

Mathematics Level 7

Chapter 4 — Geographies of human wellbeing

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Measuring human wellbeing: indicators, indexes and country comparisons

Theory

Countries differ enormously in how well their people live. In 2023, a person born in Australia could expect to live to about 84, while a person born in Chad could expect to live to about 55. Australians spend about 13 years in school; in Niger the average is 1.4 years. These differences are called **differences in human wellbeing between countries**, and this section is about how we measure them: what gets counted, what gets left out, and what happens to the world picture when we change the measure.

What do the words mean? The Victorian Curriculum uses the terms *wellbeing* and *development* but does not define either. Both are **contested terms** — words with competing definitions, where the definition you choose changes the conclusions you reach. An economist may say a country is doing well when its income is growing. A health body may look at how long people live. A community may care most about safety, belonging or freedom. Each definition is a different frame, and the rankings of countries change between frames — which is exactly the problem this section studies.

In this section, *wellbeing* is used in one operational sense: **the quality of life of the people of a place — how well they are living — tracked with measurable indicators of their health, their education and their income**. *Development* is used in the sense given by the United Nations Development Programme (UNDP), which has published the Human Development Report every year since 1990: development means improvements in how people actually live — longer and healthier lives, more knowledge, and a decent standard of living — not just a bigger economy (UNDP, *Human Development Report 2025*). Every question in this section is answerable on these definitions alone, and where another definition would give a different answer, that is said openly.

Three ideas do the heavy lifting all section long:

- An **indicator** is a number that stands for one part of wellbeing, such as life expectancy at birth (the average number of years a newborn could expect to live).
- A single indicator can mislead, so several are used together. Measures that combine several indicators into one number are called **composite measures** or **indexes**.
- A country's value on any measure is a **country-level average**. Averages hide what is going on inside the country — something section 4B takes up for Australia.

Measuring with money: GDP per capita and GNI per capita

The oldest family of measures counts money. **Gross domestic product (GDP)** is the market value of all goods and services produced in a country in a year. **GDP per capita** divides that value by the population, giving an average amount per person per year. It is measured in US dollars so countries can be compared.

Gross national income (GNI) per capita starts from GDP and adds income earned from the rest of the world (such as profits sent home by Australian companies working overseas), minus income sent out of the country. The World Bank publishes GNI per capita for almost every country each year using its standard Atlas method, which smooths out short-term jumps in exchange rates.

Both measures are easy to collect and compare, and they tell you roughly how much economic activity each person has behind them. But they say nothing about how the money is shared, what it is spent on, or whether people are healthy and educated. The size of the difference is striking: in 2024, GDP per person was US\$107,702 in Switzerland but only US\$730 in Niger — a gap of nearly 150 to 1 (World Bank, 2024 data).

Measuring with indexes: the Physical Quality of Life Index

Because money misses so much, researchers built indexes that measure lives rather than incomes. The first widely used one was the **Physical Quality of Life Index (PQLI)**, developed for the Overseas Development Council in the mid-1970s by M.D. Morris. It combines three indicators into one number from 1 to 100:

1. the adult **literacy rate** — the share of adults who can read and write — used directly as a score out of 100;

- the **infant mortality rate** — deaths of babies under one year per 1,000 live births — converted with the formula $(166 - \text{infant mortality rate}) \times 0.625$;
- life expectancy at birth**, converted with the formula $(\text{life expectancy} - 42) \times 2.7$.

The three scores are averaged. The figure below works the method through a fictional country called Modeland so you can see every step. The PQLI was popular in the 1970s and 1980s, but today the UN Human Development Index is the more widely used composite measure.

Calculating the Physical Quality of Life Index (PQLI)

Model country 'Modeland' — a fictional example to show the method (Morris, mid-1970s). PQLI scores run from 1 to 100.

Modeland's starting data

Adult literacy rate: 80%
 Infant mortality rate: 40 per 1,000 live births
 Life expectancy at birth: 65 years

Step 1 — Literacy

Used directly as a score out of 100. Score = 80.0

Step 2 — Infant mortality

Index = $(166 - \text{infant mortality}) \times 0.625$ $(166 - 40) \times 0.625 = 126 \times 0.625 = 78.8$

Step 3 — Life expectancy

Index = $(\text{life expectancy} - 42) \times 2.7$ $(65 - 42) \times 2.7 = 23 \times 2.7 = 62.1$

Step 4 — Average the three scores

PQLI = $(80.0 + 78.8 + 62.1) \div 3 = 220.9 \div 3 = 73.6$

How to read the result

A PQLI of 73.6 out of 100 is a middle result. The weakest dimension is life expectancy (62.1), so health policy would lift Modeland's overall score the most.

The PQLI was popular in the 1970s-1980s because it was simple, but it mixes only three indicators and says nothing about income, so the UN Human Development Index has largely replaced it.

Original diagram, Geography 9. Method: M.D. Morris, Overseas Development Council (mid-1970s), via Wikipedia, 'Physical Quality of Life Index'. Modeland is fictional. Retrieved 25 Aug 2026.

Step-by-step Physical Quality of Life Index calculation for a fictional model country with 80 percent literacy, an infant mortality rate of 40 per thousand and a life expectancy of 65 years, giving a PQLI of 73.6 out of 100

Measuring with indexes: the UN Human Development Index

The best-known composite measure is the **Human Development Index (HDI)**, published by the UNDP. It combines three dimensions of wellbeing — a long and healthy life, knowledge, and a decent standard of living — using four indicators:

- life expectancy at birth** (health);
- expected years of schooling** — the years of schooling a child starting school today can expect (knowledge);
- mean years of schooling** — the average years of schooling among adults aged 25 and over (knowledge);
- GNI per capita** in purchasing-power-parity US dollars (standard of living). Purchasing-power-parity dollars (PPP\$) are adjusted so that one dollar buys the same amount of goods and services in every country, which makes fair comparisons possible.

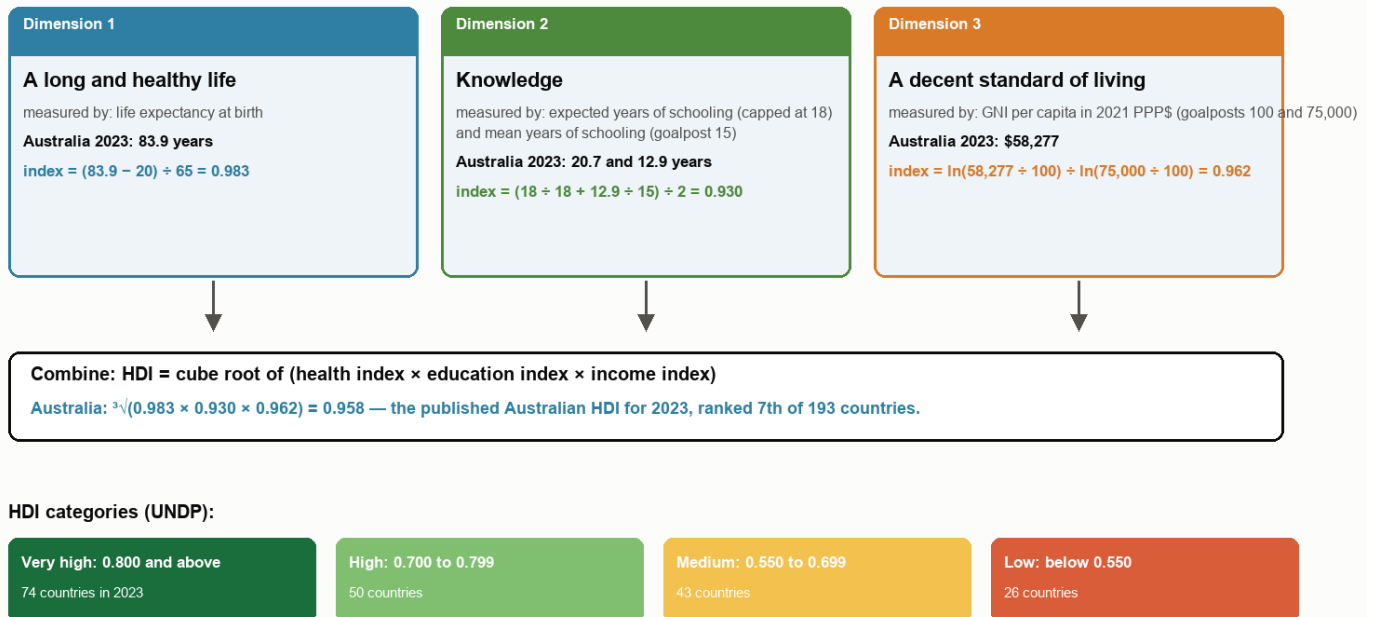
Each indicator is turned into an index between 0 and 1 using fixed goalposts, the three indexes are multiplied together, and the cube root is taken. (The cube root of a number is the value that, multiplied by itself three times, gives that number.) Worked example 1 below does the full calculation for Australia.

The HDI runs from 0 to 1. In 2023 the UNDP ranked 193 countries and sorted them into four categories: **very high** (0.800 and above, 74 countries), **high** (0.700 to 0.799, 50 countries), **medium** (0.550 to 0.699, 43 countries) and **low**

(below 0.550, 26 countries). Iceland topped the ranking at 0.972; South Sudan was last at 0.388; Australia was 7th at 0.958 (UNDP, *Human Development Report 2025*, 2023 data).

How the Human Development Index (HDI) is built

UNDP combines three dimensions into one number between 0 and 1 (shown: Australia, 2023 data).



Original diagram, Geography 9. Data: UNDP Human Development Report 2025 composite indices, 2023 values. Retrieved 25 Aug 2026.

Diagram of how the Human Development Index is built from its three dimensions — a long and healthy life, knowledge, and a decent standard of living — using Australia's 2023 data, ending in an HDI of 0.958 and the four UNDP category thresholds

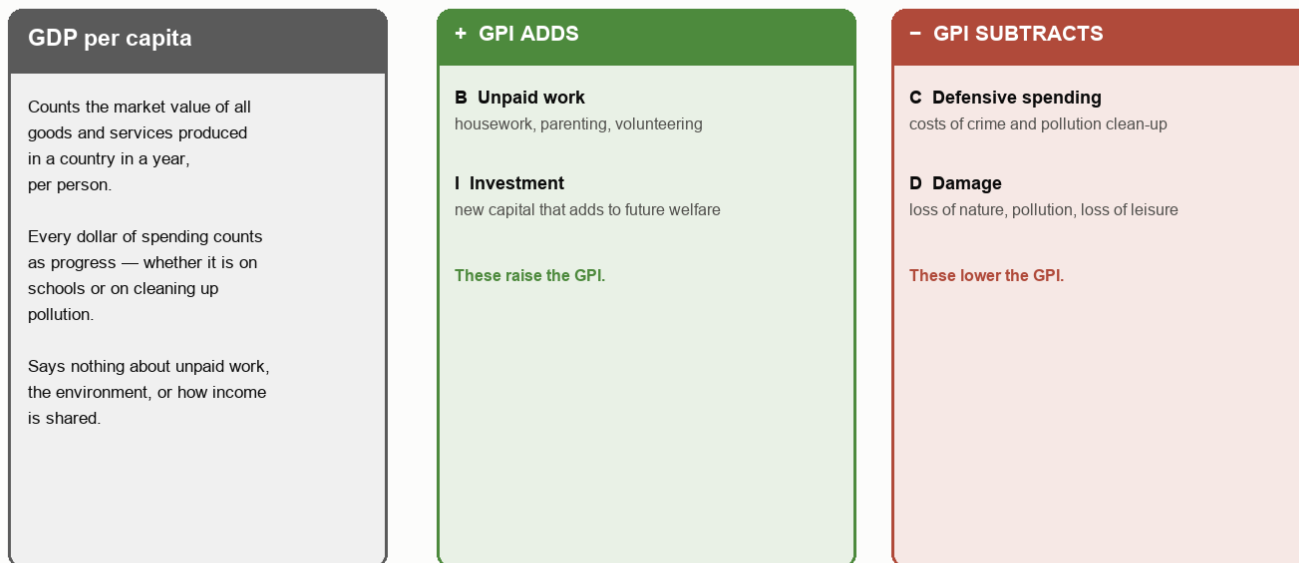
Measuring with indexes: the Genuine Progress Indicator

A third approach keeps money but changes what counts. The **Genuine Progress Indicator (GPI)** was first published in 1995 by the research group Redefining Progress (Cobb, Halstead and Rowe). It starts with personal consumption, then adds the value of unpaid work — housework, parenting and volunteering — and subtracts costs that GDP ignores or rewards, such as air and water pollution, crime, and the loss of leisure time. The key claim is that GDP treats every dollar of spending as progress, even spending that repairs damage, while the GPI counts repairing damage as a loss. As of 2014, four US states — Vermont, Maryland, Washington and Hawaii — had passed initiatives to measure the GPI alongside GDP.

What gets counted? GDP compared with the Genuine Progress Indicator (GPI)

GPI (Redefining Progress, 1995) = A + B – C – D + I. It keeps money values, but changes what counts as progress.

GPI adjusts personal consumption (A) by:



By 2014, four US states — Vermont, Maryland, Washington and Hawaii — had passed initiatives to measure GPI alongside GDP. Unlike GDP, the GPI treats pollution as a loss, not a gain.

Original diagram, Geography 9. Content: Redefining Progress (1995) GPI framework; US state adoptions per Wikipedia, 'Genuine progress indicator'. Retrieved 25 Aug 2026.

Diagram comparing what GDP counts with what the Genuine Progress Indicator adds, such as unpaid housework and volunteering, and subtracts, such as pollution, crime and loss of leisure time

Five measures at a glance

Five ways of measuring human wellbeing

Measure	What it counts	Result looks like	Who publishes it	First used
GDP per capita	The market value of all goods and services produced in a country	Money per person per year	National statistical agencies;	1930s–1940s
GNI per capita	GDP plus income flowing in from overseas (minus income flowing out)	Money per person per year	World Bank (Atlas method)	1960s
Physical Quality of Life Index	Average of literacy, indexed infant mortality and indexed life expectancy	A number from 1 to 100	Developed for the Overseas Development Council	Mid-1970s
Human Development Index	Three dimensions: long and healthy life, knowledge (schooling), and a decent standard of living	A number from 0 to 1; ranked by country	United Nations Development Programme	1990
Genuine Progress Indicator	Personal consumption, plus unpaid work such as housework and volunteering, minus pollution and loss of leisure	Money per person per year	Redefining Progress; several others	1995

Compiled from UNDP, Human Development Report 2025; World Bank; Redefining Progress (1995); M.D. Morris / Overseas Development Council (mid-1970s). Retrieved 25 Aug 2026.

Table comparing five ways of measuring human wellbeing — GDP per capita, GNI per capita, the Physical Quality of Life Index, the Human Development Index and the Genuine Progress Indicator — by what each counts, what the result looks like, who publishes it and when it was first used

Comparing the measures: what each side gets right

Here the section's central argument matters, and both sides deserve their strongest form before either is judged.

The strongest case for income measures. GDP and GNI per capita are collected the same way in almost every country, updated every year, and understood by everyone. More important, income is not just one good thing among

others — it is the thing that pays for the rest. Countries with high GNI per capita can afford hospitals, schools, clean water and courts, and in the data this shows: nearly every very-high-HDI country is also a high-income country. Critics of GDP who ignore this point underestimate how much money genuinely buys.

The strongest case against income measures. Three objections carry real weight. First, income measures say nothing about **distribution**: a country's average can rise while most of its people get poorer. Second, GDP counts damage-repair as progress — an oil spill raises GDP when the clean-up is paid for — and ignores unpaid work, most of it done by women. Third, income can be high while lives are not: the United States has the highest GDP per capita of any large country, yet its life expectancy (79.3 years in 2023) is more than four years below Australia's (83.9), and Australia ranks higher on the HDI (7th versus 17th).

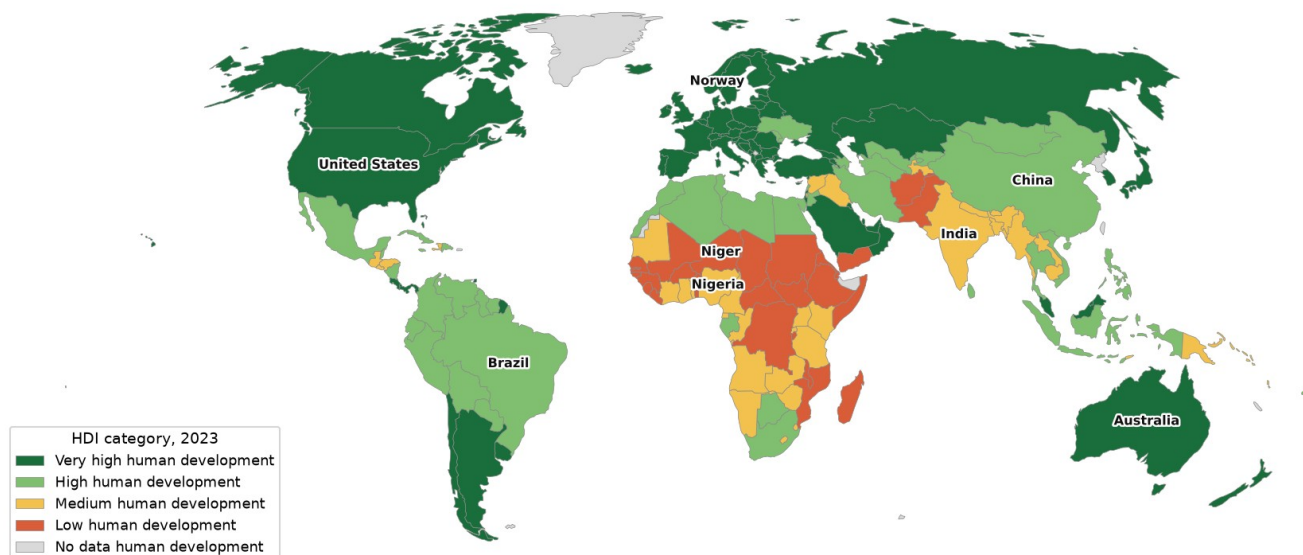
The strongest case back. Composite measures have their own weaknesses, and it is only fair to name them. Someone chose the HDI's three dimensions, its goalposts and its equal weights — other choices would give other rankings, so the HDI is a definition with authority behind it, not a law of nature. The GPI's added and subtracted items are even more contestable, because putting dollar values on crime or lost leisure requires judgements that reasonable people disagree about. And indexes can hide as much as they show: one number per country still says nothing about who, inside the country, is missing out.

The honest conclusion is not “one measure is right”. It is that **each measure answers a different question** — how much economic activity, how long and educated and comfortable lives are, or whether growth is worth its costs — and geography gets its picture by comparing the answers and asking where they disagree. Worked example 2 studies one of those disagreements in detail.

The global distribution of wellbeing

Measured by the HDI, human wellbeing is not spread evenly across the world. The map below shows the 2023 categories. Very-high-HDI countries cluster in Europe, North America and East Asia, and include Australia and New Zealand. Low-HDI countries are concentrated in Sub-Saharan Africa — especially the dry belt south of the Sahara called the Sahel, home to Niger, Chad, the Central African Republic and South Sudan — with further low values in parts of South Asia.

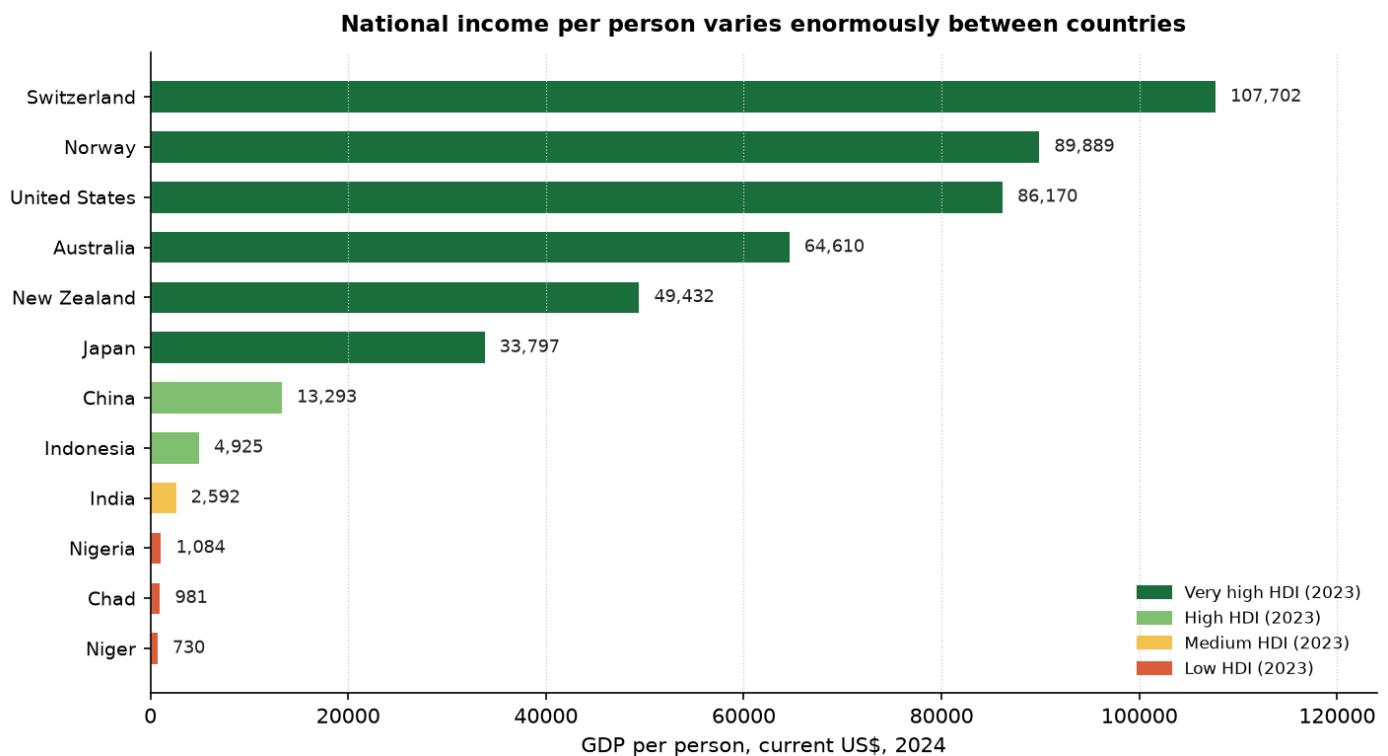
Human development across the world, 2023
Human Development Index categories (UNDP), 193 countries ranked



Data: UNDP, Human Development Report 2025 composite indices (2023 values). Map base: Natural Earth 110m admin-0 countries (public domain). Retrieved 25 Aug 2026.

World map coloured by Human Development Index category in 2023, showing very high human development concentrated in Europe, North America, East Asia and Australasia, and low human development concentrated in Sub-Saharan Africa, with Norway, the United States, Brazil, Australia, China, India, Nigeria and Niger labelled

Income follows a similar spatial pattern, with the same places at the top and bottom.



Sources: World Bank, World Development Indicators (GDP per capita, current US\$, 2024); UNDP, Human Development Report 2025 (2023 HDI categories). Retrieved 25 Aug 2026.

Horizontal bar chart of GDP per person in current US dollars in 2024 for twelve countries, from Switzerland at US\$107,702 down to Niger at US\$730, with bars coloured by each country's 2023 Human Development Index category

Why does the pattern look like this? Geographers can describe a pattern with confidence, but its **causes are harder to establish, and the explanations below are informed speculation, not settled fact**. Candidates include:

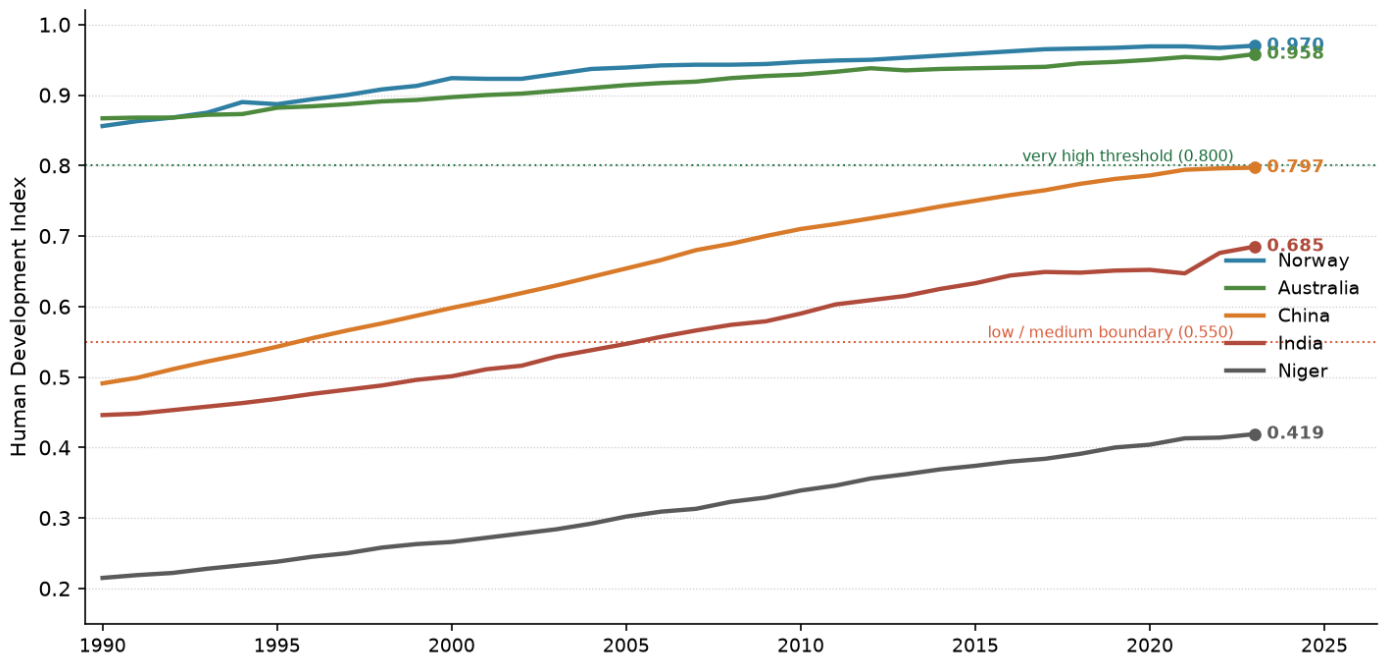
- **Environment and climate.** Much of the low-HDI belt is dry, drought-prone or disease-prone, which makes farming harder and health spending go further.
- **Location and trade.** Several of the poorest countries, including Niger and Chad, are landlocked and far from the sea routes that carry most world trade.
- **History.** Most of Sub-Saharan Africa was ruled by European colonial powers until the mid-twentieth century, and colonial economies were built to extract resources rather than to build schools, hospitals and local industry.
- **Government and conflict.** War destroys infrastructure and drives people from their homes; South Sudan, the lowest-ranked country in 2023, has endured civil war for most of its short existence. Stable governments that invest in education and health, by contrast, can move fast — as China's story below shows.

No single cause explains the pattern, and honest speculation says so: these factors interact, and testing any one of them needs the kind of controlled comparison you meet in section 4B.

Trends over time

Wellbeing is also changing through time. The UNDP's HDI time series (1990 to 2023) shows two things at once: almost every country has improved, but countries have improved at very different speeds.

HDI trends, 1990 to 2023: five countries



Source: UNDP, Human Development Report 2025 composite indices (HDI time series 1990-2023). Retrieved 25 Aug 2026.

Line graph of Human Development Index values from 1990 to 2023 for Norway, Australia, China, India and Niger, showing China and India rising quickly from below 0.5 while Norway and Australia stay above 0.85 and Niger rises slowly from below 0.25

Between 1990 and 2023:

- China's HDI rose from 0.491 to 0.797, a gain of **0.306** — the largest gain of the five countries shown, carrying China from the low category into the high one.
- India's HDI rose from 0.446 to 0.685, a gain of **0.239**.
- Niger's HDI rose from 0.215 to 0.419, a gain of **0.204** — real progress, but Niger is still further from the medium category today than India was in 1990.
- Norway (0.856 to 0.970) and Australia (0.867 to 0.958) started high and still climbed, gaining 0.114 and 0.091.

Notice what the trends do **not** show: the gaps closing. When a country starts near the top of a 0-to-1 scale, gains are slow; when it starts near the bottom, even fast gains leave a long way to go. Progress and catch-up are different things.

Where wellbeing is low: seven indicators

The curriculum asks not just where wellbeing is high and low, but where **poor** wellbeing is distributed, indicator by indicator. The table below compares four countries across six measures, and the paragraphs that follow walk through seven indicators in turn — the table's six plus access to education, then child labour, slavery and freedom of speech. The striking spatial fact is that the same countries keep appearing: low wellbeing clusters.

