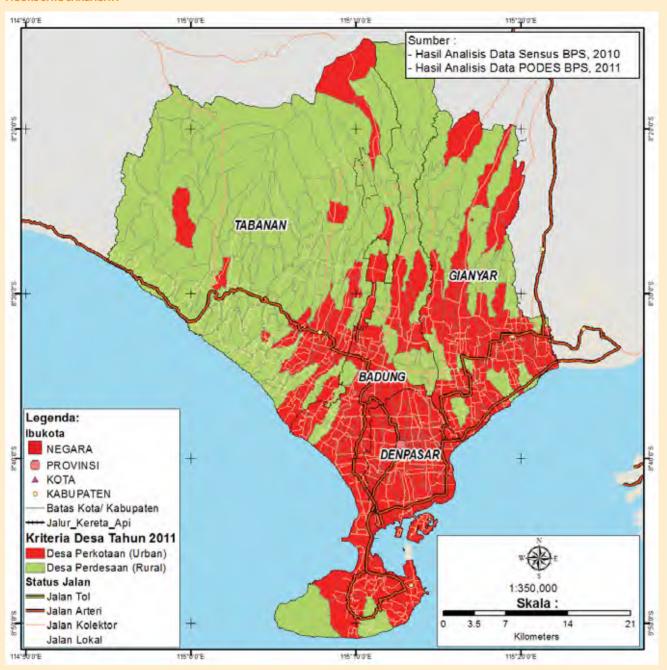


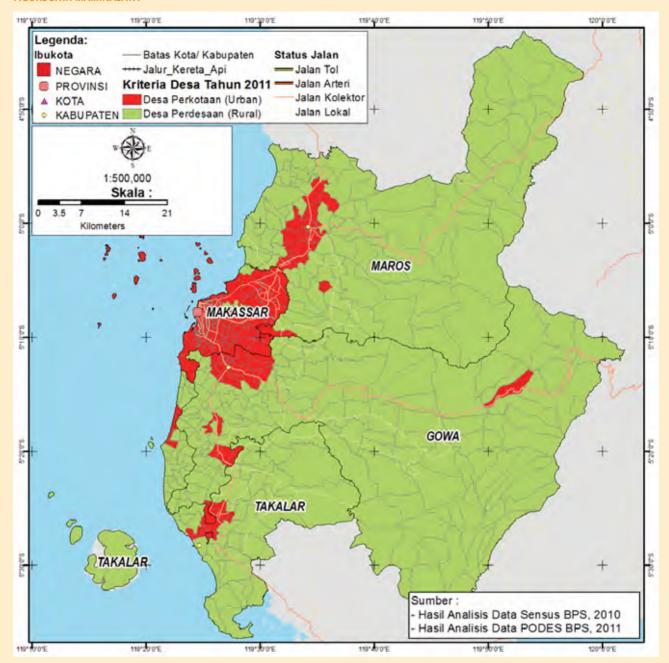
#### **FIGURE 5.1.E KEDUNGSEPUR**





#### **FIGURE 5.1.G SARBAGITA**





In this report, it has been possible to examine in some detail the estimates of the populations of mega-urban regions focused on the largest cities – Jakarta, Surabaya, Bandung, Medan, Semarang, Makassar, Palembang and Den Pasar – that are often accepted in Indonesia, adding to the official *kota* populations the contiguous *kabupaten* or *kecamatan* that contain some urban overspill. The areas discussed below are shown in the maps of the individual mega-urban regions in Figure 5.1.

The urban and rural populations of these administratively defined mega-urban regions in 2010 are shown in Table 5.4 (details of the administrative definitions and regulations for these mega-urban regions are shown in Annex 2).

TABLE 5.4
Indonesian mega-urban regions: urban and rural populations in sub-regions, 2010

MEGA URBAN REGION	URBAN	RURAL	TOTAL	% URBAN
MEBIDANGRO				
KOTA MEDAN	2,097,610		2,097,610	100
KOTA BINJAI	235,450	10,704	246,154	96
KAB. DELI SERDANG	1,355,844	434,587	1,790,431	76
KAB. KARO	90,748	260,212	350,960	26
TOTAL MEBIDANGRO	3,779,652	705,503	4,485,155	84
JABODETABEK-PUNJUR				
DKI JAKARTA	9,607,787		9,607,787	100
KOTA BEKASI	2,334,871		2,334,871	100
KOTA TANGERANG	1,850,185		1,850,185	100
KOTA TANGERANG SELATAN	1,290,322		1,290,322	100
KOTA DEPOK	1,959,698		1,959,698	100
KOTA BOGOR	950,334		950,334	100
KABUPATEN BEKASI	2,108,130	522,271	2,630,401	80
KABUPATEN TANGERANG	2,046,223	788,153	2,834,376	72
KABUPATEN BOGOR	3,785,751	1,002,787	4,788,538	79
KABUPATEN CIANJUR*	214,635	165,588	380,223	56
TOTAL JABODETABEK-PUNJUR	26,147,936	2,478,799	28,626,735	91
CEKUNGAN BANDUNG				
KOTA BANDUNG	2,394,873		2,394,873	100
KOTA CIMAHI	541,177		541,177	100
KAB.BANDUNG	2,673,499	505,044	3,178,543	84
KAB. BANDUNG BARAT	938,778	571,506	1,510,284	62
KAB. SUMEDANG*	226,611	123,142	349,753	65
TOTAL CEKUNGAN BANDUNG	6,774,938	1,199,692	7,974,630	85

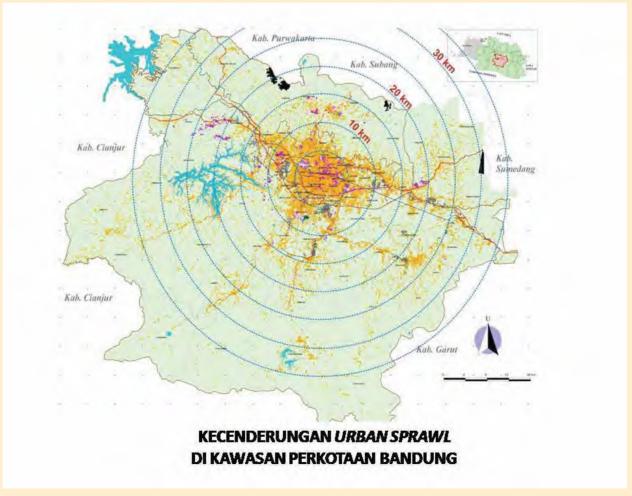
MEGA URBAN REGION	URBAN	RURAL	TOTAL	% URBAN
KEDUNGSEPUR				
KOTA SEMARANG	1,531,290	24,694	1,555,984	98
KOTA SALATIGA	168,987	40,101	209,088	81
KAB. SEMARANG	371,157	559,570	930,727	40
KAB. KENDAL	438,010	502,350	940,360	47
KAB. DEMAK	403,796	651,783	1,055,579	38
KAB. GROBOGAN	261,050	1,097,158	1,358,208	19
TOTAL KEDUNGSEPUR	3,174,290	2,875,656	6,049,946	52
GERBANGKERTOSUSILA				
KOTA SURABAYA	2,765,487		2,765,487	100
KOTA MOJOKERTO	120,196		120,196	100
KAB. GRESIK	703,912	473,130	1,177,042	60
KAB. SIDOARJO	1,772,043	169,454	1,941,497	91
KAB. LAMONGAN	244,642	934,417	1,179,059	21
KAB. MOJOKERTO	495,402	530,041	1,025,443	48
KAB. BANGKALAN	214,875	691,886	906,761	24
TOTAL GERBANGKERTOSUSILA	6,316,557	2,798,928	9,115,485	69
SARBAGITA				
KOTA DENPASAR	788,589		788,589	100
KAB. BADUNG**	438,154	77,406	515,560	85
KAB. GIANYAR**	275,999	56,471	332,470	83
KAB. TABANAN**	110,646	44,095	154,741	72
TOTAL SARBAGITA	1,613,388	177,972	1,791,360	90
MAMINASATA				
KOTA MAKASAR	1,331,391	7,272	1,338,663	100
KAB. MAROS**	209,556	193,285	402,841	52
KAB. GOWA**	245,272	225,941	471,213	52
KAB. TAKALAR	56,834	212,769	269,603	21
TOTAL MAMINASATA	1,843,053	639,267	2,482,320	74
PALEMBANG RAYA				
KOTA PALEMBANG	1,440,678	14,606	1,455,284	99
KAB. BANYU ASIN	182,431	567,679	750,110	24
KAB. OGAN ILIR	77,304	303,600	380,904	20
KAB. OGAN KOMERING ILIR	63,926	663,450	727,376	10
TOTAL PALEMBANG RAYA	1,764,339	1,549,335	3,313,674	53

<sup>\*</sup>Not all *kecamatan* in this *kabupaten* are included. See Annex 2 for details. \*\*Not all *kecamatan* in this *kabupaten* are included, consistent with Presidential Decree No 45 year 2011. See Annex 2 for details.

Overall, the study reveals some serious issues in using the usual estimates of the populations of these mega-urban regions (MURs). Referring to Table 5.4, it is surprising to note that in the case of Jakarta, whilst the Jabodetabek-Punjur area contains some areas that are still rural, these amount to only 2.5 million of the population, or less than 10 per cent of Jabodetabek-Punjur overall. In the case of Surabaya, the Gerbangkertosusila area contains 2.8 million people living in areas classified as rural, or 31 per cent of the total population. The *kabupaten* of Bangkalan and Lambongan are only 24 and 21 per cent urban respectively, and substantial parts of Gresik and Mojokerto are also rural. Thus the Gerbangkertosusila area gives a decidedly exaggerated estimate of the urbanized population of the Surabaya region, considerably more exaggerated than is the case when Jabodetabek is used to show the mega-urban region population of Jakarta. If the aim is to identify the built-up areas surrounding Surabaya in order to identify the extent of the urban agglomeration, the only parts of the *kabupaten* of Bangkalan and Lamongan that should be included in the MUR population would be those urbanized areas adjoining the main Surabaya metropolis.

FIGURE 5.2.

Trend of Urban Sprawl in Cekungan Bandung



Source: Iwan Kustiwan, 2011, URDI's Bunga Rampai Edisi 2 p.429

The MURs of Semarang, Palembang and Makassar also include very large populations living in areas defined as rural, at 48 per cent, 47 per cent and 33 per cent respectively. There is a strong case for excluding large parts of the *kabupaten* of Semarang, Kendal and Demak from the Semarang MUR area, a large part of *kabupaten* Takalar from the Makassar (Maminasata) population, and most of *kabupaten* Ogan Ilir and Ogan Komering Ilir from the Palembang Raya population. These exclusions would give MUR populations that are more comparable with those included for Jakarta.

The cases of Bandung (Cekungan Bandung), Medan (Mebidangro) and Den Pasar (Sarbagita) are closer to that of Jabodetabek, with only 15 per cent, 16 per cent, and 10 per cent of their populations classified as rural respectively. The map of urban sprawl surrounding Bandung (Figure 5.2) suggests just how hard it is to decide where the urban agglomeration ends and rural areas begin.

Of course, it all depends on the purpose of identifying mega-urban regions. A broad area including much rural population can be linked to the city economically, and can be potentially affected by future expansion. The key point to make in considering the comparison of the growth of mega-urban regions in Indonesia is that whilst Jabodetabek gives a close approximation of the population of the urban agglomeration of Jakarta, and the Bandung Raya area gives a close approximation of the population of the urban agglomeration of Bandung (perhaps exaggerated by 10 per cent and 15 per cent, respectively), in the case of Surabaya and Makassar the exaggeration is more of the order of 30 per cent or more, and for Semarang and Palembang, almost 50 per cent. This must be kept in mind in comparing the populations of these MURs, and assessing the primacy indices. In any case, the populations of the mega-urban regions – using these broad boundaries – are shown in Table 5.5.

It was noted earlier that the growth of the official city populations of these largest cities grew only slowly between 2000 and 2010. The picture alters radically when the megaurban areas are used. Using the MUR populations from Col. 3 of Table 5.5, for Jakarta, the growth rate of 1.4 per cent per annum becomes 3.8 per cent. Similarly, for Surabaya, the growth of 0.6 per cent becomes 1.8 percent, and for Bandung 1.1 per cent becomes 3.3 per cent.

TABLE 5.5.

Population of Indonesia's major mega-urban regions, 2010

	Population 2010		Urban Share of core* in the:			MUR's
Mega-urban region	Urban areas only	Urban and rural areas	of the MUR population (%)	MUR population (%)	MUR urban population (%)	share of Indonesian population (%)
(1)	(2)	(3)	(4)	(5)	(6)	(7)
JAKARTA (Jabodetabek- Punjur)	26,147,936	28,626,735	91	34	37	12.0
SURABAYA (Gerbangkertosusila)	6,316,557	9,115,485	69	31	44	3.8
BANDUNG (Bandung Raya)	6,774,938	7,974,630	85	30	35	3.4
MEDAN (Mebidangro)	3,779,652	4,485,155	84	47	55	1.8
SEMARANG (Kedungsepur)	3,174,290	6,049,946	52	26	48	2.5
MAKASSAR Maminasata)	1,843,053	2,482,320	74	54	72	1.0
PALEMBANG (Palembang Raya)	1,764,339	3,313,674	53	43	82	1.4
DEN PASAR (Sarbagita	1,613,388	1,791,360	90	44	49	0.8

<sup>\*</sup>Core is DKI Jakarta, kota Surabaya, kota Bandung, kota Medan, kota Semarang, kota Makassar, kota Palembang and kota Den Pasar respectively.

A comparison of growth between 1990, 2000 and 2010 in the core and periphery areas of the largest MUR's is shown in Table 5.6. The 2010 populations differ slightly in some cases from those of the urban areas of MUR's presented in Tables 5.4 and 5.5, but because Katherina and Dalimunthe (2014) had access to 1990 and 2010 data unavailable to the authors of this report, their figures for 2010 have also been used in Table 5.6. In the case of Jakarta, which was not covered in their study, the estimates of the periphery population were made in different ways for 1990 and 2000 from that for 2010, though in the estimates for all years the general aim was to exclude the truly rural areas of kabupaten Bekasi, Bogor and Tangerang. Also, as noted earlier, the figure for the Jakarta core in 2010 was probably undercounted compared with both 1990 and 2010. Despite these qualifications, the general trends are clear from Table 5.6. In all the MUR's except Makassar, the growth of the core areas was very slow in the 1990-2000 period, and in Surabaya and Medan remained slow in the 2000-2010 period, though the pace of growth picked up in Jakarta, Bandung, Semarang and Makassar. In all cases, the growth in the periphery was much more rapid than in the core across both decades. Growth of the overall MUR populations was slower in the more recent decade than in the 1990s, except lakarta and Makassar.

TABLE 5.6.

Population growth in core and periphery of Indonesian mega-urban regions, 1990-2010

MUD	N. I. D. 1000 D. I. 2000 D. II. 2010		D 2040	Av. Ann. %	6 Increase
MUR	Pop 1990	Pop 2000	Pop 2010	1990-2000	2000-2010
JAKARTA					
Core	8,223	8,347	9,608	0.2	1.4
Periphery	5,434	9,435	16,326	5.7	5.6
MUR	13,656	17,783	25,933	2.7	3.8
SURABAYA					
Core	2,473	2,595	2,766	0.5	0.7
Periphery	1,290	2,698	3,551	7.7	2.8
MUR	3,764	5,293	6,317	3.5	1.8
BANDUNG					
Core	2,058	2,136	2,395	0.4	1.2
Periphery	1,405	2,952	4,616	7.7	4.6
MUR	3,463	5,089	7,011	3.9	3.3
MEDAN					
Core	1,730	1,904	2,109	1.0	1.1
Periphery	825	1,321	1,693	4.8	2.5
MUR	2,555	3,225	3,801	2.4	1.7
SEMARANG					
Core	1,249	1,346	1,554	0.8	1.5
Periphery	619	1,228	1,586	7.1	2.6
MUR	1,868	2,575	3,140	3.3	2.0
MAKASSAR					
Core	944	1,100	1,339	1.7	2.2
Periphery	221	221	389	6.6	5.8
MUR	1,060	1,321	1,728	2.2	2.7

**Source:** Jakarta – Mamas and Komalasari, 2008, Table 5.1, and data from 2010 Population Census; other MUR's – Katherina and Dalimunthe, 2014.

# 5. Share of mega-urban regions in the national and urban population

While the mega-urban region populations in the third column of Table 5.5 are well in excess of the built-up areas of each urban agglomeration, the figures in the second column are closer to an actual urban agglomeration figure. As noted above, approximately 2.5 million of the Jabodetabek population lives in *desa* officially designated as rural. Similarly, much of the population of *kabupaten*, such as Lamongan and Bangkalan (included in

the Surabaya MUR) and Kendal and Demak (included in the Semarang MUR), are still rural. However, the trend is definitely toward the urbanization of the portions of these *kabupaten* lying close to the largest cities, where population growth is much faster than in the official metropolitan areas. For example, in the 1990-2000 period, Sidoarjo, situated on the periphery of Surabaya, had a population growth rate of almost 3.0 per cent per annum, compared with Surabaya's 0.4 per cent. Deli Serdang, adjacent to Medan, grew by 2.1 per cent per annum, compared with Medan's 0.9 per cent. These differences continued to be evident in the 2000-2010 period, where the urban population of Sidoarjo grew by 2.8 per cent per annum, compared with Surabaya's 0.7 per cent, and the urban population of Deli Serdang grew by 2.7 per cent per annum, compared with Medan's 1.1 per cent.

Overall, as shown in Table 5.5, the seven largest mega-urban regions accounted for 26.7 per cent of Indonesia's population and over half (53.5 per cent) of its urban population. A more conservative estimate of their populations – in which only the urban populations within the MUR boundaries are counted – still constitutes 21.5 per cent of Indonesia's overall population and 43.2 per cent of its urban population. These MUR's clearly increased their share of Indonesia's population between 2000 and 2010. The more interesting question is whether they increased their share of the urban population. Because of the lack of comparable data for the populations of Palembang and Den Pasar MUR's in 2000, this question can only be answered for the other six MUR's covered by the data in Table 5.6. The percentage of these MUR's as a proportion of Indonesia's total population increased over the 2000-2010 period from 17.5 per cent to 20.2 per cent, while their share of the urban population fell very slightly from 41.3 per cent to 40.5 per cent. In other words, population growth in non-MUR cities, towns and villages was, if anything, slightly more rapid than in the six MUR's.

