AIC FOUNDING INSTITUTIONAL PARTNERS AUSTRALIA

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AIC FOUNDING INSTITUTIONAL PARTNERS INDONESIA

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Executive summary

THE CONTEXT: Indonesia and Australia

In spite of their close proximity and their sharing of an international maritime border, Indonesia and Australia are very different nations. Geographically, politically, culturally and economically they bear some similarities, but also some stark differences. As well as presenting results of the Australia Indonesia Centre Foresighting Project’s megatrend analysis, this report summarises some of the key characteristics of the two nations and their connections. Nonetheless, both nations are located in the Asian economic region which is transforming rapidly, thus presenting opportunities and necessities for greater collaboration on shared issues.

Notable facts are:
- Indonesia consists of over 17,000 islands, while Australia is predominately an arid continent.
- More than 75% of the Indonesian population lives within 100 km of a Holocene volcano (active within the last 11,700 years), while the Australian mainland has no active volcanoes.
- Indonesia has one of the highest population densities in the world (126 people per km²), while Australia has one of the lowest (2.9 people per km²).
- In 2014 the Human Development Index (HDI) of Indonesia was 0.684, ranking 108th in the world, while Australia’s HDI was 0.933, ranking 2nd in the world.
- Indonesia has the world’s largest Muslim population, while Australia has inherited predominately Judeo-Christian cultural values.
- 49% of Indonesians are urban residents, compared to 89% of Australians.

The Australia-Indonesia Centre

The Australia-Indonesia Centre (AIC) was formed in 2014 to strengthen and deepen Australia-Indonesia business, government, education, research, and community links. It has the goal of ‘building greater research collaboration between Australia and Indonesia in areas of shared challenge’. The Australian Government is providing $15 million in 2014-2017 to support the AIC. In Australia, there are five research partners: Monash University, the University of
Melbourne, the University of Sydney, the Australian National University and CSIRO. In Indonesia, there are seven partners: Institut Teknologi Bandung (ITB), Institut Pertanian Bogor (IPB), Universitas Airlangga (UNAIR), Universitas Gadjah Mada (UGM), the Institut Teknologi Sepuluh Nopember (ITS), Universitas Hasanuddin (UNHAS), and Universitas Indonesia (UI).

The Indonesian partners coordinating committee is supported by the Indonesian Ministry for Research, Technology and Higher Education – formerly supported by the Ministry for Education and Culture, Department of Higher Education (DIKTI).

The AIC will collaboratively research solutions to shared national challenges in four Clusters:

- **ENERGY**
- **INFRASTRUCTURE**
- **AGRICULTURE AND FOOD**
- **HEALTH**

Groups of Australian and Indonesian universities are being formed around each Cluster. A Cluster Investment Plan (CLIP) to guide longer term research collaboration will be developed by June 2015 for each Cluster. This is being undertaken through planning workshops held in Australia and Indonesia with Cluster researchers and consultation with government, industry, business and civil society stakeholders.

**AIC Foresighting Project**

CSIRO was invited by the AIC to assist with the Cluster planning process by applying its ‘foresighting’ approach, which can analyse key trends in each theme towards 2030 and beyond. This was intended to assist each CLIP to be evidence-based and anticipatory, and to enable a pathway to market, adoption and application. Due to the short project time frame (November 2014 – June 2015) and the advanced stage of the Clusters’ planning, the standard CSIRO method had to be accelerated. The over-arching project goal was to ‘support the development of CLIPs which focus on priority research areas of shared interest between Australia and Indonesia, and to promote integration, synergy and learning amongst the Cluster teams’.

In November 2014 – January 2015 the project engaged with Cluster teams during their planning workshops to identify shared issues, underlying drivers and potential megashocks. Potential categories of collaboration on the shared issues were as follows:

A. Australian capacity to address an Indonesian challenge
B. Indonesian capacity to address an Australian challenge
C. Shared challenge requiring collaborative skills and capacity
D. Shared challenge that has global relevance/exportable value

In February – May 2015 megatrend narratives were developed around the shared issues, and then tested and refined through discussion and validation with Cluster researchers and the AIC.

**Health Cluster megatrends**

For the Health Cluster a planning meeting with Australian Health Cluster Leads was held by teleconference on the 24th November 2014. In early December 2014 a series of stakeholder engagement meetings were undertaken in Jakarta, Indonesia with both Australian and Indonesian Cluster Leads. Following this consultation a joint Indonesian-Australian Cluster planning meeting was held on 11th December to undertake a horizon scanning exercise for the Cluster. The meeting was attended by members from the University of Sydney, University of Melbourne, UI, and UNAIR, CSIRO and the AIC. The results of these consultations were aggregated into shared issues, drivers and megashocks.

Seven broad shared issues were identified: quality of health care, rapid change in HIV, access to health care, non-communicable diseases (NCD), infant and maternal
mortality and morbidity, nutrition, and ageing population (see Table A). Five were identified as Category C or D. One issue, rapid change in HIV, was clearly identified as Category A and specific to Indonesia, while infant and maternal mortality and morbidity was considered Category A but also D. Potential megashocks varied between the issues, but the most frequently mentioned were a major health crisis (natural disasters, e.g. influenza, global pandemic), political changes, civil unrest (i.e. demand for accreditation), terror activity, climate change, HIV drug resistance, diversion of financial and personnel resources for health care, changes in Indonesia’s Sustainable Development Goals, free trade agreements and pension planning.

Based on these shared issues and drivers, four overlapping megatrends were identified: Policy Reform, My Generation, The Urban World, and Closing the Gap. Using information and data suggested by Cluster researchers during the horizon scanning, combined with a literature review on the drivers and issues identified, narratives were collated for each megatrend. These are summarised below.

THE FOUR MEGATRENDS IDENTIFIED FOR THE HEALTH CLUSTER
<table>
<thead>
<tr>
<th>SHARED ISSUE</th>
<th>CATEGORY</th>
<th>UNDERLYING DRIVERS</th>
<th>POTENTIAL MEGASHOCKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality of health care</td>
<td>C and D</td>
<td>- Millennium Development Goals (MDGs)</td>
<td>- Major health crises (natural disasters, e.g. influenza, global pandemic)</td>
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<tr>
<td></td>
<td></td>
<td>- Changing policies – value for money</td>
<td>- Political changes</td>
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<td></td>
<td></td>
<td>- Insurance</td>
<td>- Civil unrest (e.g. demand for accreditation)</td>
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<td></td>
<td></td>
<td>- Workforce capacity and performance</td>
<td>- Terror activity</td>
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<tr>
<td></td>
<td></td>
<td>- Health literacy (access to information)</td>
<td>- Climate change</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Poverty</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Health indicators and reliable data</td>
<td></td>
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<td></td>
<td></td>
<td>- Evidence based policy</td>
<td></td>
</tr>
<tr>
<td>Access to health care</td>
<td>C and D</td>
<td>- Universal health insurance</td>
<td>- Major health crises (natural disasters, e.g. influenza, global pandemic)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Geographic barriers</td>
<td>- Political changes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Health literacy</td>
<td>- Civil unrest (e.g. demand for accreditation)</td>
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<td></td>
<td></td>
<td>- Infrastructure (e.g. transport)</td>
<td>- Diversion of financial and personnel resources</td>
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<td></td>
<td></td>
<td>- Inequitable distribution of health personnel</td>
<td>- Terror activity</td>
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<tr>
<td></td>
<td></td>
<td>- Poverty</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>- Societal inequity</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>- Educational background</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Growing technology (positive)</td>
<td></td>
</tr>
<tr>
<td>Rapid change of HIV</td>
<td>A</td>
<td>- Migration patterns/employment</td>
<td>- Drug resistance</td>
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<tr>
<td></td>
<td></td>
<td>- Drug use</td>
<td>- Major health crisis (natural disasters, e.g. influenza, global pandemic)</td>
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<td></td>
<td></td>
<td>- Health literacy</td>
<td>- Political changes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Government policy (drugs, clean needles, funding)</td>
<td>- Civil unrest (e.g. demand for accreditation)</td>
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<tr>
<td></td>
<td></td>
<td>- Poverty</td>
<td>- Terror activity</td>
</tr>
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<td></td>
<td></td>
<td>- Political changes</td>
<td>- Climate change</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Free trade agreements (people movements)</td>
<td></td>
</tr>
<tr>
<td>Non-Communicable Disease (NCD)</td>
<td>C and D</td>
<td>- Growing wealth</td>
<td>- As above</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Healthy lifestyle – government policy (e.g. preventive strategies)</td>
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<tr>
<td></td>
<td></td>
<td>- Success of health strategies (i.e. reduced infant mortality, increased care)</td>
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<tr>
<td></td>
<td></td>
<td>- Increasing technology i.e. physical inactivity, cars</td>
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<td></td>
<td></td>
<td>- Growing awareness of mental disorders (i.e. impact of mental disorder on employment, public perception issues)</td>
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<td></td>
<td>- Stress and change of lifestyles, change to family patterns, social isolation</td>
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<td></td>
<td></td>
<td>- Infrastructure (e.g. parks, transportation)</td>
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<tr>
<td>SHARED ISSUE</td>
<td>CATEGORY</td>
<td>UNDERLYING DRIVERS</td>
<td>POTENTIAL MEGASHOCKS</td>
</tr>
<tr>
<td>------------------------------------------</td>
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</tr>
<tr>
<td>Infant and maternal mortality and morbidity</td>
<td>A and D</td>
<td>- Global policy (e.g. MDGs and Sustainable Development Goals (SDGs))&lt;br&gt;- Growing recognition of the importance of a healthy start to life (first 1000 days)&lt;br&gt;- Cultural and religious issues – women’s rights&lt;br&gt;- Unwanted pregnancy – access to contraception, education, abortion (safe)&lt;br&gt;- Health literacy&lt;br&gt;- Access to quality appropriate care</td>
<td>- As above&lt;br&gt;- SDGs – megashock if major change in global policy</td>
</tr>
<tr>
<td>Nutrition</td>
<td>C and D</td>
<td>- Access to fruit and vegetables&lt;br&gt;- Health literacy&lt;br&gt;- Food cost/price&lt;br&gt;- Fast food advertising and marketing/access&lt;br&gt;- Breastfeeding&lt;br&gt;- Commercialisation of food production&lt;br&gt;- Urbanisation</td>
<td></td>
</tr>
<tr>
<td>Aging population</td>
<td>C and D</td>
<td>- Improvement in health&lt;br&gt;- Urbanisation and change in family patterns&lt;br&gt;- More isolated older populations</td>
<td>- As above&lt;br&gt;- Pension planning</td>
</tr>
</tbody>
</table>
Policy Reform

Towards universal coverage:
A universal health insurance scheme has recently been introduced in Indonesia, and Australia has had Medicare since 1984. As the new scheme rolls out in Indonesia it will be important to monitor its impact especially on lower paid workers who are often the most adversely affected by health costs – a situation that is also of concern in Australia. Indonesia’s growing middle class seeking private healthcare and a subsequent increase in provision of private medicine threatens to exacerbate the disparity. Approximately 63% of the Indonesian population was covered by some form of health insurance in 2012, roughly half through the Jamkesmas scheme for the poor. The Indonesian government is striving to cover the entire population by 2019, under a single scheme managed as a non-profit entity by the national health insurance agency.

Spending on health:
Indonesia’s health reform includes improving health finance to enable Indonesians to access quality health services without the risk of financial hardship. Government commitment to meeting the health Millennium Development Goals (MDGs) is articulated in ‘A Roadmap to Accelerate Achievement of the MDGs in Indonesia’ and is exemplified by increasing expenditure and policy initiatives to improve health outcomes; legislation passed in 2009 requires 5% of the national budget and 10% of district budgets to be allocated to health. At present 2.5% of the budget goes to health; five times this amount is spent to subsidise petrol. Australia spent 9.5% of its GDP on health in 2011-12, but in 2013 spent less on health in real terms for the first time in a decade, mirroring international trends following the Global Financial Crisis.

Health sector capacity: Indonesia has a low health workforce capacity, in terms of numbers of doctors and medical staff, relative to other Southeast Asian countries. There is a perception that the quality of health services is not receiving as much attention as access and cost of services. Some studies argue for greater self-sufficiency in providing health services, including research capacity building to enable Indonesia to maintain the focus and relevance of its research.

