

## South Australia's Strategic Plan *...through a health lens*



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Throughout this report the term ‘Aboriginal’ is used to include all Indigenous people in South Australia

## Introduction

This paper was prepared for the *Health in All Policies* conference in Adelaide, South Australia, November 2007, jointly hosted by the Department of the Premier and Cabinet and the Department of Health.

Both this paper and the *Health in All Policies* conference emerged from recommendations by 2007 Adelaide Thinker in Residence, Professor Ilona Kickbusch, in her interim report *South Australia Takes the Lead on 21<sup>st</sup> Century Health*<sup>1</sup>.

*South Australia's Strategic Plan through a Health Lens* examines the interactions between health outcomes and a number of targets across the six objectives of South Australia's Strategic Plan.

It aims to stimulate thinking by policy makers around some of the positive and negative impacts of public policies created outside the health sector on health in and of our communities. It is a mechanism to prompt policy advisors and decision-makers to include a broader consideration of the health-related issues and implications of proposed government, business and community sector actions.

### South Australia's Strategic Plan

South Australia's Strategic Plan (the Plan) was initially launched by the Government of South Australia in March 2004 with an updated version released in January 2007.

The Plan was informed by wide-ranging community consultation and represents an attempt to capture the values, priorities and ambitions of the state. Premier Rann has described it as a 'goad to action for all South Australians'<sup>2</sup>. It is the key reference point for Government determining the best way to meet longer-term goals for the state. But it is also a whole-of-state plan with ambitious targets that can only be achieved through cooperation within and between government, industry and the community. Partnerships will be critical to its success. The Plan issues a challenge to all South Australians to take action for a better future.

The Plan contains 98 targets, the majority of which have a 2014 timeframe, arranged across the following six interrelated objectives:

- Growing Prosperity
- Improving Wellbeing (which contains a number of health specific targets)
- Attaining Sustainability
- Fostering Creativity and Innovation
- Building Communities
- Expanding Opportunity

The targets have been developed according to 'SMART' criteria – specific, measurable, achievable, relevant and timebound. Within Government a lead Minister and lead agency have been assigned for each of the targets, with primary responsibility for developing, coordinating and deploying an implementation plan, setting out key strategies to achieve the target in concert with other contributing agencies and stakeholders.

An important feature of the Plan is that neither the objectives nor any individual targets stand alone; they are all part of a larger inter-related framework. Achieving one target should not come at the expense of another. Smart thinking about how we do things can neutralise effects on other targets, or even turn them into positives. The Plan identifies a number of 'key interactions' between targets under different objectives. These include, for example, economic growth (under Objective 1) and greenhouse gas emissions reductions (under Objective 3). These 'key interactions' are indicative and represent a sample of the broader range of interactions between targets. The aim is to encourage the collaborative behaviour and innovative thinking required to address some of the most complex issues South Australia faces. Of equal importance, these interactions also include some synergies between targets across the Plan.

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<sup>1</sup> Available at <http://www.thinkers.sa.gov.au/>

<sup>2</sup> Government of South Australia, South Australia's Strategic Plan, January 2007, pg 3

This paper builds on the notion of key interactions, highlighting some additional connections by placing a 'health lens' over a range of targets across the Plan.

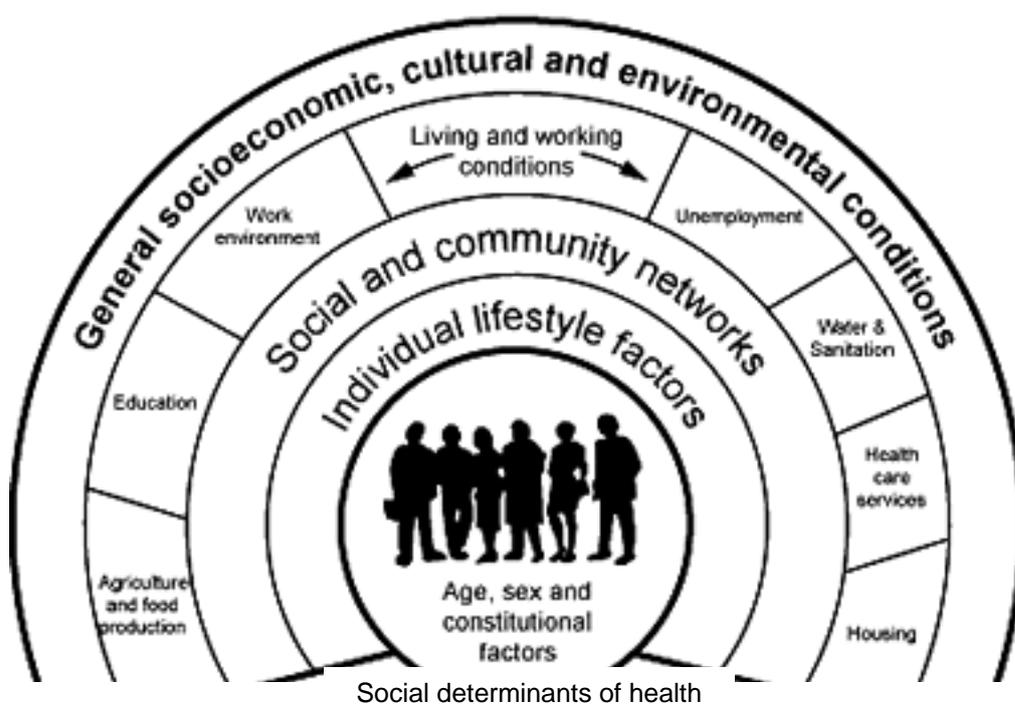
### Why Apply a Health Lens?

*Health - A state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity*<sup>3</sup>

Health has an enormous influence on our overall quality of life. Good health is something that we all want and expect, and many take for granted. Poor health imposes a huge cost on South Australians. It reduces the quality and length of life for those affected and adds pressures to the lives of carers and family. There is also a significant financial burden on the health system. And, with an ageing population, health considerations and costs will only become greater.

Although major developments have been made in managing and preventing acute illnesses, chronic health conditions are emerging as a significant and ongoing cost to the community. In recognition of this, a target on chronic diseases was included in the 2007 update of the Plan. About 40% of South Australians have at least one of the following chronic conditions: arthritis, cardiovascular disease, chronic obstructive pulmonary disease, diabetes and osteoporosis. An estimated 15% of South Australians suffer two or more chronic diseases<sup>4</sup>. Many of these conditions are closely linked to living conditions and lifestyle factors, all of which are influenced by policies determined outside the health sector.