Where human wellbeing is lowest: four countries compared (2023 unless noted)

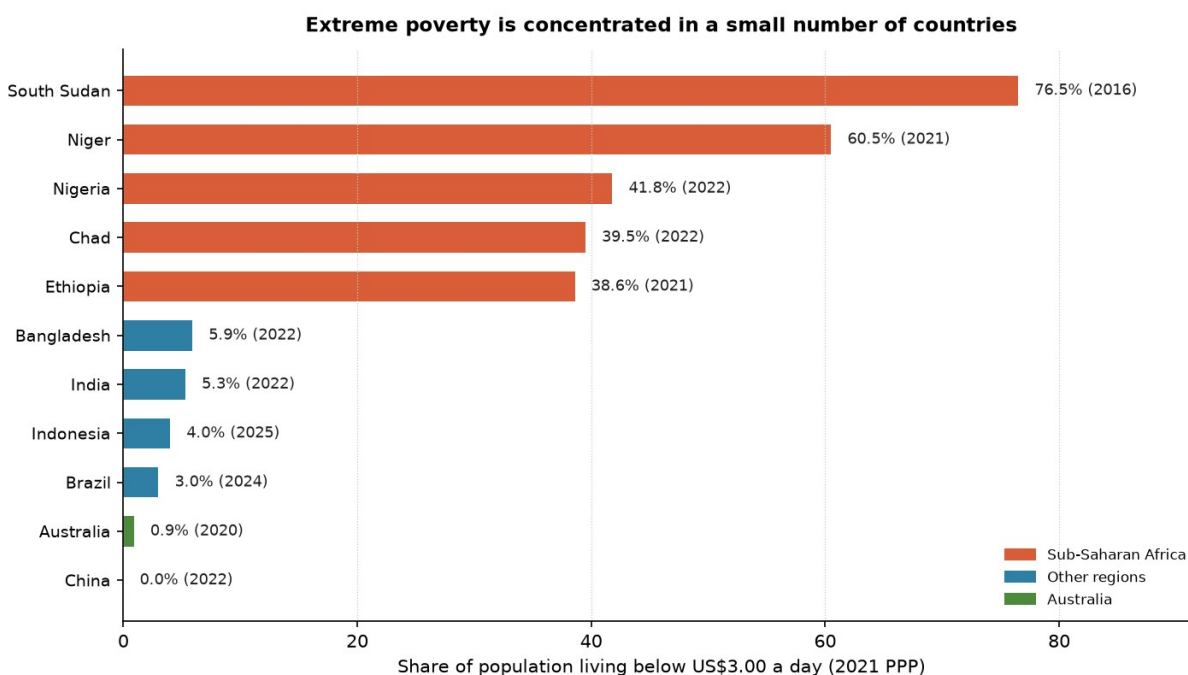
Indicator	Australia	India	Nigeria	Niger
HDI, 2023 (rank of 193)	0.958 (7)	0.685 (130)	0.560 (164)	0.419 (188)
Life expectancy at birth, 2023 (years)	83.9	72.0	54.5	61.2
Mean years of schooling, 2023 (years)	12.9	6.9	7.6	1.4
GNI per person, 2023 (2021 PPP US\$)	58,277	9,047	5,569	1,590
Living below US\$3.00 a day (latest survey)	0.9% (2020)	5.3% (2022)	41.8% (2022)	60.5% (2021)
Gender Inequality Index, 2023 (0 = equal)	0.056	0.403	0.677	0.591

Sources: UNDP, Human Development Report 2025 composite indices; World Bank, World Development Indicators (SI.POV.DDAY). Red marks the weakest result on each row. Retrieved 25 Aug 2026.

Table comparing Australia, India, Nigeria and Niger across six indicators in 2023 unless noted — HDI and rank, life expectancy, mean years of schooling, GNI per person, the share of people below US\$3.00 a day, and the Gender Inequality Index — with the weakest result on each row marked

Low life expectancy. Life expectancy is lowest in the same countries that rank lowest on the HDI: Chad (55.1 years), Nigeria (54.5), South Sudan (57.6) and the Central African Republic (57.4), against 83.9 in Australia (UNDP, 2023). Australia's own life tables put life expectancy at birth at 81.1 years for males and 85.1 for females (ABS, 2022–2024).

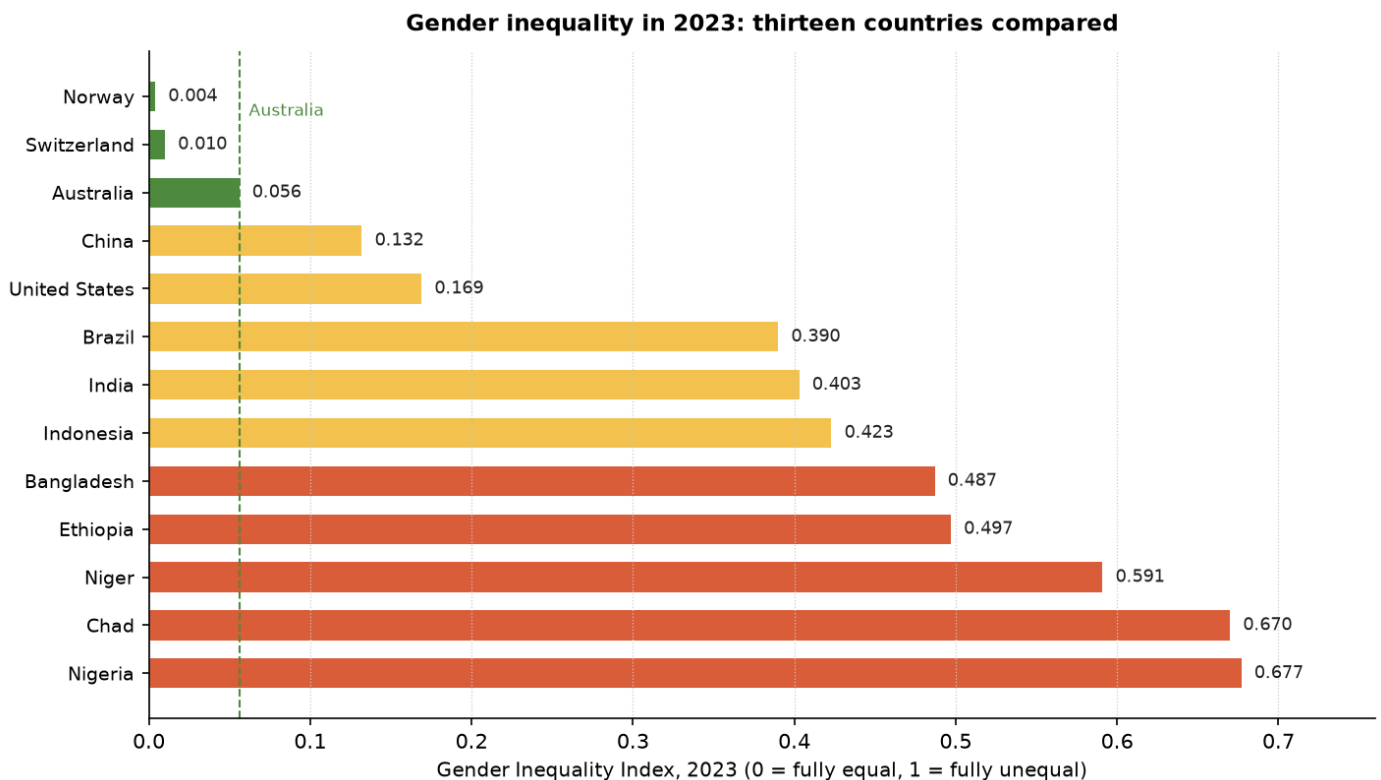
Poverty. The World Bank counts people as living in **extreme poverty** when they live on less than US\$3.00 a day (in 2021 PPP dollars). In 2025 about **831 million people** worldwide lived below that line, down from about 2.3 billion in 1990 — enormous progress, but progress with a geography: extreme poverty is now concentrated in Sub-Saharan Africa, and around 412 million of the people in it — about one in five — are children (World Bank, 2024–2025 data). The figure shows the share of people below the line in eleven countries, each at its latest survey.



Source: World Bank, World Development Indicators, SI.POV.DDAY — poverty headcount ratio at US\$3.00 a day (2021 PPP); each bar is that country's latest household survey, 2016–2025. Retrieved 25 Aug 2026.

Horizontal bar chart of the share of people living below US\$3.00 a day at 2021 purchasing-power-parity values for eleven countries, from South Sudan at 76.5 percent down to Australia at 0.9 percent and China at 0.0 percent, with each country's survey year shown

Gender inequality. The UNDP's **Gender Inequality Index (GII)** measures how much wellbeing is lost because of inequality between women and men, in reproductive health, empowerment and economic life. It runs from 0 (women and men fare equally) to 1 (they do not at all). In 2023 Norway scored 0.004 and Australia 0.056, while Niger scored 0.591, Chad 0.670 and Nigeria 0.677 — meaning gender inequality takes a far heavier toll on wellbeing in the last three (UNDP, 2023).



Source: UNDP, Human Development Report 2025 composite indices (GII, 2023 values). Retrieved 25 Aug 2026.

Horizontal bar chart of the Gender Inequality Index in 2023 for thirteen countries, from Norway at 0.004 to Nigeria at 0.677, with a dashed line marking Australia's value of 0.056

Lack of access to education. About **250 million children and young people** were out of school worldwide in 2021 (UNESCO estimate, published 2023), and social inequality is a major cause. The country gap is visible in adult literacy: in India, 69.3% of adults could read in 2011, rising to 78.2% by 2024; in Nigeria the rate was 63.2% in 2021 (World Bank/UIS data).

Child labour. **Child labour** is work that deprives children of their childhood and their schooling. The International Labour Organization and UNICEF estimate that in 2024 nearly **138 million children** were in child labour, 54 million of them in dangerous work; that is more than 100 million fewer than in 2000, although the number of 5–11-year-olds has changed very little since 2012 (ILO–UNICEF, global estimates published 11 June 2025).

Slavery. **Modern slavery** means being trapped in work or marriage you cannot leave — **forced labour** and **forced marriage**. The Walk Free Foundation's Global Slavery Index estimates that on any given day in 2021 about **49.6 million people** were living in modern slavery: 27.6 million in forced labour and 22 million in forced marriage. Prevalence was highest in North Korea (about 1 person in 10), Eritrea (9%) and Mauritania (32 per 1,000), while the largest absolute numbers were in India (11 million), China (5.8 million) and North Korea (2.7 million). Modern slavery exists in rich countries too — the index estimates 1.1 million people in the United States (Walk Free, Global Slavery Index 2023).

Lack of freedom of speech. Reporters Without Borders (RSF) ranks 180 countries and territories each year on **press freedom** — how free journalists and media are to report. In 2026 Norway ranked 1st and Australia 33rd, while the bottom three were China (178th), North Korea (179th) and Eritrea (180th). Where journalists are not free to report the news, corruption and failing services are harder to expose and fix — a reason press freedom belongs in any list of wellbeing indicators.

From countries to neighbourhoods: a bridge to 4B

Every number in this section is a country average, and country averages hide internal differences — Australia's HDI of 0.958 says nothing about which Australians are missing out. In Australia, the **Australian Bureau of Statistics (ABS)** measures differences *within* the country using Census data: household income, education levels and unemployment for small areas, combined into the **SEIFA** indexes — four indexes that rank Australian areas by advantage and disadvantage, where a lower score means more disadvantage. The latest SEIFA release is based on the 2021 Census (published 27 April 2023). Section 4B uses these tools to map wellbeing across Melbourne and regional Victoria.

Worked examples

Example 1 — scaffolded (building the HDI from its parts, E01)

Question: Australia's 2023 figures are: life expectancy at birth 83.9 years; expected years of schooling 20.7 years; mean years of schooling 12.9 years; GNI per capita \$58,277 (2021 PPP US\$). Calculate Australia's HDI and interpret the result.

Step	What to do	Worked through
1	Turn life expectancy into a health index using the goalposts 20 and 85 years.	$(83.9 - 20) \div (85 - 20) = 63.9 \div 65 = \mathbf{0.983}$.
2	Turn schooling into an education index. Expected years of schooling is capped at the goalpost of 18, and mean years of schooling is compared with the goalpost 15; average the two.	$(18 \div 18 + 12.9 \div 15) \div 2 = (1.000 + 0.860) \div 2 = \mathbf{0.930}$.
3	Turn GNI per capita into an income index. The UNDP formula uses the $\ln$ key of a scientific calculator (a calculator operation whose values are given here — you do not need to work out how it works): income index = $\ln(\text{GNI} \div 100) \div \ln(75,000 \div 100)$.	$\ln(58,277 \div 100) = 6.368$ and $\ln(75,000 \div 100) = 6.620$, so $6.368 \div 6.620 = \mathbf{0.962}$.
4	Combine the three indexes: multiply them, then take the cube root (the number that, multiplied by itself three times, gives the product).	$0.983 \times 0.930 \times 0.962 = 0.879$. The cube root of 0.879 is 0.958 .
5	Interpret. Compare with the category thresholds and the published ranking.	0.958 is above 0.800, so Australia sits in the very high category — and the calculation reproduces Australia's published 2023 HDI, ranked 7th of 193 countries (UNDP, 2023). ✓

Example 2 — unscaffolded (when income and wellbeing disagree, E01)

Question: The figure compares Australia and the United States on income measures and on wellbeing measures. Describe what it shows, and use it to evaluate the claim: *“To compare how well countries are doing, GDP per capita is all you need.”*

Australia and the United States: rich countries, different wellbeing

Bold green marks the better result on each row. Income measures in current US dollars.

Measure	Australia	United States
GDP per person, 2024 World Bank, market exchange rates	US\$64,610	US\$86,170
GNI per person (Atlas method), 2024 World Bank	US\$62,680	US\$82,910
GNI per person (PPP), 2023 UNDP, 2021 PPP\$	US\$58,277	US\$73,650
Life expectancy at birth, 2023 UNDP	83.9 years	79.3 years
Expected years of schooling, 2023 UNDP	20.7 years	15.9 years
Gender Inequality Index, 2023 (0 = equal) UNDP (lower is better)	0.056	0.169
Human Development Index, 2023 UNDP	0.958 (rank 7 of 193)	0.938 (rank 17 of 193)

The United States has the higher income on every measure, yet Australia scores higher on every wellbeing outcome. Income measures alone do not capture how wellbeing is distributed in a country.

Sources: World Bank, World Development Indicators (2024 income measures); UNDP, Human Development Report 2025 composite indices (2023 values). Retrieved 25 Aug 2026.

Comparison table of Australia and the United States: the United States is higher on GDP per person, GNI per person and GNI at purchasing-power parity in 2024 and 2023, while Australia is higher on life expectancy, expected years of schooling, the Gender Inequality Index and the Human Development Index

Model answer: The two countries rank one way on income and the other way on wellbeing. The United States has more money on every income measure — its GDP per person in 2024 (US\$86,170) was about 1.3 times Australia's (US\$64,610), and its GNI per person at PPP (US\$73,650) was well above Australia's (US\$58,277). Yet Australia performs better on every wellbeing outcome: life expectancy 83.9 years against 79.3, expected years of schooling 20.7 against 15.9, a much lower Gender Inequality Index (0.056 against 0.169), and a higher HDI (0.958 against 0.938 — 7th in the world against 17th). The claim therefore fails its own test: if GDP per capita were all you needed, the United States would outrank Australia on wellbeing too, and it does not. Income pays for hospitals and schools, but how a country organises health care, education and equality decides how much of that spending becomes longer, better lives. GDP per capita is a useful first look, not a full measure.

Practice questions

Scaffolded

Q1. Define **GDP per capita** and **GNI per capita**, and state one difference between them (E01).

Q2. From the five-measures table: identify which measures give a result in money per person and which give an index number, and explain why knowing the difference matters when you compare results (E01).

Q3. A fictional country called Harborea has an adult literacy rate of 60%, an infant mortality rate of 60 per 1,000 live births, and a life expectancy of 55 years. Calculate Harborea's PQLI step by step, using the formulas in the Modeland figure, and say which of its three components pulls its score down the most (E01).

Q4. Using the world map: describe the spatial distribution of very-high-HDI countries and of low-HDI countries in 2023, and name one country from each category with its HDI value (E02).

Q5. From the trends graph and the values in this section: calculate the change in HDI from 1990 to 2023 for China and for Niger, and state which country improved more. Then explain why Niger’s progress still leaves it far from the high category (E03).

Q6. From the poverty figure: the share of people below US\$3.00 a day is 60.5% in Niger and 0.9% in Australia. Calculate how many times larger Niger’s share is (round to the nearest whole number), and state what the figure shows about the spatial distribution of extreme poverty (E04).

Unscaffolded

Q7. “GDP per capita is the best single measure of human wellbeing, because money is what pays for health and education.” Present the strongest case **for** this claim, then evaluate it using at least two pieces of evidence from this section. Both sides must be presented with equal strength (E01).

Q8. Low-HDI countries are concentrated in the Sahel region of Africa. Suggest two possible causes of this spatial pattern, and for each explain why your explanation counts as informed speculation rather than established fact (E02).

Q9. China’s HDI rose by 0.306 between 1990 and 2023 — the largest gain of the five countries in the trends graph — yet China (0.797) still ranked 78th, below Australia (0.958, 7th). Explain why rapid improvement does not necessarily close the gap with high-income countries (E03, E01).

Q10. Using the four-country comparison table, argue which indicator shows the biggest difference between Australia and Nigeria. Support your choice with the numbers, and explain why that indicator might matter for the others (E04).

Inquiry task

Build your own wellbeing index. Working alone or in pairs, you will do what the UNDP’s researchers did in 1990: choose indicators, combine them into one index, rank countries, and defend your choices. Use the data table below — every value in it is real, from the UNDP and the World Bank.

Country	Life expectancy, 2023 (years)	Mean years of schooling, 2023 (years)	GNI per person, 2023 (2021 PPP US\$)	Living below US\$3.00 a day, latest survey	Gender Inequality Index, 2023	HDI, 2023 (rank of 193)
Australia	83.9	12.9	58,277	0.9% (2020)	0.056	0.958 (7)
China	78.0	8.0	22,029	0.0% (2022)	0.132	0.797 (78)
Indonesia	71.1	8.7	13,700	4.0% (2025)	0.423	0.728 (113)
India	72.0	6.9	9,047	5.3% (2022)	0.403	0.685 (130)
Nigeria	54.5	7.6	5,569	41.8% (2022)	0.677	0.560 (164)
Niger	61.2	1.4	1,590	60.5% (2021)	0.591	0.419 (188)

Follow these five steps, and present your work as a one-page report with your table and your ranking.

- Choose exactly three indicators** from the five data columns (you must include at least one from outside the money columns). Write one sentence justifying each choice: what part of wellbeing does it stand for?
- Score every country from 0 to 100 on each chosen indicator.** For indicators where more is better (life expectancy, schooling, GNI): $\text{score} = (\text{country's value} - \text{lowest value}) \div (\text{highest value} - \text{lowest value}) \times 100$. For indicators where less is better (poverty share, Gender Inequality Index): $\text{score} = (\text{highest value} - \text{country's value}) \div (\text{highest value} - \text{lowest value}) \times 100$. Show one worked score in full.
- Average each country’s three scores** to get its index out of 100, and rank the six countries from 1 (best) to 6.
- Compare your ranking with the real HDI ranking** shown in the last column. Where do they agree, where do they disagree — and which choice you made (indicator, or equal weighting) caused any disagreement?
- Reflect.** State (a) one way your index could mislead someone who treated it like the truth, (b) what would change if one indicator counted double, and (c) why the UNDP uses three dimensions instead of just one.

Answers

Q1. GDP per capita is the market value of all goods and services produced in a country in a year, divided by its population; GNI per capita adds income earned from overseas and subtracts income sent abroad, then divides by the population. GNI includes cross-border income flows; GDP does not. **Q2.** Money results: GDP per capita, GNI per capita, GPI. Index results: PQLI (1–100) and HDI (0–1). It matters because indexes only mean something against their scale and categories — an HDI of 0.70 is a threshold, while a dollar figure is a quantity — and the two kinds answer different questions. **Q3.** Literacy score 60.0; infant mortality index $(166 - 60) \times 0.625 = 106 \times 0.625 = 66.25$; life expectancy index $(55 - 42) \times 2.7 = 35.1$; $PQLI = (60.0 + 66.25 + 35.1) \div 3 = 53.8$. Life expectancy pulls the score down the most (35.1 is the lowest component). **Q4.** Very-high-HDI countries cluster in Europe, North America, East Asia and Australasia (e.g. Australia, 0.958); low-HDI countries cluster in Sub-Saharan Africa, especially the Sahel (e.g. Niger, 0.419). **Q5.** China: $0.797 - 0.491 = +0.306$; Niger: $0.419 - 0.215 = +0.204$ — China improved more. Niger started so low that even a large gain leaves it below 0.550, still in the low category. **Q6.** $60.5 \div 0.9 \approx 67$ times. Extreme poverty is concentrated in a few regions — most of the bars above 30% are Sub-Saharan African countries — while East and South Asian countries are now all below 6%. **Q7–Q10.** See the fully-worked solutions.

Fully-worked solutions

Q1. GDP per capita = the market value of everything produced inside a country in one year, divided by the number of people. **GNI per capita** = GDP plus income flowing into the country from the rest of the world (such as profits sent home by companies working overseas) minus income flowing out, divided by the population. The difference is the cross-border income: a country whose mines and factories are largely foreign-owned can have a high GDP but a lower GNI, because some of what is produced is sent overseas as profit.

Q2. From the five-measures table, GDP per capita, GNI per capita and the GPI all give a result in money per person per year, while the PQLI gives a number from 1 to 100 and the HDI a number from 0 to 1. Knowing which kind you are reading matters because the two kinds carry different information: a dollar value measures the size of economic activity behind each person but says nothing directly about health or schooling, while an index bundles chosen indicators into one score that only has meaning against its scale (the UNDP's category thresholds for the HDI, or 1-to-100 for the PQLI). Comparing a dollar figure with an index figure directly is meaningless; each must be read against its own frame.

Q3. Using the PQLI method shown in the Modeland figure: the literacy rate of 60% is used directly, giving 60.0. The infant mortality index is $(166 - 60) \times 0.625 = 106 \times 0.625 = 66.25$. The life expectancy index is $(55 - 42) \times 2.7 = 13 \times 2.7 = 35.1$. The PQLI is the average: $(60.0 + 66.25 + 35.1) \div 3 = 161.35 \div 3 = 53.8$ out of 100. The life expectancy component (35.1) is the lowest of the three, so it pulls the overall score down the most — the same pattern as Modeland, where life expectancy was also the weakest dimension.

Q4. On the 2023 map, very-high-HDI countries are concentrated in Europe (Norway, Switzerland, Germany, Sweden and others), North America (United States), East Asia (Japan) and Australasia (Australia 0.958, New Zealand 0.938). Low-HDI countries are concentrated in Sub-Saharan Africa, above all the Sahel belt and its surroundings: Niger 0.419, Chad 0.416, the Central African Republic 0.414, South Sudan 0.388 and Somalia 0.404 (any correct country–value pair from the map earns the marks.)

Q5. China's HDI rose from 0.491 to 0.797: a gain of **+0.306**. Niger's rose from 0.215 to 0.419: a gain of **+0.204**. China improved more in absolute terms. Niger's progress is real but starts from so low a base that even thirty-three years of gains have not yet carried it out of the low category (below 0.550) — it is still further from the medium category now than India was in 1990. Progress and catch-up are different things: fast growth from a low base still leaves a long absolute gap.

Q6. $60.5 \div 0.9 = 67.2$, so Niger's extreme-poverty share is about **67 times** Australia's. The figure's spatial message is that extreme poverty is concentrated, not spread evenly: every country above 30% is in Sub-Saharan Africa (South Sudan, Niger, Nigeria, Chad, Ethiopia), while the Asian and American countries shown are all below 6%, and Australia and China are under 1%. (The survey years differ between countries — 2016 to 2025 — which is itself a data-quality caution worth noting.)

Q7. A full answer gives both sides equal strength. *The case for:* GDP per capita is collected the same way almost everywhere, updated yearly, and money genuinely buys the inputs of wellbeing — hospitals, schools, clean water, courts. The data backs the link: nearly every very-high-HDI country is a high-income country, and Norway's GNI per person (PPP \$112,710) is about 164 times South Sudan's (\$688). *The case against:* first, income measures hide distribution — the average can rise while most people get poorer; second, GDP counts damage-repair as progress and ignores unpaid work, which the GPI was built to fix; third, income and wellbeing can disagree — the United States out-earns Australia on every income measure (GDP per person US\$86,170 against US\$64,610 in 2024) but ranks below it on life expectancy (79.3 against 83.9 years) and on the HDI (17th against 7th). *Evaluation:* the claim is too strong. GDP per capita is a powerful first look and a genuine enabler, but “all you need” fails wherever money does not translate into lives — and the section shows two such places: distribution within countries, and countries like the United States where high income coexists with lower life expectancy. (Any answer presenting both sides with correct evidence earns full marks; the conclusion may differ if it is reasoned.)

Q8. Model answer. *Cause 1 — environment and climate:* much of the Sahel is dry and drought-prone, which limits farming and raises the cost of health care; Niger's and Chad's low GNIs per person (\$1,590 and \$1,748 in PPP terms) fit a region that struggles to grow food surpluses. *Cause 2 — history and trade:* Niger and Chad are landlocked and far from sea trade routes, and most of the region was under European colonial rule until the mid-twentieth century, with economies built to export raw materials rather than to build schools and industry. *Why speculation:* neither cause can be isolated with the data in this section — climate, history, government and conflict vary together across these countries, and other low-HDI countries (like South Sudan) owe more of their position to war than to climate. Establishing causes needs a controlled comparison that holds the other factors steady, which is the method of section 4B. Any two well-reasoned causes with an honest limits statement earn full marks.

Q9. Three reasons. First, **starting point:** China began at 0.491, so even a record gain of 0.306 only reaches 0.797 — high-income countries started above 0.85 and kept climbing at the same time (Australia gained 0.091), so the finish line moved too. Second, **ceiling effects near 1:** the HDI's components have goalposts (life expectancy 85, mean schooling 15 years, and an income goalpost of PPP \$75,000), and once a country approaches them, further gains are slow and small; countries catching up must close gaps in every dimension at once, since the HDI is a geometric mean. Third, **dimensions lag differently:** China's income grew fastest, but life expectancy (78.0 years) and mean years of schooling (8.0 years) still trail Australia's (83.9 and 12.9) — schools and health systems take generations to build, even with money available.

Q10. Model answer (other indicators are acceptable if argued with the numbers). The biggest difference is on **income**: Australia's GNI per person (PPP \$58,277) is about **10.5 times** Nigeria's (\$5,569) — the largest ratio in the table. The poverty share tells the same story: 41.8% of Nigerians live below US\$3.00 a day against 0.9% of Australians. Why income may matter for the others: low national income means less tax revenue per person to fund hospitals, schools and clean water, which shows up in Nigeria's life expectancy of 54.5 years (29.4 years below Australia's) and in girls' and women's reduced access to education and work — Nigeria also has the worst Gender Inequality Index in the table (0.677 against 0.056). A well-supported argument for life expectancy or the GII as “biggest” also earns full marks, provided the numbers are used and a link to the other indicators is made.

Inquiry task — marking guide. Step 1: three indicators with one-sentence justifications, at least one non-money indicator. Step 2: correct application of the min–max formulas with the “less is better” indicators reversed; one score shown in full. Step 3: correct averages and ranking. Step 4: comparison against the HDI ranking that identifies the cause of any disagreement (an indicator choice, or the equal weighting). Step 5: (a) a real limitation — for example, six data columns cannot capture freedom of speech or safety, so the index is a partial picture that looks complete; (b) reweighting would change which country wins if countries are strong on different indicators; (c) the UNDP uses three dimensions because any single one misleads — income alone misses the United States–Australia lesson of worked example 2, and health alone would miss poverty.

