

Climate Change Strategy

Local Action Plan

1. Vision and Objectives

The vision for this strategy is:

An understanding reached to address climate change impacts in a local, regional and international context, and evaluating climate change implications of operational decisions and policy positions focusing on research, mitigation and adaptation action implementation.

The objectives for this strategy are:

- Recognise climate change as a relevant consideration in planning and development statutory decision making processes to ensure orderly and proper development;
- Research, mitigate and adapt now to reduce future costs and associated impacts;
- Enhance the resilience and adaptive capacity of biodiversity in the Shire of Serpentine Jarrahdale to meet the challenge of a warming drying climate;
- Increase adaptive capacity to the expected impacts of climate change on emergency management;
- Engage in regional collaborations to address the effects of climate change on biodiversity and emergency management;
- Ensure that planning and management are consistent with best practice in climate change adaptation; and
- Continue with mitigation actions to deliver current and future adaptation and mitigation benefits.

2. Background and Application

Council has a key role in adapting to the changing climate as direct providers of community services, and has already demonstrated a commitment through greenhouse gas mitigation initiatives (South East Regional Energy Group and Switch your thinking). Climate change predictions for the Shire Serpentine Jarrahdale indicate a warming, drying trend with significant shifts in rainfall and more frequent severe weather patterns. It is potentially one of the most important issues of this century, and will have direct and indirect impacts on the environment, economy, society and governance.

Human-driven climate change is widely recognised as a reality, and changes are observable in the form of melting glaciers, plant species flowering earlier, and many other effects. From a local government perspective, climate change presents a risk that must be addressed to ensure that planning and management are consistent with best management practice and potential future costs including managing to minimise liabilities.

The south-west of Western Australia will face increased average temperatures, increased numbers of extreme hot days, lower annual rainfall, changed rainfall patterns (less winter and more summer rain), increased evaporation and transpiration and increased solar radiation.

Due to the length of time greenhouse gases remain in the atmosphere, even if emissions stopped today, some warming is inevitable. Therefore there is a need for a combined mitigation and adaptation approach.

The threat to biodiversity is of particular concern to the south-west of Western Australia, as the south-west is one of the world's 25 biodiversity hotspots and home to a large number of

Climate Change Local Action Plan Draft 1b

regional restricted flora and fauna species, threatened ecological communities, wetlands of international significance and areas of cultural significance to the local indigenous populations. These natural systems also provide ecosystem services, such as clean air, fresh water, and coastal buffers and contribute to the economy through industries and tourism.

Natural systems are already under stress from habitat loss, fragmentation and degradation, pest species and water constraints. Climate change will exacerbate many threatening processes or pressures, including modification of habitat, invasive species, changed fire regimes and disease and is likely to become the dominant driver of biodiversity loss this century. The rate of change rather than the magnitude of change may be the limiting factor for some species. Habitat fragmentation and loss as a result of a warming and drying climate will increase pressure on species attempting to migrate to other suitable habitats.

The extent to which species and habitats need to adapt is dependant on the rate and magnitude of climate change. Mitigation actions taken now to reduce future concentrations of greenhouse gases are vital to limit the amount of global warming and thus the extent to which natural systems need to adapt.

Biodiversity management is a core function of local government through its roles in natural resource management, water management, planning, sustainable land use and planning development.

This strategy applies across the entire municipality of the Shire of Serpentine Jarrahdale. In particular, this strategy applies to areas within the Shire that provide biodiversity habitat, including reserves and private conservation private property initiatives.

3. Interpretations

Adaptation – actions in response to actual or projected climate change and impacts that lead to a reduction in risks or a realisation of benefits. This can include strategies to increase the resilience of systems, such as reducing pollution and pests for natural ecosystems.

Biodiversity – the variety of all life forms: the different plants, animals and microorganisms, their genes, and the ecosystems and communities of which they are part. Biodiversity is usually recognised at three levels: genetic diversity, species diversity, and ecosystem diversity.

Climate change – any change in climate over time, whether due to natural variability or as a result of human activity.

Climate change mitigation – response measures that reduce the emission of greenhouse gases into the atmosphere or enhance their sinks, aimed at reducing their atmospheric concentrations and therefore the probability of reaching a given level of climate change.

Climate change projection – a set of future conditions, or consequences, based on explicit assumptions about emission rates and concentrations and the response of the climate system to changes in these variables. Climate change projections estimate the response of the climate system to scenarios of greenhouse gases often based upon simulations of the climate system by computer-based mathematical models. Projections are therefore subject to substantial uncertainty.

Ecosystem services – the benefits people obtain from ecosystems, such as food, renewable resources, water supply, recreational opportunities, oxygen, carbon sequestration, and erosion control.

Climate Change Local Action Plan Draft 1b

Extreme event – weather conditions that are rare for a particular place and/or time, such as an intense storm or heat wave.

Global warming – the increase in the average temperature of the Earth’s near-surface air and oceans since the mid-20th century and its projected continuation. It is very likely due to the observed increase in human-caused greenhouse gas concentrations.

Mitigation – a human intervention to reduce the human-caused forcing of the climate system; it includes strategies to reduce greenhouse gas sources and emissions, and to enhance greenhouse gas sinks. Mitigation reduces the likelihood of exceeding the adaptive capacity of natural systems and human societies.

