

# Multi-scaled, mixed-method research:

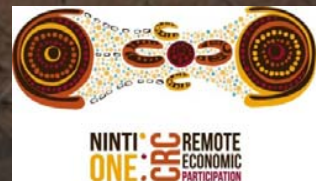
An approach to understanding complex local and regional effects of global mining operations in regional Australia

SDIMI 2013 Conference

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National Research  
**FLAGSHIPS**  
Minerals Down Under  
CSIRO



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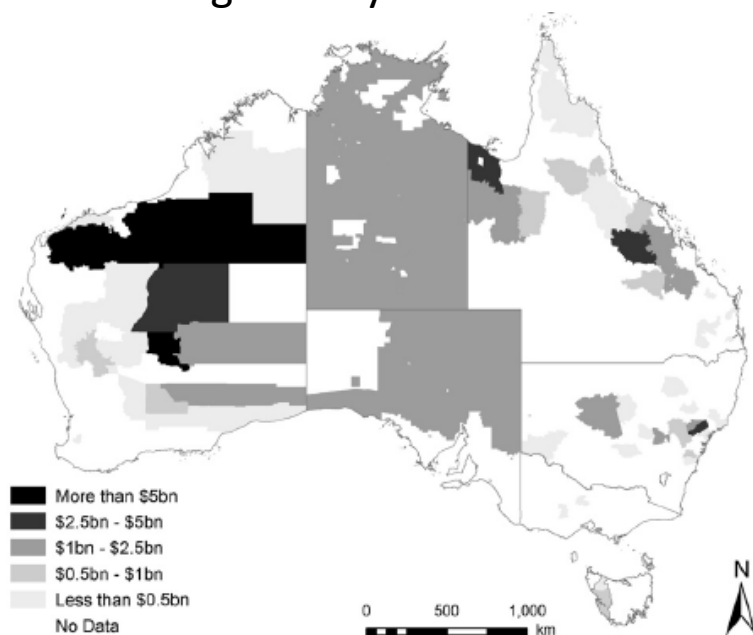
# Recent Research:

- **CSIRO Minerals Down Under** program, *Regions in Transition*, part of the Minerals Futures Flagship
- **Commonwealth Department of Regional Australia, Local government, Arts & Sport**
- **Co-operative Research Centre - Remote Economic Participation**, *Remote Economies* research agenda

# Mining Sector:

- Has experienced exponential growth in past decade.
- 9% of WA's workforce is employed by mining (114,800 people) (2% nationally) (ABS 2012)
- 2006–07 to 2010–11
  - Expenditure on mineral exploration increased 72%.
  - The value of exports from the mining industry more than doubled to \$136 billion.
- In 2010–11 the industry contributed 55% of total value of goods exported.

## National Scale Research: LGAs with mining activity:



### 71/673 local government areas

- Median weekly household income.
- Housing affordability: rent, mortgage/ income.
- Access to communication services.
- Educational level: completed high school education.
- Life expectancy
- Unemployment rate.

Gross value of minerals production across Australia's local government areas in billions of Australian dollars. (2008)

Max = A\$7.9billion. Min = A\$9.1 billion

Source Geoscience Australia 2008 Resource Information Unit 2008), in Hajkowicz et al (2011) The relationship between mining and socio economic well being in Australia's regions Resources Policy 36 pp30-38 .

- No systemic negative associations between gross value of mining and quality of life region
- aggregate indicators
- On aggregate areas with more mining activity better than non mining LGA
  - Scale may mask important intra -regional trends

781 Statistical Local Areas / ABS Socio economic Indexes for Areas (SEIFA) scores

Ranked areas for 2006 (ABS 2008):

- Disadvantage, advantage-disadvantage, economic / score increase with increased mining employment
- Education-occupation /no relationship to mining employment