Sources (real, checkable referents; all values as retrieved 25 August 2026): UNDP, 'Human Development Report 2025 — A matter of choice: People and possibilities in the age of AI', New York, composite-indices data file and metadata workbook (hdr.undp.org) — all 2023 HDI values, ranks and category counts, component values (life expectancy, schooling, GNI per capita in 2021 PPP

), GII values, GNI per capita extremes (Norway \$112,710; South Sudan \$688), and the HDI time 2024, poverty headcount ratio at US\$3.00 a day (2021 PPP, indicator SI.POV.DDAY, latest survey year per country), and adult literacy rates (UIS: India 69.3% 2011, 73.7% 2018, 78.2% 2024; Nigeria 63.2% 2021); World Bank poverty topic overview (worldbank.org) — about 831 million people in extreme poverty in 2025, down from about 2.3 billion in 1990, and about 412 million children in extreme poverty in 2024; ILO and UNICEF, 'Child Labour: Global estimates 2024, trends and the road forward' (11 June 2025) — 138 million children in child labour, 54 million in hazardous work, more than 100 million fewer than in 2000; Walk Free, 'Global Slavery Index 2023' — 49.6 million people in modern slavery in 2021 (27.6 million forced labour, 22 million forced marriage), prevalence and country figures as cited; Reporters Without Borders, World Press Freedom Index 2026, as reported in the Wikipedia article 'World Press Freedom Index' — Norway 1st, Australia 33rd, China 178th, North Korea 179th, Eritrea 180th; UNESCO estimate of about 250 million children and youth out of school in 2021 (published 2023), as reported in the Wikipedia article 'Right to education'; ABS, 'Life tables' 2022–2024 (cat. 3302.0.55.001, 11 November 2025) — Australian life expectancy 81.1 males, 85.1 females, 83.0 persons; ABS SEIFA as reported in the Wikipedia article 'SEIFA' — four indexes, 2021 Census basis, released 27 April 2023, lower scores more disadvantaged; Genuine Progress Indicator framework (Redefining Progress, 1995; US state adoptions to 2014) per the Wikipedia article 'Genuine progress indicator'; Physical Quality of Life Index method (M.D. Morris, Overseas Development Council, mid-1970s) per the Wikipedia article 'Physical Quality of Life Index'. Harborea and Modeland are fictional countries invented to teach the PQLI method; all their values are invented and labelled as such. Map base for the world map: Natural Earth 110m admin-0 countries (public domain).

Wellbeing gaps within and between places: Australia and India

Theory

Human wellbeing is the quality of life of a person or a group of people: how well they are living. It is more than money. Wellbeing includes what people can afford, but it also includes their health, their education, their safety, their housing and their opportunities. Geographers often summarise it with three big domains: **health**, **education** and **income**, because data for all three are collected everywhere and because each one shapes the others.

Wellbeing is a contested term: the curriculum uses it but does not give one fixed definition, and economists, health workers and communities each use it in different ways. This section therefore treats it in the operational sense just given — quality of life, tracked through health, education and income — and every question in it is answerable on that definition alone.

Wellbeing is not spread evenly across space. Some places have high wellbeing and some have low wellbeing. The differences between places are called **spatial differences in human wellbeing**, and explaining them — and working out what they mean for the people who live there — is one of the big jobs of geography.

Measuring wellbeing: indicators and indexes

Because wellbeing cannot be seen directly, it is measured with **indicators** — numbers that stand for part of wellbeing. Census data gives many of them: median household income, the share of adults with a university degree, the unemployment rate, and median rent. One indicator alone can mislead, so several are used together.

In Australia, the Australian Bureau of Statistics (ABS) combines census indicators into one score for each area. The best known of these scores is **SEIFA**, the *Socio-Economic Indexes for Areas*. The most general SEIFA index is **IRSAD**, the Index of Relative Socio-economic Advantage and Disadvantage. It summarises an area's mix of income, education, employment and housing into a single number:

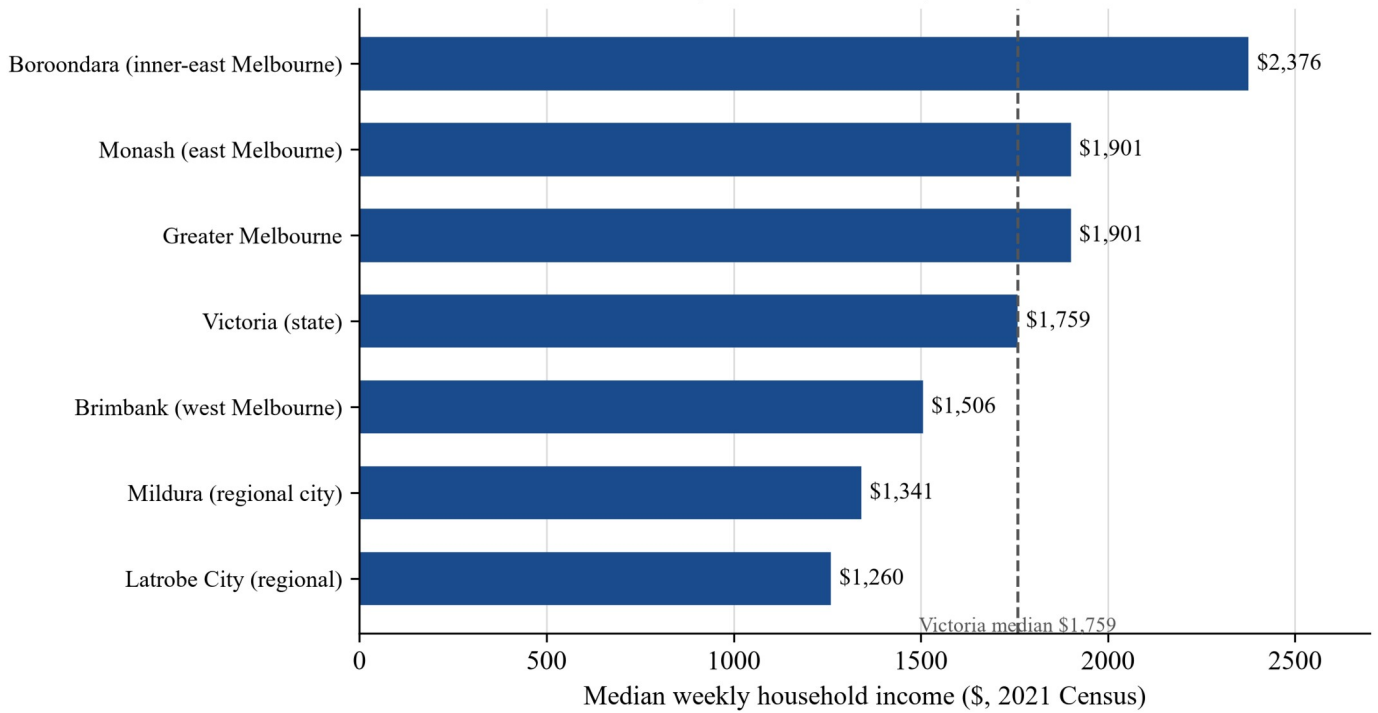
- The Australian average is set at **1000**.
- A score **above 1000** means the area is relatively advantaged; the higher the score, the greater the advantage.
- A score **below 1000** means the area is relatively disadvantaged; the lower the score, the greater the disadvantage.
- Areas can also be ranked into **deciles**: decile 1 contains the most disadvantaged 10% of areas in Australia, and decile 10 contains the most advantaged 10%.

SEIFA is a *relative* measure: it says how an area compares with other Australian areas, not whether the people in it are doing well or badly in any absolute sense. Even the most disadvantaged Australian areas are wealthy by world standards.

The spatial pattern at a local scale: Melbourne and regional Victoria

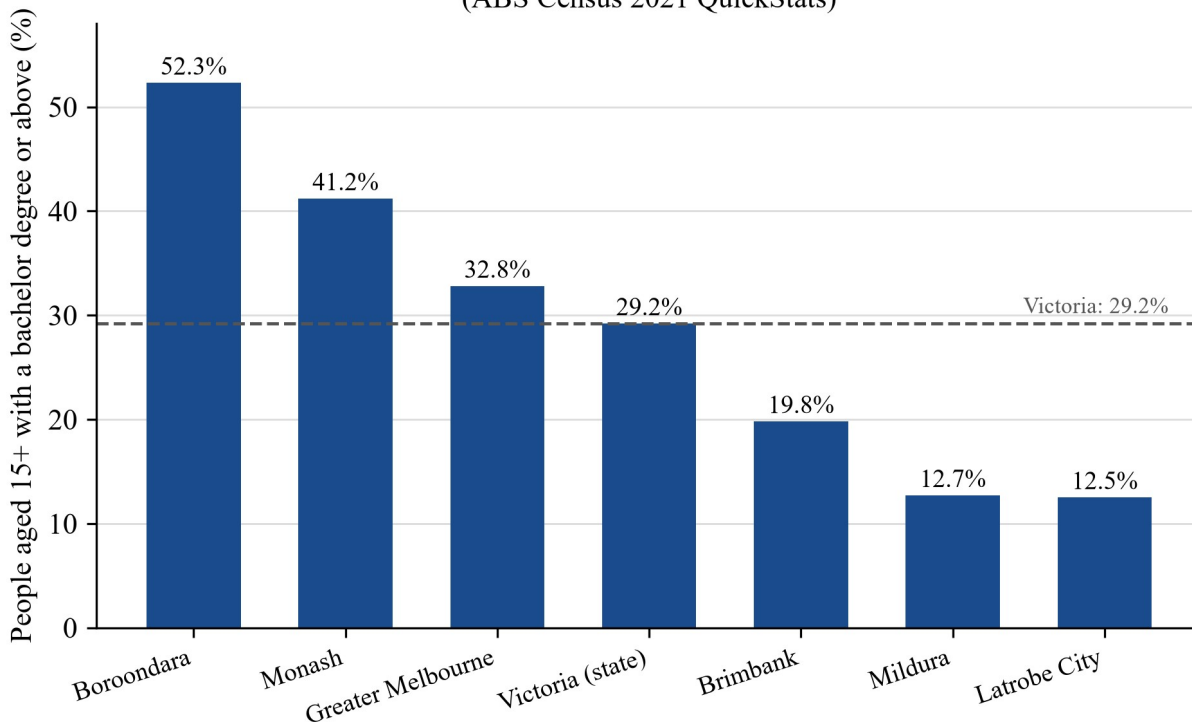
The figures below show wellbeing indicators for five Victorian local government areas (LGAs): **Boroondara** (an inner-east suburb of Melbourne), **Monash** (east Melbourne), **Brimbank** (outer-west Melbourne), **Mildura** (a regional city on the Murray River) and **Latrobe City** (a regional area in the Latrobe Valley, east of Melbourne). Greater Melbourne and Victoria are shown as baselines.

Household income differs by place, even within one city
(ABS Census 2021 QuickStats)



Median weekly household income for five Victorian local government areas compared with Greater Melbourne and Victoria

Higher education levels also differ by place
(ABS Census 2021 QuickStats)



Share of adults with a bachelor degree or above in five Victorian local government areas compared with Greater Melbourne and Victoria

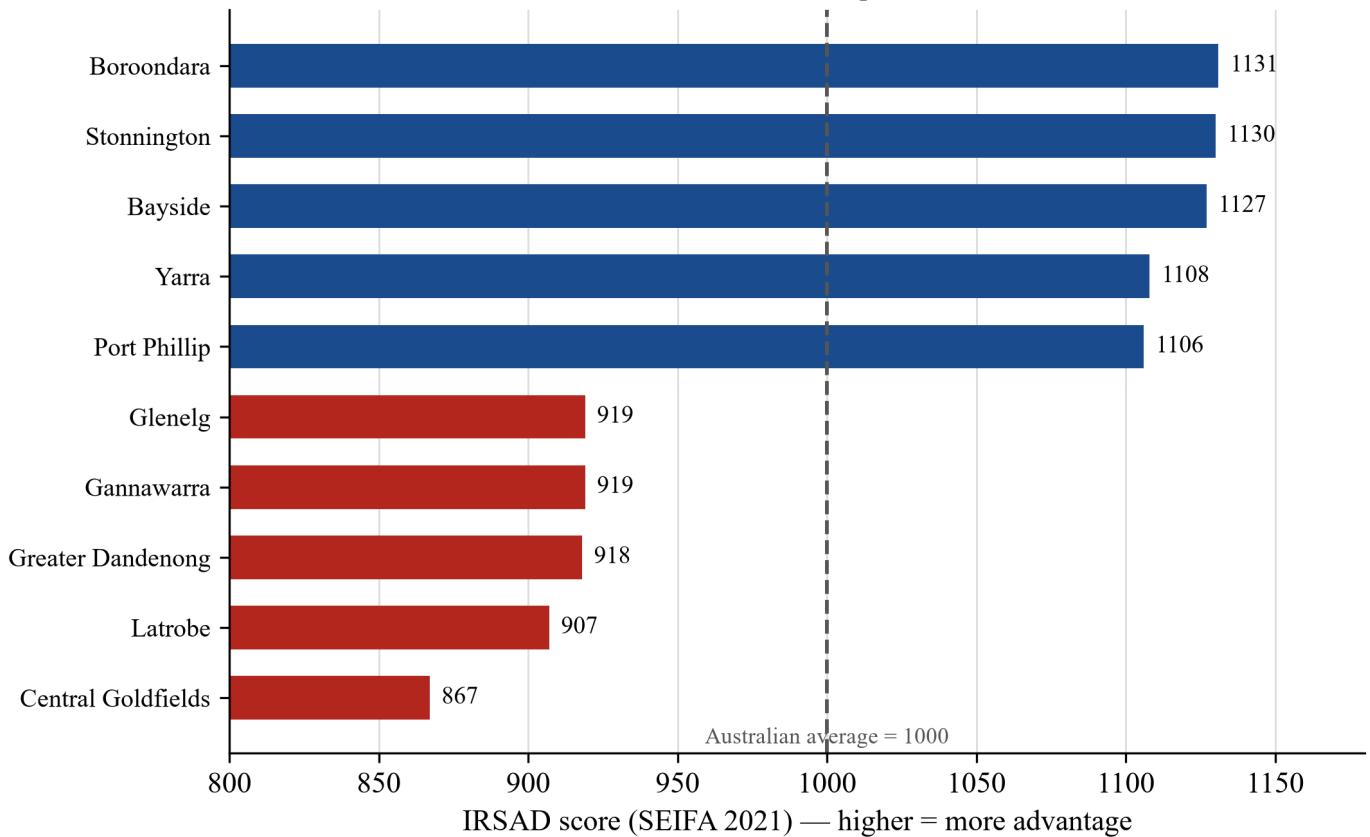
Area (Census 2021)	Median weekly household income	Bachelor degree or above (%)	Unemployment (%)	Median weekly rent (\$)
Boroondara (inner-east Melbourne)	\$2,376	52.3	4.3	\$451
Monash (east Melbourne)	\$1,901	41.2	5.8	\$436
Greater Melbourne	\$1,901	32.8	5.3	\$390
Victoria (state)	\$1,759	29.2	5.0	\$370
Brimbank (west Melbourne)	\$1,506	19.8	7.9	\$346
Mildura (regional city)	\$1,341	12.7	5.2	\$265
Latrobe City (regional)	\$1,260	12.5	6.6	\$236

Wellbeing indicators by area, ABS Census 2021 QuickStats table for five Victorian local government areas plus Greater Melbourne and Victoria

The spatial pattern is clear and consistent across all the indicators:

- **Boroondara** has the highest income and the highest share of degree holders of the five areas, and its SEIFA score (1131) is the highest of any Victorian LGA.
- **Monash** is also strongly advantaged, though below Boroondara.
- **Brimbank**, in Melbourne's west, sits well below the Melbourne average on income, education and unemployment.
- The two regional areas, **Mildura** and **Latrobe City**, are lower still on income and education, and Latrobe City (SEIFA score 907) is the second-most-disadvantaged LGA in all of Victoria.

Most and least advantaged Victorian LGAs, SEIFA 2021 IRSAD
(ABS, released 27 April 2023)



Five highest and five lowest Victorian local government areas by SEIFA IRSAD score, 2021

Geographers describe this pattern before they try to explain it. A good description answers *what*, *where* and *how much*: **what** is distributed (wellbeing), **where** it is high and low (inner-east and some eastern suburbs; not the west; not the Latrobe Valley), and **how much** difference there is (Boroondara's median weekly household income is nearly double Latrobe City's).

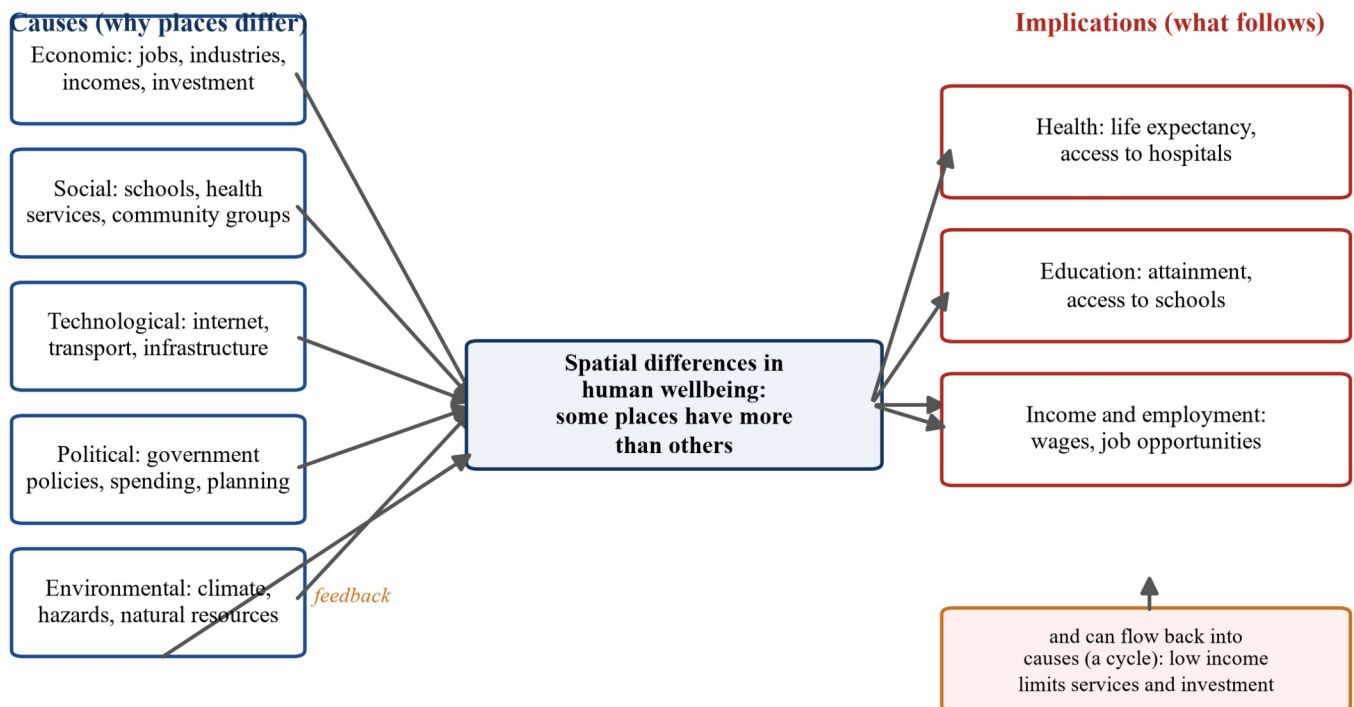
There are several ways to explain the pattern, and usually more than one is at work in any one place:

- **History of work.** Latrobe Valley grew around coal mining and power generation; when those industries shrank, jobs left and incomes fell. Brimbank grew around factories; as manufacturing declined, so did local employment.
- **Housing prices.** People sort themselves across a city by what they can afford. Higher house prices in the inner east mean mainly higher-income households live there.
- **Services and access.** Universities, hospitals and frequent public transport are concentrated in and near the centre of Melbourne, favouring nearby residents.
- **Migration and settlement.** Many newer migrants settle in the outer west and north-west where housing is cheaper, arriving with lower incomes but often with strong community networks.
- **Government decisions.** Where governments build roads, train lines, schools and hospitals changes which places are attractive to live and invest in.

Why do places differ? Five families of causes

The causes of spatial differences in wellbeing can be sorted into five families.

A model of causes and implications of spatial differences in human wellbeing



A model diagram with five cause families feeding into spatial differences in human wellbeing, and these leading on to health, education and income outcomes

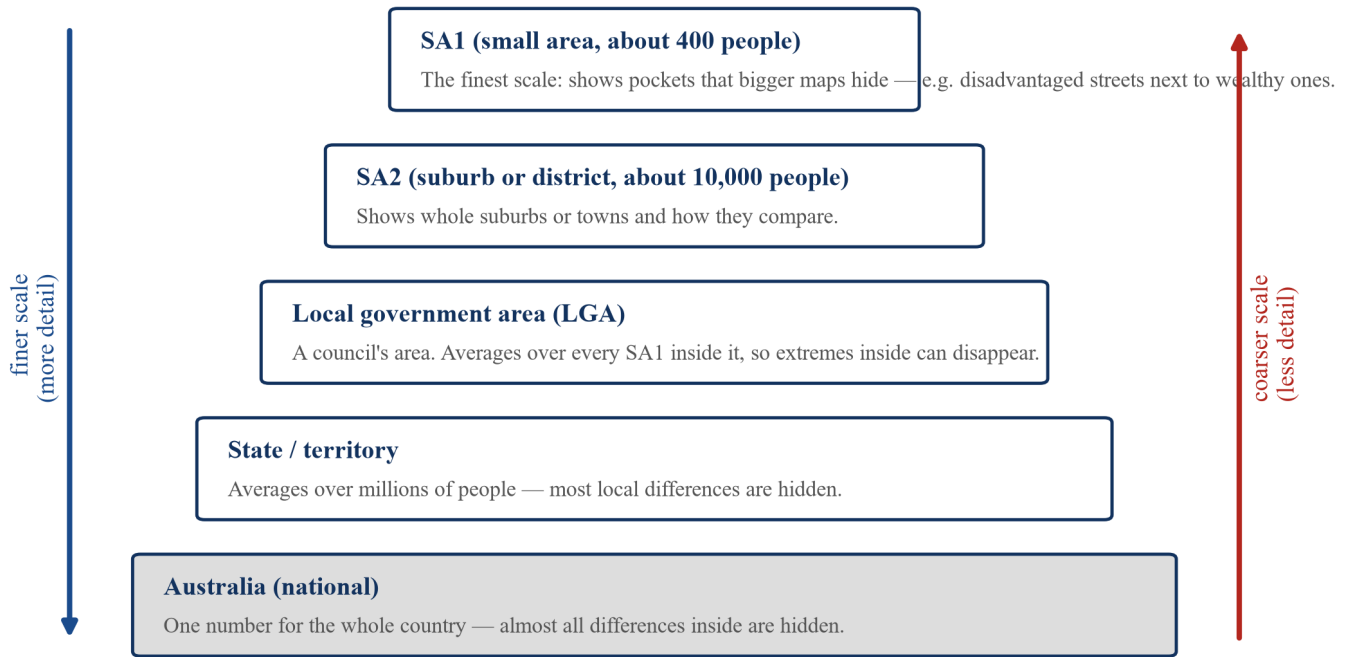
- **Economic** causes: the kinds of jobs available, wages, investment by businesses, and whether industries are growing or closing.
- **Social** causes: the quality and availability of schools, hospitals and community services, and the strength of local networks.
- **Technological** causes: transport links, internet access, and the technology used in local industries.
- **Political** causes: government policies, spending decisions and planning rules — for example, where a new hospital or train line is built.
- **Environmental** causes: climate, soils, water, natural resources, and hazards such as flood or drought. Regional areas like Mildura depend heavily on environment-driven industries such as irrigated farming.

One cause rarely acts alone. In Latrobe City, for example, an environmental resource (brown coal) created an economic base (power stations), and political decisions about energy then reshaped the economy when coal-fired power began to close. Causes chain together.

Scale changes what you can see

Wellbeing can be mapped at different scales, from small areas of about 400 people (ABS SA1 areas) up to whole states and to Australia. The scale chosen changes what the map can show.

Choosing the scale of a wellbeing map changes what you can see
(Australian Statistical Geography Standard areas)



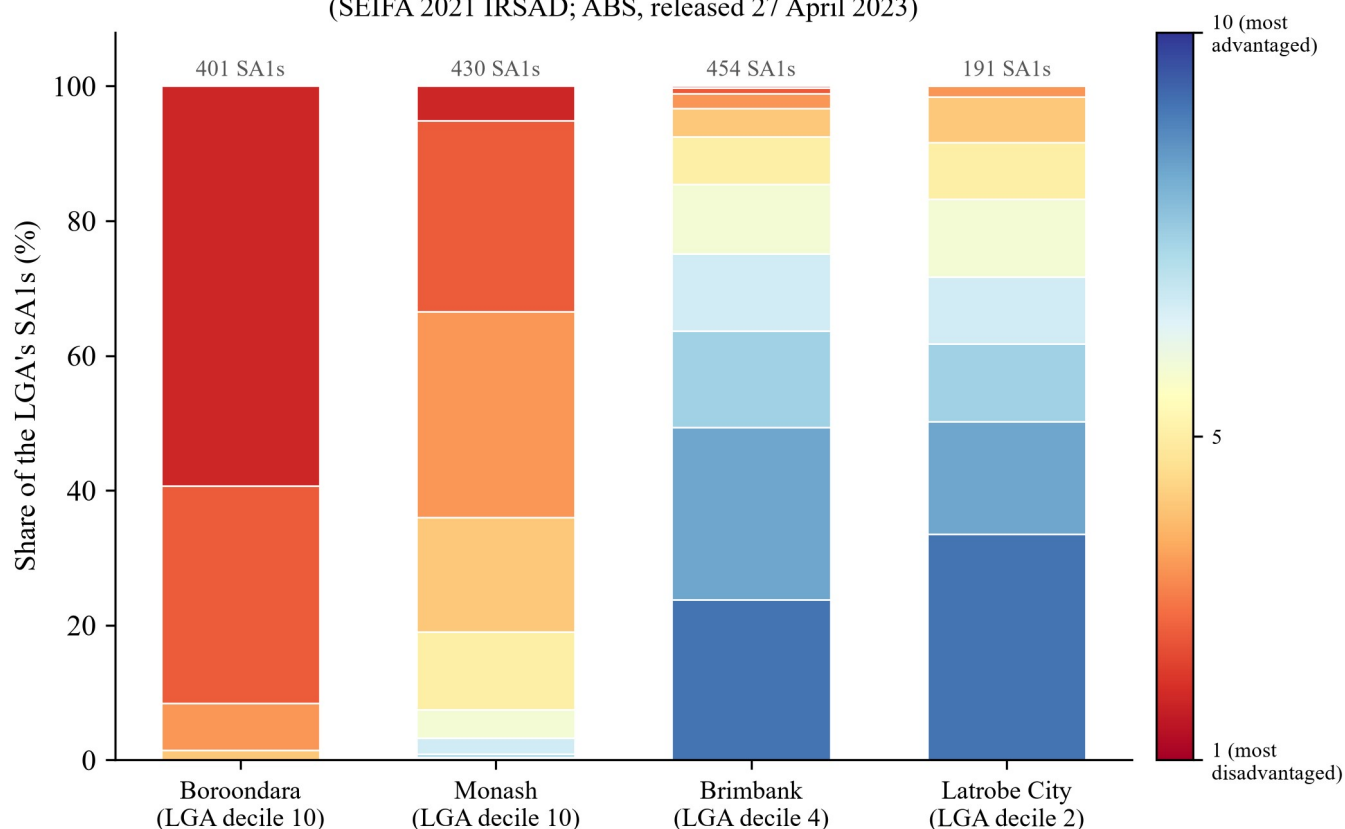
Scale ladder diagram from SA1 small areas up to Australia, showing how detail is lost at coarser scales

Changing the scale has consequences:

- **Zoom out (coarser scale)** and differences get averaged away. An LGA score is an average over every small area inside it. At state scale, almost all local difference disappears.
- **Zoom in (finer scale)** and hidden pockets appear. An LGA that looks middling overall can contain small areas of severe disadvantage — and small areas of great advantage.

Brimbank is the classic example. As a whole LGA it sits in national SEIFA decile 4 — below the middle, but not extreme. Zoom in to its 454 SA1 small areas, and the picture changes: **108 of them** — **about a quarter of the LGA** — **sit in national decile 1**, the most disadvantaged tenth of all small areas in Australia. The LGA-scale map hides those pockets; the SA1-scale map reveals them.

Zooming in: each LGA is made of small areas (SAIs) spread across the national deciles
(SEIFA 2021 IRSAD; ABS, released 27 April 2023)



Stacked bar chart showing how the SAI small areas inside four Victorian local government areas are spread across the national SEIFA deciles

The reverse also happens. The LGA of Melbourne (the city centre) has a high SEIFA score of 1086 — but its Index of Economic Resources score is only 838, in the bottom national decile, because it contains many students and inner-city renters with low incomes. One score at one scale can conceal what another scale or another index reveals.

This matters for decisions. Governments use fine-scale maps to decide where to put new schools, health services and job programs. If the mapping scale is too coarse, help can miss the places that need it most.