## 6. Characteristics of Indonesian mega-urban regions– donut growth and fringe area transformation

If attention is focused on the growth trends of the largest Indonesian cities using official *kota* populations, the clear impression is that the growth of these cities is slowing considerably, and that urban growth has shifted to some – but certainly not all – of the smaller cities. This impression is incorrect, however, because the dynamics of the growth of these megacities requires study of the broader region in which they are located. In most cases, growth in these cities has expanded far outside the official metropolitan area, and to focus only on the official metropolitan area – where population growth is slowing – gives a highly misleading impression of overall growth of the mega-urban region.

To explain this phenomenon, the analogy of the donut is sometimes used. The official metropolitan area, the core area of the mega-urban region characterized by slow growth or even decline, is the hole in the donut. The growth action, on the other hand, is taking place in the ring of the donut instead. As can be seen in Table 5.5, in the case of Jakarta,



the share of the core declined from 54.6 per cent in 1980 to 43.2 per cent by 1990, 39.6 per cent in 2000 and 36 per cent in 2010. In the case of Surabaya, Surabaya city's share of the total Gerbangkertosusila population declined from 34.0 per cent in 1990 to 31.8 per cent in 2000, and to 31 per cent in 2010. For the other cities as well, the core's share of the total population was steadily declining over time.

Over the 2000-2010 period, each of these cities experienced very slow growth in the official metropolitan area. Bandung grew by only 12 per cent, Medan by 10 per cent, Surabaya grew by only 6 per cent and Palembang did not grow at all. In these four cities, growth was well below the natural increase of the population, implying that there was net out-migration away from the city. In the case of Bandung, the growth rates of surrounding *kabupaten* (Bandung, Cimahi and Bandung Barat) was over 2 per cent per annum, more than twice that of Bandung city. Semarang and Makassar, however, each grew by around 20 per cent over the period, probably reflecting the relatively wide boundaries of these cities, enabling further population growth to take place within the official boundaries.<sup>4</sup>

<sup>4</sup> This is reflected in the much lower population density in the cores of Semarang and Makassar than in those of the other cities (BPS, ANU and UNFPA, 2000, Table 3.1). Semarang's official urban area (374 sq. km.) is larger than that of Surabaya, a much larger city.

DKI Jakarta grew by 14 per cent over the 2000-2010 period, but it is likely that its population was undercounted in the 2000 Population Census (see Jones, 2001), and therefore that the 2000-2010 increase was exaggerated. If instead we take the increase between 1995, when DKI Jakarta's enumerated population was 9.11 million, compared to population figures from 2010, the total increase was only 5 per cent over a 15-year period, a very slow growth indeed.

It is clearly in the zone surrounding these cities – but still lying outside the official boundary of the metropolitan area – where transformation of land use and of economic activity is manifesting, that the greatest population growth is taking place.

## 7. Sources of population growth in the mega-urban regions

The growth of urban populations is fuelled not only by natural increase and net migration but also by reclassification, which means a transformation of rural into urban population 'in situ'. It is important to get a fix on the relative contribution of reclassification, because it often means that the much-discussed effect of rural-urban migration on urban growth is less than initially perceived.

This was studied for Indonesian metropolitan regions over the 1980-1990 period by Gardiner (1997b). He showed that for Jabotabek, of the recorded 1980-90 growth rate of 5.8 per cent per annum, approximately 35 per cent was due to natural increase, approximately 30 per cent to reclassification and approximately 35 per cent to net rural-urban migration. Jabotabek, however, was clearly atypical. Similar analyses of metropolitan Surabaya, metropolitan Bandung and metropolitan Medan indicated substantially smaller net migration effects, at less than half as much in Surabaya and less than a third as much in Medan and Bandung (see Table 5.7)

TABLE 5.7.

Decomposition of growth rates in four major metropolitan regions, 1980-90

	Jabotabek	Surabaya*	Medan**	Bandung**
Recorded growth rates				
Urban	5.8	4.5	5.1	4.8
Rural	-1.4	-1.8	-3.9	-0.7
Total	3.5	2.3	2.8	2.4
Constant area growth rates				
1980 urban area	2.3	1.0	1.7	1.6
Expansion area	7.9	7.2	5.8	5.2
1990 urban area	3.6	2.5	2.7	2.4
Rural area	3.3	1.7	3.2	2.4
Effect of:				
Reclassification	30.3	39.6	40.5	43.2

	Jabotabek	Surabaya*	Medan**	Bandung**
Natural increase****	34.5	43.9	48.4	46.8
Net migration	35.3	16.4	11.1	10.0

**Source:** Gardiner, 1997, Table 7.2. \*Metropolitan Surabaya – Kodya Surabaya, Kab, Sidoarjo, Gresik. \*\*Metropolitan Medan – Kodya Medan, Binjai; part of Kab. Deli Serdang. \*\*\*Metropolitan Bandung – Kodya Bandung, Kab. Bandung, part of Kab. Sumedang. \*\*\*Assumed annual rates – Jabotabek (0.18), Metropolitan Surabaya (0.18), Metropolitan Medan (0.22), Metropolitan Bandung (0.20).

## 8. Contribution of mega-urban regions to national economic growth

The mega-urban regions are making a disproportionate contribution to national economic growth. This is clear from Table 5.8, which shows that Jabodetabek – constituting about 11 per cent of Indonesia's population – contributed more than one quarter of national GDP, while Gerbangkertasusila – with 2.6 per cent of national population – contributed 7 per cent of GDP.

TABLE 5.8.

Percent of national GDP by metropolitan areas in Java, 2010

Agglomeration	Population 2010 (million)	Percent of Indonesia's population	Percent of Indonesia's GDP 2010
Jakarta (Jabodetabek)	26.15	11.0	25.3
Surabaya (Gerbangkertosusila)	6.32	2.6	6.7
Bandung (Bandung Raya)	7.01	2.9	3.3
Semarang (Kedungsepur)	3.17	1.3	1.8

Source of final column: BPS, PDRB kabupaten/kota di Indonesia, 2009-2013.

## 9. Liveability of Indonesian cities

Liveability can be understood as the attributes of a place that contribute to wellbeing and quality of life for its residents. Like many other Asian cities, such as Hanoi, Phnom Penh, Karachi and Dhaka, Jakarta has very low performance in international liveability rankings, such as that published by the Economist Intelligence Unit in 2012 and 2014. Other Indonesian cities also face issues in improving liveability.

The combination of rapid urbanization, economic growth and the lack of government capacity to provide basic services has resulted in the deterioration of the environment. Most cities in Indonesia face a common set of environmental problems, which can lead to the decreasing quality of life and wellbeing of city residents. Some of the problems are related to air pollution, causing respiratory and other health problems, and drainage and flooding issues are also common. Massive and uncontrolled land conversion, land subsidence due to heavy building construction and uncontrolled underground water pumping, as well as issues of solid and liquid waste management are just some of the

problems plaguing Indonesia's large cities. Other issues are related to urban inequality, as many people living in slum areas face inadequate drinking water, and sanitation and associated health problems from waterborne diseases. Some indicators are shown in Table 5.9.

TABLE 5.9.
Environmental indicators for selected Indonesian cities (2012)

	Air Q	uality	Open Space	Housing	g Water Supply		Sanitation
City	PM2.5	NO2	% of public open space	% of HH Living in slum areas	% of HH Using Adequate water source	% of HH Using bottle/ gallon water	% of HH Using Adequate sanitation
Jakarta	19.7	67	10.0	26.1	20. 6	70.5	80.5
Bogor		45	19.3	12.0	54.3	26.3	66.2
Tangerang	11.6	18		17.7	23.3	59.2	87.6
Bekasi		44		11.5	18.9	70.6	80.7
Surabaya	19.7	61	9.1	21.4	22.2	77.7	86.5
Bandung	17.2	47	8.8	23.9	31.9	57.8	43.5
Medan		63	8.0	9.3	42.2	53.5	80.6
Palembang		45		14.4	54.4	40.0	68.5
Semarang	9.3	23		8.4	39.3	50.5	85.2
Yogyakarta		21		6.4	42.6	42.4	88.7
Makasar	7.7	123	14.0	13.4	43.7	52.6	83.2
Banjarmasin		85		7.8	80.3	19.7	81.2
Menado				16.6	31.3	59.0	72.3
Ambon				21.1	46.2	19.6	77.4
Jayapura				21.9	52.7	37.8	56.7

**Source:** SUSENAS (National Socio Economic Survey), 2012, BPS; State of Urban Development in Indonesia 2010, Ministry of Public Works; and the State of Environmental Report 2012. Note: Air quality measured by the concentration of PM2.5 in the air in micron gram per m3 and NO2 concentrations based on road side monitoring.

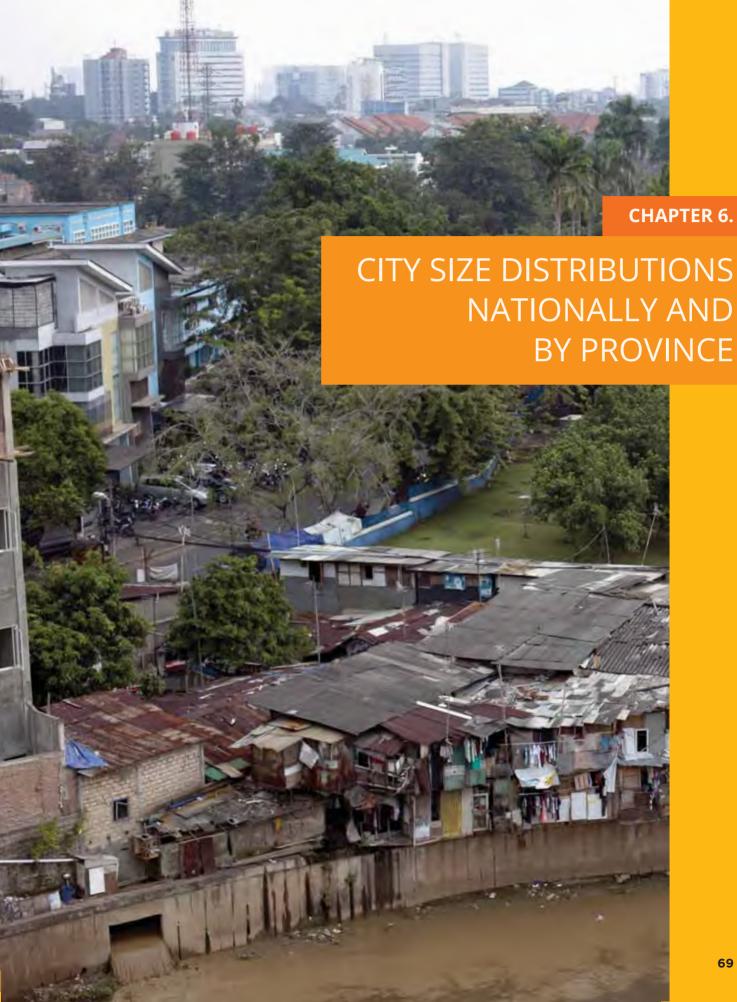
With more and more of the population living in urban areas, the consumption of fossil fuels for transportation and industry has risen, potentially contributing to greenhouse gases (GHG) which cause global warming. The burning of fossil fuels has an adverse effect on air quality. Roadside monitoring in some Indonesian cities in 2012 showed an increase in a number of air pollutants such as nitrogen oxide (NOx) and dust particulate (PM $_{10}$  and PM $_{2.5}$ ) compared to the standard. This meant that air quality had worsened, which in turn has negatively affected health and respiratory disease, work productivity, visibility and the maintenance of buildings. An Asian Development Bank study in 2002 showed that total cost of health problems due to air pollution in Jakarta amounted to 1.8 trillion rupiah (IDR) in 2002.

The availability of urban open space also contributes to better air quality and, by extension, improved quality of life. However, the percentage of urban open space in most Indonesian cities is relatively lower than the standard of 20 percent. Bogor has more open space than other cities, since there is a botanical garden in the city centre which is still conserved by the city government. Despite the fact that by law, however, the city spatial plan should allocate at least 20% of total land for public open space and an additional 10% for private open space, most Indonesian cities have difficulty in providing this.

Indonesian cities lack the capacity to provide and invest in low income housing. City governments have limited resources to invest in affordable housing for poor migrants. According to official estimates (BPS, Susenas 2012), 7.9 million housing units are of substandard condition, with two of the three basic structures (wall, floor and roof) in need of repair. The high urban population growth, the shortage of urban land for housing, and sharply increasing housing and land prices limit the availability of affordable housing for urban low-income households. These factors explain the rapid expansion of slums in large and metropolitan cities such as Jakarta, Bandung and Surabaya. Most slums are located in hazard-prone areas vulnerable to flooding and landslides, leading to loss of life, property and belongings.

Access to adequate water supplies through piped water and safe deep-wells is relatively low in the major Indonesian cities, available to less than one-third of households in the three largest cities of Jakarta, Surabaya and Bandung, and less than 55% in all other cities except Banjarmasin, where piped water from the local water company provides the main source. BPS data also reveals the high percentage of households in Indonesian cities using bottled/gallon water for daily consumption, which is higher than the cost of piped water. In many cases, slum dwellers pay disproportionately more than other urban residents. In Semarang, for example, households pay up to 10 times as much compared to neighbourhoods with piped water connections (SAPOLA Report, 2014).

With further urban expansion, environmental conditions in Indonesian cities will worsen if infrastructure shortfalls widen, adversely affecting the liveability and, more broadly, long-term sustainability of these hubs. Technical solutions can be found to many of these problems, but increased infrastructure investment and better maintenance are also needed, requiring effective urban governance.



## 1. The Indonesian urban system

Basic information about the distribution of Indonesia's urban population across cities of different sizes is provided in Table 6.1. The information is given not only for Indonesia as a whole, but also for its major regions. Unfortunately, a detailed analysis of the 2000 and 2010 Population Census data has not yet been undertaken, meaning that the proportion of the urban population living in towns in categories below 100,000 – known for earlier years – is not yet available for 2000 and 2010.

For Table 6.1 (based on the detailed data in Appendix Table 1), official city populations have been used. In real terms, this means the population of smaller towns and urban 'desa', and even in towns in the 100,000-200,000 range are likely exaggerated, because many of these lie within mega-urban regions (as discussed in the previous chapter). While Table 6.1 indicates that cities of more than 1 million people make up 25.5 per cent of Indonesia's urban population, if we use the data on the urban populations of the seven major mega-urban regions from Table 5.5, these seven MURs make up 43.7 per cent of Indonesia's total urban population.

Bearing this in mind, Table 6.1 highlights the wide differences between regions in the share of large cities in their urban populations. While cities with populations of one million or above make up a quarter of Indonesia's urban population, this share is approximately one fifth of the urban population of Sumatra and Sulawesi, and almost a third in Java. Cities in the half million to one million class are only a small proportion of Java's urban population, but represent a much higher share of the population in Kalimantan, Sumatera and Bali/Nusatenggara. In Sumatra, three cities – Batam, Pekan Baru and Bandar Lampung – were approaching the one million population mark in 2010, and once they pass this, the share of million cities in Sumatra's urban population will rise significantly. Towns and villages with populations below 100,000 also account for a substantial share of Indonesia's urban population; 38 per cent overall and well over 40 per cent in Sulawesi. It should be kept in mind, though, that particularly in the densely settled Java, many of these small towns and villages are in fact located within the extended areas of larger towns and cities, including the MURs.

TABLE 6.1.

Percentage of the urban population by city size class and major island, 2010

	Indonesia	Sumatra	Java	Bali/Nusa Tenggara	Kalimantan	Sulawesi	Maluku/ Papua
1 mill. and above	25.5	18.0	31.6			22.9	
500,000-1 mill	12.6	20.9	9.4	15.4	42.5		
200,000-500,000	11.0	9.2	10.1	41.6	3.8	10.7	32.4
100,000-200,000	12.9	16.4	10.7	13.7	17.4	20.4	34.1
Less than 100,000	38.0	35.5	38.2	29.3	36.3	46.0	33.5
TOTAL	100	100	100	100	100	100	100
N ('000)	118,320	19,788	79,950	5,126	5,799	5,843	1,814

It would have been useful to calculate the growth rates of cities and towns in different size categories between 2000 and 2010, as well as the share of urban growth over the 2000-2010 period that occurred in cities and towns of different size. However, because of deficiencies and gaps in the 2000 data, this was beyond the scope of this report.

## 2. Primacy and rank-size distributions at the national level

Some countries have an urban system that is dominated by one city, and this is generally considered a bad thing, although whether this is actually the case is more difficult to prove. For example, in countries such as Uruguay and Bangladesh, which are relatively small from a geographic perspective, for one centrally-located city to dominate might be seen as natural and perhaps positive. However, given Indonesia's broad geographic scope and archipelagic nature, it would be surprising if one city were to show extreme dominance.

The NUDS project in the 1980s concluded that Indonesia had a well-balanced urban size hierarchy with many middle-sized centres, and the largest urban agglomeration, Jakarta, accounted for just under 20 per cent of the nation's urban population, a far lower share than that of countries with serious primacy problems, such as Thailand (Bangkok with 69 per cent) and South Korea (Seoul with 41 per cent). Using the populations of functional urban areas as defined in the study, NUDS measured a 4-city primacy index of 1.34 for Indonesia, well below figures of more than 3.0 in countries such as Chile, Zaire, Peru and Hungary (Kingsley, Gardiner and Stolte, 1985: 12).