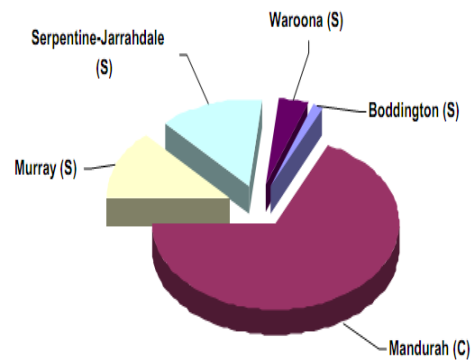
Income analysis based on ABS 2006 Census of Population and Housing Data sets for weekly gross individual income by gender and industry of employment:

- Gini coefficient for personal income significantly associated with levels of mining employment.
- Not linear.
- Score increases with initial increases in mining activity, ie. higher levels of income inequality.
- Decreases at higher levels of mining employment, indicating greater income equality.
- Gender specific. Female inequality continues with higher levels of mining activity .

Reeson et al 2012, Mining Activity, income inequality and gender in regional Australia  
*The Australian Journal of Agricultural and Resource Economics* 56 pp302-313

# Boddington 50 km Radius: Newmont Boddington Gold (NBG) mixed resident/DIDO workforce

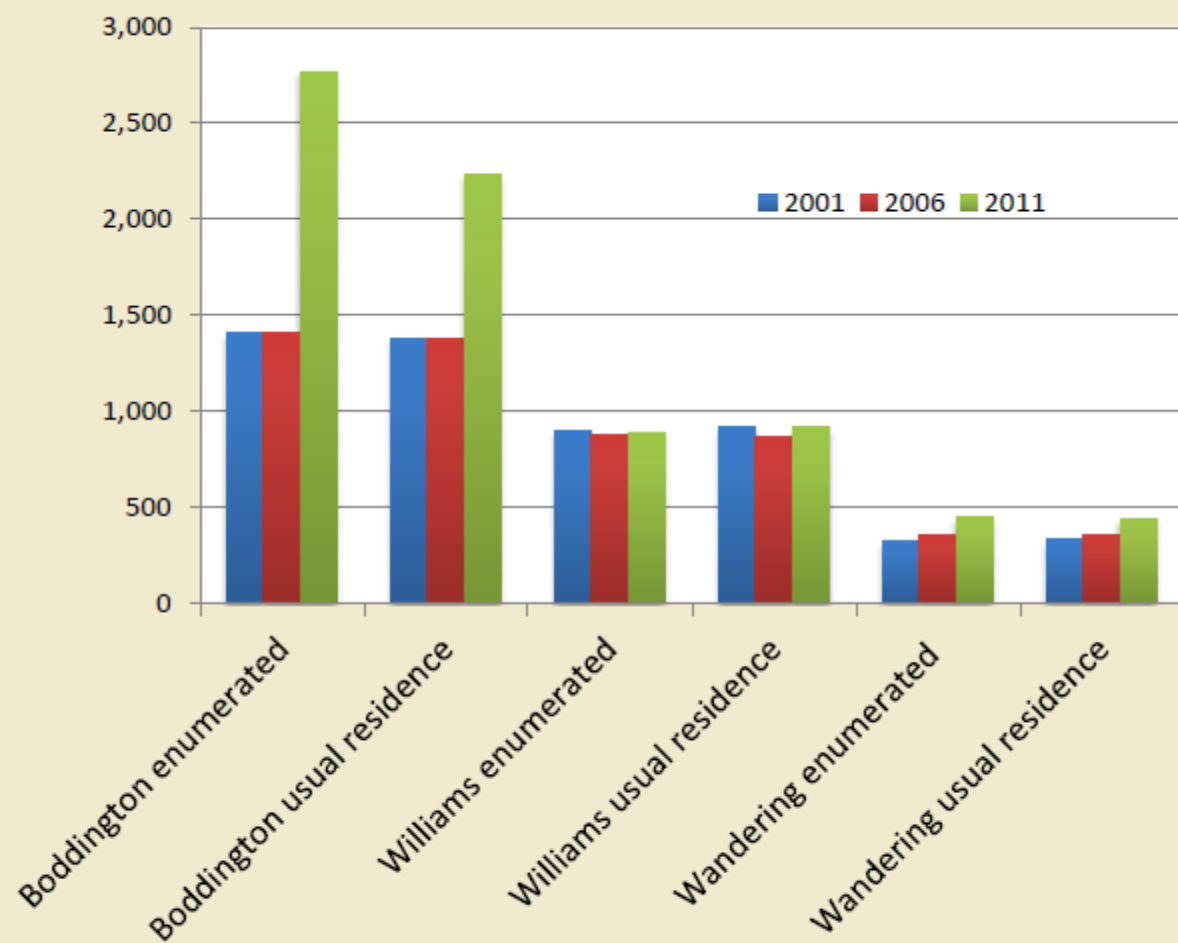
Estimated Resident Population 2006 by Peel Local Government Area