Consequences: what spatial differences mean for health, education and income

Spatial differences in wellbeing are not just numbers on a map. They have consequences for how long and how well people live.

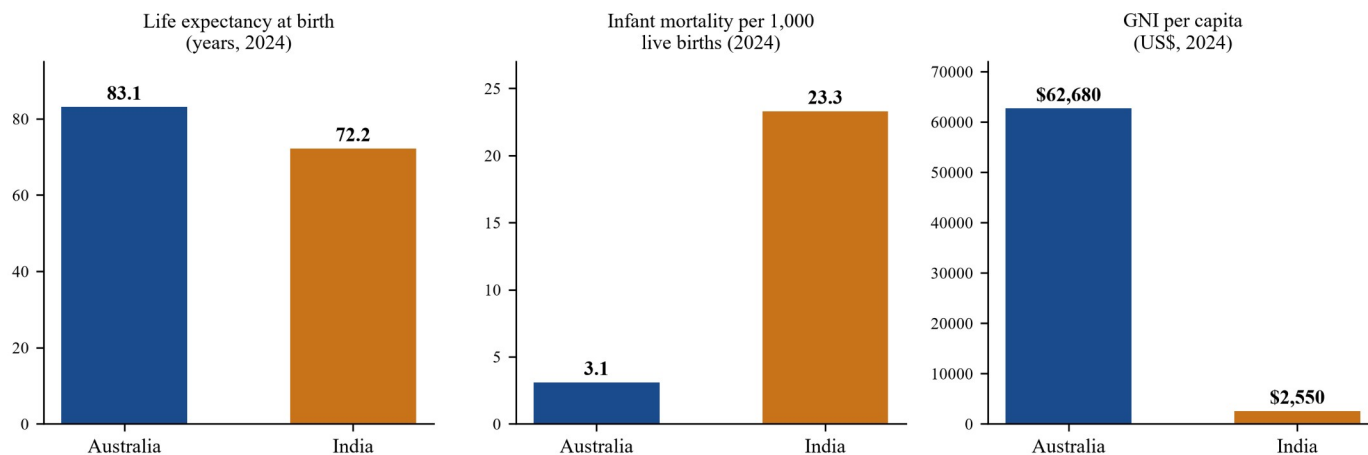
- **Health.** Health services, parks and healthy food shops are unevenly spread. Places with fewer services, more pollution and lower incomes tend to have poorer health outcomes. Australia's overall life expectancy is high — 81.1 years for males and 85.1 years for females (2022–2024, AIHW Australian life tables) — but people in disadvantaged areas are more likely to experience chronic disease and to have less access to specialists.
- **Education.** School results and the share of people with degrees differ strongly between areas (Boroondara 52.3% with a bachelor degree or above; Latrobe City 12.5%). Education shapes job options and income, so an education gap between places becomes an income gap a generation later.
- **Income and employment.** Lower incomes mean less ability to afford housing, heating, medical costs and transport. Unemployment is higher in the disadvantaged LGAs shown above (Brimbank 7.9% versus Boroondara 4.3%).

The consequences also feed back into the causes. Low incomes mean less local spending and less investment, which keeps services weak and keeps incomes low — a **cycle of disadvantage**. Breaking that cycle is the aim of many government and community programs.

Australia and India: differences between countries

So far this section has compared places inside Australia. Now compare Australia itself with another country: **India**, the most populous country in the world (1.45 billion people in 2024, World Bank), and the Asian country studied in this book's wellbeing unit.

Australia and India: three wellbeing indicators compared (World Bank, 2024 data)



Three panel bar charts comparing Australia and India in 2024: life expectancy 83.1 versus 72.2 years, infant mortality 3.1 versus 23.3 per thousand live births, and GNI per capita US dollars 62,680 versus 2,550

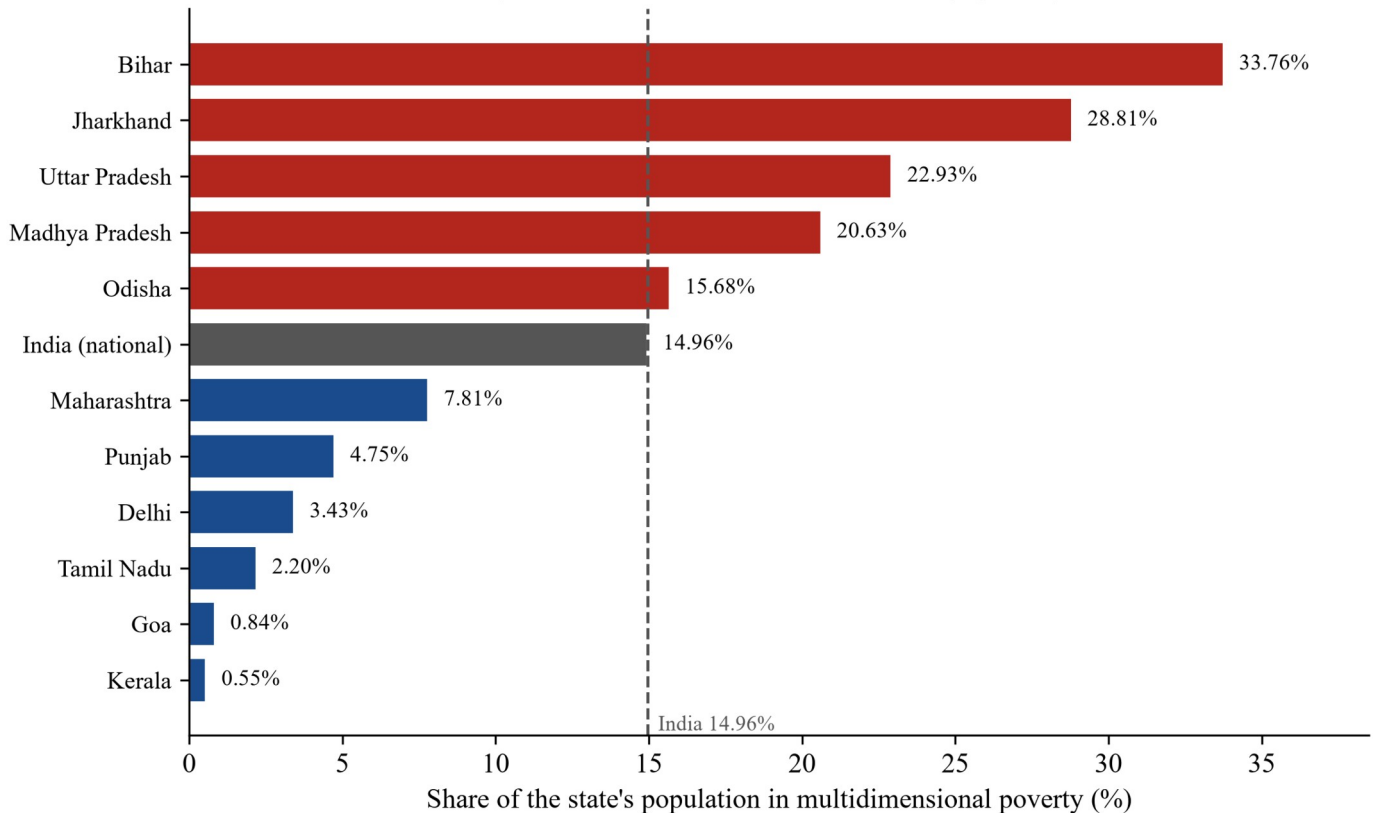
At the country scale, Australia is far ahead on every indicator in the figure above: people live about 11 years longer on average, babies are about seven times less likely to die in their first year, and average income per person is about 25 times higher. These differences have causes that are the same five families — economic, social, technological, political and environmental — but working at a country scale. India gained independence in 1947 and inherited a colonial economy oriented around raw materials; it has since industrialised rapidly and its economy is now one of the world's largest in total size, but with 1.45 billion people its income *per person* remains far below Australia's. Australia, by contrast, is a high-income country with a small population spread across enormous distance, whose wealth has long been tied to resources and farming exports.

Crucially, differences between countries do not mean every place in the poorer country is worse off than every place in the richer one. Both Australia and India have strong regions and weak regions inside them — which is the point of studying *spatial* differences.

The regional pattern within India

India is a federation of 28 states and 8 union territories, and wellbeing differs dramatically between them. The figure below shows the **headcount ratio** from India's national **Multidimensional Poverty Index (MPI)**, which measures poverty not just by income but by deprivations in health, education and living standards (the same three domains used above). An MPI headcount ratio of, say, 30% means three in ten people in that state are multidimensionally poor.

Multidimensional poverty varies hugely between Indian states
(headcount ratio, NFHS 2019-21; NITI Aayog, 2024)



Bar chart of multidimensional poverty headcount ratios for twelve Indian states plus the national figure, Kerala lowest at 0.55 percent and Bihar highest at 33.76 percent

The spatial pattern at regional scale is striking:

- The **southern and western states** — Kerala, Goa, Tamil Nadu, Maharashtra, Punjab — and the capital territory Delhi have very low multidimensional poverty, from under 1% to about 8%.
- The **central and eastern states** — Bihar, Jharkhand, Uttar Pradesh, Madhya Pradesh, Odisha — have the highest poverty, from about 16% to nearly 34%. Bihar alone is more than 60 times the rate of Kerala.

Explanations for this distribution include:

- **History and settlement.** The densely populated Ganges plain of the north and east (Uttar Pradesh, Bihar) has long been a region of small, fragmented farms and high population pressure on land, while some southern states had earlier investment in schools and clinics.
- **Agriculture and climate.** States that benefited most from the Green Revolution of the 1960s and 1970s — above all Punjab, with its reliable irrigation — grew richer farming economies; drier or flood-prone regions lagged.
- **Industry and investment.** Maharashtra (Mumbai), Gujarat and Tamil Nadu attracted manufacturing and services investment, creating urban jobs.
- **State government policy.** India's states control much of their own spending on health and education, so policy choices compound over decades. Kerala is the strongest example (below).
- **Environment.** Monsoon reliability, soils and natural hazards shape farm incomes, especially in Odisha and Bihar.

A high-wellbeing region: Kerala

E07 asks you to choose an Indian region where wellbeing is comparatively high and investigate *why*. **Kerala**, on India's south-west coast, is the clearest case: it has the lowest multidimensional poverty of any Indian state (0.55% in 2019–21, down from 12.31% in 2005–06) and the health and education outcomes of its people are the best in India by most measures — even though its average income is only middle-income by world standards. Kerala shows that high wellbeing is possible without being rich first.

Explanations for Kerala’s high wellbeing:

- **Long public investment in education and health.** From the nineteenth century, the region’s princely states and later missionary and community groups built schools; after independence, state governments kept spending on schools and primary health care.
- **Land reform and redistribution** in the 1960s and 1970s reduced extreme rural poverty.
- **High female literacy**, which feeds through to smaller family sizes, better child health and higher participation in the economy.
- **Migration and remittances.** Large numbers of Keralites work in the Gulf states and send money home, lifting household incomes.
- **Political activism and high expectations.** Kerala’s voters have long demanded services from government, so spending on health and education has stayed high.

The implications for Kerala and for India are double-edged. Kerala’s educated population has fewer children and lives longer, so its population is ageing faster than northern India’s, and many of its graduates leave to find work matching their education. For India, Kerala is both a model — proof that health and education investment pays off — and a warning that education without enough local jobs pushes people to migrate.

Reducing the gaps: two programs evaluated

Governments run programs to reduce spatial differences in wellbeing. Evaluating a program means asking: what did it aim to do, what did it actually achieve, for whom, and what were its limits? Two programs — one Australian, one Indian — are evaluated below.

Two programs that aim to reduce spatial differences in wellbeing (E05)
Sources: Guardian, 4 Nov 2016; Latrobe Valley Express, 31 May 2023; RDV, archived 9 Dec 2024; nrega.dord.gov.in, 25 Aug 2026

	Latrobe Valley Authority (Victoria, Australia)	MGNREGS (India)
What it aims to do	Rebuild a regional economy after the Hazelwood power station closed (March 2017)	Give rural households a legal guarantee of 100 days of paid work per financial year
Who runs it	Victorian Government authority, established November 2016; folded into Regional Development Victoria in 2024	Government of India (Ministry of Rural Development), under the MGNREGA Act 2005
Main tools	Worker retraining, business attraction, infrastructure projects	On-demand unskilled work building local assets (water storage, roads, land works)
Scale / evidence	About \$1.5 billion of investment and 4,000+ jobs reported by May 2023	109.9 million active workers; 911 million assets created since the start
Main limit	Critics say too much short-term construction; bigger projects still on hold	Rural households only; capped at 100 days, unskilled work — a safety net, not a transformation

Table diagram comparing the Latrobe Valley Authority and MGNREGS across aim, operator, tools, scale and main limit

Program 1: the Latrobe Valley Authority (Victoria, established November 2016). When ENGIE, the owner of the Hazelwood power station in the Latrobe Valley, announced on 3 November 2016 that it would shut the plant by 31 March 2017, the valley faced losing about 750 direct jobs (the union put the number affected closer to 1,000) and a shock to its whole economy — Hazelwood supplied about 22% of Victoria’s electricity. The Victorian Government responded within days with a \$266 million package — \$174 million for infrastructure, \$50 million to attract

businesses, \$22 million for worker training and support, and \$20 million to create a new agency, the **Latrobe Valley Authority (LVA)**, to manage the transition. The federal government added \$43 million.

The LVA, based in Morwell, worked to diversify the valley's economy away from coal generation: retraining workers, helping businesses relocate there, and funding community and infrastructure projects. The Victorian Government kept funding it, including \$7.2 million in the 2023–24 budget to continue worker transition programs. Its reported results: by May 2023 the authority said it had helped attract about \$1.5 billion of investment and contributed to more than 4,000 additional jobs. By late 2024 the government had folded the LVA into Regional Development Victoria (RDV), the state's agency for regional development; RDV now carries on the transition work, and reported that more than \$1.6 billion had been invested in the valley's programs and major projects since 2017.

An evaluation must also weigh the limits. Union representatives argue that too much of the effort created short-term construction work and facilities rather than businesses that keep employing people year after year, and that bigger projects (such as turning coal into hydrogen fertiliser) remain on hold. And the transition is not over: the Yallourn power station is due to close in July 2028, and its workers' next steps are still being worked out. On balance, the LVA has cushioned the valley and brought in investment, but it has not yet replaced what coal provided — which is common when one industry dominates a region.

Program 2: MGNREGS, the Mahatma Gandhi National Rural Employment Guarantee Scheme (India). Where the LVA responded to a single industry closing in one region, MGNREGS tackles rural poverty across the whole of India. Created under the Mahatma Gandhi NREGA Act 2005, it gives every rural household a **legal guarantee of at least 100 days of paid work per financial year** for any adult member who volunteers for unskilled manual work. If the work is not provided, the scheme has failed its own guarantee — the entitlement is what makes the scheme unusual.

Its scale is enormous. On the scheme's official dashboard (retrieved 25 August 2026), there were 109.9 million active workers; in the financial year 2026–27 so far, 98.4 million workers have done 206 million person-days of work across 13.9 million households; and since the scheme began, 911 million assets have been created — farm dams, drainage works, rural roads and land improvements.

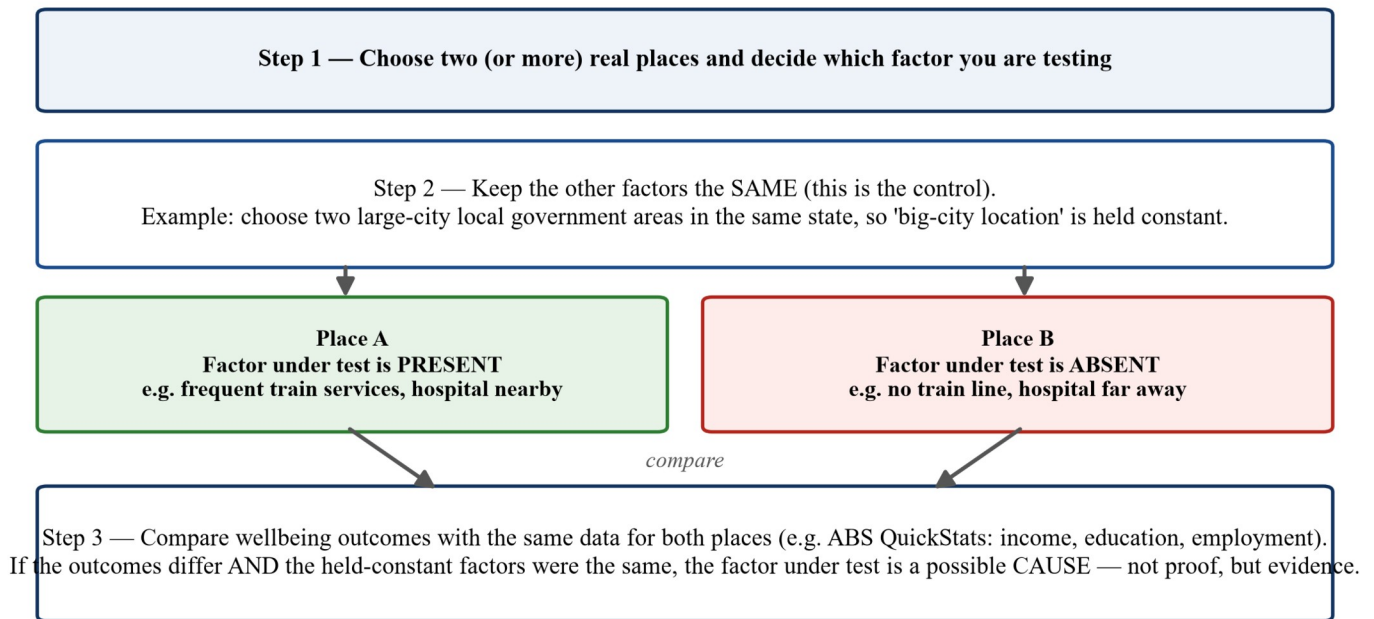
As a response to spatial disadvantage, MGNREGS has clear strengths: work is provided in the worker's own village, so money flows directly to the poorest districts; wages are paid into bank accounts; and the assets built raise the long-term productivity of poor regions. Its limits are just as clear: it reaches rural households only (not towns or cities), it caps at 100 days per household, and the work is unskilled manual labour — a safety net that keeps people above the worst poverty, not an engine that transforms a regional economy.

Comparing the two programs shows a pattern worth remembering: **place-based programs** like the LVA try to rebuild one region's economy after a shock, while **entitlement programs** like MGNREGS give every poor household a floor of income and build small assets everywhere. Both reduce spatial differences; neither removes them.

Controlled comparison: isolating the causes

How can we test which cause matters most? In geography we cannot run experiments on cities, but we can use a **controlled comparison**: compare places that are alike in most ways and differ in the one factor we want to test.

Controlled comparison of places: isolating possible causes of wellbeing differences



Controlled comparison diagram: choose two similar places, hold most factors constant, change the factor under test, compare wellbeing outcomes

Consider Boroondara and Brimbank. Both are large-city LGAs in the same state, within the same metropolitan area, in the same country with the same laws, currency and school system. Relative location is the factor that differs: Boroondara sits in the inner east, a few kilometres from Melbourne's centre, with dense train and tram networks, hospitals and universities nearby; Brimbank sits in the outer west, far from the centre, with fewer train lines and far fewer health services per resident. Their wellbeing outcomes differ sharply on income, education and unemployment. Because so many other factors are held the same, relative location — and what it brings: access to services, jobs and green space — is strongly implicated as a cause.

A controlled comparison never *proves* a cause: places always differ in more than one way (Boroondara's housing stock is older and pricier; Brimbank has more recent migrant settlement). But it narrows the field of possible explanations, which is the best geography can do with places.

The same logic applies to the candidate causes the curriculum lists — income, education levels, government policies, and access to green space or medical facilities. Pick one, hold the others as constant as the places allow, and compare.

Worked examples

Example 1 — scaffolded (spatial pattern and causes, E02 and E01)

Question: Use the figures in this section to describe the spatial pattern of wellbeing across the five Victorian LGAs shown, and suggest two causes of the pattern.

Step	What to do	Worked through
1	Describe the pattern: where is wellbeing high, where low, and by how much?	High in the inner-east (Boroondara: median weekly household income \$2,376; 52.3% with a degree). Lower in the outer-west (Brimbank: \$1,506; 19.8%) and lowest in the

Step	What to do	Worked through
		two regional areas (Latrobe City: \$1,260, 12.5% with a degree; Mildura \$1,341). The difference is large: Boroondara's median income is about 1.9 times Latrobe City's.
2	Check the pattern holds across indicators.	It does: income, degree share and unemployment all rank the areas in the same order. Patterns that repeat across indicators are more trustworthy.
3	Suggest causes using the five families.	Economic/historical: the Latrobe Valley lost jobs as coal-fired power shrank, and Brimbank lost manufacturing jobs. Social/access: universities and hospitals cluster in the inner east, favouring nearby residents. Either is acceptable; a second, different family earns full marks.
4	Write the answer linking evidence to cause.	See answer below.

Answer: Wellbeing in the five areas is spatially uneven, highest in inner-east Melbourne (Boroondara) and lowest in the regional areas (Latrobe City, Mildura), with the outer-west (Brimbank) below the Melbourne average. Boroondara's median weekly household income (\$2,376) is nearly double Latrobe City's (\$1,260). Two causes are: (1) economic history — the Latrobe Valley's job base shrank as coal-fired power generation declined, lowering incomes and employment; (2) access to services — universities and hospitals are concentrated in inner Melbourne, so nearby residents get more education and health benefit per kilometre travelled.

Example 2 — unscaffolded (scale, E03)

Question: A student says: "Brimbank's SEIFA score puts it in national decile 4, so while it is a bit disadvantaged, no part of it is badly off." Evaluate this claim using the SA1 distribution figure.

Model answer: The claim is wrong. An LGA score is an average over every small area inside the LGA, and averages hide extremes. Brimbank contains 454 SA1 small areas, and the figure shows 108 of them — about a quarter of the LGA — sit in national decile 1, the most disadvantaged tenth of all small areas in Australia, with a further 116 in decile 2. Almost half of Brimbank's small areas are therefore among the most disadvantaged in the country, even though the LGA average sits in the middle at decile 4. The student's error is a scale error: what is true of the average at LGA scale is not true of every small area inside. Changing the scale of mapping from LGA to SA1 reveals pockets of severe disadvantage that the coarser map conceals — which is exactly why service planning uses fine-scale data.

Practice questions

Scaffolded

Q1. Name the three domains of wellbeing used in this section, and explain why more than one indicator is needed to measure wellbeing (E04).

Q2. A SEIFA IRSAD score of 1000 represents the Australian average. State what a score of 1131 tells you about an area, and what decile 1 means (E02).

Q3. From the census-table figure: state the median weekly household income for Boroondara and for Latrobe City, and calculate how many times larger Boroondara's figure is (round to one decimal place) (E02).

Q4. List the five families of causes of spatial differences in wellbeing, and give one example of each from this section (E01).

Q5. Using the scale-ladder figure, explain what happens to the detail of a wellbeing map as you zoom out from SA1 to Australia (E03).

Q6. From the India MPI figure: identify the state with the lowest multidimensional poverty headcount ratio and the state with the highest, and give both values (E06).

Unscaffolded

Q7. Explain, using two of the five cause families, why wellbeing differs between Boroondara and Brimbank (E01, E02).

Q8. “Mapping wellbeing at LGA scale hides disadvantage.” Use evidence from the SA1 distribution figure to support this statement (E03).

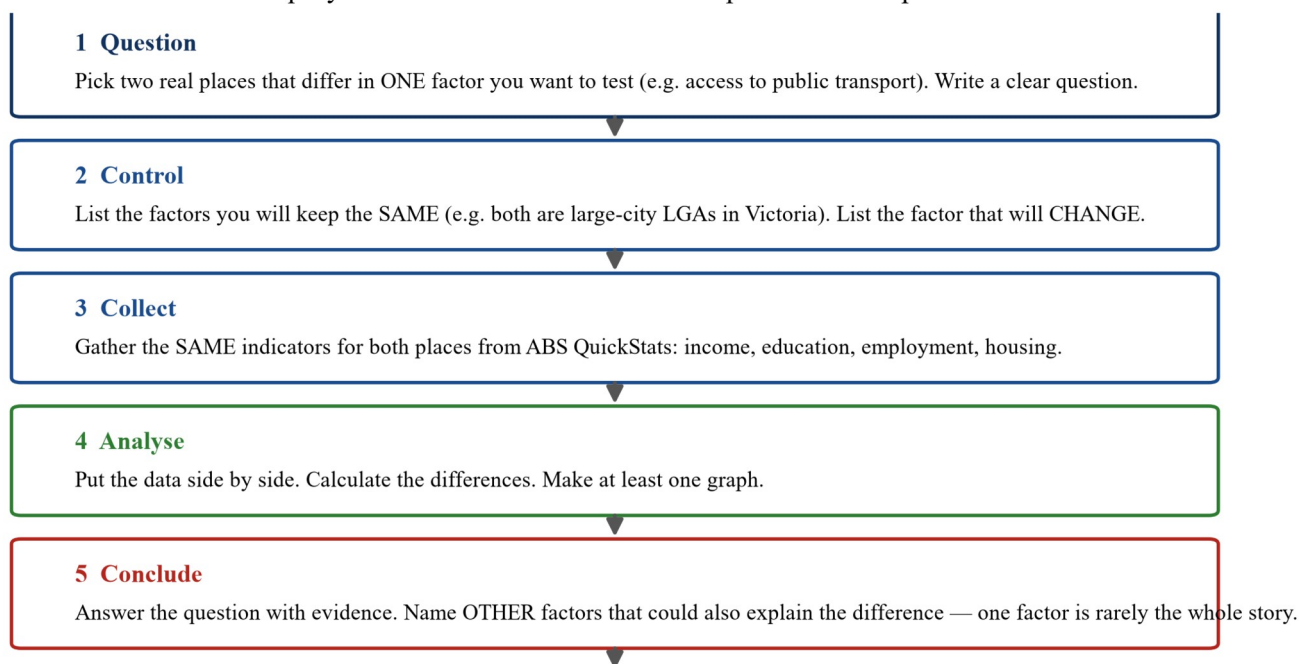
Q9. Evaluate the effectiveness of ONE program described in this section in reducing spatial differences in wellbeing. Give at least one strength and one limit (E05).

Q10. Design a controlled comparison to test whether access to frequent public transport affects wellbeing outcomes. Name two real places, state what you hold constant, what you vary, and what data you would compare (E08).

Inquiry task

A controlled comparison of two places. Working alone or in pairs, carry out the inquiry below and present it as a one-page report with one table and one graph. Follow the five steps in the inquiry-workflow figure.

Inquiry task workflow: a controlled comparison of two places



Inquiry task workflow diagram with five steps: question, control, collect, analyse, conclude

1. Choose **two real places in Victoria** that you think differ in one testable factor (for example: access to public transport, distance from Melbourne’s centre, or a recent industry closure). Both must have ABS Census 2021 QuickStats pages (LGAs and suburbs do).
2. Write your question and list your control: the factors your two places share (for example, both are Victorian LGAs of similar population size) and the one factor you are testing.

3. Collect the **same indicators** for both places from ABS QuickStats: median weekly household income, share of adults with a bachelor degree or above, unemployment rate, and one indicator of your own choice. Record them in a table and add one graph.
 4. Conclude: answer your question with your numbers. Then name **at least two other factors** that could also explain any difference you found, and explain why a controlled comparison gives evidence but not proof.
-

Answers

Q1. Health, education and income. One indicator can mislead — a place can have high incomes but poor health services — so several indicators are used together to get a fuller, more reliable picture. **Q2.** 1131 means the area is relatively advantaged, well above the Australian average of 1000; decile 1 is the most disadvantaged 10% of areas in Australia. **Q3.** Boroondara \$2,376; Latrobe City \$1,260; $2376 \div 1260 \approx 1.9$ times. **Q4.** Economic (jobs closing in the Latrobe Valley); social (universities and hospitals in the inner east); technological (transport links); political (government decisions about where to build infrastructure); environmental (Mildura's irrigated farming depends on the Murray River). **Q5.** Detail is lost: at SA1 scale pockets of disadvantage next to pockets of advantage are visible, but as areas are averaged into SA2, then LGA, then state, then Australia, the extremes cancel out and the differences between places disappear. **Q6.** Kerala, 0.55% (lowest); Bihar, 33.76% (highest). **Q7.** Any two cause families with correct application, e.g. economic: Boroondara sits near the city's professional jobs while Brimbank lost manufacturing jobs; access/social: Boroondara has dense train and tram services and nearby hospitals while Brimbank has fewer services per resident. **Q8.** Brimbank's LGA score is decile 4, but 108 of its 454 SA1s are in national decile 1 and 116 in decile 2 — nearly half its small areas are among Australia's most disadvantaged, invisible at LGA scale. **Q9.** Any one program with a strength and a limit — see fully-worked solutions. **Q10.** Any two suitable Victorian places with a sensible control, one varied factor, and Census/QuickStats indicators.