On the whole, 2010 Census data indicates that the situation indicated by the NUDS study still holds. The largest urban agglomeration, Jakarta (in the form of Jabodetabek), accounted for approximately 22 per cent of the nation's urban population, not much change from 1980. Of course, this analysis is complicated by the need to use adjusted urban agglomeration figures because of the growth of complex mega-urban regions in Jakarta, Surabaya, Bandung and Medan. Because detailed analysis of these mega-urban regions based on the 2010 Census has not yet been conducted, the populations of these mega-urban regions for the purpose of this exercise have been approximated by the urban population in the areas going by the acronyms Jabodetabek-Punjur, Gerbangkertosusila, Cekungan Bandung and Mebidangro.

Using these adjusted populations of Indonesia's four largest cities, the 4-city primacy index is calculated as 1.55, whereas if the official DKI Jakarta and Surabaya, Bandung and Medan populations are used, the figure would be 1.32.

TABLE 6.3.
Indonesia: Four city primacy index 1890-2010

Year	Four city Primacy Index	Four city Primacy Index (modified MURs)*
1890	0.39	
1905	0.59	
1920	0.69	
1930	0.73	
1955	0.87	
1961	1.17	
1971	1.34	
1980	1.34	1.27
1990	1.31	1.40*
2000	1.26	1.31*
2010	1.32	1.55**

Source: Hugo et al, 1987, Table 3.15; 1990, 2000 and 2010 Population Censuses. \*Using the urban populations of the MURs from Table 5.6. \*\*Using the urban populations of the MURs from Table 5.5, but excluding Cianjur from Jakarta MUR.

The rather low 4-city primacy index for Indonesia is not surprising, given the archipelagic character of Indonesia, with the population distributed over many islands, particularly in Sumatra, Kalimantan and Sulawesi. The distances involved and the limited development and high costs of inter-island shipping means that reasonably large cities tend to be distributed widely over the archipelago. Further, given that three of the four largest cities are on the island of Java, the data indicates that even on Java, Jakarta has not been able to dominate the urban structure, and Surabaya (which up until 1914 was actually larger in population than Jakarta: see Dick, 2003: 119-123) and Bandung have continued to occupy very important positions as major urban complexes.

## 3. Rank-size distributions at the major island and provincial levels

The main islands of Java, Sumatera, Kalimantan and Sulawesi are large, and with the partial exception of Java, surface transportation has been – and continues to be – poorly developed. Eastern Indonesia, including the island realms of Nusatenggara, Maluku and Papua, still faces significant problems of transport and communications. Thus it has been hard for any single city to dominate the urban hierarchy, and reasonably large cities have tended to develop in each province. Therefore we can expect reasonably low primacy indexes at the island level for Sumatra, Kalimantan and Sulawesi, because each contains a number of provinces and in turn, has generated one substantial city. The same would be true of Java, except that Java's urban hierarchy is somewhat distorted by the dominant role of Jakarta as the national capital.

At the provincial level, however, there has been a tendency for economic activity to be concentrated in the main city. Usually the administrative capital, this tends to dominate

urban hierarchy. There are exceptions, of course – Aceh, East Kalimantan, West Nusatenggara and West Sulawesi as examples – where the second city has been fairly close to the main city in population, but these tend to be isolated occurrences.

The results of this exercise are shown in Table 6.4. The adjusted populations of the mega-urban regions have again been used. Separate estimates were not made for West Java and Banten, because the cities of Bekasi, Tangerang, Tangerang Selatan, Bogor and Depok form part of the larger Jakarta mega-urban region.

TABLE 6.4.
4-city primacy index for main island groups and provinces, 2010

ISLAND GROUP OR PROVINCE	INDEX – ISLAND GROUP	INDEX-PROVINCE
SUMATERA	1.06	
Aceh		0.61
Sumatera Utara		4.79
Sumatera Barat		2.71
Riau		2.24
Kepulauan Riau		2.94
Jambi		2.78
Sumatera Selatan		2.97
Bengkulu		1.89
Lampung		2.55
Bangka Belitung		1.43
JAVA	1.63	
Jawa Barat-DKI-Banten		3.17*
Jawa Tengah		1.52
Yogyakarta		*
Jawa Timur		4.08
KALIMANTAN	0.40	
Kalimantan Barat		1.44
Kalimantan Selatan		1.69
Kalimantan Tengah		0.78
Kalimantan Timur		0.92
Kalimantan Utara		2.11
SULAWESI	1.78	
Sulawesi Selatan		4.84
Sulawesi Barat		0.51
Sulawesi Tengah		2.32
Gorontalo		2.25
Sulawesi Utara		1.06

ISLAND GROUP OR PROVINCE	INDEX - ISLAND GROUP	INDEX-PROVINCE
Sulawesi Tenggara		1.29
OTHER ISLANDS	1.35	
Bali		4.36
NTB		0.68
NTT		1.55
Maluku		2.79
Maluku Utara		1.31
Papua		1.01
Papua Barat		1.08

<sup>\*</sup>Jawa Barat and Banten not calculated separately because of the issue of overspill of Jakarta mega-urban region into these provinces. Yogyakarta not calculated because of complications with cities that are actually part of the Yogyakarta extended urban region. Note: for Java, Sumatra, Sulawesi and Other Islands, the adjusted megacity populations (excluding their rural components) shown in Table 5.4 were used.

The data in Table 6.4 shows that, on the whole, the expectation of higher primacy indexes at the provincial rather than island level is supported. This is clearly the case in Sumatra, where only one provincial index is lower than the index for Sumatra as a whole, and for Kalimantan, where all of the provincial indexes are considerably higher than the index for Kalimantan as a whole. In Sulawesi, however, half the provincial indexes are lower than the index for Sulawesi as a whole. At the provincial level, the 4-city primacy indexes are sometimes very high, over 3 in some cases. It is hard to find patterns to explain the nature of provinces where primacy is very high. Some of them are less populous provinces such as Jambi and Maluku, but others are larger provinces such as North Sumatera, South Sumatera, South Sulawesi and East Java.

#### 4. Is there an ideal rank-size distribution of cities?

There is no real basis for determining the ideal rank-size distribution of cities and towns in any country. Whilst there is a general predilection for the smooth distribution of city sizes, following the Zipf rank-size rule<sup>5</sup>, there is little scientific basis for stating that this is ideal from an economic efficiency or population wellbeing viewpoint. In any event, the distribution of urban populations in Indonesia follows the rank-size rule fairly closely. It is noteworthy that in the decades of the 1970s, 1980s and 1990s, there was a small but distinctive gap in the distribution of city sizes in the 500,000 to one million range. In 1980, there were only five cities in this category. Since then, three of these cities – Semarang, Palembang and Makassar – have moved out of the category by crossing the one million population threshold. This gap, however, has been closed with the rapid population increase of many cities formerly with populations below half a million, moving them into the half million to one million range, including Batam, Bandar Lampung, Pekan Baru, Padang, Karawang, Malang, Den Pasar, Samarinda, Tasikmalaya, Banjarmasin, Jambi,

<sup>5</sup> This rank-size rule describes an empirical regularity observed in the data for many countries, whereby if a country's cities are ranked from the largest downwards, and then the natural logarithm of the rank and the city size is calculated, a log-linear pattern in the descending size of cities tends to be observed.

Cikarang, Kudus, Serang, Balikpapan, Pontianak, Cimahi and Garut (see Table 2.5). It is noteworthy that of these 18 cities, only eight are located in Java. This emphasizes the importance of medium-sized city growth outside of Java, a number of which may already have crossed the one million mark by 2015, and others of which are soon to do so.

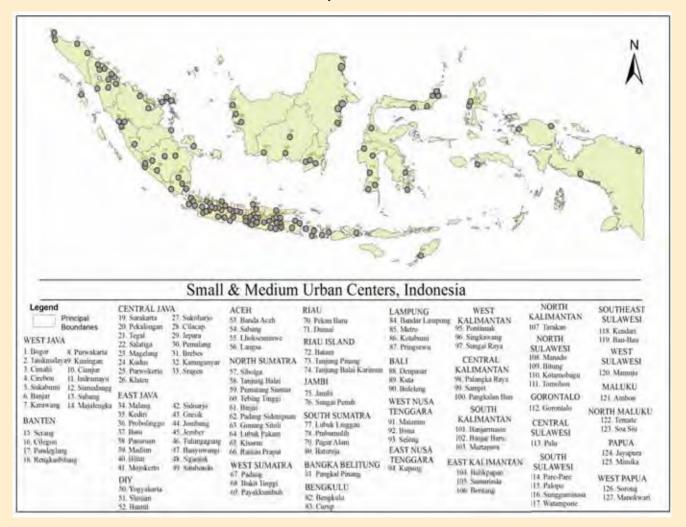
### 5. The role of secondary cities

The United Nations (2012) defines small cities as urban agglomerations with a population size of 500,000 or less. In the Indonesian context, one way to define small and medium cities is to include those with a population size of 100,000 to one million. The locations of such cities are shown in Figure 6.1. What then, has been the development experience of such cities? In Java, they grew only slowly between 2000-2010, below the national population growth rate. Some of the small and medium cities which do not have the status as 'municipality' (*kota Otonom*), however, did grow more rapidly, for example Garut in West Java, Pemalang in Central Java and Batu in East Java.

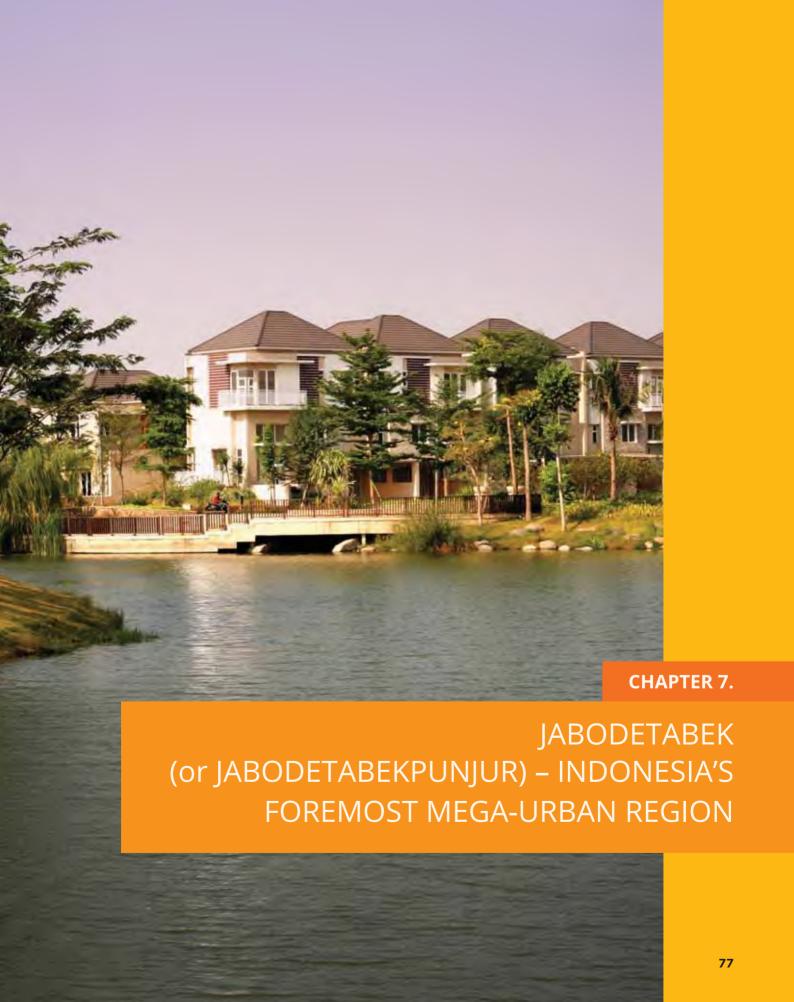
Using Susenas data across the 1993-2007 period, the World Bank et al. (2011) argued that medium-sized cities in Indonesia (those with population in the range of half to one million) have performed better in terms of agglomeration economies than cities in any other size group, whilst smaller cities (those between 100,000 and 500,000 people) and small urban centres have performed the least well. The World Bank report states (p. 84) that some of the small cities have suffered a decrease in population and decline in per capita GDP. Census data, on the other hand, does not appear to indicate such population declines for the 2000-2010 period, but rather slow rates of growth in the majority of cases.

It is interesting to note that small and medium urban centres in the other islands of Indonesia are experiencing faster population growth than those in Java. The most rapid increase in the 2000-2010 period was that of Batam in Riau Islands (8.0 per cent per annum). Batam has benefited from its proximity to Singapore, and has attracted migrants from all over the country, most notably from Java and some parts of Sumatra. Other cities experiencing rapid population growth were Sorong (7.0 per cent), Jayapura (5.1 per cent ), Tarakan (5.2 per cent), Pekanbaru (4.4 per cent ), Den Pasar (4.0 per cent ), Dumai (3.9 per cent), Kendari (3.7 per cent), Bontang (3.7 per cent), Samarinda (3.4 per cent) and Balikpapan (3.1 per cent). Although some of the smaller non-municipality cities in Java appear to have achieved even faster rates of growth (see Appendix Table 1), the reliability of the data on which the comparisons are based is guestionable. However, it is certainly likely that some of the non-municipality cities - especially those affected by the expansion of Jakarta and Bandung - did indeed have rapid rates of growth. In general, however, small cities in Java tend to function as centres for the distribution and collection of goods, are lacking in infrastructure and skilled labour, and have poor access to major cities and ports (World Bank et al., 2011, p. xiii). By contrast, the more dynamic cities outside of Java function as centres of economic activities, most notably natural resource exploitation such as mining, oil, timber, palm oil plantation, and tourism.

FIGURE 6.1.
Small and medium urban centres in Indonesia (Population 100,000 to 1 million)



Source: Based on data in Appendix Table 1.



#### 1. Introduction

Jabodetabek is the area comprising Jakarta's metropolitan area (DKI Jakarta), plus parts of the provinces of West Java (Bekasi, Depok and Bogor and the *kabupaten* of Bekasi and Bogor) and Banten (the cities of Tangerang and South Tangerang and the *kabupaten* of Tangerang). As Jabodatabek is contained within the administrative boundaries of these areas, without cutting across any administrative boundaries, it is relatively easy to provide data for the whole region. Whilst this is not to say that the whole of Jabodetabek is urban, all but 2.03 million people (or 7.3 per cent of Jabodetabek's population of 27.96 million in 2010), lives within areas defined as such.

Interestingly, the Municipality of Greater Jakarta declared in January 1958, subsequently renamed the Special Region of Jakarta Raya in 1961 and declared a province (*Daerah Khusus Ibukota Jakarta* or special capital region of Jakarta) in 1966 covered an extensive area (662 square km), which was considered wide enough to cope with the expansion of the city. This was far from being the case. DKI Jakarta's share of Jabodetabek's population has been declining steadily, from 54.6 per cent in 1980 to 43.2 per cent in 1990, 39.6 per cent in 2000 (Firman et al., 2007: 446), and 36 per cent in 2010. The fact that the Special Region of Jakarta now holds only a third of the mega-urban region's population highlights how important it is to find effective means of governance for the mega-urban region as a whole. Infrastructure, transportation, environmental management and social development policies introduced by the DKI in isolation are likely to fail if not meshed into a broader regional cooperative planning and management framework.

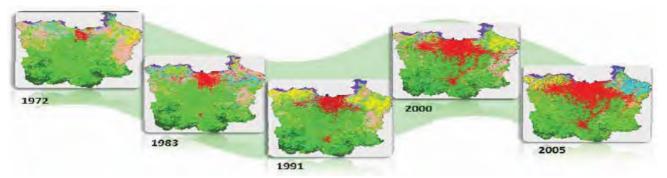
The change of acronym to refer to the Jakarta mega-urban region over time is revealing of the expansion of the mega-urban region. After the creation of a new city – *kota* Depok, the old acronym – Jabotabek – was changed to Jabodetabek. Currently, the term Jabodetabekpunjur is frequently used to indicate that areas in Puncak and Cianjur (lying in West Java) should also be included. But there is also evidence that the mega-urban region is spreading through Karawang and into Purwakarta. An acronym to include these areas would clearly be too unwieldy to pronounce. But perhaps it would serve to remind us that the extended Jakarta mega-urban region is also too unwieldy to manage, unless a new form of mega-urban region management can be found.

## 2. Population growth trends in the Jakarta metropolis

The expansion of the built-up area of Jakarta over time is shown in Figure 7.1. In tracing the growth of the Jakarta metropolis through census statistics, however, there are several important considerations to be made. If dating expansion back from the pre-1970 period, it is reasonable to include only the population of Jakarta city, as up to that time, Bogor, Bekasi and Tangerang were only small towns with limited industrial development and not really linked in terms of employment into the greater Jakarta region. However, there will also be a level of arbitrariness in deciding when to widen these boundaries. One point to keep in mind is that DKI Jakarta's population continued

to increase rapidly up to 1995, albeit at a declining annual rate; 4.5 per cent in the 1961-71 period, 3.9 per cent from 1971-81, 2.4 percent from 1980-90 and 2.1 per cent between 1990 and 1995. Between 1990 and 2000, on the other hand, the population barely increased (indeed it decreased between 1995 and 2000), while growth was very rapid in the surrounding areas, suggesting that this was the period when the donut-like growth outside the boundaries of the DKI really came into its own. One problem in interpreting these figures, however, is that aside from spill-over into neighbouring areas, there is a suspicion of serious under-enumeration of the DKI lakarta population in 2000.6

FIGURE 7.1.
Expansion of built-up area of Jakarta over time



Source: www.yipd.or.id/article.

Although there is no entirely satisfactory way to estimate the increasing population of the Jakarta mega-urban region, rough estimates are possible. Table 7.1 shows an estimate in which the DKI Jakarta population is used from 1961 to 1980, then the core plus inner zone as defined by Mamas and Komalasari (2008) is used for 1990 and 2000, and the entire population of the Jabodetabek region, minus the 2 million population of the region living in rural areas is presented for 2010. This obviously leads to a serious discontinuity in population between 1980 and 1990, which in a second estimate in Table 7.1 is smoothed by adding to the DKI population in 1980 the populations of Bogor, Depok, Bekasi and Tangerang urban agglomerations as calculated by the National Urban Development Strategy project (Kingsley et al., 1985, Appendix B).

