Recommendations

It is recommended that population targets for Tasmania should: -

1. Acknowledge that 'sustainable growth ' is a problematic concept that contains inherent contradictions.
2. Employ neutral language about 'growth rates'; not implying that higher growth rates necessarily improve societal wellbeing.
3. Recognise that it is more useful (operationally practical) to identify a long term, sustainable population **size and distribution** rather than an open-ended growth **rate.**
4. Focus on and clarify that the strategic goal for an island such as Tasmania should be to identify and quantify the physical constraints and opportunities that may exist before determining an appropriate population total and pattern of distribution for the expected future conditions.
5. Recognise that climate change and extreme weather events will make forecasting future conditions even more uncertain and that the prudent approach should be conservative when selecting land that can be developed.
6. Acknowledge that there is not a simple relationship between population size and economic performance, nor between economic performance and societal wellbeing; and that a simplistic reliance on undifferentiated 'growth' without qualification is not a panacea to solve deeper societal and environmental problems.
7. As a first step, if a simple population target must be adopted now, choose the trajectory that follows a logistic curve to a population plateau at around 600,000 persons, pending further more nuanced research.

In the following outline of reasoning behind the recommendations, the following propositions are put forward:

A. That in the longer context of human history, say 200,000 years, the last three centuries are an anomaly. Following the 14th century 'black death' and later plagues that swept across Europe, this more recent period of history since around 1750 has been characterised by lower death rates - including fewer infant and child deaths, longer life expectancies, and a 'population explosion' in every nation where the population has benefitted from agricultural, industrial and medical technologies that improved survival rates. Those technologies shifted the pre-existing balance between the numbers of births and deaths and, as populations grew rapidly, entrenched in the public mind an expectation of limitless growth of population and resource use.

B. That expectation of continuous economic growth played into national ambitions for acquiring wealth, territory and geopolitical power. It also fostered individual ambitions to escape poverty, acquire property and improve social status. Thus the conditions of a growing population and an ever-expanding economy became

‘normalised’ in the promotion of economic growth as the panacea through which to address, or avoid, deeper questions about the unfair distribution of wealth and power in societies.

C. Idealised models of population growth typically follow a logistic curve, an S-shaped curve in which the population starts from a low base, then rises exponentially (as the birth rate exceeds the death rate) then tapers off to plateau at a higher level where births and deaths once again come into balance. The global human population is displaying this pattern, unevenly around the world over time, as different regions or nations trace their own logistic growth curves. Absent the effects of migration, we see a sequence of high birth rates and large family sizes, followed by improving living standards, reducing fertility rates and finally, stable or declining population levels. This is being seen already in parts of Europe and Japan, for example.

D. Models of economic growth, however, do not readily embrace the idea of tapering growth rates or the achievement of a plateau in the production and consumption of goods and services. Rather, they are built around financial goals of maximising profit and shareholder value and assumptions that ‘more is better’. But more what? Experience since the dawn of the Industrial Revolution has shown that more production/consumption comes at the cost of more resource depletion, more pollution and more environmental damage of various kinds; costs that do not appear in the annual reports of profit-oriented corporations - or the population growth strategies of governments.

E. For corporate and government modellers, the financial or political imperative is to defer the approach of the plateau, the levelling off of growth rates. The emphasis is placed on ‘sustainable growth **rates**’ rather than ‘sustainable population **levels**’, Surely, in any closed system - a Petri dish, a forest, an island, a planet - exponentially increasing growth rates cannot be sustained forever. At some point ‘Limits to Growth’ must apply, as has been pointed out by leading environmental writers since the 1970s. [suchas Boulding, Meadows, Erlich and others] Perhaps the modellers think, “But not on my watch”?

F. The term ‘sustainable growth’ is a term that has been abused and twisted out of shape. When it was coined by the United Nations’ Brundtland Committee in the 1980s it was intended, I suspect, as a shorthand for ‘selective growth of some metrics towards environmentally sustainable levels’. In other words, learning to live within our planet’s capacity to provide resources to our generation without compromising the opportunities available to later generations. This view is supported by considering the more specific goals later adopted by the UN. EI feel sure the Brundtland Committee did not advocate the sustained continuance of growth rates generally in all manner of measures, such as population or gross

domestic product. So, ‘sustainable growth’ as used in common parlance has become an oxymoron, a contradiction in terms.

