

ICITIES WORKSHOP REPORT 2024

Localising the SDGs:
*Towards transformative
actions + base planning
in Singleton, NSW*



Universitat de Lleida
Càtedra Unesco
Ciutats Intermedies,
Urbanització i Desenvolupament



SINGLETON
COUNCIL

Indigenous Acknowledgement

We acknowledge the Wanaruah/Wonnarua People as the traditional custodians of the Land on which the Singleton local government area is located. We pay our respects to the ancestors and Elders, past, present, and emerging, with an spiritual connection to these lands. We recognise that the NSW landscape, including the lands, waters, plant and animal species and seas, has spiritual and cultural significance to all Indigenous people. By this understanding, there is no separation of nature, well-being, and Culture. The health of the natural environment, land animals, marine animals, and the health of people and Culture are intimately connected (Authority, 2021).

iCities Workshop Participant Acknowledgement

The UNESCO Chair for Intermediate Cities wants to express our gratitude to all participants in the iCities Workshop for their invaluable insight during the sessions. This report would not be possible without their strategic, knowledgeable, and generous contributions. Thank you to institutional representatives and individuals for being part of the process.

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Disclaimer

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INTRODUCTION

The collaborative experience among the UNESCO Chair on Intermediate Cities, the two Local Authorities – Albany (WA) and Singleton (NSW) – and the University of Newcastle in the iCities Workshop had several academic and institutional values. Those values refer to working simultaneously on two dynamic Australian intermediate cities through the methods and reflections of the UNESCO Chair, while incorporating the Australian culture of urbanisation and local government aligned with the localisation of the Sustainable Development Goals. The results expanded the possibility of applying a tested international inclusive and comprehensive strategic urban planning approach, with positive outcomes for both cities and the UNESCO Chair.

The Base Plan Courses and Workshops were already carried out mainly in Africa, as the priority continent for the United Nations Agency, UNESCO. Those workshops involved 69 African cities in a learning and training trajectory, besides 1 experience in Asia, held in Narangan City, Bangladesh, in 2019.

Australia, with its large scale and new urbanisation, offers a wealth of suggestive urban models and advanced local government styles, providing a unique perspective for the iCities Workshop. Furthermore, the collaboration among politicians, technicians and scholars from Australian universities demonstrated a higher level of academic and institutional cooperation than in previous workshop initiatives. This list of participants in iCities Workshops – a total of 51 in the last ten years – included 1,752 professionals from the cities involved. This list increases to 53 cities with the experiences of Albany and Singleton, making the number of people involved in the workshops greater than 1,800. On behalf of the UNESCO Chair, I thank the cities of Albany and Singleton and all participants of this rewarding initiative.

Dr Josep Maria Llop i Torne
Director UNESCO Chair for
Intermediate Cities.

EXECUTIVE SUMMARY

The importance of Intermediate Cities – iCities

With the rapid urbanisation of the world's population, much focus is on large cities. But most of the world's population (56%) lives in small to medium-sized urban settlements with populations smaller than half a million people. These 'intermediate' iCities are particularly significant as hubs for infrastructure and services to their immediate residents and extended regional areas. It is critical that iCities can plan their future development strategically to enable a sustainable future.

The Method

The methodology implemented is based on the Base Plan Approach, an inclusive planning tool developed by UNESCO UoL-CIMES Chair for Intermediary iCities, adjusted to the Australian planning context. The workshop, organised in Singleton in November 2022, assembled broad stakeholders – local governments, community members, and academics – in the thinking-planning-proposing process as a collective endeavour. The workshop focused on localising the SDGs: 1) exploring how existing local plans meet Singleton's future sustainable development needs with attention to its relationship with its region – spatially and functionally; 2) verifying how existing local plans meet the SDGs (or not) (Fox & Macleod, 2022; Krellenberg et al., 2019; Mueller, 2020); and 3) proposing future planning addressing gaps.

Key Outcomes

Singleton Council and stakeholders have already undertaken significant work to ensure a more sustainable future. However, the region faces critical challenges in addressing a sustainable future. The following recommendations embed the need for partnerships between regional councils, communities, state and federal governments, research and educational institutions, other Intermediate iCities, and international institutions like the UNESCO Chair for Intermediate iCities.



SUSTAINABLE DEVELOPMENT GOALS

Critical findings connected with the UN Sustainable Development Goals (SDGs) are listed below:



SDG 15 Life on Land

- Connect ecosystem -vegetation and wildlife.
- Plan strategically for aquatic health
- Partnership with farmers to improve soil health.



SDG 11 Sustainable Cities and Communities + SDG 15 Life on Land

- Make accessible to a Green-Blue-Grey network.
- Improve air quality
- Reduce the impact of flooding and risk through Nature-based Solutions.



SDG 11 Sustainable Cities and Communities

- Enhance nature and waterways in neighbourhoods.
- Build a vibrant, inclusive, equitable and diverse future, for all.
- Maintain and promote character and a sense of place.
- Create 15-minute urban centres & 30-minute rural connectivity, integrating active transport.



SDG 7 Affordable Clean Energy + SDG 11 Sustainable Cities and Communities

- Promote reliance on renewable energy and energy independence



SDG 7 Affordable Clean Energy

- Plan for zero emissions and a positive footprint future.



SDG 12 Responsible Production and Consumption

- Promote agro-, eco-, Indigenous and active tourism.
- Promote new investment and industry opportunities.
- Support small businesses to thrive in the city.



SDG 12 Responsible Production and Consumption + SDG 15 Life on Land

- Support and promote resilient agriculture in a climate change future.
- Approach collectively a responsible consumption of natural resources.

The Importance of Intermediate iCities

With the rapid urbanisation of the world's population, there is much focus on large cities. But most of the world's population (56%) live in small to medium-sized urban settlements with populations smaller than half a million, like Singleton (New South Wales, Australia – NSW). These 'intermediate' cities are critical because they provide hubs for infrastructure and services to their immediate residents and extended regional areas. It is essential that iCities plan their future development strategically to enable a sustainable future.

iCities Workshops

The UNESCO Chair of iCities unites more than **176 iCities worldwide** and has facilitated workshops in more than **90 iCities**. The workshops aim to build a local and global network collaboratively to tackle common intermediate cities' challenges, propose solutions, disseminate good practices, and qualitatively inform local government professionals. The program also seeks to build collaborative networks across intermediate cities so that they can cooperate and learn from one another.

The methodology is based on the Base Plan Approach, an inclusive planning tool developed by UNESCO UoL-CIMES Chair for Intermediary Cities to identify 'territorial logics' and strategic urban interventions. The Base Plan focuses on recognising, valuing, and recovering the role of iCities in their urban-rural setting. It also seeks to accelerate transformative actions aligned with the Sustainable Development Goals (SDG) (Sietchiping et al., 2016) and the United Nations Urban Agenda (Caprotti et al., 2017) – an initiative of the United Nations that seeks to coordinate interdependent social, environmental, and economic agendas that are critical to sustainability.

iCities Workshops in Singleton

The iCities Workshop 'Localising the SDGs towards transformative actions' was co-led by the UNESCO Chair on Intermediate Cities, Singleton Council (NSW), and the University of Newcastle, Australia. Singleton was selected amongst other Australian intermediate iCities due to its prominent role within its regions and the critical biophysical, social, cultural, urban, and economic context.

Singleton faces challenges concerning urban and regional development and planning in a transition towards a different sustainable future.

Plan Base initiatives have been developed primarily in Europe, Latin America, and Africa. Developing this initiative in Australia for the first time represents an opportunity to include Australian iCities in the global network of other iCities, localise the SDGs, and propose transformative actions where necessary. The collaboration will also inform the local iCities planning framework and the Base Plan, in reapplying the methodology in other localities worldwide.



The workshops assemble broad stakeholders - local governments, community members, and academics - in the thinking-planning-proposing process as a collective endeavour.



The workshops have a particular focus on the SDGs:



SDG 11 – Sustainable cities and communities:
Make cities inclusive, safe, resilient, and sustainable



SDG 13 – Climate action: Take urgent action to combat climate change and its impacts



SDG 15 – Promoting the sustainability of terrestrial ecosystems and halting desertification, land degradation and biodiversity loss

1. UNESCO Chair on Intermediate Cities (iCities) Plan Base Approach

The UNESCO Chair for Intermediate iCities's Plan Base Methodology promotes flexible strategic planning based on the iCities' 'Right to the Plan' principle. The strength of the approach is its simplicity and flexibility. Its intent is that urban planning generates sustainable development nuanced to local conditions and needs. The Base Plan is not hierarchical. It is meant to complement and connect other planning instruments, such as local and global strategic or environmental planning i.e., – Agenda 21 and the Local Agenda 21 for Culture.

Usually, the Base Plan Approach is organised in four stages and then adjusted to each local context so that it can respond to national, regional, and local planning provisions.

First, an iCity survey (Llop i Torne, 2022) is conducted to analyse the form and spatial composition of the city and its urban space. The survey, stage 1, identifies critical or strategic urban projects carried out in the city in the past ten years and to be developed in the next ten years.

These plans are listed and analysed strategically and registered in a database and/or drawn on the maps of the Base Plan.

Second, the Base Plan compiles available statistical information and data (stage 2). This "pre-diagnosis" phase facilitates stage 3, drafting the Base Plan in structured workshops that assemble stakeholders – local governments, community, students, and academics – in a collaborative planning process, encompassing a total of 20–30 people. The findings are presented in an easy-to-read document (this report).

The final phase, the presentation, is followed by more extensive collaboration to reach a shared outcome that can practically inform future strategic transformation to a more sustainable future (Llop i Torné, 2016;



2. Plan Base Methodology

Localising the SDGs in Australia

In the Australian context, strategic planning, policies, and plans are advanced planning tools. New South Wales local government planning systems consider the role of all three levels of government – local, regional, and national – in delivering city-shaping outcomes. Notably, planning systems consider the role of local planning in implementing region and city plans, where strategic planning is vital at all planning levels. Therefore, customisation of the Base Plan Method was required to adjust to the Australian planning context.

More detailed objectives in the workshops and report were to:

1. Identify the community's vision and aspirations for the iCity and its region and the current challenges to achieve them
2. Cross-check how existing/future planning (Strategic and Structure Plans) meet the SDGs and the New Urban Agenda
3. Identify gaps in the alignment of planning with the SDGs and the United Nations New Urban Agenda.
4. Connect separate planning and policies so that they become more integrated.
5. Propose transformative actions for sustainable development for urban, peri-urban, rural, and natural landscapes by considering the: Built environment; Infrastructure and flows; Natural environment; Productive Activities; Culture & Society.

The workshop focused on five Axes of reflection when evaluating current and future planning:

1. Natural Environment – Identify the system - biodiversity, land and water ecosystems, their connectivity within the iCity and its region and how to promote its health.
2. Culture & Society – Identify cultural practices and values, culturally significant heritage and spaces, well-being and vulnerabilities, and how to promote equitable and inclusive societies.
3. Infrastructure and flows – Recognise infrastructure and transport networks, urban services, amenities, and essential services and how to promote efficient, effective, and inclusive networks.
4. Built environment – Identify urban compactness, density, and morphology, valuing the quality of life, housing and urban facilities, urban equitable distribution, hazard zones - flooding, bush fire earthquakes, pollution and other hazards, and promote integration with the natural environment and open spaces).
5. Productive activities—Identify the types, operations, and locations of economic and productive activities, their relationships with other Axes, the circular economy, and how to promote an inclusive and sustainable economy that fosters socio-cultural and natural systems.

The workshop's phases were as follows:

Phase 1 – Diagnosis

The diagnosis encompasses – pre - iCity workshop activity:

- Identify and analyse urban and regional plans implemented in Singleton in the past ten years and to be developed in the next ten years,
- Classify plans into five critical Axes – natural, culture and society, built environment, infrastructures and flows, and productive activities; and,
- Link with available geomorphological, biophysical, cultural, social, economic, and statistical data using Geographical Information Systems (GIS) and local government data collected before the workshop with local councils.



Phase 2 – Analytical and Synthesis Phases

Analysis and synthesis occur collaboratively with stakeholders in the iCity workshop to:

- Acknowledgement to Country, introduce participants and present key concepts and customised Base Plan methodology.
- Discuss the iCity's urban context and the intermediate relationships with its region and subregion.
- Analyse and categorise current and future strategic and structural plans (local, regional, national), roles and future development needs, with attention to existing and intermediate relationships with the region.
- Connect plans to the United Nations SDGs and the UN Urban Agenda.
- Connect plans spatially - through maps, and functionally -through interconnected purposes.
- Identify challenges and constraints.
- Identify opportunities for alignment with transformative action.



The output is intended to support local governments and other institutions to identify opportunities and strategically focus efforts where they will most effectively achieve sustainable outcomes.

Outcomes emerging from the collaborative approach include:

- Peer-to-peer learning, which is decentralised beyond key decision-makers.
- Coproduction of experiences and knowledge with local bodies, universities, and UNESCO Chair UdL-CIMES through applied research.
- Localising SDGs for local government.
- Generating a shared strategic vision, and
- Draft a list of transformative actions to achieve the SDGs.



3. Singleton (NSW)

iCities generally fall into three types (Llop i Torné, 2016):

1. Sub-national urban centres with a focus on administration, manufacturing, agriculture, or resource development.
2. Clustered intermediary cities, which develop on the periphery of metropolitan or urban regions and take the form of new towns, spill-overgrowth centres, and linear cities.
3. Corridor intermediary cities, which grow along critical transportation corridors.

These three forms play a vital role in the operations and activities of national and regional systems of iCities. In some cases, their role and functions may expand to a whole geographic region, or even globally, as primary centres and hubs of business, services, knowledge, or culture (Roberts, 2019, Roberts and Hohmann, 2014). This definition is often considered flexible and applicable to iCities with larger (over a million) or fewer populations (20,000 inhabitants) if they play a vital role in linking the people living in rural areas and small towns to the more extensive networks of metropolitan cities. It also applies if they play a role nationally and internationally as hubs in governance, logistics, trade, and social services (Llop i Torné, 2016).

In Australia, apart from the metropolises—such as Sydney, Melbourne, Brisbane, Adelaide, Perth, and Canberra—most cities are smaller (> 100,000 inhabitants) and compose most of the country's urban reality. Some intermediate iCities play essential roles in their regions. Singleton (NSW) is a good example.



The Singleton Local Government Area (LGA) has a residential **population of 23,380 and covers an area of 4,892.7 square kilometres** (Statistic, 2016). It is located inland on the periphery of a very intensive urbanised coastal corridor that spans from the Central Coast of NSW, Newcastle and to Port Stephen, north of the Sydney metropolitan area. It is part of the Upper Hunter Region. The Wonnarua People are the Traditional Custodians of the Land.

The dominant economic drivers are light and heavy industry, power generation, and coal mining (Singleton, 2021). Singleton plays a fundamental role in the subregion as a hub concentrating industry, commerce, and services, making it a 'Cluster iCity'. Singleton is also an administrative and service hub of the Upper Hunter Region that attracts human and financial capital because it concentrates on services, commerce, defence, and retail and attracts regional tourism.

Singleton is highly connected with its region through a robust transport infrastructure, established to connect critical industrial infrastructure (power generation) and extraction activities (coal mining). It also has essential agriculture, wineries, and significant National Parks and Nature Reserves (Figure 3a).

The iCity faces population growth and imminent urban development (Singleton, 2021).

COMMUNITY SNAPSHOT



**Singleton
population
23,380**

**4,892.7²
kilometres
Local Government
Area**

Top 5 Industries



\$16.1B
Mining



\$1.1B
Manufacturing



\$737M
Construction



\$539M
Defence



\$458.9M
Rental, Hiring +
Real Estate



4. Achieving Sustainable Singleton

This section describes the collective workshop output. It:

1. Identifies Singleton's vision and aspirations for a sustainable future;
2. Localises the SDGs by identifying:
 - the current challenges to achieving greater sustainability
 - the alignment of existing and future planning with the SDGs
 - gaps in strategic planning to achieve the SDGs, and;
3. Proposes future transformative actions to achieve sustainability in alignment with Singleton's vision and aspirations.

4.1 Singleton's Sustainable Vision and Aspirations

Singleton Council has adopted four SDG goals (SDG 7/11/12/15) as key drivers of the iCity Sustainable Strategy. The city aims to ensure the community has both the knowledge and motivation for the long-term sustainable development of the LGA, helping to define community roles and responsibilities (Singleton, 2019).



4.2 Localising the SDGs and Proposing Transformative Actions

Singleton The Singleton iCities Workshop



This report documents the process and the outcomes of the Singleton iCities workshop.

Achieving the vision and aspirations of sustainable Singleton and its region must encompass environmental, social, cultural, urban, infrastructural, and economic sustainability. This integration is achieved by categorising our audit of each strategic plan against the five previously defined 'Axes of Reflection'. Within these 'Axes of Reflection' we identify alignment with SDGs. Finally, we identify additional critical actions to improve alignment with Singleton's vision.



Plans + Policies for Alignment

- SOE > State of the Environment Report (Singleton, 2021)
- SS > Sustainable Strategy 2019-2027 (Singleton, 2019)
- UPSRLUP > Upper Hunter Strategic Regional Land Use Plan ((DPI, 2012)
- HRP > Hunter Regional Plan 2041 (Derevnin, 2022)
- SCESSAP > Singleton Community - Environmental Sustainability Strategy and Action Plan (Council, 2016)
- SCLSPS > Singleton Council Local Strategic Planning Statement 2041 (Council, 2021)
- SCSP > Community Strategic Plan (Council, 2022)
- SSEDs > Singleton Socio-Economic Development Strategy 2020/2024 (Council, 2020)
- SSE > Singleton State of Environment 2017-2021 (Singleton, 2021)
- SCLSPS – COMM > Community Consultation Outcomes - Available in Singleton Council Local Strategic Planning Statement 2041 (Council, 2021)

Others planning documents revised:

- Integrated Water Cycle Management Plan - July 2010
- Hunter-Central Coast Renewable Energy Zone Regional Housing Fund - Singleton Council - Singleton Bike Plan
- Regional Housing Fund - Singleton Council - Asset Management Plan – Buildings Regional Housing Fund - Singleton Council - Footpath and Pedestrian Facility Plan Regional Housing Fund - Singleton Council - Open Space and Recreation Needs Study
- Regional Housing Fund - Singleton Council - Singleton Mountain Bike Trail Feasibility Study Regional Housing Fund - Singleton Council Operational and Delivery program - 2022 - 2023
- - Adopted 21 June 2022
- Singleton Safety Strategy - Adopted version.
- Singleton Child Friendly Strategy - adopted by Council 16 11 2015 - June 2016 Singleton Community Sports Infrastructure Strategy
- Singleton Place Making Strategy - Adopted 16 February 2015 Singleton Village Master Plan - September 2016
- Singleton Landuses Strategy
- Town Centre Master Plan - Final - 10 10 2013 Townhead Park - Masterplan

4.2.1. Natural Environment System

Singleton and the Upper Hunter is located within the Hunter Bioregion. This is part of the Sydney Basin IBRA Bioregion, one of the most species-diverse bioregions in Australia owing to great variation in geology, topography and climates (Authority, 2021; Wales, 2003). Over 38% of this IBRA Bioregion is in conservation-oriented tenures, primarily National Parks and conservation reserves. The valley has ecological significance because it is the only major break in the otherwise continuous Great Dividing Range. Therefore, it links coastal and inland NSW ecosystems and biodiversity corridors. Moreover, it contains an area of overlap between tropical and temperate zones known as the MacPherson-Macleay Overlap (McVicar TR, 2015, pp. 117-131).

