



POPULATION SCENARIOS FOR THE KIMBERLEY

ASPIRATIONAL POPULATION GROWTH SCENARIOS

This Position Paper was commissioned from the Department of Planning to lead the discussion on possible sustainable but aspiration regional growth scenarios. Additional data and discussion on the links between population growth and economic growth have been included – September 2014.

**DRAFT FOR PUBLIC
COMMENT**



POPULATION GROWTH DATA IN THE KIMBERLEY (2011-2036)

Key points

- An AAGR of 5% is the level of growth required if the targets set by the Pilbara Cities initiative are to be met. This should indicate significant magnitude if a similar rate is applied to some settlements in the Kimberley.
- The selection of an AAGR will be influenced by a range of factors, such as existing capacity deficits, where investment is required to remedy pre-existing issues even before commitments to reaching an aspirational target are made.
- A growth rate of 5% in Broome and Kununurra has significant implications for a range of key variables such as house/land supply, infrastructure capacity, and employment.
- The KRPIF identifies a preferred AAGR scenario for various centres, which forms the basis of the settlement hierarchy. The inclusion of other AAGR rates is intentional to permit comparison over time.
- Applying a range of AAGRs to the 2011 base populations, for identified urban places in the Kimberley, provides aspirational scenarios. These are not forecasts and should not be read as such. Rather, forecasts should be used to provide a periodic 'reality check'.

The Pilbara experience

Late in 2009, the Premier and the Minister for Regional Development jointly announced the Pilbara Cities Program. The stated aim of the PCP is the 'transformation' of Port Hedland and Karratha into significant centres each supporting a population of 50,000 persons by 2035. Population targets for 2036 were also set for a number of centres (i.e. Newman 15,000). In 2010, the respective populations of these places were:

Population scenarios for the Pilbara

	Population 2010	Population 2035	Change (persons)
Port Hedland	14,624	50,000	35,376
Karratha	18,654	50,000	31,376

This translates into an average annual growth rate (AAGR) of approximately 5% per annum for each centre (although this 'rate' wasn't necessarily used to generate the ultimate target of 50,000). Since this time, key State agencies, including infrastructure providers, and local government have been working to 'flesh out the detail' in order to deliver the vision. The term 'transformation' is often used to describe what must occur if the targets are to be reached - two of the most significant, albeit broad, strategies to bring about this are 'economic diversification' and 'population retention'.

The Kimberley Regional Planning and Infrastructure Framework (KRPIF)

To date, similar commitments to future development (which, presumably, have a similar ‘transformative’ theme) for the Kimberley have not been announced by government. This may, however, occur in the future given the ongoing impetus within government to promote regional development across WA. It is understood that the rationale for such transformative investment is a core element of the Kimberley regional Investment Blueprint that is currently in preparation by the Kimberley Development Commission. At the present time, the WAPC through the Kimberley Regional Planning Committee is developing the Kimberley Regional Planning and Infrastructure Framework (KRPIF). The purpose of the KRPIF is:

The Kimberley Regional Planning and Infrastructure Framework has been prepared to identify regional infrastructure priorities for a stronger, more robust economy and community betterment. The Framework identifies a range of strategic initiatives to help achieve comprehensive regional planning whilst having due regard to the region’s natural environment, history and culture.

A key requirement for the future is the need to investigate potential population growth scenarios. Future population change will continue to shape and be shaped by many different factors, including: land/housing demand and supply; infrastructure capacity; employment and economic conditions.

Aspirational growth scenarios

Aspirational growth scenarios, which are presented in Chapter 4 – Settlement of the KRPIF, have been calculated using a range of different AAGR values (i.e. 5%, 4%, 3% and 2.2%) across the document’s time horizon (2011-2036) for both local government areas and specific settlements. In all instances, the base population data has been sourced from the 2011 Census of Population and Households.

Example: Kununurra growth scenarios for 3-5% AAGR (2011-2036)

YEAR	2011	2016	2021	2026	2031	2036
3%	4,573	5,301	6,146	7,125	8,259	9,575
4%	4,573	5,564	6,769	8,236	10,020	12,191
5%	4,573	5,836	7,449	9,507	12,134	15,486

Interpreting the scenarios

Population growth calculated using 5% AAGR results in a comparatively larger population than if 3% is used. In simple terms, the 5% rate equates to more demand for land, housing, and infrastructure. Similarly, strategies addressing key demand drivers – such as economic growth and employment generation – must necessarily be of sufficient scope and magnitude to deliver change in line with particular growth rates. For example, there will need to provide comparatively more employment opportunities in Kununurra to reach the 2036 population 5% AAGR target (15,486 persons) than the 3% AAGR target (9,575 persons).