Projected permanent workforce =650  
Company target 65% live local.ie  
Within 50 km radius



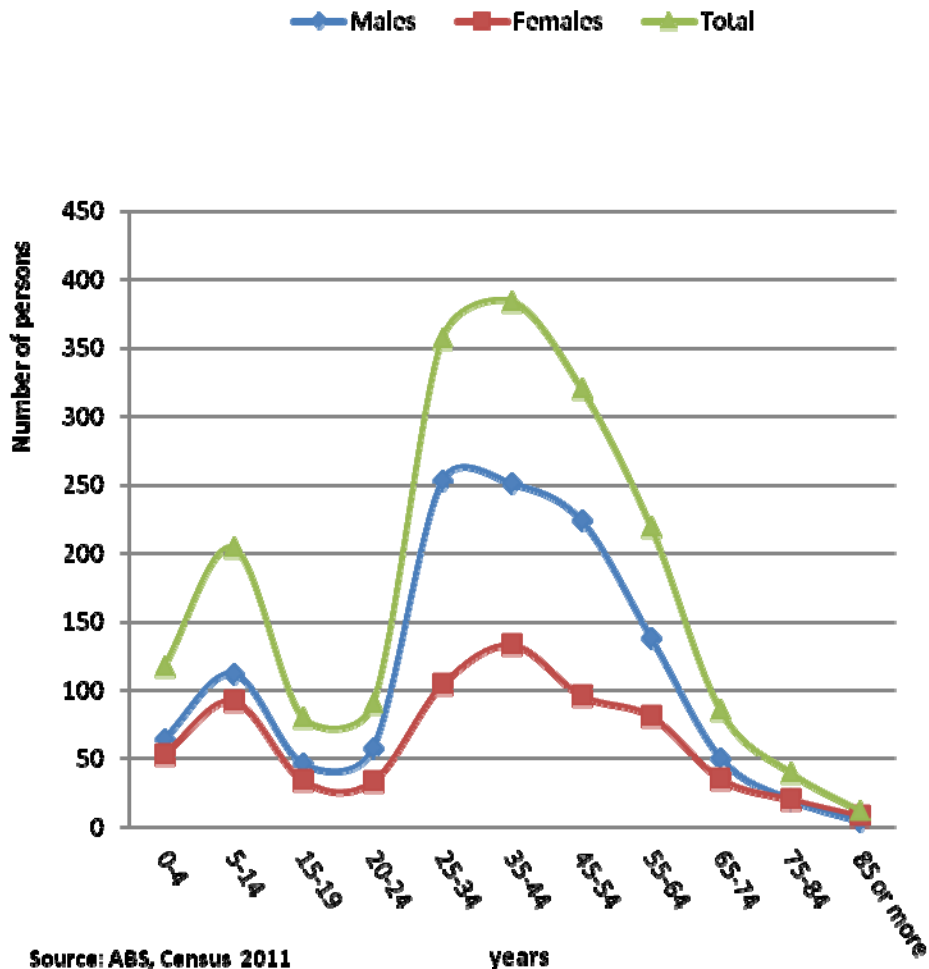
Adapted from ABS census data 2001, 2006, 2011



