Nabiac sustainability plan

Working document

Sarah Langdon, 16 June 2020

Table of Contents

Introduction: How to use this document

The structure of the 'sustainability plan working document' is informed by the Natural Step's 'Framework for Strategic Sustainable Development' (Broman & Robèrt, 2017). The Natural Step references four key stages in planning for sustainability,

A = Awareness and Visioning
B = Baseline Mapping
C = Creative Solutions
D = Decide on Priorities

Step 1: Awareness, visioning and baseline mapping

A sustainability action group should be formed, comprising of community members interested in implementing sustainability initiatives in Nabiac. Members of the action group should refer to part A and B of this document to develop an understanding of issues faced by the community and to familiarise themselves with the Nabiac future vision (subject to review with the community). Preliminary research has been performed on behalf of the Nabiac Village Futures Group for the purpose of developing this document. Research findings were gathered through scientific and policy literature review, the Nabiac sustainability survey, focus interviews with community leaders and web-based investigation.

Step 2: Creative solutions

The sustainability action group should then organise a workshop to develop ideas for creative solutions to the issues and opportunities identified. Additional issues and opportunities can be added to this document at any point. A review of the community future vision should be performed to make sure it fits with sustainability objectives.

Step 3: Deciding on priorities

In this step the sustainability action group will decide on priority actions. This will include identifying individual persons or organisations responsible for tasks. These actions will be limited by community capacity; a capacity assessment (physical, social, natural and financial capital) at this stage will help to identify any gaps in capacity that need to be addressed before priorities are actioned.

It is intended that this document will be used as a starting point to inform the community. The sustainability plan will naturally evolve with the wants and needs of the community over time, additional information can be added as a result of community discussions, awareness raising, visioning and implementing actions.

Where possible, the Nabiac community should explore opportunities to collaborate with businesses, non-government organisations, industry, local and state government and nearby communities. This will enable the Nabiac community to leverage opportunities to scale up any innovative projects that are developed.

A = Awareness and Visioning

What is sustainability and why are we talking about it?

Image 1. The United Nations Sustainable Development Goals (United Nations, 2015)

The **Sustainable Development Goals** (SDG's) are our global set of guiding sustainability principles. They were developed and signed by all member states of the United Nations, including Australia, in 2015. Decades of global data and extensive social and environmental research combine to identify the significant global trends that impact our ability to live sustainably on this planet. These include:

1. The current human population is **living outside planetary boundaries** as indicated in *figure 1* (Steffen, 2015), significantly affecting the ability of the planet to provide for future generations. Whilst at the same time, the global **population** is projected to increase from 7.8 billion people to 9.7 billion people by 2050, significantly increasing our demand for resources if consumption levels aren't managed.

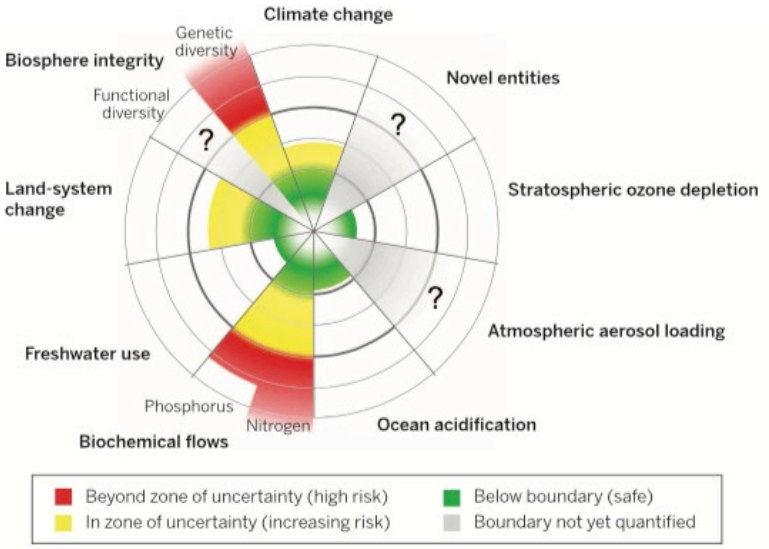


Figure 1. Our performance against the planetary boundaries (Steffen, 2015)

2. Developed nations, like Australia, are using more than our fair share of natural resources and producing more than our fair share of environmental waste. A large percentage of the **consumer goods** produced in other countries are produced to support our lifestyles, we are therefore responsible for those impacts. **Australian's are one of the highest consumers** of natural resources per person (*Table 1*). Additionally, although our total CO_2e emissions are a small percentage of global emissions, we rank **second highest in the world** for our CO_2e emissions per person (*Table 2*).

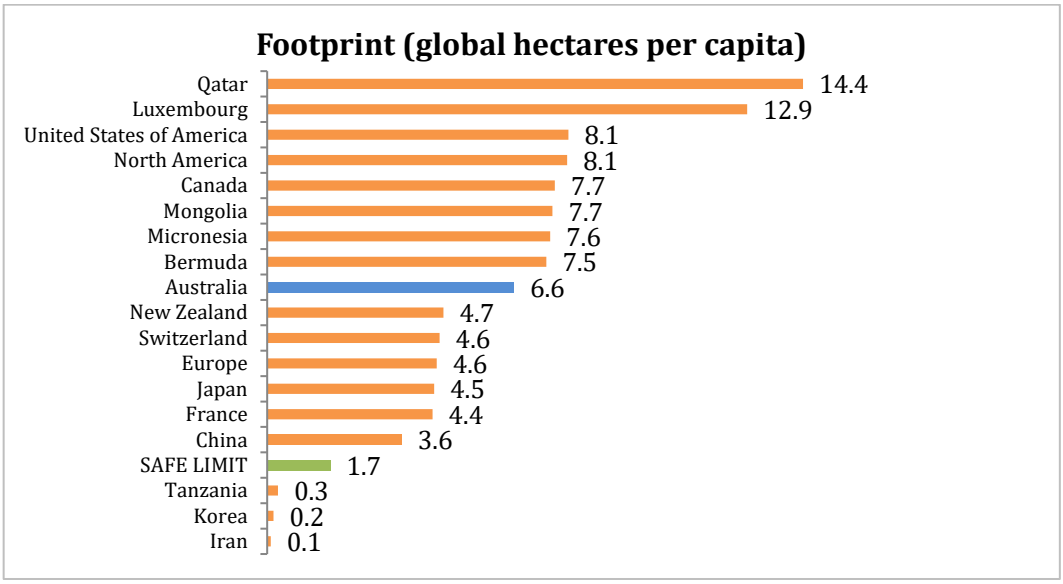


Table 1. Global ecological footprint per person in hectares (ha) per year,
the safe carrying capacity is 1.7 ha per year (Global Footprint Network, 2019).

