

## **21.04 ENVIRONMENT**

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### **21.04-1 Environmental hazards**

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#### **Flooding**

The major floodplains within Towong Shire are located along the alluvial flats and terraces of the main rivers being the Murray River downstream of Bringenbrong and the Mitta Mitta River downstream of Dartmouth Dam. Other floodplains are also located along Cudgewa Creek, Corryong (Nariel) Creek, Thowgla Creek, Tallangatta Creek and the Indi River upstream of the Swampy Plains River confluence. Each of these floodplains has been characterised by its own history of periodic flooding.

Flooding imposes substantial costs on individuals and the community. It can severely disrupt communities and cause damage to public and private property, agricultural losses, and personal hardship. The use and development of land in flood prone areas can have serious implications on the natural hydraulic and environmental functions of floodplains within the Shire. Inappropriate development within a floodplain may obstruct or divert flood flows, reduce natural flood storage areas and increase flood levels and flow velocities.

Land use planning is recognised as an important tool in minimising future impacts of flooding. Through careful planning, land use and development on flood prone land can be made compatible with the flood risk and the natural storage and environmental functions of the floodplains.

#### **Objectives**

- To identify waterways and major floodpaths, drainage depressions and high hazard areas which have the greatest risk and frequency of being affected by flooding.
- To protect life, property and community infrastructure from flood hazard.
- Ensure the natural flood carrying capacity of rivers, streams and floodways is maintained.
- To protect water quality and waterways as natural resources in accordance with the provisions of relevant State Environment Protection Policies.
- To ensure that development maintains or improves river and wetland health, waterway protection and flood plain health.

#### **Strategic Actions**

- Identify hazardous areas with spatially accurate overlay mapping.
- Avoid development that is incompatible with the policy objectives in areas of known hazard.
- Avoid wastewater disposal in areas subject to inundation or flooding.

#### **Wildfire**

Wildfires represent a significant risk to people and property throughout Towong Shire. The purpose of wildfire planning is to assist the minimisation of risk to life, property, the natural environment and community infrastructure from wildfire. This approach aims to avoid or minimise exposure to the hazard.

## Objectives

- Identify hazardous areas.
- To avoid the use and development of land in hazardous environments.
- To minimise the risk to life and property from environmental hazards.

## Strategic Actions

- Assess the risk to life, property and community infrastructure from bushfire at municipal scale and improve the accuracy of wildfire mapping and amend existing mapping where necessary.
- Apply the best available science to identify vegetation, topographic and climatic conditions that create a bushfire hazard and provide schedules to the Bushfire Management Overlay to better reflect local circumstances.
- Ensure that strategic and settlement planning assists with strengthening community resilience to bushfire.
- To provide for use and development of land in a manner compatible with the risk from bushfire.
- To ensure that the location, design and construction of development considers the need to implement bushfire protection measures.
- To discourage plantation establishment in areas of high fire hazard.

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## Water

Towong Shire is located within the upper Murray River Catchment and contains the major water storages of Lake Hume and Dartmouth Dam.

The Shire contains important waterways identified in the North East Regional River Health Strategy 2006 and the portion of the Upper Murray River Basin within Towong contains both regulated and unregulated waterways. Apart from the Mitta Mitta River and the Murray River downstream from the Swampy Plains River confluence, all other waterways within the Shire are unregulated. The upper Murray River gains significant inflows from inter-basin transfers from the Snowy Mountains Hydroelectric Scheme via the Swampy Plains River. The main unregulated waterways within the Shire include Thowgla Creek, Nariel (Wheeler/Corryong/Jeremal) Creek, Cudgewa Creek, Koetong Creek, Tallangatta Creek, Snowy Creek and Little Snowy Creek.

Within the forested headwaters of key Towong waterways, the environmental condition of each waterway is typically excellent, though as a general rule, stream condition and water quality tends to deteriorate down-stream as the catchments become more modified and as agriculture is the dominant land use. Stream water quality is impacted by agriculture more than any other single land use.

The whole of Towong Shire has special water supply status, being located within a Declared Water Supply Catchment under the provisions of the Catchment and Land Protection Act, 1994. As consequence of being a Declared Water Supply Catchment, Goulburn Murray Water is a statutory referral authority for all planning applications to use and develop land. The 2009 Department of Planning and Community Development Guidelines for *'Planning Permit Applications in Open, Potable Water Supply Catchment Areas'* provides guidance for responsible authorities and referral authorities in their assessment of planning permit applications for use and development of land within such catchments in Victoria and provides significant limitations to legitimate subdivision and development within Towong Shire. The restrictions provided by the DPCD Guidelines seem incongruous given the basis for Gazettal only related to the clearing of land with steep slopes.