Such linkages between health outcomes and the policies developed in 'non-health' sectors have been discussed in several jurisdictions under different headings over a number of years including, of recent and particular note, in *Sweden's New Public Health Policy (2003)* and the *Health in All Policies* approach that was adopted by the European Union in 2006 during the Finnish Presidency. *Health in all Policies* seeks to integrate health considerations across a wide range of policy areas that affect the *social determinants of health* such as the environment, education, child development, social capital, housing, transportation, and employment. The idea is to recognise and address the causes – or determinants – of ill-health and to shift the focus from treatment to prevention. These *determinants of health* influence health and wellbeing at the individual, family and community level as depicted by Dahlgren and Whitehead<sup>5</sup> in the diagram below.



<sup>3</sup> World Health Organisation Constitution, 1948.

<sup>4</sup> Government of South Australia. South Australia Health Care Plan 2007-2016, page 5.

<sup>5</sup> Dahlgren, G. and Whitehead, M. Policies and strategies to promote social equity in health. Stockholm: Institute of Futures Studies, 1991.

## About this Paper

The 14 Plan targets selected for analysis in this paper are set out in the table below. They are spread across all the six objective areas in the Plan and involve a range of departments outside the health sector.

Objective 1: Growing Prosperity	
T 1.1 Economic growth	Exceed the national economic growth rate by 2014
T 1.22 Total Population	Increase South Australia's population to 2 million by 2050 with an interim target of 1.64 million by 2014.
Objective 2: Improving Wellbeing	
T 2.2 Healthy Weight	Increase the proportion of South Australians 18 and over with healthy weight by 10 percentage points by 2014.
T 2.8 Statewide crime rates	Reduce victim reported crime by 12% by 2014
T 2.12 Work-life balance	Improve the quality of life of all South Australians through maintenance of a healthy work-life balance
Objective 3: Attaining Sustainability	
T 3.6 Use of public transport	Increase the use of public transport to 10% of metropolitan weekday passenger vehicle kilometres travelled by 2018
T 3.7 Ecological footprint	Reduce South Australia's ecological footprint by 30% by 2050
T 3.9 Sustainable water supply	South Australia's water resources are managed within sustainable limits by 2018
Objective 4: Fostering Creativity and Innovation	
T 4.8 Broadband usage	Broadband usage in South Australia to exceed the Australian national average by 2010, and be maintained thereafter.
T 4.9 Public expenditure	By 2010, public expenditure on research and development, as a proportion of GSP, to match or exceed average investment compared to other Australian states
Objective 5: Building Communities	
T 5.6 Volunteering	Maintain the high level of volunteering in South Australia at 50% participation rate or higher
T 5.9 Regional population levels	Maintain regional South Australia's share of the state's population (18%)
Objective 6: Expanding Opportunity	
T 6.5 Economic disadvantage	Reduce the percentage of South Australians receiving government benefits (excluding age pensions) as their major income source to below the Australian average by 2014
T 6.16 SACE or equivalent	Increase yearly the proportion of 15-19 year olds who achieve the SACE or comparable senior secondary qualification.

It is worth restating that, even within the construct of this paper, none of these targets stand alone. For example, consideration of the economic growth target necessarily involves discussion of aspects that are themselves the subject of separate targets, such as employment and productivity. This paper is not intended to be a comprehensive assessment of all linkages, and judgements have been made to focus on particular areas of note.

## OBJECTIVE 1: GROWING PROSPERITY

### **Target 1.1 Economic Growth: exceed the national economic growth rate by 2014**

#### **The South Australian Context**

Over much of the past decade and a half, South Australia's economic growth rate generally trailed the Australian average. Since the Plan's release, South Australia's economic performance has been good overall, but the challenge remains to maintain and improve on that performance.

How can economic growth contribute to health in the community and vice versa? Four significant relationships are outlined below.

#### **Healthy people are more productive**

Healthier people are more productive; they experience lower levels of absenteeism due to illness and injury. As an example, mental illness – primarily depression and anxiety – is a leading cause of high employee overheads and reduced productivity in the workplace<sup>6</sup>. In Australia, absenteeism due to depression accounts for around six million working days lost each year, costing employers approximately \$1.2 billion. Depression reduces workers' performance by at least 40%, which translates to around 30 million working days lost per year<sup>7</sup>.

#### **A strong economy can result in better health outcomes**

Higher employment delivers social as well as economic dividends. Good job opportunities are vital if people are to lead fulfilling, independent lives. Employment can have a powerful impact on how people engage with their immediate family and wider community. Being actively employed is also associated with lower levels of social isolation and greater levels of self-esteem, which are closely connected to good physical and mental health.

#### **Poor health is a cost to society**

Poor health imposes a direct financial cost to the community through increased reliance on health services and infrastructure, reduced levels of productivity (as above) and increased demand on the welfare system<sup>8</sup>.

During the 2005-06 financial year, the Health portfolio accounted for approximately 34% of South Australia's state budget (approximately \$3.6 billion<sup>9</sup>). When costs incurred by the private sector and community are included, the cost to the state is estimated at over \$7 billion<sup>10</sup>. This figure is expected to continue to grow due to the health impacts of an ageing population, the growing prevalence of chronic health conditions within the community and the costs associated with the application of new and expensive technologies, treatments and drugs.

#### **The health system is a significant and growing sector of our economy**

While the cost of maintaining our health system continues to increase, it is also worth considering that the health system and related industries is an important and growing sector of our economy.

<sup>6</sup> Australian Institute of Health and Welfare, The burden of disease and injury in Australia 2003.

<sup>7</sup> Work Outcomes Research and Cost-benefit Project, 2000. University of Queensland.

<sup>8</sup> WHO Commission on Macroeconomics and health, <http://www.cmhealth.org>

<sup>9</sup> Department of Treasury and Finance, Final Budget Outcome 2005-2006.

<sup>10</sup> Health Expenditure Australia 2004-05, Australian Institute of Health and Welfare, series # 28.

The public health system alone is the second largest employer in the state<sup>11</sup> and the state's increasing, and ageing, population will continue to increase demand for health services into the future.

In this context it is also noteworthy that there is currently an international shortage of medical and nursing staff, and that recruitment in South Australia is anticipated to become more difficult in particular specialties, such as obstetrics and intensive care<sup>12</sup>. This factor will not only impact on the state's ability to provide appropriate levels of care, but careful planning work is needed to ensure that this does not constrain further economic growth within the health and community services sector.