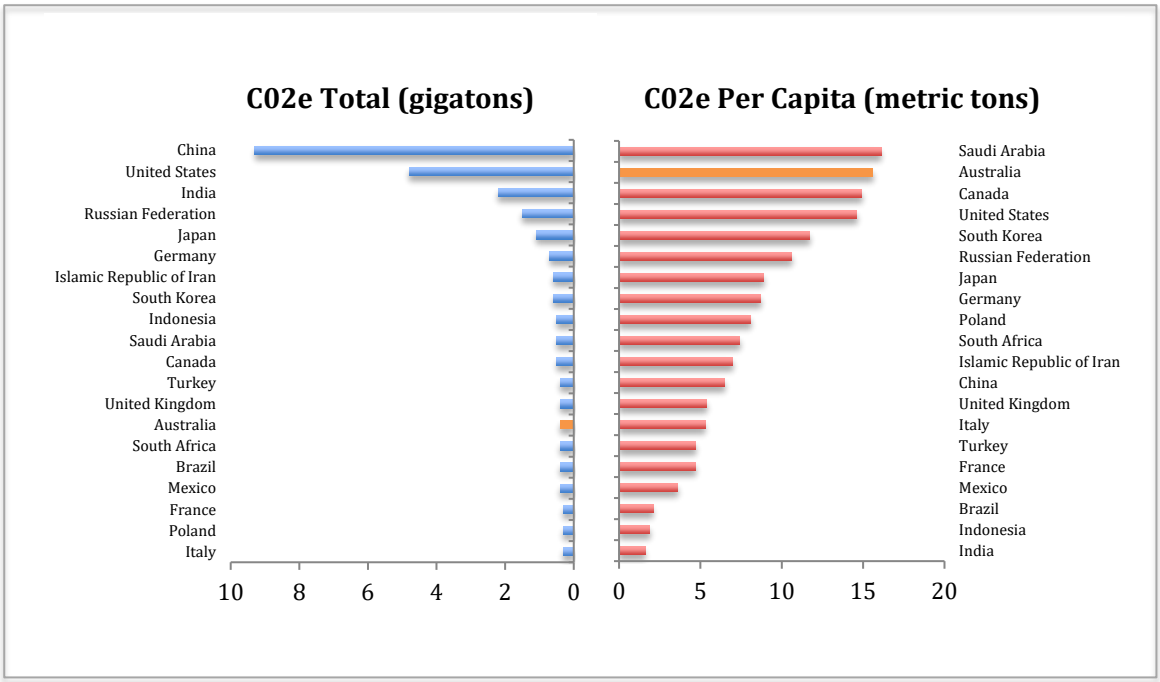


Table 2. Global $C0_2e$ emissions per country and per capita (Union of Concerned Scientists, 2020)

3. **Developing nations** will not be able to rise out of **poverty** if unsustainable resource consumption continues in developed countries.

4. **Future generations**, even in developed countries, will not be able to experience the same quality of life if high consumption levels continue.

5. **The climate is changing**, due to human produced waste accumulating in the atmosphere, commonly known as greenhouse gas emissions, or CO_2e (IPCC, 2018).

6. Consumption patterns are driven by a **linear system**: take-make-dispose. This system needs to become circular, where by our industrial system mimics the ability of the natural environment to absorb its own 'waste'.

How do we know if we have achieved sustainability?

There is no simple answer to this question. Any attempt to address sustainability issues must address the systemic, competing and compounding social, environmental and economic issues ingrained in our system. Issues contributing to unsustainability can be used to inform

indicators that tell us whether we have reached our idea of a sustainable society. Below is a list of the social and environmental sustainability issues that will be used by this document to inform indicators for a sustainable society:

Social indicators for sustainability

The ability to participate in and benefit from a more sustainable way of living can be negatively influenced by many social factors (Broman & Robèrt, 2017), including:

Opportunity

Limited access to **opportunities** (including education and personal development),

Influence

Limited ability to **influence** (by neglect of community or minority group opinion, or non-consultative decision making),

Health

Barriers to maintaining adequate **health** that limits the ability to thrive (both physically and mentally),

Partiality

Being systematically exposed to **partial treatment** (e.g. by discrimination or by unfair selection to job positions based on class, race or gender),

Culture

Suppression of **cultural expression** and individual or collective meaning making,

Any of these issues alone can significantly impact on a community member's quality of life, and if compounded, can further hinder a community member's ability to contribute to and benefit from a more sustainable society. The greatest opportunities for community connection, resilience building and sustainable development lie in the consistent attention to removal of these social barriers in conjunction with measures for reducing pressures on our natural environment; and not one or the other.

Environmental indicators for sustainability

With these social issues in mind, the environmental impacts of unsustainable production and consumption must be minimised in the areas identified in *figure 2* to ensure a that we meet "the

needs of the present without compromising the ability of future generations to meet their own needs" (Brundtland, 1987).

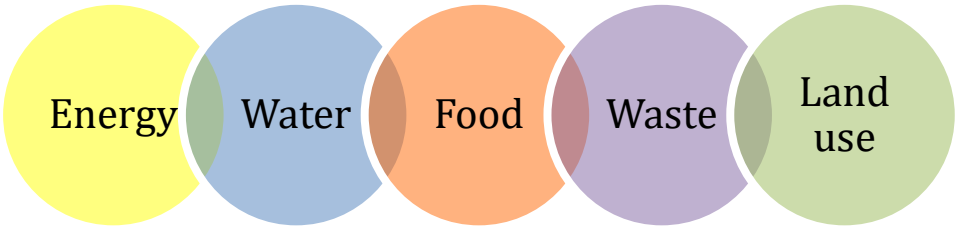


Figure 2: Resources to be critically managed for a sustainable future.