Towong Shire contains some significant wetland types which are a priority for protection at regional and statewide level. The Mitta Mitta and Murray Rivers have been geomorphologically active in the past, which has given rise to a concentration of reasonably shallow freshwater marshes and freshwater meadows. Shallow freshwater marshes and freshwater meadows have been recognised as priority wetland types in the North East CMA region and across the state, given their rarity as a result of their overall decline. Lake Hume and Dartmouth Dam and the alpine peat lands at Davies Plains are all listed as being nationally significant and are listed as priority wetlands within the North East Regional Wetland Management Strategy.

Whilst most agriculture within the shire is undertaken using dry-land practices, irrigation is important for those properties adjacent to permanent waterways, though only a very small proportion of the overall Towong landscape is irrigated.

### Objectives

- Protect water quality

### Strategic Actions

- Implement the recommendations of the Towong Shire Settlement Strategy (2010).
- Implement the recommendations of the Towong Shire Rural Land Use Study.
- Seek a review of the original Declared Special Water Supply Catchment gazettal.
- Prepare and implement a Domestic Waste Water Management Plan to guide the future management of wastewater issues and to address the dwelling density guidelines of the DPCD Guideline '*Planning Permit Applications in Open, Potable Water Supply Catchment Areas*'.
- Employ a merits based planning decision making approach that implements the standards of the EPA *Code of Practice - On-site Waste Water Management*.
- Employ best practice stormwater management and water sensitive urban design.
- Implement the recommendations of the North East Regional Waterways Strategy.
- Implement the recommendations of the North East Regional Wetland Strategy.
- Implement the recommendations of the North East Regional Catchment Strategy.
- Protect important riparian environments and wetlands through the use of an Environmental Significance Overlay.
- Ensure all development occurs in accordance with the Infrastructure Design Manual.

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### Biodiversity and Native vegetation

Towong is fortunate to contain large contiguous tracts public land containing relatively undisturbed native vegetation, though in other rural parts of the Shire, what was once a continuous mosaic of forest and woodland systems, is now a patchwork of a fragmented and scattered remnants on private land, along road reserves and riparian corridors.

Within Towong Shire, the main Ecological Vegetation Classes (EVC's) are:

- *Montane Woodlands* occurring at parts of Burrowa-Pine Mountain National Park and elevated southern parts of the Shire;
- *Granitic Hills Woodlands* chiefly on the north western aspects of Mt. Mittamatite, Burrowa-Pine Mountain National Park, Mt. Lawson and Mt.Granya;
- *Damp Forest / Montane Damp Forest*, chiefly on elevated areas in the south of the Shire with a south east aspect;

- *Valley Grassy Forest* along valley floors and side slopes;
- *Plains Grassy Woodland / Floodplain Riparian Woodland Complex* along the Mitta Mitta Valley; and
- *Dry Forest* comprising the *Grassy Dry Forest*, *Heathy Dry Forest* and *Herb-rich Foothill Forest* EVC's across most of the Shire.

In terms of EVC conservation status there are five categories:

- Least Concern - 40% of Towong Shire private land;
- Depleted - 34% of Towong Shire private land;
- Vulnerable - 1% of Towong Shire private land;
- Endangered - 25% of Towong Shire private land; and
- Rare - 0% of Towong Shire private land.

Within Towong Shire the majority of 'Least Concern' conservation type is located upon public land whilst the conservation status of EVC's on 60% of freehold rural land is either 'Depleted', 'Vulnerable' or 'Endangered'. Some of the larger tracts of 'Depleted' EVC's are found to the south of Tallangatta, between the Mitta Mitta and Tallangatta Creek valleys, the eastern slopes of Mt. Elliot and Mt. Mittamatite. 'Endangered' EVC's are found along the northern margins of Burrowa Pine Mountain National Park, between Mt. Alfred and Walwa, Tom Groggin Station, Granite Flat and to the north and south west of the Jarvis Creek regional Park. There also tends to be a spatial association between the 'Endangered' EVC's and the Shire's main waterways. Fragmented patches of 'Endangered' EVC's occur in the riparian zone adjacent to these waterways. The smaller areas of 'Rare' EVC's are confined to the elevated parts of the Mount Lawson and Burrowa-Pine Mountain National Park.