### **Target 1.22 Total Population:**

***increase South Australia's population to 2 million by 2050 with an interim target of 1.64 million by 2014***

### **The South Australian Context**

South Australia's population growth has been the lowest of the Australian mainland states over much of the last decade. A lower number of immigrants and a net loss due to interstate migration have contributed to this, although recently there has been an increase in the number of overseas migrants settling in South Australia. Women are also delaying child bearing, or choosing to have small families, such that fertility rates are below replacement levels.

South Australia's population profile is older than other states, so the impact of ageing is more acute. With the baby boomer generation moving towards retirement over the next decade, the proportion of people at working age is shrinking as a percentage of the whole population.

### **An increasing population will affect a number of the social determinants of health**

Population growth will have wide-ranging implications for the South Australian community, with potential impacts on a number of the social determinants of health. Some of these include:

- the way people live: housing, infrastructure, transport, energy
- employment opportunities
- access to, and the quality of, healthcare services
- education
- the natural environment
- social and community networks, particularly for new migrants

### **An increasing, and ageing, population will place further pressure on the health system**

As mentioned above, South Australia has the highest proportion of older people in the nation, with one in six people over the age of 65. In the next 15 years, that population will nearly double and as the "baby boomer" generation ages, the proportion of people aged over 65 will further increase.

The ageing of South Australia's population will have significant health implications. People aged between 65 and 75 years are twice as likely to be admitted to hospitals as the rest of the population, and those aged over 85 years are more than five times more likely to be admitted to hospitals.

Older people also have particular health care needs. Those over 65 years currently make up 15.3% of the South Australian population, but make up 65.5% of those hospitalised for injuries caused by falls. These patients account for 71.1% of all hip replacements and 64.2% of all knee replacements. The demand for rehabilitation and palliative care services is also higher among the older population<sup>13</sup>.

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<sup>11</sup> It employed 28,270 people in health and community services in 2002. Government of South Australia. Generational Health Review, April 2003. Page 25.

<sup>12</sup> Government of South Australia. South Australia's Health Care Plan 2007-2016, page 7

<sup>13</sup> Government of South Australia. South Australia's Health Care Plan 2007-2016, page 5.

## OBJECTIVE 2: IMPROVING WELLBEING

**Target 2.2 Healthy Weight:**  
***increase the proportion of South Australians 18 and over with healthy weight by 10 percentage points by 2014.***

### **The South Australian Context**

This target aims to increase the proportion of South Australian adults with healthy weight levels by 10 percentage points. Over half of South Australian adults and a quarter of South Australian children are overweight or obese. Obesity now ranks with tobacco as the number one preventable cause of death in South Australia<sup>14</sup>.

### **Overweight and obesity lead to poor health**

Overweight and obesity is a major contributing factor to a range of chronic diseases.

For example, research undertaken by the Department of Health has indicated that 22.9% of diabetes in the population could be attributed to obesity<sup>15</sup>. Other health conditions associated with overweight and obesity in adults include musculo-skeletal problems, cardiovascular disease, sleep apnoea, hypertension and some cancers. (A more comprehensive summary of the myriad health consequences associated with overweight and obesity is provided in the *Clinical Practice Guidelines for the Management of Overweight and Obesity in Adults*.<sup>16</sup>)

The psychological consequences of overweight and obesity for both adults and children are also significant. Overweight and obese people face discrimination, negative stereotyping and negative attitudes from other people. Overweight and obese young people are more likely to have fewer friends and suffer ongoing peer rejection. These factors can result in low levels of self-esteem, reduced body image and an increase in depressive symptoms.

### **A question of equity**

The prevalence of overweight and obesity within South Australia is not evenly spread within the community. There appears to be a link between socio-economic status and rates of obesity and overweight, with higher prevalence of obesity among people with a lower socio-economic status<sup>17</sup>.

**Target 2.8 Statewide Crime Rates:**  
***reduce victim reported crime by 12% by 2014***

### **The South Australian Context**

South Australians are entitled to be safe and secure in their communities. The incidence of victim reported crime has been steadily decreasing in South Australia in recent years, but challenges remain. Key among these are: identifying and dealing with new types of crime; the high representation of our Aboriginal people in the criminal justice system; and the high incidence of people with a mental illness in the criminal justice system, both as perpetrators and victims.

### **Victims of crime experience mental and physical impacts**

Violence and assault, including domestic violence, have direct short-term and long-term effects on the physical and mental health of its victims and witnesses, beyond any obvious physical injuries which may

<sup>14</sup> Government of South Australia. South Australia's Health Care Plan 2007-2016, page 6.

<sup>15</sup> Bratkovic, L., Dal Grande, E., Gill, T. and Taylor, A. Population surveillance in South Australia: Is there a relationship between obesity and chronic conditions? Department of Health.

<sup>16</sup> National Health and Medical Research Council. Clinical Practice Guidelines for the Management of Overweight and Obesity in Adults. Endorsed September 2003. Page 5.

<sup>17</sup> Access Economics. The Economic costs of obesity. October 2006. Page 14. Also see Government of South Australia, Inequality in South Australia Key Determinants of Wellbeing. Volume 1: The evidence. 2004, pg 68.

have been inflicted. Victims of crime can experience feelings of shock, self-blame, fear, anger, anxiety and depression<sup>18</sup>. Victims of crime also report higher levels of alcohol and drug use, which may be used to numb the experience. The breakdown of trust and sense of security as a result of the crime can cause victims to distance themselves from other people and the wider community, increasing the possibility of social exclusion.

### **Mental illness and crime**

The Social Inclusion Board's action plan for mental health reform noted that the elevated prevalence of mental illness amongst people involved with the criminal justice system is a worldwide phenomena. The Board pointed to recent research conducted at the Queen Elizabeth Hospital which found that, at some point in their life, 84% of people with a severe mental illness admitted to the psychiatric ward had been physically assaulted, and 56.9% had experienced sexual assault. Of all participants in the study, 66% had committed at least one act of violence towards someone else in the past. This research demonstrates a strong link between the prevalence of violent behaviour in people with a severe mental illness and past experience of criminal victimisation. This provides insight into the high prevalence and adverse effects of victimisation on people with severe mental illness and the impact this has on their resilience and behaviour. The Social Inclusion Board has recommended that Aboriginal people, people who live in the country and people with complex needs should be considered as populations that require a specific focus in relation to mental illness.<sup>19</sup>

### **Alcohol and drugs**

There is considerable research linking drug and alcohol abuse and criminal behaviour. The interactions are complex and involve other factors as well, including family experiences in early childhood.

Drug or alcohol addictions can act as both cause and effect of crime, and in themselves are risks for health within the wider community<sup>20</sup>. Drug or alcohol abuse can impair a person's judgement or state of mind at the time of committing the crime, or may influence criminal behaviour through the need to support an on-going addiction.

