

# Environmental Health Response to a Significant Flooding Event

## Case Study: Kintore



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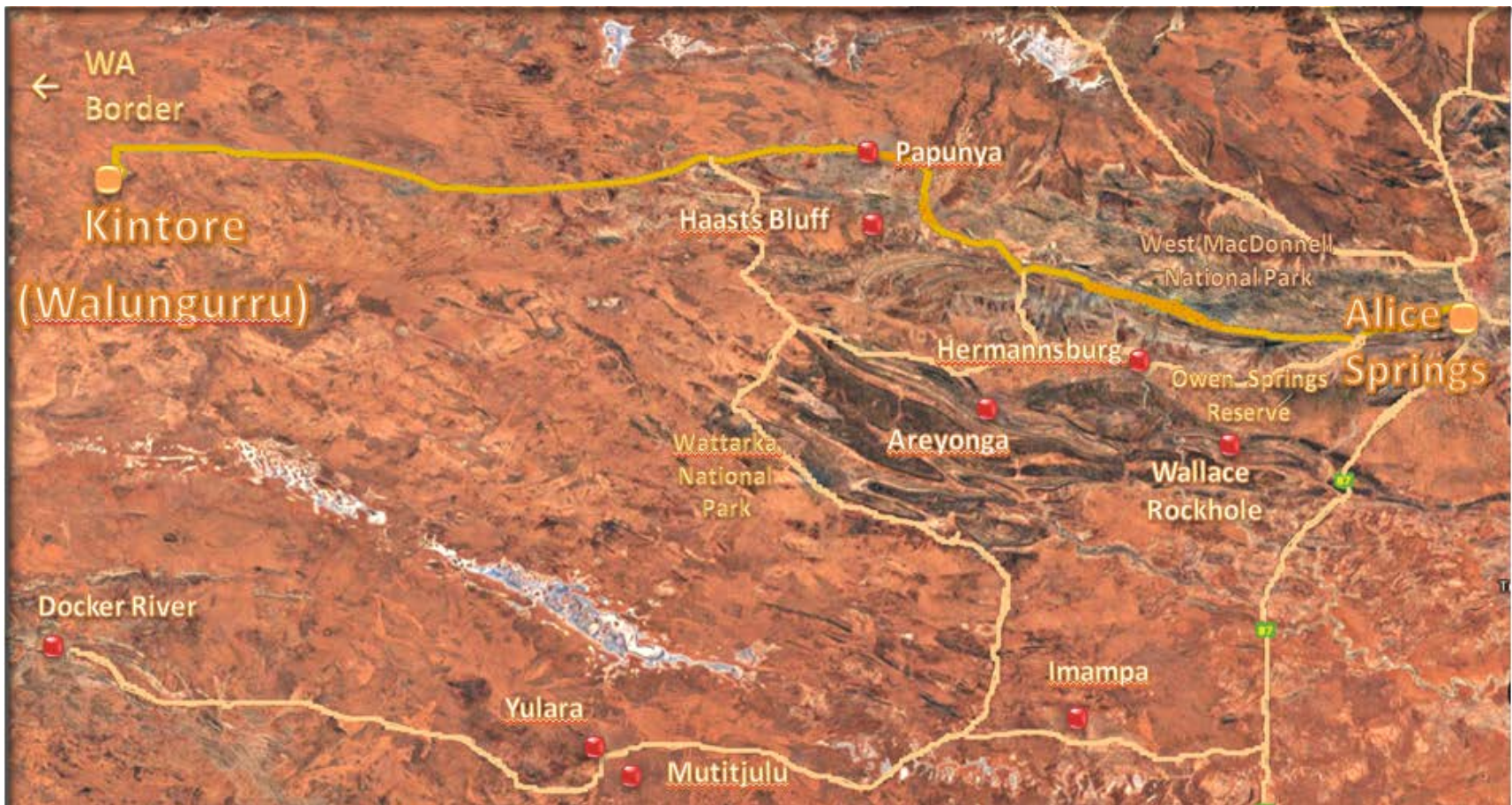
Northern Territory | Department of Health