The Singleton Local Government Area (LGA) comprises a range of nationally and regionally significant natural features. Forty per cent of Singleton's LGA is made of World Heritage-listed National Parks - Wollemi, Yengo and Mount Royal. Additionally, there are nine conservation agreements in the Singleton LGA, identified as the Biodiversity Stewardship Agreements map (Government, 2024a), protecting 1,750 hectares (Singleton, 2021). Singleton is home to a vast diversity of flora and fauna species, which include many rare species that live within restricted ranges. In the LGA, there are approximately 20 threatened flora species and more than 70 threatened fauna species (Singleton, 2019). The Environmental Protection and Conservation Land Map (Figures 3a and 3b) highlights significant biodiverse corridors, National Parks, and water bodies in the Singleton LGA.

The LGA is traversed by the Hunter River, known by the Wonnarua as Coquun. This is the largest catchment in the subregion. It provides rich alluvial floodplains along its length, offering opportunities for settlements,

industry and agriculture (Council, 2016, p. 3). Alterations and disturbances, such as water extraction, changed river flows, infrastructure and blockages from dams, weirs and works on floodplains, affect natural river processes, impacting water quality and aquatic and terrestrial biodiversity (Authority, 2021, p. 81; Council, 2016, p. 3). A dramatic transformation to critical natural features and the clearing of riparian vegetation has occurred over the last two centuries to control the river. Hard edges have substituted natural levees by constructing channels and flood levees that have deprived the river of new layers of wealthy alluvial soil (Albrecht, 2000; McVicar TR, 2015). This has had consequences for rejuvenating pasture, grape growing, and wine-producing areas.

The Hunter River is the main contributor to flood impacts in the LGA (Council, 2021), which hit Singleton several times, such as the 1955 Maitland floods - one of Australia's most devastating natural disasters. Moreover, flooding in 2007, 2015 and recently in 2022, severely impacted the LGA. Climatic projections suggest an increase in the frequency and severity of weather events, including more frequent prolonged droughts - more severe fire weather, risk of bushfire¹, and heavy, damaging rainfall and floods². The predicted outcome of these continuing pressures is a long-term decline in the ecological health of the Hunter River, and its aquatic ecosystems (Authority, 2021, p. 84), and, the extinction of plant and animal species (Singleton, 2021).

¹ 361,977 hectares (74%) of land mapped as bushfire-prone land. Singleton, C. (2021). State of Environment 2017-2021. <https://portal.singleton.nsw.gov.au/RedDocServ24/default.aspx?DocID=911BJkhC1t4%3D>

Degrading the natural environment ultimately impacts human activities, such as reducing farming productivity (Singleton, 2021).

Critical pressures in the environment are:

- **Land clearing** is linked to farming, mining, and urban development. It is a critical, threatening process responsible for fragmentation's long-term effects (Biodiversity Conservation Act 2016). Clearing places significant pressure on the condition of remnant native vegetation, increasing threats from invasive species and worsening elements of climate change, including fire impacts (Authority, 2021, p. 56).
- **Pest animals and weeds** — impact over 70% of threatened species and endangered ecological communities (NSW State of the Environment Report). Species at risk of extinction are rising in NSW, and the number of threatened ecological communities increased from 4 to 112 from 2014-2017 (Authority, 2021, p. 59).
- **Pressure on water resources** — results from a) Alterations to natural flow patterns and disturbances to river systems and catchments, including water extraction, which reduces river flows and decreases water quality and ecosystem health (Authority, 2021, p. 81); b) Degradation of water quality from catchment disturbances; c) Land management practices and land-use changes including agriculture, urban expansion and mining operations (and their associated saline water discharges) (Authority, 2021; McVicar TR, 2015, pp. 103-104); and, d) The impact of climate variability and change - floods, droughts and fire (Authority, 2021, p. 83).
- **Intensification of fire** — caused by the drying of south-eastern Australia due to the effects of climate change -i.e., fire-generated thunderstorms and human-instigated fires (Authority, 2021, p. 62);
- **Air pollution and emissions**³— impact the community and severely affect environmental and community health. The primary sources are mining dust and emissions from Bayswater Power Station operations (Muswellbrook, 17 km). This also reduces lifestyle and amenities and contributes CO2 emissions to climate change.
- **Climate change** — impacts plants and animals with a restricted range or a diminished capacity to adapt to significant temperature changes and increases the likelihood and frequency of damaging bushfires.
- **Industry operational activities** — some of the largest coal mines in Australia operate in the Singleton LGA and the Upper Hunter Region.
- **Other pressures** include illegal activities on reserves (such as waste dumping), land-use changes, and clearing of natural vegetation on private land near reserve boundaries, making it challenging to maintain habitat connectivity between protected areas (Authority, 2021, p. 59).

² 24,822 hectares (5%) susceptible to flooding during the 1:100 year flood event for the Hunter River and Wollombi Brook. Ibid.

In this context, planning to protect the natural environment must protect biodiversity and ecosystems, reconnect important biodiversity corridors, and minimise development impacts on land and vegetation. This includes managing the impacts of human activities and the threat of invasive species to protect and enhance natural ecosystems (Singleton, 2021). At the NSW level, critical responses need to focus on protecting land and water-based ecosystems through (i) preserving, protecting and expanding conservation areas, private land acquisition to expand habitats and establishing partnerships and covenants with private and not-for-profit environment groups; (ii) excluding, eradicating or management of invasive species; (iii) fire management plans, hazard reduction works, rapid response capacity, and bushfire modelling and upgraded fire trails (Authority, 2021).

At the City level, the Local Government is committed to enhancing the environmental quality and biodiversity of Singleton's ecosystems by adopting mitigation measures to combat climate change, protect biodiversity, removing biosecurity threats, and improve the resilience of natural resources by (i) Identifying, maintaining and improving biodiversity assets such as natural corridors; (ii) Identifying biodiversity risks and implementing risk mitigation strategies to promote conservation; (iii) complying with water quality targets (drinking, effluent, river health); (iv) planning and regulating activities which may impact on threatened species and their communities; (v) managing weeds and pest animals; (vi) considering final land use outcomes for mining; and (vii) establishing partnerships with the community/stakeholders in minimising biodiversity loss, to cite few (Singleton, 2019).

³ Tonnes CO2 Singleton LGA: Train 1M; others 1.7 M, from which 1.3M is industry related -2018-19 data; 29% reduction in 2020-21; Sources vehicles + industry; bush fires (8%), sea salt + industry + wind (26%); wood smoke (14%); soil + coal dust (12%).



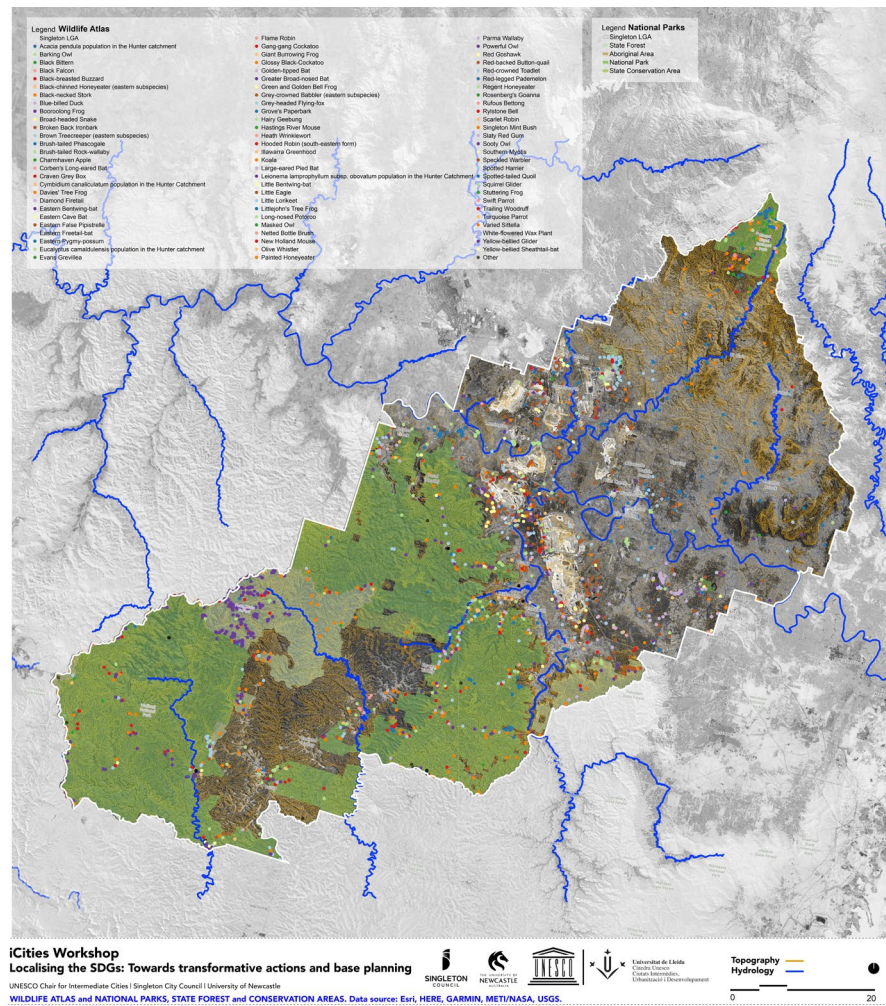


Figure 3a. Environmental Protection and Conservation Land Map – Atlas of Wildlife and Natural Parks and Reserves. Sources: Authors, based on GIS data provided by Singleton Council and Singleton Local Strategic Planning Statement 2041 (Council, 2021, p. 36).

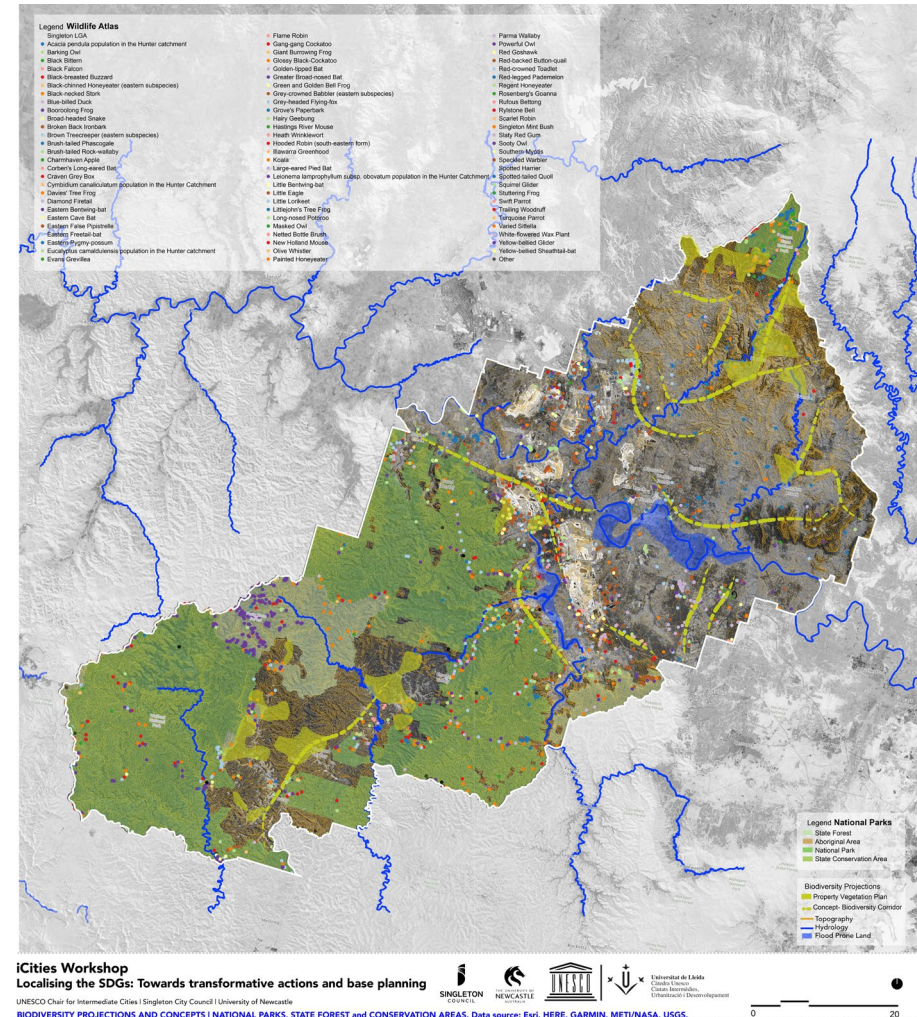


Figure 3b. Environmental Protection and Conservation Land Map – Ecosystems connectivity. Sources: Authors, based on GIS data provided by Singleton Council and Singleton Local Strategic Planning Statement 2041 (Council, 2021, p. 36).

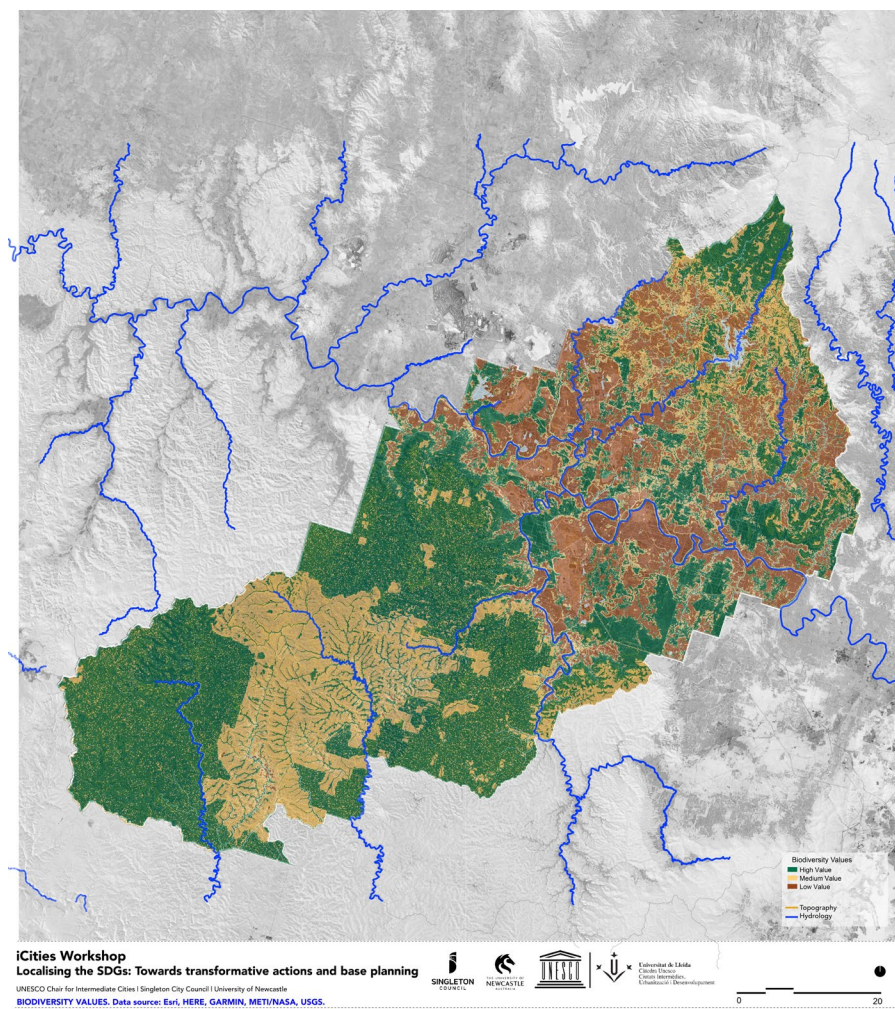


Figure 3c. Environmental Protection and Conservation Land Map – Biodiversity values. Sources: Authors, based on GIS data provided by Singleton Council and Singleton Local Strategic Planning Statement 2041 (Council, 2021, p. 36).

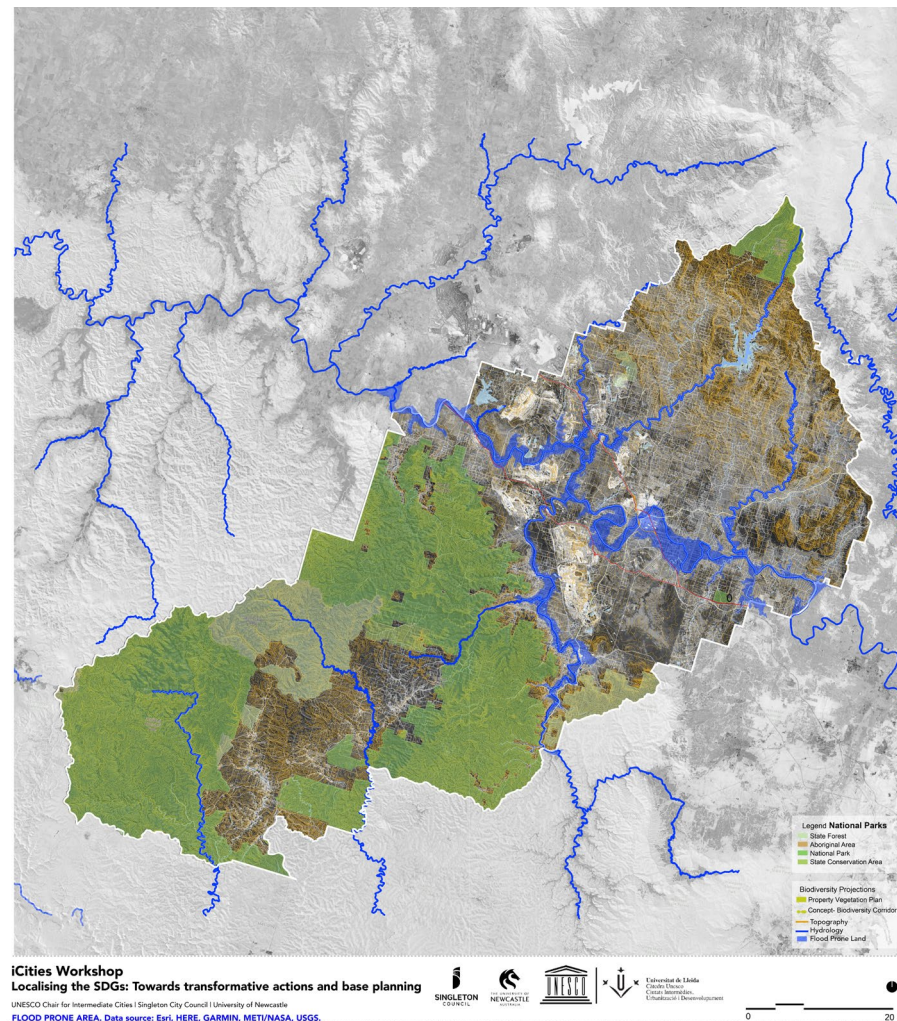


Figure 3d. Environmental Protection and Conservation Land Map – Flood Prone Area. Sources: Authors, based on GIS data provided by Singleton Council and Singleton Local Strategic Planning Statement 2041 (Council, 2021, p. 36).