My Generation

Slowing fertility: Today Indonesian women are on average giving birth to just two children. In some provinces the fertility rate has fallen below this level. Reducing the rate of population growth by reducing the fertility rate has been a central component of Indonesia’s development planning agenda since the late 1960s. Indonesia’s population will continue to grow, however, because of ‘population momentum’, in which future population growth is driven by increasingly higher numbers of women in the reproductive ages and, hence, by more births than deaths.

Increasing life expectancy:
Indonesians and Australians are living longer, in part driving a trend toward an older population. In 2012, life expectancy for men was 67 years, and for women was 71 years. By comparison, in Australia a baby boy born between 2010 and 2012 can expect to live to 79.9 years and a baby girl to 84.3 years. Indigenous baby boys born during the same period can expect to live to 69.1 years and Indigenous baby girls to 73.7 years, marking a significant gap with non-Indigenous Australians but above the Indonesian averages.

Maternal and Infant Health: Varied progress in Maternal, Newborn and Child Health (MNCH) outcomes has been observed across Indonesia, and disparities have widened following the decentralisation of Indonesia’s health system in 2000. While maternal mortality has decreased in recent decades, it continues to exceed the MDG target. In particular, two obstetric conditions, hypertensive disorders during pregnancy and haemorrhage, collectively account for 55% of maternal deaths. While Indonesia’s under-five mortality and infant mortality rates have fallen consistently between 1990 and 2007, the neonatal mortality rate remains high. In addition, large differences in mortality rate trends persist between socioeconomic groups, island groups, and across the urban-rural gradient. Disparity in maternal health is also evident in Australia, although in general maternal deaths are very rare. Indigenous mothers are twice as likely to die from pregnancy and childbirth complications than non-Indigenous mothers.

Over the period 2011-2013, Indonesia had universal maternal health coverage for its population and utilisation of key maternal health services (antenatal care, obstetric care,
and neonatal care) was relatively high. However, only 63% of all deliveries occurred at a health facility, even though 83% of births were attended by a skilled attendant. Despite the utilisation of services, overall there are concerns that poor levels of service delivery, combined with high fertility rates, poor maternal health and nutrition at the time of conception, are leading to high maternal mortality outcomes. Consequently there is an increasing recognition of the importance of the first 1000 days of life – the period from conception to 24 months – for ensuring positive health outcomes later in life.

**Ageing population:** Population ageing is a phenomenon in many middle-income and high-income economies. Demographic transition where fertility declines, life expectancy increases and mortality declines, is placing capacity pressures on social security and health systems internationally. The pace of ageing differs across Indonesian urban and rural regions. Where social and health systems do not meet the needs of an older population, families are absorbing the financial and social burdens associated with caring for older generations, with caring responsibilities falling primarily to women and girls in the household. Urban migration in Indonesia, especially for younger people, has increased the need for aged care supports in rural areas where the greatest health burden remains infectious disease.

**Urban World**

**City-bound:** Nine out of ten Australians live in a city. In Indonesia, just one of two people is a city-dweller, yet this number is set to rise, perhaps exceeding 70% by 2030. With urbanisation comes a number of social and cultural shifts relevant to health, notably the rise in GDP and the evolution of a ‘consuming class’, a trend that appears highly relevant to Indonesia. Other attributes of urbanisation include higher connectivity to information and access to services, with the potential to improve health literacy. On the downside, living in cities is often accompanied by busier and more sedentary, ‘fast-food’ lifestyles. Some of these trends also affect rural and remote areas, but they are especially pronounced among urban populations.

**Declining nutrition:** In parallel with economic development and urban growth, Indonesia has made considerable progress in improving the health of its population over the last two decades, but compares poorly with other countries in the region on key health and nutrition indicators. Indonesia is now experiencing the ‘Double Burden of Malnutrition (DBM)’, whereby undernutrition and overnutrition coexist across the life course in the same population. Research has shown that maternal and fetal undernutrition increases a population’s susceptibility to overnutrition and diet-related NCDs in adulthood. Health literacy has improved in both countries with increasing education and access to information; however there remains a lack of awareness of the overnutrition problem, coupled with insufficient capacity to deal with its consequences.

**Rising Non-communicable diseases (NCDs):** Globally, overweight and obesity rates have more than doubled since 1980 and NCDs are now the leading cause of death for the South Asian region. NCDs disproportionately affect the poor, lead to premature death, and manifest through a cluster of common and often interlinked risk factors. Indonesia is in the midst of a health transition where continuing infectious disease burdens co-exist in parallel to a rising tide of NCDs which are estimated to account for 71% of total deaths in 2014, up from 60% in 2007. For Australia, the figures are even more alarming with NCDs estimated to account for 91% of total deaths. These trends are increasing rapidly and show no signs of receding. NCDs present largely preventable risks and burdens to Indonesia and Australia’s public health systems, economic productivity and sustainable development.
HIV/AIDS: Indonesia has one of the fastest growing HIV epidemics in Asia. The epidemic remains largely concentrated among key socially marginalised groups including injecting drug users (IDU), men who have sex with men (MSM) and female and transgender sex workers. While national prevalence among the general population is relatively low, new infections continue to rise especially in MSM living in urban areas and IDUs. Community-led and community-managed health and social support services continue to make the strongest impacts in curbing transmission and providing support to people living with HIV (PLHIV).

Closing the Gap

Geographic disparities in health care: Despite the trend toward urbanisation, roughly half of Indonesia’s population lives in rural and remote regions, while in Australia there are also significant populations inhabiting and working in non-urban areas, albeit comprising a smaller percentage of the total population. Indonesia and Australia share inequities in access and quality of care between urban and rural areas. In Australia, many parts of rural and remote Australia lag 65 years behind urban areas in terms of access to general practitioner services. Residents in remote Mt. Isa, for example, have access to 68 equivalent full time GPs per 100,000 people — about half the 120 available to the residents of Sydney’s eastern suburbs. Rural and remote life expectancies are lower, and residents of regional and remote areas have been less likely to report very good or excellent health compared to major cities. Furthermore, Indigenous Australian health and wellbeing statistics indicate that Indigenous Australians, many of whom inhabit regional and remote areas, are much less healthy than the wider Australian population.

The social gradient of health: Inequity in health is not only defined along geographic lines. Low socio-economic groups are known to have greater morbidity than their wealthier neighbours, due to lower incomes and lower education levels. This can lead to a higher risk of health deficiencies and problems, and less capacity to address these. This implies measures to address underlying and often complex causes of inequity in health.

Next steps

The foresighting process was undertaken in a short timeframe in order to meet the advanced stage of planning for the Clusters’ CLIPs. However, the process of engagement and discussion across the Indonesian and Australian researchers in each Cluster enabled mutual learning about shared issues and identified many cross-cutting research priorities. The megatrends now provide a foundation for the justification of the CLIPs, and the prioritisation of future research so far not included in the CLIPs. These priorities will be of equal relevance to other research and development initiatives between Indonesia and Australia.
Introduction
**The Australia-Indonesia Centre**

The Australia-Indonesia Centre (AIC) was formed in 2014 to strengthen and deepen Australia-Indonesia business, government, education, research, and community links. It has the goal of ‘building greater research collaboration between Australia and Indonesia in areas of shared challenge’. The Australian Government is providing $15 million in 2014-2017 to support the AIC. In Australia, five major research partners will also contribute funding and in-kind support: Monash University, the University of Melbourne, the University of Sydney, the Australian National University and CSIRO. In Indonesia, there are seven partners: Institut Teknologi Bandung (ITB), Institut Pertanian Bogor (IPB), Universitas Airlangga (UNAIR), Universitas Gadjah Mada (UGM), the Institut Teknologi Sepuluh Nopember (ITS), Universitas Hasanuddin (UNHAS), and Universitas Indonesia (UI). The Indonesian partners coordinating committee is supported by the Indonesian Ministry for Research, Technology and Higher Education – formerly supported by the Ministry for Education and Culture, Department of Higher Education (DIKTI).

The AIC will collaboratively research solutions to shared national challenges in four major themes:

- **ENERGY**
- **INFRASTRUCTURE**
- **AGRICULTURE AND FOOD**
- **HEALTH**

Groups of Australian and Indonesian universities are being formed around each Cluster. Lead by two nominated Australian and two Indonesian institutions, and facilitated by a Cluster Coordinator, a Cluster Investment Plan (CLIP) is being developed by June 2015 for each Cluster. This is being undertaken through planning workshops held in Australia and Indonesia. Research has already begun in the Clusters, with the funding of several collaborative Small Grant Projects beginning towards the end of 2014. 23 such projects were selected and funded by the AIC, while a further 28 projects were selected and funded by DIKTI on behalf of the AIC. In addition, eight Rapid Start Projects (four funded by AIC, four by DIKTI) will commence in early 2015.

CSIRO was invited by the AIC to assist with the Cluster planning process by applying its ‘foresighting’ method, which can analyse key trends in each theme towards 2030 and beyond. This was intended to assist each CLIP to be evidence-based and anticipatory, and to enable a pathway to market, adoption and application. In addition, this process was intended to rationalise and focus the Small Grant and Rapid Start Projects towards each Cluster’s more strategic directions.

**The CSIRO foresighting method and process**

**THE VALUE OF FORESIGHTING**

There are many motivations for investing in a foresighting study. In general, foresighting can help leaders identify, anticipate and proactively respond to forthcoming change which has the potential to harm or help an organisation. Foresighting adds most value by examining issues outside an organisation’s control, such as social, technological, economic, environmental and geopolitical forces that will express themselves over a longer time frame.

In 2009 CSIRO established the CSIRO Futures Project to assist its strategic planning and investment for emerging areas of national research priority, summarised in the 2012 report ‘Our future world: Global megatrends that will change the way we live’ (see [http://www.csiro.au/Portals/Partner/Futures.aspx](http://www.csiro.au/Portals/Partner/Futures.aspx)). Since then, the CSIRO Futures Project has applied the method to support planning in national food security, mining, manufacturing, sport, tourism, cyber security, biosecurity, water supply planning and property markets. Through this experience of working with diverse industry, government and community clients, the following benefits of foresighting have become evident:
• **STRATEGIC VISION**: developing and agreeing to a shared vision and a commitment amongst stakeholders to take tactical action.

• **STAKEHOLDER ENGAGEMENT**: providing systematic collective reflection by engaging stakeholders and building collective ownership of the long-term future.

• **THOUGHT LEADERSHIP**: providing informed and credible information of future trends that may reshape a domain, sector or parts of society.

• **WISER CHOICES**: combining evidence-based information of different futures with the judgement and intuition of decision-makers.

• **A PLATFORM FOR CHANGE**: providing the environment to analyse and decide on the best options to ensure success in the coming decades.

• **RESEARCH AND INNOVATION PRIORITIES**: providing evidence of potential societal trends which require greater research investment to better understand, anticipate, manage or take advantage of their effects.

**FORESIGHTING METHOD AND PROCESS**

The foresighting method is flexible, but is usually based on three components: megatrends, megashocks and scenarios.

**Megatrends** are defined as ‘significant shifts in social, environmental, economic, technological or geopolitical conditions that have the potential to reshape the way a company, industry or society operates over several decades into the future’. Megatrends are the combination of linked trends, defined as ‘a significant pattern of activity typically occurring within an industry or societal sector, or within a localized geographic region with implications for decision-making’. When analysed in isolation, trends may have limited meaning, but when collated into megatrends they can be indicative of a broader fundamental shift in society.

**Megashocks** are similar to megatrends, but rather than emerging gradually they happen suddenly with little forewarning. Like megatrends they may be either positive or negative and create far-reaching and irreversible change to society. However, they are known risks and are defined by similar preceding historical events, but the timing, location, nature and magnitude of the impact is hard to predict. Examples include the 2008 Global Financial Crisis, which was preceded by the 1998 Asian Financial Crisis and the 1929 Great Depression, and natural disasters such as the 2004 Boxing Day Tsunami.

**Scenarios** are the range of plausible futures that may unfold, including the outcomes of megatrends and megashocks. The purpose of a scenario is not a prediction or a plan of the future, but rather it aims to challenge the mindset of the people who use them. This is usually achieved by using the scenario space and the role of megatrends and megashocks in forming future scenarios.
through a participatory planning process. In the CSIRO Futures approach megatrends and megashocks are used to identify a ‘scenario space’ (Fig. 1).