# Kintore / Walungurru

- Lies within the **Pintupi Homelands**
- 530 kilometers west of Alice Springs - 34km's east of the WA/NT Border
- Culturally important hills - **Pulikattjara**, meaning **two hills**





# Kintore (Walungurru )





# Kintore (Walungurru )

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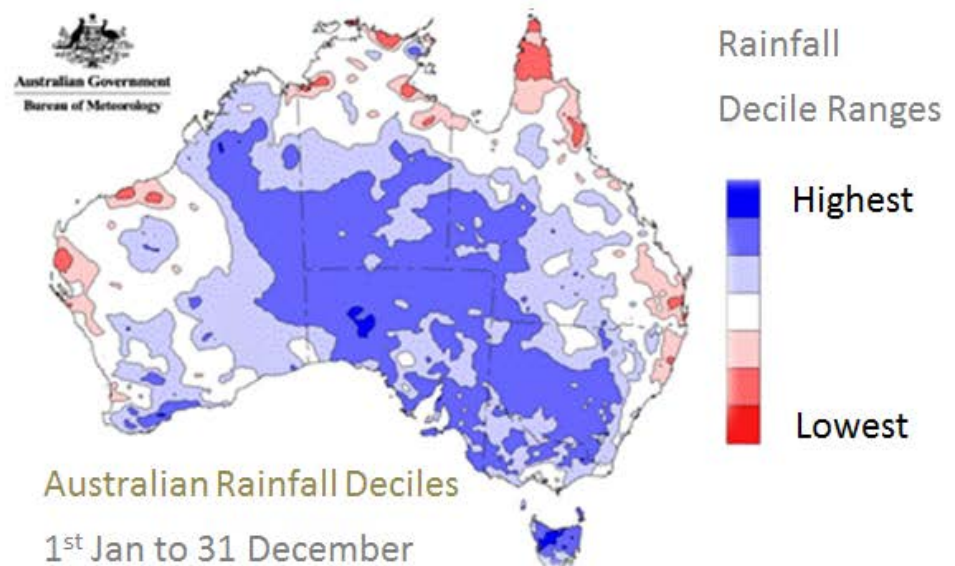




# Community - Flash Flooding

## 25 December 2016 (Christmas Day) No Notice Event

- 321.6 mm rain in 2 hours (one-in-50-year event)
- Approximately 200 people in the town
- 96 people were displaced from homes
- Emergency shelter is three empty rooms in local school
- 40% of homes suffered water damage
- 20% of homes - 5-30cm of water
- Power isolated to 40% of homes
- No one was injured during the event





# Community - Flash Flooding

Heavy Rains cause by a deep low pressure system was moving slowly south-eastwards across the far southwest of the Northern Territory.

Date	Day	Tempts		Rain mm	Wind Dir
		Min °C	Max °C		
		23	Fri	23.1	30.8
24	Sat	22.6	27.5	43.6	NW
25	Sun	21.6	25.0	55.4	WNW
26	mon	22.7	32.4	231.6	NNW
27	Tues	23.5	37.5	1.0	WNW
28	Wed	25.1	37.6	0	SSW
29	Thurs	22.1	37.2	51.2	WSW
30	Fri	23.3	38.0	0.2	SE
31	Sat	24.2	36.6	0	E
<b>Statistics for December 2016</b>					
Lowest		19.1	25.0	0	
Highest		27.1	42.6	231.6	
Total				425.4	SSW

Bureau of Meteorology (December)

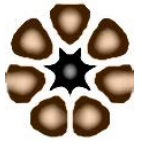
Build up of flood water occurring on water logged ground

○ Ground already waterlogged from previous rain events

○ 231.6 mm of rain  
(Equating to the Annual Expected Rainfall)