<sup>6</sup> Large city populations are normally undercounted by censuses. However, "there is reason to believe, in the case of Jakarta... that the undercount was worse in 2000 than in 1990. Although the evidence for this is not totally clear, both the cuts in budget for the 2000 census, the addition of extra questions requested by the Jakarta municipality, which increased the workload of poorly paid interviewers, and the recording of population declines in areas such as South Jakarta, where population increase might have been expected, all point to the likelihood of substantial undercount" (Jones, 2008: 44).

TABLE 7.1.

Alternative estimates of the population of Jakarta urban agglomeration, 1961-2010

	Estim	ate 1*	Estima	nte 2**
	Population ('000)	Av. Ann. Increase (%)	Population ('000)	Av. Ann. Increase (%)
1961	2,973	-	2,973	-
1971	4,084	3.2	4,084	3.2
1980	6,072	4.5	6,987	6.1
1990	13,656	8.4	13,656	6.9
2000	17,783	2.7	17,783	2.7
2010	25,923	3.8	25,923	3.8

<sup>\*</sup>Estimate 1: 1980 population is only for DKI Jakarta. \*\*Estimate 2: 1980 population is DKI Jakarta plus the Bogor, Depok, Tangerang and Bekasi urban agglomerations as estimated by the National Urban Development Strategy Project.

As Table 7.1 shows, the growth rate of the Jakarta MUR has been very rapid between 1961 and 2010, increasing by 8.7 times. This was most rapid over the 1970s and 1980s, and slowest between 1990 and 2000. The slowing of growth over the 1990-2000 period may partly reflect the effect of the 1997-8 financial crisis, which hit Jakarta particularly hard, but may also result in part from under-enumeration of the Jakarta population in the 2000 Population Census.



As for DKI Jakarta, the slowing of its population growth is shown in Table 7.2. After very rapid growth between 1961 and 1995, Jakarta's growth slowed to a crawl after 1995, partly, as noted above, because of under-enumeration in 2000, but also due to the overspill of the population to neighbouring *kota* and *kabupaten*. This resulted from the transformation of land uses in DKI Jakarta, the rapid shift of industry and other commercial activities to areas outside its boundaries, as well as the search by the middle classes for more attractive living environments, a demand met by the development of massive housing and commercial complexes outside Jakarta. This is also evident in the fact that over the 20-year period from 1990 and 2010, Jakarta's population grew by only 0.8 per cent per annum, and over the 15-year period 1995-2010 by only 0.3 per cent per annum, evidence that population growth action in the mega-urban region has shifted outside the DKI Jakarta boundaries over the last two decades.

TABLE 7.2.

Population trends in DKI Jakarta

Year	Population ('000)	Average annual growth rate
1961	2,973	
1971	4,085	4.6
1980	6,072	4.5
1990	8,223	3.1
1995	9,113	2.1
2000	8,347	-1.8
2010	9,608	1.4

Source: Population Census data for all years except 1995, for which year Inter-censal Population Survey data was used.

## 3. Spatial patterns of development in Jabodetabek

The restructuring of land use throughout Jabodetabek that has accompanied the six-fold increase in its population since 1971 has been characterized by the large-scale transfer of industry and housing to cheaper sites outside DKI Jakarta. This has also seen the conversion of land in surrounding DKI from agricultural to a range of non-agricultural uses, especially large-scale housing developments, including new towns, industrial estates, educational institutions and golf courses. The growth of integrated 'new towns' – and some on a vast scale – was accelerated by the insecurity, crime and potential for uncontrolled riots that accompanied and followed the end of the Suharto regime in 1998. This drove the middle class, with its "nagging fear of the mob" (Dick, 2003: 412, referring to Surabaya), to seek refuge in safer developments in the suburbs. Though most of these integrated housing and commercial developments around Jakarta were not 'gated communities', most of them were:

"Geographically almost inaccessible to the poor because of location and lack of public transportation, and inaccessible in other ways because of the 'American suburban' lifestyle promoted in such estates and the lack of goods and services affordable by the

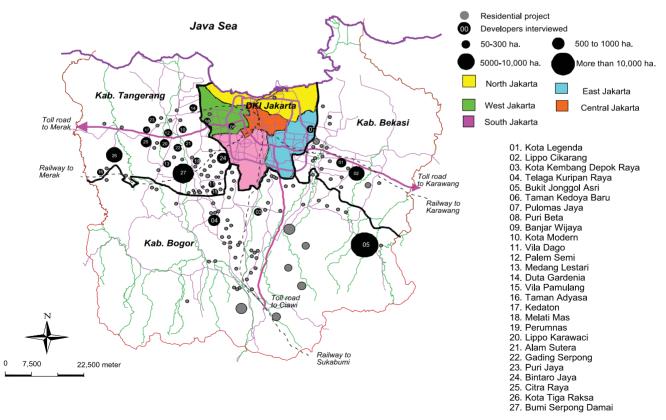
poor. Thus in many of the large housing developments, residents are effectively protected from both the sight of the poor and the danger they pose" (Mamas and Komalasari, 2008: 124-5).

The unrealistically low price of gasoline, heavily subsidized by the government right up to 2014, also facilitated the urban sprawl by making commuting by car or public transport cheaper than the market price of gasoline would have allowed.

The pattern of development in the Jabodetabek area was therefore one where development occurred along an east-west axis from Bekasi to Tangerang and southwards through Depok to Bogor (see Figure 7.2). The growth of five large city nodes – all with populations of a million or more – outside Jakarta but within the greater Jakarta region, was a key element of this spatial development trend. Of these five cities, which included Bogor, Bekasi, Tangerang, Tangerang Selatan and Depok, only Bogor could be said to have been a town of any size in 1971. In the present century, the expansion has continued apace, spreading further Eastwards to Cikarang and Karawang, further Westwards towards Serang and Cilegon and beyond Bogor and the Puncak to Cianjur. Indeed, to some degree, this trend can be described as the 'linking up' of the two megaurban regions of Jakarta and Bandung (Firman and Dharmapatni, 1995), particularly since the opening of the freeway between the two cities in 2005.

FIGURE 7.2.

New residential developments in Jabodetabek, 2010



Source: Firman, 2014, Figure 15.2.

### 4. Trends in employment

As well as population growth, the rise of housing estates and commercial and industrial activity has been focused outside DKI Jakarta, although banking, financial services and other high-end economic activities have remained in the downtown areas of the city. As a result, apartment blocks have proliferated over the past 15 years, partly as a response to the horrendous traffic affecting the daily commute from locations outside DKI. Employment has grown much more rapidly in the fringe areas, but this is exaggerated by census data on employment, since it is recorded according to place of residence as opposed to place of work. Thus the millions of commuters entering DKI Jakarta every day from places such as Bogor, Depok and Bekasi are enumerated according to where they sleep, even though they are employed in DKI Jakarta.<sup>7</sup>

Even so, the shift in employment in the industrial sector between DKI Jakarta and the inner zone of the Bodetabek area is noteworthy. In 1990, the share of 'M' sector employment (mainly manufacturing) was slightly higher in inner zone Bodetabak than in DKI Jakarta. However, by the year 2000, this had widened considerably, with 36 per cent of employment in the inner zone being in the 'M' sector, compared with only 22 per cent in DKI Jakarta (Mamas and Komalasari, 2008: Table 5.9).

The 2010 Census shows that there continue to be important distinctions in the distribution of employment across the different employment sectors between DKI Jakarta and the cities that together make up the majority of the 'inner zone' (Mamas and Komalasari, 2008), as outlined in Table 7.3. The main differences were in 'M' sector employment, which continued to be lower in Jakarta than in the inner zone cities, offset by higher 'S' sector employment.

TABLE 7.3.

Employment by industry, Jakarta and cities within Jabodetabek, 2010 (% distribution)

Sector	DKI Jakarta	Kod. Bekasi	Kod. Depok	Kod. Tangerang	Kod. Tangerang Selatan	Kod. Bogor	All cities in columns 3-7
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)*
A sector	1.0	1.3	2.2	1.2	1.8	2.9	1.7
M sector	21.6	26.9	20.9	36.6	17.3	23.2	25.9
S sector	77.4	71.8	76.9	62.2	80.9	73.9	72.4
Total	100	100	100	100	100	100	100

Note: The 'A' sector includes the primary industries – mainly agriculture and fishing; the 'M' sector includes mining, manufacturing, construction, utilities, and transportation; the 'S' sector includes trade and services. In computing this table, the 'other industry' group has been removed from both numerator and denominator.

The most interesting aspect of Table 7.3, however, is the contrast between the different

<sup>7</sup> A survey of commuters associated with the 2000 Population Census recorded just over one million daily commuters to DKI Jakarta.

cities in the share of employment across the different industry sectors. Further details are given in Appendix Table 4. Tangerang stands out as a manufacturing city, a fact well known to Jakarta region residents but shown conclusively by statistics in Appendix Table 4. By contrast, South Tangerang and Depok have much lower proportions of their workforce engaged in manufacturing (9.5 per cent and 12 per cent respectively, as compared with 31 per cent for Tangerang and 15.6 per cent for Jakarta). This is because these are essentially 'dormitory' suburbs for Jakarta, with a large share of their populations commuting to work in Jakarta or, if employed in South Tangerang or Depok themselves, being engaged in industries other than manufacturing. Jakarta stands out as having a higher share of employment in hotels and restaurants than the other cities, and – with the exception of South Tangerang – a higher share in finance and insurance.

## 5. The role of migration in population change

Migration has played a major role in population change in the Jakarta MUR in two ways; the first being migration from other parts of Indonesia to both the DKI and more urbanized parts of the Botabek region, and the second being out-migration from DKI to the urbanized parts of Botabek. Since the 1980s, DKI Jakarta has suffered clear population losses through net out-migration (see Table 7.4). The net loss was particularly high in the 2000-2010 period. Even so, when compared to the migration status of different provinces in Indonesia, Jakarta stands out as having a much higher proportion of in-migrants than any other city, except Batam. There is clearly a great deal of movement both in and out, but the net effect is inarguably a loss of population to DKI Jakarta through out-migration.

TABLE 7.4.

Five-year in-and out-migrants, DKI Jakarta, 1980-2010 (in thousands)

In/out-migrants	1980	1990	2000	2010
In-migrants	746.9	819.6	702.2	635.9
Out-migrants	382.3	993.4	850.3	883.4
Net migrants	364.6	-173.8	-148.1	-247.5

Source: Firman, 2004, Table 5; 2010 Census data

A clearer picture of the origins and destinations of migrants to and from DKI Jakarta in the five years leading up to the 2010 Population Census can be gained from Table 7.5. Jakarta's substantial loss of a quarter of a million people over this period was overwhelmingly the result of out-migration to West Java and Banten, counterbalanced by large flows of in-migrants from Central Java and to a much lesser extent, East Java and Lampung. More detailed tabulations would reveal that migration to West Java and Banten was predominantly to the 'overspill' areas outside DKI Jakarta's boundaries – especially Bekasi, South Tangerang and Depok. For many provinces, whilst there was substantial migration to and from Jakarta, these inflows and outflows largely offset each other. North and South Sumatra are good examples of this.

TABLE 7.5.

Main source and destination provinces of migrants to and from DKI Jakarta, 2005-2010

Province	In-migrants to DKI Jakarta	Out-migrants from DKI Jakarta	Net migration
North Sumatra	18,889	18,227	662
West Sumatra	12,274	19,361	-7,087
Riau	9,496	4,272	5,224
Riau Islands	2,233	10,349	-8,116
South Sumatra	7,648	8,198	-550
Lampung	20,716	10,129	10,587
West Java	191,781	456,201	-264,420
Central Java	215,620	64,562	151,058
Yogyakarta	11,383	17,415	-6,032
East Java	48,830	24,905	23,925
Banten	60,115	177,371	-117,256
All other provinces	36,936	72,433	-35,497
TOTAL	635,921	883,423	-247,502

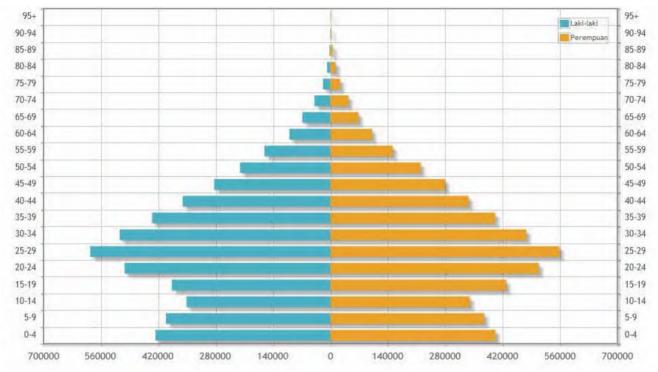
**Source:** BPS website for 2010 Population Census data.



The age-sex distribution of migration has greatly affected the population pyramid of DKI Jakarta (see Figure 7.3). It is clear that there is a strong over-representation of young adult age groups (20-44) in Jakarta compared with Indonesia as a whole. This is because of the strong concentration of in-migrants within these age brackets. It is also evident that females are over-represented in the 15-19 age group, because of their tendency to migrate at an earlier age than males.

FIGURE 7.3.

Age pyramid for DKI Jakarta 2010



Source: BPS website for 2010 Population Census data.

In an earlier study, the effects of differential migration patterns of males and females to the Jakarta MUR was investigated by comparing the sex ratio in certain age groups using 1990 and 2000 census data. Table 7.6 gives the results. Unfortunately, comparable data could not be obtained for 2010. It is clear that in 1990 and 2010, however, not only were young people over-represented amongst migrants to Jakarta, but females were heavily over-represented in the 15-24 age bracket, especially in DKI Jakarta. This likely resulted largely from more employment opportunities for young women in Jakarta, in domestic and other services and in sales occupations.

TABLE 7.6.

Sex ratio of recent migrants to Jakarta MUR by age group and zone, 1990-2000

Year and age group	DKI Jakarta	Inner zone	Outer zone
1990			
15-24	65	80	47
25-34	116	108	144
35-44	116	143	215
45+	92	112	131
2000			
15-24	62	86	80
25-35	123	108	110
35-44	133	134	132
45+	122	123	127

Source: Jones and Douglass, 2008, Table 11.6. Note: The inner and outer zones together make up Bodetabek.

Interestingly, migration patterns differ greatly between DKI Jakarta and the rest of Jabodetabek. For example, DKI Jakarta has a higher proportion of its population who are lifetime migrants compared to Bodetabek, but the reverse is true for recent migrants (see Table 7.7). This reflects the acceleration of in-migration to Bodetabek in more recent years, especially from Jakarta. Second, in terms of both lifetime and recent migrants, DKI Jakarta has had a greater proportion of migrants from other parts of Indonesia.

For Jabodetabek as a whole, 38 per cent of the population are lifetime migrants, compared to 9 per cent who are recent migrants. For DKI Jakarta, 45 per cent of the population are lifetime migrants. While this indicates that more than half the population are locally-born, the importance of migration would be clearer if data were available for the second generation (those born to migrant parents). Adding these to the migrant population would raise the proportion who are either migrants or children of migrants to well over half.

TABLE 7.7.

Jabodetabek: percentage of lifetime and recent migration status of the population aged 5+, 2010

	DKI Jakarta	Bodetabek	Total Jabodetabek
LIFETIME MIGRATION			
In-migrants from Bodetabek	10.7		3.7
In-migrants from DKI Jakarta		12.7	8.3
In-migrants from outside Jabodetabek	34.2	21.3	25.8
Non-migrants	55.1	65.9	62.2
TOTAL	100.0	100.0	100.0

	DKI Jakarta	Bodetabek	Total Jabodetabek
RECENT MIGRATION			
In-migrants from Bodetabek	4.2		5.7
In-migrants from DKI Jakarta		6.5	5.7
In-migrants from outside Jabodetabek	4.4	2.8	3.4
Non-migrants	91.2	90.7	90.9
TOTAL	100	100	100

Source: Computed from data files of Indonesian Census 2010.

It is interesting to consider what have been the main sources of migration to DKI Jakarta in recent times. As shown in Table 7.8, nearby parts of Java have been dominant. In 2010, West Java-Banten contributed 40 per cent of recent migrants, and Central Java-Yogyakarta 36 per cent. The share of recent migrants originating in North and West Sumatra has been gradually declining, but interestingly, the share originating from Lampung has increased. It is of course cheaper and easier to move to Jakarta from Lampung than from more distant parts of Sumatra.

TABLE 7.8.

DKI Jakarta: trends in recent migration and sources of migrants, 1990-2010

	1990	2000	2010
Recent migrants as % of population	9.5	9.2	8.7
Main sources of migrants (% of total)			
North Sumatra	4.9	3.9	3.0
West Sumatra	3.4	2.9	1.9
South Sumatra	2.4	1.6	1.3
Lampung	1.2	2.4	3.3
West Java	26.0	26.5	30.2
Banten	*	6.9	9.5
Central Java	41.2	34.9	33.9
Yogyakarta	2.5	2.3	1.8
East Java	10.9	9.0	7.7
West Kalimantan	1.6	1.1	1.2
South Sulawesi	0.9	1.0	0.9
All other provinces	5.0	7.5	5.3
TOTAL	100	100	100

*Source:* 1990 and 2000 Census Reports; unpublished tabulations from 2010 Census. \*Included in West Java.

Migration from many different regions of Indonesia have given the Jakarta megaurban region a far more mixed ethnic composition than is the case for any other city in Indonesia, except perhaps Batam. Importantly, no one ethnic group dominates. Even though most migrants have originated elsewhere from Java, two key ethnic groups – Javanese and Sundanese – are spread relatively evenly. In DKI Jakarta, Javanese make up over a third of the population at 36.4 per cent, Betawi at 27.9 per cent, Sundanese at 10.1 per cent, Chinese at 6.6 per cent, all Batak groups at 3.2 per cent and Minangkabau at 2.9 per cent. In the Jakarta mega-urban region as a whole, Sundanese are the most prominent at 32.9 per cent, because of their heavy dominance in Bogor (across both *kota* and *kabupaten*). They are followed by Javanese at 27.3 per cent, Betawi at 23.6 per cent, Chinese at 3.3 per cent, all Batak groups at 2.5 per cent, Bantenese at 2.2 per cent, and Minangkabau at 1.9 per cent. The remaining 6.3 per cent of the population are drawn from other ethnic groups from all over Indonesia.