Roadside vegetation plays a significant role in the viability of threatened species and ecological communities in Towong Shire. In rural areas, vegetation along roadsides often provides the only remaining habitat for native flora and fauna and through a network of linear reserves, connects scattered remnants on private land and fragmented forests on public land. These areas act as corridors to allow movement of wildlife and often represent the highest quality remnant of particular ecological vegetation classes in the region.

Towong Shire typically has a large volume of roadside grazing applications. As a consequence, there can be pressure to graze ecologically important roadside areas, particularly in dry years.

The Towong Planning Scheme does not contain a Vegetation Protection Overlay or Environmental Significance Overlay dedicated for vegetation or biodiversity protection, and there is no such protection of important roadside areas within the Towong Planning Scheme.

### **Objectives**

- To assist the protection and conservation of biodiversity.

### **Strategic Actions**

- Implement the recommendations of the Towong Shire Settlement Strategy (2010).
- Implement the recommendations of the Towong Shire Rural Land Use Study
- Apply Rural Conservation Zone to freehold areas containing large or significant areas of remnant native vegetation adjoining or surrounded by significant public land such National or State Parks and State forest.
- Apply the Vegetation Protection Overlay or Environmental Significance Overlay to important roadside vegetation.

- Apply the Environmental Significance Overlay to areas of native vegetation that is considered to be of a 'vulnerable', 'endangered' or 'rare' EVC conservation status.
- Identify and map land of environmental significance and high biodiversity value using available state mapping and data bases, and in consultation with relevant authorities as required, prior to the application of the ESO and VPO.

## **21.04-4 Soils and steep land**

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### **Soil Acidity**

Soil acidification is a land degradation issue that affects the productivity of soils within Towong Shire. Whilst soil acidification is a natural process, agriculture can accelerate the rate of acidification through carbon removal and unbalanced nitrogen cycling. Management of acidic soils is an issue within Towong Shire with strongly acidic soils being found across the Shire, particularly in the Bethanga Peninsula and along the Nariel/Corryong Creeks, upper Tallangatta Valley and in areas adjacent to the upper Murray River.

### **Soil Erosion**

Soil erosion is considered to be a land degradation problem within Towong Shire that can reduce the productivity of agricultural land and degrade water quality. According to the 2002 Land Resource Assessment for the North East Catchment Management Authority Region most of Towong Shire is considered to have a moderate sheet and rill erosion risk, though alluvial areas adjacent to the major waterways tend to have a low-moderate risk. For wind erosion, there is a strong spatial association with areas of sheet and rill erosion risk and most areas apart from the alluvial areas are considered to have a moderate risk.

Areas considered to have a moderate-high risk sheet, rill and wind erosion risk include:

- South of Talgarno including the northern part of the Tarrangatta Creek catchment.
- Parts of the western side of the Georges Creek Catchment.
- Parts of the western side of the northern Tallangatta Creek catchment.
- Northern part of the Burrowye Creek catchment.
- Walwa Creek catchment between Guy's Forest and Walwa.
- West facing slopes within the Lucyvale Valley.
- Thowgla valley
- Bunroy valley.

Virtually the whole of Towong Shire is considered to have a low to moderate susceptibility to gully and tunnel erosion.

### **Salinity**

Extensive clearing in parts of the region has changed the water balance of catchments within the broader north east region and the replacement of deep-rooted native vegetation with shallow rooted pasture species has exacerbated the salinity problem and in places has caused saline surface discharges. Towong has been fortunate that many of the groundwater recharge areas remain forested, and ground water hydrology has been less modified than elsewhere in the region. Within the shire salinity is not a significant land degradation issue, with at present only limited salinity potential in parts of the Mitta Mitta Valley, Tallangatta Valley and Cudgewa Creek Valley.

## Steep Land

Large parts of Towong Shire contain steep land and this land should only be developed with appropriate regard to site characteristics and environmental conditions. In these areas building siting should be considered carefully and earthworks and the removal of vegetation minimised.

### Objectives

- Protect steep land and areas prone to erosion, landslip or other land degradation processes.
- Ensure the use and development of land has regard for the potential for landslip and erosion.
- Ensure new buildings and works do not increase the possibility of landslip or erosion.
- Discourage plantation establishment in areas of steep land.

### Strategic Actions

- Implement the recommendations of the Towong Shire Settlement Strategy (2010).
- Implement the recommendations of the Towong Shire Rural Land Use Study.
- Through the use of Local Planning Policy:
  - Prevent inappropriate development, vegetation removal and plantation establishment on steep slopes or areas prone to erosion and landslip.
  - Promote vegetation retention, planting and rehabilitation in steep land and areas prone to erosion and instability.