Energy

As previously discussed, Australia is among the highest users of fossil fuel based energy per capita. Major contributors to this high-energy use are the transport sector and the electricity sector. Our consumption of consumer goods also plays a significant role in Australia's energy footprint. Production processes at the factory or work place, as well as lifestyle choices made in the community and at home drive high-energy consumption. For example, energy is used to power factories, our homes and in petrol-powered vehicles to get people from A to B. High-energy consumption can become compounded in a single product if multiple production processes are needed. Some current supply chain processes are unsustainable as they rely on natural resource inputs with a high environmental impact. See example in *figure 3.*

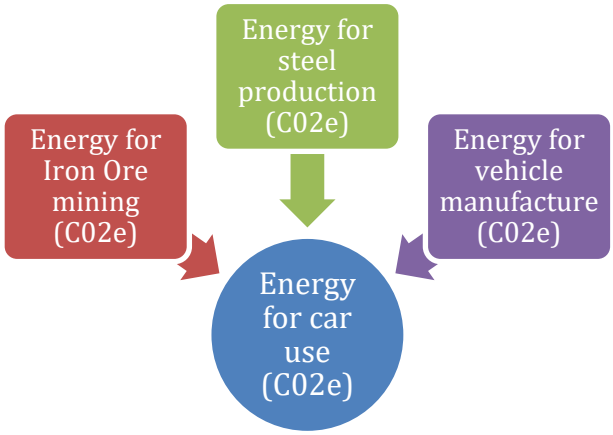


Figure 3: Major energy related supply chain processes in vehicle production and use.

Change can be made at the individual level; however, responsibility for making systemic changes in the supply chain cannot be affected solely the individual consumer. It is therefor important that communities, businesses and governments work together and harness

opportunities to implement systemic changes that will benefit the larger community. Not everyone can purchase rooftop solar power, a new electric vehicle or fresh organic produce instead of canned goods, as these options may not be affordable or accessible. Individual change can and should be championed where appropriate, but this must be done in conjunction with pushing for systemic opportunities that benefit the whole community wherever possible. A focus on systemic change will also contribute to addressing a number of the social equity issues previously mentioned. For example, community owned and run renewable energy will allow renters and people on a low income to lower their $C0_2e$ emissions footprint, it will also bring money back into the community when the initial investment has been paid off and has the potential to provide local employment in a sustainable industry.

Water

A clean and plentiful fresh water supply that sustains both the environment and the human population should be a key goal for sustainable development. Australia's water supply experiences a number of stressors that impact on fresh water quality and availability, including:

- Drought (reducing water availability and soil quality),
- Soil quality (reducing the possibility of soil hydration, increasing irrigation dependency, contributing to erosion and sediment entering waterways),
- Industry water use (consumer demand increases water dependency for high water use industries),
- Urban water use (population growth, lack of grey water reuse, water inefficient products),
- Climate change (changing seasonal rainfall patterns, increase in heavy rainfall),
- Recreational use (water sports causing bank erosion which reduces water quality),
- Contaminants, sediment and gross pollutants in waterways (stormwater containing chemicals from our urban spaces, industry using chemicals that wash into waterways, sediment running into rivers from degraded agricultural land).

Water is a life giving resource that does renew itself, but water use has been steadily increasing in Australia, putting additional pressure on water availability. This is particularly evident during times of drought when the water cycle is not able to replenish itself as it usually does

and heavy restrictions are required to manage ongoing availability. Added to this, climate change is reducing water availability during growing seasons while heavy rainfall at other times causes flooding (IPCC, 2018; NSW Office of Environment and Heritage, 2019) washing away valuable topsoil for agricultural growers and creating safety risks for the broader community.

Fresh water availability is becoming a critical issue for Australia, particularly in east coast areas where population related pressures are highest. Many towns recently experienced the threat of running out of water. Stanthorpe in Queensland has already experienced 'day zero', where the water supply has run out completely, while others (including Nabiac) ran critically low until recent rain and started to invest in emergency infrastructure including pipelines and mobile desalination plants.

Emergency water infrastructure spending is not a new phenomenon in Australia; desalination plants were built for each capital city in response to the millennium drought, after water utilities projected ongoing availability issues. Australia needs to urgently prioritise the management of fresh water to have any chance of ensuring a clean and plentiful fresh water supply that sustains both the environment and the human population, for current and future generations.

Food

To ensure a sustainable food system for all members of society and the environment, focused effort is needed at each point of the food system supply chain. The food supply chain is outlined in *figure 4*, broken down into five key stages; primary input, primary production, secondary processing and distribution, marketing and final consumption.

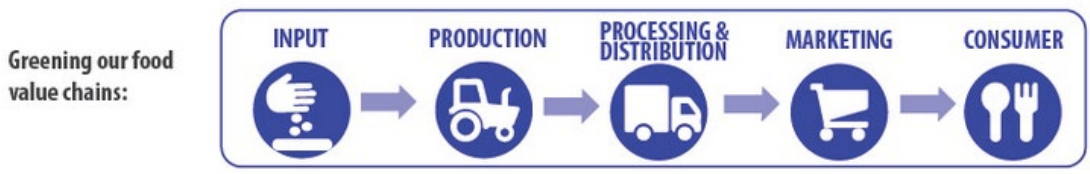


Figure 4: Food supply chain (United Nations Environment Program)

Each production stage of our current food system creates economic opportunities but in turn contributes to environmental and social impacts. These include:

Input: Some agricultural methods rely on intensive mineral and chemical inputs to sustain productive growth including nutrients such as nitrogen and phosphorus, pesticides and herbicides. These nutrients and chemicals find their way into our waterways when it rains and contribute to issues of poor ecosystem health on land and in waterways. As the ecosystem degrades the soil loses its fertility, the agricultural land becomes untenable and more land is cleared for renewed production. This is the unsustainable agricultural system that Australian's continue to rely on. Sustainable regenerative agriculture methods are needed to ensure that future generations can continue to use the land to provide food for our communities. If agricultural systems are healthy, our ecosystems will remain healthy and this will allow the environment to continue supporting our food systems.

Production:

Production processes that strip the soil of vegetation can leave the soil vulnerable to erosion, nutrient loss and evaporation of valuable moisture. Agricultural production also accounted for 12.7 per cent of Australia's national greenhouse gas emissions in 2019 (Australian Department of Environment and Energy, 2019) through the release of methane and nitrous oxide from livestock manure.

Distribution/Transportation:

The Australian transport sector accounted for 18.8 per cent of Australia's total greenhouse gas emissions in 2019 (Australian Department of Environment and Energy, 2019); the transportation component of the food supply chain represents a key area for reform in order to achieve emissions reductions.