Survey sample:

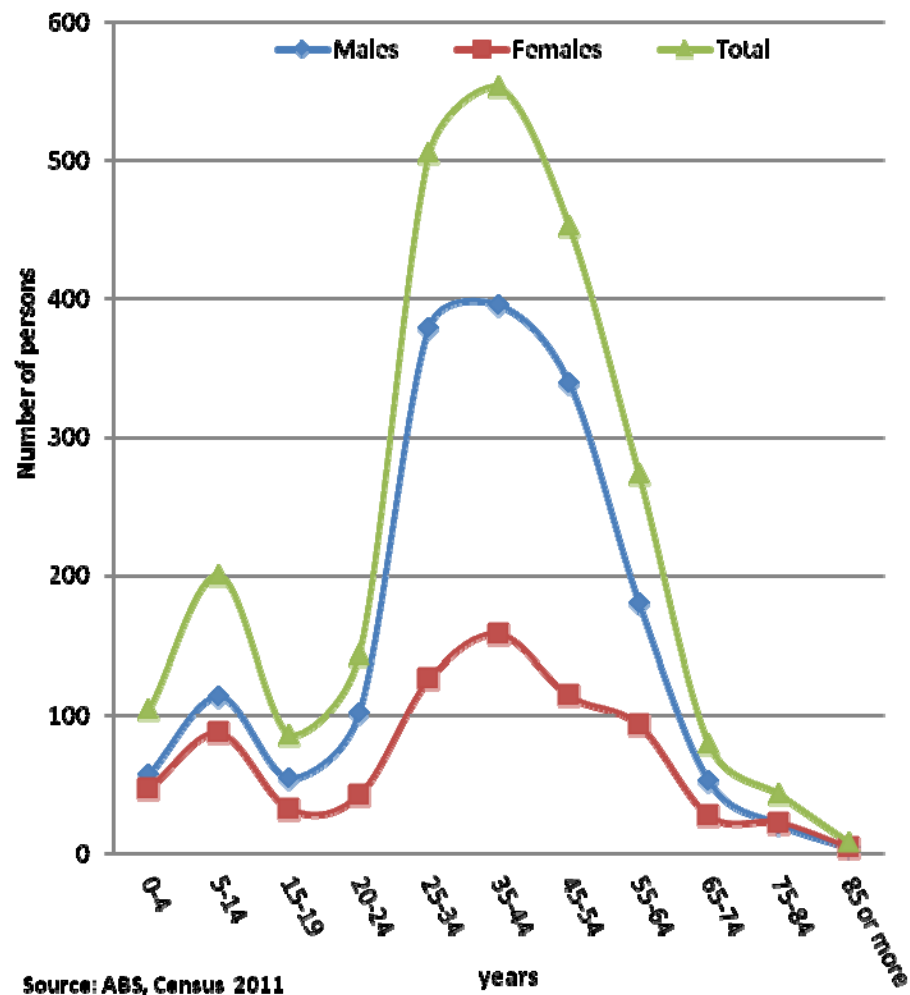


**Shire of Boddington 2011**  
Population by usual residence and age/gender distribution



(Hoath and Pavez 2013)