### **Target 2.12 Work-Life Balance:**

***Improve the quality of life of all South Australians through maintenance of a healthy work-life balance***

#### **The South Australian Context**

Today's workforce is diverse and represented increasingly by older employees, people raising children at the same time as providing eldercare, working parents and dual-income families. The crossover and tension between work and other life commitments can impose significant social, health and economic costs for individuals, families and the wider community, and act as a disincentive to joining, rejoining or staying in the workforce.

At the same time, increasing participation rates within the community is viewed as a key element for future economic growth. South Australia's workforce participation rates have generally trailed the Australian average for a number of years.

Given this, measures to improve work-life balance are particularly important to encourage more people into employment, help them to remain in the workforce longer and assist people to balance work and private responsibilities.

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<sup>18</sup> This information found at NSW Health: <http://www.health.nsw.gov.au/victims/experience.html>

<sup>19</sup> Stepping Up: A Social Inclusion Action Plan for Mental health Reform 2007-2012, Social Inclusion Board, pg 19-20, 26

<sup>20</sup> "Crime and Safety, 2005: The South Australian Perspective" Nichole Hunter and Brianna Kenneally, Information Bulletin, Number 52, May 2006, OCSAR.

## Work-life conflict is unhealthy for people and families

Work-life conflict is bad for a person's quality of life, health status and relationships. People experiencing conflict between work and family report higher levels of stress and burnout, dissatisfaction with life, lower levels of mental (psychological) and physical health<sup>21</sup>. They also report feeling less able to enjoy leisure activities, more use of prescription medications and rely more heavily on the public health system<sup>22</sup>.

Work-life conflict also affects families. Research indicates that burnout associated with work-life conflict is connected to increased domestic conflict, decreased family cohesion and increased risk of marital breakdown. Changes within the labour market and patterns of employment also have the potential to impact on health in the community. For example, many Australians are now working longer hours and are tending to delay taking annual leave. This can compromise their health and wellbeing over the medium to long-term<sup>23</sup>. Children whose parents work non-standard hours are more likely to have emotional and behavioural problems than those whose parents work a standard week<sup>24</sup>. On the other hand, families who enjoy a good work-family balance report being better able to cope with daily stresses and have better child development outcomes.

## OBJECTIVE 3: ATTAINING SUSTAINABILITY

### Target 3.6 Use of public transport:

***To increase the use of public transport to 10% of metropolitan weekday passenger vehicle kilometres travelled by 2018***

#### The South Australian Context

This target aims to achieve higher levels of use of public transport with a corresponding decrease in our reliance on private motor vehicle travel. This will result in associated benefits to the environment, through lessening the overall amount of greenhouse gas emissions, as well as promoting healthier forms of transport to complement public transportation, such as walking and cycling.

#### Vehicle emissions are bad for your health

With one bus having the potential to replace 40 cars on the road, the greater use of public transport can contribute to reductions in vehicle emissions and traffic congestion in Adelaide. Vehicle emissions have health consequences for people and communities by way of noise, reduced air quality and the environmental impacts of climate change. Pollutants and chemicals found within vehicle emissions have been shown to be associated with reduced lung function and a higher incidence of respiratory and cardiovascular problems, including cancer<sup>25</sup>. Noise created from traffic and vehicle usage can impact on hearing, communication, concentration, school performance, sleep, temper, hypertension and heart disease<sup>26</sup>.

#### Public transport encourages more active behaviour

Policies that encourage alternative forms of transportation have an important role to play in encouraging more active and healthier lifestyles within the community.

The World Health Organisation suggests that a sedentary lifestyle is one of the ten leading causes of death and disability in the world. Physical inactivity increases all causes of mortality, doubles the risk of

<sup>21</sup> Pocock, B., Skinner, N and Williams, P. *Work, Life and Time: The Australian Work and Life Index 2007*.

<sup>22</sup> Duxbury, L & Higgins, C. *Work-Life balance in the new millennium. Where are we? Where do we need to go?* 2001. Canadian Policy Research Networks.

<sup>23</sup> Tourism Australia. *No leave, no life. Study on annual leave stockpiling*. 2005.

<sup>24</sup> Pocock, B., Skinner, N and Williams, P. *The Australian Work and Life Index (AWALI): Concepts, methodology and rationale*. 2007. Page 6.

<sup>25</sup> Dora, C. and Phillips, M. *Transport, Environment and Health*, World Health Organisation, page 19-22.

<sup>26</sup> Dora, C. and Phillips, M. *Transport, Environment and Health*, World Health Organisation, pages 9 -10.

cardiovascular disease, type II diabetes, and obesity. It also increases the risks of colon and breast cancer, high blood pressure, lipid disorders, osteoporosis, depression and anxiety<sup>27</sup>.

A reliance on cars and other forms of transport that take occupants from 'door-to-door' is contributing to our sedentary lifestyles. In contrast, using public transport generally involves more walking than travel by private car and also lends itself easily to passengers undertaking additional exercise, for example by getting off a stop early to walk a greater distance to their destination.

### **Public transport provides access and promotes community interaction**

Public transport has a role in promoting social equity, by providing affordable means of transport for people who cannot drive or do not have a car. People without access to adequate transportation can become socially isolated. Research has shown that social isolation and lack of community interaction are strongly associated with poorer health.<sup>28</sup> Public transport enables people to access the services, jobs, education and social connections that are part and parcel of a good quality of life. And – in contrast to travel by car – walking, cycling, and public transportation stimulate more incidental social interaction.

## **Target 3.7 Ecological Footprint:**

***Reduce South Australia's ecological footprint by 30% by 2050.***

### **The South Australian Context**

The natural environment influences our quality of life, health and wellbeing. Population growth, urbanisation and industrialisation have placed enormous stress on the ecosystems that provide the air, water, food and the resources we consume.

The ecological footprint is a sustainability indicator which expresses the relationship between the consumption patterns of humans and the natural environment. The ecological footprint represents sustainability as a notional area of land required to sustain our current living conditions and consumption patterns. The less efficiently we live, the larger our footprint.

South Australia's ecological footprint of 7.0 global hectares per person is lower than the Australian average of 7.7, but considerably higher than the OECD's average of 5.2 and the world average of 2.2<sup>29</sup>.

The method used to calculate South Australia's ecological footprint, takes the following areas into account:

- Food
- Housing
- Mobility
- Goods
- Services

There are many ways in which the ecological footprint interacts with health. The two key issues that have been selected for further discussion below include the footprint of food and the health system.