## 6. Role of migration in changing educational characteristics

As it has for Indonesia as a whole, the educational attainment of the population of the Jakarta mega-urban region has increased over time. However, there is particular interest in studying educational change in Jakarta, because historically the region has been characterized by relatively low levels of educational attainment (Castles, 1967: 202-204). In the 1930 Census, for example, the percentage of literates in Batavia – the former name for Jakarta – was only 11.9, much lower than Bandung at 23.6 per cent. The continuing trend of lower educational attainment may indeed be surprising, given that Jakarta is the national capital and has attracted many of the brightest and most ambitious Indonesians from other parts of the country.

Low educational attainment has been particularly pronounced in the Jakarta hinterland – the area that is now the outer regions of Jabodetabek. The steady downward trend of educational attainment outwards from DKI to the further reaches of Jabodetabek is clear in Figures 7.4 and 7.5, however, it is also apparent that within DKI Jakarta, there is a band of relatively low educational attainment extending from West to East across the entire Northern coastal zone of the city. Educational attainment in this band is not only lower than in the cities of Botabek (with the exception of Bogor) but also lower than in some parts of the Tangerang and Bekasi *kabupaten*.

Migration has affected the educational attainment of the Jakarta region in complex ways. In an earlier study, it was found that in DKI Jakarta recent migrants aged 15-24 were less educated than non-migrants, although this became less pronounced for ages 25-44. By contrast, in the inner zone (predominantly what are now the cities of Bekasi, Tangerang, Tangerang Selatan, Depok and Bogor), migration has contributed to higher average educational levels, as it has for Jakarta MUR as a whole. This is predominantly because most migrants to these areas are young, and have – on average – higher levels of education. When the comparison was restricted to those aged 15-34, there was not much difference between the education level of migrants and residents (Jones and Douglass, 2008, 329-333).

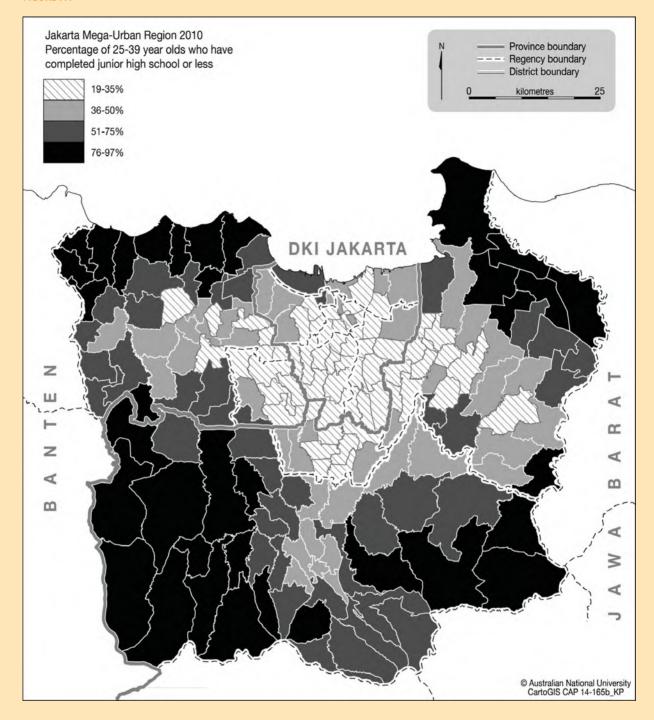
A study based on 2010 Census data (Jones et al., forthcoming) throws further light on the effect of migration patterns on educational attainment in different parts of Jabodetabek. Interestingly, the cities of Bekasi, Depok and Tangerang Selatan have somewhat higher educational attainment levels than DKI Jakarta. This is mainly the result of migration patterns, which differ greatly in their effect on the educational levels of DKI Jakarta and of the growing city populations in Bodetabek. In the case of DKI Jakarta, migrants aged 25-39 (both those from Bodetabek and the rest of Indonesia) are over-represented in poorly educated groups, at just lower secondary education or less. Thus, migration patterns are tending to hold down the educational attainment levels of the Jakarta population. The picture is very different in Bodetabek, where migrants aged 25-39, especially those from DKI Jakarta, are much better educated than the non-migrant population. In urban areas of Bodetabek, roughly twice as many recent migrants from DKI Jakarta have senior high school education or higher compared to non-migrants, with similar results at the lower secondary education level. This reflects the movement of better-educated Jakartans to housing developments in these cities, and clearly has a major impact on educational levels in the Bodetabek population as a whole. Migration from elsewhere in Indonesia is also serving to raise the average education levels in Bodetabek, but not to the same extent as migrants from DKI Jakarta.

## 7. Infrastructure issues and environmental problems

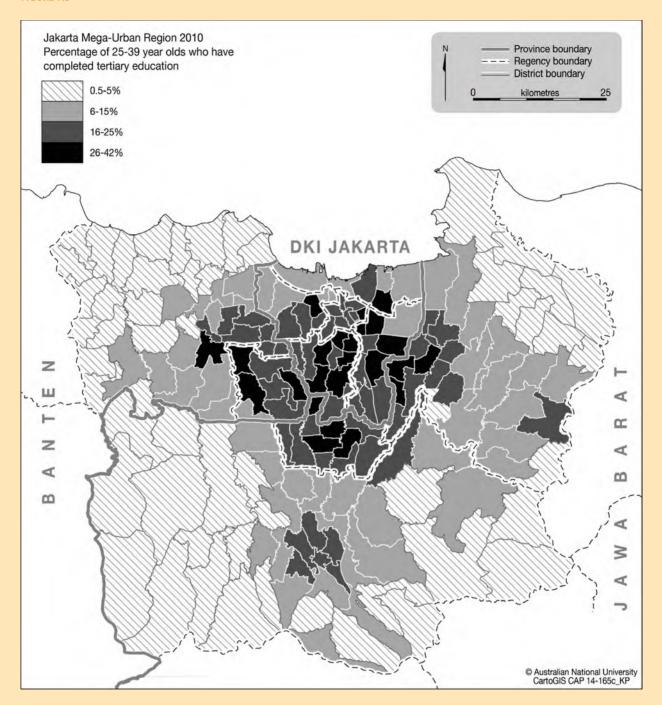
Jakarta is vulnerable to environmental change due to its location on the northern coast of Java island. The environmental conditions of Jakarta are far from ideal, due to its exposure to floods, rising sea water and other natural disasters, as well as man-made calamities such as pollution and excessive extraction of ground water (Surbakti, Idroes, Simarmata and Firman, 2010). Indeed, it has been argued that Jakarta is one of the most vulnerable coastal cities in Southeast Asia (Yusuf and Fransisco, 2009).

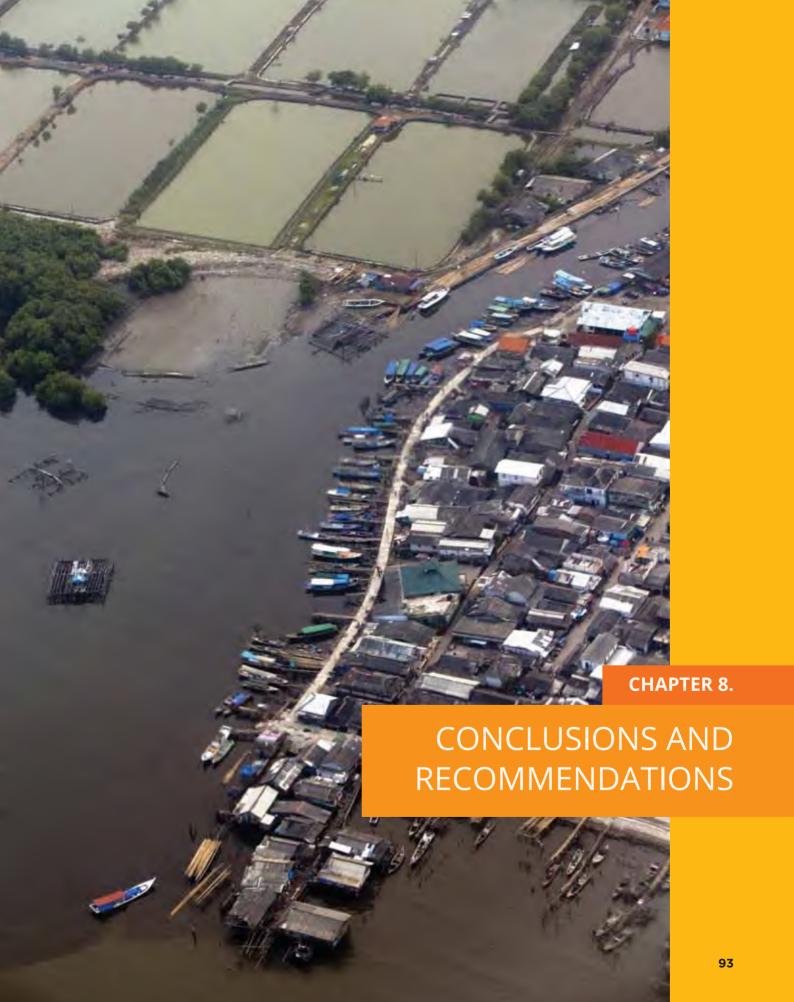
Jakarta has always been prone to flooding. In some parts of Jakarta, flooding is a fact of life. The first major flood was recorded in 1699 when the Ciliwung River flooded Batavia after Mount Salak erupted (WHO, 2007). The city now floods during almost every rainy season, and the intensity of these floods has increased, with major flooding in 2002, 2007 and 2013. In 2007 the largest flood in the last three centuries inundated about 40% of the city, killing 80 people and forcing almost 350,000 to evacuate the city (Brinkman and Hartman, 2010)

It is obvious that the flood problem cannot be solved with canals alone (Firman, 2014). It should not be left to the Jakarta city government to implement the measures necessary to prevent major flooding in the city centre. Other local governments in the Jabodetabek region, along with the central government, have a responsibility to implement an integrated water resource management plan for the region. Floods in Jakarta cannot be separated from the contribution of unsustainable land conversion and development in upstream areas, most notably in the Puncak area between Bogor and Cianjur.



#### FIGURE 7.5





## Indonesia moving forward from 50% urban: never again will the majority of the population be rural dwellers

As has been canvassed extensively in this report, it is becoming increasingly difficult to distinguish rural and urban areas of Indonesia. Not only have rural areas gained access to many of the facilities and lifestyles formerly the exclusive domain of urban dwellers – access to television, electronic devices and mobile phones, for example – but many rural dwellers are now within commuting range of a town or city and what it has to offer. This difficulty of distinguishing rural and urban areas is reflected in the fact that not all urban population growth in Indonesia results from natural increase or rural-urban migration; part of it is the recognition that areas formerly classified as rural have changed substantially, and now meet the criteria for being considered urban areas.

Is it time, then, to drop the rural-urban distinction in Indonesia? We believe the answer is no. There is still value in distinguishing between rural and urban areas, and as demonstrated in Chapter 3, there remain substantial socio-economic differences between the urban and rural populations. What does need to be recognized, however, is that there is an enormous range of circumstances between areas of Indonesia classified as rural – in terms of access to various resources and facilities, accessibility to or isolation from towns, and the incidence of poverty – and their urban counterparts. There is a world of difference between a village located less than an hour's drive from a large city and one where the villager has to walk for 10 hours to reach a driveable road; and both these kinds of villages can still be found in Indonesia.

In any case, the balance of Indonesia's population is certainly shifting in favour of urban areas, and Indonesia's future is as a predominantly urban nation. The rural population has held the majority throughout Indonesia's pre-independence and independence history, but the tables are now turning. Indeed, Indonesia's rural population will gradually decline both as a proportion of the population and in absolute numbers. Despite this, the still very large rural population – being disadvantaged in many ways – will need the continued attention of government policy. There needs to be recognition that much of Indonesian history and tradition grows from a predominantly rural population, that the role of the rural population should be celebrated, and that efforts need to be made to ensure that urban-rural differences disadvantaging the rural population are addressed.

A large proportion of the urban population in Indonesia has rural roots and rural connections; many urban dwellers are themselves migrants from rural areas or are the children of former migrants from rural areas, and few can claim that their grandparents were both born in a city. This has helped to maintain a symbiotic relationship between rural and urban areas, with some city people still returning to rural areas to participate in planting and harvesting activities, or to take refuge in times of hardship such as the economic crisis of 1997-98. The cities still empty to a remarkable extent over *Lebaran*, as people return to their places of origin. But as cities grow larger, more and more urban

dwellers no longer have connections with rural areas. As in many highly urbanized countries, special efforts will be needed to ensure that city children learn something about rural life, and that city-based politicians and bureaucrats empathize with the needs of rural populations.

## 2. Projections: urbanization, rural population decline.

From Table 8.1, it is clear that the rural population is expected to continue declining in absolute numbers. This decline appears to have set in after 1995, although from the figures in Table 2.2 it appears that the rural population did increase slightly between 2000 and 2010. According to the United Nations, the urban percentage of the population is expected to reach 65 per cent in 2035, and exactly two thirds (66.6 per cent) according to official Indonesian projections. Enormous inter-provincial differences in levels of urbanization will remain. By 2035, 90 per cent of those living in Java west of the West Java-Central Java border will be urban dwellers. This massive population of 76 million will be concentrated mainly in the twin mega-urban regions of Jakarta and Bandung. By contrast, less than 40 per cent of the populations of East Nusatenggara (NTT), Sulawesi Barat and Maluku Utara will be living in urban areas.

The danger is that as the rural percentage of the population gradually declines to one third of the population, the shift in planning emphasis towards the majority urban population could result in the relative neglect of the still very large rural population, which is expected to still exceed 100 million in 2035. This would be very unfortunate, not least because the rural population experiences higher levels of poverty and of other forms of disadvantage.

As there are no official projections of the population of Indonesian cities, the United Nations projections are of considerable interest. Unfortunately, these do not include a realistic projection of the urban agglomeration of Indonesia's largest city, Jakarta, or of Indonesia's next three largest cities – Surabaya, Bandung and Medan – as the projections appear to be only for the population in the DKI Jakarta boundaries and in the official *kota* boundaries for the other three cities. Moreover, for some reason, the UN Population Division does not include Bekasi, Tangerang, Tangerang Selatan or Depok in their list of Indonesian cities.

Other aspects of United Nations data, however, are of considerable interest. Based on their projections for likely future developments, it is anticipated there will be an increase in the number of Indonesian cities with over one million population from seven in 2010 (when the cities in Jakarta's vicinity are all included in the one mega-urban area) to 14 in 2030, using the same criteria. The projections show much faster growth of certain cities outside of Java than within it. Thus, over the 20-year period from 2010-2030, the population of Batam is projected to increase by 167 per cent, Pekan Baru by 91 per cent, Samarinda by 76 per cent, Jambi by 64 per cent, Makassar by 57 per cent and Bandar Lampung by 53 per cent. This is much faster than the projected growth of similar-sized

cities in Java, with the notable – and surprising – exception of Tasikmalaya, which is projected to grow by 123 per cent.

TABLE 8.1.
Projections of the urban population in Indonesia

	2010	2015	2020	2025	2030	2035
BPS						
% urban	49.8	53.3	56.7	60.0	64.4	66.6
Urban population	118,782	136,161	153,695	170,897	190,885	204,230
Rural population	119,737	119,300	117,371	113,932	105,520	101,422
UN Population Division						
% urban	49.9	53.7	57.2	60.3	63.0	65.2
Urban population ('000)	120,154	137,422	154,164	170,118	184,912	197,950
Rural population ('000)	120,522	118,287	115,250	111,900	108,570	105,432
Jakarta pop ('000)	9,630	10,323	11,298	12,589	13,812	
Surabaya pop ('000)	2,768	2,853	3,051	3,401	3,760	
Bandung pop ('000)	2,399	2,544	2,771	3,103	3,433	
Medan pop ('000)	2,101	2,204	2,385	2,669	2,955	
Batam pop ('000)	930	1,391	1,896	2,236	2,486	
Semarang pop ('000)	1,558	1,630	1,761	1,972	2,188	
Makassar pop ('000)	1,336	1,489	1,676	1,895	2,104	
Palembang pop ('000)	1,455	1,455	1,527	1,701	1,888	
Pekan Baru pop ('000)	904	1,121	1,354	1,556	1,731	
Bandar Lampung ('000)	884		1,073		1,350	
Tasikmalaya pop ('000)	584	787	1,004	1,170	1,305	
Samarinda pop ('000)	732	865	1,013	1,159	1,291	
Padang pop. ('000)	836	903	998	1,126	1,254	
Malang pop. ('000)	821		924		1,156	

Source: Bappenas/BPS/UNFPA 2013; UN Population Division, 2014

## 3. Rural-urban differences in wellbeing – how can they be narrowed?

How can rural-urban differences in wellbeing be narrowed? These differences result in large part from the lower incomes in rural areas, meaning that as individuals and families, rural dwellers on average have less resources at their disposal than urban dwellers. Furthermore, government revenues in provinces and districts with less productivity are lower on a per capita basis, meaning fewer government resources per head to supply infrastructure and facilities. This can, of course, be countered through cross-subsidization, which to some extent does occur through the fiscal policies adopted by

the central government. It is realistic to expect that urban-rural differences in wellbeing can be narrowed through effectively targeted fiscal redistribution, but not realistic to expect that they can be totally eradicated.

#### 4. Increasing the liveability of Indonesian cities

Indonesia's largest cities appear to be following the 'Los Angelization' as opposed to European city route – that is, they are characterized by urban sprawl over vast distances (Dick and Rimmer, 1998), de-population of the urban core and a rush to suburbia. This process has been fostered by a number of factors, including extremely high central-city land values, the rapid growth of large-scale real estate development on lower-priced fringe-area land, and fear among the urban middle classes of a breakdown in law and order in central city areas (at its height at the fall of the Suharto government in 1998 and in subsequent years). This process has been fostered by unrealistically low gasoline prices resulting from government fuel subsidies, holding down the rupiah cost of long commutes by private cars or public transport. The vast new towns are dependent on existing toll roads, but create traffic jams at entrances and exits. The lack of reliable public transportation connecting these towns to the city centre both exacerbates congestion on the toll roads and makes it difficult for lower-income groups to live in or near new towns.