G. The Tasmanian Population Strategy, (TPS) to its credit, acknowledges that for more than 2000 generations people have lived on this island, presumably in a sustainable manner, since they survived that long. But that historical fact sits uncomfortably with the legacy of the past 8 generations, or about 200 years of our most recent history.
The TPS also notes that population growth must be weighed against other factors, such as ‘liveability’, and ‘wellbeing’, which are both vague and elusive terms.
Yet the authors of the TPS are in no doubt that population growth beyond a plateau of about 600,000 people is a ‘good thing’.(Chart 1). “We reached the 2030 population milestone eight years ahead of target and want to build on this success.” (TPS Introduction) And the target of 650,000 by 2050 is just an interim figure, a steppingstone on the way to “sustainable population growth”, presumably indefinitely.

H. A desired growth rate of 0.45%, equivalent to 2,500 - 3,000 extra persons per annum, may appear modest compared to some other states or nations. But our modern perceptions are coloured by adaption to recent history, a history of exponential growth that is considered ‘normal’. For the TPS authors, the benefits and challenges of population growth are closely tied to economic growth, expressed in terms like ‘employment’, ‘participation rates’, ‘investment’, ‘government funds’ and ‘migration’. But there is no consideration given to the physical capacity of the State to support an exponentially growing population in a sustainable way. Nor how that environmental capacity may change in response to the global climate crisis.

I. In a global context, current conditions on Earth are not ‘normal’; consumption of resources is now in overshoot. We require the resources of 2 Earths each year to maintain our current way of life. Climate change parameters (greenhouse gas levels, average temperatures, ghg emissions, many other metrics) are continuing to rise, leading to clear symptoms of global environmental stress, e.g. increased frequency and severity of extreme events such as floods, droughts, ice storms, heatwaves, wildfires, species extinctions etc. Despite these warning signs, our economic system demands increasing resource extraction, energy consumption and material production each year and regards achievement of ever-growing production/consumption targets as ‘proof’ of a successful society.

J. The global and national demographic context is also changing; the rate of natural increase is slowing to below replacement levels as women are tending to have fewer children. In Australia, the underlying trend towards smaller family size has been masked by high levels of immigration. In Tasmania net migration has fluctuated between inward and outward movement, probably in response to (a) employment

and educational opportunities for young adults, and (b) lifestyle preferences of people approaching retirement.

K. Through improvements in medical knowledge and technology, leading to higher levels of infant survival and increased adult longevity, humans have deferred population crashes, at least from a global perspective. (Locally, populations may crash as wars, famines or epidemics kill or displace people.) But in the last 300 years the world's population has grown exponentially at an alarming rate, such that by November 2022 it had exceeded 8 billion. "It took over 200,000 years of human prehistory and history for the human population to reach one billion and only 219 years more to reach 8 billion." (Wikipedia, 'World Population', accessed 17/02/2023)

[The graph of long term global population has a sharp elbow at the point where a long, almost horizontal portion (representing 1 billion people after 200,00 years, or on average of 5000 extra people per year) , pivots to become an almost vertical portion (representing 7 billion extra people in close to 200 years, or an average of about 35 million extra each year).]

L. Conditions in Tasmania are not 'normal' in terms of sustainable resource use. The minimal impact of 2000 generations of continuous indigenous use of lutrawita/Tasmania's resources has been completely overwhelmed by 8 generations of predominantly European culture, technology and economy, as measured by the exponential growth of population numbers and flows of money, materials and energy.

M. This pattern was repeated across the world from the 17th century to the early 20th century, wherever European colonial powers traded, invaded, conquered and seized the lands of native peoples. (In North America - by Britain, Holland and France, in Central and South America - by Portugal and Spain, in South Asia - by Britain, Holland and France, in Central Asia - by Russia, in Africa - by France, Britain, Italy, Holland, and in Australia and the Pacific - initially by Britain and France, then the USA.)

N. Colonial conquests and the technologies that they introduced (the guns and steel described by Jared Diamond) also catalysed the transformation of populations and their economies. What had been, for many hundreds of generations, lands with stable, slow growing populations living generally in balance with their environments were transformed by European colonisation into frontiers of conflict between the growing resource demands of the West and the sustainable lifestyles of the original indigenous populations.

O. For isolated societies, when natural limits are exceeded what follows is either a collapse of the population as starving members die or emigrate, or a transformation

to a ‘steady state’ where births + immigration is balanced by deaths+ emigration. As Jared Diamond has described, in ‘Collapse’, some societies never recover when the forces of environmental change and resource exhaustion turn against them.

P. Fortunately, Tasmania is still connected to the world and not facing the perilous conditions encountered by the Easter Islanders or the Vikings in Greenland nearly a thousand years ago. But our island is still exposed to global trends of resource depletion, supply disruptions and unpredictable flows of refugees attempting to escape intolerable conditions in their home countries. As climate change intensifies across the globe, the incidence of floods, droughts, famines and wars can be anticipated to increase, causing greater flows of refugees. Australia will be called upon as a safe haven in which to resettle displaced persons.