### **Food's footprint and health**

Currently, 36% of South Australia's ecological footprint is attributed to the consumption of food.

There is a large body of evidence emerging across the world that the way in which we grow, transport and consume our food can have negative impacts both on the environment and our health and wellbeing. For example, an American obesity researcher, Adam Drewnowski, discovered that processed food, which was calorie dense but poorer in nutrition, was the cheapest food. This can encourage those who are on a

<sup>27</sup> World Health Organisation Website, 'Move for Health':  
[/www.who.int/moveforhealth/advocacy/information\\_sheets/sedentary/en/index.html](http://www.who.int/moveforhealth/advocacy/information_sheets/sedentary/en/index.html)

<sup>28</sup> Wilkinson, R. and Marmot, M. *Social Determinants of Health: The solid facts* (2<sup>nd</sup> Edition). World Health Organisation. 2003.

<sup>29</sup> Government of South Australia, South Australia's Strategic Plan, pg 24

tight budget to eat badly, and put on weight, with all of the associated negative health impacts discussed earlier in relation to the healthy weight target (T2.2). Australian diets are also changing, with greater levels of energy-dense, nutrient-poor foods being consumed. These changes compromise human nutrition and contribute to the overweight and obesity problems that we, in common with many other parts of the world, are facing. In contrast, a recently released 10 year study into organic tomatoes identified a potentially significant health benefit of 79-97% higher levels of flavonoids than in non-organic tomatoes, which may protect against cardiovascular disease<sup>30</sup>.

Minimally processed food is not only better for health but is also better for the environment. It uses far less energy in its production. For example, growing organic fruit and vegetables does not use manufactured fertilisers and pesticides that require significant volumes of energy in their production. There is evidence that the energy intensity of organic farming systems in Australia is less than half that of conventional systems, suggesting a significantly smaller ecological footprint for organic produce than that produced using conventional techniques<sup>31</sup>.

Of additional note, the transportation of food, especially by air and road, also consumes fuel and energy, and releases greenhouse emissions into the atmosphere. Selecting locally grown food reduces our ecological footprint, but also results in less nutrient loss due to the shorter time elapsed between harvest and consumption.

Jacob Wallace has summarised the connections between food, the ecological footprint and health outcomes, by stating that the trend in increasing obesity can be seen as 'a metaphor for ecological wastefulness. The systems that have allowed us to become overweight by allowing access to abundant, cheap, energy dense, nutrient-poor foods have also allowed an increase in the atmospheric concentration of carbon at an unprecedented rate, the salinisation and stripping of nutrients from soils, overexploitation of water resources and reduction of biodiversity.'<sup>32</sup>

### The footprint of the health system

The impact of the health system itself on the ecological footprint represents an interesting perspective that is receiving some international attention.

While there is no quantitative analysis of this impact at our local level, a study in the United Kingdom calculated that the National Health Service had an ecological footprint of 0.09 global hectares per capita.<sup>33</sup> This is not insignificant, and demonstrates the importance of taking steps to minimise the negative environmental impacts of our health system. The South Australian Government's commitment that the new Marjorie Jackson-Nelson hospital will comprise world-leading green building design to achieve the highest environmental performance in water and energy efficiency<sup>34</sup> is a notable response to such considerations.

## Target 3.9 Sustainable Water Supply: **South Australia's water resources are managed within sustainable limits by 2018.**

### The South Australian Context

Ensuring the sustainable use of our water is one of the most significant environmental challenges that South Australia faces. Water is not included in calculations of the ecological footprint. South Australia has taken a leadership role in focussing national attention on the plight of the River Murray and is implementing a range of initiatives to manage salinity. The ongoing drought has heightened the

<sup>30</sup> Mitchell, A.E, Hong y., Koh, E., Barrett D.M., Bryant D.E., Denison R.F, Kaffka, S., *Ten Year Comparison of the Influence of Organic and Conventional Crop Management Practices on the Content of Flavonoids in Tomatoes*, May 8 2007 American Chemical Society

<sup>31</sup> Wood R, Lenzen M, Dey C, Lundie S. 2006. A comparative study of some environmental impacts of conventional and organic farming in Australia. *Agricultural Systems*. 89: 324-348

<sup>32</sup> Wallace, J. Easy on the oil: Policy options for a smaller waistline and a lighter footprint. Department of Premier and Cabinet

<sup>33</sup> www.Material Health.com

<sup>34</sup> Government of South Australia. South Australia's Health Care Plan 2007-2016, page 26

community's awareness of the health and lifestyle implications and risks associated with reduced water supply.

### **Water supports human life**

Water is a necessary element that supports, and is critical to, human life and good health.

Water is also important for cleaning, washing up and personal hygiene and, as such, is an important method of prevention against sickness and disease.

Water can also be responsible for carrying pathogens such as bacteria, viruses and protozoa, all of which are capable of causing sickness and disease. Access to a regular and reliable supply of water that meets an acceptable level of quality is a fundamental building block for public health.

### **Spiritual, recreational and cultural connections**

Aboriginal Australians have a strong and special connection to the land and its water systems. Traditional knowledge about our rivers and waterways have been learned and passed on over generations. Dreamtime stories, which reflect Aboriginal values and culture and relating to sacred areas reflect their important and spiritual connection to the natural environment.

People and groups also enjoy and use the water systems for cultural and recreational purposes such as camping, water skiing, swimming, fishing, boating, picnicking and houseboating which promote health and wellbeing benefits through increased physical activity and relaxation.

### **Water and South Australia's farming and agricultural communities**

Having access to a reliable and sustainable water supply is of critical importance to South Australia and its rural communities.

A significant proportion of all fresh fruit and vegetables grown in Australia is produced via irrigation from the River Murray (19% of Australia's vegetables, 50% of all fruit and nuts and 63% of all grapes<sup>35</sup>). The community benefits from irrigated industries that provide a regular supply of locally produced fresh fruit, vegetables, grains and fibre. Research indicates that people who regularly eat diets high in fruits, vegetables and legumes have a substantially lower risk of coronary heart disease, stroke, some cancers, hypertension, type 2 diabetes, cataracts and macular degeneration of the eye<sup>36</sup>.

The economic benefits of a sustainable water supply for food and wine production in the state are significant. Irrigated agriculture has been estimated to have a gross value at the farm gate of \$1.4 billion<sup>37</sup>. This equates to larger towns, more businesses, more services and facilities.

The prolonged drought has highlighted the strong connection between water and health, particularly the risks to mental health of people living and working in rural communities in these circumstances. The state government packages offered in conjunction with Exceptional Circumstances declarations for drought-affected areas has included specific provisions for mental health and community development support.