Market and Consumption:

Waste accounted for 2.2 per cent of Australia's national greenhouse gas emissions in 2019 (Australian Department of Environment and Energy, 2019) and more than three million Australian's have reported dealing with food insecurity in the last year. Greenhouse gas emissions are released in the form of methane and nitrous oxide, these gases occur from food waste in landfill and sewerage at wastewater treatment plants. Both of these sources of

methane can be harnessed for the production of biogas for energy and solids can be recycled as biological and nutrient rich soil material for use in agricultural production. Additionally, opportunities to reduce food waste should be sought wherever possible and programs that divert waste to people who need it should be supported.

Waste

Waste is the product of a linear system of production. In a sustainable circular economy, waste is minimised to that which the natural environment can absorb; the output of one system becomes the input for another. An example can be found in the energy and compost potential of our waste system. Biogas can be produced using methane from the anaerobic digestion of food and sewerage waste. Additionally, excess solids produced during digestion can be used as biological, nitrogen and phosphorus rich soil conditioner in agricultural production; rather than extracting these resources through the mining of phosphorus rock and natural gas.

Principles of rethink, reuse, repair, recycle are not limited to food waste, there are many areas within our system that can benefit from circular economy principles including industry, housing, leisure, consumer goods and mobility.

Land Use

Australia is experiencing increased pressures on the availability of land for a number of different uses including agriculture, urban infrastructure, energy generation, recreation, biodiversity protection and mobility. Unfortunately, most of the suitable land for these uses is concentrated in a thin strip along the east coast of the country. Additionally, urban areas are sprawling in line with a growing population and high consumption levels. Rural areas that border urban centres are seeing a decline in available farmland in favour of more profitable housing development, pushing agricultural operators further from urban centres. Intensification of the remaining agricultural land results in environmental degradation due to an increase in unsustainable agricultural management practices and further land clearing. But this is not the only area that suffers from poor land use planning.

Urban development that attempts to deal with population increases often provides for the needs of the built environment without considering human interaction with the urban and natural environments for recreation or mobility purposes. New urban developments in areas of urban sprawl often suffer from poor planning. Access to services and recreational infrastructure within the community are limited and connection between communities favours private car ownership over public transportation. Poorly considered urban design impacts directly on a community's quality of life and increases dependency on an unsustainable system; car dependency, poor health due to inactive lifestyles and increased consumption to satisfy our happiness.

Focus areas for initiatives

With so many natural resources to manage, how to do we focus on change in a meaningful way that is achievable at a local level?

To achieve community level sustainable development, a holistic view is essential to ensure a balanced approach to minimising environmental impacts whilst reducing burden on the social and economic issues often experienced by smaller communities. A holistic focus can be applied to the community in any of the focus areas in *figure 5*; these areas can also be scaled up when appropriate, to consider regional, national and global sustainability issues:

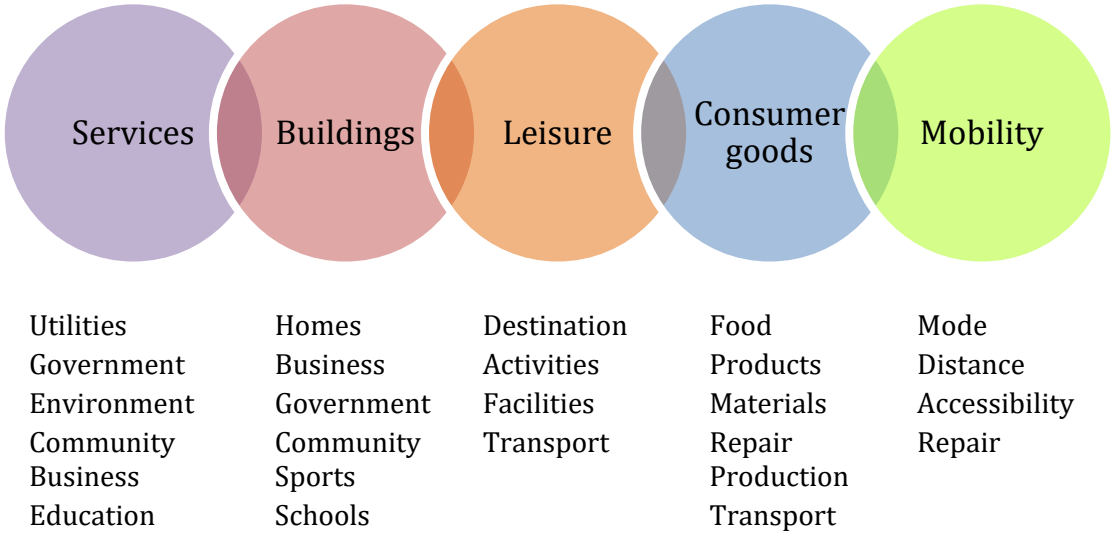


Figure 5. Areas of focus for sustainable development (One Planet, 2018).

Nabiac community vision

This vision is informed by the current Community Strategic Plan (Nabiac Village Futures Group, 2016), it has been summarised here to highlight the main areas of focus. Some suggested elements have been added based on sustainability research (highlighted in yellow), these additions will require review through community workshops. Information presented on sustainability issues faced by the Nabiac community in the **awareness** and **baseline** components of this document can assist workshop participants in making adjustments to this community vision for the next Nabiac Community Strategic Plan. The **creative solutions** section of this report will give instructions on how this can be achieved.