The foresighting process follows five steps (Fig. 2). Step 1 identifies the scope and key issues and questions of relevance to the project stakeholders. Step 2 conducts a ‘horizon’ or ‘environmental scan’ which casts a net over all potentially relevant patterns of change, usually within five groups: geopolitical, economic, environmental, social and technological. However, any patterns identified must be validated and salient to the stakeholder, and therefore have to be screened and prioritised. In Stage 3 the trends are collated and synthesised into megatrends, megashocks and scenarios, usually through some participatory processes with stakeholders. Stage 4 then crafts and communicates a narrative about the future, and Stage 5 integrates the narratives into the stakeholders’ strategy or decision-making processes.

Figure 2. The CSIRO Futures foresighting process
The AIC Foresighting Project

Due to the short project time frame (November 2014 – June 2015) and the advanced stage of the Clusters’ planning, the standard CSIRO method had to be accelerated. The overarching goal was ‘to support the development of CLIPs which focus on priority research areas of shared interest between Australia and Indonesia, and to promote integration, synergy and learning amongst the Cluster teams’. The design and timing of activities was dictated by each Cluster’s planning process. Also, to track the learning and integration amongst the AIC researchers resulting from the project, an evaluation methodology was applied. This was developed in collaboration with UNHAS and the University of Mataram (UNRAM, Lombok), where earlier foresighting was undertaken as part of the DFAT-CSIRO Research for Development Alliance. Based on the results, the method has been refined and applied in the AIC Foresighting Project.

The objectives of the project were:

1. For each Cluster analyse megatrends and megashocks with shared relevance for Australia and Indonesia to support the development of each Cluster’s CLIP;

2. Develop exploratory scenarios with AIC partners of Australian and Indonesian regional development to identify and integrate research priorities within and between Clusters;

3. Test and apply a method to assess the learning and integration achieved amongst AIC researchers as a result of the foresighting.
ACTIVITY

1. Horizon scanning
   - Energy horizon scanning
   - Infrastructure horizon scanning
   - Agriculture and Food horizon scanning
   - Health horizon scanning
   - Data collation

2. Cluster megatrends
   - Energy megatrends, megashocks
   - Infrastructure megatrends, megashocks
   - Agriculture and Food megatrends, megashocks
   - Health megatrends, megashocks
   - Validation and screening

3. Scenario planning workshop
   - Energy CLIP
   - Infrastructure CLIP
   - Food and Agriculture CLIP
   - Health CLIP
   - Validated megatrends

4. Foresighting evaluation method
   - UNHAS UNRAM evaluation workshops
   - Synergies and pan-Cluster priorities

5. Final integration and evaluation
   - Scenario planning workshop and evaluation

OUTPUTS

- Draft Cluster Megatrends
- Cluster Scenario Planning Report
- Evaluation Workshop Reports
- Final Megatrend Reports

Figure 3. The AIC Foresighting Project process, showing activities and outputs.
Five activities were undertaken to achieve these objectives (Fig. 3):

**ACTIVITY 1 HORIZON SCANNING (NOVEMBER 2014-JANUARY 2015):** The first step was to engage the Cluster teams in Australia and Indonesia through Cluster planning workshops and other events in November 2014 – January 2015. Horizon scanning of shared issues, drivers of those trends and potential megashocks was undertaken. Subsequent to these events the CSIRO team collated relevant data on these issues and their trends, in consultation with the Cluster researchers.

**ACTIVITY 2 CLUSTER MEGATRENDS (FEBRUARY-JUNE 2015):** The CSIRO team then collated megatrend narratives for each Cluster, and delivered these as draft reports to the Cluster teams for validation and screening. After discussion and review the narratives were finalised for each Cluster, and delivered as a megatrend report to the Cluster Leads and Coordinators. The Clusters then applied this information to justify and refine their research priorities, and included summaries of relevant information in the CLIPs.

**ACTIVITY 3 SCENARIO PLANNING WORKSHOP (APRIL 2015):** Because the planning of Small Grants and Rapid Start projects has occurred in some isolation, a more strategic exercise was required to encourage integration and synergies amongst the Clusters. A scenario planning workshop was held in Indonesia with the Cluster Leads and Coordinators to explore potential future development paths for remote and regional communities in both countries. Informed by the validated megatrends and megashocks collated in Activity 1 and 2 for each Cluster, participants developed visions and scenarios for case study locations. From the workshop, pan-Cluster synergies and research priorities were identified.

**ACTIVITY 4 FORESIGHTING EVALUATION METHOD (APRIL 2015):** To refine the evaluation method developed previously between CSIRO, UNHAS and UNRAM as part of the DFAT-CSIRO Research for Development Alliance, two 1-day workshops were held in Makassar and Lombok to repeat the exercise. These collaborations utilised Theory of Change and social learning indicators to evaluate the impacts of scenario planning for urban water infrastructure and rural livelihoods analysis.

**ACTIVITY 5 FINAL INTEGRATION AND EVALUATION:** To re-engage the Cluster teams and their CLIPs, a second scenario planning workshop will be held with all AIC researchers. This workshop will enable the revisiting of the initial scenarios developed in Activity 3 through a repeat exercise. This will promote integration and learning across the Clusters and their CLIPs, and highlight potential synergies for emerging research in 2015-2017. The evaluation methodology developed in Activity 4 will be applied at the workshop to evaluate the impacts of the project.

This report delivers Activities 1 and 2.
In spite of their close proximity and the sharing of an international maritime border, Indonesia and Australia are very different nations. Geographically, politically, culturally and economically there are some similarities, but also some stark differences. Particular similarities are large conurbations which dominate the populations of both nations, and many remote, less developed regions. In tropical northern Australia, many of the remote regions have more in common with the eastern islands of Indonesia and Papua than the rest of Australia. This section provides a background comparison of the two nations which sets the scene for the AIC Foresighting Project.
**Geography**

**INDONESIA**

Indonesia (Fig. 4) is an equatorial archipelagic island country in Southeast Asia with over 17,000 islands, of which only 6,000 are inhabited. Indonesia occupies a strategic location astride or along major sea lanes from the Indian Ocean to the Pacific Ocean extending 5,150 km east to west. The five largest islands are Sumatra, Java, Kalimantan (Indonesian Borneo), Sulawesi, and the Indonesian part of New Guinea (known as Papua) (National Geographic 2015).

Most of the larger islands are mountainous, with peaks ranging between 3,000 and 3,800 m above sea level in Sumatra, Java, Bali, Lombok, Sulawesi, and Seram. Tectonically, Indonesia is highly unstable containing the most volcanoes of any country in the world. Indonesia is located on the edges of the Pacific, Eurasian and Australian tectonic plates, part of the Pacific ‘Ring of Fire’. Of the 400 volcanoes, approximately 120 are active (Marshall 2008). More than 75% of Indonesian residents live within 100 km of a Holocene volcano (active from approximately 11,700 years ago to the present day), the highest number of people of any of the world’s volcanic regions. The combination of a densely-packed population in a volcano-rich country has led to Indonesia suffering the highest rate of eruptions resulting in fatalities and damage to human infrastructure in the world (Smithsonian Institute 2015).

Indonesia’s climate tends to be relatively even year-round. The country experiences two seasons, a wet season and a dry season, with no extremes of summer or winter. For most of Indonesia, the wet season falls between October and April and the dry season between May and September. Some regions, such as Kalimantan and Sumatra, experience only slight differences in rainfall and temperature between the seasons, whereas others, such as Lombok and Sumbawa, experience far more pronounced differences with droughts in the dry season and floods in the wet. Rainfall in Indonesia is plentiful, particularly in West Sumatra, northwest Kalimantan, West Java, and Papua.

The combination of recent volcanic activity, linked in many areas to highly fertile soils, and abundant rainfall, means that Indonesia possesses enormous agricultural potential, and it is already a major world producer of many agricultural products.

**AUSTRALIA**

Australia (Fig. 4) is an Oceanian country comprising the mainland of the Australian continent, the island of Tasmania, and numerous smaller islands. It is the world’s smallest continent and 6th-largest country by total area. Australia has six states: New South Wales, Queensland, South Australia, Tasmania, Victoria and Western Australia and two mainland territories, the Australian Capital Territory and the Northern Territory.

Australia is located on the Indo-Australian Plate, surrounded by the Indian and Pacific Oceans. It is separated from Indonesia by the Arafura and Timor seas. Australia’s size gives it a wide variety of landscapes, with tropical rainforests in the north-east, mountain ranges in the south-east, south-west and east, and dry desert in the centre. It is also the lowest, the flattest and (apart from

![Figure 4. Indonesia and Australia.](image-url)

...
Antarctica) the driest country in the world (Australian Government 2015).

Australia has some of the oldest land surface on earth, and while rich in biodiversity its soils and seas are among the most nutrient poor and unproductive in the world. This is due mainly to the country’s geological stability, which is a major feature of the Australian land mass, and is characterised by, among other things, a relative lack of significant seismic activity. Only 6% of the Australian landmass is arable (Australian Government 2015).

Rainfall in Australia is highly variable with low average annual rainfall over most of the continent and intense seasonal falls in the tropics. The rainfall pattern is concentric around the extensive arid core of the continent. The wettest regions are in far north Queensland and Tasmania. The effects of this widely varied rainfall pattern and Australia’s drainage system can lead to parts of the continent being in drought, but inundated by waters from rainfall thousands of kilometres away. This phenomena is most prevalent after heavy cyclonic rains in the north, which causes flooding in drought stricken areas in the south (Geoscience Australia 2015). Further geographical details for Indonesia and Australia are given in Table 1.

<table>
<thead>
<tr>
<th>GEOGRAPHICAL CHARACTERISTICS</th>
<th>AUSTRALIA</th>
<th>INDONESIA</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAPITAL CITY</td>
<td>CANBERRA</td>
<td>JAKARTA</td>
</tr>
<tr>
<td>Area (total)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Land</td>
<td>7.7 million km²</td>
<td>7.6 million km²</td>
</tr>
<tr>
<td>Sea</td>
<td>7.6 million km²</td>
<td>1.8 million km²</td>
</tr>
<tr>
<td>58,920 km²</td>
<td>5.8 million km²</td>
<td></td>
</tr>
<tr>
<td>Boundaries</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Land</td>
<td>none</td>
<td>2,958 km, with Timor-Leste 253 km, Malaysia 1,881 km, Papua New Guinea 824 km</td>
</tr>
<tr>
<td>Maritime</td>
<td>Papua New Guinea, East Timor and Indonesia to the north, Solomon Islands and Vanuatu to the north-east and New Zealand to the south east</td>
<td>Singapore, Malaysia, the Philippines, and Palau to the north, and Australia to the south</td>
</tr>
<tr>
<td>Coastline</td>
<td>25,760 km</td>
<td>54,716 km</td>
</tr>
<tr>
<td>Maritime claims</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Territorial sea</td>
<td>12 nm</td>
<td>12 nm</td>
</tr>
<tr>
<td>Exclusive Economic Zone</td>
<td>200 nm</td>
<td>200 nm</td>
</tr>
<tr>
<td>Natural resources</td>
<td>Bauxite, coal, iron ore, copper, tin, gold, silver, uranium, nickel, tungsten, rare earth elements, mineral sands, lead, zinc, diamonds, natural gas, petroleum</td>
<td>Petroleum, tin, natural gas, nickel, timber, bauxite, copper, fertile soils, coal, gold, silver</td>
</tr>
<tr>
<td>Land use</td>
<td>Arable land: 6.2% (includes about 27 million ha of cultivated grassland)</td>
<td>Arable land: 12.3%</td>
</tr>
<tr>
<td></td>
<td>Permanent crops: 0.1%</td>
<td>Permanent crops: 10.5%</td>
</tr>
<tr>
<td></td>
<td>Other: 93.8%</td>
<td>Other: 77.2%</td>
</tr>
</tbody>
</table>
**Population and demography**

**INDONESIA**

Indonesia’s population at the most recent census in 2010 was 237,641,326 people (BPS 2010), and is projected to increase by 28.6% to 303,382,000 by 2035 and 321,377,000 by 2050 (UN 2012a; Fig. 5).