Fully-worked solutions

Q1. The three domains are health, education and income. Wellbeing is broad — it includes housing, safety and opportunity as well — and any single number captures only one slice of it. A place could score well on income yet lack hospitals, or score well on education yet have high rents. Using several indicators together reduces the chance that one misleading number distorts the picture, and patterns that repeat across indicators are more trustworthy.

Q2. SEIFA IRSAD scores are set so the Australian average equals 1000. A score of 1131 is well above average, so the area is relatively advantaged (Boroondara, at 1131, is the most advantaged LGA in Victoria). A decile ranks areas into ten equal groups: decile 1 is the most disadvantaged 10% of areas in Australia and decile 10 the most advantaged 10%.

Q3. From the census-table figure, Boroondara's median weekly household income is \$2,376 and Latrobe City's is \$1,260. The ratio is $2376 \div 1260 = 1.885\dots$, so about **1.9 times**.

Q4. The five cause families are economic, social, technological, political and environmental. Examples from this section: economic — the decline of coal-fired power cost the Latrobe Valley jobs; social — universities and hospitals are concentrated in inner-east Melbourne; technological — train and tram networks make inner areas better connected; political — government decisions about where to build hospitals, roads and train lines change which places attract people and investment; environmental — Mildura's economy depends on irrigated farming along the Murray River.

Q5. At SA1 scale (about 400 people per area) the map shows pockets: disadvantaged streets next to wealthy ones. As areas are combined into SA2s, then LGAs, then states, then Australia, each step averages together more small areas, so high and low extremes cancel out. By the time the map reaches Australia scale, almost all local differences have been averaged away. Finer scales reveal pockets; coarser scales hide them.

Q6. Kerala has the lowest headcount ratio, 0.55% — only about one person in two hundred is multidimensionally poor. Bihar has the highest, 33.76% — about one person in three. The national figure is 14.96%, so Bihar is more than twice the national rate and Kerala is far below it.

Q7. Both are large-city LGAs in Melbourne, so the comparison holds state, country and city-type constant. Two cause families explain their difference. *Economic*: Brimbank grew around manufacturing, and as factory work declined its unemployment rose (7.9% in 2021) and incomes stayed low (\$1,506 median weekly household income), while Boroondara sits next to the city's professional and commercial jobs (\$2,376, unemployment 4.3%). *Access/social*: Boroondara is minutes from the centre's universities, hospitals and dense train and tram lines; Brimbank is in the outer west with fewer services per resident, which shows up in its lower degree share (19.8% versus 52.3%).

Q8. The statement is supported. An LGA score averages every small area inside the LGA, so extremes can disappear. Brimbank's LGA score (928) puts it in national decile 4 — below the middle but not extreme. Yet of its 454 SA1

small areas, 108 are in national decile 1 (the most disadvantaged tenth of all Australian small areas) and a further 116 are in decile 2. Almost half the LGA lives in small areas that are among the most disadvantaged in the country — completely invisible on an LGA-scale map. This is why governments planning schools or health services map at SA1 scale rather than LGA scale.

Q9. Model answer using the two programs described in the Theory (answers using other real programs with correct sources are also acceptable). A complete evaluation needs: what the program aims to do, evidence of what it achieved, and at least one limit. Strengths and limits for both programs are given in the Theory; the evaluation must connect them to the goal of reducing spatial differences, not just list facts.

Q10. Model design. *Question:* Does access to frequent public transport relate to wellbeing outcomes in outer Melbourne? *Places:* the LGAs of Maribyrnong and Melton — both in Melbourne’s west, both outer-suburban growth areas of broadly similar size (this is the control). *Varied factor:* Maribyrnong has train and tram services through it while Melton’s rail service is limited and much of the LGA has no train line. *Data:* compare the same Census 2021 QuickStats indicators for both — median weekly household income, bachelor degree or above, unemployment, median rent. *Conclusion and limits:* if outcomes differ, access to transport is a possible cause — but house prices, age structure and industry mix also differ, so a controlled comparison gives evidence, not proof.

Sources (real, checkable referents; figures computed from the values shown): ABS Census 2021 QuickStats for Boroondara (LGA21110), Monash (LGA24970), Brimbank (LGA21180), Mildura (LGA24780), Latrobe City (LGA23810), Greater Melbourne (GCCSA 2GMEL) and Victoria (STE2), retrieved 25 August 2026; ABS, Socio-Economic Indexes for Areas (SEIFA) 2021, released 27 April 2023 — LGA indexes and LGA SA1 distributions data cubes (IRSAD: Boroondara 1131, Stonnington 1130, Bayside 1127, Yarra 1108, Port Phillip 1106; Central Goldfields 867, Latrobe 907, Greater Dandenong 918, Gannawarra 919, Glenelg 919; Brimbank 928, decile 4; Mildura 922, decile 3; Melbourne LGA IRSAD 1086, IER 838; SA1 decile counts for Boroondara, Monash, Brimbank and Latrobe as plotted); Australian life expectancy 2022–2024, males 81.1 and females 85.1 years (AIHW Australian life tables, sourced from ABS life tables); Australia and India life expectancy (83.1 and 72.2 years), infant mortality (3.1 and 23.3 per 1,000 live births), GNI per capita (US\$62,680 and US\$2,550), 2024, and India population 1.45 billion 2024 (World Bank Open Data, retrieved 25 August 2026); India MPI state headcount ratios, NFHS 2019–21, NITI Aayog, ‘Multidimensional Poverty in India since 2005–06: A Discussion Paper’ (2024), Annexure Table 1 (India national 14.96%); Hazelwood closure announcement and \$266 million Victorian response package including \$20 million to establish the Latrobe Valley Authority, plus \$43 million federal transition funding (The Guardian, 4 November 2016); LVA establishment November 2016, Morwell base, ~\$1.5 billion investment and 4,000+ jobs reported, and \$7.2 million 2023–24 budget funding (Latrobe Valley Express, 31 May 2023); LVA functions folded into Regional Development Victoria by late 2024 and total investment of more than \$1.6 billion since 2017 (Regional Development Victoria, ‘Latrobe Valley Economic Transition’, rdv.vic.gov.au, archived copy of 9 December 2024, retrieved 25 August 2026); lva.vic.gov.au redirecting to rdv.vic.gov.au from November 2024 (Wayback Machine capture, retrieved 25 August 2026); LVA funding extension beyond 30 June 2020 (Latrobe Valley Express, 30 April 2020); criticisms of LVA outcomes and Yallourn workforce transition (Latrobe Valley Express, 23 September 2025); Yallourn closure due July 2028 (Latrobe Valley Express, 7 April 2026); MGNREGS guarantee, workers, person-days, households and assets-created figures (official scheme dashboard, nrega.dord.gov.in, retrieved 25 August 2026). All retrieval dates on or before 25 August 2026.

Spatial analysis at work: wellbeing gaps at local and regional scales

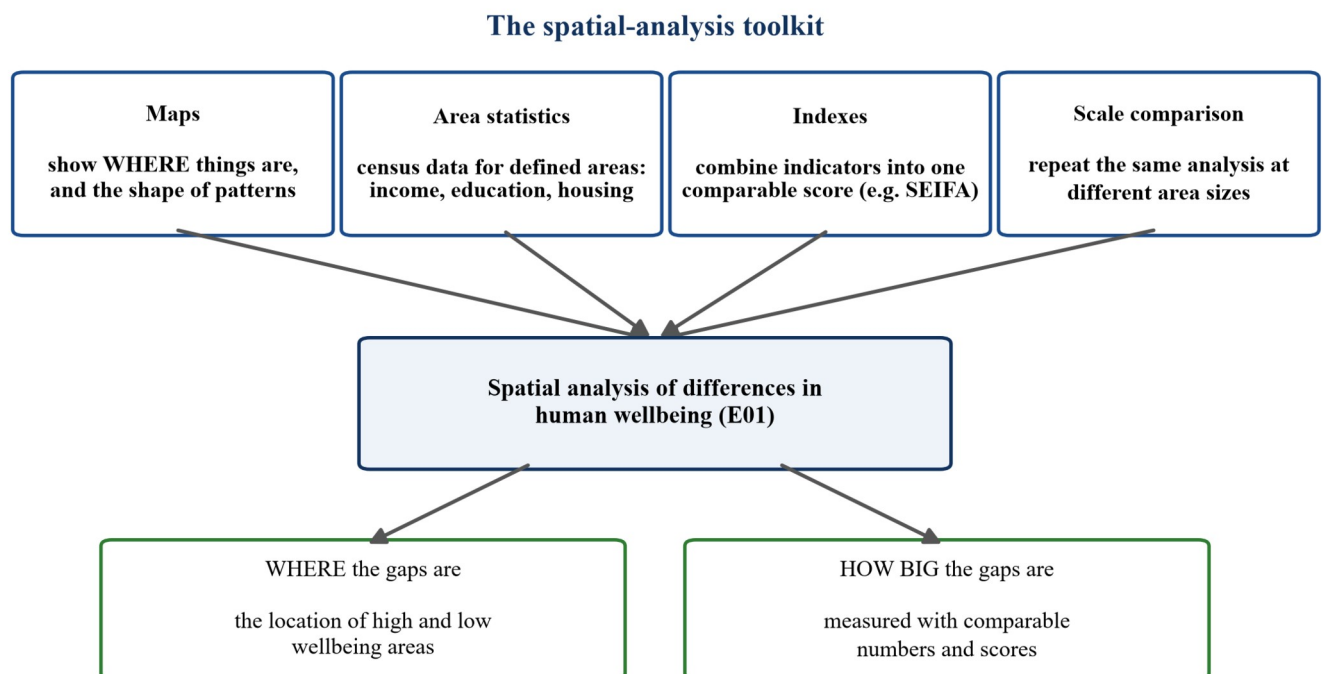
Theory

Spatial analysis is the geographer's way of asking *where*: it examines where things are, how they are arranged across space, and why the pattern looks that way. Applied to human wellbeing - quality of life, tracked through health, education and income, in the operational sense defined in Section 4B (a contested term, used here in that sense only) - spatial analysis asks which places have high wellbeing and which have low wellbeing, how big the gaps are, what reasons lie behind them, and what the differences mean for the people who live there. This section shows **what spatial analysis adds to the study of wellbeing gaps between places** (the skill named in elaboration E01), working at two scales: the **local scale** (two suburbs inside one city) and the **regional scale** (a set of Victorian local government areas, or LGAs).

The toolkit and the chain

Spatial analysis is not one technique but a kit of tools used together.

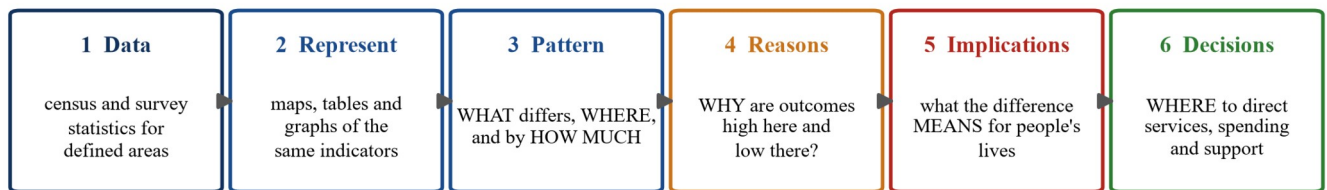
Tools of spatial analysis and what each contributes to understanding differences in human wellbeing



The spatial-analysis toolkit: four tools (maps, area statistics, indexes and scale comparison) feeding into a spatial analysis of differences in human wellbeing, which shows where the gaps are and how big they are

The tools are used in an order, and the order matters. The chain below is the method of this whole section: every worked example and question in it follows these six steps.

The spatial-analysis chain: how spatial analysis contributes to understanding differences in human wellbeing



Each step builds on the one before it. Skipping a step weakens the conclusion:
a pattern described without data is an opinion; a decision made without a pattern is a guess.
Geographical concepts used at every step: place, space, scale, distance and accessibility

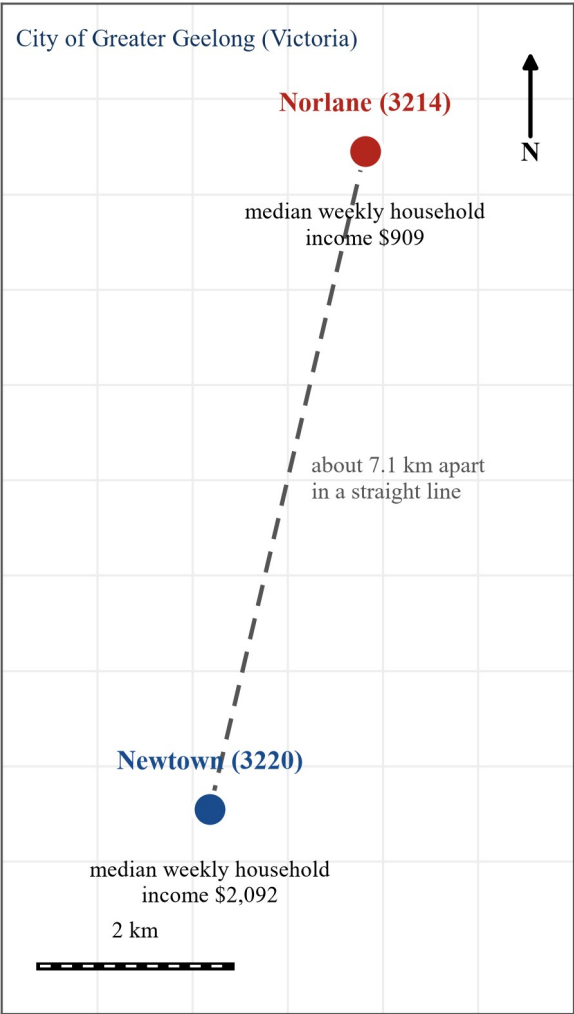
The spatial-analysis chain: six linked steps (data, represent, pattern, reasons, implications, decisions), with the geographical concepts of place, space, scale, distance and accessibility used at every step

Steps 1-3 answer *what*, *where* and *how much*. Steps 4-5 ask *why* the pattern exists (the **reasons** for the differences) and *what it means* for people's lives (the **implications**). Step 6 uses that understanding to decide where to act. A pattern described without data is an opinion; a decision made without a pattern is a guess.

Local scale: two suburbs of one city

The **City of Greater Geelong** is a Victorian LGA of 271,057 people (Census 2021) on the coast south-west of Melbourne. Inside it, two suburbs sit about 7 km apart: **Norlane**, in the north near the river, and **Newtown**, in the south near the bay.

Schematic map: two suburbs in one city — Newtown and Norlane, City of Greater Geelong
(positions from OpenStreetMap place data; boundaries and streets not shown)

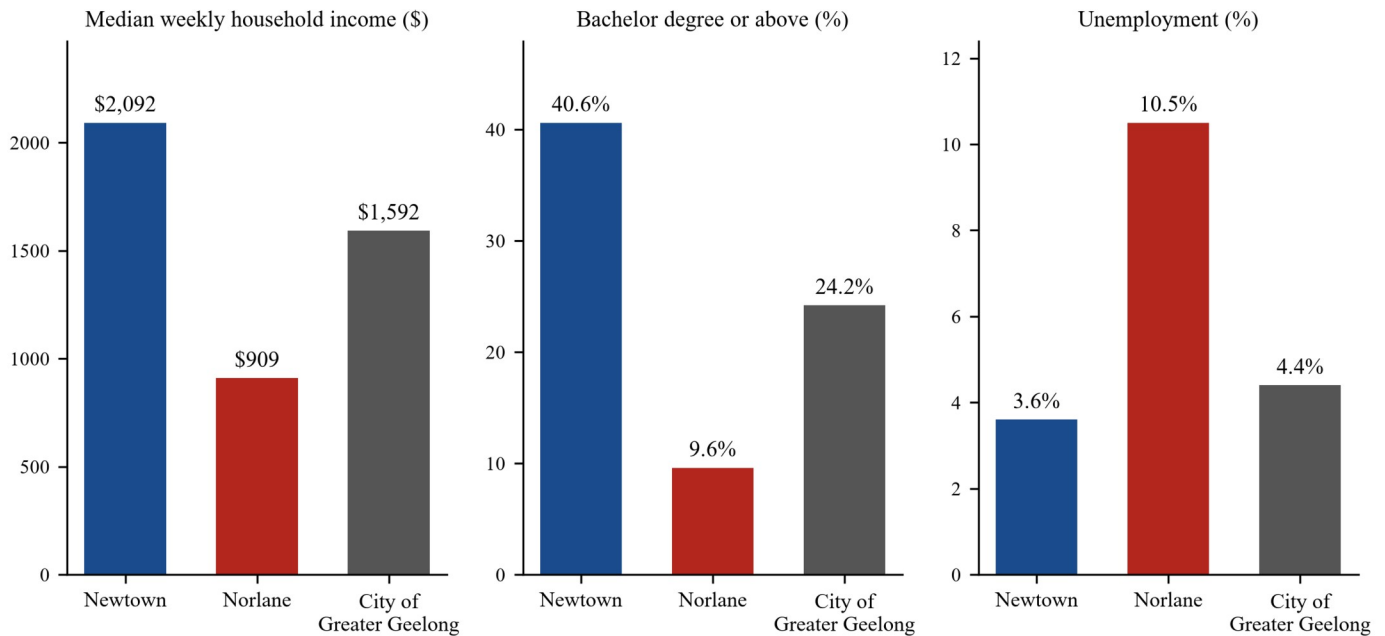


Schematic map of the City of Greater Geelong showing Norlane in the north and Newtown in the south, about 7.1 kilometres apart, each labelled with its median weekly household income

Wellbeing indicators at a local scale, ABS Census 2021 QuickStats (retrieved 25 August 2026)

Area (Census 2021)	Population	Median age	Median weekly household income	Median weekly rent (\$)	Bachelor degree or above (%)	Unemployment (%)	Rented households (%)
Newtown	10,445	40	\$2,092	\$360	40.6	3.6	29.3
Norlane	8,682	37	\$909	\$250	9.6	10.5	54.1
City of Greater Geelong	271,057	39	\$1,592	\$346	24.2	4.4	28.0

Table of Census 2021 wellbeing indicators for Newtown, Norlane and the City of Greater Geelong: population, median age, median weekly household income, median weekly rent, share of adults with a bachelor degree or above, unemployment, and share of rented households



Three bar charts comparing Newtown, Norlane and the City of Greater Geelong on median weekly household income, share of adults with a bachelor degree or above, and unemployment

Following the chain, describe the pattern before explaining it:

- **What** differs: every indicator in the table. Newtown's median weekly household income is \$2,092; Norlane's is \$909 - Newtown's is about 2.3 times larger, and both differ from the LGA figure of \$1,592.
- **Where:** the high-wellbeing suburb sits in the south of the city, the low-wellbeing suburb in the north - a difference inside *one* LGA, only about 7 km across.
- **How much:** the gaps are large. Adults with a bachelor degree or above: 40.6% in Newtown versus 9.6% in Norlane. Unemployment: 3.6% versus 10.5%, nearly three times higher. Rented households: 29.3% versus 54.1%.

The pattern is consistent across indicators, which makes it trustworthy: income, education, employment and housing all rank Newtown above the LGA average and Norlane below it.

Now step 4, reasons. Spatial analysis does not prove reasons by itself; it produces **testable explanations** - reasons that fit the pattern and can be checked against more data. For Newtown and Norlane, two reasons fit well:

- **Work and education.** The share of adults with a degree is four times higher in Newtown. Degree holders tend to work in higher-paid jobs, so a suburb that attracts them records higher incomes; a suburb with fewer degree holders records more unemployment and lower incomes. Education and income reinforce each other.
- **Housing and sorting.** People sort themselves across a city by what they can afford (the same mechanism seen at LGA scale in Section 4B). More than half of Norlane's households rent, many in cheaper housing, while Newtown's housing is more expensive and more often owned or bought with a mortgage. Cheaper housing attracts lower-income households, which keeps the median income low.

Step 5, implications. Within one city of 271,000 people, these differences mean that Norlane residents, on average, face less disposable income after rent, higher unemployment risk and fewer local degree-level job networks than Newtown residents seven kilometres away. For step 6, the analysis tells a planner *where* to direct job services, training and transport support inside the city: the gap is not between Victoria and somewhere else, it is inside one LGA.

Zooming in: small areas inside Greater Geelong

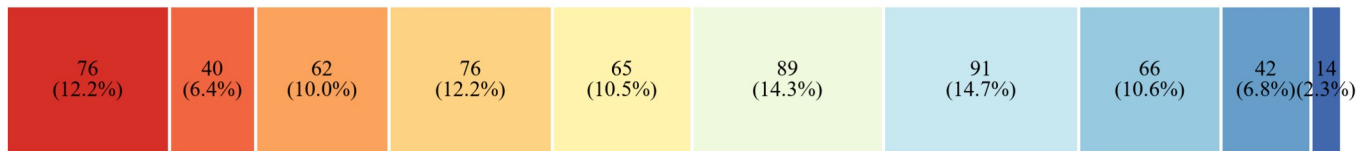
The local comparison used suburbs. The ABS also publishes data for much smaller areas, **SA1s** of about 400 people each. Greater Geelong contains 621 SA1s, and each one has its own **SEIFA** score. SEIFA is the ABS's set of area

indexes; the one used here is **IRSAD**, which combines income, education, employment and housing into one number with an Australian average of 1000 (fully defined in Section 4B).

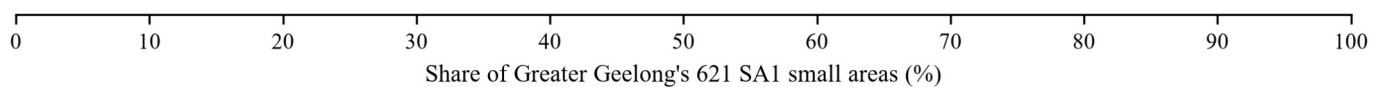
Zooming in on Greater Geelong: SA1 decile spread inside one LGA (SEIFA 2021 IRSAD, ABS, released 27 April 2023)

Decile 1 (most disadvantaged tenth of Australian SA1s)

Decile 10 (most advantaged tenth)



116 of 621 SA1s (19%) sit in deciles 1-2, yet the LGA average (989.6, decile 8) reads as relatively advantaged.



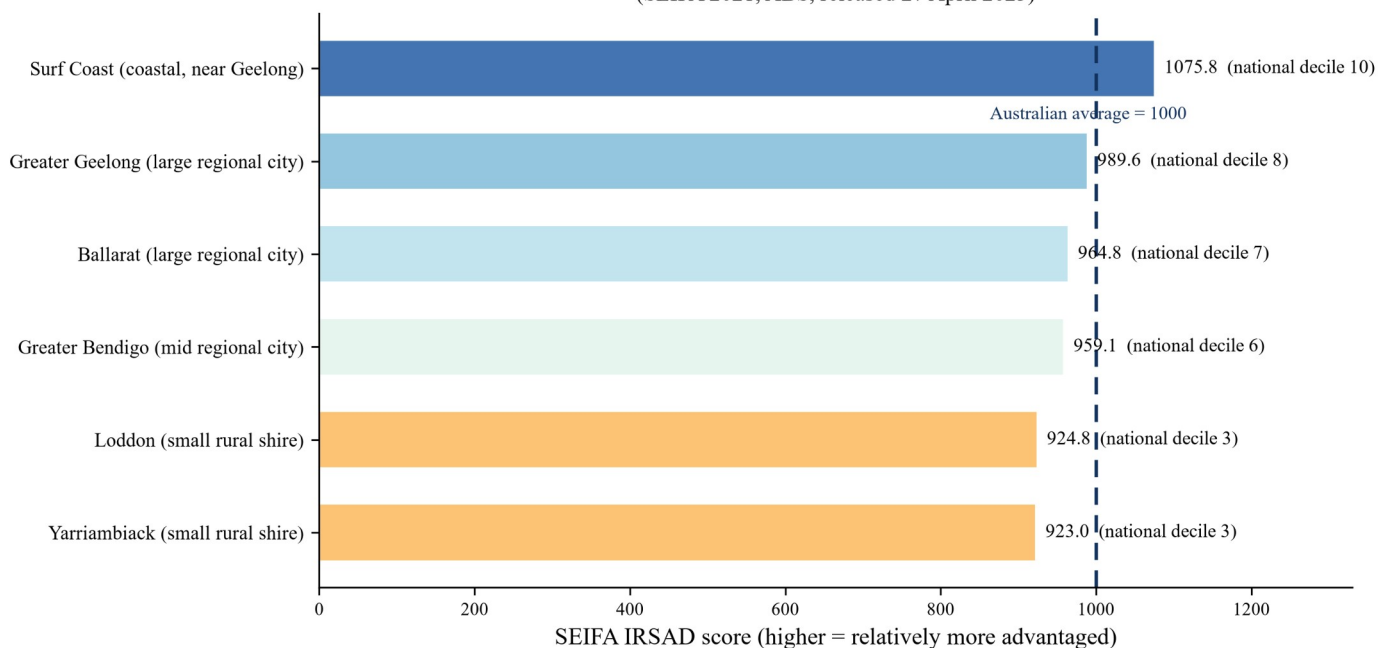
Stacked bar showing how Greater Geelong's 621 SA1 small areas spread across the ten national SEIFA deciles: 116 SA1s (19 per cent) sit in deciles 1-2 even though the LGA average of 989.6 sits in decile 8

The LGA average (989.6, national decile 8) makes Greater Geelong look relatively advantaged. But 116 of its 621 SA1s - 19 per cent, almost one in five - sit in national deciles 1-2, the most disadvantaged fifth of all Australian small areas. The average hides them. This is the scale lesson of spatial analysis: **the scale you map at changes what you can see**, and an average at one scale is not the story of every small area inside it.

Regional scale: a gradient across Victoria

Now zoom out to the regional scale: six Victorian LGAs, from a coastal shire near Melbourne to small rural shires in the north-west.

A regional-scale gradient: SEIFA IRSAD scores across six Victorian LGAs (SEIFA 2021, ABS, released 27 April 2023)



Bar chart of SEIFA IRSAD scores for six Victorian local government areas, from Surf Coast (1075.8, national decile 10) down to Yarriambiack (923.0, national decile 3), with the Australian average of 1000 marked

The pattern is a **gradient**, not a simple city-versus-country split:

- The **Surf Coast** (coastal, near Geelong and within reach of Melbourne) scores highest at 1075.8, in national decile 10 - the most advantaged tenth of Australian LGAs.
- The two large regional cities, **Greater Geelong** (989.6, decile 8) and **Ballarat** (964.8, decile 7), and the mid-size city of **Greater Bendigo** (959.1, decile 6) sit in the middle, around or just below the Australian average.
- The small rural shires, **Loddon** (924.8) and **Yarriambiack** (923.0), sit in national decile 3. The spread from top to bottom is 152.8 points.