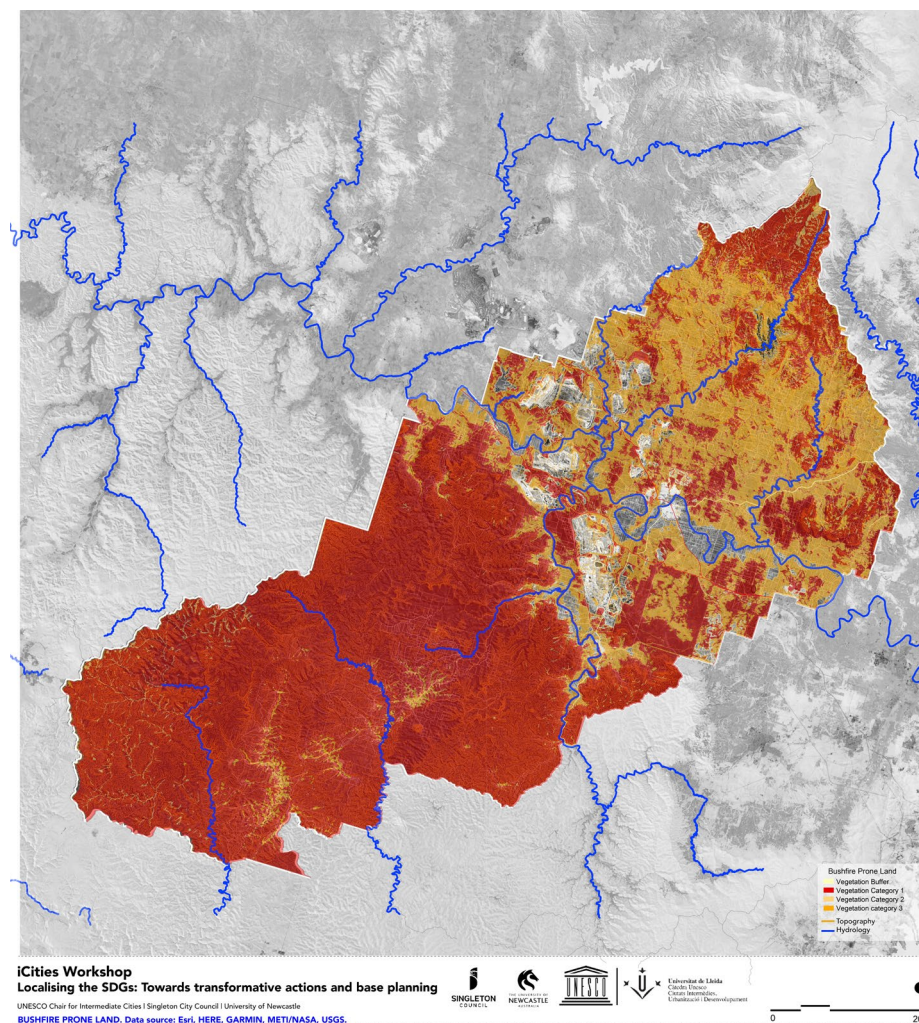


Figure 4. Flooding and Bushfire Prone Land Area Maps. Sources: Authors, based on GIS data provided by Singleton Council and information extracted from Singleton Local Strategic Planning Statement 2041 (Council, 2021, p. 38).

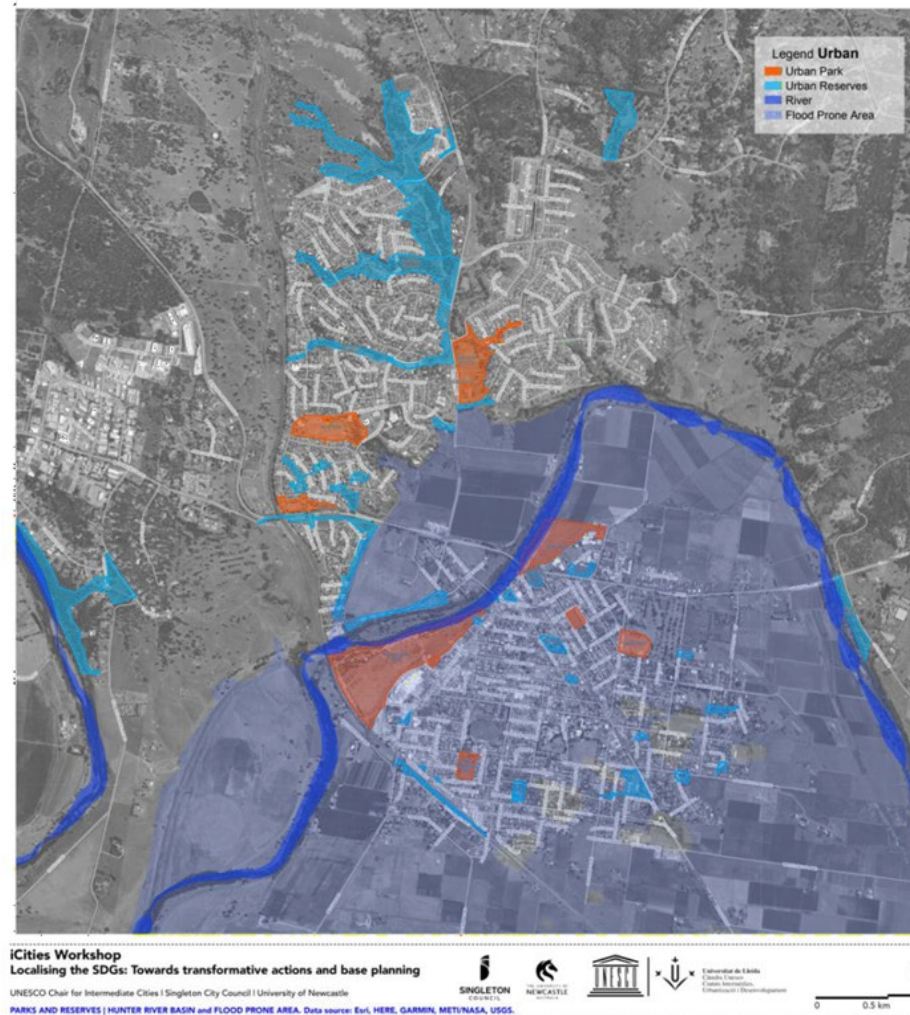


Figure 5. Singleton Urban Parks and Reserves; River Basin and Flood Prone Area. Sources: Authors, based on GIS data provided by Singleton Council and Singleton Local Strategic Planning Statement 2041.

Localising the SDGs - Natural Environment System

Natural Environment System

Vision: Singleton's environmental vision is to value, protect and enhance a sustainable environment (Singleton, 2021), connected to Land and Country, and proactively lead the way post-coal.

Aspirations: Protect, restore, and conserve biodiversity and water systems; Enhance biodiversity corridors and reinforce connectivity; Enhance First Nation Heritage – Country & Caring-as-Country practices + Place Making; Be water, energy and waste efficient; Educate a new generation on Natural Environment. Leverage scenic landscapes – equine and viticulture – and enhance visitor experiences – be a destination to celebrate the natural environment and its biophysical, social and cultural values (Derevnin, 2022, pp. 120-121); Increase the planning and preparedness for natural disasters (Council, 2022, pp. 36-37).

Localising SDGS - Natural Environment System							
Plans at the local level:	SDG			Attributes	Challenges/ Diagnosis	iCities Workshop Transformative Actions	Plans + Policies Alignments
	Y	P	N	Elements + Processes			
Singleton Community Environmental Sustainability Strategy and Action Plan (SCESSAP, 2016)				Biodiversity + Mapping Data	More data to make decisions (See State of the Environmental Report).	Measure Wildlife + Ecosystems (DATA) + Data & Mapping for informed decision making; BUT critical qualitative perspective.	
Singleton Sustainability Strategy (Council, 2019)					Mapping -i.e., Wildlife atlas, Biodiversity corridors.	Discover how to utilise the Landscape- Country (Tourism); Wildlife + Ecosystems.	
Environmental Management Policy			 	Biodiversity + Protect + Enhance	Ecosystem fragmentation and degradation due to mining, farming; cattle; fencing.	Enhance land rehabilitation – plan over time; Change law (mining); Develop a BSA strategy/ program to enhance connectivity; Support creation/ establishment of Landcare groups.	SOE > Developed a Biodiversity Policy.
Local Environmental Plan (2013/previous 1996)					Industry reliance on Natural Environment (coal, power, agriculture).	Reusing disturbed mining land for the natural environment (i.e., renewable energy and protect remnant vegetation)	
Asset Management Strategy					Lack of ecosystem connectivity through comprehensive corridors among nature reserves and other ecosystem patches.	Reinforce connectivity Urban - Peri- urban – Rural. Put urgent measures in place to address the how. Plan strategically to act as part of the biodiversity connectivity and provide spaces for passive recreation.	
Weeds Strategy					Weakness of natural environment post- mining	Transfer non-productive land into productive/reserve land.	

Localising SDGS - Natural Environment System							
Plans at the local level:	SDG			Attributes	Challenges/ Diagnosis	iCities Workshop Transformative Actions	Plans + Policies Alignments
	Y	P	N	Elements + Processes			
Biodiversity Conservation Policy Flying Fox Management Strategy Burdekin Park Flying Fox Camp Management Plan				Biodiversity + Protect + Enhance	Need to introduce connectivity in the Natural Environment	Promote connectivity in the Natural Environment. Consider two scales: (i) re-foresting the city -green + blue + grey infrastructures; (ii) connecting with regional systems -bioregional.	SOE > Developed a Biodiversity Policy.
					UN> Over 10K ha of land rehabilitation - over 25 years of work.SCLSPS-LEP> Lack of protection against the disturbance or harm to natural resources.	Create vegetation buffer zones (mining). Recover balance Natural Environment and growth (address the HOW).	
Pesticide Use Notification Plan	 	 	 	Biodiversity + Community	Need of engagement with Nat Env - accessibility to people.	Educate a new generation of NE (1st NE corridors, then built env). - Connect Community – Natural Environment - Educate a Green Community - Learning to live with living systems. - Deliver education material to generate behavioural change and conscious use of resources. Intergenerational care for NE - Legacy: What we had? What do we have? What will we leave? What do you want to protect?	SCESSAP> Participation, collaboration partnerships and education to improve environmental sustainability: (i) Facilitate community engagement in activities; (ii) Comnity education, capacity building and behaviour change; (iii) Encourage community, Council and Stakeholders to improve environmental sustainability outcomes.
					Natural Environment disconnection – impact in well-being and Mental Health. Lack of engagement with Nat Env - accessibility to people. UN + SOE> Needs long-term sustainability plans through education and knowledge-based resources.	Engage with Nat Env: Make inclusive and accessible to people.	

Localising SDGS - Natural Environment System											
Plans at the local level:	SDG			Attributes	Challenges/ Diagnosis	iCities Workshop Transformative Actions	Plans + Policies Alignments				
	Y	P	N	Elements + Processes							
Pesticide Use Notification Plan	 14 Life below water	 3 Good health and well-being	 17 Partnerships for the goal	 15 Life on land	 13 Climate action	 13 Climate action	Biodiversity + Lobby		SINGLETON - CEESNOCK - MUSSELBROKE – SCONE Biodiversity Lobby (connect with regional systems -bioregional).	SCESSAP > Enhance NonGovernment Organisations working toward better environment and practices (i.e., Great Eastern Ranges Initiative; Greening Australia; Ozgreen; Nature et al. of NSW; Hunter Region Landcare Network) SOE> implement sustainability initiatives that minimise our ecological footprint.	
							Biodiversity + Economy	Need for support and funds for regenerative agriculture and restoration; Dispersed regional eco-based agriculture practice and learning, lacking a network to share experiences and inform people. Unbalance Nat Env and growth.	Funding Programs (instead of projects) - Support LLS programs. - Support workshops to understand current practices and requirements. - Develop educational material and workshops session. Promote and embrace agrotourism and cultural heritage. Eco-tourism; mountain-biking; active-tourism (with MidCoast).		
								Biodiversity + Culture (Country)	Lack of Aboriginal cultural practices in ecosystem management.	Tourism + Food + Wine First Nations Group/Councils (Support Cohesion in groups, currently operating independently)	SOE> Implemented a Seed Library, strengthens biodiversity with seeds adapted to the local area.
									Lack of connecting cultural practices with environmental policies (i.e., Indigenous cultural practices in planning).	First Nation Heritage > Put in Value (i.e., BAIAME CAVE	SCLSPS > Protection, conservation, and better utilisation of natural, historic, and cultural landscapes of the LGA - not detract from significance and meaning associated with the landscapes
									Lack of recognition of Natural Environments as providers of great natural and cultural heritage.	Connect with Indigenous knowledge and practices – Country; Caring -as- Country practices; Holistic approach + Place Making. Develop a medium-long term Cultural-Ecological Plan. SCC to support the set-up of a native nursery to supply rehabilitation and revegetation projects. Identify and support Ecological Cultural Burn.Council policy/strategy the use of native species as part of internal planting projects. Enhance Heritage Groups Facilitate communication (i.e., UNESCO Cultural Landscapes; ICOMOS-IFLA) . Connect cultural practices with environmental practices. Connect cultural practices to planning and policies - Aboriginal communities and cultural values to facilitate culturally informed planning of natural resources.	

Localising SDGs - Natural Environment System								
Plans at the local level:	SDG			Attributes	Challenges/ Diagnosis	iCities Workshop Transformative Actions	Plans + Policies Alignments	
	Y	P	N	Elements + Processes				
Integrated Water Cycle Management Plan				Water	UN> Impact of developments on access to water.	Enhance green/blue biodiversity corridors – Urban – Peri-urban – Rural.		
Water Restrictions Enforcement Policy					UN> Problems related to water management, ownership (and rights).	Water ownership (& rights) changes post-mining, leading to water-intensive industry or environmental flows (or both) flooding. Understand tributaries health requirements.	Assess health and develop a sustainable program for major rivers and creeks.	
Lake St Clair Plan of Management					UN> Destruction of riparian ecosystems (enhance, manage, and protect).	Plan strategically for aquatic health Enhance, manage, and protect riparian ecosystems. Provide incentives to landowners to implement waterwise systems in their properties		
					UN> Contamination of groundwater -mining and farming activities.	Enhance, manage, and promote acknowledgement of water, water system, and water sustainable practices (i.e., Give personhood to the river and water bodies; educational programs). Contact industry for Hunter River project funding. Treat stormwater through WSUD (Water Sensitive Urban Design).		
					UN> Impact of developments on access to water.	Facilitate access to water and water bodies. Promote water-wise practices (multi-scale approach-built environment, urban, LGA, water system).		

Localising SDGS - Natural Environment System							
Plans at the local level:	SDG			Attributes	Challenges/ Diagnosis	iCities Workshop Transformative Actions	Plans + Policies Alignments
	Y	P	N	Elements + Processes			
	3 GOOD HEALTH AND WELL-BEING 6 CLEAN WATER AND SANITATION 14 LIFE BELOW WATER 15 LIFE ON LAND		11 SAFELY MANAGED AND SUSTAINABLE CITIES AND COMMUNITIES 12 RESPONSIBLE CONSUMPTION AND PRODUCTION 13 CLIMATE ACTION	Soil	UN > Agricultural and cattle practices and soil degradation, erosion, loss of nutrients, and pollution through pesticides and fertilisers. UN> Management of 10K ha of land rehabilitation - over 25 years of work.	Education on agriculture and cattle practices (i.e., regional eco-based agriculture practice) Connect with Indigenous Knowledge and Practices – Country. Promote culturally and environmentally sustainable land management (10K ha of land rehabilitation - over 25 years) Transfer non-productive land into productive/reserve land. Educate on fresh and local production/consumption.	
	3 GOOD HEALTH AND WELL-BEING		7 AFFORDABLE AND CLEAN ENERGY 13 CLIMATE ACTION 12 RESPONSIBLE CONSUMPTION AND PRODUCTION	Air	UN> Air Pollution impacting community and environmental health. UN > Contribution to CO ₂ emission and climate change at local and global scale. – coal export, industrial dust, emissions, and Bayswater Power Station operations (Muswellbrook 17 km). SCLSPS > Poor air quality, intrusive and offensive noise, and light emissions impacts.; limited separation of residential areas to quarry and mining sites.	Air-Dust pollution: Alliance amongst the Local Council Association. Work towards energy transition (see Infrastructure & Flows, and Productive Activities). Consolidate the Energy Reward incentives within the LGA. Reduce car dependence by promoting public and active transport - bicycle and walking. Establish nature based/biodiversity buffer zones that reduce the impacts (i.e., generate natural barriers for dust through planting strategically and re-greening the city and peri-urban). Land-use and re-zoning	

Localising SDGS - Natural Environment System							
Plans at the local level:	SDG			Attributes	Challenges/ Diagnosis	iCities Workshop Transformative Actions	Plans + Policies Alignments
	Y	P	N	Elements + Processes			
Singleton Climate Change Adaptation Plan			 	Natural Disasters & Climate Change	UN> Heat Island effect of more significant land users and impact.	Use by-pass and urban re-design to improve resilience and adaptation to flood/risk. (i.e., Increase tree canopy in urban areas; Retain vegetation in new developments instead of clearing and replanting).	SOE + SCESSAP > Increase the planning and preparedness for natural disasters and adaptation to Climate Change.
Singleton Floodplain Management Study					UN> Impact on biodiversity and community during droughts & floods.	Develop Constraints Analysis (Flood, Drought, Fire, Biodiversity, Water) to prepare and adapt to Climate Change. Deliver environmental and ecological workshops and programs to educate and support the community.	SOE> Instigated Community Resilience Network and forums to adjunct to the Singleton Local Emergency Management Committee.
Singleton Floodplain Risk Management Plan					UN> Lack of management of water scarcity and overflow.	Reduce the impact of flooding and risk through Nature-based Solutions. Manage stormwater to increase infiltration and reduce flood risk/impact and erosion due to high volume and speed.	SCLSPS – COMM > Forecast climate change impacts and information and plans to guide management of natural disasters - flooding and bushfire.
Drought Management and Emergency Response Plan Wollombi Brook Flood Study					UN> Evacuation (13+8h)	Slow down and retain water during rain periods creating resilience during drought (recharge aquifers, tanks, dams, etc).	
Assets Management Policy Integrated Risk Management Policy Environmental Noise Policy (Council, 2019)					UN> Need to evaluate real state post-flood.	Increase soil permeability closer waterbodies by revegetating.	
					UN> Post-flooding investment (AU\$1M).	Improve permeability of catchments.	

