

**From:** [NSW Government](#)  
**To:** [Flood Inquiry](#)  
**Subject:** Floods Inquiry  
**Date:** Friday, 20 May 2022 3:14:36 PM  
**Attachments:** [A Kia Submission Flood Inquiry.pdf](#)

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## Your details

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**Title** Ms

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**First name** Annie

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**Last name** Kia

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**Email**

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**Postcode** 2480

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## Submission details

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**I am making this submission as** A resident in a flood-affected area

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**Submission type** I am making a personal submission

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**Consent to make submission public** I give my consent for this submission to be made public

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## Share your experience or tell your story

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**Your story** Please find my attached submission to the Flood Inquiry.

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## Terms of Reference (optional)

The Inquiry welcomes submissions that address the particular matters identified in its [Terms of Reference](#)

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**1.1 Causes and contributing factors**

included in my submission

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**1.2 Preparation and planning**

included in my submission

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**Supporting documents or images**

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**Attach files**

- [A Kia Submission\\_Flood Inquiry.pdf](#)
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# Submission to the NSW Flood Enquiry 2022

**Annie Kia**

The Channon 2480

20/5/22

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I am a community member who formerly worked in NSW Health and have lived here since 1985. When I first moved here I was impressed with the accuracy of flood predictions for Lismore that used local intelligence and a local SES. I have extensive experience in community development, and have been involved in efforts to strengthen resilience in my community since the bushfire disasters of 2019/20.

My investigation of the creek/rain monitoring failures began on 28/3/22 when I walked down to look at the shed housing the electronic creek/rain gauges behind the pub at The Channon. The shed had been totally submerged four weeks earlier in the massive 28/2/22 rain event. Flood debris was everywhere, including on the roof and leaning against its door. It looked like no-one had visited it. With rain starting for the second flood, I was worried that people downstream would have no creek/rain information on the Terania system. To my dismay I learnt that large parts of the catchment were completely dark for this second flood. I then set about learning how the system of rain and creek gauges is managed by multiple organisations. As I investigated further I discovered an opaque, inaccessible system of joint mismanagement - antithetical to the purpose that catchment and flood warning systems should be intelligible and useful for communities.

**This submission focusses on systemic failures of systems that should provide catchment information to downstream residents. It closes with recommendations to correct institutional failure. It addresses the following criteria:**

- preparation and planning by agencies and the community for floods in NSW
  - appropriate action to adapt to future flood risks to communities and ecosystems
  - coordination and collaboration between all levels of government
  - the causes of and factors contributing to the frequency, intensity, timing and location of floods
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## **1. The current system of creek and rain gauge management is fragmented, opaque and inaccessible.**

The creek and rain gauges in the catchment that floods Lismore are owned by multiple organisations. It is extremely difficult to find out who is responsible for them. These organisations are Lismore City Council (LCC), Department of Planning and Environment – Biodiversity and Conservation Division (DPE BCD), WaterNSW, Manly Hydraulics Lab (MHL). BOM owns some equipment in the sheds. More recently LCC informed us that two additional organisations share responsibility for some of the sites: CMW and DECW (I have been unable to ascertain who these entities are). Rous Water is in charge of warnings to residents downstream of Rocky Creek Dam.

## **2. This system fails to provide a full picture of catchment flooding to the public.**

The BOM is responsible for providing flood monitoring information to communities as well as industry, government and emergency services. Fragmented ownership of creek/rain gauges means that BOM does not display all gauges to the public. The BOM website is the best of three websites attempting to give real-time catchment data, but

