

Sharing Knowledge on Climate Change for Remote Indigenous Communities
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Desert houses, energy and water use: living with the climate

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Climate change – good for tourism



Alice Springs: Climate change vs Comfort change

- Jan 06 – hottest month on record
- 12 days in row over 41C
- Feb 06 – hottest nights on record
- Heat won't kill us, but it wears us down.



Alice Springs

Climate change vs Comfort change

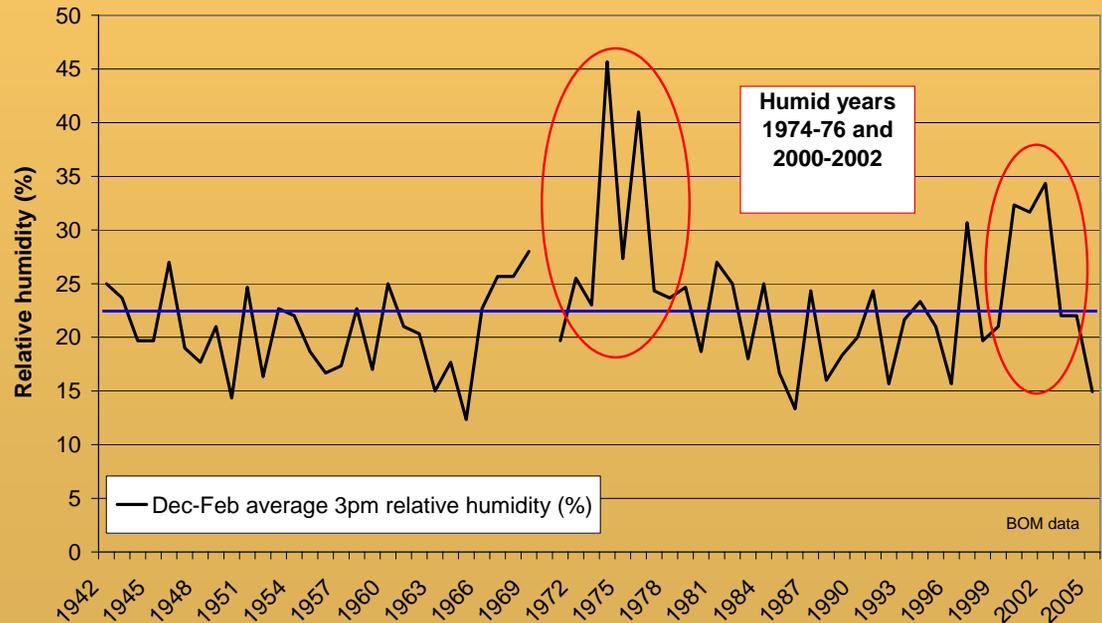
- People switching from evaporative to refrigerative air conditioners
- “The weather is more humid now”



Alice Springs

Climate change vs Comfort change

- Humidity is not rising
- Comfort expectations are rising
- Will long summers become intolerable??
- Will the town shrink??
- Will desert economies suffer??



Future of remote communities

- Elders want to stay
- Populations rising
- Young adults restless
- Inadequate housing
- Few jobs
- Costly to maintain
- Is Government funding secure?
- Will people move to Alice Springs?
("town migration will be the death of culture")
- What will climate change mean for daily living & infrastructure?
- Hotter houses, more floods, more stress.



Who controls infrastructure??

- Controlled by Government and onsite staff from elsewhere.
- Town Clerks stay 15 months.
- Essential Service Officers turn over.
- Infrastructure quality tied to longevity of staff, not locals.
- Residents poorly engaged and disempowered.
- Local control means greater security & better outcomes.
- “We know and manage our infrastructure well - WE WANT TO LIVE HERE!”
- Sustainable energy and water use are key themes.

Who can teach who?