4.2.2. Culture and Society System

The Wanaruah – or Wonnarua Peoples are the Traditional Custodians of the Land throughout the Upper Hunter Valley. As part of the First Nations of Australia, they collectively form the oldest continuous human culture on Earth. Their occupation of the area began with the Dreaming and is documented as being more than 30,000 years of traditional knowledge (Singleton, 2021). The Singleton LGA contains an expanse of places and objects of Indigenous cultural importance, both tangible and intangible, including four Protected Indigenous sites: The Baiame Cave, St Clair Mission Church School and Corroboree Ground, and Redbournberry Hill (AHIMS 2021), 6347 recorded Indigenous Cultural Heritage Site, and 156 Heritage items. The strong relationship between Indigenous people and the Country makes culturally appropriate the management of the land and its resources following cultural values (Singleton, 2021). Moreover, Singleton has an extensive history of European settlement that is reflected in a significant number of heritage buildings and sites. Thirty-seven historic buildings are part of the Singleton Heritage Walk, and over 200 items of heritage significance in Singleton are listed under NSW or Commonwealth legislation. Protecting the unique heritage –tangible and intangible– is important by coordinating new land use and infrastructure across the LGA (Council, 2021, p. 24).

The frame to strengthen relationships with the local Aboriginal community is the Aboriginal Reconciliation Committee, the implementation of the Aboriginal Reconciliation Action Plan and the Community Development Strategy 2022-2026. Indigenous values, knowledge and attachment are recognised as key parts of the cultural legacy, although there is no specific consideration impacting planning and policies – i.e., it is not targeted within the Local Strategic Planning Statement (Council, 2021).

Reconciliation and creating a culturally inclusive society and community are acknowledged as key to improving the social, cultural, and economic inclusion of the Aboriginal people (Council, 2021).

The community is defined as a creative, vibrant, inclusive, safe, healthy, and sustainable community. When comparing the 2022 ABS Census results to the 2016 Census, Singleton faces population growth and imminent urban development (Council, 2021). It is home to 25,075 people. The population identified as Aboriginal and/or Torres Strait Islander in the 2021 Census corresponds to 8.3% (2,033 people). The median age is 37 in 2021; 66.4% of persons aged 15 years and over are employed; 31% are not in the labour force; and 2.6% are unemployed. The population over 65 will represent 13.4% by 2021, and the 2036 prediction is 17.7% (2.6%) (Council, 2021). Although the unemployment ratio is meagre, the city presents difficulties in retaining its young population. Either due to a lack of tertiary education or a limited offer – constraints to mining, defence, agriculture, services, and construction sectors, young people go to Newcastle, Sydney, or other regions. Singleton aims to maintain diversity in the population's age distribution to help foster an environment of inclusiveness, creativity, diversity and vitality (Council, 2021, pp. 29-30).

The city provides services and facilities that meet the community's needs at different stages of life. It is equipped with social, recreational, community and cultural services such as a library, art gallery, leisure and sports facilities, youth venues, and a hospital. It also provides employment, counselling, and disability and ageing services that meet the ageing population's needs.

Daycares, schools, high schools, TAFE , and an adult migrant English program offer good quality primary and secondary education for the city and its LGA. Youth and younger persons, identified as an essential part of the social capital, retention and attraction and access to required skills development, employment opportunities, and infrastructure and facilities, are identified as critical social priorities by community consultation and the Council (see Singleton Council Local Strategic Planning Statement 2041) (Council, 2021).



⁴ Based on projections released by the State Government in 2016, by 2036, approximately 7,225 persons in the Singleton LGA population will be 18 years old or younger, which equates to 25% of the total projected LGA population for that time.

⁵ The Singleton LGA has two private schools providing mixed primary/high school education, seven public primary schools and one public high school. A TAFE NSW institution and various private trade-based training facilities also operate in the LGA.



Culture and Society System - Localising the SDGs

Culture and Society System

Vision: Create an inclusive community where everyone reaches their full potential

Aspirations:

Culture and Society System - Localising the SDGs						
Plans at the local level:	SDG			Attributes Elements + Processes	Challenges/ Diagnosis	iCities Workshop Transformative Actions
	Y	P	N			
Singleton Community and Economic Development Fund Policy				Jobs	Not diversified job opportunities.	UN> Provision of jobs that attract and retain young families and professionals.
Community Strategic Plan 2017 – 2027	 		 		Difficulties in retaining youth and youth professionals	Collaborate with TAFE to expand courses availability. Explore opportunities for agriculture to provide more jobs. Explore future industry opportunities (i.e. Hunter Renewable Zone)
Community Development Strategy					No equal opportunities for all generations	Invest/support community programs in other industries and multigenerational (Address the HOW).
Community Development Management Plan		 	 	Societal issues: a-health and well-being be a welcoming community	SCLSPS > Car dependence and lack of active transport infrastructure	Engage the community to achieve challenges: (i) Active live and open biodiversity offsets; (ii) reduce car dependency; (iii) improve air quality wood heater, use of private vehicle and vehicle use best practice. Organise event (i.e., Cycling at John St. monthly/every Sunday; the River Walk Track; Love Sustainable Singleton campaign; Community garden/re-greening network; Let's plant back- and front yards.

Culture and Society System - Localising the SDGs

Culture and Society System - Localising the SDGs						
Plans at the local level:	SDG			Attributes Elements + Processes	Challenges/ Diagnosis	iCities Workshop Transformative Actions
	Y	P	N			
Singleton Lifestyle Plan for Older People (April 2015)					SCLSPS > Impact on community health due to poor air quality, intrusive and offensive noise, and light emissions – affecting residential areas close to operating mines, rail infrastructure and significant industry areas.	UN> Funding Programs (instead of projects) UN> Good provision of services and public facilities (local level).
				Societal issues: b_aging population;	SCLSPS – COMM > –Lack of appropriate facilities and new demands for an ageing population and age-friendly community	UN> Make Singleton an age-attractive destination - the best place to retire in terms of connectivity.
Youth Services Policy			  		SCLSPS & UN> Housing affordability and availability crisis.	SCLSPS > Plan for elder + aging population SCLSPS > Plan for suitable aged care services and a health care precinct - clustering of compatible land uses. (Council + government agencies + industry professionals). SCLSPS > infrastructure and growth plans considering the needs of elderly persons -connected with planning controls. SCLSPS > Engage the aged and elderly population in relevant strategic planning processes, participation, and engagement in community life.

Culture and Society System - Localising the SDGs

Culture and Society System - Localising the SDGs							
Plans at the local level:	SDG			Attributes	Challenges/ Diagnosis	iCities Workshop Transformative Actions	Plans + Policies Alignments
	Y	P	N	Elements + Processes			
Our Youth: Engaged, Empowered, Included Strategy				Societal Issues: C:- Young and Youth	UN + SCLSPS > Low retention of the young population – loses younger residents – education, lifestyle, and employment opportunities elsewhere.	UN> Invest in retention and attraction of young and youth population: Students' facilities; Care facilities; Scholarship; Industrial diversification/ expansion; Scholarships (people to bring skills back to the community; Get ex-Singleton people to spread Singleton out in the world.	SCLSPS > Youth and Younger – monitor and target of needs – facilities and services; facility provision; land use planning constraints and opportunities to better address lifestyle and employment needs.
Singleton Child-Friendly Strategy						UN> Built community and youth capacity: involved in decision-making that will impact their future.	
Disability Inclusion Action Plan						UN> Target demographics for education & engagement opportunities.	SCSP>Pursuit of a university campus to service Singleton and the Upper Hunter
Arts and Cultural Strategy 2020-2030							SCSP>Pursuit of a university campus to service Singleton and the Upper Hunter
						Plan with and for youth	

Culture and Society System - Localising the SDGs

Culture and Society System - Localising the SDGs							
Plans at the local level:	SDG			Attributes	Challenges/ Diagnosis	iCities Workshop Transformative Actions	Plans + Policies Alignments
	Y	P	N	Elements + Processes			
Aboriginal Reconciliation Action Plan				Heritage and Cultural Values	UN> Lack of Aboriginal and Strait Torres culture recognition and integration in planning, policies, and programs.	Change cultural narrative -make it vibrant; what that looks like to the community.	HRP 9> Create true connections to Country and integrate Aboriginal cultural knowledge and practice into urban design and planning.
Singleton Multicultural Plan					UN> Lack of Acknowledgement and recognition of Aboriginal Land and different necessities - moving on Country; Transport; Others. UN > Care-as-Country is not part of Singleton Council Strategic Planning	Plan with and for First Nation People.	
Heritage Development Guidelines						Awake cultural sensibilities based on inclusivity. Engage with indigenous groups to develop native gardens as part of the community landscape. Promote cultural/bush walks Deliver bush tucker and garden design workshops. Understand and promote traditional practices linked to deep sustainability.	SSE> Learn about and restore local Aboriginal and Torres Strait Islander Peoples' histories, cultures, languages, practices, and land management techniques.
Companion Animals Management Plan 2018						Art + cultural values: First Nations + Colonial.	
				Maintain character and identity and enhance Sense of Community.			
				Built community experience – through art and Culture, leading and planning future.			

4.2.3. Infrastructure and Flow System

Singleton LGA is inland of a very intensive urbanised coastal corridor north of the Sydney metropolitan area that spans from the Central Coast to Port Stephen. The Singleton LGA comprises nationally significant transport corridors such as the New England Highway, Golden Highway and Great Northern Railway line. The Hunter Valley Coal Rail Network is the busiest railway corridor worldwide—current rail usage results in competition between passenger services, coal, and freight haulage on the network. The Newcastle–Port Steven airport and the Port of Newcastle are also situated within 60 minutes of the Singleton LGA, offering additional connectivity.

One significant constraint to establishing new industries within the Singleton LGA is the section of the New England Highway between McDougall's Hill and Belford. The high levels of traffic that use this section of the highway, generate frequent congestion, adverse traffic safety and increased travel times. The impacts of such conditions are greatest on the section of the New England Highway which dissects the Singleton Township (Derevnin, 2022).

Some of the transport infrastructure in the region is being upgraded, such as the Inland Rail project. An upgrade of the New England Highway to a dual carriageway between the Hunter Expressway and the Golden Highway at Belford is also planned. This will improve connectivity between the Six Cities Region and global gateways (Derevnin, 2022; Singleton, 2021, pp. 120–121). The upgrade by-pass on the Golden Highway/New England Highway intersection, which currently dissects the Singleton Township, will resolve the critical infrastructural and urban problem of intense traffic and heavy transport linked to industry.

The by-pass could generate a range of opportunities for the LGA and offer Singleton CBD better urban connectivity and urban amenities, providing opportunities for active transport –cycle and walking paths, urban liveability, and well-being. This could make the area more attractive for business investment and residential development. Local strategic planning will be needed to support new commercial development, events and place-making initiatives in these areas (Derevnin, 2022). Areas of particular focus include improved traffic conditions along George Street, accessibility between the Singleton Town Centre and New England Highway, and the positive impact that changes in land uses will have in the bypass corridor. Travelling by car is one of NSW's most significant contributors to greenhouse gas emissions and air pollution (Authority, 2021). However, cars continue to be the primary method of travel to work in the Singleton LGA. In the 2021 ABS Census, 88% of people travelled to work by car as a driver or passenger in Singleton. In 2016, 5% of people worked from home, 4% walked to work, and less than 1% travelled via train or bus. The passenger trains on the Hunter Line connect the Upper Hunter, Maitland, and Newcastle. These transport hubs, in turn, link to other intermodal public transport options (Great Northern Railway Line and coach). Almost a million people travelled by train on the Hunter Line in 2017–18 and 2018–19, although train usage dropped significantly in 2019–20 – COVID-19 lockdowns restricting travel and discouraging public transport use (NSW, 2021; Singleton, 2021).

The existing and upgraded infrastructure network provides opportunities for new industries and services -i.e., manufacturing and construction industries, transportation, energy, and infrastructure and services. The existing electricity network, in place because of historical access to coal and the location of coal-fired power stations, provides opportunities for new investment in electricity generated from renewable energy, since the area is optimal for renewables and geothermal (Derevnin, 2022). The federal government is currently reviewing the planning for Liddell Power Station, which ceased operation in 2023. A mix of high-efficiency gas peaks, renewables, battery storage and demand response is proposed. The closure of Bayswater Power Station, planned for 2030-2033, could provide further opportunities, including a pumped hydro project in the Hunter region, the feasibility of which is currently being explored with the NSW Government (Council, 2020).

However, challenges exist due to the potential for land use conflict and competition for land. Key constraints include access to infrastructure, impacts on and from existing land uses, and uncertainty associated with environments and markets. Opportunities associated with the former mine and power station sites and infrastructures will need to diversify the industry and leverage employment opportunities arising from renewable energy investment (Derevnin, 2022) if Singleton's economy is to be resilient.



Localising the SDGs - Infrastructure and Flow System

Infrastructure and Flow System

Vision: Repurpose of infrastructure for innovative uses post-coal.

Aspirations: Networking Intermediate mines iCities/iCities impacted by mining; Complete the by-pass and re-establish urban connectivity; Develop better active transport routes; Develop and implement new technologies - renewable energy strategy

Localising SDGS - Infrastructure and Flow System						
Plans at the local level:	SDG			Attributes	Challenges/ Diagnosis	iCities Workshop Transformative Actions
	Y	P	N	Elements + Processes		
Asset Management Strategy				Infrastructures	SSDS> 40 mobile black spots within the LGA + not complete fixed line telecommunications infrastructure.	New technologies /Energy: Solar, Wind, Geothermal. Initiatives to improve energy efficiency and renewable energy capability, water management and conservation, transportation, and waste management.
Development Control Plan (DCP)					Misalignment of policies and plans between Federal, State and Local Governments.	
Transport Asset Management Plan (Council, 2019)				Transportation	UN + SCSP> Lack of connectivity of local public transport. SCSP> Insufficient number of trains to major centres, including Newcastle and Sydney SCSP> Lack of infrastructure in rural/ village settings to improve pedestrian safety.	New England Highway intersection opportunities: - By-pass [outside city] – impact on infrastructure upgrade and connectivity (urban-peri-urban-regional-national) - Post By-pass [inside city] urban regeneration plan- City connectivity, mobility, walkability (see Built Environment). - Potential and space to create a second vibrant business area.
						SSDS> Complete Golden Highway/New England Highway intersection flyover (Singleton By-pass)- improve safety, travel times and congestion. HRP> By-pass> rezone or develop land within the selected route for the Singleton New England Highway by-pass. HRP > Infrastructure and policy re-sponses that contribute to the safety and comfort of pedestrians, cyclists, skateboarders, and people who use wheelchairs or scooters.

Localising SDGS - Infrastructure and Flow System							
Plans at the local level:	SDG			Attributes	Challenges/ Diagnosis	iCities Workshop Transformative Actions	Plans + Policies Alignments
	Y	P	N	Elements + Processes			
Hermitage Road Pokolbin Planning Study				Transportation	Train conflict: train -users- compete with coal trains - Singleton – Newcastle train line is the busiest corridor worldwide. HRP> Great Northern Railway Line is dominated by coal haulage. This limits opportunities to reduce reliance on road transport.	Connection with the region through a robust infrastructure: multimodal -train, highway, public transport (Singleton in the HUNTER)	SCLSPS – COMM > Central location in the Hunter Region is ideal; excellent road access to major centres - Maitland, Port Stephens, Newcastle, and Sydney. SCSP> increased the number of trains to major centres
Emergency Management Plan					Urban public transport: only inner/centre singleton is served; no transport on the north fringe; no public transport in/to towns.	Promote active mobility and eco-tourism: walkability and cycle path -river and urban (with Mid-coast), aligned with NE+IF + Access Natural Assets [Winery + Cultural Assets + Villages]	HRP> Create better access to and networks of walking, cycling and public transport in urban areas, towns, and villages
Singleton Safety Strategy					SCEPPAD > High level of car dependency across the LGA.	Promote Green-Blue Infrastructure network.	HRP> A renewed focus on green in- frastructure, public spaces, and nature, using planning decisions to rein-force, enhance and improve quality of life (see Natural Environment). RP>Zoning around existing and proposed transport and infrastructure corridors: land use compatibility, minimisation of land use conflict, and protection of visual amenity; buffer areas around existing and proposed transport corridors. SOE> Be a reference in renewable energy usage.
					HRP> Encroachment of incompatible land uses on significant transport corridors.	Promote/Support new technologies: Electric Cars, AV; Transport.	

4.3.1. Built Environment System

The Singleton LGA has the third largest land area in the Hunter region, whilst it has the fourth smallest population amongst the Hunter's LGAs. It is on the fringe of the Greater Newcastle Metropolitan area and contains a large part of Huntlee New Town, which has been identified as a significant future growth area for the region. The Singleton Township and surrounding villages are community-focused, with sustainable design, liveability and amenities at the forefront of growth objectives (Council, 2021, p. 24). The character of villages is celebrated, protected, and enhanced, reflecting local values and considering the needs of the growing tourism industry. Common urban challenges include congestion, a shortage of adequate housing, declining infrastructure and pollution (Singleton, 2019, p. 10).