- There are two creek gauges effectively hidden from the public. These are Byron Creek at Binna Burra and Coopers Creek at Fairmeadow. They do not show on BOM and can only be found via an exasperating search on the [WaterNSW Water Insights](#) website. This platform is primarily concerned with the trade in water and fails in terms of utility. Creek levels on Byron and Coopers Creek are important for the public, farmers and industry. This was particularly so during the March flood when the other two gauges on Coopers creek were still inoperable four weeks after the February flood. While this data is no doubt being used by those doing flood modelling, the fact that this information is effectively hidden from the public shows an attitude of indifference, even contempt for people who need access to data obtained with public money. It demonstrates an organisational attitude that has forgotten that catchment data is for the public, not just a closed-shop loop of flood modellers and emergency services. It has not occurred to bureaucrats that people in small catchments get no flood warnings. Their only way of knowing when to get their cattle and themselves to safety is by looking at the creeks and rainfall. People nearly died at Boatharbour, downstream from the WaterNSW creek gauge on Byron Creek at Binna Burra.
- The [LCC Disaster Dashboard](#) website would infuriate any normal person. It is incomplete, confusing and frustrating, requiring the user to repeatedly switch off irrelevant layers. Creek and rain data are mashed together under icons for “rain”. There is no way to see trends easily. It is missing the mysterious Coopers Creek gauge at Fairmeadow and Byron Creek gauge at Binna Burra. The designers of this webpage have little understanding of the needs of people in emergency conditions. Instead of a simple map showing location of creek/rain gauges, use of the graphical display involves approx 220 web requests to build the page, consuming a lot of data at each refresh. Communication bandwidth is important in a crisis.
- The BOM website for creek data is the easiest interface but lacks the Water NSW sites at Fairmeadow and Binna Burra. There is also a problem with how the public interprets ‘steady’ when displayed next to a creek that is on a rapid rising trend. Many people may not click on ‘Plot’ to see the trend. The public needs to know what ‘steady’ means. Is it the last 10 minutes? Most people don’t understand that floodwaters surge, and may underestimate risk. It is important to remember that a person might check the BOM once every 45 minutes, while they are busy walking through water in the dark trying to get their cattle, tractor and themselves to higher ground. Here in The Channon, a neighbour was doing just that when they called the SES [to warn them that the BOM was saying Terania Creek was ‘steady’ when in fact the creek was rising fast](#) and about to flood their home. The SES person they spoke to could not understand why they were calling. At about the same time I walked down my drive to see that Tuntable Creek had crossed the road and was in our paddocks. I had been listening to Brisbane ABC where I heard a meteorologist say that the intense system was only just now entering NSW. Yet I saw we were already at levels of the 2017 flood disaster. During that night when I checked BOM I was frequently puzzled to see BOM display creeks as ‘steady’.

### **3. The agencies that share responsibility for creek and rain gauges do not incorporate fail-safe redundancies to ensure the ongoing functioning of their equipment during extreme events.**

The extreme rain caused floods and landscape collapse of enormous scale and devastating impacts. Although people describe these extreme conditions as ‘unprecedented’, climate scientists have warned governments and civil authorities that a warming atmosphere creates conditions for such events. The catastrophic events that we endured stress-tested every system of governance and civil society. A resilient system, by definition, is a system that can handle shocks and still function. The authorities responsible for creek/rain gauges were caught short because they had not created resilient systems with redundancies.

- Several of the creek gauges owned by Lismore City Council (LCC) damaged by the February flood were inoperable for the March flood, so that four High Priority creek gauges were out of action. I submitted questions to LCC staff via Councillor Darlene Cook. In response LCC explained that due to extreme flooding on the east coast, there was a shortage of spare parts to fix the gauges. This is an example of a lack of fail-safe planning.
- The manual creek gauges need to be restored in some places so that community can take creek readings as they did in the era when we had reliable creek warnings. In The Channon, we would

have rostered ourselves to take manual readings of Terania Creek, for safety of residents downstream.

- Other fail-safe back up measures could perhaps include keeping more spare parts in store, or asking an agency in Victoria not impacted by floods to restore the gauges as quickly as possible.

4. **Some agencies responsible for creek and rain gauges seem unclear about their responsibilities.**

The BOM document [Service Level Specifications for Flood Forecasting and Warning Services for NSW and the ACT](#) specifies that it is the responsibility of the owner of a gauge to inform the BOM when the gauge malfunctions (page 12). The rain gauge at The Channon has malfunctioned since 28/2/22. Since then, the BOM has continually published zero rain for this site. Instead of an empty line indicating a malfunctioning gauge, they publish zero rain.