The census indicators follow the same order:

Wellbeing indicators at a regional scale, ABS Census 2021 QuickStats (retrieved 25 August 2026)

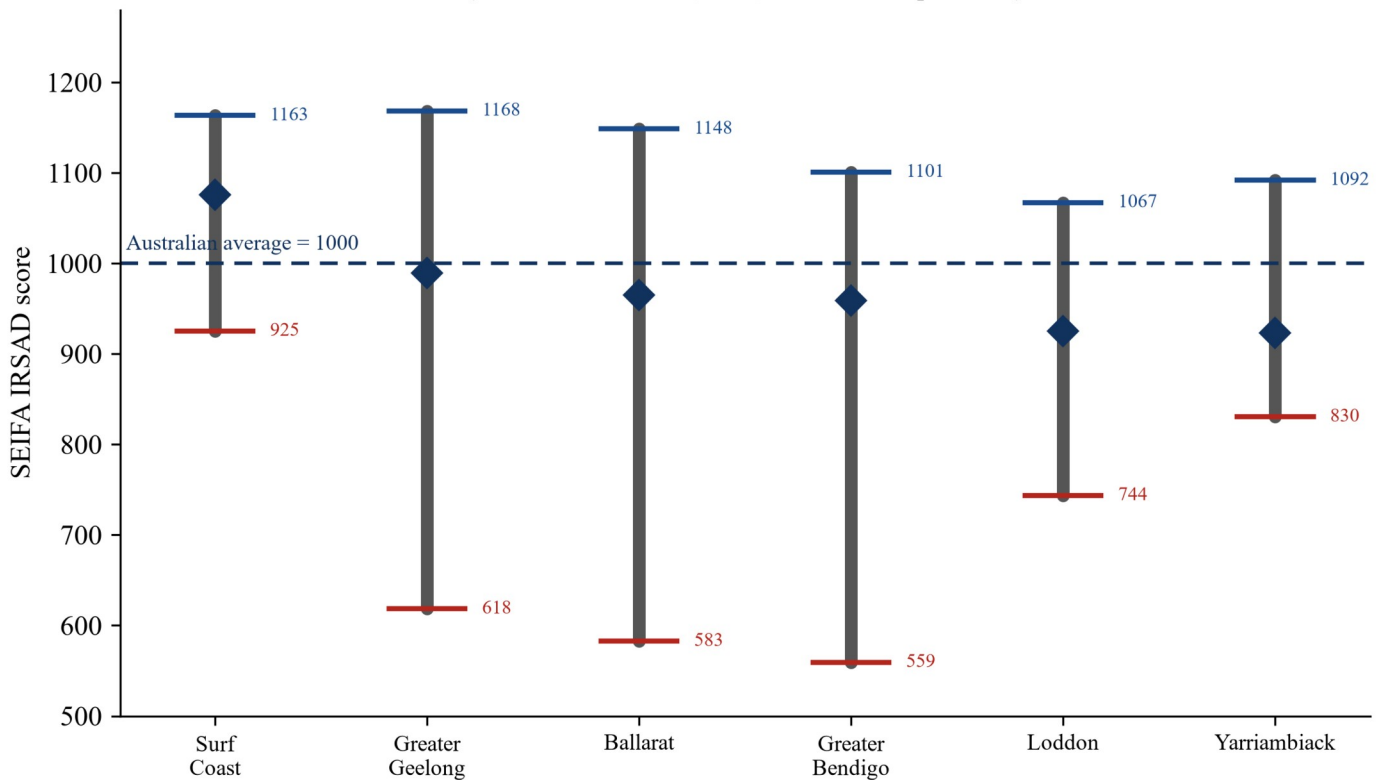
Area (Census 2021)	Median weekly household income	Bachelor degree or above (%)	Unemployment (%)	Median weekly rent (\$)
Greater Geelong (large city)	\$1,592	24.2	4.4	\$346
Greater Bendigo (mid city)	\$1,448	19.7	4.2	\$295
Loddon (small rural shire)	\$1,039	10.6	5.0	\$170
Victoria (state)	\$1,759	29.2	5.0	\$370

Table of Census 2021 wellbeing indicators for Greater Geelong, Greater Bendigo, Loddon and Victoria: median weekly household income, share of adults with a bachelor degree or above, unemployment, and median weekly rent

Median weekly household income steps down the gradient from \$1,592 (Greater Geelong) to \$1,448 (Greater Bendigo) to \$1,039 (Loddon), against \$1,759 for Victoria as a whole; the share of adults with a degree falls from 24.2% to 19.7% to 10.6%.

But the SA1 data adds the same warning as at local scale - every region contains both advantaged and disadvantaged small areas:

What one average hides: the range of SA1 scores inside each LGA (diamond = LGA average)
(SEIFA 2021 Table 3, ABS, released 27 April 2023)



Range chart of the lowest and highest SA1 SEIFA scores inside six Victorian local government areas, with each LGA average marked, showing that all six LGAs contain both relatively advantaged and relatively disadvantaged small areas

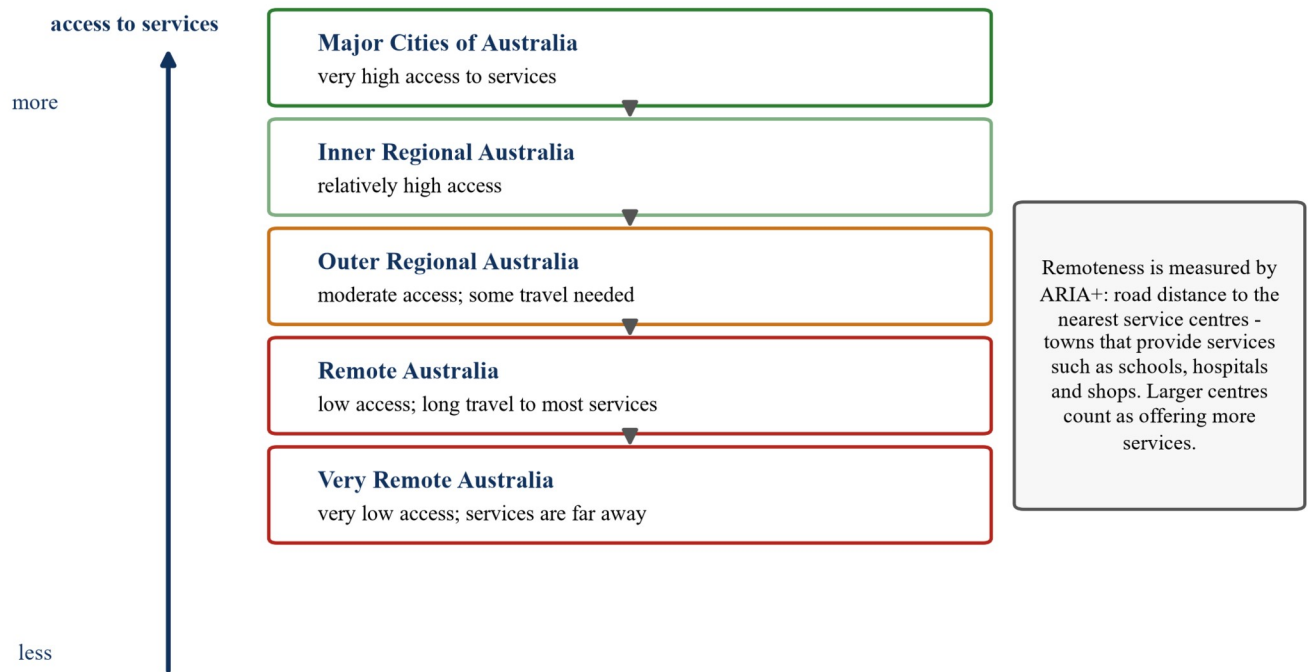
Ballarat's SA1 scores run from 582.6 to 1148.4 - a single LGA containing small areas as disadvantaged as the poorest parts of Australia and small areas as advantaged as the richest. Even Yarriambiack, lowest on the gradient, contains SA1s scoring up to 1091.9, above Greater Geelong's LGA average. Regional differences are real, but they are differences of averages, not of every place inside.

Reasons at regional scale: distance, access and size

Why does the regional gradient exist? Three reasons fit the pattern:

- **Distance and access to services.** The ABS sorts every part of Australia into five remoteness classes, from Major Cities to Very Remote, based on road distance to service centres (below). Greater Geelong and Ballarat sit close to the Major Cities class; Loddon and Yarriambiack lie in regional classes where hospitals, specialists, universities and big employers are a long drive away.

The ABS Remoteness Structure: five classes of access to services (ASGS Edition 3)



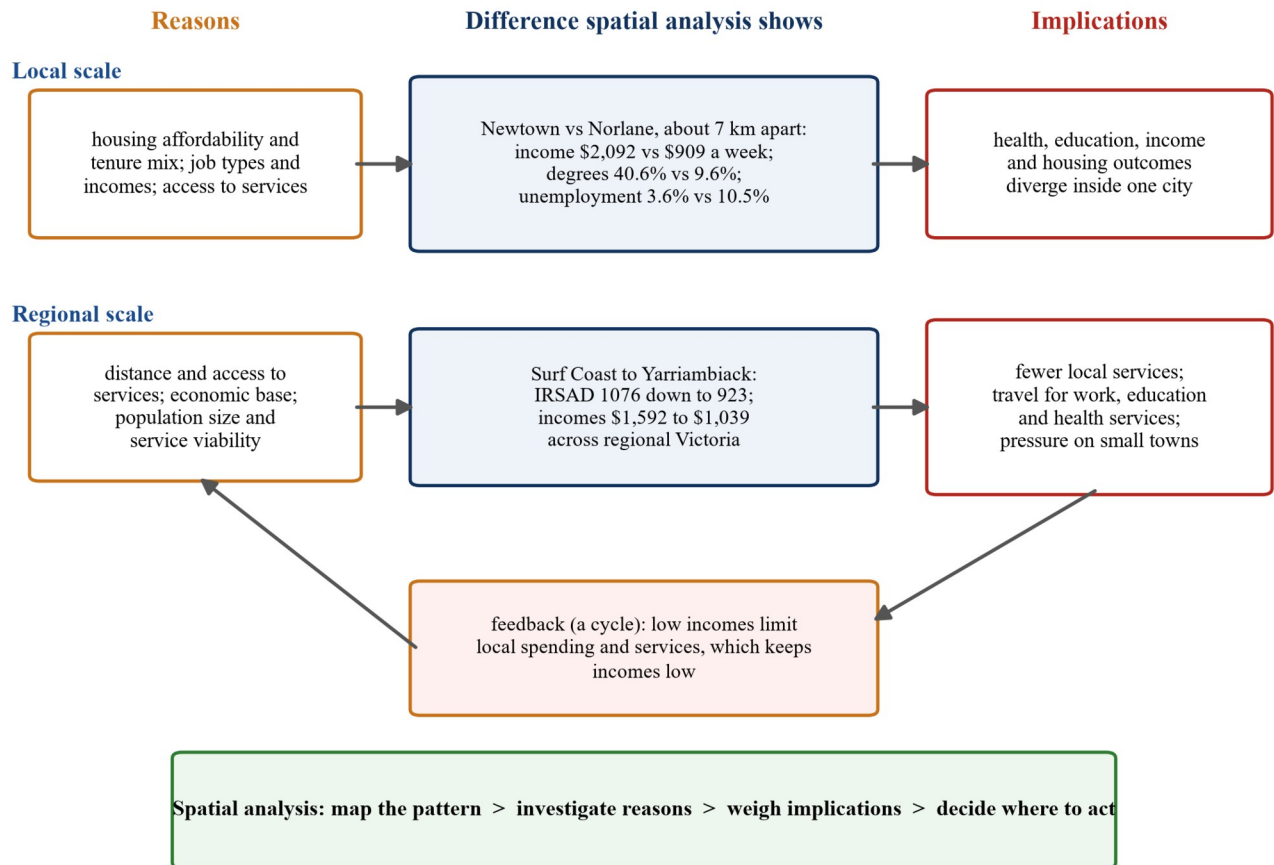
The ABS Remoteness Structure: five classes from Major Cities of Australia (most access to services) down to Very Remote Australia (least access); remoteness is measured by ARIA+, the road-distance index developed at the University of Adelaide

- **Economic base.** Large regional cities have diversified economies - health, education, retail, manufacturing and professional services together. Small rural shires depend on fewer industries, mostly broadacre farming, so a drought or a fall in commodity prices moves the whole shire's income.
- **Population size and services.** A service needs enough customers to survive. Greater Geelong (271,057 people) can support hospitals, universities and frequent transport; Loddon (7,759 people) and Yarriambiack (6,556) cannot support the same services, so residents travel for them - which the remoteness classes measure directly.

The implications differ in kind from the local scale. At regional scale, lower incomes and thinner services mean longer travel for work, education and health care; pressure on small towns when young people leave for study and jobs; and slower recovery from drought. And, as at local scale, a **feedback cycle** operates: low incomes mean less local spending, which weakens services and businesses, which keeps incomes low.

Reasons and implications at two scales, side by side

Wellbeing gaps at two scales: reasons and implications



Model of wellbeing gaps at two scales — reasons and implications — with the difference each scale shows, a feedback cycle, and the spatial-analysis sequence: map the pattern, investigate reasons, weigh implications, decide where to act

The two case studies show the same method producing different kinds of answer:

- At **local scale**, distance to the city centre is almost the same for both suburbs (they share one city), so the reasons lie inside the city: housing and sorting, work and education, and which services sit on which side of town.
- At **regional scale**, the reasons lie in distance and access between areas, economic base, and population size.
- At **both scales**, the implications run through health, education and income, and the feedback cycle can lock disadvantage in place - which is why the last step of the chain is a decision about *where* to act.

What spatial analysis contributes - and its limits

Return to the question of elaboration E01: what does spatial analysis add to our grasp of wellbeing gaps between places? Four contributions stand out in this section:

1. It makes differences **visible** - the map and the gradient show where wellbeing is high and low, which no single story about “the average” can do.
2. It makes differences **measurable** - scores, deciles and census indicators say how big each gap is (2.3 times in income between two suburbs; 152.8 SEIFA points across the regional gradient), so claims can be checked.
3. It makes differences **comparable across scales** - the same method applied to suburbs, to SA1s and to LGAs shows that the pattern changes with the scale, and that averages hide pockets.
4. It turns differences into **questions and decisions** - a mapped pattern points to testable reasons (work and education; housing; distance and access; economic base; population size) and tells governments and services where to direct help.

And three limits must be stated honestly:

- **SEIFA is relative.** A score says how an area compares with other Australian areas, not whether anyone is poor in an absolute sense; even disadvantaged Australian areas are wealthy by world standards.
- **Averages hide extremes.** An LGA in a high decile can contain very disadvantaged small areas (Greater Geelong), and a low-scoring LGA contains advantaged ones (Yarriambiack).
- **Patterns are not proof.** A pattern that fits a reason is evidence for it, not proof of it; places differ in many ways at once. Testing reasons needs the controlled comparison taught in Section 4B. Spatial analysis shows where to look and what to test; it does not close the argument by itself.

Worked examples

Example 1 - scaffolded (describing and explaining a regional pattern, E01)

Question: Using the SEIFA gradient figure and the regional indicators table, describe the spatial pattern of wellbeing across the six Victorian LGAs and suggest two reasons for it.

Step	What to do	Worked through
1	Read the gradient figure: order the areas and give the top and bottom scores.	Surf Coast 1075.8 (decile 10) > Greater Geelong 989.6 (8) > Ballarat 964.8 (7) > Greater Bendigo 959.1 (6) > Loddon 924.8 (3) > Yarriambiack 923.0 (3). Spread of 152.8 points.
2	Describe the pattern in words: what, where, how much.	Wellbeing is highest on the coast near Melbourne, middle in the large and mid regional cities, and lowest in the small rural shires of the north-west; the top LGA outscored the bottom by 152.8 points and sits in the top national decile against the bottom LGAs' decile 3.
3	Check the pattern against the indicators table.	It holds: income steps down \$1,592 to \$1,448 to \$1,039 and degree share 24.2% to 19.7% to 10.6% along the same order. A pattern that repeats across indicators is trustworthy.
4	Suggest two reasons from the regional cause list.	(1) Distance and access: the rural shires sit in remoteness classes where services are a long drive away. (2) Population size and economic base: shires of about 7,000 people cannot support the hospitals, universities and diverse industries of a city of 271,000, and depend on farming.

Answer: Wellbeing across the six LGAs forms a gradient from the coast to the rural north-west: Surf Coast (1075.8, decile 10) is most advantaged, the regional cities sit around the national average, and Loddon (924.8) and Yarriambiack (923.0, both decile 3) are least advantaged - a spread of 152.8 points, matched by incomes stepping down from \$1,592 to \$1,039. Two reasons are distance and access to services (the rural shires sit in remoteness classes far from hospitals, universities and big employers) and population size with economic base (small farming shires cannot support city-level services and depend on a narrow industry base).

Example 2 - unscaffolded (averages and extremes, E01)

Question: A student says: "Greater Geelong sits in national decile 8, and the Surf Coast in decile 10, so nobody in either LGA lives in a disadvantaged small area." Evaluate this claim using the SA1 figures in this section.

Model answer: The claim is wrong, and the error is a scale error. An LGA score is an average over every SA1 inside the LGA, and averages hide extremes. Greater Geelong's decile-8 average (989.6) contains 116 SA1s in national deciles 1-2 - 19 per cent of its 621 small areas are among the most disadvantaged fifth of all Australian small areas. The range figure makes the same point for the Surf Coast: its SA1 scores run from 925.2 to 1163.2, so even within a decile-10 LGA the least advantaged small area scores well below the LGA average. Changing the scale of analysis from LGA to SA1 is what reveals these pockets - which is precisely how spatial analysis contributes to understanding: the coarser scale flatters the area, the SA1 scale shows where help is needed.

Practice questions

Scaffolded

- Q1.** Name the four tools in the spatial-analysis toolkit figure, and say which one you would use to find disadvantaged pockets inside one LGA (E01).
- Q2.** From the local map and table: state the straight-line distance between Norlane and Newtown, and give the median weekly household income of each suburb (E01).
- Q3.** Calculate how many times larger Newtown's median weekly household income is than Norlane's. Round to one decimal place (E01).
- Q4.** From the SEIFA gradient figure: name the highest- and lowest-scoring LGAs with their scores, and state what "above the Australian average of 1000" means (E01).
- Q5.** From the Greater Geelong deciles figure: how many of the LGA's SA1s sit in deciles 1-2, and roughly what share of the 621 SA1s is that (E01)?
- Q6.** From the remoteness figure: list the five classes of the ABS Remoteness Structure in order, and name the index and its developer used to measure remoteness (E01).

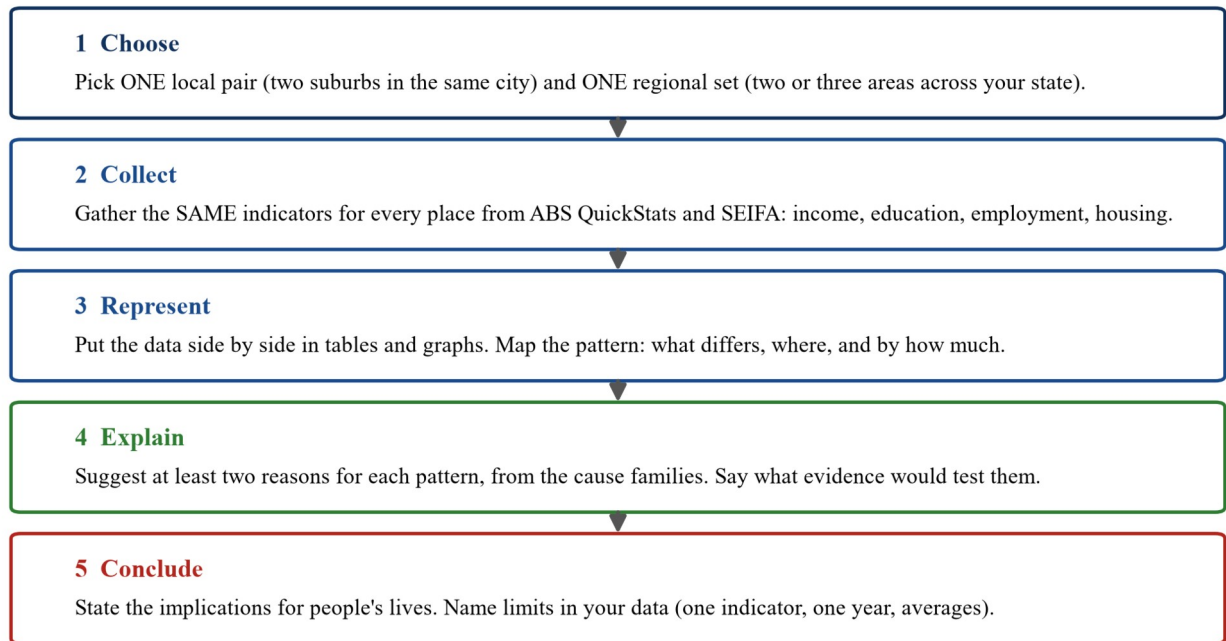
Un scaffolded

- Q7.** Using the spatial-analysis chain figure, explain how steps 1-3 (data, represent, pattern) contribute to understanding differences in human wellbeing before any reasons are discussed (E01).
- Q8.** "Averages hide extremes." Use the SA1 range figure and two named LGAs to support this statement (E01).
- Q9.** Compare the reasons for wellbeing differences at local scale (Newtown and Norlane) with those at regional scale (the six-LGA gradient): give one way the reasons differ and one way they are alike, with evidence from this section (E01).
- Q10.** Spatial analysis has limits. Name two limits shown in this section and explain why the method is still worth using despite them (E01).
-

Inquiry task

A two-scale spatial analysis of wellbeing differences. Working alone or in pairs, carry out the inquiry below and present it as a one-page report with one table and one graph per scale. Follow the five steps in the inquiry-workflow figure.

Inquiry task workflow: a two-scale spatial analysis of wellbeing differences



Inquiry task workflow: five steps (choose, collect, represent, explain, conclude) for a two-scale spatial analysis of wellbeing differences

1. **Choose** ONE local pair (two suburbs in the same city) and ONE regional set (two or three areas across your state). Every place must have an ABS Census 2021 QuickStats page (suburbs and LGAs both do).
 2. **Collect** the SAME indicators for every place from ABS QuickStats and SEIFA: median weekly household income, share of adults with a bachelor degree or above, unemployment, and one housing indicator.
 3. **Represent** the data side by side in tables and graphs, and map the pattern in words: what differs, where, and by how much, at each scale.
 4. **Explain**: suggest at least two reasons for each pattern from the cause families used in this section (work and education; housing and sorting; distance and access; economic base; population size), and say what extra evidence would test them.
 5. **Conclude** with the implications for people's lives at each scale, and name the limits of your data (one year, a few indicators, averages).
-

Answers

Q1. Maps, area statistics, indexes, scale comparison. Indexes (SEIFA at SA1 scale) or area statistics at SA1 scale find pockets inside an LGA; the scale-comparison tool says to repeat the analysis at SA1 rather than LGA scale. **Q2.** About 7.1 km; Newtown \$2,092, Norlane \$909. **Q3.** $2092 \div 909 \approx 2.3$ times. **Q4.** Surf Coast 1075.8 (highest); Yarriambiack 923.0 (lowest). Above 1000 means relatively advantaged compared with other Australian areas. **Q5.** 116 SA1s (76 + 40); about 19% (roughly one in five). **Q6.** Major Cities, Inner Regional, Outer Regional, Remote, Very Remote; ARIA+, developed at the University of Adelaide. **Q7.** They turn a vague sense that places differ into a checked fact: data give the numbers, representing puts them on maps and graphs, and the pattern step says what differs, where and by how much - so any reason proposed later has to fit a pattern that actually exists. **Q8.** Any two LGAs with correct ranges, e.g. Ballarat's SA1s run 582.6-1148.4 (from deep disadvantage to high advantage inside one decile-7 LGA) and Yarriambiack's run 830.5-1091.9 (its best small areas outscore Geelong's LGA average) - the averages conceal both tails. **Q9.** Differ: local reasons sit inside one shared city (housing and sorting, work and education) while regional reasons sit between areas (distance and access, economic base, population size). Alike: both scales show income, education and employment moving together, and both feed the same feedback cycle of low income and weak services. **Q10.** Any two of: SEIFA is relative, not absolute; averages hide extremes; a fitted pattern is evidence, not proof; one census year is a snapshot. Still worth using because it makes differences visible, measurable and comparable across scales, and tells services where to look and what to test.

Fully-worked solutions

Q1. The toolkit figure names four tools: maps (show where things are and the shape of patterns), area statistics (census numbers for defined areas), indexes (one comparable score, such as SEIFA), and scale comparison (repeat the analysis at different area sizes). To find disadvantaged pockets inside one LGA, use the tools at SA1 scale: SA1-level SEIFA (an index) or SA1 census statistics, checked by scale comparison against the LGA average. The section's Greater Geelong decile figure is exactly this analysis: 116 SA1s in deciles 1-2 inside a decile-8 LGA.

Q2. The map figure shows the two suburbs about 7.1 km apart (straight-line distance between the suburb centres). Newtown's median weekly household income is \$2,092 and Norlane's is \$909, against \$1,592 for the City of Greater Geelong as a whole.

Q3. Newtown \$2,092; Norlane \$909. The ratio is $2092 \div 909 = 2.30\dots$, so Newtown's median weekly household income is about **2.3 times** Norlane's - a large gap inside one city.

Q4. Highest: Surf Coast, 1075.8, national decile 10. Lowest: Yarriambiack, 923.0, national decile 3. A score above the Australian average of 1000 means the area is relatively advantaged - it compares favourably with other Australian areas - and the further above 1000, the greater the advantage.

Q5. Decile 1 holds 76 of Geelong's SA1s and decile 2 holds 40, so 116 SA1s sit in deciles 1-2. As a share of the LGA's 621 SA1s that is $116 \div 621 \approx 0.187$, about **19%**, or roughly one small area in five - inside an LGA whose average sits in decile 8.

Q6. In order of decreasing access to services: Major Cities of Australia; Inner Regional Australia; Outer Regional Australia; Remote Australia; Very Remote Australia. Remoteness is measured by ARIA+, the index of road distance to service centres developed at the University of Adelaide, with larger centres counted as offering more services.

Q7. Steps 1-3 build the checked fact that later reasoning stands on. Data (step 1) replace impressions with numbers from census and surveys for defined areas. Representing (step 2) puts the same indicators side by side on maps, tables and graphs so places are compared like with like. The pattern step (3) states what differs, where, and by how much - for example that income is 2.3 times higher seven kilometres to the south, or that the regional gradient spans 152.8 SEIFA points. Without these steps, any "reason" offered for differences in wellbeing might be explaining a pattern that is not real; with them, reasons must fit a measured pattern. That is the contribution of spatial analysis to understanding: it converts a debate into a checkable description first.

Q8. The statement is supported by the range figure. Ballarat's LGA score (964.8, decile 7) is an average over SA1s that run from 582.6 to 1148.4 - the LGA contains small areas among the most disadvantaged in Australia (582.6) and small areas among the most advantaged (1148.4), and the average shows neither. Yarriambiack, the lowest LGA on

the gradient (923.0), contains SA1s scoring up to 1091.9 - above Greater Geelong's LGA average of 989.6. In both directions the LGA average hides the extremes inside it, which is why the SA1 scale is needed for planning where help goes.

Q9. The reasons differ in kind between the scales. At local scale the two suburbs share one city, one labour market and one council, so distance to the city's services is nearly equal; the reasons that fit are inside-the-city ones - housing and sorting (54.1% of Norlane households rent versus 29.3% in Newtown) and work and education (degree share 9.6% versus 40.6%). At regional scale the reasons sit between areas: road distance and access to services (the remoteness classes), economic base (diversified city economies versus farming shires), and population size (271,057 people supporting city services versus 7,759 in Loddon). The reasons are alike in two ways: at both scales income, education and employment indicators move together in the same order, and at both scales the feedback cycle applies - low incomes weaken local services and spending, which keeps incomes low. Same method, different cause mix: that is what scale comparison adds to understanding.

Q10. Two limits shown in this section: (1) SEIFA is a relative measure - it ranks Australian areas against each other and says nothing absolute, so a "disadvantaged" Australian area is still wealthy by world standards; (2) averages hide extremes - Geelong's decile-8 average contains 116 SA1s in deciles 1-2, and a mapped pattern is evidence for a reason, not proof of it (proof would need the controlled comparison of Section 4B). The method is still worth using because, limits and all, it makes differences visible, measurable and comparable across scales: it shows where the gaps are (Norlane, the rural shires), how big they are (2.3 times in income; 152.8 SEIFA points), and where services and support should be directed - and it states its own limits honestly, which is what good analysis looks like.

Sources (real, checkable referents; figures computed from the values shown): ABS Census 2021 QuickStats for Newtown (SAL21938), Norlane (SAL21960), City of Greater Geelong (LGA22750), City of Greater Bendigo (LGA22620), Loddon (LGA23940) and Victoria (STE2), retrieved 25 August 2026; ABS SEIFA 2021 (the ABS area indexes of relative advantage and disadvantage), released 27 April 2023 - LGA indexes data cube, IRSAD table (scores, national deciles and populations as listed: Surf Coast 1075.8, decile 10, 37,694; Greater Geelong 989.6, decile 8, 271,057; Ballarat 964.8, decile 7, 113,763; Greater Bendigo 959.1, decile 6, 121,470; Loddon 924.8, decile 3, 7,759; Yarriambiack 923.0, decile 3, 6,556) and LGA SA1 distributions data cube, IRSAD table (SA1 minimum-maximum scores: Ballarat 582.6-1148.4; Greater Bendigo 559.3-1100.7; Greater Geelong 618.4-1168.5; Loddon 743.6-1067.2; Surf Coast 925.2-1163.2; Yarriambiack 830.5-1091.9; and Greater Geelong SA1 decile counts as plotted, 621 SA1s), downloaded 25 August 2026; OpenStreetMap Nominatim geocodes for Norlane and Newtown suburb centres (straight-line distance of 7.1 km computed from these coordinates), retrieved 25 August 2026; ABS Australian Statistical Geography Standard (ASGS) Edition 3, Remoteness Structure (five classes), with remoteness measured by ARIA+, the Accessibility/Remoteness Index of Australia Plus developed at the University of Adelaide, retrieved 25 August 2026. All retrieval dates on or before 25 August 2026.