Housing availability and affordability for all stages of life are considered essential needs of the community. An audit of dwelling types in the Singleton LGA undertaken in 2017 identified that approximately 96% of dwellings in the LGA are detached single dwellings, indicating that the LGA does not have a very diverse mix of dwelling types. By 2036, the population aged below 25 and over 65 is expected to increase. Amongst these demographic groups, one-person and couple-only households are anticipated to increase, whilst group households substantially decrease.

Demand for a greater diversity of housing options is anticipated to increase over the coming decades, particularly concerning more affordable housing such as smaller homes on smaller allotments, compact housing with zero lot boundaries and medium-density housing close to public transport, public open space and shopping facilities (Council, 2021, pp. 32-34).

In addition to projected increases in the proportion of the population at retirement age, the transition of the local economy towards a more balanced industry mix could affect the average incomes in the LGA, increasing the pressures placed on housing affordability (Council, 2021, pp. 32-34).

The urban centres of the Singleton LGA provide opportunities to meet the mix of housing needs of the growing and changing population and to attract new residents. The locations for new residential communities and housing are regulated by local strategic planning and must meet market demands and reflect good planning practices while responding to environmental constraints like bushfires, ecology flooding and the feasibility of infrastructure provision (Derevnin, 2022). Moreover, measures such as building height and density controls can promote more efficient use of the existing urban footprint. There are opportunities to avoid urban sprawl or the expansion of housing on the outskirts of the urban centre on land that would otherwise be used for agriculture, nature, and open space. The Singleton housing strategy is designed to ensure the alignment of housing provisions and adequate housing mix, including dwelling entitlement provisions for rural areas and working by the NSW Government's Local Housing Strategy Guidelines and associated template (Council, 2021, pp. 32-34; 2022; Derevnin, 2022).

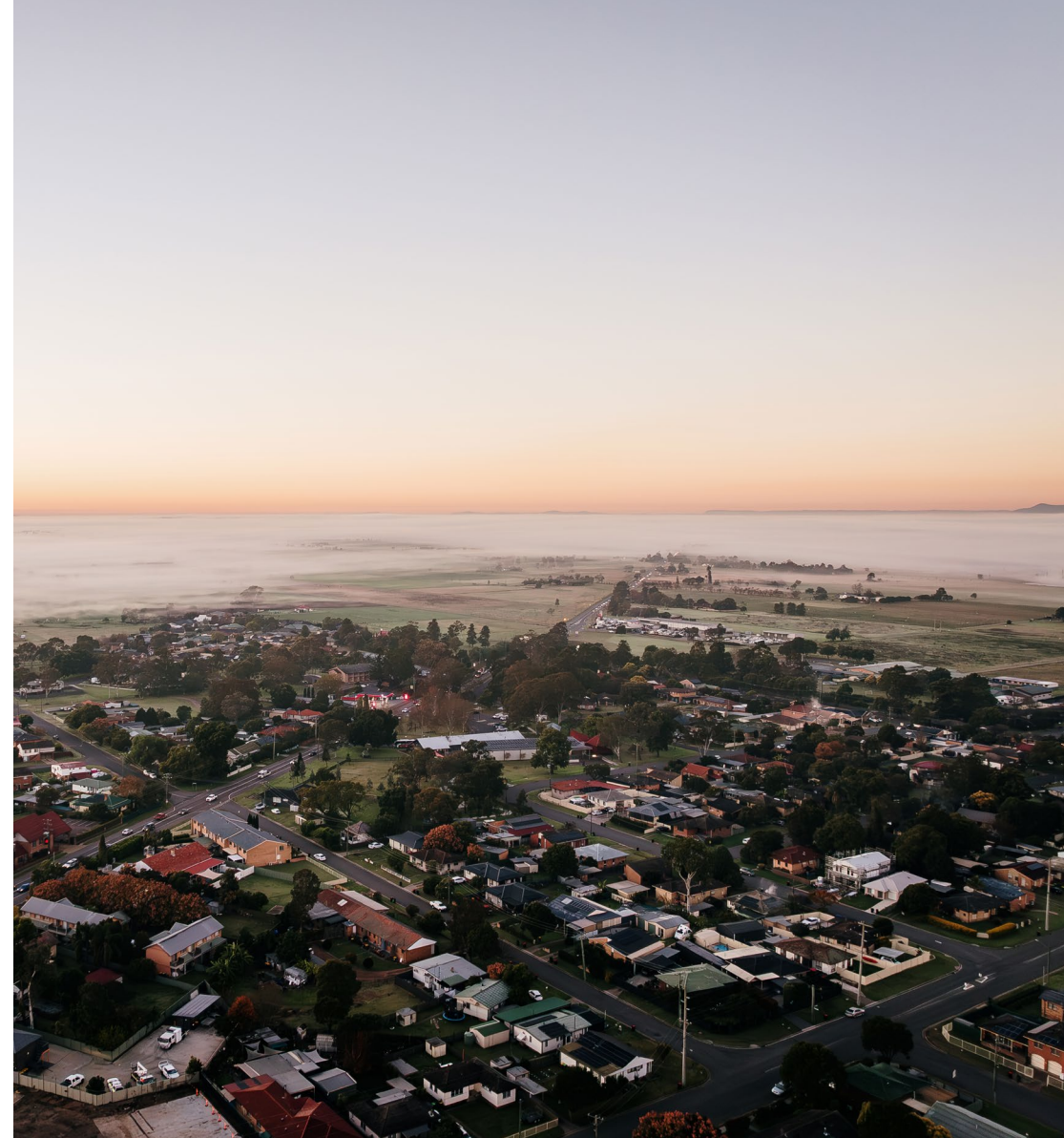
A key priority at the local government level is implementing appropriate measures to manage land use conflicts as development in the Singleton LGA grows. Additional focus will be needed to diversify the LGA's industry base and housing mix. Rezoning and subdividing land or changing the minimum lot size will require economic feasibility.

The Council aims to collaborate with the community to identify vital community requirements (Council, 2021, p. 24).

Completing the highway by-passes is anticipated to resolve fundamental conflicts related to urban connectivity and amenities at Singleton's urban centre. The Local Strategic Plan anticipates that strategic master planning of the urban centre can shape the future once traffic conditions improve. This could make the centre attractive for business investment, residential development, events, and place-making initiatives for locals and visitors, as well as celebrate local identity and encourage a vibrant urban space.

A well-planned infrastructure network for (i) recreation - including parks, sports grounds, leisure facilities, cycling and walking track; (ii) mobility - roads and rail services; and (iii) infrastructures such as water storage, water supply and waste management facilities, would positively influence the quality of life of residents and the lifestyle choices that determine where people choose to live (Council, 2021, pp. 32-34; Derevnin, 2022). Multiple urban design and place-making projects and upgrades have been recently completed or are under development at the LGA, such as the Singleton's community garden (2019); the construction of Riverside Park and Wanaruah Park; or, the upgrade of several parks, and playgrounds, skate park and picnic shelter - James White Park, Howe Park, Rose Point Park's, Townhead Park and Bulga Recreation playgrounds, etcetera (Singleton, 2021).

One of the key priorities of the Hunter Regional Plan is working towards the consolidation of 15-minute neighbourhoods, 30-minute strategic centres, and 90-minute regions to guarantee connected, active, healthy and socially engaged communities and its hinterland.



⁶ Excluding the Neighbourhood Centre Zone, proposals that seek to rezone land to a residential, business, or industrial zone are to demonstrate that they will not result in more than 40% of the total Greenfield land required to address 15 years demand for the Singleton LGA being within a single holding.

⁷ Voted Best Play space (over \$500,000) at the NSW/ACT Parks and Leisure Australia Awards of Excellence.

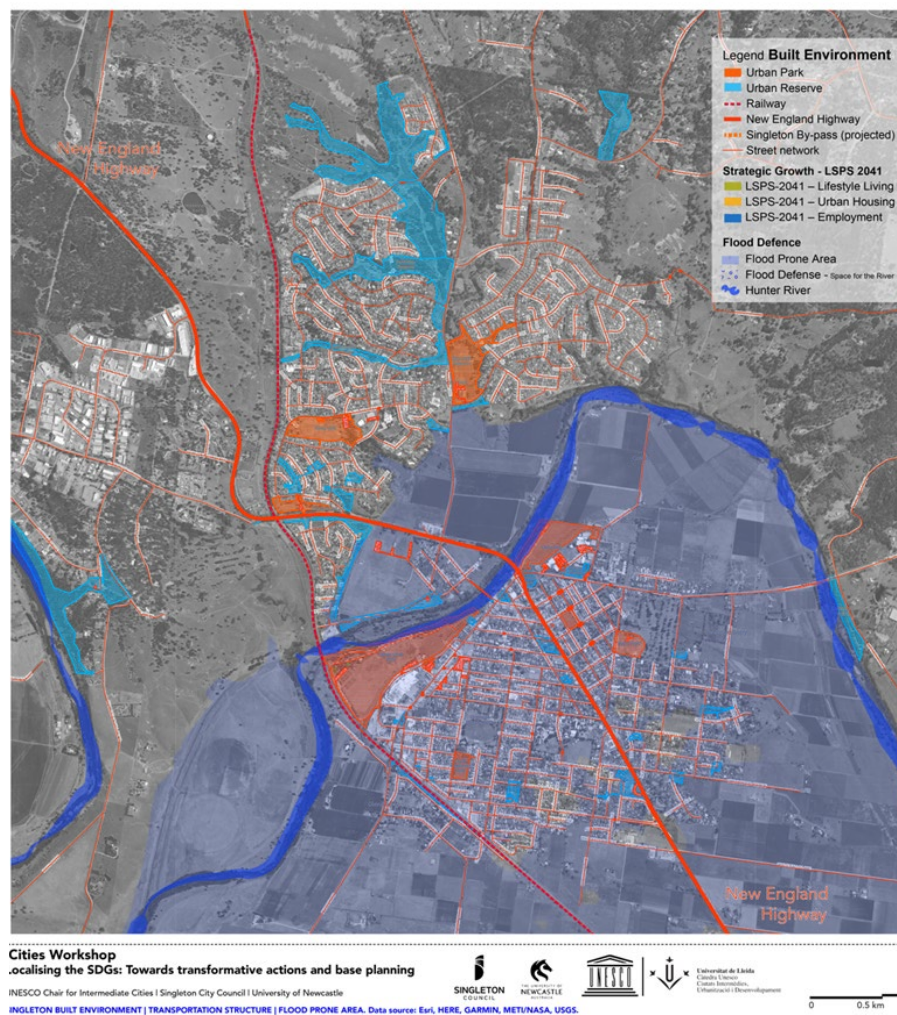


Figure 6. Singleton Structure Plan Map: Urban Structure; Major Transport Routes; Flood Prone Area. Sources: Authors, based on GIS data provided by Singleton Council and information extracted from Singleton Local Strategic Planning Statement 2041 (Council, 2021, p. 25)

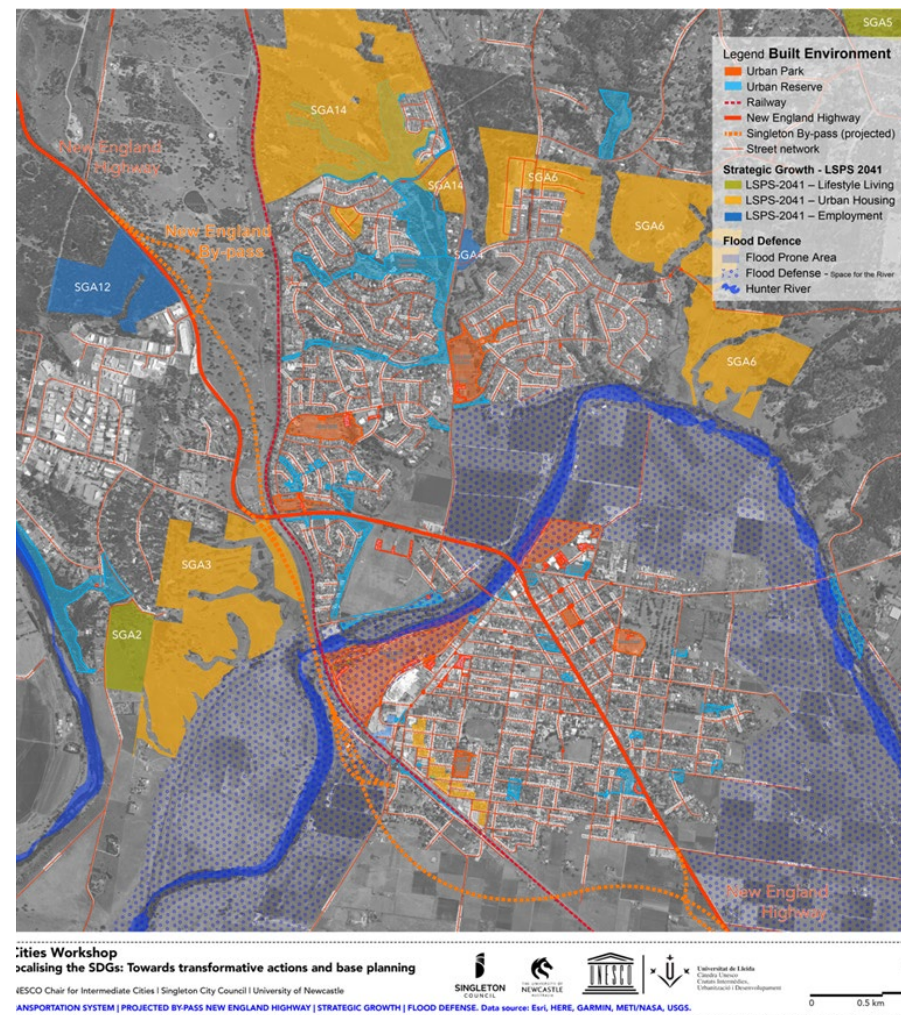


Figure 7. Singleton Strategic Planning: Singleton By-pass; Strategic Growth – LSPS 2041; Flood Defence – Projections. Sources: Authors, based on GIS data provided by Singleton Council and information extracted from Singleton Local Strategic Planning Statement 2041 (Council, 2021, p. 49).

Localising the SDGs - Built Environment Systems

Built Environment System

Vision: Built Environment vision matches Singleton's diversity: 1) Diversity; 2) Connectivity; 3) Accessibility (i.e., in housing, businesses, places).

Aspirations:

Localising the SDGs - Built Environment Systems							
Plans at the local level:	SDG			Attributes	Challenges/ Diagnosis	iCities Workshop Transformative Actions	Plans + Policies Alignments
	Y	P	N	Elements + Processes			
Singleton Local Housing Strategy 2041	 	       		A. Housing	Housing crisis -affordability and diversity + SCLSPS – COMM > Lack of available housing types, lot sizes, affordability, design, lifestyle, amenity, and sustainability. Lack of accessible, young, low-income people. 6% of housing growth (12,000 miners) – no NSW State Infrastructure contribution if growth happens.	Promote new opportunities for housing development (linked to new industries); provide liveability and accessibility; diversify socio-economic demography; space connectivity; diversify amongst different location; promote densely populated areas, provided with services.UN> Large lots (8000m2) – opportunity RURAL BY NATURE.	HRP > Affordability – very low, low and moderate-income households + Collaborating with community housing providers. SCLSPS > Investigate compact and grouped medium-density housing in suitable locations. HRP > Short-term rental accommodation attracts visitors while also providing housing for temporary workers. HRP> 90% of houses are within a 15-minute walk of open space, recreation areas or waterways. HRP > Provide opportunities for contemporary methods of construction and community-driven innovative housing solutions, i.e., prefabricated, manufactured housing, 3-D printed housing, and tiny houses.

Localising the SDGs - Built Environment Systems

Localising the SDGs - Built Environment Systems							
Plans at the local level:	SDG			Attributes	Challenges/ Diagnosis	iCities Workshop Transformative Actions	Plans + Policies Alignments
	Y	P	N	Elements + Processes			
Singleton Council Local Strategic Plan Statement 2041 (Council, 2021)				A.1.-Housing - Aging	Intergenerational Change –affordability for young people; maintenance is a problem for elders (life over 55) (i.e., 96% of Singleton home market has more than 5B).	UN + HRP > Age care and elder -life after 55- demand and new typologies – 15/20-year horizon – The Hunter substantial growth in its older population – Coastal and Barrington most elderly populations in NSW.	HRP> Preference for infill development model (reduces public infrastructure spending; increases support for walking, cycling and public transport; lowers per-capita greenhouse gas emissions; contributes to 15-minute and public transport) vs greenfield and private transport model.
Local Strategic Planning Statement				A.2.- Housing - Infill (20%)	HRP > Need to identify and remove barriers and disincentives for infill housing. HRP > Need to track the supply of infill and greenfield land - completions, services, biodiversity values and offsets, infrastructure, and housing-employment demand.	Housing Infill– Challenge 20% by 2041 Consultant Design - Railway Precinct (i.e., Terrace House)	HRP > Prediction NSW Government for Singleton – 200 dwelling – 2041.
Singleton Strategic Planning Statement				A.3.- Housing - Sustainability	SCLSPS > Adverse environmental impacts in residential areas impacted by heavy industrial activities; restrict the encroachment of industry; provide solutions to avoid/minimise impacts.	Sustainability Housing strategy (NRT): - energy scheme - pilot 30 houses. - educational programs on reducing consumption at home. - develop a sustainability guideline for housing = energy efficient homes strategies - integrate energy efficient design in new approvals and retrofitting. - Increase of NSW rates in solar panels + EV implementation. - Use of vegetation to regulate homes temperatures.	HRP > Promote sustainable urban forms – efficient use of land; diversity of housing -reduces new infrastructure + responds to market/local conditions

Localising the SDGs - Built Environment Systems

Localising the SDGs – Built Environment Systems							
Plans at the local level:	SDG			Attributes	Challenges/ Diagnosis	iCities Workshop Transformative Actions	Plans + Policies Alignments
	Y	P	N	Elements + Processes			
Open Space and Recreation Needs Study & Village Parks Plan of Management	   			B.- Open Spaces	Need for strategic vision on how to make the city attractive. Based on connectivity?	15 minutes neighbourhood (or 1 mile city) -- urban re-design post-by-pass; polycentric; liveable and vibrant community and space. Design poly-centres: walkability plan, active transport plan, public transport; services provision.	HRP > 15 minutes city + 30 min LGA+ 90 minutes region: Relation urban-peri urban-territorial/ rural. HRP > Space for people – Street for people: holistic consideration of streets, public spaces, and green corridors
					Design for Climate Change – heat island, canopy and shelter – droughts, fires, and floods episodes.		
Villages Place Making Strategy							
					Urban greenery is not equally distributed.	Heritage activation	

Localising the SDGs - Built Environment Systems

Localising the SDGs - Built Environment Systems							
Plans at the local level:	SDG			Attributes	Challenges/ Diagnosis	iCities Workshop Transformative Actions	Plans + Policies Alignments
	Y	P	N	Elements + Processes			
Village Master Plan – Strategies and Actions (Council, 2019)				B.- Open Spaces	Need of urban - peri urban-rural green connectivity -	- By-pass as an opportunity to urban regeneration + resilience (adaptation and mitigation – i.e., give room to river) - Protection of vegetated areas and critical areas for ecosystem restoration. - Work with farmers to develop biodiversity corridors. - Work with LLS and landholders to encourage regenerative practices. - Improves climate resilience by enhancing biodiversity.	HRP> Embedding resilience in planning and design decisions.
Singleton Town Centre Master Plan					Need for green urban corridors to improve urban Biodiversity	- Develop/encourage street verge native gardens. - Identify significant weeds in private property. - Develop strategy to transition to natives or non-invasive species.	
Singleton Village Master Plan					Access to water/Hunter River and the protection of watercourses and wetlands	Transform problems into opportunities – i.e., the hydroelectric industry uses water, in compensation, builds an urban park.	