**Shire of Boddington 2011**  
Population based on place of enumeration and age/gender distribution





# NBG: Where do people live?

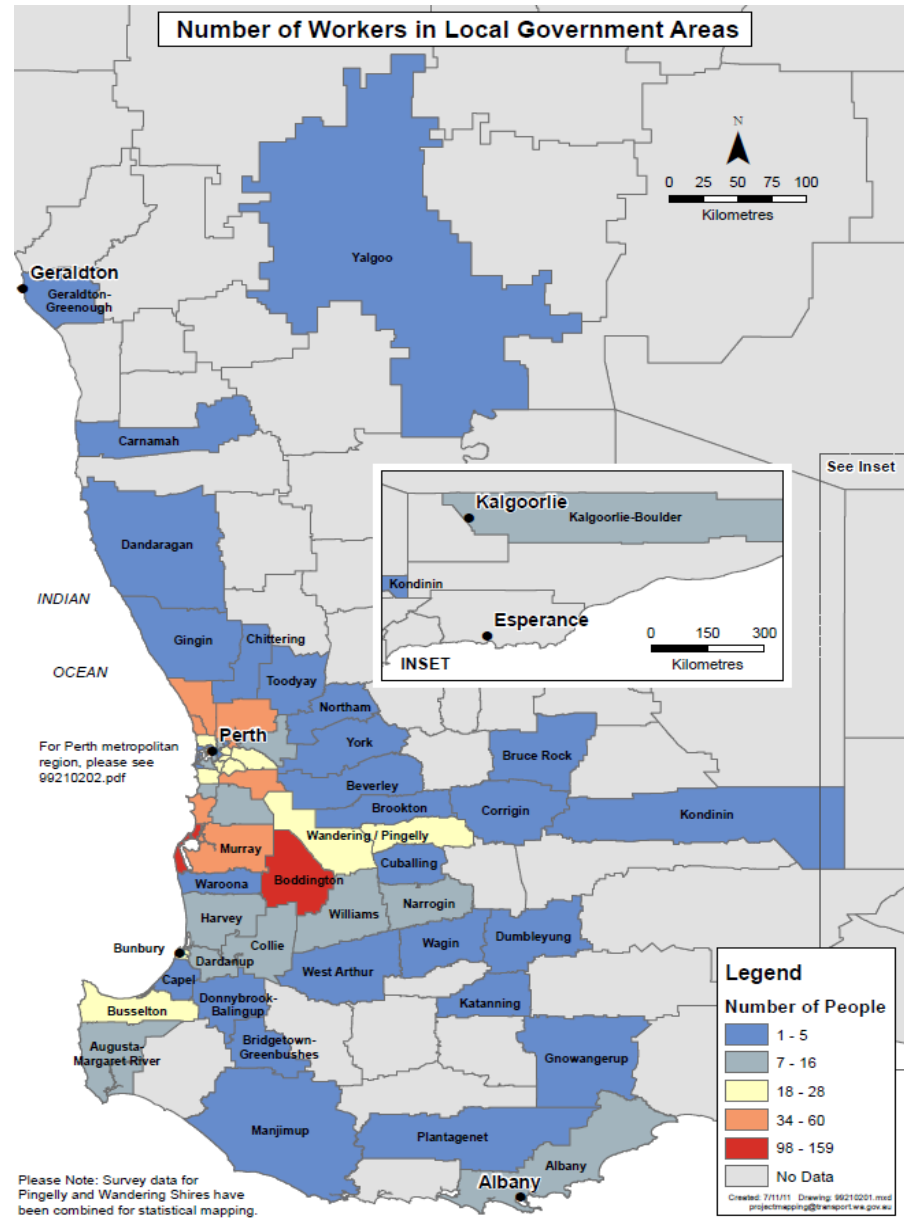
Source:  
Hoath, Haslam McKenzie, & Maybee 2012  
Hoath and Pavez 2013



