



WHEN POPULATIONS DECLINE

*“we also need to be conscious about managing population decline in other areas: **almost half of New Zealand's 73 territorial authorities are projected to have fewer residents in 2031 than they do today.**”*

NZ National Infrastructure Plan

There are many regional areas in Australia and Canada that are in the same position: the result of lack of employment opportunities for the young, population ageing and regional re-distribution. Whilst our major cities swell to unsustainable levels, country areas decline - to unsustainable levels!

Manuals tend to focus on growth and how to make good decisions on new investments and renewal - but there is little advice on how to downsize when demand is not there and how to extend the life of networks where renewal is not financially possible. This situation can apply to individual assets even when demand as a whole is growing.

Properly managed, population decline need not mean economic decline. But asset decisions need to be wiser.

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An inspirational tale

“Only excellent Asset Management can extend the time we have before making the next renewal decision.”

Following on from this argument in Issue 310, Hugh Blake-Manson sent the following news item that shows what can be done with

- first class design and construction
- excellent maintenance and management
- careful utilisation

Mr. Allen Swift (Springfield, MA.) received this 1928 Rolls-Royce Picadilly P1 Roadster from his father, brand new - as a graduation gift in 1928.

He drove it up until his death last year.....at the age of 102 !!!

He was the oldest living owner of a car from new.

Just thought you'd like to see it.

He donated it to a Springfield museum after his death.

It has 170,000 miles on it, still runs like a Swiss watch, dead silent at any speed and is in perfect cosmetic condition. (82 years)

That's approximately 2000 miles per year...





MANAGING INFRASTRUCTURE WHEN POPULATIONS DECLINE

to solve a problem, you need to recognise that you have it.

Refusal to deal with the problems brought up by declining demand for assets is eerily similar to Kübler-Ross' 'Five Stages of Grief'. Before practical steps can be taken to deal with the situation, organisations must first reach Stage 5 - Acceptance.

THE FIVE STAGES OF GRIEF -

As applied to asset management in organisations facing population decline.

DENIAL

Usually only a temporary defence for the individual but it can last a considerable time in government organisations and councils. (Note: Lack of discussion at an asset management community level of the significance of the impact of population decline on the management of infrastructure and actions that can be taken to mitigate probably contributes to the length of time that organisations remain in denial)

ANGER

"Why me? It's not fair!" is a typical individual response. In councils and other organisations, it usually manifests itself in assigning blame to others (typically to higher levels of government for lack of financial support)

BARGAINING

With individuals, bargains are struck with the Almighty "just let me live to see my daughter married and I will..." , with organisations bargains are struck with the Universe and take the form of wish fulfillment. "We will invest in greater/improved infrastructure if we can just get greater employment and incomes and overcome our current problems of population decline" Because it can give rise to a great deal of investment which cannot be economically justified, **this can be the most destructive of all of the asset management stages of grief.**

DEPRESSION

With individuals, this stage can lead to great sadness and withdrawal. Kubler Ross says it is not recommended to attempt to cheer up someone at this stage. It is an important stage that must be worked through. With organisations, when the hoped for economic benefits of the bargaining stage investment fail to materialise, this can lead to serious morale problems. Heads may roll. Could a hasty move to correct the situation (e.g. by the removal of councillors and the imposition of a Commissioner) have a similarly deleterious effect on organisations? The point of the depression stage is to work through it so that one comes out at the end to a genuine acceptance (can acceptance be forced on anyone?)

ACCEPTANCE

For individuals, this is recognition that death is inevitable and usually brings a certain calmness in dealing with the consequences. For organisations it could be the same. A recognition that population decline has changed the balance of benefits/costs with respect to existing infrastructure and that it is important to re-evaluate, determine which assets are critical (and why) and what are nice to have but can no longer be justified. It is a time to re-assess service levels and to be conscious of the need to match life cycle costs with life cycle revenues.

EXAMPLES OF SUCCESS

GERMANY

Germany's population is characterised by zero or declining growth, with an ageing population and a smaller cohort of youths. And yet, Germany is the economic power house of Europe! So the idea that economic growth and population decline are incompatible is clearly not correct. But wasting resources on under-utilised assets is not conducive to economic growth.