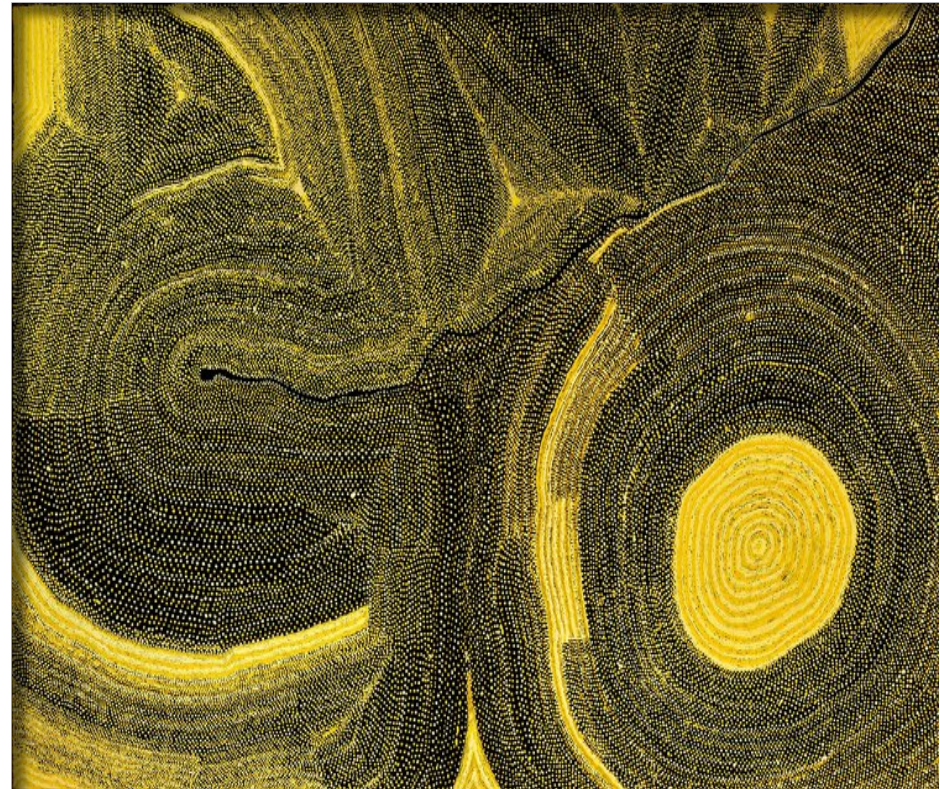
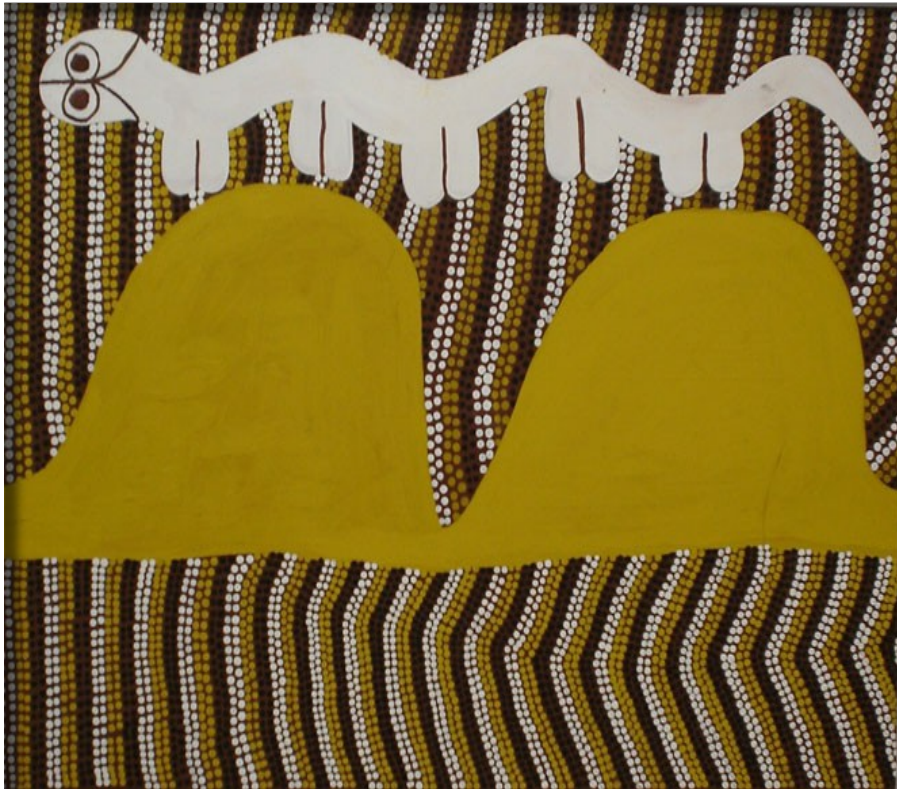
○ Ongoing rainfall provided issues for some initial responses

