The Importance of a Resilient Air Services Network to Australian Remote, Rural, and Regional Communities

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Research Motivation

Rural, regional, and remote (RRR) settlements in Australia require resilient infrastructure to remain sustainable under frequent large scale natural disasters, large distances between centres, and economic change pressures.

The resilience (robustness, redundancy, resourcefulness, and rapidity) of RRR air services system are examined.

Presentation aims

- Provide context for RRR airports (deregulation, network characteristics)

- Examine resilience of RRR air services (robustness, redundancy, resourcefulness, rapidity)

- Conclusions

RRR Air Services Context

Regional, Rural and Remote (RRR) airports and air services

- Approx 170 small airports service regional communities throughout Australia

- Vital aspect of the social and economic viability of many parts of RRR Australia

- Majority run by municipalities or local governments since deregulation

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Regional, Rural and Remote (RRR) Australian airports

- Deregulation resulted in more than 30 closures between 2000 and 2005.

- Guaranteed income streams associated with RRR airports ended

- RRR airports in an uncertain state by the withdrawal of government support and deregulation policies (funding, management, operation)

Sources of Data & Information

- Attended Australian Airports Association (AAA) state meetings in Queensland, NSW, S.Australia, W. Australia & Victoria

- Conducted surveys, interviews & focus groups with AAA members at each state meeting

- Members – airport managers, state officials, local councillors, airline managers

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Measuring Resilience

- Lack of common resilience definition, although it is commonly used term

- Shared across definitions: "The capacity of a system to maintain its identity, key components, and relationships through situations of stress or change"

- Resilience also includes an *adaptive* function – which describes *flexibility* in response to change

- We explore 4 aspects: *Robustness*, *Redundancy*, *Resourcefulness*, and *Rapidity*.

Robustness
(capacity to withstand stress and change)

Robustness

- Due to the nature of airports (military command, disaster management storage, disaster management exercises), they are built robustly

- System is robust, individual airports more vulnerable

- Short term crisis robustness is assured; however, longer term robustness is questionable

- Post deregulation resulted in prohibitive costs maintaining infrastructure, and exposure to highly competitive business practices

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Redundancy
(provide options in the face of change)

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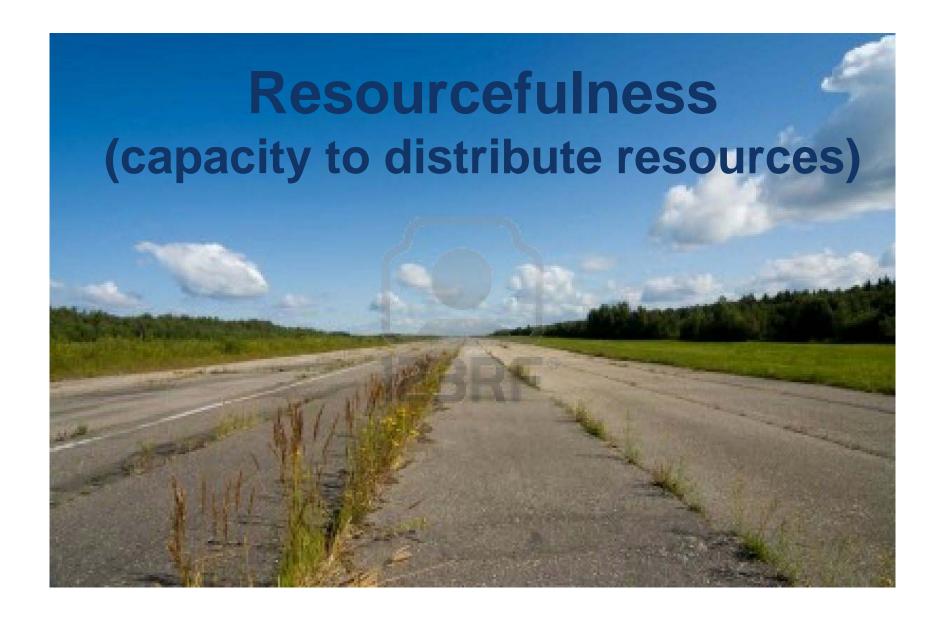*Engineering Technology Forum*

Redundancy

- Staff need to be trained across multiple airplanes and maintenance operations
- Attraction and training of qualified staff was a major concern
- Loss in the number and diversity of aircraft operators in the post de-regulation environment
- Overall loss in redundancy

Resourcefulness
(capacity to distribute resources)

Resourcefulness

- RRR airports are essential during times of flood or fire, as roads and rail corridors can be blocked; extremely resourceful during crises

- Serve medical (doctors and medicines), food supply, and employment (e.g. Mining)

- Goods and people movement during more 'normal' times is more dependent on the configuration and operations of the airport in addition to supporting infrastructure (e.g. connections of multi-modal links to the airport)

Rapidity
(speed of normal system restore)

Rapidity

- A lack of centralized planning of the network hinders rapid recovery from disasters or gradual disrepair

- This aspect of resilience is particularly difficult for RRR air services, as repair costs are typically well beyond the financial means

- Commercial demand drives revenue and revenue stops when RRR air services stop

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Conclusions

Conclusions

- Scant research (Australia and international) on the role of RRR airports and air services

- Significant resilience of RRR airports and air services has occurred over past 2 decades

- Vulnerabilities do exist:
  - Complexity and expense of air service operations
  - Lack of centralized planning (competition may not serve RRR best)
  - Some RRR air services have closed
  - Rapid response to emergencies hampered in RRR communities

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Next steps.....

- Need to measure and better understand of non-monetary benefit of RRR air services

- Little evaluation of the direct and indirect, economic and social benefits that RRR airports provide communities (education, medical, access to jobs, etc.)

- No state/national rationalisation of the role and critical location that RRR airports provide for emergency response and economic development