The population growth rate from 2000-2010 was 1.39% per annum (UN 2012b), but this varied significantly by province, from 0.76% per annum in East Java to 5.39% per annum in Papua (BPS 2015a). The growth rate is forecast to decline to 0.26% per annum by 2045-2050 (UN 2012c) due to declining fertility rates linked to education and economic development.

Indonesia has one of the highest average population densities in the world at 126.4 people per km$^2$ (UN 2012d). Given the projected population growth rates, this average density will increase to 159.29 people per km$^2$ by 2030 and 168.74 people per km$^2$ by 2050. The provinces with the highest population densities are likely to be Jakarta, with a current density of 15,015 people per km$^2$, East, Central and West Java and Banten (between 800 and 1,200 people per km$^2$) and Bali (currently 702 people per km$^2$; BPS 2013a).

As of 2010, 49% of the Indonesian population is urban, but projections suggest that this will increase to 65.2% by 2035 and 70.9% by 2050 (Fig. 6).

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**Figure 5.** Historical and projected populations of Indonesia and Australia, 1950-2050 (United Nations 2012a).

**Figure 6.** Historical and projected urbanization of Indonesia and Australia 1950-2050, expressed as a proportion of the population residing mid-year in Urban Areas (UN 2014).
The population structure of Indonesia is currently heavily skewed towards the cohort of <25 years. Sixty-six percent of the Indonesian population in 2010 was in the working age years of 15-64, although there is also a significant proportion of younger people, with 28.8% aged 0-14 in 2010 (BPS 2010). The future demographic structure will reflect this, with a large middle-aged population by 2030, leading to a larger elderly cohort by 2050 (Fig. 7).

AUSTRALIA

Australia’s population is currently estimated to be 23,490,700 (ABS 2014a), and is projected to increase by 26.4% to 29,699,714 by 2035 and 33,735,400 by 2050 (UN 2012a; Fig. 5). The population growth rate was 1.76% per annum from 2005-2010, but is forecast to decline to 0.81% by 2045-50 (UN 2012b). Australia has one of the lowest average population densities in the world at 2.9 people per km² (UN 2012d). Given the projected population growth rates, this average density will increase to 3.84 people per km² by 2035 and 4.358 people per km² by 2050 (UN 2012d). The highest population densities are likely to remain in the south east cities of Melbourne and Sydney. Sydney has 114 km² with a population density of more than 5,000 people per km², while Melbourne has 34 km² at this density (Fig. 8). By comparison, London has 327 km² with a density greater than 8,000 people per km² (ABS 2014b). As of 2015, 89.4% of the Australian population is estimated to be urban, one of the highest in the world, and projections suggest that this will increase to 91.7% by 2030 and 92.9% by 2050 (UN 2014).
The population structure of Australia is currently heavily skewed towards the middle-aged cohort of 40-60 years. The future demographic structure will reflect this, with a population made up of predominately the retired (65-79 years of age) and the very old (aged 80 years plus) by 2050 (Fig. 9).

Due to its demographic structure and falling fertility rates, between 47 and 63% of Australia’s population growth each quarter is contributed by immigration (ABS 2014b). As a result, the 2011 census indicated that 26% of Australia’s population was born overseas. Of the overseas-born population, 4.3% are from the United Kingdom, 2.6% from New Zealand, 1.9% from China, and 1.7% from India. Only 0.4% of Australia’s population were born in Indonesia (ABS 2015a). Projections suggest that immigration will continue to be a significant source of population growth (ABS 2013a), but the levels will depend upon government policy and total population targets.

The movement of Australians to and from Indonesia is largely based on tourism to Bali, and this has increased steadily over the last few decades. Australia now represents the largest market by revenue for Indonesian tourism, with revenues from Australian tourists estimated at US$1.453 billion in 2012 (BPS 2013b). Notwithstanding a small decline following the 2002 Bali bombings, travel to Indonesia represented on average 11.7% of all overseas holiday travel and 7.7% on all international travel for Australians between 2000 and 2013 (TRA 2014; Fig. 10).

Figure 9. Population distribution of Australia by 5 year age group for 1950, 1980, 2010 and projected to 2050 (UN 2012e).

Figure 10. Overseas travel by Australians to Indonesia as a percentage of all overseas travel by Australians, 2000-2013 (TRA 2014).
The issue of international refugees travelling through Indonesia to seek asylum in Australia, and travelling on Indonesian vessels to reach northern Australia, continues to present a shared management challenge for Indonesia and Australia (Table 2).

### TABLE 2. ILLEGAL BOAT AND PERSON ARRIVALS BY BOAT FROM INDONESIA TO AUSTRALIA, 2009-2013 (APL 2014)

<table>
<thead>
<tr>
<th>YEAR</th>
<th>NUMBER OF BOATS</th>
<th>CREW</th>
<th>NUMBER OF PEOPLE (EXCLUDING CREW)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2009</td>
<td>60</td>
<td>141</td>
<td>2,726</td>
</tr>
<tr>
<td>2010</td>
<td>134</td>
<td>345</td>
<td>6,555</td>
</tr>
<tr>
<td>2011</td>
<td>69</td>
<td>168</td>
<td>4,565</td>
</tr>
<tr>
<td>2012</td>
<td>278</td>
<td>392</td>
<td>17,204</td>
</tr>
<tr>
<td>2013</td>
<td>300</td>
<td>644</td>
<td>20,587</td>
</tr>
</tbody>
</table>

Economies and interdependent trade

**INDONESIA**

Indonesia’s economy is currently the 16th largest in the world (Australia ranks 12th), with a nominal GDP in 2013 of US$868 billion (The World Bank 2014a). In terms of Gross Domestic Product (GDP) based on Purchasing Power Parity, Indonesia actually ranks 8th in the world, while Australia ranks 19th (IMF 2015), and due to higher predicted growth rates in Indonesia, the nominal GDP of Indonesia is also likely to surpass Australia in the years ahead. The largest single sector in the Indonesian economy is Manufacturing (non-oil and gas), followed by Agriculture, Forestry and Fisheries, and then Trade, Hotels and Restaurants. Notwithstanding short term shocks in 1982, 1985 and the massive Asian Financial Crisis in 1998, the Indonesian economy has been growing rapidly, at more than 5% per annum since the 1970s (Fig. 11). Indonesia was relatively unaffected by the 2008 Global Financial Crisis. Projections suggest that economic growth will continue to grow at around 5% per annum over the next 2 years (The World Bank 2014b), although some authors (Johansson *et al.* 2012) have predicted that this may decline to

![Figure 11. GDP growth per annum, Australia and Indonesia, 1961-2013 (The World Bank 2014a).](image)
3.4% per annum in the long-term (2030-2060) as the population ages and becomes less productive.

Exports to Australia are a small proportion (2-3%) of Indonesia’s overall exports, with Australia currently the 11th most important export destination (BPS 2015b). Australia is also a relatively small contributor to Indonesian imports and this has declined (as a share of total imports) over the last decade (Fig. 12).

AUSTRALIA

Australia’s economy is currently the 12th largest in the world in terms of nominal GDP (The World Bank 2014c). In terms of Gross Value Added and GDP, the largest sector is Financial and Insurance Services ($127 billion in 2010-11), followed by Manufacturing ($107 billion), Construction ($101 billion) and Mining ($95 billion; ABS 2012). The economy has been growing steadily at 3-4% per annum since the recession of 1993 (ABS 2012). Growth fell during the 2008 Global Financial Crisis (Fig. 11), although not as drastically as other developed nations. Projections suggest that economic growth will continue (The World Bank 2014b), but rates will decline to an average of 2.2% per annum in 2030-2060 as the population ages (Johansson et al. 2012). Annual growth rates in Australia have generally been lower than those experienced by Indonesia (Fig. 11).

Exports to Indonesia are a very small proportion of Australia’s overall exports. In 2012 they valued only $6.6 billion (Austrade n.d.). After a rise to approximately 4% of total annual trade value in 1996-1997, goods exported to Indonesia, and goods and services imported from Indonesia, have halved to around 2% of value. However, since 2008 services exported to Indonesia have increased to nearly 4% of annual value (Fig. 13).
Culture and society

INDONESIA

Indonesia has the world’s largest Islamic population, with approximately 209.12 million Muslims in 2010, or 87.1% of the Indonesian population (Fig. 14). By comparison, India has a population of 176.2 million Muslims, Pakistan 167.4 million, Bangladesh 133.54 million, and Malaysia 18.1 million (Pew Research Center 2012). With projected population growth, Indonesia will remain home to more Muslims than any other country in the world for the foreseeable future. Minority religions in Indonesia include Christian (9.7%), Hindu (1.7%), and Buddhist (0.7%). There are higher proportions of Christians in the eastern provinces of Maluku (41.4% of the province population), Nusa Tenggara Timor (34.7%) and Papua (65.5%), as well as Sulawesi Utara (63.6%) (BPS 2012).

Since the overthrow of the Suharto regime in 1998 and the adoption of a democratic system of government, Indonesia has had five presidents and a number of peaceful transitions of power. Indonesia is consolidating itself as one of the world’s largest democracies and is a beacon of democracy within Southeast Asia. The most recent election in July 2014 registered 135 million votes from over 6,000 inhabited islands with the world’s largest, centralized computerized voter registration system (IFES 2014).

Since 1999, a long term process of decentralisation has shifted government control and tax-raising powers from the national to district-level governments (Green 2005). Corruption continues to be a major impediment to transparent governance, however, and despite receiving a slightly improved score in 2014, Indonesia is still considered the 107th least corrupt country in the world (Transparency International 2014). In March 2012, the government issued the National Strategy of Corruption Prevention and Eradication, which has medium and long term plans to achieve the vision of an anti-corruption nation.

Established in 2002, the Corruption Eradication Commission (KPK) is the main public anti-corruption institution. While there are some indications that corruption is in decline, the KPK indicted a growing number of politicians, businesspeople and several judges in 2011 and 2012. Between 2004 and early 2012, a total of 1,737 members of local parliaments have been investigated for abuses ranging from corruption (29% of cases), physical harassment (11%), document forgery (11%) and fraud (11%) (Transformation Index 2014).

AUSTRALIA

Australia has a majority Christian population, making up 67.3% of the total population (Fig. 14). Minority religions include Islam (2.4%), Hinduism (1.4%) and Buddhism (2.7%), but notably 24.2% of the population did not report any formal religious affiliation in the census (Pew Research Center 2012). There were 548,368 indigenous Australians in the 2011 census, or 2.6% of the total population, who contribute a distinct and ancient cultural identity which is recognised nationally and globally (ABS 2013b).

Figure 14. Religious affiliation by group as a proportion of the total population for Australia and Indonesia (Pew Research Center 2012)
Since Federation in 1901, when the seven colonies of Australia agreed to form a nation under a constitutional monarchy under the British sovereign, the modern nation of Australia has grown to be a multicultural society. During the 1930s, 1950s and 1960s immigrants from numerous European nations arrived, followed by Vietnamese and Chinese during the 1970s and 1980s. Today, Australia is one of the most culturally diverse nations in the world, with 46% of the population either born elsewhere, or having at least one parent born elsewhere (ABS 2013b). Democratic Federal elections occur on a 3 year cycle, with the majority party or coalition electing a prime minister, and State and Territory elections occur on a 4 year cycle, electing a Premier or First Minister, respectively. Australia has a corruption index of 80, and is currently the 11th least corrupt country in the world (Transparency International 2014).

Human development

INDONESIA

Indonesia’s Human Development Index (HDI: a composite indicator of per capita income, life expectancy and education levels) in 2014 was 0.684, ranking 108th in the world and similar in rank to Palestine, Botswana and Egypt. The HDI for Indonesia has been increasing steadily since the first analysis in 1990, when it was 0.528 (UNDP 2014). This is reflected in the growing proportion of the population that had completed secondary school, which has risen steadily from 23% to 31% from 2004-2013 (Fig. 15).

There is wide variation within Indonesia in human development, however, with the eastern provinces of Nusa Tenggara Barat, Nusa Tenggara Timur and Papua having far lower HDIs of 0.66 to 0.68, compared to the HDI in Jakarta of 0.78 (BPS 2014). Poverty, food insecurity and lack of services is similarly high in these provinces, with 35% of rural households in Papua, or 828,000 people, living below the poverty line (BPS 2014).