Localising the SDGs - Built Environment Systems

Localising the SDGs - Built Environment Systems							
Plans at the local level:	SDG			Attributes	Challenges/ Diagnosis	iCities Workshop Transformative Actions	Plans + Policies Alignments
	Y	P	N	Elements + Processes			
Singleton Development Control Plan (DCP)(and Supporting Guidelines) Singleton Flood Study: Final Report (March 2007)	   			C.- Land Uses	UN> Flooding hazards/zones -Constrain in expansion. (SEE SINGLETON SCLSPS 2041 – Strategic Growth Areas). UN> Need to indicate flooding areas for protection.	Planning with flooding hazards/zones - Constrain in expansion / Use by-pass as an opportunity for urban regeneration + resilience (i.e. Flood prone buffer).	HRP> By-pass> rezone or develop land within the selected route for the Singleton New England Highway by-pass. SCSP > Commitment to increasing drought support + infrastructure projects to aid rural communities.
Drought And Emergency Response Management Plan					SCLSPS – COMM > Review regularly land use controls in rural areas to avoid and mitigate land use conflict, protect natural resources, maintain amenities, deliver suitably sized and shaped lots, cluster compatible land uses and protect the ongoing viability of rural industries; SCLSPS > Avoid the need for extension of growth areas.	Plan land uses that take Country as a key target and care-as-Country as a planning tool.	SCSP> Facilitate land use planning and development outcomes that respect and contribute in a positive way to the environment and community.
Sedgefield Structure Plan						Need to plan the LGA towns according to the natural, social, and cultural local attributes.	HRP> Integrated approach to land use planning and infrastructure planning to ensure that jobs and homes are delivered in the right locations and linked to infrastructure- Management of positive and negative impacts of the transport network.

Localising the SDGs - Built Environment Systems

Localising the SDGs - Built Environment Systems							
Plans at the local level:	SDG			Attributes	Challenges/ Diagnosis	iCities Workshop Transformative Actions	Plans + Policies Alignments
	Y	P	N	Elements + Processes			
Sedgefield Structure Plan		     		D.-Transport & Mobility	UN> Poor connectivity with the hinterland. UN> Lack of walkability; cycle lane network.	Improve walkability, public transport, active mobility, and urban connectivity and network. Integrate active transport - cycling and walking. Promote and incentivise active transport (i.e., Cycling day at John St).	HRP > Promote active mob through well-designed streets, paths, and public spaces – free of traffic, wayfinding, end-of-trip facilities and shade, continuous footpaths on both sides of the road, barrier-free access to public transport and services – inclusive/ all ages -elder, youth – HRP>- Aligning active transport strategies with future growth areas and local infrastructure. HRP > Improve access to public transport -urban, towns and villages – through planning proposals and development controls. HRP > Support public transport patronage and a mix of land uses in greenfield areas.
Master Plans – Broke, Bulga Village, Milbrodale, Singleton				D.2.- BY-PASS [inside city]	UN>Lack of urban connectivity – until the Singleton New England Highway by-pass is completed. UN > Study pre & post-by-pass urban Strategy.	Urban Regeneration – post-by-pass urban regeneration through walkability and urban design. Revitalise the CBD (John St), New England Hwy and Sin-gleton Heights. SCC> Improve access to Hunter River along the River Walk - safe access for eve-r-yone; make the River a key destination.	

Localising the SDGs - Built Environment Systems

Localising the SDGs - Built Environment Systems							
Plans at the local level:	SDG			Attributes	Challenges/ Diagnosis	iCities Workshop Transformative Actions	Plans + Policies Alignments
	Y	P	N	Elements + Processes			
Branxton Sub-region Land Use Strategy and Structure Plan					UN>Lack of urban connectivity – until the Singleton New England Highway by-pass is completed. UN > Study pre & post-by-pass urban Strategy.	Make Singleton THE DESTINATION SCC> Develop an event strategy (cultural, sport, environmental and natural values).	HRP > Local strategic planning to achieve the 15" City-Town & 30" – 90" Region.
Lake St Clair Master Plan				D.1.- Bypass [outside city]		UN + SSEDS> Complete Singleton By-pass – Improve safety and urban liveability; walkability and amenity.	HRP > Safe, accessible, and attractive streets for all modes of transport + trails, parks and public spaces that will encourage active living community interaction.
Huntlee Development Control Plan						Complete Singleton By-pass + Contribute to flood mitigation -use by-pass urban regeneration as an opportunity.	

4.2.5. Productive Activity System

The main economic activities in the Singleton LGA are mining, agriculture, the construction sector, and services. Singleton supports 18,480 jobs and has an annual economic output of \$AU16.896 billion.

The most significant contributor to annual economic output is mining, with 72.8 % of the total economic output. It is also the largest employer providing 40.6% of all jobs in the LGA. The mining industry, with abundant, accessible, high-quality coal resources - including thermal and metallurgical coal- contributes to the local, regional, and state economies through investment, employment, and gross revenue. Around 20 coal mines operate in Singleton LGA and produce 57 million tonnes of coal annually.

The region has diverse soil types suitable for a broad range of agricultural industries. Agriculture includes the equine industry, livestock production, horticulture, and viticulture. The Singleton LGA is home to approximately 550 farms, with an average size of 284ha, a total land area of 139,561ha, and an annual output value of \$141 million. Viticulture started in the late 1820s and the early 1830's, evolving from small vineyards into consolidated and internationally recognised wine producers with a reputation for quality winemaking. It contributes AU\$ 4 millions to the NSW economy, with over 855 hectares of fruit-bearing vines and 58 growers, including vineyards, wineries, and cellars. With over 1.4 million visitors annually, the industry also provides additional infrastructure to accommodate tourists. It is also home to three world-renowned Equine Centres, with significant breeding and training facilities, including horse racing, horse sports, horse associations, horse breeding, working horses and support industries (Council, 2020; Derevnin, 2022).

The rural tourism and agriculture industries are co-dependant, but they can also be the sources of land use conflict. Cultivation associated with agriculture involves the use of machinery, which can generate noise and dust impacts, as well as environmental impacts on water quality, the use of chemicals, and erosion. Critical challenges local agricultural industries face include the availability of suitable productive agricultural land, competing land uses and land use conflict. Climatic and market changes can also significantly influence rural industries' resilience and capacity to grow (Council, 2021; Derevnin, 2022).

As a tourist destination, the Upper Hunter and Singleton LGA provides a diverse range of natural, gastronomic and leisure activities, geographically close to NSW's two largest urban populations - Sydney and Newcastle. The area is Australia's oldest and most visited surviving commercial wine region, surrounded by World Heritage National Parks and a rich heritage of Indigenous, colonial, and industrial history. The Singleton LGA boasts 211,000 hectares of National Parks and State Forests and access to nature-based facilities at Lake St Clair Campground, Glennies Creek Dam, Yengo National Park, Wollemi National Park, Mount Royal National Park, Putty State Forest, and McNamara Park Free Campground. Retail trade, accommodation, and food services are vital industries that attract visitors to Singleton while supporting a culturally diverse local community.

The ABS ranks Singleton as having less socio-economic disadvantage than observed across NSW - i.e., a significant proportion of Singleton's workforce earns over \$100,000 annually (Council, 2021). Nevertheless, environmental, societal, and economic constraints to mine operations make the Council

and community aware of the need to plan for and implement a transition process away from mining as mines begin to close (Council, 2020, p. 45).

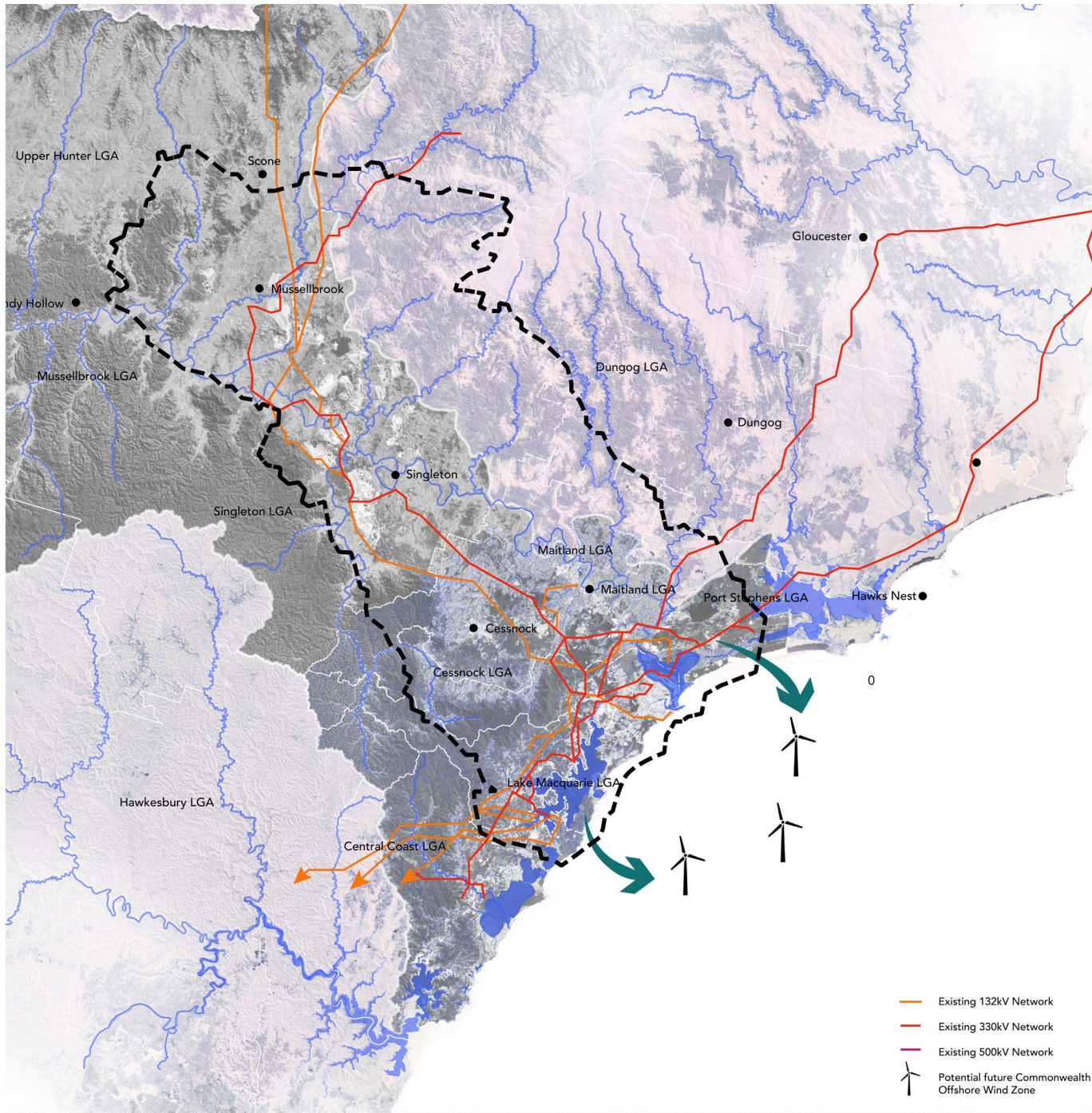
Singleton LGA is part of the NSW State Government Hunter-Central Coast Renewable Energy Zone (REZ) – a solar and wind power generation plan cluster. The pre-existing electricity network infrastructure connected to power stations, rehabilitated mining land, and a skilled workforce make the Hunter a critical asset. The plans include promoting a renewable energy future, powering existing industries and supporting economic growth, including emerging technology in green hydrogen, ammonia and metal production, offshore wind, electric vehicle fleet operators and electrification of industrial processes (EnergyCo, 2014) (Government, 2024b). The imminent closure of Lyndell Power (2030) and the cessation of major mining operations sites in the Upper Hunter, make critical the development of a sustainable strategy for the Hunter, prioritising the environment and biodiversity protection amongst economic decisions. Open-cut mining land would offer an opportunity for renewable, but the lack of regulations for mining rehabilitation and open-cut fill-up limited the opportunities for obsolete industrial and mining sites to operate as renewable energy plans. Clearing or using agricultural land for renewable might compromise the region's environmental sustainability. Policies that promote an energy transition putting nature and the environment first are critical to reduce the pressure on natural ecosystems severely impacted by the climate and biodiversity emergency.

Singleton is committed to leading the region to a sustainable post-mining economy to minimise impacts on employment rates from mining industry closures. Achieving this resilience will require diversification of industries.

Strategies include protecting and enhancing agricultural productivity and professional support services; encouraging efficient and effective reuse of rehabilitated mining land (Council, 2021); promoting sustainable energy generation – solar, wind, geothermal, and off-river pumped hydroelectric energy; and repurposing of power stations. The Hunter Regional Plan is essential to rationalising land use across the LGA and is taking advantage of opportunities to cluster compatible and co-dependant land uses (Derevnin, 2022).

Locally, Singleton Council has released its Sustainability Strategy 2019–2027, which provides an integrated and coordinated approach to advancing sustainability to maximise resource efficiency through avoiding, reducing, reusing, repurposing, and recycling waste. The Strategy is aligned with the NSW Waste and Sustainable Materials Strategy 2041 – NSW Department of Planning, Industry, and Environment, and the Sustainable Development Goal 12 – Responsible Consumption and Production and objective. The i-City is also part of the Cities Power Partnership, Australia's largest network of local councils leading the way to tackle climate change, which targets critical areas such as renewable energy, energy efficiency, sustainable transport, working in partnership; education and behaviour change program (renewable energy, energy efficiency and sustainable transport); and setting renewable energy or emissions reduction targets and sustainable energy policies.

⁸ The Australian Army School of Infantry is located at the Lone Pine Barracks, 8 kilometres south of the Singleton CBD



Hunter-Central Coast Renewable Energy Zone geographical area. Nature Markets & Offsets Division Biodiversity, Conservation and Science Group, Department of Climate Change, Energy, the Environment and Waste, NSW Governments.

Source: Interactive map available at <https://caportal.com.au/energyco/rez?select=hunter-central-coast-rez>

Figure 8. Viticulture, Agriculture and Cattle Map. Sources: Authors, based on GIS data provided by Singleton Council and information extracted from Singleton Local Strategic Planning Statement 2041 (Council, 2021, p. 52). (PENDING)

Figure 9. Extractive Industries Map. Sources: Authors, based on GIS data provided by Singleton Council and information extracted from Singleton Local Strategic Planning Statement 2041 (Council, 2021, p. 54). (PENDING)

Figure 10. Concept Urban Buffer Map. Sources: Authors, based on GIS data provided by Singleton Council and information extracted from Singleton Local Strategic Planning Statement 2041 (Council, 2021, p. 55). (PENDING)



Localising the SDGs - Productive Activity System

Productive Activity System

Vision: Create a network of cities; do research; lead the change; Build cultural narrative change -make it vibrant

Aspirations: Centre of excellence in transition -worldwide.; “Job for the future” + Education; Repurposing facilities + skill force; Transform in long-term sustainability -mining, forestry, agriculture, and winery; renewal; Culture & arts: Promote a circular and carbon-neutral economy and ethos at a local and regional scale

Localising the SDGs - Productive Activity System						
Plans at the local level:	SDG			Attributes	Challenges/ Diagnosis	iCities Workshop Transformative Actions
	Y	P	N	Elements + Processes		
Economic Development Strategy	3	5	4	A.- Industry - Mining	UN + SCLSPS> Economy heavily depends on mining -short to medium term (36% of locals employed / \$5.1 billion in Regional).	HRP + UN> Strategic land use planning: (i) Mining sites - landform, voids, and visual impacts for the equine and viticulture industries; (ii) Alluvial soils or irrigation for intensive agricultural land uses; (iii) Buffer zones of non-operational sites; (iv) Connect with Biodiversity + corridors.
Hunter Valley Destination Management Plan	8	10	9			
	12	14	15		UN> Local Government and community need to have a real voice in the mining industry.	Prioritise diversification of the local industry + SLC [13> attract new investment to increase the diversity and resilience of the Singleton economy -i.e., Utilise opportunities offered by mines ceasing soon while studying other mines expand; Work with LLS; Partnership with indigenous organisations to develop tourism programs; Promote/support sustainable businesses.
	16	17				
						HRP 119> Repurpose voids + industrial infrastructure – hard stand areas, workshops, stores, treatment plants, rail loops, cease mines, and adjoining mines, to: (i) con-nect biodiversity offsets ⁹ and other vegetated areas across the Hunter Valley; (ii) support renewable energy generation - employment and land repurpose. HRP> Use non-operational land as a buffer zone - this land will not require rehabilitation. SSEDs-UHEDAP> Five strategic themes (i) Driving Land Use Certainty; (ii) Encouraging New Industry Investment; (iii) Developing New Market Opportunities; (iv) Planning for Water Security;(v) Government /Industry Engage-ment. SCLSPS>achieve balanced co-existence between extrac-tive industries and other land uses in the LGA.

⁹ Non operational land is land managed by mining operations but not active or historical mining operations.