"One of our ladies, her house is probably one of the worst hit because it is in the lowest lying area of Kintore...she said that it was about waist deep in her place that night"



# Serpent Snake

Some community members believed that the rain was brought by the Rainbow Serpent. In times of anger or rage the serpent causes storms and floods to act as punishment against those who disobey the laws







# Transport & Road Floods

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**Kintore Road** (a.k.a) The Gary Junction Road ; WA Border Access Road



- Kintore Road flooded
- Provides an essential link between
  - Alice Springs and many Aboriginal communities in western area of NT and eastern part of Western Australia

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After organizing the emergency shelter one of the first tasks was clearing the landing strip.

- Emergency supplies
- Government Agencies & assessors
- Trades people

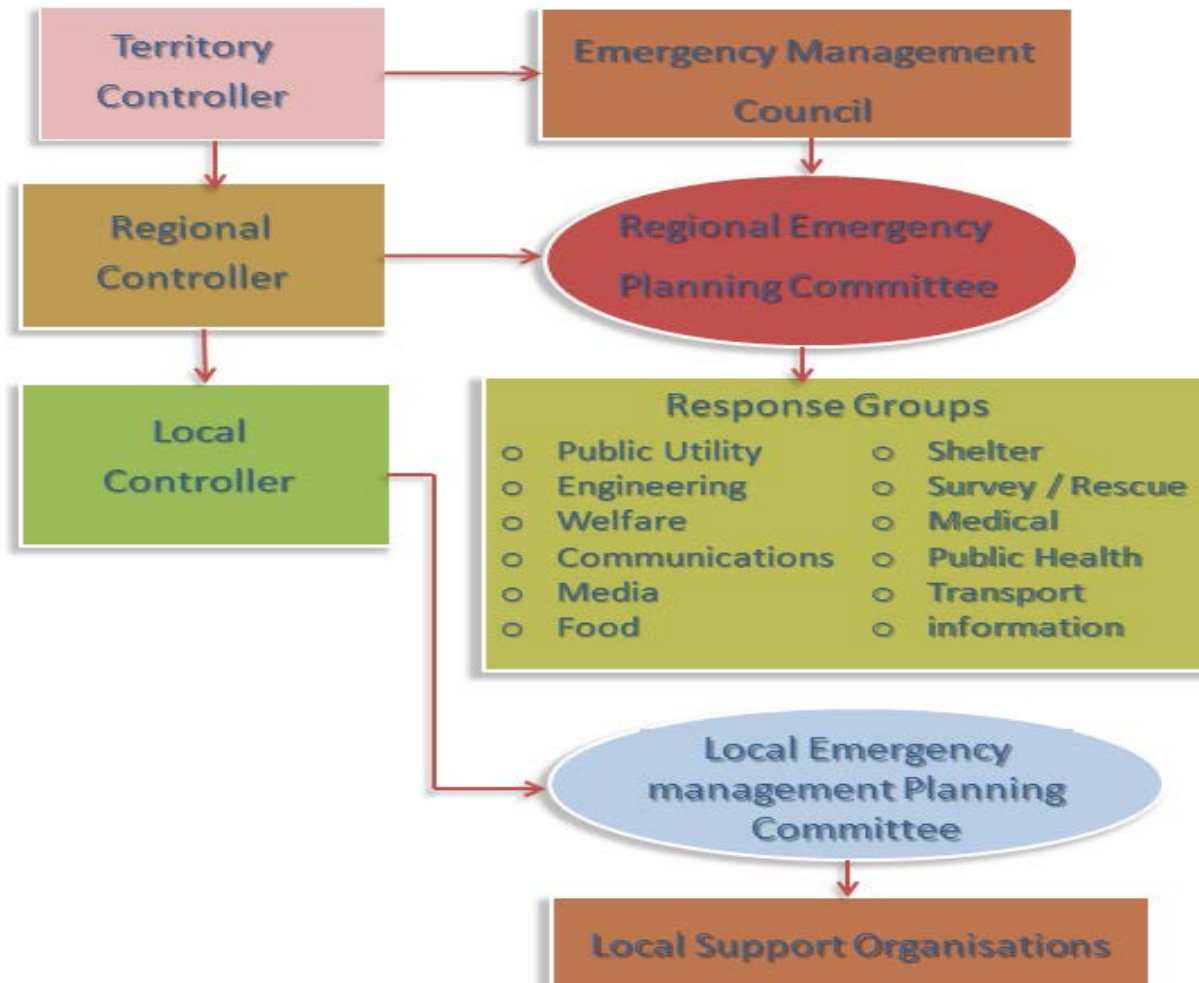
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Reports of up to 10 light aircraft parked alongside the Kintore airstrip