- My request to LCC asked if they had informed BOM that The Channon rain gauge malfunctioned. I also suggested it would be better if BOM displayed an empty line next to The Channon, as they do for the defunct Terania rain gauge. In response to my request LCC replied *“BoM know when the Council gauges are inoperative as the data that they use stops being received – they don’t need us to tell them”*. They have clearly not communicated the gauge failure to BOM as it is still publishing zero rain for this location as the rain comes down. I append the questions to LCC and their responses to this submission.
- The BOM does not appear to have fail-safe protocols to pick up information from the public regarding their publishing of incorrect data. On two occasions since 28/3/22 I have phoned BOM to alert them that they are publishing incorrect data for The Channon. On the second occasion I asked to speak to a quality control manager but was told they were too busy. I asked for a name and phone number but this was not provided...instead they took my contact details but no-one contacted me. This failure to engage with the public when they are providing useful information is a failing. I don’t know if they need more funds or a re-orientation of their service, but something has to change here.

5. **Some agencies responsible for flood warning systems seem to have adopted ‘closed shop’ policies counter to the public interest.**

When I asked LCC if I could have the historical data for their creek/rain gauges so that I could use it to make my submission to this Inquiry they responded that I could do a GIPA. Similarly, the BOM charges people to get historical data, yet they state their mission as including provision of information to communities.

6. **The failure of institutions to build fail-safe redundancies into their practices is evident across many aspects of the flood and landscape collapse catastrophe.** These institutions have not been able to plan for and adequately respond to extreme ‘unprecedented’ climate events, even though these events are expected due to the warming of the atmosphere from greenhouse gas emissions.

- Telstra’s reliance on a single cable in flood-prone Woodburn put the whole Northern Rivers at risk during a dangerous emergency
- The NSW government authorities responsible for the M1 section near Evans Head failed to consider extreme flooding due to climate disruption.
- Failures of organisations responsible for creek and rain gauges noted above

7. **One important contributing factor to the failure of institutions to plan for ‘unprecedented’ climate events is the failure of leadership on fossil fuels that drive climate change.** It is difficult for people in these institutions to take climate disruption seriously when coal mines and gasfields continue to be approved. Every time another coal mine or gasfield is approved, it sends the message ‘*we have plenty of time – there is no urgency*’.

Just prior to the catastrophic floods in the Northern Rivers, the [Independent Planning Commission chaired by Professor Mary O’Kane approved the Whitehaven underground coal mine extension](#) near Narrabri. Even before the coal from this mine is burnt for energy (Scope 3 emissions), this very gassy mine will vent large amounts of methane directly to the atmosphere (Scope 1 emissions).

- The submission from Lock The Gate Alliance noted that "*If the Stage 3 expansion were operating today and it was compared to all other thermal coal mines operating in Australia in 2019-20, it would have the largest annual Scope 1 emissions of any thermal coal mine in Australia.*" Just getting the coal out of the ground will generate a huge GHG footprint.
- Dr Sackett is from the ANU Institute for Climate, Energy and Disaster Solutions sent a submission on this coal mine [here](#). This submission outlines why we can’t afford expansion of coal in this country. It is striking that this submission cited a recent report that "*even under a low emissions scenario the cost of natural disasters in Australia will increase from \$38 billion annually now to at least \$73 billion annually by 2060. Given that this estimate is about double that made by the same group four years earlier, it is reasonable to expect that these estimates will only grow with time. Importantly, the report found that the **area stretching from South East Queensland to North East NSW is expected to face the greatest increase in costs from natural disasters as the frequency and severity of some natural disaster events increases***". The submission was dated 23/2/22, as disaster unfolded in SEQ. On 27/2/22 the extreme rain devastated the Northern Rivers. On the 1<sup>st</sup> April the IPC approved the coal mine.

### **My recommendations to the flood inquiry are:**

1. That government, institutions and corporations responsible for infrastructure critical to public safety in disasters are required to incorporate fail-safe redundancies at every stage of their planning.
2. That government, institutions and corporations responsible for infrastructure critical to public safety in disasters are required to:
  - a. integrate climate disruption into data collection, modelling and planning
  - b. review how inertia from previous known conditions frames and limits their thinking
  - c. develop strategies to integrate non-linear change from climate disruption into their practice.
3. That no new coal mines, coal expansions or gasfield developments are approved in NSW.