**NINTI ONE** REMOTE ECONOMIC PARTICIPATION



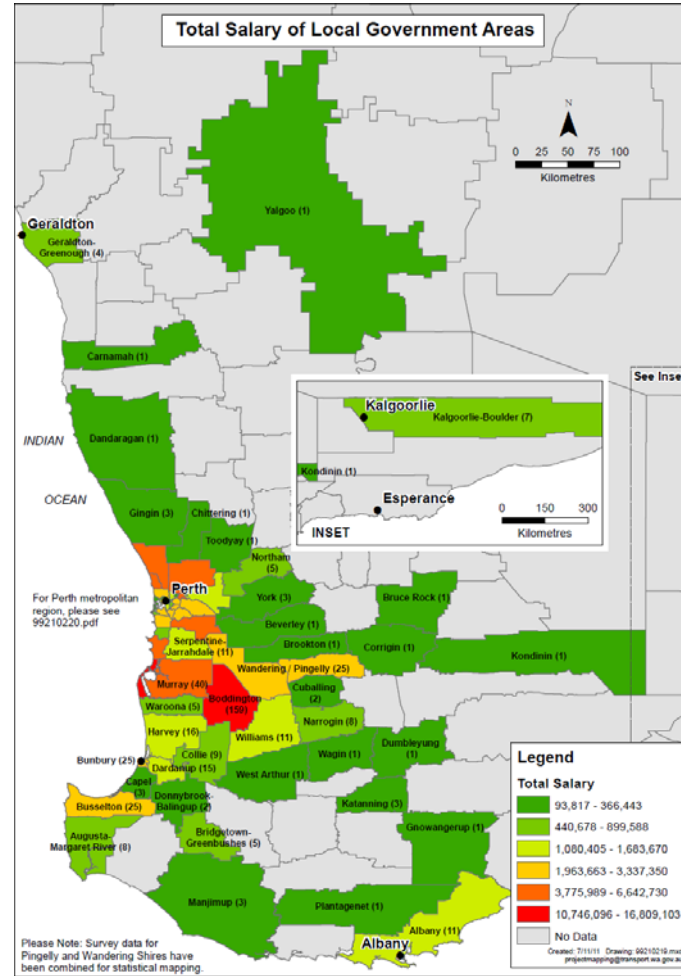
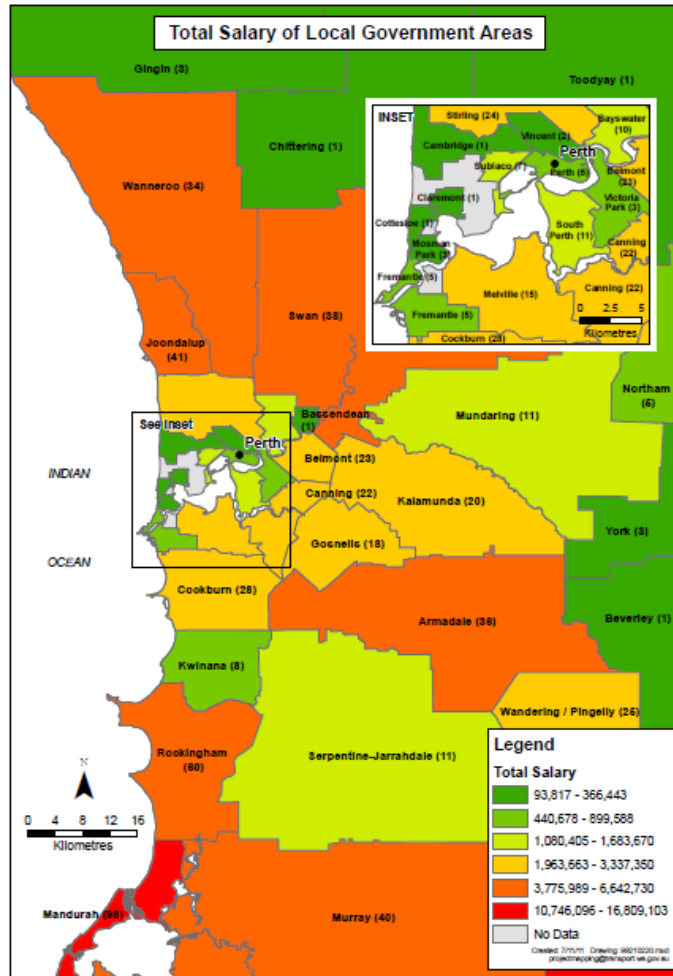