# Emergency Management

Department of Chief Minister coordinated the response via the WebEOC and numerous face to face to multidisciplinary meetings





# Initial Response

- 3 Police
- 2 NTES Volunteers
- 1 MacDonnell Regional Council Member
  - Assist with Initial Evacuations
  - Provide community risk assessments
  - Liaise with Staff on the ground
  - Guide Councils Civil Works team

## Department of Housing and Community Development

- Flew 3 additional Staff to Kintore
  - Impact assessments
  - Inspections by electrical contractors
  - Some sanitisation of houses.

## MacDonnell Regional Council (MRC)

- 4x staff and 1x electrician
  - Building and facility assessments
- Road crews and contractors
  - Commenced road assessments
  - monitoring of river levels





# Initial Environment Health Visits

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In collaboration with the EOC, Initial trips were provided by Environmental Health to monitor, assist and provide an additional scope of works

## 6 January (Flight) EH Manager

With: Area Supervisor MacDonnell Regional Council

- Liaise with managers from Clinic, Aged Care & Store
- Assess Power, Water and Solid Waste management
- Assess housing infrastructure
- Provide health promotion resources

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## 11 - 13 January (Vehicle) EH Coordinator and EHO

With: Nurse Centre Disease Control

- Entomology (Methoprene & Bestox)
  - Pellets in ponds; Barrier Spraying; overturning water containers
- Regulatory Inspections
  - Aged Care, Child Care and Community Store
- Monitor Infrastructure
  - Power, Water, Solid Waste, Housing





# Transport & Road Floods

## ChartAir Flight Deliveries

- 600kg - on Wed 25 Jan
- 600kg Fri 27 Jan
- 1720kg Mon 30 Jan

## For Displaced Residents

- Stretchers
- Clothes
- Blankets
- Nappies
- Towels
- Medicated soap

## Community Food Supplies

- Fruit & veg
- Drinks
- Frozen goods
- Baby food
- Milk & bread
- Toilet paper



## 8 Wheel Drive, All-Terrain Vehicle

- Tues 31 Jan - delivered approximately 12 pallets of food



# Waste Management

The Existing trench was flooded with Water receding - 15 to 20 mm per day.