When I was lecturing in Dresden a few years ago I was told how some German towns were adapting. In the larger towns, waste water treatment plants were becoming seriously under-utilised. They reached out to the smaller towns and villages around them and, by agreement, took over the treatment of their wastes. The smaller towns and villages gained an improvement in service and were able to avoid the need to upgrade their lower facilities.

FRANCE

In Paris last September I visited a privatised but under-utilised waste water treatment plant that had set up contracts to address the specialised needs of waste treatment of a neighbouring industrial park. The existence of specialised treatment facilities that could deal with difficult wastes meant that companies that used the industrial park were able to more easily obtain operating licences (a win-win situation). The managers of the plant had also arranged to pipe in waste from nearby towns and truck in waste from those further afield. All wastes were treated to an environmentally acceptable level and returned to the nearby river. In this way, privatisation provided the incentive for a high level of co-operation between companies and other organisations.

THE CHALLENGE FOR ALL?

As populations decline in regional council areas, so will demand for both economic and social infrastructure. Councils will need to seriously consider what is for them 'critical' infrastructure and what is 'nice to have'. Road systems need to be maintained even if the level of transport falls. But the same is not true of parks, gardens, swimming pools and other recreational facilities, and maybe these are areas for rationalisation and sharing between neighbouring councils? Or for privatisation? Refusal to consider such possibilities is an indication that organisations are still in denial!

What else can, or has, been done? Share your successes and difficulties overcome.

Case studies of life extension when renewal was financially out of the question

Case studies of adjusting service levels to affordable levels

How have you moved your organisation through the '5 stages of Grief' with respect to those assets for which demand has fallen?

What specific problems have arisen and how have they been overcome (if at all)? What can you suggest for others in this situation?

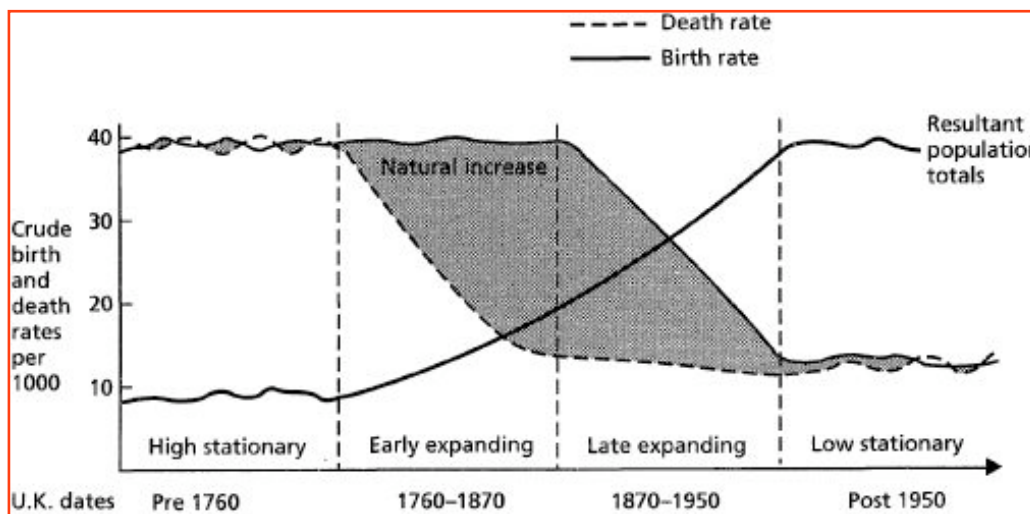
**If you know of a good example but don't
fancy yourself as a writer,
send me a short email and I will ring you.
penny@amqi.com**

POPULATION DECLINE IS GOING TO AFFECT MORE OF US

A little bit of demographic history.

For the great bulk of history, populations changed very slowly. Wars, plagues and famines kept in check what little growth there was. Increasing populations have only been the norm for the last 250 years - long enough for us to think that this is the only possibility!