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<sup>35</sup> Meyer, W. S. The Irrigation industry in the Murray and Murrumbidgee Basins, Cooperative Research Centre for Irrigation Futures, CSIRO. June 2005. page v

<sup>36</sup> National Health and Medical Research Council, Dietary Guidelines for Australian Adults. Commonwealth of Australia, April 2003, page 18.

<sup>37</sup> Cullen, P. Thinker in Residence 2004: Water Challenges for South Australia in the 21<sup>st</sup> Century, page 18.

## OBJECTIVE 4: FOSTERING CREATIVITY AND INNOVATION

### **Target: 4.8 Broadband usage:**

***Broadband usage in South Australia to exceed the Australian national average by 2010, and be maintained thereafter.***

### **The South Australian Context**

Broadband is the 'always on' communications infrastructure that allows a wider range of frequencies to be transmitted through the Internet. It enables Internet transmission far faster than regular dial-up access, speeding up the process of downloading files such as movies, music, emails and web pages, as well as providing a platform for the use of new technologies that are not supported by dial-up.

Broadband services are increasingly viewed as a fundamental tool for business, research, learning and community life, and an important component for a growing and prosperous future for the state. Health is a key sector in this regard.

### **Broadband enables new health technologies**

Access to broadband provides enormous potential for health care providers and the wider community by enabling new health technologies and software packages. These include Hospital at home, Rehabilitation in the Home, GP Home link, Medicare Australia on-line and clinical diagnostic support tools<sup>38</sup>. Patient care outcomes can be enhanced by improvements in the storage and exchange of electronic health records, test results referrals and requests<sup>39</sup>. Broadband technologies can also support the education and on-going professional development of health care professionals within the state, regardless of the location.

### **On-line information and services promotes healthy behaviours**

Affordable access to broadband is an important resource for people and communities, putting 'knowledge at their fingertips'. It provides faster access to health-related information and resources to assist people to manage their health and wellbeing. In particular, new programs are becoming available which are specifically designed to help people to self-manage chronic health conditions and diseases. By helping people to proactively manage their health and wellbeing, on-line information and resources can provide an important first-line resource that can enhance other primary health care initiatives available within the community.

### **The internet brings people together**

The proliferation of web-based chat rooms, blogs and other communities of interest has resulted in a myriad of opportunities for individuals to build networks and social connections through the internet. For many people, especially those who are shy, socially or geographically isolated, online communities are an important source of social support.

There is a well-established body of research demonstrating the important relationship between social support and psychological wellbeing. Social support helps people to cope with life problems and stresses when they occur. Social support has also been shown to have protective effects on a variety of chronic and infectious diseases, mental health (for example depression), childhood development and suicide<sup>40</sup>. In general, people with effective social support report lower incidences of sickness and disease and show faster rates of recovery.

<sup>38</sup> South Australian Broadband Strategy 2004-2008. Department for Further Education Employment Science and Technology.

<sup>39</sup> Broadband for Health Program, Australian Government: [www.health.gov.au](http://www.health.gov.au)

<sup>40</sup> For example: The University of Sydney. The impact of the internet on social capital and wellbeing of older adults. [www.fhs.usyd.edu.au/arow/sco/socialcapital.htm](http://www.fhs.usyd.edu.au/arow/sco/socialcapital.htm)

### **Target 4.9 Public Expenditure:**

***By 2010, public expenditure on research and development, as a proportion of GSP, to match or exceed average investment compared to other Australian states.***

#### **The South Australian Context**

South Australia has a strong science and technology research base to promote innovation. It is supported by three South Australian universities, the recent addition of campuses of Carnegie Mellon, and the delivery of courses in Adelaide by UK-based Cranfield University.

Other public sector activity in science, technology and innovation in South Australia is carried out by a wide range of important institutions such as<sup>41</sup>:

- Commonwealth Scientific and Industrial Research Organisation (CSIRO)
- Defence Science and Technology Organisation (DSTO) research headquarters
- South Australian Research and Development Institute (SARDI)
- public hospitals and the Institute of Medical and Veterinary Sciences (IMVS)
- the Department of Health
- Cooperative Research Centres based in South Australia

#### **Healthier people, improved health care, national wealth generation**

Health research provides the evidence base to improve prevention, treatment and the effectiveness of health care. It leads to innovations that transform diagnosis, treatment and generates the growth of new industries.<sup>42</sup> Because of the advances in treatments, technologies and drug therapies, Australians enjoy better health, a higher quality of life and longer life expectancies.

Government investment in health and medical research leads to three distinct but inter-related outcomes: healthier people and communities, improved health care and national wealth generation<sup>43</sup>. Between 1960-1999, life expectancy of Australians increased by eight years and this has been calculated to be worth \$5.4 trillion to the national economy<sup>44</sup>. For example, the gains associated with the prevention and treatment of cardiovascular disease alone have been estimated at \$1.7 trillion, representing a rate of return of \$8 for every \$1 invested in research and development<sup>45</sup>. And, as discussed above, healthy people are more productive and less reliant on the public health and welfare system.

Research and development develops the capacity of South Australians with the potential for above average value added per work hour in a knowledge-based economy<sup>46</sup>. Also, due to the relationship between health and medical research and commercialisation, the sector has also created significant wealth for Australian investors. For example, the number of Australian biotech companies increased at 16% per annum from 1992 to 2003<sup>47</sup>.

#### **Research and development influences our lifestyle and quality of life**

Other forms of research, development and innovation have the potential to improve and influence the living conditions and lifestyle for South Australians, key determinants of health and wellbeing.

For example, SARDI research in agricultural, aquatic, environmental and biodiversity sciences provides opportunities for market growth by developing new and improved products and processes for achieving productivity, sustainability and adaptability for South Australia's food and environmental industries. Indirect community benefits from this research and development activity include having access to healthier environments, stronger local industries and better quality processes and products<sup>48</sup>.

<sup>41</sup> Government of South Australia. Shaping the Future: STI 10 A 10-year vision for science, technology and innovation in SA.

<sup>42</sup> National Health and Medical Research Council Strategic plan 2007-2009. Page 6.

<sup>43</sup> Commonwealth of Australia. Sustaining the Virtuous Cycle – for a healthy, competitive Australia - Investment review of health and medical research. 2004.

<sup>44</sup> Access Economics. Exceptional Returns: The value of investing in health R&D in Australia. 2003

<sup>45</sup> Access Economics. Exceptional Returns: The value of investing in health R&D in Australia. 2003, Table 43.

<sup>46</sup> Thinker in Residence Report by Marie Smith. Developing a Bioeconomy in South Australia. 2004.