## Waste Management Council Actions

- Alternate waste site provided
- Approval given to burn rubbish,
- Daily rubbish removal and waste management services.

## Immediate Issues

- No lava was observed
- Waste pit treated with Methoprene briquettes
- Need for slashing
- Community awareness

## Ongoing Issues

- Erosion
- Legacy waste
- Build-up of car bodies
- Metal in the trench
- Need to prevent dogs, camels scavenging





# Power & Water

These facilities are managed by the Power & Water Corporation and the Essential Services Officer

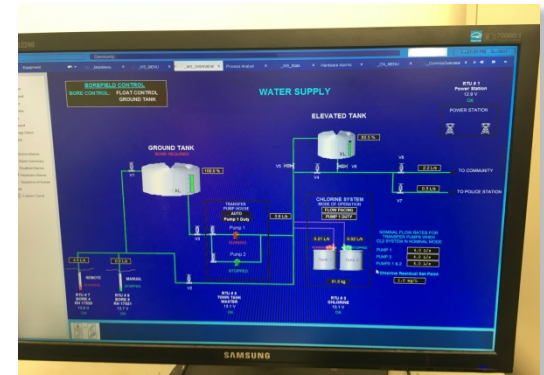
## Power Facilities

- One power generator went offline
  - back up generator was sufficient replacement
  - 6 weeks of fuel for diesel generation



## Water Treatment Facility

- Some Significant damage to Fencing
  - Works organised for repair by P&W Corporation
- Ponding occurring surrounding facility
  - No mosquito harbourage
- Significant erosion of soil inhibiting access
- Some mosquito harbourage in conduits
  - Ponding water drained





# Mosquito Harbourage (Entomology)

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## Mosquito Harbourage Treatment was prioritised.

- Standing water (Methoprene Pellets & Briquettes)

Large pools of water were standing on Kintore access road, within spoon drains and beside raised road beds

- Conduits & Drains (Water Pumped Out)

Power and Water complex below ground conduit service ducts

- Houses (Bestox Barrier Spraying)

Priority for given to homes with elderly (15 houses total)

- Water Receptacles (Emptying / Modifying)

Priority – bins, tyres, 44 gallon drums, tarpaulin, plastic containers

- Community Awareness (House to House)

General knowledge associated with Long grass, pooling water, water receptacles







# Housing

Community safety awareness, general repairs, plumbing and electrical works and waste removal were prioritised by EOC group

## Skin Sanitation

- Some houses professionally cleaned
- Hoses, squeegees, mops, buckets and brooms provided
- Supplies of toilet paper & medicated soap
- 14 washing machines provided for ability to wash clothes & bedding
- 2 Industrial washing machines made available at Aged Care

## Food Safety

- Cleaning products & equipment
- 19 non-functioning stoves were replaced
- 11 fridges, 3 freezers and 2 bar fridges provided

## Pest Control

- Whole of community pest control
- Cleaning products & equipment
- CDP Ongoing slashing
- 70 camp beds provided to keep residents off floor





# Ongoing Environment Health Visits

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20 - 23 February (Vehicle) 2 x EHO

## Follow-up Works from Initial Trips

- Entomology (Methoprene & Bestox)
  - Pellets in ponds; overturning water containers
- Follow-up Regulatory Inspections
  - Aged Care, Child Care and Community Store
- Monitor Infrastructure
  - Waste Management Facility

## Additional Scope of Work

Collaboration - Clinic, Council, CDEP Coordinator & Pest Control Company

- Pest Control (Entire Community)
  - Door to door community awareness (With CDEP Coordinator)
  - Assist residents empty homes of content (18 Houses)

Collaboration – School Teachers & Teachers Aids

- Health Promotion Sessions (Skin Sanitation )
  - 2 x 40 minute school sessions



# Environmental Health Response to a Significant Flooding Event

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Questions ?



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