AUSTRALIA

In 2014, Australia had the second-highest HDI rank in the world, with a HDI of 0.933 following only Norway on 0.944 (UNDP 2014). However, this masks a wide variation between the predominately urban population and Indigenous Australians who largely live in remote areas of the Northern Territory, Queensland, Western Australia and New South Wales. Yap and Biddle (2010) calculated HDI for Indigenous Australians to be 0.737, and Butler et al (2014) estimated the HDI for Torres Strait Islanders to be 0.736. The ongoing discrepancy in the well-being of Indigenous Australians and mainstream Australian society remains a major challenge, and has been the focus of a national government policy, ‘Closing the Gap’, since 2008 (Productivity Commission 2014). The proportion of the Australian population completing secondary education has been growing, from 48% in 2004 to 60% in 2014 (Fig. 15).
BPS (Badan Pusat Statistik) 2015d. Table 1. Education Indicators. http://bps.go.id/linkTabelStatis/view/id/1525
BPS (Badan Pusat Statistik) 2015e. http://bps.go.id/linkTabelStatis/excel/id/1525

References


Megatrends
The horizon scanning method

In November 2014 the AIC Foresighting Project team developed a standard approach to engaging the Clusters for the Activity 1 Horizon scanning. During Cluster planning meetings between Indonesian and Australian Cluster researchers, a 1-2 hour session was devoted to this exercise. The following questions were asked and discussed jointly:

1. For the Cluster’s theme, what are the most important shared issues for Indonesia and Australia?
2. What are the underlying drivers of each shared issue?
3. What megashocks could potentially occur and change the trends in the drivers, and therefore the shared issues?
4. What data or information is available to substantiate this?

Potential categories of collaboration on the shared issues were as follows:

A. Australian capacity to address an Indonesian challenge
B. Indonesian capacity to address an Australian challenge
C. Shared challenge requiring collaborative skills and capacity
D. Shared challenge that has global relevance/exportable value

Health Cluster horizon scanning

For the Health Cluster a planning meeting with Australian Health Cluster leads was held by teleconference on the 24th November 2014. In early December 2014 a CSIRO team member joined a series of stakeholder engagement meetings being undertaken in Jakarta, Indonesia by the Australian and Indonesian Cluster Leads following on from the cluster workshops held in May and in August 2014. Following this consultation a joint Indonesian-Australian Cluster planning meeting was held on 11th December to undertake a horizon scanning exercise for the Cluster. The meeting was attended by members from the University of Sydney, University of Melbourne, UI, and UNAIR, CSIRO and the AIC. The results of these consultations were aggregated into shared issues, drivers and megashocks.

Seven broad shared issues were identified: quality of health care, rapid change in HIV, access to health care, non-communicable diseases (NCD), infant and maternal mortality and morbidity, nutrition, and ageing population. Five were identified as Category C or D. One issue, rapid change in HIV, was clearly identified as Category A and specific to Indonesia, while infant and maternal mortality and morbidity was considered Category A but also D. Potential megashocks varied between the issues, but the most frequently mentioned were a major health crisis (natural disasters, e.g. influenza, global pandemic), political changes, civil unrest (i.e. demand for accreditation), terror activity (a concern for both Australia and Indonesia i.e. ISIS), climate change, HIV drug resistance, diversion of financial and personal resources for health care, changes in Indonesia’s Sustainable Development Goals (SDGs), pension planning, and free trade agreements (creating increased opportunities for migrant labour).
<table>
<thead>
<tr>
<th>SHARED ISSUE</th>
<th>CATEGORY</th>
<th>UNDERLYING DRIVERS</th>
<th>POTENTIAL MEGASHOCKS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality of health care</td>
<td>C and D</td>
<td>- Millennium Development Goals (MDGs)</td>
<td>- Major health crisis (natural disasters, e.g. influenza, global pandemic)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Changing policies – value for money</td>
<td>- Political changes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Insurance</td>
<td>- Civil unrest (e.g. demand for accreditation)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Workforce capacity and performance</td>
<td>- Terror activity</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Health literacy (access to information)</td>
<td>- Climate change</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Poverty</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Health indicators and reliable data</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Evidence based policy</td>
<td></td>
</tr>
<tr>
<td>Access to health care</td>
<td>C and D</td>
<td>- Universal health insurance</td>
<td>- Major health crisis (natural disasters, e.g. influenza, global pandemic)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Geographic barriers</td>
<td>- Political changes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Health literacy</td>
<td>- Civil unrest (e.g. demand for accreditation)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Infrastructure (e.g. transport)</td>
<td>- Diversion of financial and personnel resources</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Inequitable distribution of health personnel</td>
<td>- Terror activity</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Poverty</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Societal inequity</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Educational background</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Growing technology (positive)</td>
<td></td>
</tr>
<tr>
<td>Rapid change of HIV</td>
<td>A</td>
<td>- Migration patterns/employment</td>
<td>- Drug resistance</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Drug use</td>
<td>- Major health crisis (natural disasters, e.g. influenza, global pandemic)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Health literacy</td>
<td>- Political changes</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Government policy (drugs, clean needles, funding)</td>
<td>- Civil unrest (e.g. demand for accreditation)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Poverty</td>
<td>- Terror activity</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Climate change</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>- Free trade agreements (people movements)</td>
</tr>
<tr>
<td>Non-Communicable Disease (NCD)</td>
<td>C and D</td>
<td>- Growing wealth</td>
<td>- As above</td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Healthy lifestyle – government policy (e.g. preventive strategies)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Success of health strategies (i.e. reduced infant mortality, increased care)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Increasing technology, i.e. physical inactivity, cars</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Growing awareness of mental disorders (i.e. impact of mental disorder on employment, public perception issues)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Stress and change of lifestyles, change to family patterns, social isolation</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>- Infrastructure (e.g. parks, transportation)</td>
<td></td>
</tr>
</tbody>
</table>
Health Cluster megatrends

Based on these shared issues and drivers, four overlapping megatrends were identified: Policy Reform, My Generation, Urban World, and Closing the Gap (Fig. 16). Using information and data suggested by Cluster researchers during the horizon scanning, combined with a literature review on the drivers and issues identified, narratives were collated for each megatrend.

---

### Table: SHARED ISSUE, CATEGORY, UNDERLYING DRIVERS, POTENTIAL MEGASHOCKS

<table>
<thead>
<tr>
<th>Shared Issue</th>
<th>Category</th>
<th>Underlying Drivers</th>
<th>Potential Megashocks</th>
</tr>
</thead>
</table>
| Infant and maternal mortality and  | A and D   | - Global policy (e.g. MDGs and Sustainable Development Goals (SDGs))  
- Growing recognition of the importance of a healthy start to life (first 1000 days)  
- Cultural and religious issues – women’s rights  
- Unwanted pregnancy – access to contraception, education, abortion (safe)  
- Health literacy  
- Access to quality appropriate care |
| morbidity                           |          |                                                                                                                                                                                                                  | - As above                                                                            |
|                                    |          |                                                                                                                                                                                                                  | - SDGs – mega shock if major change in global policy                                  |
| Nutrition                          | C and D   | - Access to fruit and vegetables  
- Health literacy  
- Food cost/price  
- Fast food advertising and marketing/access  
- Breastfeeding  
- Commercialisation of food production  
- Urbanisation                                                                 |                                                                                      |
| Aging population                   | C and D   | - Improvement in health  
- Urbanisation and change in family patterns  
- More isolated older populations                                                                 | - As above                                                                           |
|                                    |          |                                                                                                                                                                                                                  | - Pension planning                                                                   |

---

**Figure 16.** The four megatrends identified for the Health Cluster.
POLICY REFORM

A 2012 United Nations resolution requires countries to plan for the implementation of universal health coverage (UHC), and calls abound for UHC to be recognised as a post-2015 sustainable development goal. While Australia has had UHC in place since 1984, the global health policy environment is a major driver of Indonesia’s health reform, which includes improving health finance and implementing UHC to enable Indonesians to access quality health services without the risk of financial hardship (Simmonds and Hort, 2013). Indonesia’s Strategic Plan 2019 has identified two high priorities for the health sectors for the next 5 years: 1) Improving public health status, with a focus on maternal and infant health, stunting and healthy lifestyle, and 2) Improving the responsiveness of health services (Anwar, pers. comm.).

Australia, meanwhile, must confront the challenge of rising health care costs against a backdrop of demographic change and an increase in chronic disease. New models of care are emerging, supported by innovative features such as personally managed electronic records to improve communication between medical providers and patients, and telehealth to increase access to services (AIHW 2014).

Towards universal coverage:

Indonesia has made significant progress on UHC through the establishment of a clear policy framework and passage of two social security laws (Simmonds and Hort 2013). As of 2012, around 151.5 million Indonesians, comprising 63% of the population, were covered by some form of health insurance, roughly half through the Jamkesmas scheme for the poor (Table 4). A key target for 2019 is that all of the population be covered under a single scheme managed by BPJS, the national health insurance agency, as a non-profit entity (Simmonds and Hort 2013). There are some concerns about whether this target will be met in more remote areas, and whether the UHC system will create a ‘sandwich population’ who are neither wealthy enough to pay premiums nor sufficiently poor to qualify for assistance (Hewson 2014).


<table>
<thead>
<tr>
<th>TYPE OF HEALTH INSURANCE</th>
<th>PERSONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participants in Health Insurance for Civil Servants (Askes PNS)</td>
<td>17,274,250</td>
</tr>
<tr>
<td>TNI/Polri (military and police)</td>
<td>2,200,000</td>
</tr>
<tr>
<td>Jamkesmas Participants* (Ministry of Health) (health insurance for the poor)</td>
<td>76,400,000</td>
</tr>
<tr>
<td>JPK Jamsostek Participants (workers’ social security)</td>
<td>5,600,000</td>
</tr>
<tr>
<td>Jamkesda/PIKMU Participants (regional governments’ health insurance)</td>
<td>31,886,390</td>
</tr>
<tr>
<td>Corporate Insurance (self-insured)</td>
<td>25,351,532</td>
</tr>
<tr>
<td>Commercial Health Insurance Participants</td>
<td>2,856,539</td>
</tr>
<tr>
<td>Total</td>
<td>151,548,981</td>
</tr>
</tbody>
</table>

* These recipients are expected to increase from 76.4 million to 86.4 million in 2013 as part of the transition to universal coverage (Faizal, 2013, in Simmonds and Hort, 2013).

Australia’s healthcare system has been rated 6th globally in terms of efficiency (Bloomberg 2014), based on life expectancy and relative and absolute per capita costs of health care. Since 1984 Australia has had publically-funded universal health care through Medicare, which co-exists with a private health system. Medicare’s provisions include free treatment for public patients in public hospitals, the payment of scheduled benefits or rebates for professional health services, and subsidisation of the costs of a wide range of prescription medicines. In addition to funding Medicare, the Australian Government spends $805 million
on an Indigenous Chronic Disease Package which aims to reduce key risk factors for chronic disease and better manage chronic disease amongst Indigenous Australians (Department of Health 2013a in AIHW 2014).

However, while UHC has been in place in Australia for more than three decades, rising healthcare costs coupled with demographic and health trends, outlined in more detail in the sections below, are widely considered to pose challenges to the current approach to UHC (Bloomberg 2013). Out-of-pocket costs are incurred by patients for many services, and in rural and remote areas access to quality care is more limited (AHHA 2013). In 2011-12, governments funded nearly 70% of total health expenditure (AIHW 2014). Recent policy debate has centered on the funding of rising costs of care, including through patient co-payments, which has been highly criticised (Doggett 2014). This is especially of concern for individuals with chronic conditions and low income earners, who do not qualify for the subsidies available to the unemployed and are already experiencing financial hardship due to existing co-payments (Doggett 2014).

Because UHC is made available through a complex web of different public and private services, evaluating the efficiency of a health system is currently limited to broad measures such as those noted above, rather than by tracking individual experience with services received from the health system (AIHW 2014). Innovations being developed in data linkage techniques could go some way to improving understanding of population-level health issues.

The Australian health system is also changing through technological developments. These include personally managed electronic records (e-health) to improve communication between medical providers and patients, and the use of telehealth services, such as video-conferencing, to deliver health services and information, which could increase access to services for some populations, such as in regional, rural and remote areas (AIHW 2014).