How does this affect the living conditions of the multi-millions of people living in the mega-urban regions? Aside from the scarcity of parks and other urban amenities, the most obvious cost is in the long and tiring commute suffered by most of those working in the MURs. Starting the commute at 5 or 6, as opposed 7a.m., may cut the travel time considerably. Likewise, eating dinner close to the workplace after work and delaying the trip home until 8 or 9 p.m. may also cut the length of the dreaded commute. The question must be raised, however; does this contribute to a high quality of life for those living in the MUR? The wealthier are increasingly investing in apartments close to the downtown workplace to avoid the commute. This option is not viable for the ordinary MUR-dweller.

Indonesian city planning can take steps, however, to improve the quality of life for the ordinary city dweller. Open space is at a premium, and though costly, the chance of converting built-up land to public parkland should be seized where possible – such as land on the verges of traffic overpasses or cloverleafs, or land potentially freed up by the closure of factories or warehouses. Flooding and drainage problems can be ameliorated through the construction of major flood canals, but also through the better maintenance of existing drainage systems. Perhaps most important to ordinary city dwellers, however, is the improvement of public transportation systems, widening the scope for people to access available jobs. The greatest challenge in this regard is to maintain fares that are affordable to poorer city dwellers.

## 5. Gender and youth empowerment, access and vulnerabilities

Urbanization raises particular issues for the empowerment of women and youth through access to services, employment and other opportunities. While urbanization in general – and the growth of very large cities in particular – opens up many opportunities for women and youth, at the same time both of these groups face particular vulnerabilities in urban areas.

The advantages of urban populations in terms of a number of indicators, shown in Chapter 3, are shared by women and youth. For example, in the household, higher average incomes in urban areas enable women to better budget household needs and necessary expenditure on children. At the same time, widened employment opportunities and rising levels of education may encourage women and men to come to more genderequal household decision-making processes. Urban youth also have better access to a wide range of educational and social opportunities than those in rural areas. Greater anonymity, and relative freedom from social controls enjoyed by city dwellers, however, can be a double-edged sword. On the one hand, it gives women and youth a greater say in key issues affecting their lives; but on the other, it exposes them to vulnerability on a



number of fronts such as exposure to sexual harassment, drug dealing, crime and other anti-social behaviours. Sexual harassment in the workplace is common, and the need to reserve sections of Jakarta buses for women to shield them from sexual harassment illustrates that much remains to be done before Indonesian society internalizes norms of respect for women.

Patterns of rural-urban migration lead to youth being over-represented in urban areas, as young people flock to the cities to pursue higher education and employment. Both those who move to urban areas alone and those who grow up in a family setting in urban areas face certain vulnerabilities. In addition to the pressures on low-income youth in making ends meet, all young people in urban areas must deal with the many personal issues associated with moving through adolescence. In particular, they are subject to conflicting messages about their sexuality through sexual innuendos in advertising and readily-accessible pornographic videos, set against a conservative attitude within family and school circles which fails to provide education and advice on sexuality or access to contraception for the sexually active. Premarital sex, which can result in pregnancy, abortion, single motherhood or marriage to an unsuitable partner, is a reality that cannot be ignored. Whilst it is certainly not limited to urban areas, it appears to be more prevalent there. On the other hand, issues of forced marriage for underage girls are more common in certain rural areas.

## 6. Urban governance and community involvement

The development of Indonesia's mega urban regions is the product of urban fragmentation resulting from decentralisation policy implemented in 2001 (Firman, 2008, 2009). One of the biggest challenges in mega-urban development is how to build an appropriate mechanism of governance that can optimize the potential of an urban region, improving its competitiveness and the quality of life of its residents. Governance includes the power exercised not only by formal government institutions, but also by civil society and the private sector.

Indonesia's development policy changed markedly with the initiation of political reform in 1997, following governmental regime change triggered by the economic and financial crisis. As part of this, in the late 1990s Indonesia embarked on a process of decentralization, with a transfer of wide-ranging government responsibilities from the national to local governments. This policy has aimed to bring the public decision-making process closer to those most affected by these decisions, although it is not clear if this has been successful. Indeed, it can be argued that those who are deeply affected by issues of urban planning on the whole remain passive onlookers as the processes of urban change – the clearance of slums, shifting of heavier industry from traditional locations, the building of highways and flyovers and the relocation of markets – take place around them. 'Onlookers', though, is hardly the correct term. Many of these 'onlookers' are deeply affected by these changes (see, for example, Jellinek, 1991). The key point is

that they lack a voice in the planning and political processes that lead to the decisions that will change their lives. The key challenge in Indonesia, as elsewhere, is to develop participatory planning processes that will enable ordinary citizens to have an influence on these decisions.

## 7. Jabodetabek's special issues for governance and planning

The mega-urban region centred in DKI Jakarta faces massive governance and planning issues, both because of its vast population (larger than that of Australia) and the complexities of administering a region located across three provinces, five cities and three *kabupaten*. This is further compounded when it is recognized that industrial estates are springing up in districts to the west (Serang) and east (Karawang), both officially outside of Jabodetabek.

Under Indonesia's decentralized governance system, in operation since 2004, the power of local government (*kabupaten/kota*) has increased. This brings with it enormous issues for Jabodetabek, which needs to be managed as an integrated region. Essentially, there is an "urgent need for an effective metropolitan governance institution to plan, manage and ensure the sustainability" (Firman, 2014: 380) of developments in the region. There is already an institution tasked with coordinating and monitoring development in the region; the Jabodetabek Development Cooperation Agency (*Badan Kerjasama Pembangunan* - BKSP). All three provincial governors, as well as the heads of *kabupaten* and municipal governments (*bupati* and *walikota*), are members. However, the BKSP is effectively powerless because it has no authority to override the decisions made by the member local governments (Firman, 2014: 380).

What can be done to develop a more effective planning approach for Jabodetabek? The establishment of a single authority that would override the authority of the three provincial governments in matters relating to Jabodetabek would create strong political tensions. Firman (2014: 379-382) argues that a more workable model would be to enhance the powers of the BKSP to plan and develop major infrastructure for the whole region, including spatial development, watershed management, solid waste management and transport. The provincial governments would relinquish their authority over these functions, but retain authority over socio-economic development and public services. The central government would contribute financial and technical expertise; the former being crucial due to the limited capacity of provincial and local government to finance infrastructure, and the latter because of the need for the best expertise on these complex issues. The main necessity, however, is "for all heads of governments in the region to display leadership and a willingness to cooperate to secure the best long-term outcomes for the greater Jakarta area" (Firman, 2014: 382).

From an international perspective, the issues discussed in this section are not unique to Jabodetabek, but are shared by many of the world's megacities. Tokyo, Mumbai and the

network of cities in the Pearl River Delta in China (including Hong Kong and Macao) are examples. Effective solutions to planning issues are rarely found, but Indonesia should certainly be closely studying the approaches used in other countries.

#### 8. Recommendations for further research

While there has been considerable research into various aspects of Indonesia's cities and their planning and administrative issues, what has been markedly lacking in recent times is demographic-based research into the growth dynamics of Indonesian towns and cities. There is urgent need for a study along the lines of the National Urban Development Strategy project, the final report on which was published in 1985 (NUDS, 1985). This was the only study to build up a significant data base of information on Indonesian cities and towns, and to build a series of strategy options and recommendations on urban development, including administrative and financing issues, based on careful analysis of trends and issues.

Various studies have been conducted since then, including the study of 7 urban agglomerations based on comparison of 1990 Population Census and 1995 Inter-Censal Survey data (BPS, ANU and UNFPA, 2000), and the Bappenas-World Bank studies in 2011, some data of which has been presented in this report. However, a much more thorough study is needed, utilizing a detailed database on change in urban populations, *Potensi desa* (Podes) data, and 2000 and 2010 Population Census data. This should be used to study changes over time in the urban status of the more than 70,000 *kelurahan/* villages in Indonesia, the evolution of towns and cities defined both in administrative and functional terms, and the growth dynamics of Indonesia's mega-urban regions. The three components of the growth of Indonesian urban areas – natural increase, net migration and the reclassification of localities from rural to urban – need to be analysed for different cities, for different size classes of urban areas and for different regions. Examination of Table 2.1 suggests that reclassification has been particularly influential in the sharp increase in urbanization in Java between 2000 and 2010.

The data for such analysis is potentially available in the *desa*-level data from the 2000 and 2010 Population Censuses, but the questionable growth trends shown for some of the cities and towns that are not *kota administratip* in Appendix Table 1 of this report reflects the need for major collaborative effort between BPS and researchers, utilizing detailed spatial analysis, which has not yet taken place. Despite its shortcomings, Appendix Table 1 represents a beginning. However, a systematic study of the 2000 and 2010 Census data, focusing on urban *desa* and using mapping and GPS approaches to delineate urban areas and urban clusters, is urgently needed as a baseline for future studies on urban growth and other aspects of urbanization, and to form a foundation for evidence-based policy prescriptions.

In comparing characteristics of urban and rural populations, not only can population census data be used, but so too can Supas and Susenas data and Demographic and

Health Surveys, the most recent of which were conducted in 1997, 2002-3, 2007 and 2012. The more that demographically-oriented data can be linked with other relevant data on traffic flows, urban land-use analysis, land values, and public administration of mega-urban regions, the more informed policy can become. All that is needed is for government and international agencies to be aware of the great importance of indepth studies of Indonesian urbanization trends and issues, and to be willing to devote significant financial and human resources to study urbanization in ways that will feed usefully into the planning process.

Given the major change in the Indonesian administrative structure at the beginning of the 21<sup>st</sup> Century, leading to the devolution of many functions to the *kabupaten/kota* level, there is a need for research that links these changes to the differential growth of different kinds of urban areas in Indonesia. Has the increase in the role of *kabupaten/kota* governments relative to provincial/national governments led to any change in the growth rate of *kabupaten* capitals relative to that of other cities?

It would be easy to present a 'shopping list' of the kinds of research studies on urban areas that would contribute to development planning in Indonesia and that have not yet been conducted, but even restricting consideration to studies with a strong demographic base, it is clear that little attention has been paid so far to the gender aspects of urbanization. This includes the different age-sex patterns of migration to cities, differing employment opportunities for males and females in the changing urban employment mix, and gender differences in vulnerability to crime, domestic violence and discrimination. The inter-relationships between urbanization and ageing are another important area for further study, including the role of migration in modifying the proportions of the elderly in different populations, and the challenges they face in urban and rural areas. Such studies could be of great importance for policymakers responsible for planning effectively for Indonesia's ageing population.

There has been a dearth of spatial analysis and thematic mapping using the census data, and even less mapping of change. A key aspect requiring in-depth study is the pattern of changes over time in the status of *desa* from rural to urban, revealing 'in situ' urbanization. What is needed is not only analysis of changes in the urban or rural status of *desa*, but also of boundary changes as new districts, sub-districts and villages have been created through splitting of old ones. The most recent 2010 Census boundaries need to be used as the base for providing a consistent spatial definition for such mapping.

Technological developments such as satellite imagery and use of night lights data to study urbanization should be fully utilized in Indonesian urbanization studies (see Montgomery and Balk, 2011). Data on traffic flows, school enrolment, housing construction, urban land values, and factory employment need to analysed against trends in population change, to produce a comprehensive picture of urbanization trends in Indonesia and the factors driving them.

#### ANNEX 1.

## URBAN DEFINITIONS IN INDONESIA

#### **BPS Definitions**

The definitions of urban and rural greatly vary from country to country, making international comparisons on urbanization difficult (Tacoli, 1998; Cohen, 2004; Alkema, Jones and Lai, 2014). In Indonesia, there are two alternative definitions of 'urban'; one is administrative, in which local government units (*kota*) are given official status as municipalities, and the second is functional, where each of the smallest administrative units (*desa*) is given a functional urban or rural status according to their own characteristics (Firman, 2007).

Urban and rural criteria in Indonesia have changed significantly over population census periods (see Annex Table 1). The first population census in 1961 defined a locality as 'urban' when it met the three following criteria: 1) it was an administratively-defined urban area (*kota madya*), 2) it was a first level (province) or second level (*kabupaten*) capital which did not have *kota madya* status, or 3) it was another population centre which could be defined as essentially urban in nature. In principle, areas with more than 80 per cent of the labor force working outside of agriculture were considered urban, even if the area was not located in a municipality and/or the capital city of district. However, in practice this was generally done by local consensus, meaning there was no statistical basis for systematic application (Milone, 1966, Ch. 7). In the population census of 1971, the criteria of having 50 percent or more of the population working outside of agriculture and the presence of three urban facilities (hospital/clinic, school and electricity) were added, but again there was no systematic checking of this (Sigit and Sutanto, 1983).

As noted by Gardiner (1993:3), there are problems with this kind of framework. Rigidities in administrative boundaries could sometimes lead to substantial over-statement of the actual urban population, if large rural populations were included within the boundary. Conversely, populations could also be understated if boundaries excluded significant urban areas adjacent to, but physically outside, official boundaries.

The decision was then made to move to a functional basis for classifying urban populations for the Indonesian population censuses of 1980 and 1990, in order to give a more accurate estimate of the actual urban population, provide a basis to include processes of rural-urban transformation, and to achieve greater transparency in the calculation process (Gardiner, 1993: 4). The process was based on a classification of each of the smallest administrative units in Indonesia, the village (desa/keluruhan), as either rural or urban. A scoring system was used, incorporating three variables: population density, the proportion of households engaged primarily in agricultural activities, and the possession of key 'urban' facilities and services. For each of these variables, a village could be allocated a score between 1 and 10, rising as population density and the number of urban facilities increased and the proportion of households in agriculture decreased. Villages scoring above 21 were automatically considered urban, those with scores below 18 were considered rural, and those with scores of 19 or 20 were re-assessed. It should be noted that maximum values for any single criterion were not required for a village to be classified as urban. Thus, for example, a village did not have to have a population density above 5000 per square km to be considered urban, provided that it had a high score on other criteria. This point was misunderstood by many commentators.

Using the above criteria, the Central Board of Statistics (CBS) used a more technical scoring system in the population censuses of 2000 and 2010 to categorize a locality as 'rural' or 'urban'. There were some changes in the definition of urban, modifying variables of population density and the percentage of households working in the agriculture sector. A fundamental change was also applied for the urban facilities scoring system, by including accessibility. Although such a system has its weaknesses, the classification system is still very useful in studying urbanization at the macro level of analysis.

ANNEX TABLE 1.

Changes of urban and rural criteria in Indonesia

Year		Criteria of	urban area		
1961 Population Census	Rural area classified as i) Rural area located ii ii) Rural area located ii iii) More than 80 perce rural area is not loc	n municipality n the capital city of c	listrict rking in non agricul	ture sector	r, although
1971 Population Census	Rural area classified as urban area if one of the four following criteria are fulfilled:  i) Rural area located in municipality  ii) Rural area located in the capital city of district  iii) More than 80 percent of population working in non agriculture sector  iv) More than 50 percent of population working in non agriculture sector and at least has three urban facilities (hospital/clinic, school and electricity)				
1980 and 1990 Population	A scoring technique wa square km, percentage of urban facilities. The	of household worki	ng in agriculture se	ctor and th	
Census	Population density (per sq. km)	Households in agriculture (%)	Number of urban facilities*	Score	
	<500	>95	-	1	
	500-999	91-95	0	2	
	1000-1499	86-90	1	3	
	1500-1999	76-85	2	4	
	2000-2499	66-75	3	5	
	2500-2999	56-65	4	6	
	3000-3499	46-55	5	7	
	3500-3999	36-45	6	8	
	4000-4999	26-35	7	9	
	>4999	<26	8	10	
	*Facilities included: primary school, junior high school, senior high school, cinema, hospital, primary health centre, road useable by 3- or 4-wheel motorized vehicle, post office, permanent market, shopping centre, bank, factory, restaurant, public electricity and party equipment rental service.				
2000 5!	Source: Sigit and Sutanto, 1983		atoma fourth	laa af	.latia.a
2000 and 2010 Population Census	There were some change density and percentage change was also applied to the facilities.	of household work	ing in the agricultur	e sector. A	fundamental

Source: adopted from Sigit and Sutanto 1983; Gardiner, 1993; and the Draft National Report on Habitat 2014, Urban Demography

#### Definitions of village (desa) and rural area (Kawasan Perdesaan)

Annex Table 2 shows the distribution of rural villages (desa) based on Village Potential (PODES) Data 2005 and 2011. There are two terms in Indonesia related to rural (kawasan perdesaan) and village (desa) as mentioned in Law No. 6/2014 on Village (desa) and Law No. 26/2007 on Spatial Planning<sup>8</sup>. Rural is defined as an area which has agriculture as the main economic activity, including natural resource management.

ANNEX TABLE 2.

Distribution of rural village (desa) in Indonesia 2005-2011

		2005	;		2011			
	Within the region (%)		% of	Within the region (%)			% of	
Region	Least developed (Tertinggal)	Developing (Berkem- bang)	Self- Developed (Mandiri)	national 'desa'	Least developed (Tertinggal)	Developing (Berkem- bang)	Self- Developed (Mandiri)	national 'desa'
Sumatera	18.3	71.1	10.5	30.3	22.8	67.9	9.3	33.3
Jawa and Bali	1.5	73.3	25.1	37.1	1.8	53.8	44.4	31.8
Nusa Tenggara	17.9	72.5	9.5	5.0	55.6	37.6	6.9	5.0
Kalimantan	13.9	76.5	9.5	8.9	49.0	43.5	75	8.5
Sulawesi	7.3	82.9	9.9	11.7	28.8	61.4	9.8	12.2
Maluku	22.3	72.5	5.2	2.3	64.7	32.2	3.1	2.6
Papua	51.9	45.9	2.2	4.7	89.5	9.8	0.7	6.6
National	12.1	72.7	15.2	100	26.2	54.3	19.5	100
Number of Villages at national level	8,445	50,873	10,635	69,953	20,939	43,391	15,609	79,939
Western Part of Indonesia	9.1	72.4	18.5	67.4	12.3	60.8	26.9	65.1
Eastern Part of Indonesia	18.2	73.5	8.3	32.6	57.5	36.9	5.6	34.9

Source: Village Potential (Potensi desa) 2005 and 2011. Note: Includes urban villages (Kelurahan)

Village and Customary Village (rural neighborhood) is defined as a legal administrative region which has autonomous authorities to regulate and manage their own government and community interest, based on the initiative of the local community, express opinions and/or following traditional *adat* procedures under the jurisdiction of Government of Indonesia. The village government is led by the head of the village, who is directly elected by the local community.