We have been living through what the demographers refer to as a 'demographic transition'. We have moved from a situation (pre 1760) when both birth rates and death rates were uniformly high, keeping the population in check. Then with improved hygiene, medical knowledge and sanitation, death rates started to fall. It was about another 100 years before birth rates also started to fall, so that there has been a period of time in which birth rates were much higher than death rates, as you can see in the diagram below. And this gave rise to the very high rates of population growth that we have come to take for granted.



But around the middle of the twentieth century in the developed world declining birth rates caught up with declining death rates and population growth slowed. In many countries today, including Australia, birth rates are lower than the level needed to sustain population size. Migration has helped to ease adjustment, but even those countries with traditionally high rates of natural growth are slowing down. Even China is predicted to go into population decline by the end of the century!

In other words, population decline is going to be a feature of all asset management in the future.

DOES REGULATION HELP OR HINDER THE DEVELOPMENT OF GOOD ASSET MANAGEMENT AND MAINTENANCE?

Ruth Wallsgrove observed that in the UK water industry it was noticeable how little the companies had taken on advanced maintenance management techniques. The main focus, she says, has been on capital and asset information. This provoked a number of responses on the new **ASSET MANAGEMENT HISTORY FORUM**.

Do Regulators' requirements 'crowd out' other organisational needs?

Discussion revolved around the focus of the Water Regulator pressure to estimate and justify medium to long term capital expenditure and quality or growth investment. Given that the needs of long term capital planning and day to day operations and maintenance are different in both objectives and timing, there is the strong possibility of 'crowding out' - with resources being devoted to the Regulators' needs absorbing the organisation's ability to simultaneously develop advanced maintenance practices.

Is Asset Information well served by ignoring maintenance history?

The asset information collected by Regulators is heavily capital related. Does this reduce the opportunities for trade-offs between better maintenance and capital expenditures? Good asset management requires the full integration of maintenance, usage, and capital strategies.

Regulators can skew motivation

Since a company's profit is a percentage of its regulatory asset value and water companies are compared with each other on the basis of their opex, there is considerable pressure to increase capital at the expense of operations and maintenance.

The development of a common framework for maintenance, whilst having some very positive effects, was considered to have slowed down the uptake of holistic asset management principles.

Regulators have greatly increased the importance of AM in the eyes of the Board

What is compulsory gets done! Yet there are ways of doing this that are more effective. Regulators who put the emphasis on outcomes (e.g. safety, reliability, etc) may generate more imaginative and advanced asset management solutions.

And there may be more reasons than the Regulator for the lack of advanced maintenance in water companies

Maintenance techniques have been more well developed for relatively short lived plant and machinery assets than for long lived civil assets for which the useful life can be a very broad range. So that their take up in the military, rail and electricity utilities may perhaps be as much explained by the nature of the asset as in the nature of the regulatory system.

WHAT HAVE BEEN THE MOST SIGNIFICANT EVENTS THAT HAVE AFFECTED THE WAY WE MANAGE ASSETS?

This topic on the history forum attracted a great deal of interest.

Changes in organisation

Better planning and scheduling of work (much of this being assisted by computerisation and the development of new tools)

Privatisation/ corporatisation/ commercialisation, which had major impacts on motivation as well as on the freedom to take new approaches

PPPs - and development of contracts that can ensure we get the outcomes we want

Outsourcing -

Changes in accounting standards, which brought assets into sharp focus, and made it necessary for accountants and engineers to collaborate (outsourcing),

Notable publications

Technical papers on failure modes and other maintenance techniques

TAMM, IIMM, PAS 55 and other manuals

- and now the development of an ISO Standard

Changes in technology

CMMS,

The internet,

increased use of risk management and

quantitative methods with the advance of computerisation),

External triggering, events

Disasters such as Auckland electricity failure raising awareness and critical questions and triggering more interest in statutory inspections,

Regulators adopting AM frameworks as minimum standards, changes in legal liability making individuals not just companies accountable for negligence,

WOULD YOU LIKE TO CONTRIBUTE YOUR IDEAS?

You can either join Linked In - best idea!

Or you can email me your comments.