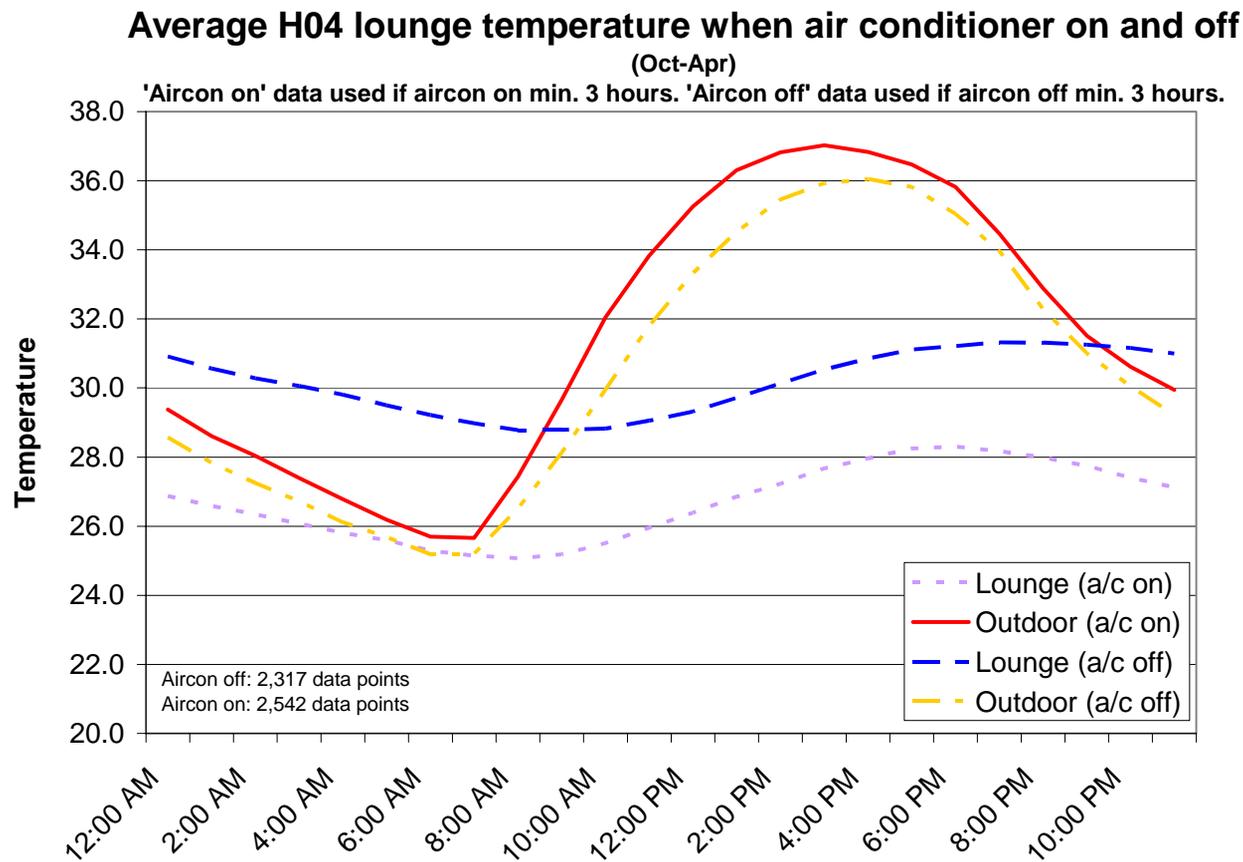
- Alice Springs is not sustainable.
 - 2nd highest water users in Australia (after Kalgoorlie).
 - Power use escalating.
 - House designs poor.
 - Residents poorly informed.
- Inadequacies are transferred to Aboriginal communities.
- Who will be the first Desert SMART communities??
- Depends mostly on people, not hardware.

Temperature control in houses

- Heat causes stress, and getting hotter
- People prefer to be cool
- Poor design = 35C+ at midnight
- 28C is 'thermal comfort level' – same as non-Indigenous people
- Good house design is essential first step
- Air conditioner tops it up



Temperature control in houses



Temperature control in houses

- Existing houses are most of future houses.
- Use 'AccuRATE' to assess star ratings.
- Make cost-effective changes.
- Examples: Paint roof a light colour, add ceiling insulation, shade western walls.
- Can be done by locals.
- Cost for 5 star new homes



Future houses

- \$1 billion short-fall in NT housing need.
- The money will not be supplied.
- Are there cheaper housing options?
- What is suitable and acceptable?
- “I want a proper toilet, not a bush toilet”.
- Residents and researchers working together.
- Strong participatory engagement required.
- Long time frames – patience and persistence.

Evaporative air conditioning

- In desert communities, people use aircon 24/7.
- Climate warming won't increase that!
- Now fitting 6 hr push-button timers.
- Evaporative aircons suffer from hard water.
- Expensive to maintain, cheap(ish) to run - \$2/day.
- Costly for Council, cheap for residents.
- Cool the whole house.
- Often out of service, use lots of water.
- Easy to maintain by locals.



Refrigerative air conditioning

- Refrigerative aircons are gaining ground.
- Seem fairly reliable.
- Cheaper to maintain, expensive to run (\$6/day)
- Good for Council, expensive for residents.
- Only cool one room.
- People sleep in same room or outdoors.



Electricity supply

- Most communities use diesel generators.
- Higher greenhouse emissions than gas turbines.
- Diesel cost rose 25% last year.
- NT Govt pays 40c/kWh, residents charged 16c/kWh.
- \$300,000+ per year diesel for medium community (400 people).
- Can it be reduced?? Yes – easily by 10%+ reduction.
- Saves NT Govt money – community looks good.
- Saves residents power cards and money.

Electricity

- Biggest users are typically:
 1. Houses (locals and staff)
Stoves, hot water and aircons
 2. Store
Freezers & fridges

Save electricity via:

- a) User education & engagement
- b) Timers
- c) Regular maintenance (local teams)

More research needed on best hardware.
Power cards have worked well.



Water use

- Bore water used in most communities.
- Is it sustainable? Often unknown.
- Where is it used in the community? Often unknown.
- How much leakage and poor use occurs? Unknown.
- Will climate change increase water use? Maybe not.
- Will empowerment reduce water use? Yes.



Saving water

- Find out where water is used.
Houses, ovals, enterprises, leaks.
- Target big users.
- Meter and watch it over time.
Set up simple systems.
- Houses use water via:
 1. Legitimate use (can be high due to many people).
 2. Poor use (taps left on).
 3. Poor maintenance (leaks)
– train locals for reliability.
- Educate, enthuse and empower residents.



Wastewater

- Health hardware becomes health hazard.
- 70% of maintenance \$\$ spent underground.
- Good chance of long-term function if installed properly.
- Residents then not blamed for failures.
- Check plumbers work.
- Train locals for this task!!
- Value local residents who maintain infrastructure.



Community adaptation

- Communities must secure their own futures.
- Critical to health, wellbeing and culture
- As important as land management.
- Provides quality jobs.
- Populations increasing, revenues decreasing.
- Requires partnerships between community, service providers (Govt) and external expertise.
- Enthusiasm will be supported. Not many winners yet!

Discussion points

- Do community residents regard sustainable energy and water use as important?
- What are the barriers to managing things better in communities?
- What extra tools are needed to move forward?
- What education programs might work?