<sup>8</sup> Gol uses the term Regional Government (*Pemerintah Daerah*) for sub-national governments, including Provinces (*Provinsi*), and below that local governments that comprise Cities (*kota*), and Districts (*kabupaten*). Cities and Districts have the same administrative status and a similar government apparatus, the difference being mainly that Regencies/Districts have a preponderantly rural economy.

#### City as an administrative region.

Although debates on urban and rural definitions have been taking place for many years, they have not had much influence on the measurement of the urban and rural population, or the delineation of individual cities and towns by the Government of Indonesia. In fact, urban and rural population data is based on traditional estimates of urbanization trends using Government definitions and administrative boundaries, and these are still used in the formulation of National Urban Development Policy and Strategy (KSPN, 2013). The National Development Planning Board (Bappenas) used three administrative categories of urban areas referred to in Law No. 32/2004 on Local Governance (administrative decentralization). These include: i) urban areas as autonomous regions known as city governments, ii) urban areas within district boundaries (district capital towns), and iii) urban areas spilling over into one or more adjacent administrative areas. In legal terms of administrative regions, Indonesia in 2015 had 34 provinces, 98 autonomous city governments<sup>9</sup> and 415 district governments.

In addition, the National Development Planning Board (Bappenas) also classified the autonomous cities (*kota*) based on population size referring to the urban area's classification in Law No. 26/2007 on Spatial Planning. These include the following categories: i) metropolitan city with a population above 1 million, ii) large city with a population between 500,000 to 1 million, iii) medium city with a population between 100,000 to 500,000 and iv) small city with a population between 50,000 to 100,000. Thirty-four of the *kota* listed were established in the period since decentralization (1999-2009), and their number is likely to increase in the future as a result of continued upgrading of district capital towns (IKK) to cities (*kota*), in order to provide them with administrative powers commensurate with their population size and economic importance, thus separating them from their former districts. The number of IKK may also increase as a result of further subdivision of districts. Their numbers and classification in terms of population size can be seen in Annex Table 3.

ANNEX TABLE 3:
Bappenas classification of urban areas and population distribution in 2010

No	Classification	Population	Number	Pop. Combined	%
1	Metropolitan Cities	More than 1 million	14	27,396,616	11.5
2	Large Cities	Between 500,000 and 1 million	16	11,378,527	4.8
3	Medium Cities	Between 100,000 and 500,000	57	11,151,756	4.7
4	Small Cities	Up to 100,000	11	491,261	0.2
		Kota total	98	50,418,160	21.2
5	Other urban areas*	Total		67,902,096	28.6
		Urban areas total		118,320,256	49.8

**Source:** Adapted and elaborated from *Bappenas KSPN* 2011 and *BPS* Data 2012. \*Includes *kabupaten* capitals, *kecamatan* capitals and urban villages not included in any of the other categories, with widely varying populations.

<sup>9</sup> Central Jakarta has fewer than 1 million inhabitants and is therefore not classified as 'Metropolitan' but as 'Large'.

The procedure to have an urban area classified as a *kota* is quite complex, involving a proposal from the provincial parliament to the Ministry of Home Affairs for a particular town to be awarded the status of *kota*. Any new *kota* must consist of at least four *kecamatan*, and must also meet a number of other criteria, including social, political and demographic aspects and administrative capability.

#### **ANNEX 2.**

# MEGA URBAN REGIONS IN INDONESIA BASED ON SPATIAL PLANNING DELINEATION AREA

#### **National Spatial Plan (RTRWN)**

Indonesia National Spatial Plan (RTWN) has defined National Strategic Areas (KSN) as prioritized spatial planning regions, because they have very significant influence on national sovereignty, national defence and security, social, economic, cultural and environmental aspects, as well as world heritage sites. There are 7 (seven) metropolitan urban areas included as KSN. These are:

- 2. Kawasan Perkotaan Medan Binjai Deli Serdang Karo (Mebidangro)
- 3. Kawasan Perkotaan Jabodetabek-Punjur including Kepulauan Seribu
- 4. Kawasan Perkotaan Cekungan Bandung
- 5. Kawasan Perkotaan Kendal Demak Ungaran Salatiga Semarang –Purwodadi (Kedung Sepur)
- 6. Kawasan Perkotaan Gresik Bangkalan Mojokerto Surabaya Sidoarjo Lamongan (Gerbangkertosusila)
- 7. Kawasan Perkotaan Denpasar Badung Gianyar Tabanan (Sarbagita)
- 8. Kawasan Perkotaan Makassar Maros Sungguminasa Takalar (Mamminasata)

The Central Government has the authority to formulate spatial planning for national strategic areas, which are then stipulated as Presidential Decrees. Up to now, there have been 4 (four) Presidential Regulations stipulated for Mebidanggro, Jabodetabek-Punjur, Sarbagita and Maminasata

#### Coverage area of mega-urban regions

No	Mega-urban region	Coverage area	Reference
1.	Medan, Binjai, Deli Serdang, Karo (Mebidangro)	<ul> <li>Mebidangro covers 52 sub-districts:</li> <li>All sub-districts in the City of Medan (21 sub-districts)</li> <li>All sub-districts in the City of Binjai (5 sub-districts)</li> <li>All sub-districts in the District of Deli Serdang (22 sub-districts)</li> <li>4 (four) sub-districts in the District of Karo</li> </ul>	Presidential Regulation No. 62 Year 2011
2.	Jabodetabek- Punjur	Jabodetabek-Punjur covered the following sub- districts:  All sub-districts in the City of Jakarta  All sub-districts in the City of Bogor  All sub-districts in the City of Depok  All sub-districts in the City of Tangerang  All sub-districts in the City of Tangerang Selatan  All sub-districts in the City of Bekasi  All sub-districts in the District of Bogor  All sub-districts in the District of Tangerang  All sub-districts in the District of Bekasi  All sub-districts in the District of Gekasi  All sub-districts in the District of Gekasi  4 (four) sub-districts in the District of Cianjur	Presidential Regulation No. 54 Year 2008
3.	Cekungan Bandung	Cekungan Bandung covered the following sub- districts:	West Java Spatial Plan (Local Regulation)

No	Mega-urban region	Coverage area	Reference
4.	Kedung Sepur	<ul> <li>Kedung Sepur covered the following sub-districts:</li> <li>All sub-districts in the City of Semarang</li> <li>All sub-districts in the City of Salatiga</li> <li>All sub-districts in the District of Semarang</li> <li>All sub-districts in the District of Kendal</li> <li>All sub-districts in the District of Demak</li> <li>All sub-districts in the District of Grobogan</li> </ul>	Technical Study on Kedung Sepur, 2013
5.	Gerbangkertasusila	Gerbangkertasusila covered the following sub- districts:  All sub-districts in the City of Surabaya  All sub-districts in the District of Gresik  All sub-districts in the District of Sidoardjo  All sub-districts in the District of Lamongan  All sub-districts in the District of Mojokerto  All sub-districts in the District of Bangkalan	
6.	Sarbagita	<ul> <li>Sarbagita covered 15 sub-districts:</li> <li>All sub-districts in the City of Denpasar (4 sub-districts)</li> <li>5 (five) sub-districts in the District of Badung</li> <li>4 (four) sub-districts in the District of Gianyar</li> <li>2 (four) sub-districts in the District of Tabanan</li> </ul>	Presidential Regulation No. 45 Year 2011
7.	Maminasata	<ul> <li>Maminasata covered 15 sub-districts:</li> <li>All sub-districts in the City of Makasar (14 sub-districts)</li> <li>All sub-districts in the District of Takalar (9 sub-districts)</li> <li>11 sub-districts in the District of Gowa</li> <li>12 sub-districts in the District of Maros</li> </ul>	Presidential Regulation No. 45 Year 2011

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## Glossary

**Ageing Index**; The ageing index is calculated as the number of persons 60 years old or over per hundred persons under age 15.

**Agglomeration Index**; a measure of urban concentration, using three factors: population density, the population of a large urban centre and travel time to that large urban centre.

**Circular migration**; the temporary and usually repetitive movement of a migrant between home and host areas, typically for the purpose of employment

**Cohort**; a group of people sharing a common temporal demographic experience who are observed through time. For example, the birth cohort of 1900 is the people born in that year. There are also marriage cohorts, school class cohorts, and so forth.

Commuter; someone who travels on a daily basis between home and workplace in a different location

**Dependency ratio**; the ratio of the economically dependent part of the population to the productive part; defined as the ratio of children (those aged 0-14 years) and the elderly (those aged 65 years and over) to the working age population (those aged 15-64 years).

Desa; a village that has autonomous authority

**Educational attainment**; the educational level completed by a person, verified with the receipt of a diploma or a letter of completion/certificate.

**Employment status** is the status of a person at the place where he/she works. Categories include:

- 1. Own-account worker, is a person who works at her/ his own risk without being assisted by a paid or unpaid worker.
- **2. Employer assisted by temporary workers/unpaid worker**, a person who works at her/his own risk and is assisted by temporary worker/unpaid worker.
- **3. Employer assisted by permanent workers/paid workers**, is a person who does his/her business at her/his own risk and is assisted by at least one paid permanent worker.
- **4. Employee** is a person who work permanently for other people or institution/office/company and gains some money/cash or goods as a wage/salary.
- **5. Casual employee**, is a person who does not work permanently for other people/employer/ institution and receives money or goods as a wage/salary either based on a daily or contract payment system.
- **6. Family/Unpaid worker**, is a person who works for other people without pay in cash or goods. These unpaid workers could be:
  - a. Family members who work for another person in their family, e.g. a wife or child who helps their husband or father work in the fields and is unpaid.
  - b. A non-family member who works for another person but still has family relations, such as those who help their family relatives to sell goodsin a minimarket and are unpaid.
  - c. Other persons, who are not family members or family relatives but work for another person, such as a person who weaves hats for their neighbor's home industry business, and is unpaid.

**Four-city primacy index**; the population of the largest city divided by the sum of the populations of the next three largest cities; a measure of urban primacy

"In situ" urbanization; refers to the change of status of a desa from rural to urban, so that the population of the desa become urban dwellers without any change of residence

**Kabupaten**; a district, sometimes referred to as regency. A second-level administrative subdivision, on the same level as a kota, immediately below the province and above the sub-district (kecamatan). There are more than 400 kabupaten in Indonesia. A kabupaten is headed by a bupati, directly elected for a five-year term

**Kecamatan**; a sub-district, or third-level administrative subdivision, below kabupaten and kota. Headed by a camat, who is a civil servant.

**Kelurahan**; a village under the jurisdiction of the kecamatan (sub-district)

**Kota**; a city. In official terminology, this is a second-level administrative subdivision, on the same level as a kabupaten. More generally, "perkotaan" refers to matters pertaining to urban areas.

**Lebaran**; or Idul Fitri - the holiday at the end of the Muslim fasting month

**Life expectancy**; Life expectancy at a specific age is the average number of additional years a person of that age could expect to live if current mortality levels observed for ages above that age were to continue for the rest of that person's life. In particular, life expectancy at birth is the average number of years a newborn would live if current age-specific mortality rates were to continue.

**Lifetime migrant**; someone who is living in a different place from where they were born

Megacity; a very large city

**Mega-urban region (MUR)**; or 'extended metropolitan area' is used to refer to a region focusing on a major city, including the built-up areas of the urban agglomeration, as well as rural-urban fringe areas with a complex mix of activities and changing physical environment

"Million city"; a city with a population exceeding one million

**Mortality rate**; a measure of the number of deaths (in general, or due to a specific cause) in a particular population, scaled to the size of that population, per unit of time. Mortality rate is typically expressed in units of deaths per 1,000 individuals per year.

Neonatal mortality; the death of newborns before reaching 28 days of life

**Population Dynamics;** looking at "population dynamics" means going beyond mere numbers to examining trends and changes in population growth, demographic structures and societal changes, including migration, urbanization, population density and age structures (being proportions of young and older people in societies)

Post-neonatal mortality; infant deaths occurring between 28 days and 364 days of life

**Quintile**; any of the four values that divide the items of a frequency distribution into five classes with each containing one fifth of the total population

**Recent migrant**; someone who is living in a different place from where they were living five years previously

Reclassification; refers to the change of status of a desa from rural to urban or (rarely) from urban to rural

**Total Fertility Rate (TFR)**; the average number of children that would be born alive to a woman (or group of women) during her lifetime if she were to pass through her childbearing years conforming to the age-specific fertility rates of a given year.

**Transmigration program**; an official government program continued over many years to move people from densely settled Java and Bali to outer island provinces

**Urban corridor**; a corridor, not necessarily totally urbanized but with a number of urban areas located along it, linking major urban areas

**Urban primacy**; the domination of the urban hierarchy by one large city

**Urbanization**; refers to an increase in the proportion of a population living in urban areas. If population growth in a country is 2 per cent per annum, for example, and the growth of the urban population is also 2 per cent per annum, urbanization is not taking place. If, on the other hand, the urban population is increasing by more then 2 per cent per annum in a country where population growth is 2 per cent per annum, then urbanization – an increase in the urban share of the total population – is taking place.

**Urban agglomeration** - usually taken to mean a built-up or densely populated area containing the city proper, suburbs and continuously settled commuter areas or adjoining territory inhabited at urban levels of residential density.

**Zipf rank-size rule** – has to do with the pattern in the descending size of cities that is typically observed. For definition, see footnote 5.

### **APPENDIX TABLES**

APPENDIX TABLE 1
Population of main cities and towns, by province, 2000 and 2010

Province and city	Population 2000	Population 2010	% increase 2000-2010
D.I. ACEH			
Banda Aceh	216,289	223,446	3.3
Lhokseumawe	32,344	171,163	429.2
Langsa	117,256	148,945	27.0
Subulussalam	44,523	67,446	51.5
Bireun	22,892	57,874	152.8
Karang Baru	49,662	52,101	4.9
Meulaboh	38,310	49,028	28.0
Takengon	34,102	37,869	11.0
Sigli		35,506	
Sabang	23,535	28,454	20.9
Kutacane	18,457	22,307	20.9
SUMATERA UTARA			
Medan	1,904,273	2,097,610	10.2
Lubuk Pakam	330,875	351,040	6.1
Binjai	213,725	246,154	15.2
Pematang Siantar	241,480	234,698	-2.8
Padang Sidempuan	107,007	191,531	79.0
Sei Rampah	174,939	184,152	5.3
Stabat	137,019	164,908	20.4
Tanjung Balai	132,385	154,445	16.7
Kisaran	107,351	148,878	38.7
Tebing Tinggi	124,989	145,248	16.2
Rantau Prapat	103,780	133,740	28.9
Gunung Sitoli	71,214	126,202	77.2
Sibolga	81,699	84,481	3.4
SUMATERA BARAT			
Padang	713,242	833,562	16.9
Payakumbuh	97,889	116,825	19.3
Bukit Tinggi	91,983	111,312	21.0
Batu Sangkar	98,402	103,658	5.3
Parit Malintang	89,639	86,627	-3.4
Pariaman	74,336	79,043	6.3
Solok	48,120	59,396	23.4

Province and city	Population 2000	Population 2010	% increase 2000-2010
Sawah Lunto	50,868	56,866	11.8
Padang Panjang	40,139	47,008	17.1
Painan	38,508	43,302	12.4
RIAU			
Pekan Baru	585,440	897,767	53.3
Dumai	173,788	253, 803	46.0
Tembilahan	80,587	112,173	39.2
Bagan Siapi api	68,372	81,984	19.9
Bengkalis	56,515	72,221	27.8
Pangkalan Kerinci	53,303	66,288	24.4
Bangkinang	37,684	43,946	16.6
Rengat	36,721	42,222	15.0
KEPULAUAN RIAU			
Batam	437,358	944,285	115.9
Tanjung Pinang	137,333	187,359	36.4
Tanjung Balai Karimun	75,033	96,967	29.2
Bandar Seri Bintan	54,196	37,197	-31.4
JAMBI			
Jambi	416,841	531,857	27.6
Sungai Penuh	88,271	117,360	33.0
Kuala Tungkal	47,032	64,379	36.9
Sarolangun	44,671	46,098	3.2
Bangko	23,020	44,881	95.0
Muara Bungo	39,398	32,397	-17.8
Muara Bulian	25,440	26,056	2.4
SUMATERA SELATAN			
Palembang	1,451,419	1,455,284	0.3
Lubuk Linggau	124,713	201,308	61.4
Prabumulih	89,568	161,984	80.9
Pagar Alam	118,445	126,181	6.5
Baturaja	99,071	113,077	14.1
Indralaya	133,542	100,017	-25.1
Lahat	72,128	87,941	21.9
Sekayu	30,204	44,734	48.1
Muara Enim	29,116	41,483	42.5
Kota Kayu Agung	31,846	40,376	26.8
BANGKA BELITUNG			