Localising the SDGs - Productive Activity System						
Plans at the local level:	SDG			Attributes	Challenges/ Diagnosis	iCities Workshop Transformative Actions
	Y	P	N	Elements + Processes		
Socio-Economic Development Strategy 2020-2024				A.- Industry - Mining	UN> Need for a medium to long-term vision for the Hunter -not clarity on mining operations or actions to work toward transition.	UN +HRP> Opportunities to reuse + repurpose land and infrastructures - voids, railways, equipment, and Hunter's power transmission lines with an excellent electricity transmission network for distribution. SCC> Encourage all operations to start working towards closure. SCC> Identify mining DA restrictions/ requirements that does not allow operators to align with strategic planning of the City. SCC> Collaborate to develop more adequate modifications to approvals.
Singleton Tourism Strategy					UN> Not clearly defined responsibilities and investment funds + HRP > Mining operations sites will require rehabilitation. SCLSPS> Limitations on the extent to which mining operations can be influenced at the local government level - Mining development is predominantly assessed, approved, and regulated by the State Government SSEDS> Need of a local government plan to help manage the affectation of mining, - i.e., Singleton "Mining for a Better Singleton" bring a range of actions that help address the affectation mining has on the community. SSEDS> lack of DA approval flexibility that allows for improved access to mining.	Advocate for mining responsibility. SCLSPS – COMM > Protect and enhance the community's willingness to start to transition

Localising the SDGs - Productive Activity System							
Plans at the local level:	SDG			Attributes	Challenges/ Diagnosis	iCities Workshop Transformative Actions	Plans + Policies Alignments
	Y	P	N	Elements + Processes			
	   	  	      	A.1.- Industry - Clean Energy + post-mining transition/ Industry diversification	UN> Need for strategy /vision for LGA + Regional scale.	Work in Transition/Post-Carbon society – Built a Vision -regional scale- for LGA + other LGAs impacted in the Hunter. •Future vision: The future of mining and employment must take NE first. •What is next > Biodiversity + Country + Community / Economy model? •Study, design, and lead industry transition - Lead mining transition. •Alliance amongst the Local Council Association. •Test possible future scenarios.	SSEDs> The Best transition for Singleton/Hunter is a Gradual transition over 10 years or more; Built capacity if the scenarios change quickly and occur over a shorter period. SSEDPS> Attract investment through the 'Relocate to Regional NSW' project – NSW Government. SCSP> Inspire the community to be prepared and embrace the jobs of the future.

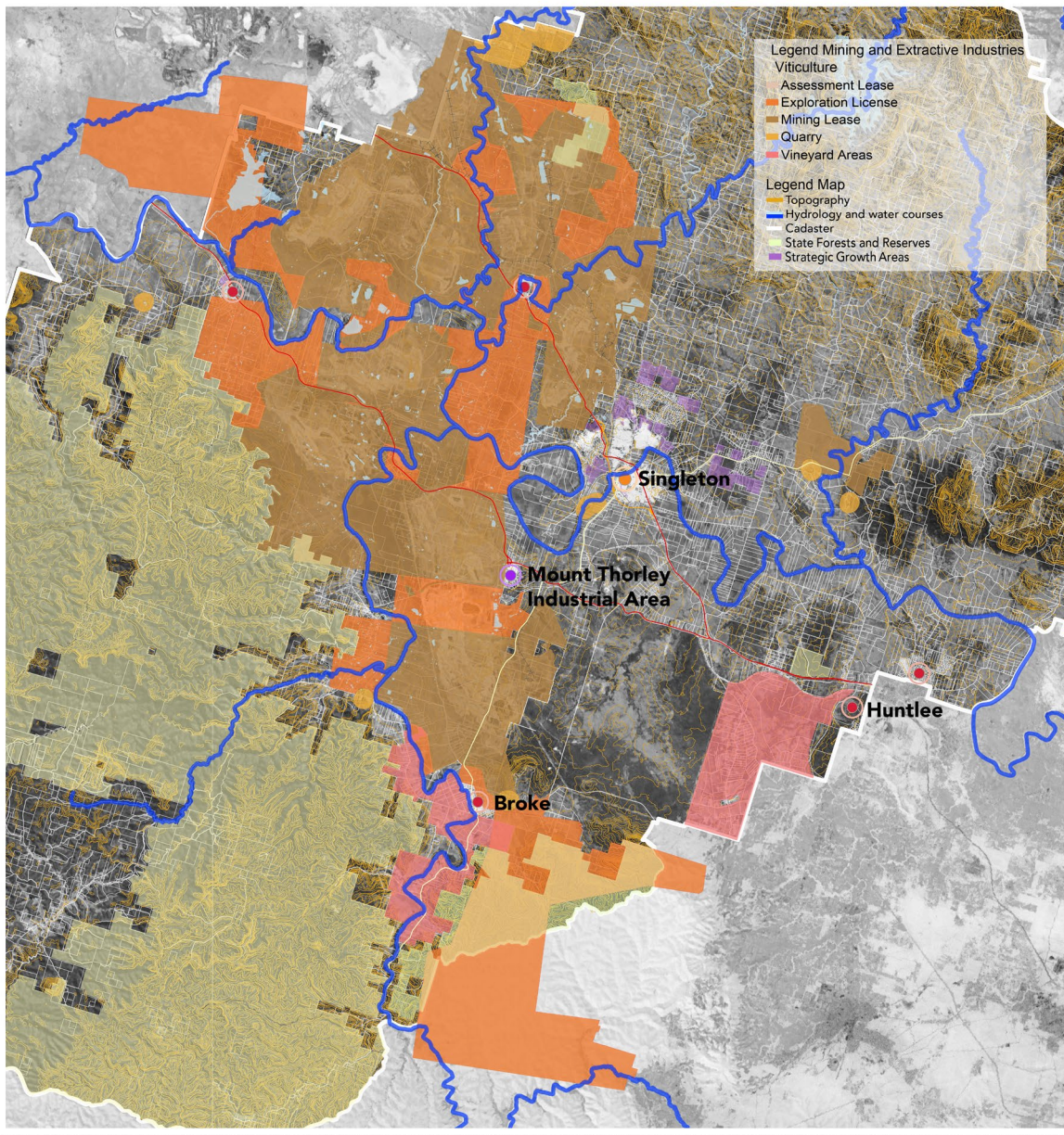
Localising the SDGs - Productive Activity System							
Plans at the local level:	SDG			Attributes	Challenges/ Diagnosis	iCities Workshop Transformative Actions	Plans + Policies Alignments
	Y	P	N	Elements + Processes			
					HRP> Barriers to establishing new industries and services in the Singleton LGA: (i) infrastructure provision and access - section of the New Eng-land Highway between McDougall's Hill and Bel-ford and the section that dissects the township; (ii) impacts on and from existing land uses; (iii) uncertainty associated with unconfirmed envi-ronments and markets. HRP> Constraints and opportunities from Liddell Power Station -closure 2023- and Bayswater Power Station – 2030. HRP> Needs diversification of employment, min-ing, and energy generation lands to support eco-nomic renewal and innovation - create opportu-nities for renewal and change to new land uses. HRP> Water availability is challenging in this part of the Hunter and can impact industry operations. HRP> Land use planning controls can generate barriers to industries if not contemplating sus-tainable growth of industries and/or the estab-lishment of new industries in the LGA.	UN + SSEDs > Investigates establishing renewable energy production facilities -capacity for solar, wind and geothermal + hydroelectric energy.	HRP> Liddell and Bayswater power station (PS) provides opportunities to the region's first renewable energy hub: (i) solar and thermal storage systems, (ii) grid-scale bat-teries, (iii) energy from waste facility, and (iv) feasibility of a hydrogen hub; (v) data and agribusiness sectors). Both PS have rail and highway access infrastructures and offer land, water, and infrastructure assets. HRP> Power Stations closure provides an opportunity to consider how water assets should be used: (i) Water storage precinct – Use water infrastructure and re-sources for employment growth; (ii) Employment investi-gation precincts; (iii) Hydropower. SSEDs> Investigate the viability and cost of setting up a LoRaWAN - Long Range Wide Area Network, which ena-bles Smart Regions Technology.

Localising the SDGs - Productive Activity System						
Plans at the local level:	SDG			Attributes	Challenges/ Diagnosis	iCities Workshop Transformative Actions
	Y	P	N	Elements + Processes		
				A.1> WHO IS LEADING THE TASK FORCE? [to study Urban and territorial logic + do better environment)		- General Manager > Work in Transition/ Post-Carbon Society Alliance amongst the Local Council Association & Committee for the Hunter. - Department of Planning & Dep of Industry > Master Plan for the Hunter [Timeline + Funds] - Alliance for education and research - University + Singleton - UoN Partnership (PhDs candidates, SABE Design Studio, others) - International Partnership & Networking - Alliance "Cities / Territories in Transition" – Singleton + UoN + UNESCO + UCLG (regional/national/international) - Identify / Call Stakeholders for emerging industry (Who to target)
	 	 	 	Industry - Agriculture	> Soil over-exploitation > Water conflicts – water titles, water discharge, contamination. UN + HRP > Agricultural industries challenges: - Available of suitable productive agricultural land.	RP + SCSP > Australia's premier rural lifestyle, viticulture, and equine sectors are emerging world-class. SEDS + HRP > Rich valley floor areas and alluvial soils with a long cropping and grazing history benefit the local primary industry. HRP > Protect and enhance rural land that supports vineyards and other agricultural activities. –

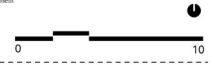
Localising the SDGs - Productive Activity System						
Plans at the local level:	SDG			Attributes	Challenges/ Diagnosis	iCities Workshop Transformative Actions
	Y	P	N	Elements + Processes		
	    	  	 	Industry - Agriculture	- Competing land uses and conflict -Agricultural land is threatened by mining, industrial, and residential expansion. - Explore economic models that reduce stress on production and commercialisation. - Climate change -droughts, floods, fire - impact on agriculture and rural economies' sustainability and capacity to grow. - Support farmers to transitioning into regenerative practices and resilience to extreme climate conditions. - HRP 123> Planning and development controls need to be more responsive to emerging agricultural trends: smaller-scale rural enterprises in less productive areas, opportunities afforded by former mine and power station sites.	
	  	 	 	Industry - Tourism	UN> Impact of industrial activities in Tourism attractions. HRP + UN> Need to understand and support cul-tural and scenic values.	UN + HRP> Promote (sustainable + culturally respectful) access to Aboriginal Heritage.
						HRP> Promote/support sustainable and profitable agricultural practices. SSEDPS> Maintain and enhance Singleton Regional Livestock Market – enable local livestock sales. HRP> Identify land use requirements critical to the sustainable growth of the viticulture and rural tourism industries. SSEDPS> Make visible/accessible to all funds/grant schemes.
						HRP> Understand and support cultural and scenic values. HRP> Build and promote active transport networks: walking and cycling - from the tourism node to tourism activities and landscape features. HRP> Provide (better) access and facilities + promotion to National Parks. HRP> Build the region's capacity and reputation through (i) Quality events and infrastructure; (ii) Partnership + support; (iii)-High-value experience; (iv) Create town precincts; (v) Identify important scenic landscapes and support nature-based /agri-based tourism. SSEDPS> Make visible/ accessible to all funds/grant schemes.

Localising the SDGs - Productive Activity System							
Plans at the local level:	SDG			Attributes	Challenges/ Diagnosis	iCities Workshop Transformative Actions	Plans + Policies Alignments
	Y	P	N	Elements + Processes			
	 		  	Industry – Tertiary/ Services	UN> CBD impacted by traffic and lack of connectivity - section of the New England Highway dissects Singleton Township. UN> Need to support local commerce + study opening hours.	Activates the economy and revitalise the CBD - gradually expanded across the city/LGA; By-pass can offer regeneration opportunities (urban and economy reactivation).	UN> By-pass and 15-minute neighbourhood to improve liveability + activate tertiary / service industry. UN + SSEDPS> Support community and local industry to apply for grant funding. SCSP >Enhance local business, industry, and government relationships to set strategic economic goals. SSEDS> Assist start-up businesses through (i) Business Start-Up Assistance Program, (ii) Business Resilience Training Program, (iii) Launching and promoting Localised Business Network Website, (iv) Create an Indigenous Business Support Program. SSEDPS> Make visible/accessible to all funds/ grant schemes.
				Industry - Defense			HRP> Provision of diverse Employment opportunities -
	  		  	Industry & Culture	SSEDS > Need to move away from using VPA funds for the “here and now” towards a longer-term view to support the community. - aligned with the community sentiment to plan the transition process.	Indigenous knowledge - Country and cultural practic-es; Agriculture practices part of the transition to other economy; Mine void reuse. Make Biodiversity + Cultural Practice part of planning + policies - Country and cultural practices.	HRP 9> Promote economic self-determination - mean-inglyfully recognise and respect Traditional Custodians. HRP> Support the right of Aboriginal residents to eco-nomic self-determination. SSEDPS> Advocate continuity in Stronger Country Com-munity Fund Program -NSW Government. HRP> Consider Biosecurity as part of any relevant local plans that affect land -vineyard, agriculture, equine, and horticulture.

Localising the SDGs - Productive Activity System							
Plans at the local level:	SDG			Attributes	Challenges/ Diagnosis	iCities Workshop Transformative Actions	Plans + Policies Alignments
	Y	P	N	Elements + Processes			
				Circular Economy	SOE > COVID tendency (i) increase household waste generation of water; (ii) reduce commercial and industrial waste. SOE> AU has limited processing, manufacturing, and end markets- China's National Sword Policy is increasing pressure on the Australian recycling industry. That can become an opportunity (education + creating a recycling industry). SOE> Contamination -hazardous waste returns to water, soil, and thus the human food chain. HRP> Circular economy opportunities should be investigated – associated with the ceasing of Power Stations – Liddell and Bayswater.	UN + SOE > Design and implement a local circular economy model (i) designing out waste and pollution; (ii) keeping products and materials in use; (iii) regenerating natural systems –involves everyone: businesses, governments, and individuals; cities, products, and people. Use education for the change - industry and society transition + SOE> Deliver education programs (workshops & Sustainability Hub). Consumption, waste, recycling, water management, biodiversity enhancement, at urban scale + built environment.	



iCities Workshop
Localising the SDGs: Towards transformative actions and base planning
 UNESCO Chair for Intermediate Cities | Singleton City Council | University of Newcastle
 ECONOMIC ACTIVITIES | EXTRACTIVE INDUSTRIES AND VITICULTURE | Data source: Esri, HERE, GARMIN, METI/NASA, USGS





5. Recommendations and Ways Forward

Traditionally, the planning framework of cities and regions is developed mainly according to a strict thematic framework, technical issues, and abstract metrics that do not contemplate the systemic Nature of cities and regions concerning the natural environment, culture and society, infrastructure and flows, the built environment, and productive activities (Tardin, 2017). This reality reflects planning frameworks developed inside “silos” which do not meet the SDGs due to an intrinsic need to consider the systemic Nature of the SDG where one performance affects and is affected by others while contributing to each other.

Singleton has a robust planning framework and essential initiatives in place. It also confronts environmental, cultural, and spatial challenges that must be addressed systemically and strategically. The main conclusions and recommendations emerging from the iCities UNESCO Workshop to further develop the city’s planning framework and environment are: 1) Take a more holistic and systemic approach to planning development; 2) Put nature and culture first; and, 3) consider the systems’ functioning along with specific planning goals and genuine community engagement. Concomitantly, working across the Singleton City Council departments, stakeholders, and State and Federal agencies is crucial to ensure an accurate analysis, evaluation and proposal of policies, plans, legislation, and management initiatives. A critical aspect emerging from the iCities Workshop is considering Singleton as part of its Upper Hunter subregion to target and advocate towards common challenges, potentials, and opportunities, nurturing partnership for the Goals – SDG 17.

UNESCO Chair for Intermediate Cities Program proposes several recommendations and ways forward to tackle the challenges highlighted by the iCities workshop’s participants to achieve the SDGs with particular attention to SDGs 11, 13, and 15. We are considering SDG 13 acts as the umbrella to also target SDGs highlighted by the Singleton Council Sustainability Plan: SDG 7 – Affordable and Clean Energy, and SDG 12 – Responsible Production and Consumption, identified by Singleton City Council as critical for the LGA.

They are strongly connected to SDG 8 – Decent Work and Economic Growth and SDG 9 – Industry, Innovation, and Infrastructure, and need to be addressed holistically. Lastly, SDG 15 – Life in Land and SDG 14 – Life below water, work together as the former critically interfere with ecosystems (land, air and water).

The recommendations consider existing challenges, potentials, and opportunities that inform proposed transformative actions and should be framed based on valuing the Natural Environment and its ecosystems and connecting planning and strategic thinking with Indigenous Knowledge, Culture, and Heritage. These will support a sustainable and integrative vision for the Singleton Local Government Area and help plan, design, and manage the urban environment and its hinterland.

A) Natural Environment System

The main recommendations regarding the Natural Environment System with effect on planning, legislation and management are:

SDG 11– Sustainable cities and communities

Reinforce connectivity Urban - Peri-urban – Rural – to promote connectivity in the Natural Environment considering three scales:

(i) Macro, connecting regional systems in partnership with Upper Hunter Local Councils – promote Singleton – Cessnock – Muswellbrook – Scone Biodiversity Lobby and State Government; (ii) Meso, enhancing land and water systems rehabilitation at LGA scale – i.e., link existing ecosystem patches involving obsolete agricultural and mining land; (iii) Micro, re-wilding the city and re-connecting with Natural Systems – i.e., combine Water and Biodiversity Sensitive Urban Design; strategically and specifically

regulate land to preserve; conserve and regenerate natural areas; restrict areas that can be developed according to the natural environment system dynamics; and, foster water protection and reuse; amongst others.

SDG 13– Climate action

Stop clearing + start reforestation – to adapt to Climate Change and prevent flooding episodes that intensify with climate event intensification – i.e., slow down and mitigate flooding by reducing erosion through land and riparian reforestation using obsolete mining, agricultural land and riverine banks; to use the by-pass to connect both sides of the city and improve urban security to flooding by providing ‘room to the river’ (Meyer, 2009) – see Figure 3b. sRe-connect with traditional land caring practices – to manage land and prevent bushfires, make Care-as-Country practices part of Singleton Council Strategic Plan – i.e., Connect cultural practices with Natural Environment Systems.

SDG 15 – Life on land + SDG 14 – Life below Water

Restore corridors and biodiversity – to enhance, manage, and protect land and water biodiversity corridors. (i) Water ecosystems: to preserve and restore Hunter River riparian ecosystems while contributing to slow down or reduce the risk of flooding; to avoid discharges that increase salinity and destroy ecosystem health – at the State Government level; to consider each watershed as a unit of urban and regional planning – to keep healthy water dynamics, surface, and groundwater–; to plan an integrated Water Management Plan involving the subregion and the iCity; and (ii) Land ecosystems: to restore the broken connectivity between Mount Royal National Park and Wollemi/Yengo National Parks, through comprehensive corridors among nature reserves and ecosystem patches, and to transfer non-productive land into reserve land – agreement with mining and non-productive agro-land.

