

Environmental health response to a significant community flooding event. Case study: Kintore community

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Before I commence, I would like to acknowledge the Traditional Owners of the land on which we are meeting. I pay my respects to their Elders, past and present, and the Elders from other communities who may be here today.

Good morning, my name is Aaron Clifford; I am the Acting Coordinator with the Environmental Health team in Central Australia. Today I am going to talk about a flash flood that occurred in the very remote Indigenous community of Kintore, also known as Walungurru.

In the context of emergency management Australia-wide, the flood and its impacts on Kintore might be considered small scale. However, due to its very remote location, there were some very significant logistical constraints. This impacted how and when Government and trades persons government and tradespeople community. This also provided greater impacts to remediating critical health infrastructure.

The management of these constraints was provided initially through the local MacDonnell Regional Council in response to the flood and then by the Northern Territory Emergency Service (NTES) during the recovery process. The recovery process involved a multidisciplinary response achieved through the Emergency Operations Centre and involving all levels of government. Therefore, the purpose of this presentation is to highlight Environmental Health's role in responding to the floods; and those areas of public health that required monitoring, advice, and direct physical involvement.

My presentation today discussing Environmental Health responses to the floods at Kintore will involve a brief overview of the community, the land it resides within, and the local community people. I will then provide a brief overview of the flooding event and some immediate impacts that occurred and subsequent constraints for emergency management. This will then lead into a discussion regarding those collaborative responses by Environmental Health involving an advisory capacity, onsite investigation; and responsive works. Importantly, this presentation aims to discuss Environmental Health's place in the broader operations undertaken by a large array of government and non-government professionals.

Kintore, aka Walungurru, is situated 530km west of Alice Springs in the Pintupi Homelands; lying 34km east of the WA/NT border. Importantly, the community forms part of the Luritja Pintubi Ward and is serviced the MacDonnell Regional Council.

Geographically, you will find a semi-arid climate, which can be quite striking as you drive either through the West MacDonnell Ranges or part of the Mereenie Loop. Most services come from Alice Springs, and travel from here does come with some significant constraints; due to the vast distances, most of which are on unsealed roads. Consequently, most travel must be undertaken by 4WD or light aircraft.

From Alice Springs follow Larapinta Drive for about 50km to the Namatjira Kintore Link (200km) and then onto Kintore Rd, which is about 270km. In this direction you will pass either through or near

the communities of Haasts Bluff, which is 290km from Kintore, and Pupunya, which is 30km away from Haasts Bluff.

Once you leave Larapinta Road, the roads are unsealed, leaving over 450km of unsealed road to drive on. Alternatively, from Alice Springs you could drive 127km up the Larapinta Drive to Hermannsburg community and, about 80km from there, follow the Namatjira Kintore Link and Kintore Rd for a further 431km.

I'll just give you a brief snapshot of the community now. Kintore lies at the base of culturally important hills, Pulikatjara, meaning two hills; and we can see those in the background in the video.

The population of Kintore varies depending upon cultural requirements and numbers vary between 300 and 600 Aboriginal people; however, the usual population is around 400. Kintore is made up of Pintupi people with a small population of Walpiri people. The main language spoken is Pintupi/Luritja, with other languages such as Warlpiri, Arranda and Pitjantjatjara also spoken.

The local Australian rules football team is the Walungurru Hawks. Yellow and brown paint, also the colours of Hawthorn AFL team, feature heavily on the houses and businesses in the community. This community also has its place in popular culture; in the Midnight Oil song 'Beds are Burning', it is sung that "Four wheels scare the cockatoos/From Kintore east to Yuendumu".

Often English is a third or fourth language of a community member. There is also an average of about 20 non-Indigenous people living in the community. Most work at the Pintupi Homelands Health Service, renal dialysis health unit, Walungurru School, Yirara College, Community Council, Papunya Tula (Art Centre), the Police Station, the Women's Centre, and the public swimming pool.

It's safe to say at this point that Christmas Day in Kintore was unpleasant. They received a rare 1 in 50 year rain event where just over 321mm of rain fell over 2hrs. This caused flash flooding and 40% of all homes were damaged. These homes had their power isolated ahead of a safety assessment undertaken by police. Subsequently 25 homes - or one in five homes in Kintore were evacuated. This meant that 85 people spent that night in the Kintore School and 11 others spent the night at relatives' homes.

In very simple terms, the severity of the flash flooding was increased because of several reasons. The increased rainfall was caused by a deep low pressure system which was moving slowly south-eastwards across the far southwest of the Northern Territory. While understanding weather patterns is fairly complex, every farmer knows that as a rule of thumb, high pressure means clear skies and low pressure systems bring clouds and rain.