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### Significant Landscapes

Towong Shire contains a range of significant, highly regarded rural landscapes that are a key component of the Shire's attractiveness as a visitor destination. These rural vistas and landscapes have been pivotal in the marketing and positioning of Towong as a tourism destination.

Four landscapes within the Towong Shire are classified by the National Trust:

- Bethanga Lookout
- Burrowa-Pine Mountain National Park
- Mitta Mitta Valley
- Former Wodonga-Tallangatta-Cudgewa Railway Line

The classified landscape status indicates that each item represents a part of the physical environment that in the view of the Trust are essential to the heritage of Australia and must be preserved.

The Lake Hume environs is afforded landscape protection through the use of the Significant Landscape Overlay (SLO). This Overlay seeks to protect the visual quality and significance of the prominent hills, slopes and extensive open landscapes surrounding Lake Hume, to protect the rural landscape from insensitively designed development and to protect the Lake and the surrounding landscapes from visual intrusion and inappropriate development.

The environs of the Murray River upstream from Lake Hume offer attractive physical environment with landscape contributions from the northern slopes of the mountainous and forested Mt.Granya State Park, Mt. Lawson State Park, Burrowa-Pine Mountain National

Park and Mt.Mittamatite. Outstanding vistas toward the Snowy Mountains exist in the Murray River environs east of Tintaldra and afford some of the most spectacular views in the country.

The Towong Heritage Study notes the landscape values of the Murray River environs, particularly in the eastern part of the shire and also at specific locations such as Farran's Lookout, Tintaldra Station, Towong Hill Station and Tom Groggin Station.

### Objectives

- Identify and protect significant landscapes that contribute to the character and identity of Towong Shire.

### Strategic Actions

- Identify and protect significant landscapes.
- Apply the Significant Landscape Overlay to National Trust listed landscapes and the environs of the Murray River upstream of Lake Hume including Tom Groggin.
- Ensure that in areas of significant landscapes new development does not detract from their natural and aesthetic values.
- Discourage plantation establishment in significant landscapes.
- Implement the recommendations of the Towong Shire Settlement Strategy (2010).
- Implement the recommendations of the Towong Shire Rural Land Use Study.

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### Heritage

The cultural heritage of the Shire is evident in buildings, archaeological sites, trees and other significant places that have scientific, aesthetic, architectural, cultural, historical or social significance. The *Towong Shire Heritage Study* has identified significant cultural heritage places within the following main themes:

#### 1. Early Occupation and Settlement

The Towong area was one of the earliest settled areas in Victoria, however initially the settlers generally came from north of the Murray River. Later, as the southern areas of the Port Phillip District were progressively taken up, settlers moved northwards from there into the Towong region.

The earliest settlers illegally occupied 'runs', but later changes to the regulations meant that squatters could lease a run and settlement became more regularised. Settlement increased, although it was limited, with the onset of the gold rush, firstly at Snowy Creek (later Mitta Mitta) during the late 1850s. Selection began primarily after 1866, initially in the northern surveyed parts of the Shire. Most of the existing towns, were established in the later part of the 19th century. Major changes which have irrevocably affected the landscape, have occurred in the Shire during the course of the 20th century, including the creation Tallangatta which was relocated in the 1950's and has become iconic in the Shire and elsewhere as 'the town that moved'.

The Shire is endowed with a considerable number of places which have long associations with its early post-contact occupation including homesteads associated with squatting and selection.

#### 2. Agriculture

Farming enterprises within Towong were initially based around livestock grazing and the earliest settlers, the squatters, tended to concentrate on grazing cattle. Cropping in Towong Shire was not cost effective because of the extent of land clearance required, the river flats flooded in the spring and the prohibitive cost of transporting crops. For most of the early

20th century dairying was on a small scale because of the distance from markets and the lack of adequate refrigeration. Most of the earliest selection plots were subsistence with little excess for any markets. It was not until railways and roads came to the region that the majority of smaller settlers could progress. Key places associated with agriculture that have been nominated by the Towong Shire Heritage Study include the Eskdale Butter Factory, Old Tallangatta Butter Factory and various showgrounds.

### 3. Mining

Many abandoned mining sites are found throughout the Shire. One of the more remarkable legacies is the survival of mining equipment (such as stampers, batteries and others) that illustrates a wide variety of gold mining techniques. The topography and isolated nature of many of the sites, especially those in the south-east part of the Shire, has meant that much of the equipment has been left in situ as it was too difficult to relocate after mining operations ceased. The amount of relics that are evident at the many mining sites is notable and generally does not occur to such a degree elsewhere in Victoria.