Improving human wellbeing: how governments and organisations respond

Theory

Sections 4A to 4C showed that human wellbeing is uneven across the world and within countries: some places have longer lives, better health, more schooling and higher incomes than others. This section asks the question that follows: **who does something about those differences, and how well are they doing?** The answer comes in three kinds of organisation — international organisations, national governments, and non-government organisations — working at scales from a single clinic to the whole planet. We follow four real programs to find out: Australia's PALM worker scheme in the Pacific, the Fred Hollows Foundation's eye health work in Papua New Guinea, Indonesia's national health insurance, and the United Nations' Sustainable Development Goals.

The three kinds of organisation. The word *organisation* here simply means a group of people working together for a purpose. What matters for geography is who runs it, where its money comes from, and at what scale it works (Figure 1).

- An **international organisation** works across many countries. The United Nations (UN) is the main one in this section: all of its member countries agreed in 2015 to a shared set of goals, and the UN measures and reports the world's progress towards them.
- A **national government** is the government of one country. It can act at home — running programs that lift wellbeing in its own regions — and it can act overseas, by funding **aid**: money and support given to improve wellbeing in other countries. The Australian Government's overseas spending of this kind is managed by the Department of Foreign Affairs and Trade (DFAT) and is called the Australian aid program.
- A **non-government organisation (NGO)** is an organised group that is not part of any government. Most are charities funded by donations, often backed by government grants as well. The Fred Hollows Foundation and the Australian Red Cross — founded in 1914 and based in Melbourne, Victoria — are Australian examples.

Type of organisation	Who runs it	Where the money comes from	Example in this section	Scale
International organisation	many countries together	member countries' payments	the United Nations and its Sustainable Development Goals	global
National government	one country's government	taxes	the Australian aid program (DFAT); Indonesia's JKN health insurance	national, and overseas for aid
Non-government organisation (NGO)	a group outside government	donations, often plus government grants	The Fred Hollows Foundation; Australian Red Cross (head office in Melbourne)	local to global

Three types of organisation respond to differences in human wellbeing

Type of organisation	Who runs it	Where the money comes from	Example in this section	Scale
International organisation	Many countries together	Member countries' payments	The United Nations and its Sustainable Development Goals	Global
National government	One country's government	Taxes	The Australian aid program (DFAT); Indonesia's JKN health insurance	National — and overseas for aid
Non-government organisation (NGO)	A group outside government	Donations, often plus government grants	The Fred Hollows Foundation; Australian Red Cross (head office in Melbourne)	Local to global

Original table for this section, built from the case studies in Section 4D.

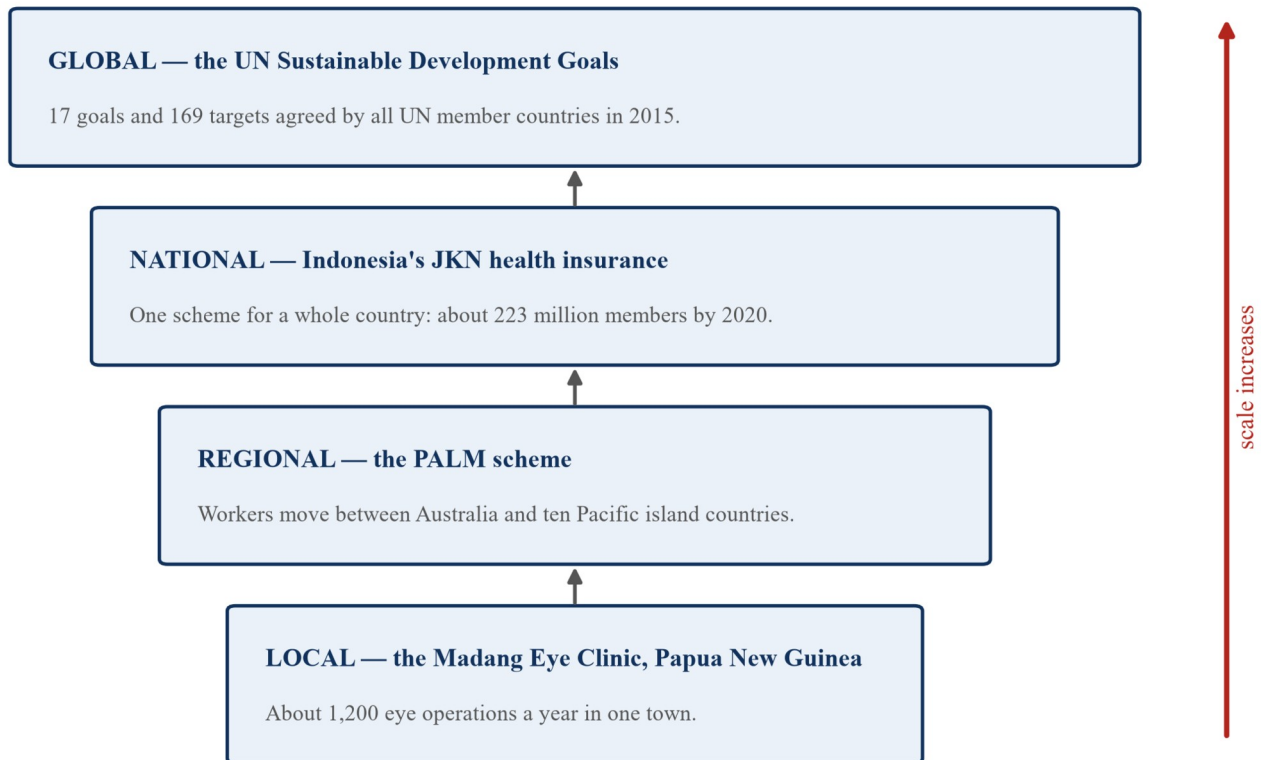
Table of the three types of organisation that respond to differences in human wellbeing — international organisations, national governments and non-government organisations — with who runs each, where the money comes from, an example, and the scale it works at

Two words need fixing before we go further, because people use them in different ways. This section uses each in one stated sense.

- **Aid** (also called *overseas development assistance*) is used here in the sense of the Australian Government's own budget: money a government spends to improve wellbeing in other countries (Development Policy Centre, Australian Aid Tracker, retrieved 25 August 2026). Other definitions exist — for example, emergency disaster relief is also called aid — and they are not interchangeable with this one.
- **Human wellbeing** is used, as in Section 4A, to mean how well people's lives are going: their health, education, income, housing and safety. It can be measured with indicators such as life expectancy, child mortality and household income.

Responses work at different scales. A clinic in one town, a worker scheme across the Pacific, a health insurance system covering a whole country, and a set of goals for the whole planet — these are responses at four different scales (Figure 2). They are also connected: a global goal (healthy lives) is reached through national systems (health insurance), which are strengthened by overseas programs (a trained eye nurse), whose work happens in a local place (a clinic in Madang). Geographers call these links **interconnection** — places joined so that what happens in one affects the others — and **scale** — the level we look at, from local to global.

Responses at four scales — and how they connect



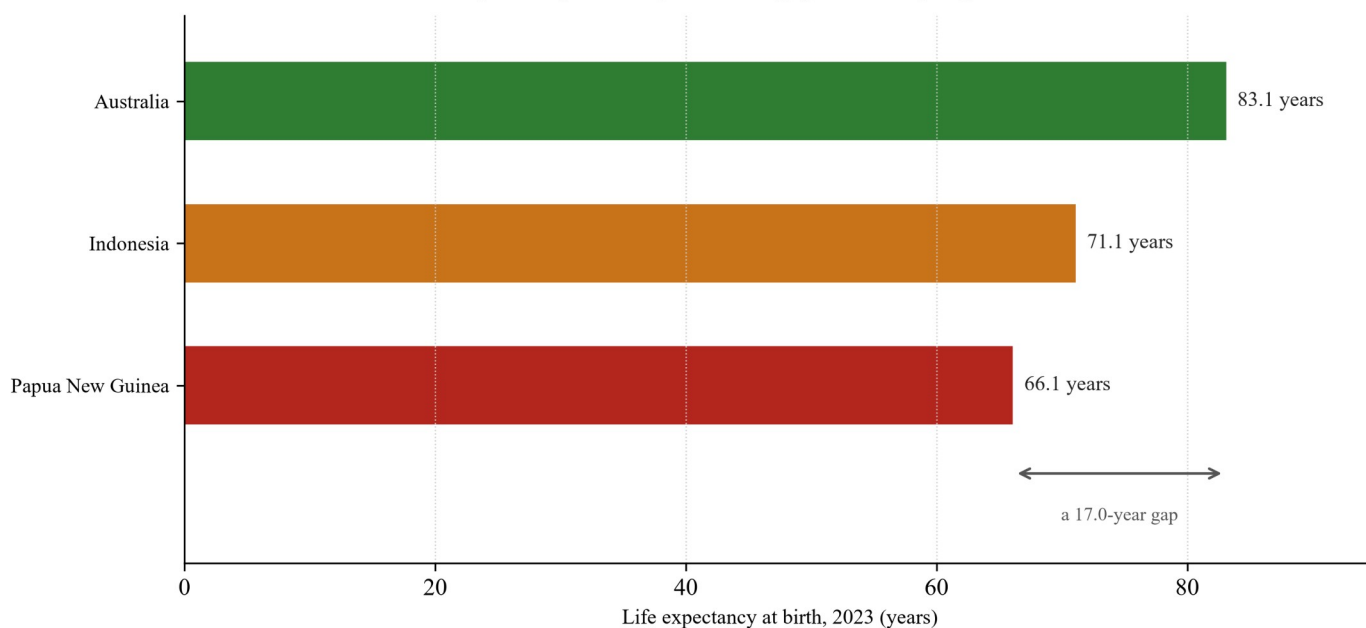
Interconnection: global goals are reached through national systems, strengthened by overseas programs, whose work happens in local places.

Scale-ladder diagram with four rungs linking the section's case studies from local to global: the Madang Eye Clinic in Papua New Guinea at local scale, the PALM scheme across ten Pacific countries at regional scale, Indonesia's JKN health insurance at national scale, and the UN Sustainable Development Goals at global scale

Australia's overseas response: government programs

Australia is one of the world's wealthy countries (life expectancy 83.1 years in 2023, compared with 66.1 years in neighbouring Papua New Guinea — Figure 3), and it runs an overseas aid program to help close such gaps. The aid program peaked at \$5.6 billion in 2012–13 and in 2026–27 the Australian Government budgeted \$5,209.3 million for aid (Wikipedia, 'AusAID', and Development Policy Centre, Australian Aid Tracker, both retrieved 25 August 2026). The Pacific is the priority region: Australia is the largest aid partner of the Pacific Island countries (Lowy Institute, Pacific Aid Map, retrieved 25 August 2026). Papua New Guinea alone received \$477.4 million of Australian aid in 2015–16, more than any other country (Wikipedia, 'AusAID', retrieved 25 August 2026).

Life expectancy at birth, 2023: the gap overseas programs aim to close



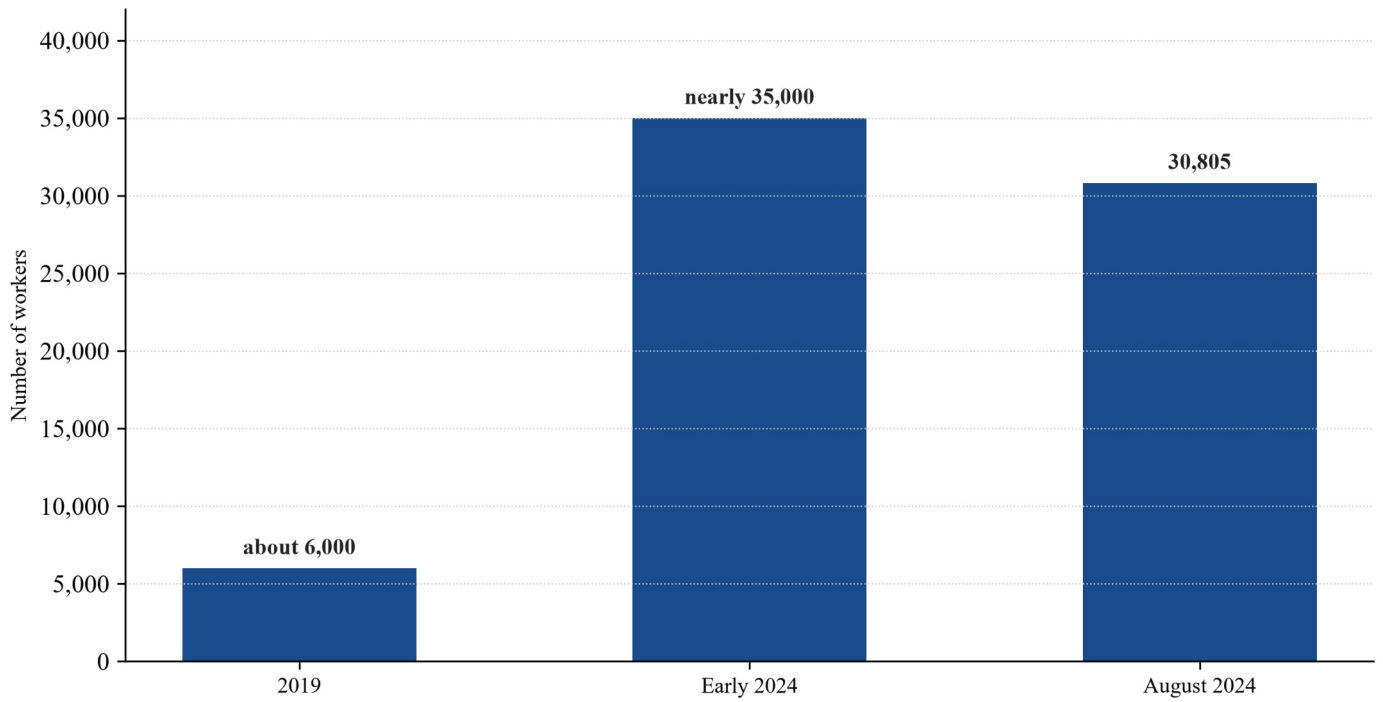
Source: World Bank, World Development Indicators. Retrieved 25 August 2026.

Horizontal bar chart of life expectancy at birth in 2023: Australia 83.1 years, Indonesia 71.1 years and Papua New Guinea 66.1 years, labelled as the wellbeing gap that overseas programs aim to close

One Australian Government program that improves wellbeing in the Pacific is the **Pacific Australia Labour Mobility (PALM) scheme**. Under PALM, people from ten Pacific countries — Fiji, Kiribati, Nauru, Papua New Guinea, Samoa, Solomon Islands, Timor-Leste, Tonga, Tuvalu and Vanuatu — come to Australia to work, mainly on farms and in meat works (about 90% of workers). The scheme began as a small trial in 2008 and was combined into PALM in April 2022. The Australian Government describes its objectives as a “triple win”: fill staff shortages in Australian industries, raise the incomes and skills of Pacific workers, and send money home to their families (Wikipedia, ‘Pacific Australia Labour Mobility scheme’, retrieved 25 August 2026).

The scheme grew from about 6,000 workers in 2019 to nearly 35,000 by early 2024; 30,805 workers were recorded in August 2024 (Figure 4). The outcomes for wellbeing run through the workers’ pay. In 2020, longer-term PALM workers earned on average \$40,836 a year and saved or sent home about 39% of it (Figure 5). Those payments sent home are called **remittances** — money a worker earns in one country and sends to family in another. Remittances are a large part of some Pacific economies: in Samoa they reached about 34% of the country’s GDP in 2022, and the scheme’s remittances totalled about \$184 million over the four years to 2022 (Wikipedia, ‘Pacific Australia Labour Mobility scheme’, retrieved 25 August 2026). At a local scale, a remittance can mean a family paying school fees, seeing a doctor or fixing a house — direct gains in health, education and living standards.

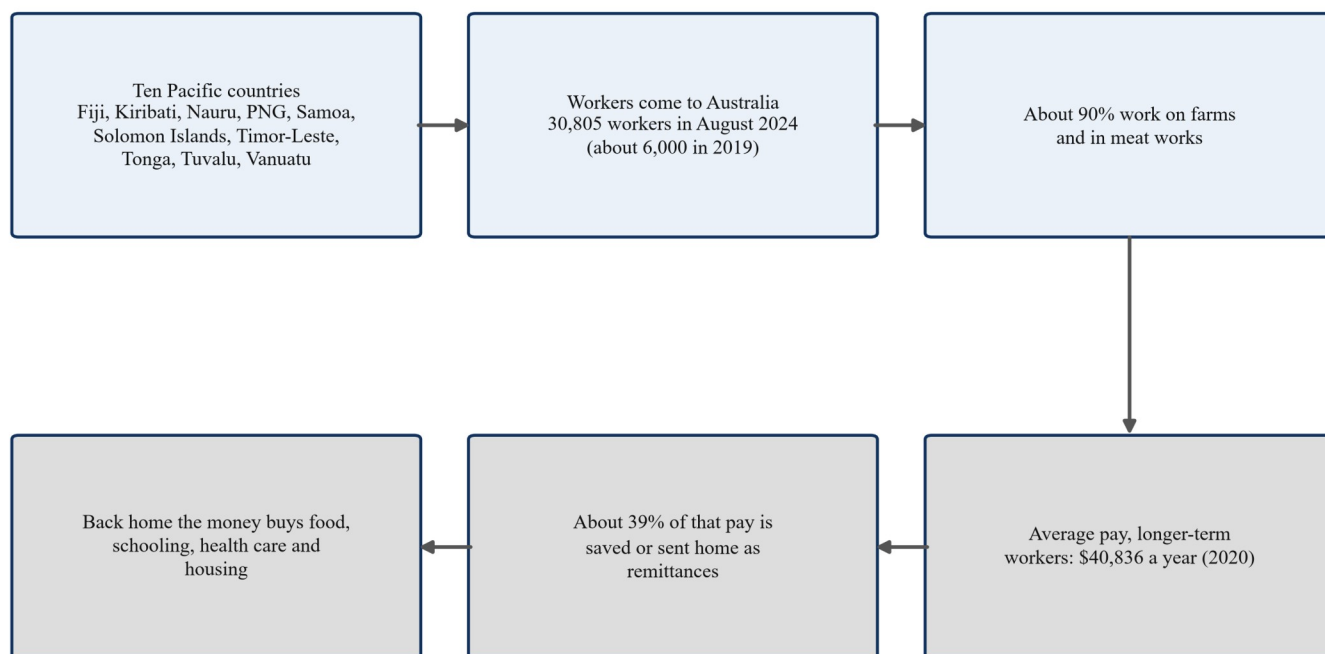
Workers in Australia under the Pacific labour scheme (PALM)



Source: Wikipedia, 'Pacific Australia Labour Mobility scheme'. Retrieved 25 August 2026.

Bar chart of the number of workers in Australia's Pacific labour scheme: about 6,000 in 2019, nearly 35,000 in early 2024, and 30,805 recorded in August 2024

How the PALM scheme sends wellbeing home: the remittance flow



Remittances reached about 34% of Samoa's GDP in 2022, and about \$184 million over the four years to 2022.

Flow diagram of the PALM scheme: workers travel from ten Pacific island countries to Australia, about 90 per cent work on farms and in meat works, longer-term workers averaged \$40,836 of pay in 2020, about 39 per cent of that is saved or sent home as remittances, and the money supports food, schooling, health care and housing back home — remittances reached about 34 per cent of Samoa's GDP in 2022

The PALM scheme also shows that programs must be judged carefully. Critics point to real harms: workers tied to one employer can be badly treated, families are separated for months at a time, and home countries can lose skilled workers. Those criticisms are examined later in the section.

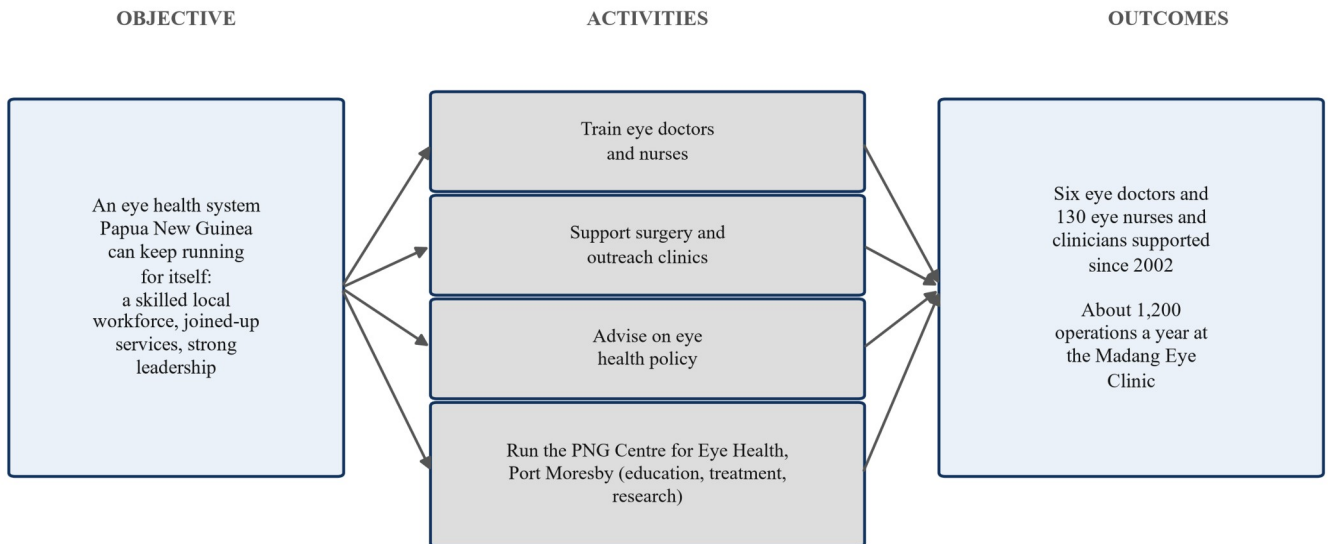
Non-government response: The Fred Hollows Foundation

NGOs often act where governments alone cannot reach. The **Fred Hollows Foundation** is an Australian NGO that works to prevent and treat blindness in more than 25 countries (The Fred Hollows Foundation, annual reports page, retrieved 25 August 2026). In 2025 alone it reported 511,623 eye operations and treatments, 6,136,161 people screened, and 48,994 people trained (The Fred Hollows Foundation, annual reports page, retrieved 25 August 2026).

Its program in Papua New Guinea — the **PNG Eye Health System Strengthening Program** — aims to make eye care something PNG can keep running for itself. Its objectives are to grow a skilled local workforce, connect basic local services with specialist care, and strengthen eye health leadership at national and provincial level. Its activities include training doctors and nurses, supporting surgery and outreach clinics, advising on policy, and running the PNG Centre for Eye Health in Port Moresby for education, treatment and research. It works with PNG's National Department of Health, Divine Word University, the University of Papua New Guinea and Port Moresby General Hospital, and is backed by the Australian and New Zealand governments — an example of an NGO and governments joining forces (The Fred Hollows Foundation, PNG program page, retrieved 25 August 2026).

The outcomes are measured at both the local and the national scale (Figure 6). Since 2002, the program has supported six eye doctors and 130 eye nurses and clinicians, and the Madang Eye Clinic now performs about 1,200 operations a year — that is eye care in a local place, sustained year after year (The Fred Hollows Foundation, PNG program page, retrieved 25 August 2026).

The Fred Hollows Foundation — PNG Eye Health System Strengthening Program



Source: The Fred Hollows Foundation, PNG program page. Retrieved 25 August 2026.

Program-model diagram for the Fred Hollows Foundation's PNG eye health program: the objective (an eye health system Papua New Guinea can sustain), the activities (training doctors and nurses, supporting surgery and outreach, advising on policy, running the PNG Centre for Eye Health in Port Moresby), and the outcomes (six eye doctors and 130 eye nurses and clinicians supported since 2002, and about 1,200 operations a year at the Madang Eye Clinic)

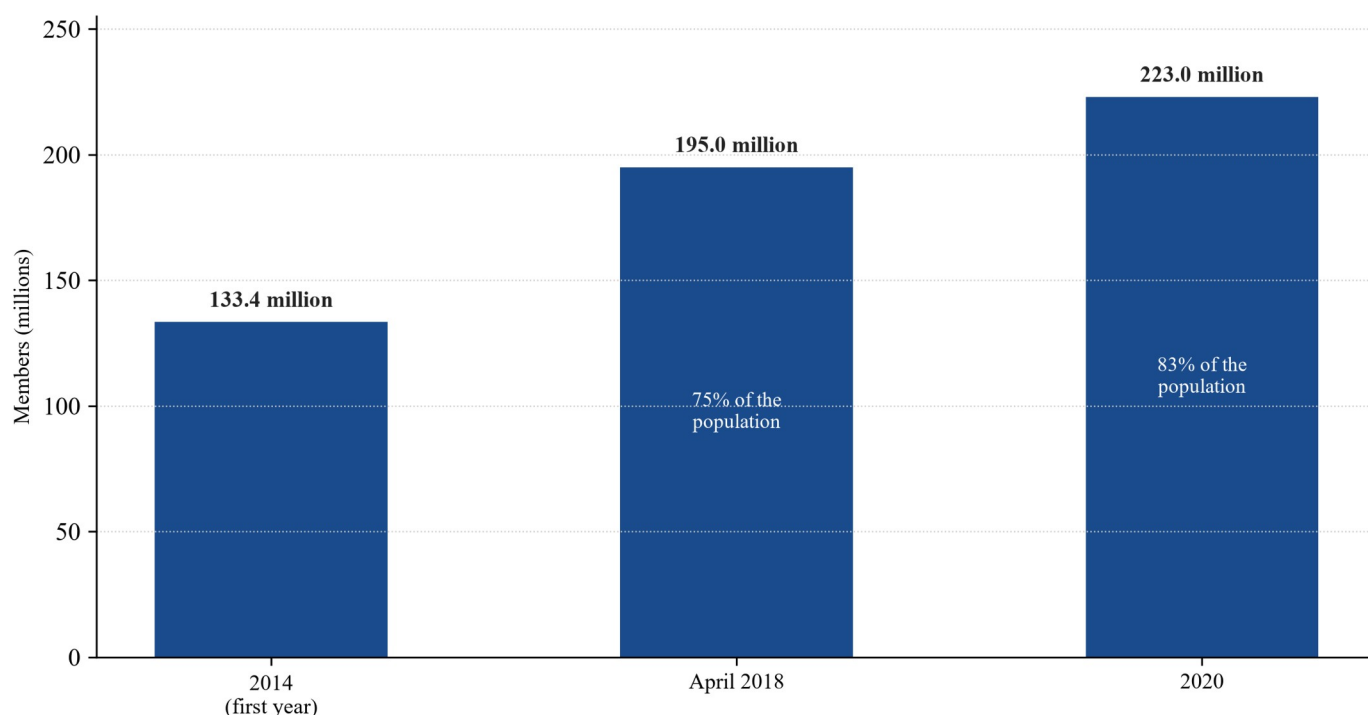
National programs that reduce regional inequality: Indonesia's JKN

Governments also act at home. **Regional inequality** in wellbeing means that people's health, education and incomes differ strongly from one part of a country to another — often between cities and remote areas. Indonesia is the section's case: it is a vast island country where services are harder to deliver in far-flung regions, and its government runs programs to even out the differences.

The largest is **Jaminan Kesehatan Nasional (JKN)**, Indonesia's national health insurance, started in January 2014 and run by a public body called BPJS Kesehatan. Its objective is **universal health coverage** — a system in which everyone in the country can get the health care they need without being pushed into poverty by the cost (Wikipedia, 'Jaminan Kesehatan Nasional', retrieved 25 August 2026). Before JKN, in 2010, only about 56% of Indonesians had any health cover at all; in far-flung regions hospitals and clinics were scarce. The scheme asks formal workers to contribute 5% of their pay (shared between worker and employer), and other workers pay set monthly amounts.

The growth of JKN has been one of the fastest in the history of health insurance (Figure 7): 133.4 million members in its first year, 195 million (75% of the population) by April 2018, and about 223 million (83%) by 2020 (Wikipedia, 'Jaminan Kesehatan Nasional', retrieved 25 August 2026). The scheme reduces regional inequality because families in remote islands and villages now hold the same cover as families in Jakarta, and the government must fund services where members live. The challenges are real too: the scheme has run large money deficits, and weak health infrastructure — the hospitals, clinics and staff a system needs — remains hardest to fix in remote regions (Wikipedia, 'Jaminan Kesehatan Nasional', retrieved 25 August 2026).