In short, low pressure systems can form when air rises as it's warmed over a huge, hot landmass such as those found around Kintore and its surrounding Pintupi Homelands. The low pressure system caused some significant rainfall on 2 days previous to the flood with 43 mm and 55mm being recorded by the Bureau of Meteorology

This heavy rainfall had already started to waterlog the ground. Then, on Christmas Day, a deluge of 230mm that fell in 2 hours hit the water logged ground, causing water to pool and cause water to rise and flow from high ground nearer to the base of Pulikatjara hills towards lower ground. As a consequence, those houses that were within the lower reaching areas of the community were the worst affected.

Importantly, the low pressure system affected many parts of Central Australia. Due to the heavy rainfall, all access via the Namatjira Kintore Link was closed. Kintore road is significantly flooded. Also, due to the time of year some staff in the community had taken leave. Subsequently, access to the community could only occur via air craft. Therefore, initial efforts to address the impacts of the flooding involved the MacDonnell Regional Council Civil Works Team removing debris from the near-by landing strip. In a rare event, at one stage there were 10 light aircraft parked alongside the airstrip.

There were three police and two NTES volunteers involved in the initial response after the flooding. They assisted with going door to door and communication with community residents and ensured that those who needed it were evacuated to the emergency shelter at the school. They also communicated with various stake-holders back in Alice Springs, guided the Civil Works team on the ground; and ensured that critical health infrastructure was assessed.

The ESO provided checks on the water and power infrastructure, ensuring all generators were functioning and bores were still operating and assessed the sewage ponds for structural integrity and flooding.

The Department of Housing and Infrastructure began housing assessments. Particularly important was providing electrical contractors to address housing. Another issue was that mud and water had inundated the houses, and these homes needed to be properly sanitised. MacDonnell Regional Council had their staff working overtime. They also provided electrical contractors and began assessing the structural integrity of structures and prioritising repairs. Another important factor, due to the closed roads was assessing roads, and endeavouring to have those traversable as soon as possible.

The Department of the Chief Minister coordinated the response via the WebEOC incident management system and numerous face to face multidisciplinary meetings. Within this context, there was an initial response coordinator who hands off to the recovery coordinator. Environmental Health and the Centre for Disease Control (CDC) became involved within the recovery response under the Public Health Group (Area). Collaboration within this group included the: Pintubi Health Services, Territory Families, Department of Housing and Community Development, MacDonnell Regional Council, Central Australia Health Service and Power and Water.

Environmental Health's initial response was to provide advice and fact sheets to the Emergency Operations Centre for dissemination. General advice was provided in regard to: critical health infrastructure relating to power, potable water, sewage, and solid waste control; food safety; entomology; general pest control and skin hygiene. Fact sheets related to: food safety; on-site waste water systems and power outages; personal safety during floods; floods and household safety; general hygiene; contaminated drinking water; potable water supplies; and mosquito repellents.

On January 6, In collaboration with the Emergency Operations Centre, the Environmental Health manager flew to Kintore with the Area Supervisor from MacDonnell Regional Council. This trip was undertaken to observe the impact of the floods, observe the works being undertaken on the ground; and provide an additional scope of works.

This visit included liaising with managers from the clinic, aged care; and store to determine how Environmental Health could work in collaboration with their ongoing arrangements; and to provide health promotion resources. The Environmental Health manager also visited various infrastructures to observe damage caused by the floods to the power and water stations, sewage ponds; and solid waste management, and housing.

The information provided through WebEOC and from the visit demonstrated that, while a significant scope of works was still required, various government departments were responding well to the emergency and resources were being staged towards the large scope of issues relevant to Environmental Health concerns.

A follow-up visit was undertaken in Kintore from the 11th to the 13th of January by vehicle. This was undertaken by the Environmental Health Coordinator, an Environmental Health Officer, and a Nurse from the CDC. This visit significantly focused on pest control and entomological control. Here, Environmental Health staff provided methoprene pellets and briquettes for ponding water and Bestox barrier spraying to buildings and houses.

While onsite, inspections were undertaken of the vulnerable-population facilities involving aged and child care, and also the community store. It was identified during this trip that there was a significant pest control problem. This caused concerns regarding poor skin sanitation and the potential for communicable diseases. Also, significant plumbing issues were observed. On the following slides, I will discuss those Environmental Health concerns and some of the responses provided to address these.

Obviously, food safety; and skin sanitation were important factors. Three flights were provided by Chartair between the 25th and 30th of January, carrying loads between 600kg and 1720kg each. These flights were funded by the: Northern Territory Department of Infrastructure, Planning and Logistics; and Outback stores.

Items provided to the community included camp beds, replacement clothing, blankets and sheets, nappies, and medicated soaps. Pallets of staple foods were also provided, consisting of fruit and vegetables, frozen goods, milk and bread, drinks, baby food and toilet paper. A large 8-wheel drive – all terrain vehicle was able to be driven to the community from Alice Springs on 31 January.

The waste management facility was flooded; however the water was receding at least 15 to 20mm per day. A temporary dump was provided until the existing dump was again able to be used. Approval was given for the civil works team to burn the rubbish to prevent vermin and other pests.