"Nabiac vision for tomorrow and beyond" (Nabiac Village Futures Group, 2016)

- Nabiac is a vibrant historical rural village with a strong environmental sustainability focus. Where residents are committed to both,
  - Reducing the impact on the natural environment through innovative projects (like off-grid power, reducing unsustainable consumption, second hand goods repair and recycling at the Opshop, etc) and,
  - Enhancing the integrity of the natural and built environments for the enjoyment and support of both current and future generations,
- Residents choose to live in Nabiac, including families and our older people, because,
  - The town supports art, music and social events and activities,
    - The showground is a draw card for community activities including eco and agri-tourism and people travelling with horses,
    - The sport precinct supports a range of activities,
    - People of all ages can participate in activities that nurture the beautiful environment, enjoy arts and cultural events as well as promote a healthy lifestyle.
  - Public transport to Forster or Taree is readily available,
  - Perceptions of safety are high,
    - Flooding activity in Nabiac doesn't affect safety or livelihoods,
    - Fire risk is well understood and the community has a designated, well known evacuation point, with facilities to sustain health and wellbeing,
    - Youth are engaged in activities that enable them to thrive,
  - Our older people are able to continue living in the community they know, with support from family, friends, local medical practitioners, support services and regular visiting medical specialists,
  - The Neighbourhood Centre continues to be a hub for free or low cost community

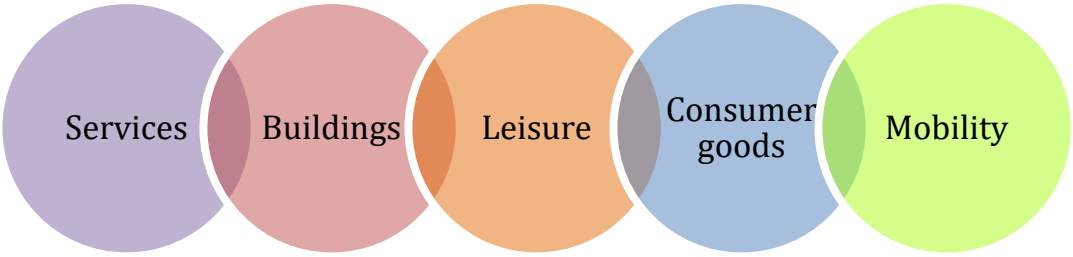
activities,

- Community groups are vibrant, strong, open and friendly, with plenty of willing volunteers,
  - The community understands and appreciates the value of community groups and events,
  - The community creates resilience by reviving old skills and crafts such as woodworking, blacksmithing, gardening, repairing and weaving.
- Nabiac Village is attractive and colourful,
  - Public spaces are beautifully planted, with shaded pathways, areas to picnic and restored natural habitats for the community to enjoy,
  - The village is well connected with footpaths and cycle ways, supporting the mobility of residents and visitors of all ages and abilities,
  - The boat ramp and picnic area near the river are very popular for picnicking and recreational activities,
  - Art installations throughout the village tell stories of Nabiac's – Aboriginal and non-Aboriginal past, present and future,
- Nabiac thrives 7 days per week because of the eclectic mix of businesses while retaining its rural village charm,
  - Local produce is valued and celebrated. Outlets for local produce attract shoppers from across the district looking for high quality fresh food and local eateries promote local producers,
  - Businesses offer diverse employment opportunities for locals without overdeveloping the area.

B = Baseline Mapping

Nabiac baseline

A preliminary baseline assessment for Nabiac is informed by research performed as part of a scientific and policy literature review, Nabiac sustainability survey, focus interviews with community leaders and web-based investigations. Key themes have been highlighted under each focus area topic.



The ability of our **environmental services** to provide for a growing human population is rapidly reducing; the situation will worsen without significant changes to the way we operate. The consequences of living beyond planetary boundaries are that natural environments are deteriorating, resources are dwindling and waste is accumulating in the air, land and water.

Residents of Nabiac and the surrounding area are acutely aware of the impacts experienced when environmental services are in crisis; these impacts include drought, bushfires, climate change and flooding. The Nabiac sustainability survey identified significant interest from the Nabiac community in bush regeneration around creeks and rivers and sustainability education events. The Midcoast Council's *Youth Strategy* (MidCoast Council, 2019b) also indicated that youth residents in the area have a **strong connection with the natural environment**. Nabiac residents could benefit from an increased awareness of the systemic nature of the issues that affect the community through **community workshops and information sessions**; this may also increase the participation of community members in **volunteer** run restorative/regenerative and consumption conscious environmental programs and initiatives.

Vulnerable members of the community are experiencing increased stress as a result of deteriorating **community services**. A significant percentage of community members are living on a **lower income** than the national average, the community suffers a high **youth disengagement** rate and some community members are experiencing **volunteer burn out**. Additionally, difficulty in accessing health services and low cost, accessible, comfortable housing within the Nabiac community creates barriers for our older generations and lower income community members to continue calling Nabiac home. A review of historical information about the town produced a lack of information on the **Worrimi and Birripi** Aboriginal people, nor an acknowledgement of country in the community plan. The Nabiac

community should engage with the traditional owners to address these gaps. Attention should also be placed on reducing barriers to accessing beneficial community services by focusing on the social indicators for sustainability – opportunity, influence, health, partiality and culture.

The Midcoast *Youth Strategy* highlights a high percentage of youth disengagement in the Midcoast area, this is young people that are not employed or in education. Prioritisation of **youth services** in Nabiac will be an essential component of a future sustainability plan. Youth are dually faced with a lack of employment opportunities and a lack of higher education opportunities within the Nabiac community and surrounding area, therefor it is important to support young people to feel connected to the community in other ways. There is a significant lack of awareness within the Nabiac leadership of the needs and wants of the young people of Nabiac and frustrations within the youth community are being voiced in ways that make some Nabiac residents feel unsafe. An opportunity presents to form a Nabiac youth group, along with youth representation in the Nabiac Village Futures Group to advise on youth issues and guide the development of initiatives in Nabiac.

The issue of **volunteer** burn out could be overcome by involving young people in organisational activity within the community. As previously mentioned, young people have indicated they have a great appreciation for the natural environment, this interest should be supported through connecting young people to volunteer programs, building skills and make young people feel more connected to their local environment. Mentorship arrangements would facilitate reducing any practical knowledge gaps between older and younger people, for example older people may have repair, farming or horticultural skills while younger people may have more computer literacy or sustainability awareness.

The availability of sustainable **utility services** like electricity and water in Nabiac is limited to those members of the community that can afford substantial private investment. The town of Nabiac could significantly reduce this financial barrier by investigating the feasibility of community owned and operated renewable energy infrastructure, reducing the collective footprint of Nabiac residents. A good place to start would be to connect with communities that have already embarked on this journey including Gloucester (Energise Gloucester) and Nimbin (Rainbow Power Company). The Nimbin Community Centre has invested in solar arrays on two commercial buildings, the RSL club and a local café, these businesses pay the Community Centre for the electricity produced. The revenue from this initiative now flows back into the

community as the solar infrastructure has been paid off. A similar economic model could be adopted in Nabiac to provide renewable energy infrastructure. Possible investors include the Nabiac Community Centre, businesses, individuals, community groups, grants, etc. Gloucester's model is currently in development and involves a solar farm being constructed on a small pocket of local agricultural land, this initiative is also community owned and the organising group received a considerable grant for this project.