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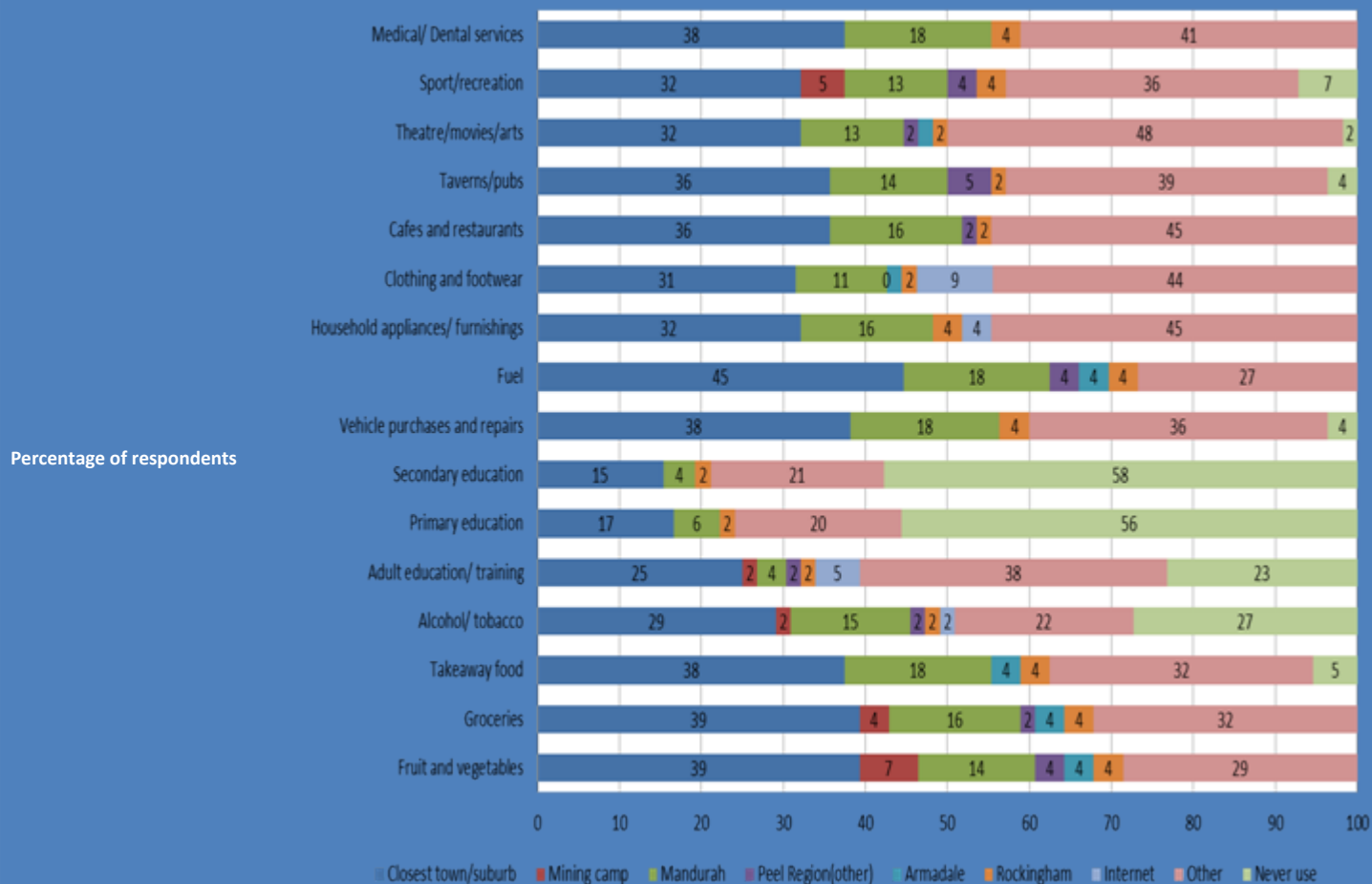