Q. The ‘pivot point’ in population growth that occurred, circa 1700, marks the beginning of a ‘new abnormal’ in humanity’s relationship with the natural world. The previous near balance between births and deaths, and resultant slow population growth rate, was abruptly shifted to a pattern of accelerating growth.

R. What became ‘normalised’ in the emerging Industrial Revolution was a mindset, an expectation that rapid exponential growth - in resource extraction, in land under cultivation, in export trade, in population - was a natural and desirable condition for a modern society. The world appeared to be vast and inexhaustible, until the 20th century - when there were no new, hospitable lands to conquer.

S. The critical factor in the evolution of modern societies since the onset of the Industrial Age, circa 1700, has been the replacement of human labour and animal power by machines driven firstly by wind or water, then steam and then electricity.

T. But the world is now in transition from machines powered, predominantly by environmentally damaging fossil fuels - coal, oil and gas - to machines powered by electricity created from renewable sources of energy - solar, wind, hydropower, wave power or geothermal power. (While the nuclear waste issue remains unsolved, expensive nuclear reactors should not be considered to be a desirable option.)

U. Electricity and its derivative, digital information, is set to become the new ‘currency’ for the coming decades. Professor Steve Keen has demonstrated the strong correlation between the growth of Gross Domestic Product (GDP) and the consumption of energy in an economy. Future wealth will flow towards corporations and societies that can leverage their control over the flow of renewable electricity and information. Just as it did, and still does, for corporations and societies that currently control the distribution of fossil fuels. Keen went on to quip, “Capital without Energy is a sculpture, Labour without Energy is a corpse”.

V. The historical nexus between output of goods and employment of labour has been progressively broken in many ways; by steam power, electrification, the automated production line, computerisation, robotics, information technology and, imminently, artificial intelligence. These technological advances have been lauded as representing 'improved productivity' and 'economic efficiency'. But isn't the notion of productivity just another way of saying, 'We now need fewer workers to achieve greater output and make more money'?

W. The historical trend continues to replace human labour, using electricity instead of muscle power and computers instead of brainpower. We no longer have the need to build factories requiring thousands of manual workers and offices with hundreds of clerical workers. Those potential workers have been displaced by automated, roboticised, computer-controlled production lines and monitoring systems that can operate 24 hours a day.

X. In this new techno-industrial landscape there is little correlation between the numbers of people employed and the volume and value of goods that can be produced. There is no imperative to increase employment in order to grow profits. Rather, in many kinds of production, the skills of human workers are replaced by more powerful and sophisticated machines. To act on the basis that population growth is necessary to expand production in the economy is a hangover of 19th century thinking. But we cling to the notion that population growth is an essential prerequisite of economic growth and that economic growth, as customarily measured, must continue on its exponential trajectory, regardless of the consequences for the environment, equity or societal cohesion.

Y. It would perhaps be more accurate, if cynical, to say that population growth is touted as desirable by those sectors that need to increase the number of consumers and households necessary to absorb the volume of products that modern, largely automated factories can create. The 18th century problem of insufficient supply of affordable goods to the populace has been overtaken, in Western economies, by the problems of satiated demand and inequitable sharing of resources and wealth.

Z. The central role of energy in production has been neglected in economic theory and is largely absent from economic models that attempt to explain relationships between capital goods, resources (such as land, and commodities) and labour. This neglect of the role of energy has led to a mistaken view that (a) economic growth is necessary to provide jobs to a growing population and (b) that the material demands of a growing population are essential to create economic growth. This is reflected in the slogans of political parties of all colours, "Jobs and Growth!"

AA. 'Jobs' and 'Growth' are popularly seen as essential inter-dependent halves of a virtuous circle that provides wages to Labour and profits to Capital. But when (if

ever) the environmental and resource depletion costs are included in the equation, we find not a virtuous circle but a downward spiral. This is the insidious spiral that leads to 'Overshoot Day' occurring earlier each year.

AB. "We become what we measure. Now is the time to measure what we wish to become." If we become fixated on population growth and accumulation of wealth for particular segments of society, we may become more numerous, more crowded, and some members may become more affluent, but we risk losing environmental quality, societal cohesion and wellbeing. Also we will deplete vital resources more quickly than if our population plateaued at a level that enabled those resources to be renewed indefinitely and for past environmental damage to be repaired.

AC. This is not to say that sustainability requires the State's population to return to precolonial levels. The level of population that can be supported depends upon the kinds of technologies that are available to manage its resources and upon the systems of harvesting, manufacturing, distribution, transportation and trade that are applied to those resources. That is a very complex task. It will not be solved by picking a magic growth rate out of the air and hoping for the best.