<sup>47</sup> As quoted in Thinker in Residence Report by Susan Greenfield: Getting to the Future First. 2005. Page 8.

<sup>48</sup> Productivity Commission. Public Support for Science and Innovation Research Report. 2007. Page XXI.

## OBJECTIVE 5: BUILDING COMMUNITIES

### Target 5.6 Volunteering:

***Maintain the high level of volunteering in South Australia at 50% participation rate or higher***

#### The South Australian Context

This target aims to maintain the current high volunteer participation rate within South Australia. It recognises the significant financial and social contributions of volunteering within the community. South Australia has a particularly strong history of volunteering with 50% of the state population involved in volunteer activities; the rate is even higher for people living within regional and rural South Australia (around 63%)<sup>49</sup>.

Volunteering encompasses many different forms of participation within the community ranging from supporting schools (committees, working bees and tuckshop duty), sporting clubs (coaching and fundraising), and involvement in community organisations such as bush fire brigades, lifesaving clubs, Country Women's Associations, Returned Servicemen's Leagues and service clubs such as Rotary and Lions. Many volunteers directly support the health, independence and wellbeing for specific population groups within the community, such as the elderly, children and people with disabilities.

#### Volunteering is good for you

Volunteering is good for you. The benefits to individuals who provide volunteer services are positive and wide-ranging<sup>50</sup>. Volunteers report higher levels of confidence, psychological wellbeing, and physical health. By participating within the wider community, the social connections and networks developed through volunteering makes people feel valued and respected: an important determinant of a person's quality of life.

Volunteering can also provide pathways to employment. Through the development of leadership, transferable skills, networks and confidence, volunteering has the potential to enhance an individual's employability and can lead on to paid employment.

Volunteering is inclusive and open to all ages. Individuals who cannot undertake or participate in regular paid employment for health reasons can usually commit to volunteering activities because of the flexibility it provides. Volunteering can also provide a meaningful way for retirees to apply the skills and experiences gained during their working life and, by doing so, 'give back' to the community.

#### Volunteering is good for others

Volunteering contributes positively to health in the community. It encourages social contact and networking outside the traditional work environment and provides services for individuals and groups within the community who benefit from those services. In some cases, the services of volunteers also present valued opportunities for social interaction, and the associated health benefits discussed elsewhere in this paper, to people who are otherwise socially isolated.

<sup>49</sup> Office for Volunteers. Volunteering in South Australia in 2006. Page 14.

<sup>50</sup> Gill, Z. Older people and volunteering. Office for Volunteers. Pages 12-14.

**Target 5.9 Regional Population Levels:**  
***Maintain regional South Australia's share of the state's population.***

**The South Australian Context**

There are wide variations in regional population growth rates across South Australia. These create differences in the economic, environmental and social pressures experienced in different parts of the state.

These movements provide additional opportunities as well as pressures relating to housing, health services and the local economies.

**Health Services are at the heart of regional communities**

Public hospitals and primary health services are very much at the heart of regional communities. They are often actively supported by the community through volunteering and fundraising and managed by boards in which the local community is represented. Local hospitals and service providers are also important employers within many regional areas.

**Rural communities face different health risks**

On a wide range of health status measures, people who live in regional and remote areas generally fare worse than people who live in major cities<sup>51</sup>. Rural environments are associated with specific health risks including injury from use of heavy farming machinery, increased suicide rates and social isolation, country road accidents and allergies from dust, pollen and air quality.

The difference in life expectancy between Aboriginal and non-Aboriginal populations has been well documented and is very concerning. The median age of mortality among South Australia's Aboriginal population has been 25-30 years less than for non-Aboriginal South Australians<sup>52</sup>. Given that Aboriginal people account for a relatively large proportion of the population in remote and very remote areas of the state, this has a strong resonance in rural communities.

**OBJECTIVE 6: EXPANDING OPPORTUNITY**

**Target 6.5 Economic Disadvantage:**  
***Reduce the percentage of South Australians receiving government benefits (excluding age pensions) as their major source of income source to below the Australian average by 2014.***

**The South Australian Context**

South Australians are enjoying good economic conditions with record numbers of people with jobs and historically low unemployment. The state's prosperity should benefit all South Australians. Fair societies not only create opportunity for all, they also tend to be cohesive communities. Tackling entrenched disadvantage, such as that experienced by our Aboriginal populations, is critically important.

**Socio-economic status and health**

Australian and international research has drawn clear connections between socio-economic status and health. People who experience social and economic disadvantage tend to experience greater sickness and lower life expectancy than others in the community. People with the highest socio-economic status have the best overall health outcomes. And the correlation is consistent across the range – the better your socio-economic status, the better your health outcomes. This 'social gradient of health' as depicted in the graph below<sup>53</sup> gives a stark and powerful message on the importance of ensuring that all of our

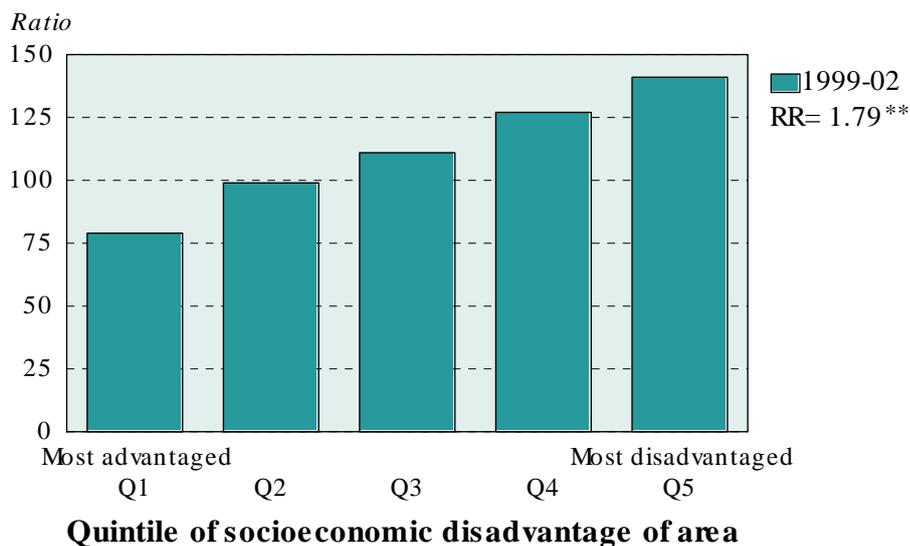
<sup>51</sup> Australian Institute of Health and Welfare, Australia's Health 2006, section 4.8.