Ongoing daily waste management services were provided within the community for all waste associated with building remediation. However there were several other concerns regarding the waste management facility. These included, the potential for mosquito harbourage from the ponding water; and as such Methoprene briquettes were provided by Environmental Health. There was also an important need for ongoing slashing to prevent harbourage of pests and vermin and, as such, the Civil Works teams were slashing grass around the community.

Other important factors included keeping rodents and pests, such as dogs and donkeys, from scavenging within the facility; therefore any damaged fencing was organised to be repaired. There were risks associated with leaches and run-off from toxic substances stored within the waste management facility; as such, Environmental

Health provided a brief inspection and discussed the risks with the Civil Works staff. There was a lack of community awareness regarding the risks from the facility after the flooding event; and in this instance, some advice was provided by Environmental Health.

The power facility was generally in good condition. While one generator did go offline, the back-up generator could sufficiently maintain the required power to the community. Also, there were 6 weeks of fuel for diesel generation.

The water treatment facilities fared less well. Significant damage had occurred to the fencing, and this was being addressed by the Council. Also, very significant erosion had occurred surrounding the facility, inhibiting vehicular activity. Some mosquito harbourage was identified onsite within conduits located on the outside of the facility. Rather than treat these conduits with methoprene it was organised for them to be drained of water. There were some river type beds located near the drinking water facility which had some algae present, and tadpoles. However, no mosquito harbourage was identified. Overall, the bores were operating and water quality was able to be maintained within the Australian Drinking Water Guidelines.

Luckily, due to the loamy soils, water was receding within and surrounding the community. However, as discussed, mosquito harbourage was considered a significant issue, and treatment was undertaken by Environmental Health within several areas. These included: using methoprene pellets and briquettes for ponding water on the Kintore access road, within spoon drains and beside raised road beds, at the waste management facility, and some ponding water within the community; and barrier spraying of homes and facilities (focusing on those housing vulnerable populations).

Other important activities included: going house to house and removing water from receptacles such as bins, tyres, drums, plastic containers, and tarpaulins; and educating community members about mosquito harbourage.

While many, organisations organised ongoing actions, the main concerns monitored by Environmental Health within the Public Health Group during the floods can be boiled down to three issues: skin sanitation; food safety; and pest control.

In regard to skin sanitation, by 30 June, the Emergency Management Committee had organised for all residential properties inundated by the flood event to be checked by electrical contractors to ensure they were safe to reoccupy. This allowed residents access to hot water. Houses that were inundated were also professionally cleaned by cleaning contractors with specialist cleaning equipment including pressure cleaners and disinfectant. Also, a quantity of hoses, squeegees, mops, buckets and brooms were sent out on 30 December for the six worst affected properties. To keep residents off the ground, 70 camp beds had also been sent out. Also, a large quantity of replacement clothing, blankets, sheets, nappies, and medicated soap was sent out.

While many washing machines in the community were inoperable, 14 washing machines were being trucked out. However, there were also indications that residents were using the two large industrial washing machines at the aged care facility to clean their own linen, plus the blankets that were supplied.

Ensuring the appropriate cooking of foods and food temperature was also an issue. However, 19 stoves were replaced shortly after

houses were cleaned and residents moved back in. Electric frypans and kettles were provided as an initial, emergency measure prior to the stoves being replaced. Eleven fridges, three freezers and two bar fridges were provided to homes which were inundated by flood waters.

There was still some significant concern regarding reports that houses were overrun with vermin - cockroaches, scabies, mites, mice and snakes. While many inundated homes had been cleaned, there was a need for a whole-of-community pest control regime. However, the roads were required to open up before the pest control professionals would travel to Kintore.

In the interim, Council ensured all infested household items were removed from homes, the CDEP were slashing grass surrounding homes and Environmental Health Officers had provided some Bestox spraying. However, even after the large scope of works, there were some concerns because 14 homes were uninhabitable, but families have taken up residence anyway.

The final visit to Kintore by two Environmental Health Officers occurred from the 20th to 23rd of February. At this stage houses were still inundated with a large array of pests, including significant amounts of cockroaches. Therefore, the trip was organised to assist the professional pest controllers who had arrived in the community to provide community-wide pest treatment. In this instance Environmental Health visited community residents at 18 houses. This included educating residents about pest control; and the poisons and assisting residents in removing their belongings prior to pest treatment.

The pest control professionals were able to treat every facility in the community. While in the community, some health promotion activities were provided at the school to inform school children about skin sanitation. While much of the pooling water in the community had been absorbed into the ground there were still some methoprene pellets provided for some remaining standing water, including at the water management facility. Also, inspections were provided at the vulnerable population's facilities such as the aged care and child care facilities, and an inspection was undertaken of the community food store.

Thank you. That is the end of this presentation. Are there any questions?

For more information

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Glossary

CDC	Centre for Disease Control
CDEP	Community Development Employment Program
ESO	Essential Services Officer
NTES	Northern Territory Emergency Service