Province and city	Population 2000	Population 2010	% increase 2000-2010
Pangkal Pinang	125,319	174,758	39.5
Sungai Liat	67,504	82,635	22.4
Manggar	53,496	66,916	25.1
Toboali	26,250	37,247	41.9
Mentok	19,021	36,339	91.0
BENGKULU			
Bengkulu	279,753	308,544	10.3
Curup	87,262	95,945	10.0
Manna	34,618	42,533	22.9
Kepahiang	19,704	24,556	24.6
Argamakmur	19,137	19,769	3.3
LAMPUNG			
Bandar Lampung	742,749	881,801	18.7
Gunung Sugih	259,014	169,432	-34.6
Pringsewu	179,032	153,061	-14.5
Metro	118,146	145,471	23.1
Kotabumi	92,328	105,853	14.6
Kalianda	30,751	37,974	23.5
DKI JAKARTA			
DKI Jakarta	8,356,489	9,607,787	15.0
JAWA BARAT			
Bandung	2,136,260	2,394,873	12.1
Bekasi	1,663,802	2,334,871	40.3
Depok	1,143,403	1,738,570	51.8
Bogor	750,819	950,334	26.6
Karawang	660,806	829,761	25.6
Cikarang		712,111	
Tasikmalaya	602,145	635,464	5.5
Cimahi	442,077	541,177	22.4
Garut	273,364	507,489	85.6
Purwakarta	276,595	419,885	51.8
Sukabumi	252,420	298,681	18.3
Cirebon	272,263	296,389	8.9
Kuningan	160,368	188,078	17.3
Banjar	156,555	175,157	11.9
Cianjur	128,170	165,420	29.1
Indramayu	110,899	156,382	41.0

Province and city	Population 2000	Population 2010	% increase 2000-2010
Sumedang	99,407	157,960	58.9
Telukjambe Timur	107,923	126,616	17.3
Cicurug	94,706	123,088	30.0
Ciamis	86,905	117,583	35.3
Subang	79,413	117,238	47.6
Batang		109,255	
Jatinangor	83,206	107,695	29.4
Cipanas		103,911	
Majalengka	54,691	100,238	83.3
Kecamatan with urban population	above 100,000 in:		
Kapubaten Bandung		1,398,106	10 kecamatan
Kab. Bandung Barat		420,438	3 kecamatan
Kapubaten Bekasi		358,579	2 kecamatan
Kapubaten Bogor		1,970,155	10 kecamatan
Kapubaten Cirebon		1,550,882	9 kecamatan
BANTEN			
Tangerang	1,325,854	1,798,601	35.7
Tangerang Selatan	863,575	1,290,322	49.4
Serang	458,587	577,785	26.0
Cilegon	294,936	374,559	27.0
Pandeglang	158,598	166,632	5.1
Rangkasbitung	93,422	108,137	15.8
Kecamatan with urban population kabupaten Tangerang	n above 100,000 in	1,033,999	6 kecamatan
JAWA TENGAH			
Semarang	1,298,643	1,555,984	19.8
Kudus	477,509	629,011	31.7
Surakarta	490,383	499,337	1.8
Pekalongan	261,308	281,434	7.7
Cilacap	223,641	272,191	21.7
Jepara	262,587	264,749	0.8
Pemalang	146,743	257,519	75.5
Tegal	235,443	239,599	1.8
Purwokerto	213,920	233,951	9.4
Brebes	105,398	208,460	97.8
Salatiga	144,788	170,332	17.6
Sragen		150,368	

Province and city	Population 2000	Population 2010	% increase 2000-2010
Klaten	115,511	124,487	7.8
Magelang	115,271	118,227	2.6
Sukoharjo	74,670	117,223	57.1
Kecamatan with urban population kabupaten Tegal	above 100,000 in	295,358	2 kecamatan
D.I. YOGYAKARTA			
Sleman	738,623	782,710	6.0
Bantul	561,938	543,379	-3.3
Yogyakarta	396,711	388,627	-2.0
Wates	63,449	66,094	4.2
Wonosari	34,875	51,198	46.8
JAWA TIMUR			
Surabaya	2,599,796	2,765,487	6.4
Sidoardjo	1,339,311	1,772,043	32.3
Malang	756,982	820,243	8.4
Jombang	379,005	374,797	-1.1
Gresik	303,544	362,019	19.3
Nganjuk	336,439	353,044	4.9
Jember	291,045	332,611	14.3
Kediri	244,519	268,507	9.8
Tulungagung	257,460	236,283	-8.2
Probolinggo	191,522	217,062	13.3
Banyuwangi	101,813	212,411	108.6
Batu	77,492	190,184	145.4
Pasuruan	168,323	186,262	10.7
Madiun	163,956	170,964	4.3
Situbondo	145,835	155,321	6.5
Blitar	119,372	131,968	10.6
Mojokerto	108,938	120,196	10.3
BALI			
Denpasar	532,440	788,589	48.1
Mangapura/Badung	267,488	401,171	50.0
Gianyar	227,588	378,288	66.2
Singaraja	275,610	313,292	13.7
Tabanan	197,832	232,798	17.7
Negara	163,392	185,674	13.6
Amlapura	114,676	127,766	11.4

Province and city	Population 2000	Population 2010	% increase 2000-2010
Semarapura	110,366	125,433	13.7
Bangli	113,258	125,275	10.6
NUSATENGGARA BARAT			
Mataram	315,738	402,843	27.6
Bima	111,153	142,579	28.3
Selong	87,745	135,650	54.6
Praya	54,775	103,405	88.8
Sumbawa Besar	86,252	83,198	-3.5
Gerung	92,841	64,313	-30.7
Dompu	22,872	42,040	83.8
NUSATENGGARA TIMUR			
Kupang	237,271	336,239	41.7
Ende	60,101	81,028	34.8
Atambua	41,039	74,903	82.5
Ruteng	55,005	61,552	11.9
Kalabahi	27,001	37,322	38.2
Soe	26,295	35,668	35.6
Larantuka	27,025	32,820	21.4
Kefamenanu	11,787	24,430	107.3
KALIMANTAN BARAT			
Pontianak	464,534	554,764	19.4
Singkawang	77,316	186,462	141.2
Sungai Raya	120,530	143,930	19.4
Ketapang	70,327	87,521	24.4
Sintang	31,420	54,861	74.6
Sanggau	25,681	38,900	51.5
Nenga Pinoh	11,344	24,750	118.2
Mempawah	20,966	23,490	12.0
KALIMANTAN TENGAH			
Palangka Raya	158,770	220,962	38.4
Sampit	134,174	115,585	-13.8
Pangkalan Bun	144,950	107,784	-25.6
Kuala Kapuas	8,510	59,772	602.4
Buntok	23,549	30,319	28.7
Muara Teweh	26,721	33,091	23.8
KALIMANTAN SELATAN			
Banjarmasin	527,415	625,481	18.6

Province and city	Population 2000	Population 2010	% increase 2000-2010	
Banjar Baru	123,979	199,627	61.0	
Martapura	81,317	102,415	25.9	
Kotabaru	55,160	68,643	24.4	
Batulicin	37,175	63,927	72.0	
Amuntai	36,979	52,555	42.1	
Tanjung	34,657	49,040	41.5	
Barabai	30,226	44,353	46.7	
KALIMANTAN TIMUR				
Samarinda	521,619	727,500	39.5	
Balikpapan	409,023	557,579	36.3	
Bontang	99,617	143,683	44.2	
Tanjung Redeb	50,984	89,688	75.9	
Sangata	39,409	85,541	117.1	
Tenggarong	44,048	71,097	61.4	
Tana Paser	22,598	49,674	120.8	
KALIMANTAN UTARA				
Tarakan	116,995	193,370	65.3	
Nunukan	26,817	45,876	71.1	
Tanjung Selor	19,117	29,997	56.9	
SULAWESI UTARA				
Manado	372,887	410,481	10.1	
Bitung	140,270	187,652	33.8	
Kotamobagu	50,889	107,459	111.2	
Tomohon	43,749	91,553	109.3	
Airmadidi	19,134	62,936	228.9	
Tondano	29,617	40,922	38.2	
Tahuna	20,450	26,297	28.6	
GORONTALO				
Gorontalo	134,931	180,127	33.5	
Limboto	26,950	52,685	95.5	
Marisa	2,201	17,769	707.3	
SULAWESI TENGAH				
Palu	263,826	336,532	27.6	
Luwuk	44,870	58,808	31.1	
Toli-Toli	36,338	52,312	44.0	
Poso	12,357	34,009	175.2	
Bora	6,422	24,785	285.9	

Province and city	Population 2000	Population 2010	% increase 2000-2010	
Buol	7,055	22,320	216.4	
Parigi	12,617	21,818	71.9	
SULAWESI SELATAN				
Makassar	1,100,019	1,338,663	21.7	
Sungguminasa	136,861	195,553	42.9	
Palopo	108,836	147,932	35.9	
Pare Pare	108,258	129,262	19.4	
Watampone	89,863	104,796	16.6	
Turikale	51,436	89,502	74.0	
Pinrang	54,635	67,722	24.0	
Pangkajene	37,310	51,551	38.2	
Bulukumba	49,018	47,886	-2.3	
Sinjai	38,930	47,020	20.8	
Bantaeng	38,128	46,063	20.8	
SULAWESI TENGGARA				
Kendari	200,474	289,966	44.6	
Bau-bau	106,092	136,991	29.1	
Kolaka	34,665	45,766	32.0	
Raha	32,905	42,495	29.1	
Unaha	11,516	18,650	61.9	
SULAWESI BARAT				
Majene	45,705	58,402	27.8	
Polewali	41,425	52,717	27.3	
Mamuju	21,185	44,444	109.8	
MALUKU				
Ambon	186,911	331,254	77.2	
Tual	25,005	58,082	132.3	
Masohi	28,717	31,480	9.6	
Dobo	16,194	29,214	80.4	
Namlea	11,418	26,391	131.1	
MALUKU UTARA				
Ternate	152,097	185,705	22.1	
Soa Siu	30,976	90,055	190.7	
Tobelo		26,806		
Sanana	11,049	25,183	127.9	
PAPUA				
Jayapura	155,548	256,705	65.0	

Province and city	Population 2000	Population 2010	% increase 2000-2010	
Mimika		106,529		
Merauke	21,907	86,782	296.1	
Nabire	14,252	61,696	332.9	
Wamena	14,765	37,467	153.8	
Biak	20,193	36,017	78.4	
Serui	10,344	35,610	244.3	
PAPUA BARAT				
Sorong	96,598	190,625	97.3	
Manokwari	30,636	136,302	344.9	
Kaimana	6,196	20,844	236.4	
Fakfak	14,024	19,885	41.8	

#### Notes on Appendix Table 1

For Java, this table only includes towns and cities with populations above 100,000 in 2010. For some of the smaller provinces in other islands, however, there are very few large towns and cities, so much smaller towns are included, sometimes with populations as small as 20,000.

For 2010, the populations of the cities and towns that were not autonomous city governments were estimated from the urban populations at the *kecamatan* and *desa* level, checked against maps using GPS to determine contiguous urban areas. For West Java, Central Java, East Java and Banten, populations are not given separately for all towns that make up the extended urban areas of Jakarta, Bandung, Cirebon, Semarang and Surabaya. Rather, the total urban populations of all the *kecamatan* with urban populations above 100,000 in the relevant *kabupaten* are listed. The populations of most of these *kecamatan* are 100% urban, and almost all of the rest are more than 90% urban.

For 2000, the data was only made available to the authors shortly before publication of this report. The populations of the cities and towns that were not autonomous city governments at the time of the 2000 Census were obtained by including the areas of the relevant *kecamatan* designated as urban. However, it was not possible to check these in detail against maps, as had been done for the 2010 populations. Therefore, the level of reliability of the 2000 estimates is lower. There are clear anomalies in some cases between the 2000 and 2010 estimates, including cases where populations increased by over 200% over the period, or declined significantly. There are also missing values for some towns in 2000. The 2000 estimates, and rates of increase or decrease between the time periods should therefore be treated with caution.

APPENDIX TABLE 2
Percentage of lifetime in-migrants, urban and rural areas, by province, 2000 and 2010

Describera	Urban	areas	Rural areas		
Province	2000	2010	2000	2010	
Aceh	7.4	28.5	5.1	8.2	
North Sumatra	5.5	25.9	2.7	12.1	
West Sumatra	9.0	26.2	4.5	9.5	
Riau	39.4	47.2	26.8	36.9	
Riau Islands		60.6		17.8	
Jambi	26.9	34.3	22.2	27.5	
South Sumatra	11.2	26.5	16.1	19.6	
Bengkulu	29.7	40.5	19.8	22.4	
Lampung	21.2	30.1	22.6	29.2	
Bangka Belitung	12.2	27.6	9.2	18.4	
DKI Jakarta	42.4	44.6			
West Java	16.3	27.1	1.9	3.2	
Central Java	4.1	14.3	1.1	3.6	
DI Yogyakarta	19.3	32.4	2.9	6.7	
East Java	4.1	20.4	1.0	3.6	
Banten	37.7	41.1	4.3	3.2	
Bali	12.9	32.5	1.3	4.9	
NTB	5.0	12.2	1.7	4.4	
NTT	10.3	33.5	1.4	5.2	
West Kalimantan	9.1	28.4	6.5	10.3	
Central Kalimantan	29.8	40.6	21.0	25.6	
South Kalimantan	14.5	35.4	10.8	18.5	
East Kalimantan	39.4	48.1	29.1	39.0	
North Sulawesi	14.8	35.4	3.2	10.4	
Central Sulawesi	25.9	37.8	16.5	19.5	
South Sulawesi	6.6	28.1	2.2	7.9	
Southeast Sulawesi	22.6	38.4	20.1	24.4	
West Sulawesi					
Gorontalo	5.0	14.0	2.7	10.3	
Maluku	11.0	31.4	5.1	10.4	
North Maluku	12.9	36.3	7.4	11.9	
Papua	38.6	53.2	13.2	10.0	
West Papua		52.3		32.3	
INDONESIA	16.0	17.2	5.7	6.4	

Source: BPS, 2001, Tables 11.1, 11.2; BPS Website, 2010 Census. Note: Bold type used for figures above 35% (urban) or 20% (rural)

APPENDIX TABLE 3
Percentage of recent in-migrants, urban and rural areas, by province, 2000 and 2010

	Urban areas		Rural	areas	All areas	
Province	2000	2010	2000	2010	2010	
Aceh	1.7	3.0	0.7	1.0	1.6	
North Sumatra	1.7	1.3	1.1	0.9	1.1	
West Sumatra	4.5	3.9	2.2	2.4	3.0	
Riau	16.6	6.7	9.5	5.6	6.1	
Riau Islands	*	16.6	*	3.3	14.3	
Jambi	6.7	5.0	4.5	3.6	4.0	
South Sumatra	2.7	1.9	2.7	1.7	1.8	
Bengkulu	8.0	4.9	3.7	2.3	3.1	
Lampung	3.7	2.1	2.2	1.1	1.4	
Bangka Belitung	4.8	7.2	4.3	3.9	5.6	
DKI Jakarta	9.2	7.3			7.3	
West Java	5.6	3.9	1.3	0.5	2.7	
Central Java	1.9	1.4	0.9	0.7	1.0	
DI Yogyakarta	10.5	9.7	1.7	2.0	7.1	
East Java	0.8	1.0	0.5	0.4	0.7	
Banten	13.6	7.0	3.1	0.6	4.9	
Bali	5.5	4.4	0.6	0.5	2.9	
NTB	2.5	1.7	1.4	0.8	1.2	
NTT	6.5	3.2	1.3	0.7	1.2	
West Kalimantan	2.2	1.7	1.2	0.8	1.1	
Central Kalimantan	8.6	6.0	7.5	6.3	6.2	
South Kalimantan	4.7	4.5	2.6	2.2	3.2	
East Kalimantan	8.4	7.1	5.5	6.2	6.8	
North Sulawesi	5.8	4.0	1.5	1.0	2.3	
Central Sulawesi	6.4	4.6	3.7	2.0	2.7	
South Sulawesi	2.5	2.9	0.6	1.0	1.7	
Southeast Sulawesi	8.7	4.6	6.7	2.7	3.3	
Gorontalo	2.6	4.6	0.8	2.0	2.9	
Maluku	3.3	4.0	1.4	1.1	2.2	
North Maluku	3.5	5.8	2.1	1.5	2.7	
Papua	8.2	7.9	3.0	0.9	2.7	
West Papua	**	11.1	**	6.9	8.2	
INDONESIA	4.9	3.8	1.7	1.3	2.5	

Source: BPS, 2001, Tables 12.1, 12.2; BPS website, 2010 Census. \*Included in Riau \*\*Included in Papua. Note: figures of more than 7% are in bold type

Working population aged 15+ by industry, cities included in Jakarta Urban Agglomeration (% distribution)

**APPENDIX TABLE 4** 

Industry group	DKI Jakarta	Kota Bekasi	Kota Depok	Kota Tangerang	Kota Tang. Selatan	Kota Bogor	Cols (3) to (7) combined
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
1	1.0	1.3	2.2	1.2	1.7	2.9	1.7
2	0.5	0.6	0.7	0.3	0.6	0.6	0.5
3	15.6	19.7	11.9	30.9	9.5	14.3	18.5
4	0.8	1.1	1.2	0.9	1.1	0.9	1.0
5	4.7	5.5	7.0	4.5	6.2	7.4	5.9
6	25.3	22.3	21.3	21.4	22.2	25.2	22.2
7	6.5	1.9	5.3	4.2	3.5	4.5	3.7
8	7.0	7.4	7.3	6.7	7.6	6.7	7.2
9	2.6	2.4	3.2	1.8	2.7	1.9	1.8
10	4.7	3.9	3.2	3.1	5.3	3.2	4.1
11	3.3	4.7	5.0	4.1	4.9	5.2	4.9
12	2.1	2.5	2.7	1.9	2.0	2.1	2.3
13	22.1	21.1	23.1	15.9	24.7	20.9	20.8
14	3.8	5.6	3.0	3.1	8.1	4.1	4.7
TOTAL	100	100	100	100	100	100	100
N ('000)	4,309	966	697	784	529	352	3,328

Industry groups: (1) – all agriculture, forestry, fishing (2) mining and quarrying (3) manufacturing (4) Electricity and gas (5) building and construction (6) Trade (7) Hotels and restaurants (8) Transport, storage and communication (9) Information and communication (10) Finance and insurance (11) Educational services (12) health services (13) community services (14) others.



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