<sup>52</sup> Government of South Australia, South Australia's Strategic Plan 2007. Page 19

<sup>53</sup> Glover.J, Avoidable mortality, South Australia 1999-2002.

population share in the benefits of the state's prosperity for the sake of both their personal wealth and their personal health.

### Avoidable mortality



The poor health outcomes of the economically disadvantaged in our communities also impose costs on the wider economy through social impacts, the burden of providing health and welfare support and through reduced productivity and participation, as discussed earlier in this paper.

#### Economic disadvantage and children

*“Child health is of the greatest importance for the future health of a nation, not only because today’s children grow up to become the next generation of parents and workers, but also because recent research in child health shows that early life health is, for each child, the basis of health in adult life<sup>54</sup>”*

Numerous respected commentators and practitioners including Adelaide Thinkers in Residence, Fraser Mustard and Ilona Kickbusch, have emphasised the overwhelming importance of the early years on the outcomes experienced by an individual throughout life, including health. The biological, social and familial influences on early child development have a pervasive impact on the opportunities and health outcomes for an individual throughout the course of his/her life.

The social gradient of health discussed above has far-reaching ramifications for children. A child born into a context of economic disadvantage might experience negative health and development impacts during pregnancy through maternal health and nutrition, and early childhood from environmental factors such as the safety and quality of housing conditions and other lifestyle factors. These biological and environmental impacts also take place within a social context so that parental socio-economic status and education, parental self-esteem, family stability and cohesion will influence the development of a child’s diet, lifestyle choices and coping skills throughout their lifetime<sup>55</sup>.

#### Housing impacts on health

*“Where we live matters. It’s about more than just a roof over our heads. Its about comfort, family, friends and neighbours and our aspirations for independence and security<sup>56</sup>”.*

Poor living conditions are one of the most fundamental impacts of economic disadvantage on a person’s health and wellbeing. There are a number of ways in which housing and the living environment contribute

<sup>54</sup> Wadsworth, M. Chapter 3: Early Life in Marmot, M. and Wilkinson, R.G. Social Determinants of Health. Oxford University Press. Page 44.

<sup>55</sup> Wadsworth, M. Chapter 3: Early Life in Marmot, M. and Wilkinson, R.G. Social Determinants of Health. Oxford University Press.

<sup>56</sup> Quoted in the Housing Plan for South Australia, 2005, Department for Families and Communities. Page 1.

to health outcomes, both positively and negatively. Perhaps most fundamental to individual health and wellbeing is the security and tenure of housing. At the extreme end of the spectrum is homelessness. People who do not have access to regular and reliable housing experience higher mortality rates, and complex impacts on the mental and physical health.

Physical factors relating to housing design and layout such as safety and security, air quality, temperature regulation (cold/warmth), damp, noise, pests and infestations can undermine the physical and mental health of individuals. Exposure to pollutants in chemicals and materials within the living environment can place an individual's health at risk. Within the wider context, the neighbourhood and wider community in which a person lives can influence his or her level of social engagement or feelings of isolation as well as their access to related public and social services, transport, public amenities for example public parks.

**Target 6.16 SACE or equivalent:**

***Increase yearly the proportion of 15-19 year olds who achieve the SACE or comparable senior secondary qualification.***

**The South Australian Context**

Education gives people the basic knowledge, skills and attributes they need to participate fully as confident and competent citizens in society. The completion of the South Australian Certificate of Education or a comparable senior secondary qualification represents an important milestone for young people, both in terms of ensuring a solid foundation of education and knowledge, and to assist in navigating through the transition between school and work.

**Education about lifestyle choices**

South Australians need to be well-informed about the risks to their health and safety so that they can act accordingly. Education is important to highlight the health consequences of lifestyle choices – such as exercise, diet, smoking, excessive drinking and risky driving behaviour – and to promote healthy lifestyles. The education system shares this responsibility with the whole community, parents, family and friends. It is particularly important that young people are made aware of health issues so that they adopt, and embed, healthy behaviours at an early stage. Well-educated people are also more likely to source and interpret information to support a healthy lifestyle and/or to solve problems that may be encountered at various stages of life.

In this context the gap in educational achievements of Aboriginal and non-Aboriginal South Australians is of particular note.

**Other health benefits of education**

Individuals who achieve higher education levels also benefit from increased confidence, self-esteem, and perceptions of control<sup>57</sup>. The social benefits associated with the learning environment itself support social interaction, networks and a sense of belonging – all of which contribute to a person's overall sense of psychological wellbeing.

**Students need good health to achieve their educational potential**

Another aspect of the connections between education and health is that good health contributes to good educational outcomes. Students suffering from illness and disability during childhood or adolescence and who consequently find it difficult to consistently attend school or undertake the schoolwork of their peers are less likely to reach their potential in terms of educational attainment. And, given the strong linkages between a good education and employment in good, well-paying jobs – and the social gradient of health discussed earlier – this has potentially long-term health ramifications for the individuals concerned.

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<sup>57</sup> Stanwick, J., Ong, K. and Karmel, T. Vocational education and training, health and wellbeing: Is there a relationship? National Centre for vocational Education Research.

## Conclusions

This paper offers a sample of the evidence-based linkages between health policies, services and costs with policies in 'non-health' sectors, through consideration of a number of targets across South Australia's Strategic Plan. The linkages are not linear but part of a multi-dimensional network of interactions.

These interactions demonstrate the need for those responsible for policy development and implementation in non-health sectors to be aware of, and consider, how their policies are likely to impact on health outcomes and the need to collaborate with counterparts in the health sector. Equally, those in the health sector need to actively engage with key people in non-health areas to ensure their perspectives are considered and given due weight.

In many instances there are synergies and mutually-reinforcing connections between health and non-health sectors – such as quality education, a thriving environment and a prosperous economy – that should, and do, encourage collaborative effort across traditional boundaries.

Inevitably, there also are and will be instances where the objectives of various policy arenas are incompatible with health, or at least inconsistent with some aspects. That is not to say that policy should never be developed and implemented where such inconsistencies arise. However, thorough policy development requires that such tensions are explicitly acknowledged and addressed so that informed discussions and debate take place and, ultimately, decisions are made in full knowledge of all the likely impacts across a range of considerations.

The examples in this paper remind us of the complexity of many issues that are faced by modern society and the need to continually challenge ourselves to view issues in a holistic sense, not just from one's own perspective, but also seeing with the eyes of others. It underlines more than ever the need for joined-up policy responses from government, and driven by a sharp focus on what is truly important in securing the ambitions for the state as set out in South Australia's Strategic Plan.

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