**Spending on health:** Government commitment to meeting the health Millennium Development Goals (MDGs) is articulated in ‘A Roadmap to Accelerate Achievement of the MDGs in Indonesia’ and is exemplified by increasing expenditure and policy initiatives to improve health outcomes; legislation passed in 2009 requires 5% of the national budget and 10% of district budgets to be allocated to health (Australian Government, 2011). At present 2.5% of the budget goes to health; five times this amount is spent to subsidise petrol (Bland 2014). Put another way, spending on healthcare comprised just 1.2% of Indonesia’s GDP in 2011-2012 (Bland 2014), compared to about 9.5 % of Australia’s GDP in 2011-12 (AIHW 2014). Australia spent $6430 per person on health in 2013 (AIHW 2014), marking a decrease in spending in real terms for the first time in a decade. These figures are in line with international trends that saw health spending decline following the Global Financial Crisis.

**Health sector capacity:** Indonesia has a low health workforce capacity, in terms of numbers of doctors and medical staff, relative to other Southeast Asian countries (Australian Government, 2011; Table 5). By comparison, 95,013 medical practitioners (physicians) and 344,190 nurses and midwives were registered in Australia in 2013 (AIHW 2014). There is a perception that the focus of health reform is overwhelmingly on making services accessible and less costly, and not on ensuring high quality of services, especially in the more remote regions beyond the main cities (Bland 2014). Muljono and Marzuki (2014) argue for greater self-sufficiency in providing health services, including research capacity building to enable Indonesia to maintain the focus and relevance of its research (White, 2002, Pang et al. 2003).

<table>
<thead>
<tr>
<th>COUNTRY</th>
<th>PHYSICIANS</th>
<th>NURSES</th>
<th>MIDWIVES</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>NUMBER</td>
<td>DENSITY PER 100,000</td>
<td>YEAR</td>
</tr>
<tr>
<td>---------</td>
<td>------------</td>
<td>---------------------</td>
<td>------</td>
</tr>
<tr>
<td>Cambodia</td>
<td>2,047</td>
<td>16</td>
<td>2000</td>
</tr>
<tr>
<td>India</td>
<td>645,825</td>
<td>60</td>
<td>2005</td>
</tr>
<tr>
<td>Malaysia</td>
<td>16,146</td>
<td>70</td>
<td>2000</td>
</tr>
</tbody>
</table>

**MY GENERATION**

The concept of generations as a way to define groups with common age-based – and often cultural – characteristics gained currency in the 19th century. The ‘Baby Boomers’, and ‘Gen X’ (and Y), are notable examples. Being part of a generation has strong resonance for cultural identity. This megatrend describes patterns emerging in different generations, from the newborn to the elderly.

One important element of this megatrend is slowing fertility. Reducing the rate of population growth by reducing the fertility rate has been a central component of Indonesia’s development planning agenda since the late 1960s. In effect, the aim has been to reduce the fertility rate to around two births per woman. Today that aim is close to being achieved in Indonesia, and in some provinces the fertility rate has fallen below this level.

Indonesia’s population will continue to grow, however, because of ‘population momentum’, in which future population growth is driven by increasingly higher numbers of women in the reproductive ages and, hence, by more births than deaths (McDonald 2014).

Increasing life expectancy is another key demographic change. Indonesians and Australians are living longer, in part driving a trend toward an older population. In 2012, life expectancy for men was 67.0 and for women 71.0 (World Bank 2012a). By comparison, in Australia a baby boy born between 2010 and 2012 can expect to live to 79.9 years and a baby girl to 84.3 years (ABS 2013a). Indigenous baby boys born during the same period can expect to live to 69.1 years and Indigenous baby girls to 73.7 years (ABS 2013b), marking a significant gap with non-Indigenous Australians but above the Indonesian averages.

**Maternal and infant health:** The first 1,000 days of life (the period from conception to 24 months of age) represents the best window of time to shape the health, economic and social outcomes of mothers and their children across their lifespans. Improved nutrition for pregnant mothers and young children reduces their susceptibility to communicable disease during this time period, and to non-communicable disease in later life. Better care practices during this time for both mothers and their children also help to improve nutrition and health outcomes. Recognised as the most efficacious time to intervene, the quality of health and nutrition care received during the first 1,000 days of life will influence the quality and productivity of a person’s life into adulthood. Developmental setbacks during this period of life cannot easily be regained or reversed in later life. The first 1000 days presents researchers...
and practitioners with an enormous opportunity to affect the nutrition and health outcomes of individuals and communities. Investments which focus on the first 1000 days can be nutrition-specific (e.g. the promotion of optimal breastfeeding practices) or nutrition-sensitive (e.g. improving household dietary diversity) and present affordable and cost-effective mechanisms to significantly increase a country’s GDP by at least 2-3% annually. The concept has been enshrined in an Indonesian Government policy framework (First 1000 Days of Life Movement) that sets reduction targets for 2025 in child chronic and acute malnutrition, anaemia in women, low birth weight babies, childhood obesity and augmentation of exclusive breastfeeding (see discussion of nutrition under the ‘Urban World’ Megatrend below). Australia’s DFAT is well-aligned with this concept through its new Health Strategy.

Varied progress in Maternal, Newborn and Child Health (MNCH) outcomes has been observed across Indonesia (Table 6; Australian Government 2014), and disparities have widened following the decentralisation of Indonesia’s health system in 2000. While Indonesia’s under-five mortality and infant mortality rates have fallen consistently between 1990 and 2007, the neonatal mortality rate remains high. In addition, large differences in mortality rate trends persist between socioeconomic groups, island groups, and across the urban-rural gradient (Nguyen et al. 2011).

Over the period 2011–2013, Indonesia had universal maternal health coverage for its population and utilisation of key maternal health services (antenatal care, obstetric care, and neonatal care) was relatively high. However, only 63% of all deliveries occurred at a health facility, even though 83% of births were attended by a skilled attendant (World Bank 2014). Despite the utilisation of services, overall there are concerns that poor levels of service delivery, combined with high fertility rates, and poor maternal health and nutrition at the time of conception, are leading to high maternal mortality outcomes. There is compelling evidence that poor maternal health and nutrition contributes to an increase in non-communicable disease in offspring later in life. While maternal mortality has decreased in recent decades – declining from over 400 maternal deaths per 100,000 live births in 1990 to about 200 in 2013 (World Bank

| TABLE 6. PROGRESS AGAINST MILLENNIUM DEVELOPMENT GOALS 2, 4 AND 5 INDICATORS FOR INDONESIA AS OF 2012 (BPS, 2012). |
|---------------------------------------------------------------|----------------|----------------|----------------|
| GOAL                                      | VALUE          | FEMALE | MALE | TOTAL |
| 2. Achieve universal primary education                          |                |       |      |       |
| 2.3 Literacy rate of 15-24 year olds                          | 97.8           | 95.8  | 96.8 |
| 4. Reduce child mortality                                     |                |       |      |       |
| 4.1 Under-five mortality rate (per 1000 live births)           | 37             | 49    | 40   |
| 4.2 Infant mortality rate (per 1000 live births)              | 28             | 39    | 32   |
| 4.3 Proportion of 1 year-old children immunized against measles| 79.0           | 81.2  | 80.1 |
| 5. Improve maternal health                                    |                |       |      |       |
| 5.1 Maternal mortality ratio                                  |                |       |      | 359   |
| 5.1 Percentage of births attended by skilled health personnel | n/a            | n/a   | 83.1 |
| 5.2 Contraceptive prevalence rate                             | 61.9           | n/a   | n/a  |
| 5.3 Adolescent birth rate                                     | 48.4           | n/a   | n/a  |
| 5.4a Antenatal care coverage: at least 1 visit by skilled health professional | 21.5           | n/a   | n/a  |
| 5.4b Antenatal care coverage: at least 4 visits by any provider | 87.8           | n/a   | n/a  |
| 5.5 Unmet need for family planning                            | 11.4           | n/a   | n/a  |
2014)—it continues to exceed the MDG target of reducing maternal mortality by 75% over 25 years. In particular, two obstetric conditions, hypertensive disorders during pregnancy and hemorrhage during labour, collectively account for 55% of maternal deaths in Indonesia (World Bank 2014).

An Australian study found low levels of maternal mortality in the overall population (7.1%), with one maternal death occurring within 42 days of the end of pregnancy for every 14,085 women giving birth during 2008-2012 (Table 7). However, the incidence of maternal death among Indigenous women was twice that for non-Indigenous women (AIHW 2015). As in Indonesia, direct causes of death were mainly obstetric haemorrhage, thromboembolism, and hypertensive complications of pregnancy. Indirect causes were also implicated, such as cardiac disease and psychosocial morbidity (i.e. mental health and substance abuse issues), particularly in the Indigenous maternal deaths (AIHW 2015).

The Indonesian infant mortality rate was 32 deaths per 1,000 live births during 2008–12 (BPS et al. 2012); the under-five mortality rate was 40 deaths per 1,000 live births (Table 6). This is far higher than the Indigenous Australian child mortality rate of 45 deaths per 100,000 children aged 1-4 years, and the non-Indigenous Australian child mortality rate was 20 deaths per 100,000 children aged 1-4 years from 2006-2010 (ABS 2012) (Table 7). However, comparisons of these figures between the two

---

**TABLE 7. MATERNAL MORTALITY, INFANT MORTALITY AND CHILD MORTALITY RATES IN INDONESIA AND AUSTRALIAN INDIGENOUS AND NON-INDIGENOUS POPULATIONS (ABS 2012, BPS 2012, AIHW 2014, AIHW 2015). NOTE THAT RATES MAY BE GIVEN PER 1,000 OR 100,000 AND ARE CALCULATED OVER DIFFERENT TIME PERIODS.**

<table>
<thead>
<tr>
<th></th>
<th>INDONESIA</th>
<th>AUSTRALIA</th>
<th>AUSTRALIA INDIGENOUS</th>
<th>NON-INDIGENOUS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Maternal mortality</td>
<td>359 𝑎</td>
<td>7.1 𝑏</td>
<td>13.8 𝑏</td>
<td>6.6 𝑏</td>
</tr>
<tr>
<td>rate (deaths per</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>100,000 births)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Infant mortality</td>
<td>32 deaths</td>
<td>378 per</td>
<td>660 per</td>
<td>4 per 1,000</td>
</tr>
<tr>
<td>rate (as specified)</td>
<td>per 1,000</td>
<td>100,000 𝑙</td>
<td>100,000 𝑙</td>
<td></td>
</tr>
<tr>
<td>Under-five</td>
<td>40 deaths</td>
<td>17.3 per</td>
<td></td>
<td></td>
</tr>
<tr>
<td>mortality rate</td>
<td>per 1,000</td>
<td>100,000 𝑙</td>
<td>45 per 1,000 𝑑</td>
<td>20 per 1,000 𝑑</td>
</tr>
<tr>
<td>(as specified)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* 2012 (BPS 2012); † 2008-2012 (AIHW 2015); ‡ 2011 (AIHW 2014); § 2006-2010 (ABS 2012)
countries must take account of the uncertainty surrounding Indonesian population data and inconsistent methodologies (McDonald 2014). Infant mortality rates during the same period in four Australian states showed a similar gap, with eight infant deaths per 1,000 live births among Indigenous Australians and four infant deaths per 1,000 live births among non-Indigenous Australians (ABS 2012), although a more recent figure from AIHW shows a slightly lower rate of 660 Indigenous infant deaths per 100,000 live births, or 6.6 per 1000.

Studies of factors implicated in maternal mortality in Indonesia cite the continued use of traditional birth attendants, poor access to emergency obstetric services, and poor quality of health care (World Bank 2010). The cost and ineffectiveness of improving health infrastructure are sometime discussed as barriers to improving maternal health. Maternal and neonatal mortality are exceptionally high in some rural areas of Indonesia – reaching 290 women per 100,000 in South Central Timor – due to the distance women must travel to reach health services (Metherall, 2015). One response to this barrier is the establishment of ‘waiting houses’ in rural areas that offer expectant mothers a safe interim place to stay during their journeys to a clinic (Metherall, 2015).