Some food related **businesses** in Nabiac are already engaged in becoming more sustainable by sourcing local sustainably managed farm produce and recycling their food waste via compost systems. Local growers are also embedding regenerative farming practices into their business models and with support, this trend will continue to grow. Nabiac also features a number of second hand stores; the **recycling** of second hand goods is an instrumental component of a sustainable future.

Nabiac could benefit from further embedding the '***circular economy***' principles of rethink > reuse > repurpose > repair > recycle. The NSW government is currently focused on funding initiatives that contribute to a circular economy. Future initiatives should keep the social indicators for sustainability in mind, ensuring that current and future services reduce the social and economic barriers that residents might face adopting sustainable consumption practices. Reducing these barriers will involve investment in education on the sustainability challenges so that residents can rethink their consumption patterns; up skilling residents in repair and repurposing methods so that products can be used for longer; and better equipping residents to be able to recycle waste in a way that will be reabsorbed into future production if possible. For example, The Bower Reuse and Repair Centre is a not-for-profit organisation that is committed to reducing waste, raising awareness of waste avoidance, up skilling the community in repair and reuse, and creating community employment opportunities. Nabiac could similarly implement and benefit from a reuse and repair program that extends the current Opshop services.

Buildings

- [ ] Homes
- [ ] Business
- [ ] Government
- [ ] Community
- [ ] Sports
- [ ] Schools

Our homes, schools, workplaces and community spaces play an instrumental role in supporting our quality of life. In contrast, the way in which we build and use the majority of buildings in our communities is currently unsustainable. The **construction** industry is responsible for a considerable amount of our resource consumption footprint. Think about the numerous materials to that go into constructing and maintaining a building; timber, steel, concrete, ceramics, fabrics, water, energy, paint, etc. Additionally, the construction industry contributes a significant amount to our waste footprint with a focus on fast paced demolition and rebuild, rather than exploring the possibility to reuse and recycle materials.

We're also **high-energy users** in our homes and workplaces with energy being consumed for heating, cooling, operation of appliances, cleaning, maintenance and entertainment. Engaging trades that work in the building and construction industry in sustainability issues could positively support the sustainable future of construction projects in Nabiac. Buildings should be built or renovated with low energy use in mind, solar passive, well insulated and use renewable energy and recycled grey water wherever possible. The NSW government is in the process of reviewing the current BASIX standard for new and renovated buildings to ensure that sustainability issues are significantly reduced. The Nabiac community would benefit from keeping up to date with developments and engaging with local trades on ideas for reducing their footprint in line with best practice sustainability guidelines, like Green star ratings.

The Nabiac community could support opportunities for **trades** to repair, reuse and/or recycle materials by promoting trades that embed these sustainability principles into their practice to local consumers looking to reduce their footprint. An online directory that promotes sustainable trades would enable partnerships between related organisations creating

opportunities for recycled materials to be used as construction materials. Services could be promoted through the Nabiac social media and website channels.

The Midcoast Council facilitates the adoption of sustainable energy use in our homes by offering free use of 'save power kits' for the home. Similar tools could be made available for Nabiac residents to reduce their individual footprints or for community organisations to manage energy use in community buildings.

Availability, suitability and affordability of **housing** are a key issues facing young and low income Australians now and into the future. It is essential that communities look to facilitate an increase of affordable housing options within the community. Initiatives that reduce barriers for low-income households to live in Nabiac should also ensure that low-income housing is built with best practice sustainable living in mind. Focus points include: energy use, water use and comfort levels that exceed minimum BASIX requirements (i.e. towards a net-zero ecological and greenhouse gas emissions footprint), support of active mobility options and consideration of accessibility requirements for an aging population.

The Nabiac sustainability survey returned important feedback on the use and availability of **community spaces**. Members of the community were impacted by a lack of community spaces available for makers; including artists, crafts people, repairers, etc. A space for this community will require longer-term occupation to facilitate studios, workshop space and gallery space. A lack of space presents a significant barrier for creative community members to develop ideas for creative sustainable initiatives. In addition, members of the community felt like the local hall facilities were too far from the main centre of town to be considered for artist gallery space; without a space to show their wares, the opportunities for artists and makers to develop their practice are at a significant disadvantage; which impacts on social indicators for sustainability.

In contrast to this, **community buildings** are well used in Nabiac for a range of different purposes that promote sustainable living. These include the Nabiac Opshop (as a centre for the resale of second-hand goods), the Nabiac community garden (as an educational and food security initiative for the local community) and the Nabiac farmers market (as a supporter of local sustainable agriculture producers). Initiatives that seek to build on the use of Nabiac

community buildings should aim to reduce the opportunity barriers that some members of the community face. Community buildings in Nabiac should also be among the first places to trial sustainable building design initiatives like renewable energy, rain water harvesting, grey water reuse, energy audits and energy saving measures to reduce environmental impact. Community buildings should aim to have a low environmental footprint whilst creating a safe and comfortable space for all members of the community to use for a variety of purposes. In turn these improvements can be used as educational opportunities for the community on sustainable living. For example, the Nimbin community are using a community owned building to create a sustainable living centre, where all sustainable initiatives become an educational resource for the community.

Results of the Nabiac sustainability survey suggest that a significant percentage of the Nabiac community experience sustainability knowledge barriers. The department of education has contributed a number of resources towards **education for sustainability**. Additionally, the Nabiac public school are in the process of looking to implement a sustainability plan of their own; further building on the school vegetable garden and reduction of plastic use in the canteen. An opportunity exists to collaborate with the Nabiac Public School on sustainability initiatives.

Leisure

- Destination
- Activities
- Facilities
- Transport

Leisure activity is not only an essential component of our **quality of life**, it also forms an important economic function for the Nabiac community via the tourism industry. Leisure is experienced in so many different forms including catching up with friends, holidays, sporting activities, going to church, cultural activities, daily walks around the community, swimming at

the river or in Nabiac pool, kayaking, bushwalking, craft making, music making, and so much more.