The KPRC was also asked to nominate a preferred AAGR (5%, 4%, 3% or 2.2%) for each of the settlements across the region. Assigning of the preferred rate was largely based broad discussions between committee members (at KPRC meetings during Q 1/Q2 of 2012) and reflect a degree of qualitative/anecdotal assessment as to which places were more likely to experience change and which were more capable of accommodating it. For example, Broome and Kununurra have an AAGR of 5% while smaller settlements having an AAGR of 2.2% (which is the growth rate for regional

Western Australia between 2001 and 2011) was used as a baseline. In general, this is considered appropriate given the likelihood that both Broome and Kununurra are the logical centres to accommodate additional population associated with emerging economic opportunities. It remains to be seen whether this actually occurs. There is a clear need to periodically review aspirational scenarios against data produced by accepted forecasting methodologies and by the ABS.

KRPIF Settlement Hierarchy

Category	Example	Preferred AAGR
Regional city	Broome	5%
Regional centre	Kununurra	5%
Sub-regional centre	Derby	4%
Town	Fitzroy Crossing, Halls Creek, Wyndham, Bidadanga, Balgo, Kalumburu, Looma, Ardyaloon/Bardi, Warmun, Beagle Bay, Yungngora, Djarindjin-Lombadina	2.2%
Settlement	Examples: Camballin, Wangkatjunka, Djugerai, Ngumpan, Kadjina, Yakanarra, Koorabye, Ngalingkadji, Moongardi, Jimbalakudunj, Pandanus Park, Immintji, Kupangarri	2.2%
Minor settlement	Examples: Willare Bridge, Sandfire, Truscott, Mornington, Bidan, La Djardarr Bay, Wuggubun, Kandiwal, Wijilawarrim, Wollengerberleng, Ngunulum, Ningbing, Mimbi, Mingalkala, Mowla Bluff	2.2%

Underpinning the discussions about growth rates was an understanding that 5% AAGR, which is the approximate rate to achieve the aspirational targets in Port Hedland and Karratha as part of Pilbara Cities, is considered to represent an upper limit/barrier, which, if exceeded, could lead to growth calculations (in other words reflecting the magnitude of ‘transformation’ required) that are extremely optimistic. Clearly, this ‘limit’ can be expressed/quantified in a variety of ways, for example, so far more than \$1b in funding has already been allocated to achieving the Pilbara Cities vision. However, a significant component of this has been spent on addressing ‘known’ constraints and impediments to future development which, when addressed, may provide some catalyst for change. There is still a requirement for significant additional funding to implement identified ‘transformative strategies’.

Population projections for SWEK

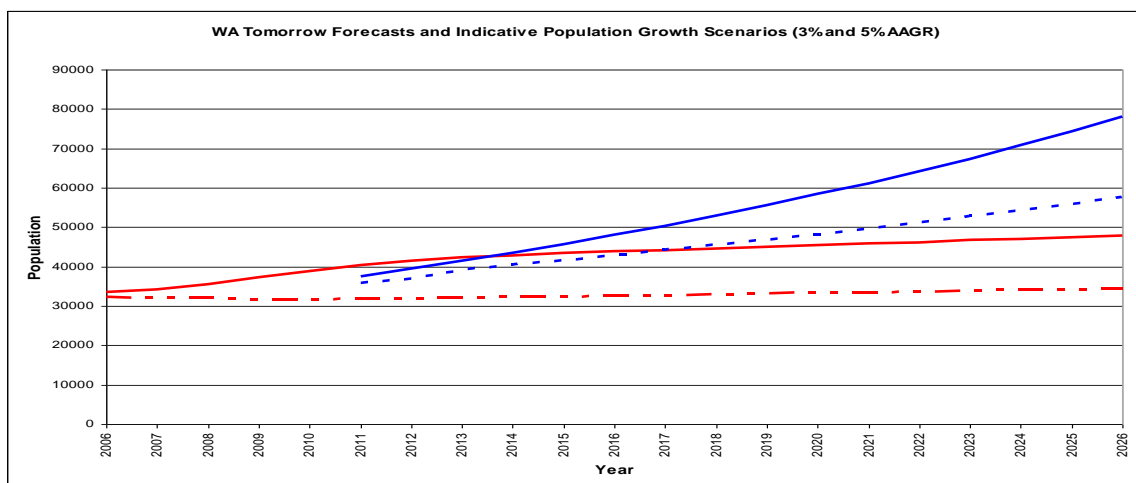
It has surfaced recently that SWEK has engaged Macroplan to investigate similar matters relating to population. The document, which is entitled ‘East Kimberley @ 25’, uses the AAGR rates from the KRPIF for Kununurra and Wyndham. In addition, it also applies AAGR for the whole shire. After some deliberation during preparation of the KRPIF, applying aspirational populations for entire shires was considered to be somewhat problematic given the potential for variations within specific settlements and the likelihood of compounding these issues should rates vary above or below the preferred scenario.