### 4. Timber and Water

These two natural resources, with which the Shire is well endowed, have been long exploited for economic development. A distinctive feature of the shire is the relative emphasis on water storage, with the two large storages of Lake Hume and Dartmouth Dam. Many of the forests in the Towong Shire have been extensively logged over the years. The early settlers relied on the timber for the construction of fences and houses, as well as for fuel. The 19th century gold rushes increased the demand for timber greatly when large amounts of timber were used underground to prop up the mining tunnels, sleeper the tramways and line the shafts of mines. The voracious appetites of the mine boilers also consumed large amounts of firewood. The demands by miners reduced dramatically in the 20th century but the timber industry continued with most supplies used by the construction industry.

### 5. Community and Cultural Life

A century ago the proportion of rural population was higher and as vehicular transport was limited, there was a need for each community to have their own hall to accommodate a range of social activities. By the late-19th century, the populations of some isolated areas had increased sufficiently to warrant the need for schools. Distance excluded the children attending schools already established at larger centres, so often the school and hall was combined. During the 20th century, these buildings remained important facilities as the social centres of the local communities, where events were held for a wide range of social activities, administrative purposes such as voting stations and other public meetings and events. The communities of the Shire have had to be resourceful in regards to cultural life and many places buildings have been established with persistence and local labour.

Two key precincts worthy of statutory protection have been identified by the *Towong Shire Heritage Study*. These are:

#### 1. Former Wodonga – Cudgewa Railway Reserve Precinct.

*The railway reserve is of historical significance as being one of the most difficult to install in the State during the late 19th and early 20th century and because of the precipitous grades and high proportion of trestle bridges. The station at Shelley had the prestige of being the highest in Victoria. The establishment of the line allowed access to the Melbourne markets and thus was a stimulus for the expansion of primary industries, and some secondary industries, in the Shire. The reserve is also significant for its associations with construction of the Snowy Mountains Hydro-electric scheme, as many of the materials were brought along the railway. The reserve is of social significance because of the strong associations the local community has had with it. The high proportion of timber trestle bridges, some among the tallest in the State, reinforces this aesthetic significance. The taller bridges are also of technical significance for aspects of their construction for example, some are, unusually, a composite timber-steel construction.*

#### 2. Tallangatta Precinct (Central Tallangatta)

*The Tallangatta Precinct is of historic significance as being indicative of mid-20th century town planning practices and for being remarkably intact to its period of construction. Tallangatta may be the most intact of the group of (relocated and) planned towns in south-east Australia from the 1950s-60s when several towns were relocated to allow for the expansion of water storage facilities. The Tallangatta Precinct is of aesthetic significance for its planning and design of the mid-1950s buildings. The axial planning consisting of a central reserve with mature exotic trees providing a verdant oasis in the middle of the town serves to separate residential and public buildings to the north side from the commercial buildings opposite. The public buildings – two churches, memorial hall, Shire hall and court house in particular – are noteworthy in their own.*

### **Objectives**

- Identify, conserve and enhance heritage places of natural or cultural significance, including pre-settlement heritage.
- Conserve and enhance those elements which contribute to the significance of heritage places.
- Ensure that development does not adversely affect the significance of heritage places.
- Provide for the conservation and enhancement of those places which are of, aesthetic, archaeological, architectural, cultural, scientific, or social significance, or otherwise of special cultural value.

### **Strategic Actions**

- To implement the recommendations of the *Towong Shire Heritage Study*.

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### **Farmland of strategic significance**

Because of the significance of agriculture to the Shire's economy, there is a need to protect high quality agricultural land that contributes most to food production. It is accepted that high quality agricultural land has an inherent advantage over other land from a productivity point of view and is a resource that is more adaptable for a range of different farming enterprises. As a consequence, such lands are considered the best to retain in agricultural use. This is clearly illustrated by much of the Towong agricultural output being produced by a relatively small part of the overall rural landscape. It is estimated that around 40% of agricultural output is produced from around 6% of the freehold rural land and approximately 50% of freehold rural land produces 90% of agricultural output. The remaining half of freehold rural land only produces around 10% of agricultural output.