In addition to addressing infrastructure problems, there are also calls for a community emphasis, focused on training birth attendants and community health workers. This shifts the burden to healthcare capacity building (e.g., human resources) from expenditure on health facilities. Gender equity and cultural issues also contribute to maternal and child mortality; for example, vulnerable groups such as unmarried pregnant women who are excluded from their families and communities are at high risk (Australian Government 2014).

Aging population: Global population ageing, where the proportion of people aged 60 and over grows faster than any other group is a phenomenon in many parts of the world. This demographic transition where fertility declines, life expectancy increases and mortality declines is placing capacity pressures on social security and health systems internationally (UN, 2002). Where social and health systems do not meet the needs of an older population, families are absorbing the financial and social burdens associated with caring for older generations, with caring responsibilities falling primarily to women and girls in the household. Urban migration in Indonesia, especially for younger people, has increased the need for aged care supports in rural areas where the greatest health burden remains infectious disease (Kadar et al., 2014). The pace of ageing differs across Indonesian urban and rural regions. By 2025 Indonesian older people will number 74 million (Kadar et al.,
By 2050, it is estimated that 20-25% of the Indonesian population (323 million) will be aged 65 and over (McDonald, 2014; Kadar et al., 2013; see Fig. 7). While Indonesia’s fertility rate is gradually declining overall (to 2.1 in 2015), with substantial decline in some areas, population growth is not expected to decline for some time. The pace of ageing is also expected to accelerate in Australia with approximately 23% of the population expected to be aged 65 and over in 2061, up from 14% in 2012 (ABS 2013c; see Fig. 9).

Social isolation including unemployment, poor social support and physical inactivity leads to poorer health outcomes. In a survey conducted by Arifin and colleagues (2012), 74% of Indonesian older women and 70% of older men reported watching television as their main daily activity (Arifin et al., 2012). For older people, social participation in work and community life, also known as ‘active ageing’ is a strong predictor of individual health and well-being and contributes significantly to social and human capital. Support provision and community inclusion for older people presents a range of challenges for policy-makers in Australia and Indonesia. Of note is the view that the ageing population in Australia is not actually adding costs to the healthcare system, but rather it is delaying them, as costs of ageing generally increase only in the last six months of a person’s life (Coory, 2004, Betts, 2014).

**URBAN WORLD**

Nine out of ten Australians live in a city. In Indonesia, just one of two people is a city-dweller, yet this number is set to rise (Oberman et al., 2012), perhaps exceeding 70% by 2030 (Dobbs et al., 2012; see Fig. 6), and much of this growth is expected to happen outside of the highly urbanised areas of Java (Meharg et al., 2015). The McKinsey Institute has written several reports describing the ‘urban world’ that includes a number of emerging economies experiencing urbanisation at an unprecedented speed and scale (Dobbs et al., 2012). With urbanisation comes a number of social and cultural shifts relevant to health, notably the rise in GDP and the evolution of a ‘consuming class’ (Oberman et al., 2012), a trend that is highly relevant to Indonesia. Other attributes of urbanisation include higher connectivity to information and access to services, with the potential to improve health literacy through place-based networks and social media, with which urban users are most actively engaged (Miller et al., 2012). On the downside, living in cities is often accompanied by busier and more sedentary, ‘fast-food’ lifestyles. Ultimately, the shift in both countries to a more urban society has accompanied tremendous changes in nutrition, risk and the prevalence of non-communicable diseases (NCDs), and HIV/AIDS which shape this health megatrend – though none of these issues is exclusive to urban populations.

**Declining Nutrition:** In parallel with economic development and urban growth, Indonesia has made considerable progress in improving the health of its population over the last two decades but compares poorly with other countries in the region on key health and nutrition indicators (Australian Government, 2014). Indonesia is now experiencing the ‘Double Burden of Malnutrition’ (DBM), whereby undernutrition and overnutrition coexist across the life course in the same population. Research has shown that maternal and fetal undernutrition increases a population’s susceptibility to overnutrition and diet-related NCDs in adulthood. The DBM concept assumes linkages between these two conditions and therefore proposes an integrated approach to their prevention and treatment (Shrimpton and Rokx, 2013).

In Australia, overnutrition is more of a problem than undernutrition, with exceptions among the poorest population. Less than 10% of Australians aged 16 and over do not consume sufficient serves of vegetables. Unhealthy body weight is prevalent among 25% of Australian children, while 60% of adults are overweight or obese. Aboriginal and Torres Strait Islander people, rural and remote Australians and socioeconomically disadvantaged people are more at risk of diet-related chronic disease than other Australians (AIHW 2012).
Historically, undernutrition and especially being severely underweight (gizi buruk in Bahasa Indonesia) has commanded attention as the most malnutrition problem. While this nutritional issue has been largely overcome – the prevalence of gizi buruk is now just 5.4% of children under six – more than one third of children under six are stunted (Table 8). This has long term consequences such as an increased risk of NCDs later in life. Maternal undernutrition and micronutrient deficiencies are among the causal factors of undernutrition.

At the same time, an increasing proportion of young children are overweight (gemuk in Bahasa Indonesia) (Riskesdas, 2010, in Shrimpton and Rokx, 2013), also predisposing them to a higher risk of NCDs. Over a decade and a half, the Indonesian Family Life Surveys (representative of 85% of the population) indicate that the proportion of underweight men and women decreased considerably while the proportion of obese/overweight men and women nearly doubled. This shift is also reflected in the rates of children under 6 years who are overweight, which are greater than in the older ones (6-12 years), while preschool child underweight rates have fallen at double the rate of stunting over the last two decades. This is a trend similar to that seen in most other low and middle-income countries.

Malnutrition affects both urban and rural populations in both countries. In Indonesia, obesity affects urban dwellers (24%) more than rural (15%). However, undernutrition early in life and DBM are more pronounced in the less urbanised outer islands than on Java (Shrimpton and Rokx, 2013). An Australian study found that overweight and obesity increases with remoteness, rising from 61.6% of overweight or obese adults in major cities to 72.8% in remote areas (NRHA, 2013). Overweight and obesity also show a correlation with income in Indonesia (Shrimpton and Rokx, 2013) and Australia (NRHA, 2013). While the rate of overweight individuals increases with income, this problem affects all income categories, and women in particular, in both countries.

Health literacy has improved in both countries with increasing education, shared knowledge, access to information and some behavioural changes. Initiatives such as the Global Alliance for Improved Nutrition (GAIN) include awareness raising to support behavioural change in Indonesia regarding nutrition, along with addressing micronutrient deficiencies to reduce stunting (GAIN, 2015). However there remains a lack of awareness of the overnutrition problem, coupled with insufficient capacity to deal with its consequences (Shrimpton and Rokx, 2013).

The UK’s Foresight Project identified four broad clusters of drivers of DBM: health and biological environment; economic and food environment; physical/built environment; and socio-cultural environment (Shrimpton and Rokx, 2013). For example, from a socio-cultural perspective, although Indonesia retains much of its traditional customs, it is now heavily inundated by modern media, which generally promotes the consumption of processed foods. From a built environment perspective, Indonesia’s urban environments discourage exercise, with few if any bike lanes, sidewalks or pedestrian precincts, and parks. Commuting to work increases exposure to and accessibility of processed foods sold in the street.

Breastfeeding is one area being targeted for improving nutrition among Indonesian mothers and their children. Exclusive breastfeeding (in which infants are given only breastmilk) is considered the single most important intervention for preventing child deaths (UNICEF, 2015) and has important links to health in later life. Recommended for infants until at least six months of age by the World Health Organisation (WHO),


<table>
<thead>
<tr>
<th>MALNUTRITION CATEGORY</th>
<th>&lt;6Y</th>
<th>6-12Y</th>
<th>13-15Y</th>
<th>16-18Y</th>
<th>&gt;18Y</th>
</tr>
</thead>
<tbody>
<tr>
<td>Stunted</td>
<td>35.6</td>
<td>35.5</td>
<td>35.1</td>
<td>31.2</td>
<td></td>
</tr>
<tr>
<td>Wasted</td>
<td>13.3</td>
<td>12.2</td>
<td>10.1</td>
<td>8.9</td>
<td>12.6</td>
</tr>
<tr>
<td>Overweight (Gemuk)</td>
<td>14.0</td>
<td>9.2</td>
<td>2.5</td>
<td>1.4</td>
<td>21.7</td>
</tr>
</tbody>
</table>
exclusive breastfeeding protects against young child growth failure and mortality, and against future obesity. Indonesia has experienced a cultural shift towards formula feeding, driven in part by commercial interests (as in Australia) and a lack of awareness and misconceptions in the community. Only a third of babies are put to the breast within an hour of birth, while 70% of babies are fed formula milk at birth. Only 15% are exclusively breastfed for six months.

In addition, child feeding practices in older children aged 6-24 months are inadequate, contributing to young child stunting and increasing the risks of NCDs later in life (Shrimpton and Rokx, 2013). Resistance to breastfeeding is in part due to tradition and cultural beliefs of older generations, as well as the practice of promoting breastmilk substitutes in health facilities, which the Indonesian government has sought to prohibit (UNICEF, 2015). Programs to support exclusive breastfeeding among mothers in regions of Indonesia are helping to overturn the misconception that breastfeeding is an inferior product to formula (for example, see (http://www.unicef.org/infobycountry/indonesia_73887.html).

Australian initiation rates of breastfeeding (i.e. at birth) are higher, although breastfeeding declines steadily thereafter. For Aboriginal and Torres Strait Islander infants, initiation rates of exclusive breastfeeding were slightly lower (87%) than non-Indigenous infants (90%). This gap widens with the infant’s age; 19% of Indigenous infants are exclusively breastfed to three months compared to 40% of non-Indigenous infants. Similarly to Indonesia, in 2010 only 15% of all Australian babies met the WHO recommendation for exclusive breastfeeding until six months of age (AIHW, 2012).

Rising Non-communicable diseases (NCDs): NCDs comprise a group of chronic conditions including cardiovascular disease, hypertension, cancers, chronic respiratory disease and diabetes. These conditions disproportionately affect the poor, lead to premature death, and manifest through a cluster of common and often interlinked risk factors including tobacco-use, alcohol consumption, unhealthy diet, physical inactivity, dyslipidemia and hypertension (Ahmed, 2009; WHO, 2014a).

In 2012, NCDs were responsible for 68% of the world’s deaths, three-quarters of these occurring in low-middle income countries (WHO, 2014b). As the leading cause of death globally, NCDs present largely preventable risks and burdens to Indonesia and Australia’s public health systems, economic productivity and sustainable development.

Indonesia is in the midst of a health transition where continuing infectious disease burdens co-exist in parallel to a rising tide of NCDs estimated to account for 71% of total deaths in 2014 (WHO, 2014b), up from 60% in 2007 (Fig. 17; WHO, 2011). For Australia, the figures are even more alarming with NCDs estimated to account for 91% of total deaths (WHO, 2014b). These trends are increasing rapidly and show no signs of receding. (Figs. 18 and 19).

Indonesia is among the top tobacco producing and consuming countries in the world with 63% of men...
participating in daily tobacco smoking (Thakur, 2011). While the mechanism of tobacco consumption differs according to gender, tobacco use rates have increased among both young men (14% in 1995 to 33% in 2004) and young women (0.3% to 1.9%). Tobacco use is a leading contributing risk factor for NCDs with cardiovascular disease, stroke, lung cancer and chronic obstructive pulmonary disease the leading causes of death. Programs aiming to curb the rise of tobacco-related NCDs in adolescents and youth will need to incorporate targeted behaviour change messages using integrated approaches to prevention. Among this demographic, social media is likely to play an important role in distributing these messages.

In 2008, Indonesia’s government collected 45 trillion Rupiahs (US$ 4.5 billion) in tobacco revenue. In the same year, Indonesia was estimated to have lost 339 trillion Rupiahs (US $34 billion) in tobacco related morbidity and mortality (WHO, 2011). Indonesia has adopted WHO’s global strategy in prevention and control of NCDs but is facing challenges in implementation and multisectoral cooperation.

In Australia, behaviour modification strategies including public awareness campaigns, increased taxes on tobacco products, and bans on tobacco advertising and smoking in public places, have helped to curb overall tobacco smoking rates in Australia. Despite these efforts, the rates of smoking for some key populations have reduced only gradually. Indigenous Australians share high rates of smoking with Indonesians with 41% of the population smoking in 2012-2013 (AIHW, 2014). For Australian adults overall, 16% self-reported smoking daily in the 2013 Australian Health Survey. While globally this rate is considered low, Australia’s overweight and obesity rates, alcohol consumption and levels of physical inactivity, are comparatively high.