Western Australia Tomorrow

As discussed throughout Chapter 4 of the KRPIF, the WAPC, in its capacity as the State Demographer, released a new edition of its *Western Australia Tomorrow* publication in 2012. This publication provides updated population forecasts for the State's regions (including the Kimberley) and local government areas, such as: the shires of Broome, Derby West-Kimberley, Wyndham-East Kimberley, and Halls Creek between 2011 and 2026.

As opposed to aspirational growth methodology used in the KRPIF, the data published in *Western Australia Tomorrow* are referred to as 'forecasts'. Put simply, aspirational growth calculations in the KRPIF apply a uniform rate of growth – the AAGR – which is applied for each year on the time horizon (2011-2036) resulting in an exponential graph. The forecasts in *Western Australia Tomorrow*, however, have been calculated using an internationally accepted statistical model that takes into account past and emerging trends in key demographic variables, such as: birth/death rates and net in/out migration to determine probable future growth. Typically, the trajectories of these forecasts 'smooth' as a function of time after the baseline due to reduced certainty about the input variables.

Forecasts versus scenarios



Aspiration versus forecast

The methodologies to calculate aspirational scenarios and population forecasts are fundamentally different – both deliver substantially different results – an understanding of this fact needs to underpin this analysis (as discussed in the KRPIF). It should be noted that WAPC has (and will continue) to publish papers demonstrating the accuracy of its forecasts. As such, due to methodological shortcomings aspirational scenarios must be read with a significant degree of caution. This does not, however, mean scenarios should not be used as they will continue to form the basis for goal and target setting that is necessary to guide implementation of transformative strategies whether these are related to promoting economic growth, generating employment opportunities or augmenting infrastructure capacity.

An Additional Discussion

Population Growth in the Kimberley as an Economic Sustainability Objective

There is a general consensus that regional growth depends on broadening the economic base.¹ Population growth is often correlated to economic growth, which in turn is associated with improved livelihoods, creating jobs opportunities and raising household and government incomes. It is relevant to consider how population growth objectives interrelate with regional development aspirations.

The Australian National University's discussion paper *Characteristics of Economic Sustainability in Regional Australia*² seeks to understand the impact of population movements, economic growth cycles, investment cycles, and adaptation to changing external drivers like commodities and resources prices and consumer/resident preferences, to identify characteristics of long-term sustainability in an Australia context. Amongst the findings is that the rate of population growth is not as important as increasing per-capita incomes through human capacity building and that an increase in population has no causality to an increase in per-capita incomes.

The discussion paper also examines population sizes that have the capacity to adapt to economic shocks. It finds that a population of 15,000 represents a critical mass for a town to become resilient to shocks through economic diversity and adaptability capacity. A population below 15,000 is significantly more likely to be profoundly affected by negative economic shocks. The paper summarises that “...economic sustainability in regional Australia appears to be more dependent on adaptation and capacity for regional transitions than on population growth”.

The effects of population change vary according to the underlying forces driving change and the impact this has on local demographics.³ The influence of population change on productivity and income per capita is influenced by the supply of labour, macroeconomic variables, structure of the economy, potential economies of scale, endowment of natural resources and the effects on trade. The overall impact is the sum of these influences of which some are positive and some may be negative.⁴ Population growth will be dependent on a sustained demand for an increasing number of workers and the infrastructure, such as housing, to service a growing resident demand.⁵

Kimberley Impacts

The Kimberley is sparsely populated with Broome being the only Kimberley town with a population that marginally resembles critical mass. Whilst there is not an agreed correlation between economic and population growth, there is a need for the Kimberley to develop an environment to attract a population of critical mass that provides the impetus for increased investment, buffers economic shocks and stimulates economic and social development objectives.

¹ Regional Australia Institute, *Rethinking the Future of Northern Australia's Regions*, Regional Research Report – November 2013.

² Australian National University, *Characteristics of Economic Sustainability*, Discussion Paper for the HC Coombs Policy Forum, 2011.

³ The Department of Regional Australia, Local Government, Arts and Sport's *Regional Economic Development Guide*, Canberra, 2013.

⁴ Australian Government, *Economic Impacts of Migration and Population Growth*, Productivity Commission Research Report, April 2006.

⁵ Hugo, G, 'Is decentralisation the answer?', in Australian Government Productivity Commission A 'Sustainable' Population? – Key Policy issues, Canberra, March 2011.

A strong local economy will provide the impetus for inbound migration and investment to the region. Population growth objectives represent one component a larger holistic approach to regional development that is both an enabler and an outcome of transformational objectives.