Areas of the Towong rural landscape identified as being of high quality for the purpose of agriculture are an important resource that will continue to underwrite the economy of the Shire and indirectly contribute to the overall economic well-being of the broader Towong community. As a consequence, it is the intention of the Towong Planning Scheme to guard against the conversion of prime agricultural land to non-agricultural uses, and to take a long-term perspective toward its management and protection so as to ensure inter-generational equity with respect to the allocation of the resource.

By adopting a spatially differentiated planning approach based on land capability the planning scheme can articulate the importance of those parts of the rural landscape that contribute most to the overall Shire 'farm gate' output, and in these areas agriculture and food production has primacy. Such an approach also allows flexibility and discretion in those parts of the rural landscape that are substantially less economically important from a rural production perspective, thereby assisting in the aspirations of increased economic diversity and population growth.

## Objectives

- To identify and protect high quality agricultural land and farmland of strategic significance for food production.
- To encourage land use diversity in areas external to areas of high quality agricultural land.

## Strategic Actions

- Implement the recommendations of the Towong Shire Settlement Strategy (2010).
- Implement the recommendations of the Towong Shire Rural Land Use Study.
- Implement a planning strategy that recognises and responds to the multifunctional nature of the Towong rural landscape so as to cater for differing rural land use planning outcomes based on land capability. This approach recognises three main spatial rural planning policy units:
  1. **Production Towong** – this includes areas of farmland of strategic significance containing high quality agricultural land where agriculture and food production has primacy, and where protection of agricultural land is paramount. In these areas the following are to occur:
    - a. The Environmental Significance Overlay is to be extended to apply to all high quality agricultural land as defined by the 1:50,000 agricultural quality mapping undertaken by the 1985 Rural Land Mapping Project.
    - b. Retention of the Farming Zone with a merits based approach to minimum subdivision size.
    - c. Undertake land capability mapping at 1:25,000 scale to better define high quality agricultural land within Towong Shire and to provide the basis for a revised high quality agricultural land Environmental Significance Overlay and for the deployment of a zoning regime that gives primacy to agriculture.
  2. **Transitional Towong** - being agricultural land of low to moderate quality where diverse land use planning outcomes are encouraged including deploying a zoning approach that encourages increased planning discretion and enabling consideration of a diverse range of land uses together with a merits based minimum subdivision size.
  3. **'Peri Urban' Towong** - being land essentially located within the 40min travel / commute contour of nearby Albury – Wodonga where rural residential development is to be encouraged and where there is an absence of high quality agricultural land.

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### Climate change

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The potential for greater climate variability in the future linked to global climate change with more frequent and / or severe droughts, more severe fire weather conditions, more intense rainfall and flooding could pose a challenge to the communities and economy of Towong Shire.

The vulnerability of Towong Shire to future climate change chiefly stems from the reliance on a narrowly based economy with a heavy reliance on climate dependent industries such as forestry and agriculture whose production processes and operations are tied directly to climate conditions. In this regard, Towong is the most vulnerable municipality in region to climate change.

Aside from any flow-on effects that could result from impacts on the Shire's economy and industries, climate change and variability also has the potential to have significant long-term impacts on communities within the municipality. According to the *Climate Change in North East Victoria: Socioeconomic Resilience Plan (2012)*, groups especially vulnerable to climate change, variability and extreme climate events such as floods, storms, bushfires and heat waves include:

- low income earners;
- infants and the elderly; and
- people with existing health conditions (including physical and mental health).

Towong has significant proportions of people in these categories.

The vulnerability of these groups stems from:

- limited capacity to prepare for impacts due to lack of resources or an inability to access or effectively utilise relevant information;
- difficulty in responding to particular impacts, due to physical incapacity, lack of mobility or lack of resources; and/or
- problems with recovering from impacts, again due to lack of resources or to the absence of effective social networks.

### **Strategic Actions**

It is likely that climate variability and change will interact and build on established economic, social, demographic and policy pressures to increase the challenges that those industries and groups already face. Building resilience of the economy and community of Towong Shire to climate change and variability will be best focussed on the following areas:

- Adaptations within the agricultural sector; and
- Communities vulnerable to climate extremes (heatwaves, bushfires, floods and storms) with a particular emphasis on:
  - the elderly;
  - people with pre-existing health concerns;
  - households on low incomes; and
  - isolated communities (either geographically or lacking access to support networks).

The key to building resilience in a community is its ability to utilise community resources to transform and respond to change in an adaptive way.

A key strategic action is the implementation of the recommendations of the Climate Change in North East Victoria: Socioeconomic Resilience Plan (2012) to improve economic, industry and community resilience within Towong shire.