Poor **land use** planning and unsustainable practices can impact on our ability to experience these leisure activities by reducing our access to common natural space, deterioration of the natural environment, impacts on our perceptions of safety, favouring certain cultural activities, affordability of events and availability of community spaces. As our population increases, housing density will intensify pressures to provide community space for multiple purposes. As private spaces become smaller we will see common outdoor areas become increasingly important for the community. It is essential that the integrity of our natural environment be enhanced not just for the short-term visitors to the community, but also for current and future residents that use these spaces for their everyday **health** and **wellbeing**.

Many businesses, facilities and events support the significant **tourism** focus of the area and a number of residents benefit directly through employment in businesses that see passing visitors stop in and shop. The tourism industry is an important contributor to Nabiac's economic development. However, in contrast to this, recent COVID-19 restrictions on travel in Australia have highlighted a need to ensure that businesses now and in the future continue to service the needs and interests of the local community to remain economically viable. Therefor, it is essential that Nabiac businesses remain **diversified**. This will ensure the sustainability of Nabiac by creating a liveable village, supporting resident's wellbeing by continuing to provide access to services within the local community; a short walk from home.

The Nabiac sustainability survey identified significant interest from the Nabiac community in bush regeneration around creeks and rivers, workshops and events, recreational **activities** like kayaking/bushwalking, cycling and outdoor exercise stations. The Midcoast Council's *Youth Strategy* also indicated that youth residents in the area have a strong connection with the natural environment. This information indicates that Nabiac residents of all ages appreciate the ways in which the natural environment provides for us physically and mentally. These values could be built on to influence inclusion in leisure activities that contribute to the **regeneration and restoration** of the natural environment.

Nabiac's **natural environment** is suffering from the effects of many years of poor agricultural land management, riparian zone deterioration, waterway contamination and ecosystem deterioration. **Wallamba River** was recently downgraded to a C rating in the Midcoast Councils 2019 'Waterway and catchment report' due to agriculturally related nutrient and chemical runoff. This deterioration has caused algae growth and riverbank erosion. Deterioration is also caused by clearing and grazing of riparian zones and wash from water sports. Local Landcare groups, TIDE (Taree Indigenous Development and Employment) group and some local landowners are already working to restore the natural ecosystem function through bush regeneration and sustainable farming practices. But there is significantly more work to be done at the community scale. Opportunities for consultation between private landowners, Landcare, National Park and Wildlife and traditional owners on sustainable land management should be supported in the Nabiac community wherever possible. Welcome to Sustainable Nabiac information packages could be distributed to new landowners through real-estate agents, these welcome packs could facilitate consultation opportunities.

Given that a large percentage of the community indicated an interest in **education for sustainability** and **regenerative projects** in the sustainability survey, this interest could be harnessed to reverse the impacts of unsustainable activities on the natural environment in Nabiac. **Educating** the community could be achieved in areas such as sustainable land management practices, how to care for local ecosystems and how these local ecosystems support larger environmental functions. Community leaders have identified a need for increased volunteer activity in community groups. For example, current Nabiac Landcare members are unable to take on some aspects of physical work due to mobility constraints. The Nabiac community could investigate the feasibility of Karuah and Great Lakes Landcare facilitating workshops around restoration projects like Town Creek and this may increase volunteer activity in rehabilitating these areas.

Workshops and talks could also be investigated as part of the Nabiac Farmers Market, the Nabiac Show, a 'beer and biodiversity night' at the Nabiac Hotel and/or other similar events held at local businesses. Information sessions like this not only provide education for the community, but they also contribute to varied opportunities for residents to socialise, bring the community together over common interests and facilitate involvement in volunteer opportunities. Some examples of presentations by local producers can be found on the Karuah

and Great Lakes Landcare facebook page, lots of interesting information presents as producers share their stories.

To remove any **barriers to participation**, workshops should aim to be free of charge or low cost to the community. Community involvement in the restoration of environmental services in the Nabiac and surrounding area will not only enhance the environments ability to support leisure activities; a thorough understanding of the natural environment and the limits to which it can absorb human impacts will put community members in a better place to contribute to community resilience building and benefit economically from sustainable tourism opportunities should they eventuate.

A significant percentage of Nabiac residents who responded to the sustainability survey acknowledged that **reducing our waste and consumption** of natural resources are instrumental elements of becoming a more sustainable society. The results of the sustainability survey should be used together with further community engagement when embarking on future consumption based initiatives in Nabiac. Studies show that behavioural change is better adopted if it fits with consumer values, it is therefor important to understand the values of Nabiac residents, recognise barriers to adopting new habits or practices and educate and inform according to these results. Future sustainable consumption initiatives could explore pilot programs for **behavioural change** at the Nabiac farmers markets by engaging with stall holders and market goers to further understand what barriers limit the uptake of initiatives such as the 'no plastics' trial in 2019. It is important for individuals to

understand the impact of their consumption on the environment, although behavioural change is more affective if initiatives focus on reducing barriers at a community level.

In response to resident's interest in repair, restoration and repurposing workshops and **events**, opportunities could be explored for up skilling the community via initiatives like Repair Café's and Tool Library's. These initiatives can be small and mobile to make use of available space in the community and tools could be collected at low cost through the Opshop. These events are also significant social opportunities where people come together in the community to learn how to repair broken or worn consumer goods and share learning experiences with each other. Future initiatives should aim to keep workshops free or low cost for the community and encourage diversity in workshop facilitators to help reduce the impacts on the social indicators for sustainability, particularly in regard to opportunity and partiality.

Focus interview and survey results indicated a strong connection to the **sustainable food movement**, responses expressed that they were already purchasing local sustainably farmed produce, reducing their food waste impacts at home through composting, planting for wildlife and using less chemicals when cleaning their homes. In contrast to this, members of the community expressed some significant **barriers** to implementing more sustainable practices including lack of knowledge, financial barriers and lack of time.

A significant opportunity exists to raise awareness through **education** on unsustainable and sustainable food systems and this could be tied in with programs already under investigation. The Midcoast Council is currently investigating the feasibility of a community wide composting program called FOGO (Food Organics, Garden Organics). Nabiac residents experiencing time and knowledge barriers will benefit from this program as it makes use of already engrained daily habits. While local food producers will benefit significantly from an organically rich soil product that can contribute to regenerating the soil quality impacted by many generations of deterioration.