# NBG: Where are miners spending their income?



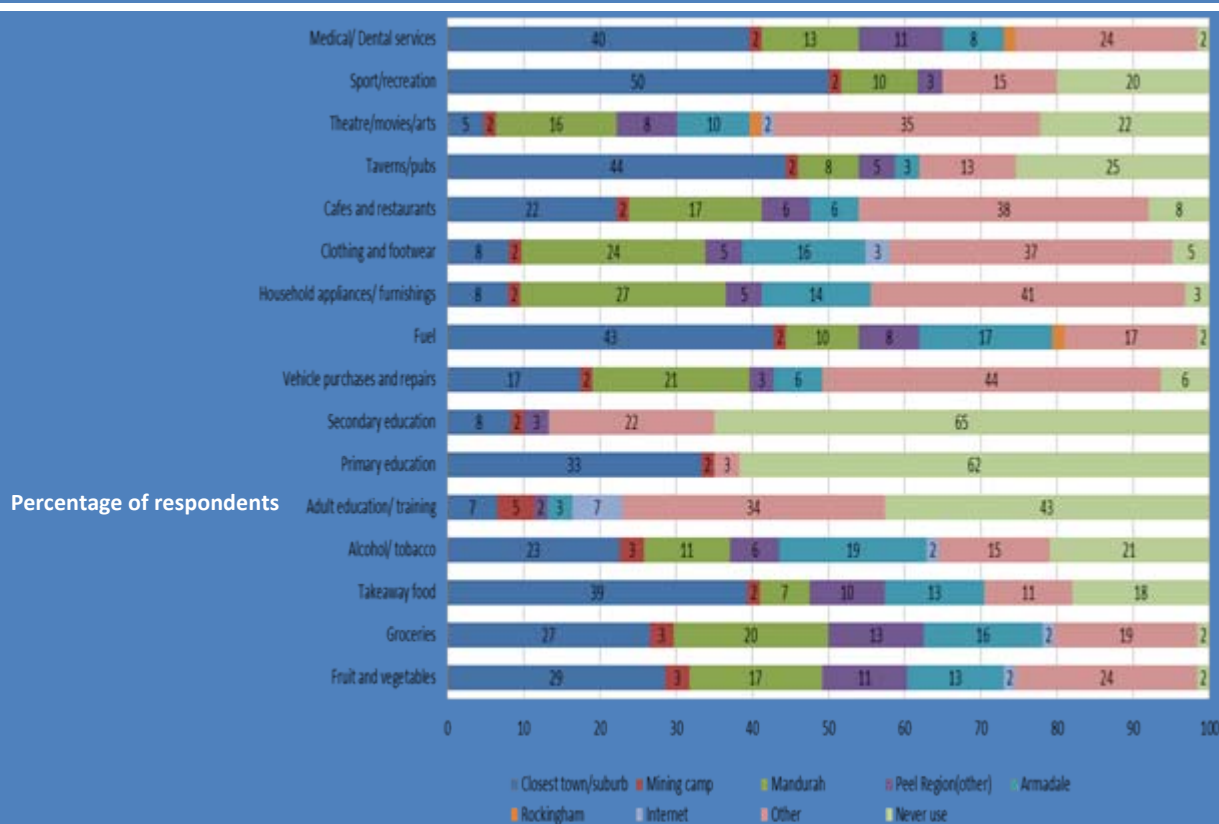
# Residents outside of Boddington 50 km Radius

## Locality most often used to source goods and services by percentage



# Residents in Boddington 50 km Radius

Locality most often used to source goods and services by percentage



# Conclusion

## **Value of Multiscaled, Multi framed Analysis:**

- broad trends,
- comparative context,
- triangulation of data,
- nuanced accounts,
- captures what is locally meaningful,
- internal complexity of targeted localities , communities
- Subjective/ qualitative data has its own stand alone value-  
needs to be read, not converted to hard data.



# Further information:

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