Members of Indonesia's JKN national health insurance



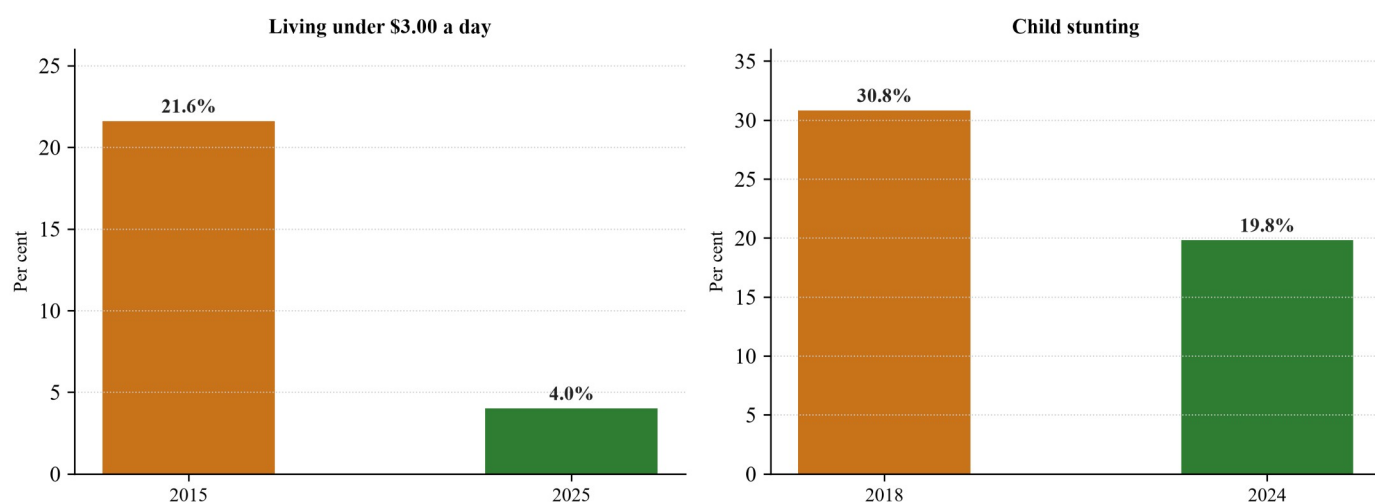
Source: Wikipedia, 'Jaminan Kesehatan Nasional'. Retrieved 25 August 2026.

Bar chart of membership of Indonesia's JKN national health insurance: 133.4 million members in its first year (2014), 195 million members or 75 per cent of the population by April 2018, and about 223 million members or 83 per cent by 2020

JKN is one of a family of Indonesian programs. Another is **Program Keluarga Harapan (PKH)**, a household program established in 2007 that pays poor families cash on the condition that they meet set requirements, such as taking children for health checks and keeping them at school — this kind of program is called a **conditional cash transfer** (Wikipedia, 'Conditional cash transfer', retrieved 25 August 2026).

Have such programs made a difference? The numbers say yes, over time (Figure 8). The share of Indonesians living below the international low-income line of \$3.00 a day fell from 21.6% in 2015 to 4.0% in 2025 (World Bank, World Development Indicators, retrieved 25 August 2026). By the government's own measure, 8.5% of Indonesians — about 23.9 million people — lived in poverty in March 2025, 1.4 million fewer than a year earlier (World Bank, Indonesia country overview, retrieved 25 August 2026). Child stunting — when a child's growth is slowed by long-term poor nutrition and illness — fell from 30.8% in 2018 to 19.8% in 2024 (World Bank, Indonesia country overview, retrieved 25 August 2026). Inequality itself, measured by the Gini index (0 = everyone equal, 100 = all income to one person), peaked at 38.9 in 2013 and stood at 34.9 in 2024 (World Bank, World Development Indicators, retrieved 25 August 2026).

Indonesia: poverty and child stunting are falling



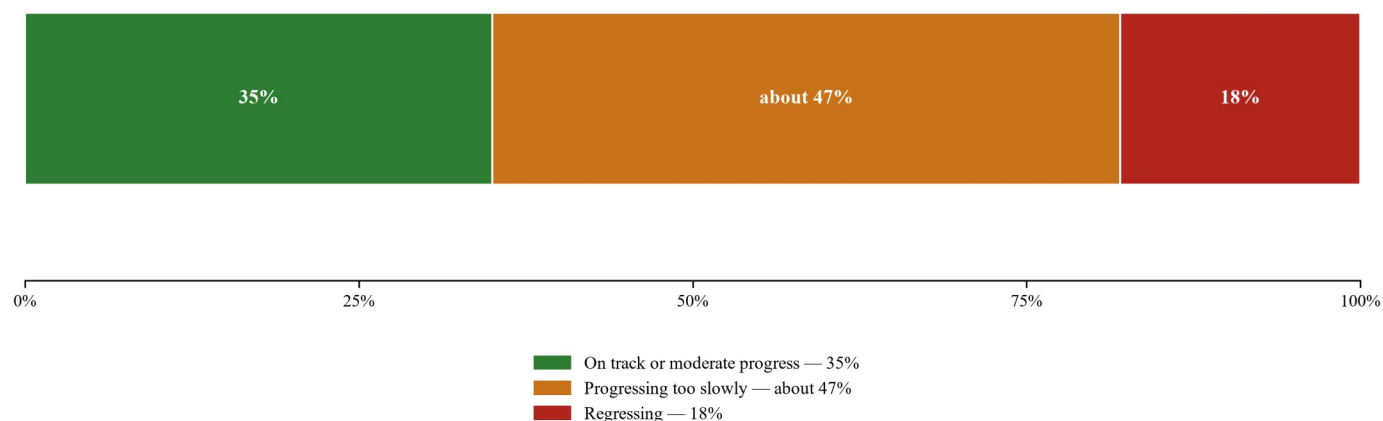
Source: World Bank, World Development Indicators (\$3.00 a day) and Indonesia country overview (stunting). Retrieved 25 August 2026.

Two-panel chart of Indonesia's progress. Left panel: the share of Indonesians living under \$3.00 a day fell from 21.6 per cent in 2015 to 4.0 per cent in 2025. Right panel: child stunting fell from 30.8 per cent in 2018 to 19.8 per cent in 2024

The global frame: the United Nations' Sustainable Development Goals

In 2015, all United Nations member countries agreed to 17 **Sustainable Development Goals (SDGs)** with 169 targets, most to be reached by 2030 (Wikipedia, 'Sustainable Development Goals', retrieved 25 August 2026). Several goals are directly about human wellbeing: Goal 1, ending poverty; Goal 2, ending hunger; Goal 3, healthy lives; Goal 4, quality education; Goal 6, clean water and sanitation; and Goal 7, affordable and clean energy. The goals give every country the same checklist, and the UN reports progress each year in its Sustainable Development Goals Report. The SDGs matter for this section because they are how the **international** response keeps score of the national and non-government ones: a country's health insurance, an NGO's clinics and an aid program all feed the same global targets.

State of the 169 Sustainable Development Goal targets, 2025

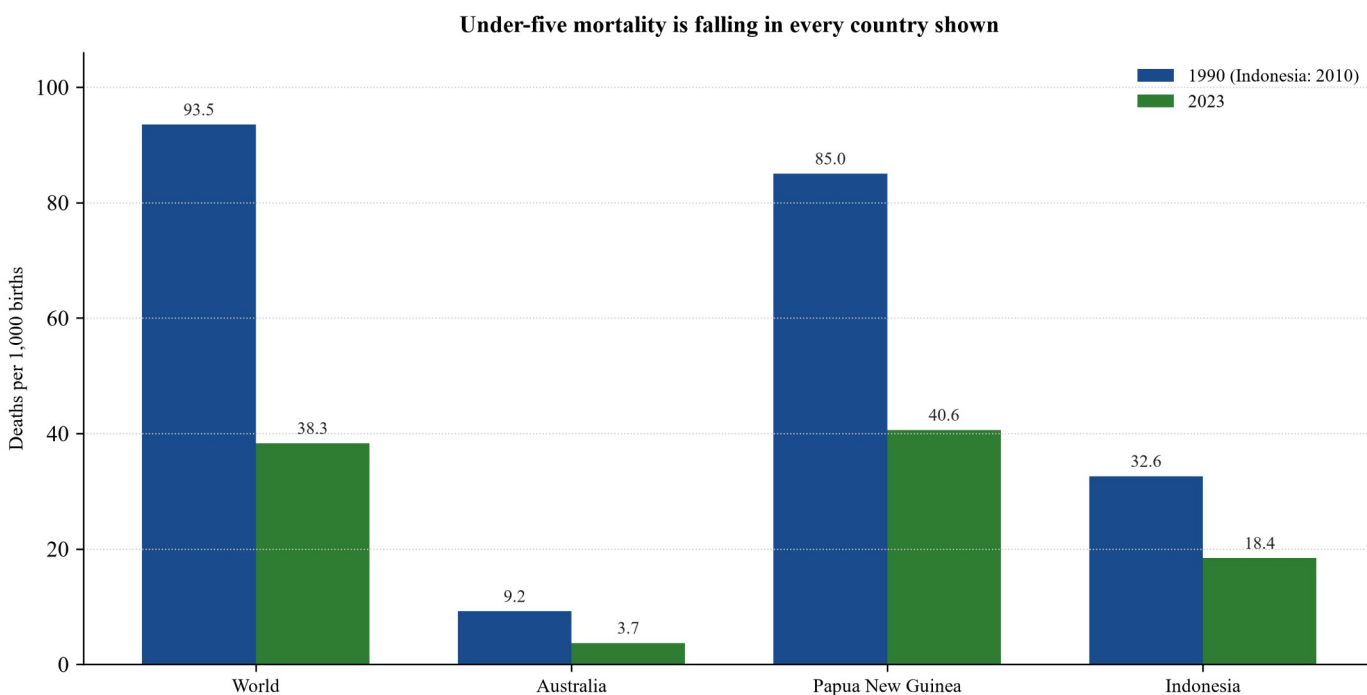


Source: United Nations, The Sustainable Development Goals Report 2025 (as summarised in Wikipedia, 'Sustainable Development Goals'). Retrieved 25 August 2026.

One-hundred-per-cent stacked bar showing the state of the 169 Sustainable Development Goal targets in the UN's 2025 report: 35 per cent on track or making moderate progress, about 47 per cent progressing too slowly, and 18 per cent regressing

Progress is real but slow (Figure 9). The UN’s 2025 report found that only 35% of the targets were on track or making moderate progress, that almost half were moving too slowly, and that 18% were going backwards (Wikipedia, ‘Sustainable Development Goals’, reporting the UN SDG Report 2025, retrieved 25 August 2026). Look at the indicators behind those judgements:

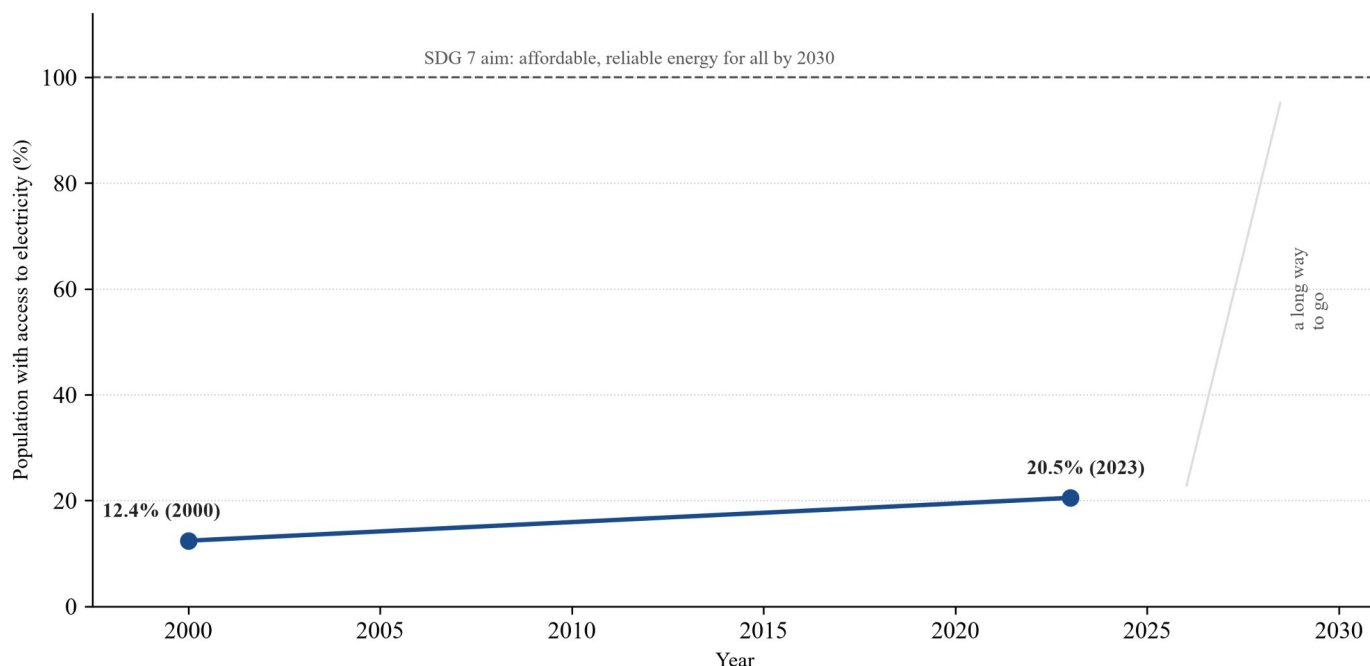
- Poverty.** The share of the world’s people living under \$3.00 a day fell from 43.4% in 1990 to 13.4% in 2015 and 10.4% in 2024 — great progress over the long run, but the fall has slowed, and the SDG target of ending extreme poverty by 2030 is not on track (World Bank, World Development Indicators, retrieved 25 August 2026).
- Child health.** The world’s under-five child mortality rate — the share of children dying before their fifth birthday — fell from 93.5 per 1,000 births in 1990 to 38.3 in 2023, and every country in Figure 10 improved (World Bank, World Development Indicators, retrieved 25 August 2026).
- Energy.** Access to electricity keeps growing, and 45 countries have reached universal access (United Nations, SDG Report 2025 summary page, retrieved 25 August 2026). But progress is very uneven: in Papua New Guinea only 20.5% of people had electricity in 2023, up slowly from 12.4% in 2000 (Figure 11; World Bank, World Development Indicators, retrieved 25 August 2026). Where the gap is still wide, that is where international, government and NGO responses are most needed.



Source: World Bank, World Development Indicators. Retrieved 25 August 2026.

Grouped bar chart of under-five mortality rates (deaths per 1,000 births): the world fell from 93.5 in 1990 to 38.3 in 2023, Australia from 9.2 to 3.7 over the same years, Papua New Guinea from 85 to 40.6, and Indonesia from 32.6 in 2010 to 18.4 in 2023

Access to electricity in Papua New Guinea is rising — slowly



Source: World Bank, World Development Indicators. Retrieved 25 August 2026. Line joins the two measured points.

Line chart of access to electricity in Papua New Guinea rising slowly from 12.4 per cent of the population in 2000 to 20.5 per cent in 2023, against the Sustainable Development Goal 7 aim of affordable and reliable energy for all by 2030

Evaluating the responses: do they work?

Geographers do not take a program's own publicity as proof. Here the same question is put to both sides, as strongly as each side can state it.

The case that these responses work. Measured outcomes back the programs studied here. Remittances from PALM workers lifted household incomes across the Pacific, reaching about 34% of Samoa's GDP in 2022. The Fred Hollows Foundation's PNG program built a local eye care workforce — six doctors, 130 nurses and clinicians, 1,200 operations a year at Madang — that keeps working after the trainers leave. Indonesia's JKN signed up 223 million people in six years, and Indonesia's poverty and stunting rates fell while coverage rose. On the global scoreboard, child mortality has fallen by more than half since 1990. These are not promises; they are counted results.

The case for doubt. Critics of labour mobility schemes like PALM argue that employer-tied visas leave workers open to harsh treatment, that months away from home damage families, and that Pacific islands lose workers they trained. Critics of aid argue that projects can end when funding ends, and that lasting wellbeing must be built by a country's own government, schools and hospitals, not by visitors. And the SDG scoreboard itself is the strongest evidence for the doubters: 18% of targets moving backwards is the UN's own measure, not a critic's.

Both cases hold part of the truth, and the way forward is to **evaluate with criteria** rather than cheer or jeer. Useful criteria are: *measured outcomes* (does an indicator improve?), *sustainability* (does the gain last after the money or workers stop flowing?), *scale* (does it reach enough people?), and *local voice* (do the people served have a say?). By those tests, programs like PNG eye health system strengthening score well on sustainability, PALM scores well on outcomes but needs scrutiny on worker safety, and the SDGs tell us the world's overall effort is still too slow.

Worked examples

Example 1 — scaffolded

Use Figures 4 and 5. (a) Describe the change in the number of PALM workers between 2019 and August 2024. (b) A longer-term PALM worker earned on average \$40,836 in 2020 and sent home about 39% of it. Calculate roughly how

much that is per year. (c) Explain how sending that money home improves human wellbeing in a Pacific village, naming two measures of wellbeing from Section 4A.

Working	Comment
(a) Workers grew from about 6,000 in 2019 to nearly 35,000 by early 2024, with 30,805 recorded in August 2024 — growth of about five times in five years.	Read the bars first, then state the change with figures.
(b) 39% of \$40,836 = $0.39 \times 40,836 \approx \$15,900$ a year.	“About” allows rounding; show the multiplication.
(c) The money arrives as remittances. A family might spend it on school fees and health care, or on fixing the house and buying food. That lifts education and health — two measures of wellbeing from Section 4A — and raises household income, a third.	Link the flow of money to the definition of wellbeing, not just to “spending”.

Example 2 — unscaffolded

“Programs run by governments and non-government organisations are improving human wellbeing in the Asia-Pacific region.” Evaluate this claim using **two** programs from this section — one overseas program (PALM or the Fred Hollows Foundation) and one national program (Indonesia’s JKN). For each, run the chain: *objective* → *measured outcome* → *judgement*, and give at least one limit.

Overseas program — the Fred Hollows Foundation in PNG. Objective: an eye health system PNG can sustain, with a skilled local workforce. Measured outcome: six eye doctors and 130 eye nurses and clinicians supported since 2002, and about 1,200 operations a year at the Madang Eye Clinic. Judgement: the program is improving wellbeing locally and regionally — sight restored means people can work, learn and care for family — and its strength is sustainability, because it trains local staff rather than flying specialists in. Limit: PNG still has far too few eye workers for its population, so coverage stays patchy outside the program’s sites.

National program — Indonesia’s JKN. Objective: universal health coverage. Measured outcome: membership grew from 133.4 million in 2014 to about 223 million (83%) in 2020, while the share of Indonesians under \$3.00 a day fell from 21.6% (2015) to 4.0% (2025). Judgement: the scheme is closing the gap between city and remote families by giving everyone the same cover — a direct attack on regional inequality — and the poverty and stunting falls are consistent with it working. Limit: money deficits and weak remote clinics mean the cover is stronger on paper than in some far-flung places, so the claim holds but not yet everywhere.

Overall, the claim is supported by counted outcomes in both programs, but “improving” is not the same as “finished”: both cases show real gains with clear limits. That is what an evaluation must show.

Practice questions

Scaffolded

Q1. Sort each organisation into its type — international organisation, national government, or non-government organisation: (a) the United Nations; (b) the Department of Foreign Affairs and Trade (DFAT); (c) The Fred Hollows Foundation; (d) BPJS Kesehatan, which runs Indonesia’s JKN scheme as a public body; (e) the Australian Red Cross.

Q2. Use Figure 2. Match each case study to the scale it best shows: (a) the UN Sustainable Development Goals; (b) Indonesia’s JKN; (c) the PALM scheme across ten Pacific countries; (d) the Madang Eye Clinic.

Q3. Use Figures 4 and 5. (a) How many PALM workers were there in 2019, and how many were recorded in August 2024? (b) What was the average yearly pay of a longer-term PALM worker in 2020? (c) What share of that pay was saved or sent home? (d) Calculate the dollar value sent home in (c), rounded to the nearest \$100.

Q4. Use Figure 7. (a) How many members did JKN have in its first year, and how many by 2020? (b) What share of Indonesians had JKN cover by April 2018? (c) In 2010, about 56% of Indonesians had any health cover at all. What share had none?

Q5. Use Figure 9. (a) What share of SDG targets were on track or making moderate progress in 2025? (b) What share were going backwards? (c) Roughly what share were moving too slowly?

Q6. Use Figure 10. (a) State the under-five mortality rate for Australia in 1990 and in 2023. (b) State the same two figures for Papua New Guinea. (c) Which of the two countries cut its rate by more deaths per 1,000 births over the period shown?

Un scaffolded

Q7. Explain why remittances are counted as a development outcome of the PALM scheme. Your answer should connect the worker's pay to at least two components of human wellbeing, and name the scale at which the benefit lands.

Q8. Indonesia's Gini index was 34.6 in 2010, peaked at 38.9 in 2013, and stood at 34.9 in 2024. Describe the trend, then suggest how a program like JKN could help move the number down, referring to regional inequality in access to health care.

Q9. "Progress towards the Sustainable Development Goals is real but too slow." Support this statement with evidence from **two** different figures in this section, one showing the progress and one showing what is still missing.

Q10. Choose one criticism of the PALM scheme from the Evaluating section. Propose a response the Australian Government could make that keeps the scheme's benefits (pay, skills, remittances) while reducing the harm you chose. Give one reason your response would work.

Inquiry task

How successful have the responses been? The question "*How successful have the responses of international organisations, national governments and NGOs been in improving people's wellbeing in the places they work?*" is big enough to test with evidence. Plan a small inquiry of your own (about 200 words):

1. Choose one program from this section (PALM, the Fred Hollows Foundation in PNG, or Indonesia's JKN) or one wellbeing SDG (Goal 1, 3 or 7).
 2. Write one sharp geographical question about it, using the concept of **scale** or **interconnection**.
 3. Turn your question into a **hypothesis** — a testable prediction.
 4. List the evidence you would gather to test it. Include at least one number from this section and one source you would research yourself.
 5. State one way you would judge whether your sources are reliable.
-

Answers

Q1. (a) international organisation; (b) national government; (c) non-government organisation; (d) national government (a public body of the Indonesian government); (e) non-government organisation. **Q2.** (a) global; (b) national; (c) regional; (d) local. **Q3.** (a) About 6,000 in 2019; 30,805 in August 2024. (b) \$40,836. (c) About 39%. (d) About \$15,900 ($0.39 \times 40,836 \approx 15,926$). **Q4.** (a) 133.4 million in 2014; about 223 million by 2020. (b) 75%. (c) About 44%. **Q5.** (a) 35%. (b) 18%. (c) About 47%. **Q6.** (a) 9.2 (1990); 3.7 (2023). (b) 85 (1990); 40.6 (2023). (c) Papua New Guinea (44.4 deaths per 1,000 cut, against 5.5 for Australia). **Q7.** Remittances are money workers send home from their Australian pay (about 39% of an average \$40,836). They are a development outcome because they land at the local scale — a household in Samoa or Tonga — and there they buy food, schooling, health care and better housing, which lifts income, education and health: three components of human wellbeing. **Q8.** Inequality rose to a peak in 2013, then fell back to about its 2010 level by 2024. JKN can push it down because families in remote regions previously paid full price or went without care; with the same cover as city families, a serious illness is less likely to push a rural household into poverty, narrowing the wellbeing gap between regions. **Q9.** Progress: world under-five mortality fell from 93.5 per 1,000 in 1990 to 38.3 in 2023 (Figure 10), and world poverty under \$3.00 a day fell from 43.4% to 10.4% over 1990–2024. Still missing: Figure 9 shows only 35% of targets on track or moderate, with 18% going backwards; Figure 11 shows PNG electricity access at just 20.5% in 2023, far from universal. **Q10.** Answers will vary. Example: for the criticism that employer-tied visas leave workers open to harsh treatment, the government could let workers change employers more easily and inspect workplaces more often, so protection improves while pay, skills and remittances — the scheme's benefits — continue.

Inquiry task. Answers will vary. A sound plan names one program or goal, asks a question with scale or interconnection in it (for example, “Does the PALM scheme’s effect on wellbeing differ between the regional scale of a Pacific country and the local scale of one village?”), states a testable hypothesis, lists evidence including at least one section figure (e.g. the 39% remittance share) and one outside source, and gives a reliability test (named producer, date, figures that can be checked).

Fully-worked solutions

Q1. The UN is made of many countries working together — an **international organisation**. DFAT is a department of the Australian Government — **national government**. The Fred Hollows Foundation is a charity outside government — an **NGO**. BPJS Kesehatan is a public body created by the Indonesian government to run JKN, so it belongs to the **national government** type. The Australian Red Cross is a charitable organisation outside government — an **NGO**.

Q2. Figure 2’s ladder runs from a single clinic to the whole planet: the SDGs sit at the **global** scale; JKN covers one country, so **national**; PALM runs across ten Pacific countries, so **regional**; the Madang Eye Clinic serves one town and district, so **local**.

Q3. (a) Read the bar heights in Figure 4: about 6,000 (2019) and 30,805 (August 2024). (b) Figure 5 gives the average pay: \$40,836 in 2020. (c) Figure 5 gives the share saved or sent home: about 39%. (d) $0.39 \times 40,836 = 15,926.04$, so about **\$15,900** to the nearest \$100. That is the value of one worker’s yearly remittance at the average.

Q4. (a) Figure 7: 133.4 million in the first year (2014); about 223 million by 2020. (b) April 2018: 195 million members, which the figure labels as 75% of the population. (c) $100\% - 56\% = 44\%$ had no cover at all. This is the gap JKN was created to close.

Q5. (a) Figure 9: 35% on track or moderate progress. (b) 18% going backwards. (c) The bar is the full 100%, so the remainder: $100 - 35 - 18 =$ **about 47%** too slow.

Q6. (a) Figure 10: Australia 9.2 (1990) and 3.7 (2023). (b) PNG: 85 (1990) and 40.6 (2023). (c) Falls: PNG $85 - 40.6 = 44.4$; Australia $9.2 - 3.7 = 5.5$. **PNG cut more in absolute terms**, though Australia’s rate stayed far lower throughout.

Q7. A development outcome is a measured improvement in people’s lives. The PALM scheme creates one automatically: workers earn an average of \$40,836 a year (2020) and send about 39% home as remittances — about \$15,900 each. The money lands at the **local scale**, in one household’s budget, where it is spent on components of human wellbeing: **education** (school fees), **health** (clinic visits, medicine), **income and housing** (food, repairs,

savings). Because remittances reached about 34% of Samoa's GDP in 2022, the effect adds up from local households to whole national economies.

Q8. Trend: the Gini index rose from 34.6 (2010) to a peak of 38.9 (2013), then fell to 34.9 (2024) — inequality grew, then shrank back. JKN can help keep it falling: before 2014, families in remote regions were the least likely to have cover and the farthest from hospitals, so one serious illness could drain a household's savings. With national cover, the cost of care is shared, so poor and remote households are protected most — which is exactly a reduction in regional inequality of health and of income security. (Note the limits too: remote clinics are still under-built, so access is not yet equal in practice.)

Q9. Support for “real”: world under-five mortality more than halved, 93.5 to 38.3 per 1,000 (Figure 10), and the world's \$3.00-a-day poverty share fell from 43.4% (1990) to 10.4% (2024). Support for “too slow”: Figure 9 shows only 35% of targets on track or moderate, with 18% regressing, and Figure 11 shows PNG electricity access climbing only from 12.4% (2000) to 20.5% (2023) — at that pace, universal access by 2030 is out of reach. Both halves of the statement are therefore backed.

Q10. One possible answer, worked in full. Criticism chosen: family separation — workers are away for months, which strains families and villages. Response: the government could fund better communication (free video calls at worksites) and offer contracts with more frequent paid trips home, or allow families to visit. The benefits — pay, skills, remittances — continue unchanged, because workers still work the same jobs; the harm shrinks because contact is maintained. It would work because separation harms come from lost contact, not from working abroad itself, so restoring contact targets the harm directly. Equally acceptable answers may target harsh treatment, skill loss or safety, provided a benefit-keeping response and a reason are given.

Inquiry task — one possible plan. Program chosen: the Fred Hollows Foundation in PNG. Question (scale): *Does strengthening eye care at the local scale (one clinic at Madang) change access to treatment at the regional scale (Madang Province)?* Hypothesis: *Since the Madang Eye Clinic began performing about 1,200 operations a year, people in Madang Province are less likely to travel to Port Moresby for eye surgery.* Evidence: the 1,200 operations-a-year figure and the workforce numbers from this section; outside research on PNG hospital referrals or the Foundation's annual reports. Reliability test: prefer the named producer's own report (the Foundation, dated) and check that its figures match a second source.