Additional future initiatives should focus on addressing the **barriers** to implementing more sustainable practices by considering the social indicators for sustainability: opportunity, influence, health, partiality and culture. In some cases, sustainable produce can be more

expensive, presenting a financial barrier to some community members in choosing sustainable options. Attention should be placed on reducing these barriers wherever possible. The community could investigate the feasibility of a **cooperative model** to access bulk foods that aren't produced locally, such as rice, seeds and other cereals and grains. Consultation with retailers already based in Nabiac could produce opportunities for beneficial partnerships.

Nabiac residents indicated they were interested in supporting local **businesses** that use sustainable products or processes. Due to COVID-19 travel restrictions, businesses were difficult to engage in a conversation on sustainable practices, understandably they had many competing priorities and stressors. Members of the community that are passionate about reducing waste and consumption could further develop ideas for future initiatives by engaging with business owners to understand what the current knowledge base is on sustainability issues, identify barriers to implementing more sustainable practices and use this information to workshop ideas for change with members of the business community, other industry stakeholders and community leaders. The engagement process, if achieved collaboratively, will greatly increase the chances of positive participation in outcomes.

Mobility

- Mode
- Distance
- Accessiblity
- Repair

Almost all members of the community use private transport to travel to and from work and cars are predominantly energised by greenhouse gas emitting natural resources such as petrol, diesel and gas. We know from scientific research that greenhouse gas emissions are accumulating in our atmosphere and contributing to climate change (IPCC, 2018; NSW Office of Environment and Heritage, 2019). Transport emissions contribute a significant amount towards these greenhouse gas emissions and so sustainable mobility alternatives will need to

play a significant role in a more sustainable future for Nabiac. Sustainable mobility options include using public transport, car-pooling and active transport options like walking and cycling. Electric vehicles can also be part of a solution if powered by a renewable energy source.

Barriers to achieving mobility change in Nabiac have been identified as **limited public transport options** to town centres like Taree and Forster and **lack of separated walking/cycling infrastructure** within the community impacting on the community's ability to feel safe. Active mobility contributes more than just a low emissions way of getting from A to B. Active transport options open up opportunities to improve health and they also provide incidental opportunities for socialising; contributing to a feeling of community connection and mental wellbeing.

Behavioural change can be motivated by many factors. In terms of mobility change, lowering greenhouse gas emissions may not be a motivating factor for all residents. The community should be consulted to understand the barriers to mobility change; this could be achieved through survey methods. Action groups identifying and implementing sustainable mobility options should also engage with the Midcoast Council, public transport companies in the local area and transport for NSW to understand the barriers to implementing more services for residents wishing to commute to work or higher education in town centres. Public transport services are currently structured around school hours, which restrict employment opportunities to a 3pm finish if residents wish to return from town centres to Nabiac using public transport. Financial barriers to accessing sustainable transport options should be minimised.

The Midcoast Council is currently investigating the feasibility of implementing shared walking/cycling infrastructure in the Midcoast area. The Nabiac community should remain informed of opportunities to make submissions on behalf of the community on the nature of infrastructure developments, to ensure that they meet the needs of the community. Submissions should be informed by the needs of the Nabiac residents through community consultation via survey methods.

C = Creative solutions

The information contained within **awareness/visioning** and **baseline mapping** should be used to inform community led **brain storming** sessions (creative solutions). In this step community members should come together to brainstorm creative solutions to the issues highlighted in the *Nabiac baseline assessment*. Community members may also use this information to review the *community vision*, to embed sustainability considerations into this vision.

Once workshop participants have identified creative solutions to sustainability issues, these solutions should be assessed against **social indicators** for sustainability, to ensure that barriers are understood and reduced wherever possible.

Now that the community has discussed and resolved which creative solutions they would like to work towards, it is time to move to the next step; **deciding on priorities**.

D = Deciding on priorities

This step involves deciding on and prioritising the necessary **actions** to achieve the community vision and to prioritise actions based on community capacity. In this step an action group should identify *key community contacts and leaders for initiatives* in each focus area: services, buildings, leisure, consumer goods and mobility. A *timeline* should also be established to identify short and long term steps to achieving success. At this point it is important to identify *indicators* for what sustainability success might look like, and check in with the community on how initiatives contribute to removing sustainability issues through regular surveys. It is important that these indicators are community derived to ensure that they are locally relevant, accessible and understandable. Some examples of sustainable indicators at the local level might include:

Environmental

- *Nitrogen, phosphorus and chemical pollution in waterways* can be monitored by achieving a lowering of algae levels and an increase in water clarity in the Wallamba

River - The Wallamba River achieves an A rating on the Midcoast 'Water and catchment report'(MidCoast Council, 2019c)

- *CO_2e emissions* (necessitates a CO_2e footprint analysis of the Nabiac community, this could be achieved through survey methods and with the help of someone experienced in footprint calculations)
- *Biodiversity values* – High level values are monitored through state of the environment reports via Midcoast Council state of the environment report (MidCoast Council, 2019a), or the NSW state of the environment report (NSW EPA, 2018), for more detailed local information citizen science biodiversity monitoring programs could be established and monitored (NSW department of planning, industry and environment; Tangaroa Blue); percentage of riparian zone restored based on GPS mapping,
- *Waste production* – access waste information through Midcoast Waste; reduction in frequency of red bin collection from weekly to fortnightly; monitor the number of residents engaged in local repair/reuse programs; monitor amount of product moving through Opshop (bag size or weight),
- *Energy use* – Initial audit on energy use via survey methods (i.e. power bill monitoring); Monitoring the reduction in use of single occupancy vehicles (ABS data); energy use audit of community buildings coupled with efficiency improvements and renewable energy transitions.

Social

Reviewed using survey methods, questions may be asked on social indicators:

- What is your level of happiness?
  - What impacts on your level of happiness?
- Do you feel safe in Nabiac?
  - What impacts on your feeling of safety in Nabiac?
- Do you volunteer?
  - In what area do you volunteer?
- Are you happy with your current level of employment?
  - What impacts on your level of employment satisfaction?
- Estimated percentage of food you buy in Nabiac and surrounds or grown yourself?
  - What barriers do you experience to increasing this amount?
- Are you involved in artistic or cultural activities?
  - What barriers do you face in accessing these activities?

Economic

- Average income levels (ABS data)(Australian Bureau of Statistics, 2016)

- Employment levels (ABS data)
- Education level (ABS data)
- Percentage of community members using local businesses (postcode survey methods in store)
- Diversity of businesses and services to match community needs (audit/capacity assessment),
- Diversity of employment (ABS data)

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