Resilience – the capacity of systems to absorb disturbance and reorganise while undergoing change so as to still retain function, structure and identity. In the context of climate change, resilience refers to the extent to which ecosystems can cope with a changing climate and continue to exist in their current state, in terms of composition, structure and functioning. The related term “transformation” refers to changes in ecosystem composition, structure and functioning (i.e. a transition to a new state) in response to a changing climate. Application of these terms is scale dependent; i.e. transformation at one scale may be necessary to deliver resilience at higher scales.

4. Measures

Certainty to users of this policy will include forecasted predictions of temperature increases and the impact of this to Biodiversity values and increase in frequency and intensity of fire and storm events. The following measures will apply:

Building resilience:

- Maintain well-functioning ecosystems, balancing the resilience of existing ecosystems against transformation into new ecosystems;
- Protect a representative array of ecosystems, in reserves and the private conservation estate, as well as specific biodiversity features;
- Remove or minimise existing stressors - high-payback starting point in building resilience of natural systems;
- Build appropriate connectivity to give space for nature to self-adapt;
- Identify and protect places where species have some level of protection and security;

Flexible policy and management approaches:

- Reconsider management objectives, to recognise the likely changes in natural systems;
- Uncertainty about future climate projections is no excuse for delay;
- Focus more on risk assessments;
- Implement active adaptive management;
- Build consensus and strengthen the support of the community for maintaining biodiversity;
- Seize opportunities from mitigation approaches (such as carbon trading and offset schemes) which offer opportunities to promote sequestration in biomass including soils while simultaneously benefiting biodiversity;
- Retain sufficient areas of land for biodiversity and food and fibre production to provide bio security and food security while also providing carbon sequestration in soils, vegetation and plants.

5. Implementation

Implementation of this Local Action Plan should be based upon the following principles, which support effective responses to the threat to biodiversity and the well being of the Serpentine Jarrahdale Community including impacts from fire and other emergencies:

- Adapt management of biodiversity to meet existing and new threats and enhance the resilience of ecosystems – climate change will exacerbate existing threats to biodiversity, change the nature and extent of threatening processes and will itself act as a stressor;
- Demonstrate a strong commitment to biodiversity conservation with a focus on ecosystem services and diversity – implement best practice in climate change adaptation and its resourcing;
- Invest in the natural systems which provide ecosystem services – a lack of capital reinvestment in the environment is pushing the limits of the “life support” it provides;
- Build innovative and flexible governance systems – new structures and approaches are required to deal with the challenges of climate change, such as taking a regional approach which focuses on partnerships and collaboration; and
- Continue mitigation actions that deliver both adaptation and mitigation benefits.

Climate Change Local Action Plan

(Key Strategies are in Bold)

1. Identify where climate change knowledge gaps are and where further investigation is needed.
2. **Incorporate global, national, regional and local, scientifically based research for predictive modelling, scenario planning, identification of knowledge gaps and information dissemination.**
3. **Incorporate relevant up to date risk assessment information.**
4. Identify suitable carbon trading schemes and participate in their development.
5. Promote and incorporate lifestyle/behavioural change in residential, rural, commercial and industrial sectors including continuing to reduce and measure GHG emissions.
6. **Promote and educate the community on the importance of local food production, good public transport, the slow food movement, food miles and resource recycling.**
7. Develop and promote land farming, community gardens, community farms, market days, sustainable organic agriculture, the shire’s food bowl, soil sequestration storage, worm farms, green waste to the soil, perennial pastures and community tree planting days.
8. Promote behavioural change through a variety of initiatives such as incentives and climate change education programs.
9. Facilitate increasing levels of community participation in best practice use reduction of water and energy through education and encouragement.
10. Increase the Switch your thinking! Rewards for Residents Scheme to reduce emissions.
11. Seek partnerships to more accurately estimate and monitor water and energy usage and greenhouse gas emissions in the Shire.
12. **Integrate fire management practices that maintain levels of public safety while conserving biodiversity, through use and promotion of low flammability plants and fire plans developed for natural areas in consultation with local governments and land managers.**

Climate Change Local Action Plan Draft 1b

- 13. Climate change is expected to favour species that are highly adaptable to change, which are often pest and weed species. Consider the introduction of an adequately funded regional campaign to address new and emerging weed and pest species.**
14. Take an inventory of potential direct or indirect offsets, particularly those which could be used in trade for unavoidable clearing which may need to occur.
- 15. Incorporate new "growing biodiversity and green" technologies and initiative such as roof, wall gardens and design opportunities to enhance Green Infrastructure as an adaptive response to climate change.**
- 16. Plan for larger, more complex and more frequent disasters that cross local government boundaries.**
17. Commit to participation in all waste measuring and reporting requirements.
18. Maintain the solar hybrid wind turbine to partly power the recreation building in Byford and develop other similar energy and water conservation and efficiency initiatives.
19. Investigate setting up solar and wind farms in the Shire of Serpentine Jarrahdale.
20. Consider drafting and introducing a Council Policy on Climate Change and later a possible Climate Change Local Planning Policy.

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