These recommendations are interconnected with SDG 12 – Responsible consumption and production, to incentivise recycling, reusing, and reducing in all activities, facilitating collective approaches towards responsible consumption of natural resources and the reduction of greenhouse gas emissions; and, SDG 4 – Quality education, to introduce a broad education program on local Natural Environment Systems – highlighting Country and landscape attributes, dynamics, preservation, conservation, and regeneration actions.

All those recommendations should be framed based on embracing and enhancing ecological and biodiversity principles in every decision-making and connecting them with Indigenous Knowledge, Culture, and Heritage – Caring-as-Country and Place-Making practices.

B) Culture and Society System

The main recommendations regarding the Culture and Society System with effect on planning, legislation and management are:

SDGs 11– Sustainable cities and communities

Make Singleton an “All Age” attractive destination – to retain and attract young and make Singleton the best place to live/retire in terms of connectivity. Measures include anticipating and responding to future demand for education and providing jobs that attract and retain youth, young families and professionals, connecting them with \Productive Activity System. Such measures imply building community and youth capacity and involving youth in decision-making that will impact their future. Actions are related to SDG 4 – Quality Education, SDG 8 – Decent Work and Economic Growth, and SDG 9 – Industry, Innovation, and Infrastructures.

Build a Cultural Narrative – to make Singleton vibrant, inclusive, equitable and diverse through leading the future by (i) Planning for/with elders, youth, and First Nation People in all interventions and activities that can take place in the city and its LGA; (ii) Building community experience through art and culture, including First Nations and Colonial; (iii) Awaking cultural sensibilities based on inclusivity – i.e., Indigenous People and their Culture and Heritage. Such actions contribute directly or indirectly to SDG 1 – No poverty; SDG 10 – Reduced Inequalities; SDG 5 – Gender Equality; and SDG 16 – Peace, Justice, and Strong Institution targeted during the UNESCO workshop as key priorities not achieved yet (SDG 5) or in the process of being achieved. Particular attention should be given to those SDGs (8-15-16-17) whose implementation concerns non-indigenous people due to existing and historical unbalanced conditions.

SDG 13– Climate Action

Recycling, reusing, reducing – to facilitate collective approaches towards responsible consumption of natural resources and the reduction of greenhouse gas emissions – i.e., encourage the community to reframe their lifestyle and meet the goals of reducing consumption, recycling, and reusing resources in their daily life (solar, water, organic, etcetera), connecting with SDG 12 – Responsible consumption and production.

Engage the community to achieve challenges – to promote active life and reduce car dependency; to promote water-wise and energy-wise practices; to improve air quality –to eliminate or reduce wood heaters; others.

SDG 15 – Life on land

Educate a new generation on the Natural Environment – to proactively lead the way post-coal and help the Natural Environment to recover, embracing

“community needs and aspirations” and promoting “placemaking” in three scales (macro, meso, and micro). Actions include (i) educating a new generation on respecting and enhancing the Natural Environment and Biodiversity by introducing a broad education program on local Natural Environment Systems, highlighting attributes, dynamics, preservation, conservation, and regenerative actions; (ii) incentivise the community (from the city and the Region) to care about Nature and incorporate native vegetation and water cycles in their daily life – i.e., introduce in their backyard to supporting the city widening; (iii) promote intergenerational care for Natural Environment Legacy, identified in the iCities Workshop as “What we had? What do we have? What will we leave? What do you want to protect?”; (iv) make the Natural Environment inclusive and accessible to people. Complementary, these actions target SDG 4 – Quality education and SDG 3 – Good Health and Well-being.

C) Infrastructure and Flow System

The main recommendations regarding the Infrastructure and Flow System with effect on planning, legislation and management are:

SDGs 11– Sustainable cities and communities

Enhancing roads and transportation infrastructure – to promote opportunities emerging from the completion of the Golden Highway/ New England Highway intersection flyover (Singleton By-pass) that encompasses (i) urban regeneration, including pedestrian facilities such as safe crossing, sidewalks, lighting, tree canopy, traffic lights, and cycle paths; (ii) post By-pass outside city connectivity – urban-peri-urban-regional-national; (iii) Post By-pass inside city connectivity, reducing travel times and congestion and promoting urban mobility and walkability such as the

15 minutes neighbourhood; and, (iv) ultimately, utilise the By-pass urban regeneration to provide climate adaptation such as flood mitigation – see Figure 7.

Promote active mobility and alternative transportation modes – to encourage people to walk, and to enhance the local public transport network, as well as use alternative transportation modes towards reducing car dependency; to promote active life, health and well-being, leisure and entertainment, and eco-tourism including the connectivity and alliance with MidCoast and the Hunter Valley. Actions also target SDG 3 – Good Health and Well-being.

Green-Blue Infrastructure network – to promote a renewed focus on green-blue infrastructure network, public spaces, and connection to Nature, using planning decisions to reinforce, enhance and improve quality of life.

SDG 13– Climate action (target simultaneously SDG 7 – Affordable and Clean Energy, and SDG 12 – Responsible Production and Consumption)

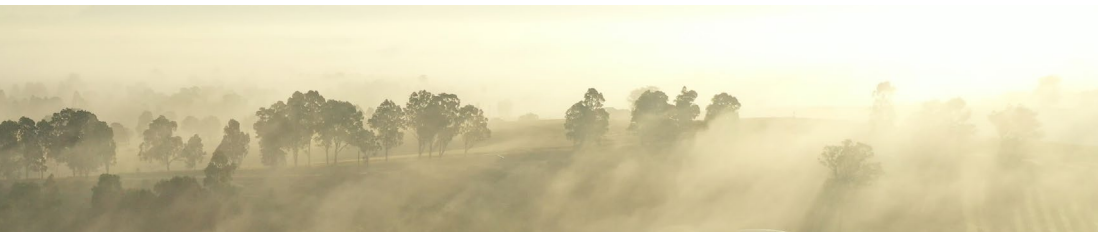
Decarbonising Industry – to lead the energy transition in the Region and the LGA with local, regional, and global impact, changing Singleton’s image. It encompasses initiatives to repurpose existing infrastructure for innovative uses post-coal – i.e., Liddell Power Station transition to enable new opportunities; promote new technologies and energy – solar, wind, geothermal; and network with Intermediate cities in transition – UNESCO + ICOMOS-IFLA;

Decarbonising Community – to foster clean energy production and distribution, becoming energy independent at urban and rural scale; to improve energy efficiency and renewable energy capability, water management and conservation, and waste management; to involve individual buildings and activities in solar/wind incentives; to advocate towards a circular economy through education and incentive programs.

SDG 15 – Life on land + SDG 14 – Life below Water

Lead the energy transition – to reduce the impact on the Natural Environment – air, water, and land ecosystems – at the local scale and, ultimately, the global impact of climate change.

Attention must be given to **SDG 12 – Responsible production and consumption, and SDG 14 – Life below water**, as the existing productive and economic systems are based on fossil fuel and natural systems interference. The transition towards sustainable models targets **SDG 7 – Affordable and clean energy, SDG 8 – Decent work and economic growth, SDG 9 – Industry, innovation and infrastructure, and SDG 17 – Partnerships for the goals**, which are in progress at the local government scale but not addressed at State and Federal decision – mining and energy transition model.



D) Built Environment System

The main recommendations regarding the Built Environment System with effect on planning, legislation and management are:

SDGs 11 – Sustainable cities and communities

The Housing new paradigm – to provide housing and specifically diverse and affordable houses across the city and the LGA, linked to new industries. This target one of the current State and Federal Government priorities – affordable housing; to foster ecological and community-driven housing developments; to reframe the property mindset of having a large plot with individual houses responding to current socio-economic diversity; to provide liveability and accessibility

The 15 Minutes Neighbourhood – to guarantee a connected, active, healthy, and socially engaged community and its hinterland, working towards consolidating the 15-minute neighbourhood, combined with the 30-minute strategic centres and 90-minute regions. These improve urban and rural settlements' connectivity, provide services that support the LGA hinterlands and rural communities, and contribute to a better and equal quality of life (Aleksander Derevnin, p. 34). It encompasses actions such as (i) redesigning the urban environment Post By-pass, creating a polycentric city, promoting liveable and vibrant community and space; (ii) targeting 90% of LGAs' houses within a 15-minute walk of open space, services, jobs and recreation areas; (iii) improving walkability, public transport and active mobility, urban connectivity and services provision; (iv) integrating Nature and waterways into neighbourhoods to get more people outdoors while improving the environment – i.e., creating wildlife corridors, stormwater solutions.

Building a sense of place – to guarantee post-by-pass opportunities linked to urban regeneration through urban liveability, safety, walkability, beautifying the city and reinforcing local commerce – restoration and touristic attraction. Land-use policies are critical and might be informed by the new by-pass actions and risk management plans.

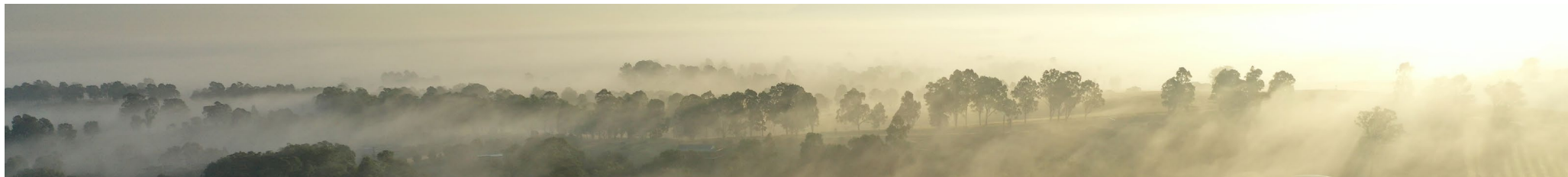
Going to the regions – to incentivise people to go and stay in the Region, contributing to building community and service offerings (health, culture, education, commerce, etc.).

Plan with First Nations – to prioritise land uses that take Country as a critical target and care-as-country as a planning tool - Need to plan the LGA towns according to the natural, social, and cultural local attributes.

SDG 13– Climate action (target simultaneously SDG 7 – Affordable and Clean Energy, and SDG 12 – Responsible Production and Consumption)

Ensuring net zero precincts – to encourage the planning and development of net zero precincts that comply with the One Planet Living framework, targeting a Sustainability Housing strategy - water, energy and waste energy scheme – i.e., a pilot project with 30 houses.

Planning with flooding hazards/zones – to use the post-by-pass urban regeneration as the opportunity for urban regeneration and adaptation.



SDG 15 – Life on Land

Securing and connecting an open space system – to secure protected, shared and linked open spaces that value nature corridors, the water dynamics, pedestrians, and community gathering- can also be nature reserves and contribute to bushfire management.

Attention needs to be addressed to SDG 3 – Good Health and Well-being, SDG 7 – Affordable and clean energy, SDG 9 – Industry, Innovation and Infrastructure, SDG 10 – Reduced Inequalities, SDG 12 – Responsible Consumption and Production and SDG 17 – Partnerships for the goals, which are targeted or in progress, but not achieve.

E) Productive Activity System

The main recommendations regarding the Productive Activity System with effect on planning, legislation and management are:

SDGs 11– Sustainable cities and communities

Leading Energy Transition – to create a network of cities in transition (UNESCO); do research (UoN); lead the change (local, regional, State and Federal) for the LGA and Upper Hunter. It encompasses envisioning a ‘New Economy’ and a ‘Post-Carbon society’ that puts the Natural Environment at the front, studying and leading the industry transition, considering biodiversity and community first; and, promoting an alliance between the Hunter Joint Organisation, Committee for the Hunter, State and Federal governments, universities, stakeholders and the COMMUNITY to create a Task Force Committee, test possible future scenarios, be innovative and lead the change. Actions include advocating for mining responsibility while working in the transition; diversifying employment and industry; reducing mining industry dependence – investigating renewable energy production facilities – i.e., capacity for solar, wind, geothermal and hydroelectric; identifying and working with critical stakeholders for emerging industry; promoting an alliance for education and research to investigate and lead innovation – University and Upper Hunter LGAs (HDR candidates); fostering national and international partnership and networking – Alliance “Cities / Territories in Transition”.

Strategising land-use planning – to prioritise diversification of the local industry and attract new investment, increasing the diversity and resilience of the Hunter economy. Strategic planning might consider landforms, voids and visual impacts for the equine and viticulture industries; the importance of alluvial soils or irrigation for agricultural land uses; buffer zones of non-operational sites; and connect biodiversity corridors.

Investing in local and regenerative agriculture – to ensure/incentivise local and traditional farmers to have resources to develop their activities, to attract investors, and to foster education and practices related to regenerative agriculture while contributing to the ecosystem’s health. Enhancing commercial activities – to secure small businesses to thrive in the city against bigger chains, to encourage more businesses in the Region, to incentivise more business variety, to think strategically about business attraction and the change of the region demographics, to facilitate market access domestically and internationally, to incentivise biodiversity and market use and operation.

Developing tourism – to create incentives to attract investors; to develop education programs to foster tourism and alternative tourist activities; to advertise Singleton’s tourist attraction domestically and internationally.

SDG 13– Climate action

Decarbonising – to decarbonise all local and regional productive activities advocating for a ‘New Economy’ and a ‘Post-Carbon society’ that work towards zero emissions –short term– and positive footprint –in the medium–long term.

SDG 15 – Life on land

Valuing Nature – to consider the natural environment system and its dynamics (i.e., vegetation, water, soil, wind, and sun) in all productive activities; to include them as the motor of the activities while preserving and conserving its essential dynamics and regenerating Nature the most as possible.

Transformative actions and step forwards

Critical Transformative Actions:

Work towards enhancing Biodiversity - Promote Singleton-Cessnock-Muswellbrook -Scone Biodiversity Lobby.

Plan for a Sustainable and Inclusive Built and Natural Environment

- Plan prioritising the Natural Environment and Biodiversity first, and infrastructures and land use later; Plan with and for elders, youth, and First Nation People.

Built a Cultural Narrative - Work with ICOMO-IFLA Cultural Landscape + UNESCO + Community + First Nation Communities to (i) promote, enhance, and preserve cultural landscapes -i.e., Connect cultural practices with environmental practices; (ii) create a network of territories in transition – mining and industry.

Lead the energy, industry, and employment transition– Take the lead, research, and apply for funds – Carbon neutral and Carbon+ funding programs and Disaster Resilience Communities Grants – funds available. Work with UoN in research - integrate HDR/PhD candidate/s to key priority areas.

Integrate Local Plans, Strategies and Policies – Simplify policies and planning to target KEY actions-plans-projects in time; Align plans with Federal and NSW Government Priorities; work transversally – through departments and inter-agents.





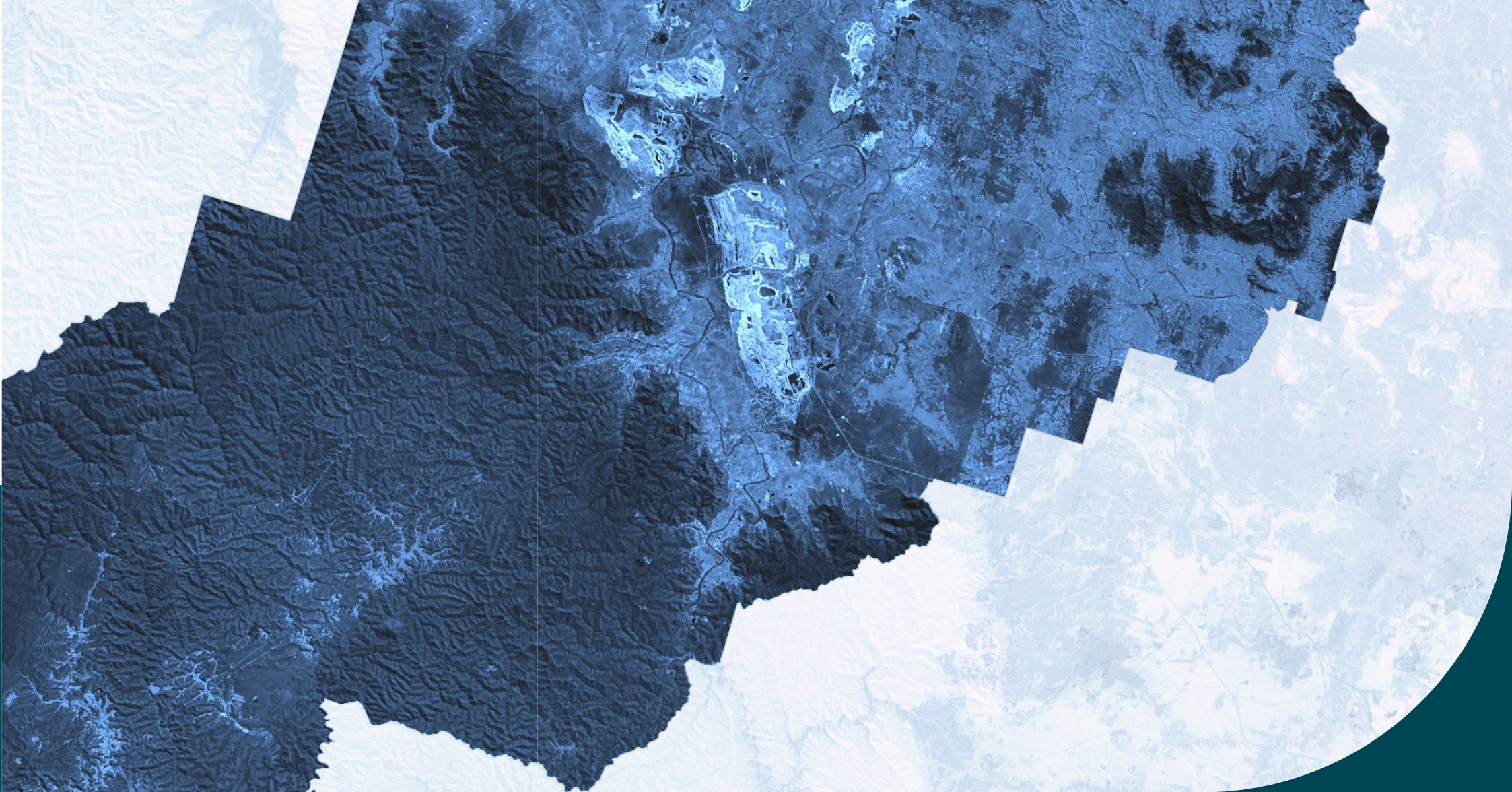
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