Drivers of NCDs in both Indonesia and Australia include an aging population, urbanization, modernisation of the workplace, globalisation, health illiteracy and poor or fragmented health systems. Along with unhealthy diets, smoking continues to be a leading contributor to premature and preventable death from NCDs globally. Prevention, early intervention and multisectoral coordination are considered key to reducing the morbidity and mortality associated with NCDs. Figs. 18 and 19 show comparative graphs from WHO’s 2014 Country Profiles.

HIV/AIDS: Indonesia has one of the fastest growing HIV epidemics in Asia and progress towards Millennium Development Goal 6 (Combat HIV/AIDS, malaria and other diseases) is proving challenging. (Pisani et al., 2004). Recent estimates place Indonesia’s people living with HIV (PLHIV) at 638 000 with 100 000 new infections in 2013 in Jakarta alone. The epidemic remains largely concentrated among key socially marginalised groups including injecting drug users (IDU), men who have sex with men (MSM) and female and transgender sex workers (Indonesian National HIV/AIDS Commission, 2011). While national prevalence among the general population is relatively low, new infections continue to rise, especially in MSM living in urban areas (up from 8% in 2007 to 17% in 2011) and IDUs (56% in 2011) (Indonesia National HIV/AIDS Strategy and Action Plan 2010-2014; Fig. 18).

Advanced antiretroviral therapies (ARTs) have dramatically shifted mortality and morbidity rates globally and HIV is now considered a chronic rather than fatal condition. In light of these advances, attitudes towards ‘risky’ behaviours have also shifted leading to complacency in ‘preventive’ behaviours. The roll-out of a National Plan in 2013 to increase access to ARTs is helping to stabilise new infections although inadequate program coverage, poor governance and obstacles to patient adherence are slowing progress (Weaver et al., 2014). Community-led and community-managed health and social support services continue to make the strongest impacts in curbing transmission and providing support to PLHIV.

In Australia, 26 000 people are living with HIV/AIDS and most new cases (71%) are transmitted through sexual contact between men (The Kirby Institute, 2014). For Indigenous Australians, transmission is mostly attributed to IDU and heterosexual contact. In Australia, about 14% of PLHIV are unaware of their HIV status. Australia faces similar challenges to
Indonesia
Total population: 247,000,000
Income Group: Lower middle
Percentage of population living in urban areas: 50.7%
Population of proportion between ages 30 and 70 years: 42.6%

Figure 18. WHO 2014 Country Profile for Indonesia.
Indonesia in rising complacency towards safe sexual practices in some groups with rates of other sexually transmitted diseases rising in some states. Diverse sexual networks and fluid sexual identities in Asia generally make national prevention responses to HIV critical given key subpopulations’ interaction with the heterosexual population (Pisani et al., 2004). Quality data surveillance and monitoring will be key to targeted effective responses (Tables 9, 10, 11 and 12).


<table>
<thead>
<tr>
<th>Adult Risk Factors</th>
<th>Males</th>
<th>Females</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Current tobacco smoking (2011)</td>
<td>67%</td>
<td>3%</td>
<td>35%</td>
</tr>
<tr>
<td>Total alcohol per capita consumption, in litres of pure alcohol (2010)</td>
<td>1.1</td>
<td>0.1</td>
<td>0.6</td>
</tr>
<tr>
<td>Raised blood pressure (2008)</td>
<td>29.1%</td>
<td>26.6%</td>
<td>27.8%</td>
</tr>
<tr>
<td>Obesity (2008)</td>
<td>2.6%</td>
<td>6.9%</td>
<td>4.8%</td>
</tr>
</tbody>
</table>


<table>
<thead>
<tr>
<th>National Systems Response to NCDS</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Has an operational NCD unit/branch or department within the Ministry of Health, or equivalent</td>
<td>Yes</td>
</tr>
<tr>
<td>Has an operational multisectoral national policy, strategy or action plan that integrates several NCDs and shared risk factors</td>
<td>Yes</td>
</tr>
<tr>
<td>Has an operational policy, strategy or action plan to reduce the harmful use of alcohol</td>
<td>Yes</td>
</tr>
<tr>
<td>Has an operational policy, strategy or action plan to reduce physical inactivity and/or promote physical activity</td>
<td>Yes</td>
</tr>
</tbody>
</table>
Australia
Total population: 23,050,00
Income Group: High
Percentage of population living in urban areas: 89.2%
Population of proportion between ages 30 and 70 years: 50.2%

AGE-STANDARDIZED DEATH RATES

PROPORTIONAL MORTALITY (% OF TOTAL DEATHS, ALL AGES, BOTH SEXES)

PREMATURE MORTALITY DUE TO NCDs

THE PROBABILITY OF DYING BETWEEN AGES 30 AND 70 YEARS FROM THE 4 MAIN NCDs IS 9%

Figure 19. WHO 2014 Country Profile for Australia.
The sharp division between wealth and poverty is evident in both Australia and Indonesia. While both countries have witnessed the emergence of middle- and upper-class societies, largely concentrated in the main urban centres, poverty and disempowerment persist and in some cases have deepened, often in the shadow of the more affluent counterparts of the impoverished.

Through a policy framework called ‘Closing the Gap’, the Australian Government has agreed to targets for reducing disparities in life expectancy, child mortality, education and employment between Indigenous and non-Indigenous Australians (Productivity Commission, 2014). This concept is applicable to addressing inequity in health outcomes in both countries.

Health indicators convey striking differences between populations. As noted throughout the previous megatrends, equity issues play out in both countries not only between urban and rural areas, but also between social groups, cultures, and generations, and within geographically-defined areas. The city of Sydney is a case in point, where it is argued that two cities are emerging, where inner and outer suburbs are defined by distance and access to economic opportunities (Kelly and Donegan, 2015).

| TABLE 11. ADULT RISK FACTORS FOR NCDS. SOURCE: WHO (2014) COUNTRY PROFILE FOR AUSTRALIA. |
|---------------------------------------------|----------------|---------------|---------|
| ADULT RISK FACTORS                         | MALES | FEMALES | TOTAL  |
| Current tobacco smoking (2011)              | 21%   | 19%     | 20%    |
| Total alcohol per capita consumption, in litres of pure alcohol (2010) | 17.3  | 7.2     | 12.2   |
| Raised blood pressure (2008)                | 25.5% | 17.5%   | 21.4%  |
| Obesity (2008)                              | 26.4% | 27.1%   | 26.6%  |

| TABLE 12. NATIONAL SYSTEMS RESPONSE TO NCDS. SOURCE: WHO (2014) COUNTRY PROFILE FOR AUSTRALIA. |
|---------------------------------------------|----------------|---------------|---------|
| NATIONAL SYSTEMS RESPONSE TO NCDS           | Yes | Yes | Yes | Yes | No | No | Yes |
| Has an operational NCD unit/branch or department within the Ministry of Health, or equivalent | Yes | Yes | Yes | Yes | No | No | Yes |
| Has an operational multi-sectoral national policy, strategy or action plan that integrates several NCDs and shared risk factors | Yes | Yes | Yes | Yes | No | No | Yes |
| Has an operational policy, strategy or action plan to reduce the burden of tobacco use | Yes | Yes | Yes | Yes | No | No | Yes |
| Has an operational policy, strategy or action plan to reduce unhealthy diets | Yes | Yes | Yes | Yes | No | No | Yes |
| Has an operational policy, strategy or action plan to reduce physical inactivity and/or promote physical activity | Yes | Yes | Yes | Yes | No | No | Yes |
| Has an evidence-based national guidelines/protocols/standards for the management of major NCDs through a primary care approach | Yes | Yes | Yes | Yes | No | No | Yes |
| Has an NCD surveillance and monitoring system in place to enable reporting against the nine global NCD targets | Yes | Yes | Yes | Yes | No | No | Yes |
| Has a national, population-based cancer registry | Yes | Yes | Yes | Yes | No | No | Yes |
Geographic disparities in health care: Despite the trend toward urbanisation, roughly half of Indonesia’s population lives in rural and remote regions, while in Australia there are also significant populations inhabiting and working in non-urban areas, albeit comprising a smaller percentage of the total population. Indonesia and Australia share inequities in access and quality to care between urban and rural areas. In Australia, many parts of rural and remote Australia lag 65 years behind urban areas in terms of access to general practitioner services. Residents in remote Mt Isa, for example, have access to 68 equivalent full time GPs per 100,000 people – about half the 120 available to the residents of Sydney’s eastern suburbs (Doggett, 2013). Rural and remote life expectancies are lower, and residents of regional and remote areas have been less likely to report very good or excellent health compared to those in major cities (AIHW, 2013). Furthermore, Indigenous Australian health and wellbeing statistics indicate that Aboriginal Australians, many of whom inhabit regional and remote areas, are much less healthy than the wider Australian population. On the other hand, there are also some health benefits associated with life outside cities: rural areas tend to offer higher levels of social cohesiveness, higher rates of volunteering and a greater sense of community safety (AIHW, 2014).

Decentralisation of the Indonesian health system in 2000 may have partly exacerbated its geographic gradient in health care. This is evident in the many districts that have not yet developed the capacity to plan and manage their health budgets, to identify local health needs and to set targets and monitor progress (ref 14 in Aus-Indo Health Systems Annexes 2010). Midwifery services are well distributed between urban and rural areas, but general practitioners are not deployed equally (Rokx et al., 2010), and in 2006 stood at only 13 physicians per 100,000 across the population (WHO, 2006). Maternal health service utilisation and service readiness varies greatly in the country, with eastern provinces (Sulawesi, Maluku, Papua, and Nusa Tenggara) associated with lower utilisation and public sector dominance, while western provinces (Sumatera, Kalimantan, and Java) were associated with higher utilisation and private sector dominance. As noted above, both geographic and social disparities also play out for a range of health issues, including ageing, nutrition and NCDs, and require specific attention in policy formulation.

Difficulties in accessing roads and transportation needed to reach health services by communities in eastern Indonesia is a known issue. Stories of expectant mothers making long journeys in labour to reach a clinic are common, raising sufficient concern among health agencies in establishing ‘waiting houses’ located near subdistrict health clinics to reduce these risks (Metherall, 2015).

The social gradient of health: Inequity in health status and access to quality health care is evident in numerous ways that are not defined by geography alone. Marginalised individuals and groups exist within cities and in rural and remote areas.

Socio-economic inequity and health outcomes are interlinked, producing a ‘social gradient of health’: the better-off people are financially, and the more educated they are, the easier it generally is for them to make choices about health that lead to better health outcomes (AIHW, 2014). At the same time, conditions of poverty, marginalisation and poor health are exacerbated by positive feedback loops, presenting a challenge for addressing health issues that are symptomatic of larger societal problems (Kelly and Donegan, 2015). As noted above, Aboriginal and Torres Strait Islander people, rural and remote Australians and other people who are already socioeconomically disadvantaged are at greater risk of poor nutrition, and consequently chronic disease, than other Australians (AIHW, 2012). In Indonesia, vulnerable groups such as unmarried pregnant women have a higher risk of maternal and child mortality owing to the risk of exclusion from their families and communities (Australian Government, 2014). Where individuals in both countries are socially isolated due to lack of employment, poor social support and physical inactivity, they are prone to poorer health outcomes. The underlying and often complex causes of inequity in health are significant governance challenges that will require partnerships, financial resources, time and in some cases large-scale societal paradigm shifts.
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Next steps

The foresighting process was undertaken in a short timeframe in order to meet the advanced stage of planning for the Clusters’ CLIPs. However, the process of engagement and discussion between the Indonesian and Australian researchers in each Cluster enabled mutual learning about shared issues and identified many cross-cutting research priorities.

The megatrends now provide a foundation for the justification of the CLIPs, and the prioritisation of future research so far not included in the CLIPs. In addition, the megatrends have informed Activity 3 Scenario planning. By determining the ‘scenario space’ for shared issues between Indonesia and Australia, research priorities were identified that cut across Clusters. These priorities will be of equal relevance to other research and development initiatives between Indonesia and Australia.