***See over for Appendix***

## Appendix - communications with Lismore City Council

### My questions submitted via Councillor Darlene Cook on 4/4/22

1. Which agencies OWN, and which agencies MAINTAIN the following creek gauges upstream of Lismore. Identification numbers are shown in brackets:
    1. Back Creek at Bentley (203009, BOM 058202)
    2. Leycester Creek at Rock Valley (203010, BOM 058199)
    3. Leycester Creek at Tuncester (203443, BOM 058201)
    4. Goolmangar Creek at Nimbin (203901?, BOM 058180? BOM 558075? Can you confirm station numbers?)
    5. Goolmangar Creek at Goolmangar ( BOM 058201)
    6. Terania Creek at The Channon (203906, BOM 058147)
    7. Coopers Creek at Repentance (203002, BOM 558000)
    8. Coopers Creek at Corndale (BOM 058206)
    9. Wilsons Creek at Nashua (203902, BOM 058162)
    10. Wilsons Creek at Eltham (203014, BOM 058200)
    11. Wilsons at Woodlawn (203402, BOM 558012)
    12. Wilsons at Browns Creek Pump station (BOM 558100)
  2. For each of the creek and rain gauge stations owned by Lismore City Council, what is the maintenance schedule since the 1st January 2018?
  3. For each of the creek gauge stations owned by Lismore City Council, what are the arrangements for data transfer redundancy during flood events?
  4. At what date and time did the following creek gauges cease transmitting data?
    - a. Leycester Creek at Tuncester
    - b. Terania Creek at The Channon
    - c. Coopers Creek at Corndale
    - d. Coopers Creek at Repentance
  5. At what date and time did the rain gauges at Terania and The Channon cease transmitting data?
  6. Between the mega flood of 28/2 and the march flood a month later, what efforts were made to get dysfunctional gauges working?
  7. The BOM requires owners of gauges to inform them when these are not working. When was this information conveyed to BOM?
  8. In a catastrophic event such that LCC is unable to maintain its gauges, what fail-safe mechanisms are in place so that it could request another agency to get them working as a matter of urgency?
  9. In the event that automatic data is not available from LCC creek and rain gauges, what fail-safe mechanisms are in place so that manual readings are provided by people with local knowledge and experience?
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## LCC response to these questions 8/4/22

1. BoM use our data for some stations, with the other agency's data being a redundancy, and vice versa. In terms of the stations referred to, referencing back to identification numbers would require specific matching given multiple sensors (each with identification numbers) at each location used for different purposes.

The Alert Hydrometric Flood Warning System owned maintained by Council is made up of 15 Water Level Stations, and 14 Rainfall Stations, two Repeater Stations and Base Stations as listed in the table below.

Station Name	Water Level	Rainfall	Shared Site
Lismore	Druck & DP Sensors		
Dawson Street	Vegawell Sensor	HS-1mm Tipping Bucket	
Tuckurimba	Druck & DP Sensors	HS-1mm Tipping Bucket	
Tuncester	Druck Sensor	Elpro 1mm Tipping Bucket	MHL
Bentley	Druck & DP Sensors	Elpro 1mm Tipping Bucket	DECW
Rock Valley	Druck & DP Sensors	Elpro 1mm Tipping Bucket	DECW
Goolmangar	Druck & DP Sensors	HS-1mm Tipping Bucket	
Jiggi		HS-1mm Tipping Bucket	
Nimbin	Druck & DP Sensors	Elpro 1mm Tipping Bucket	
The Channon	Druck & DP Sensors	Elpro 1mm Tipping Bucket	
Terania Creek		HS-1mm Tipping Bucket	
Repentance Creek	Druck & DP Sensors	Elpro 1mm Tipping Bucket	DECW
Corndale	Druck & DP Sensors	Elpro 1mm Tipping Bucket	DECW
Woodlawn	Druck Sensor		MHL
Eltham	Vega Sensor		DECW
Nashua	Druck & DP Sensors	Elpro 1mm Tipping Bucket	
Dunoon		Elpro 1mm Tipping Bucket	
Browns Crk P/S	Vegawell Sensor		LCC/WBM
<b>Repeater Sites</b> Dunoon Water Reservoir (BoM) and Wyreema Ave (BoM)			
<b>Base Stations</b> Lismore City Council Corporate Centre, Goonellabah, Lismore SES, Brunswick Street Lismore, and Richmond Tweed SES, Goonellabah,			

2. The schedule for the operation and maintenance of the network requires a routine site visit every 12 weeks, typically during February/March, May/June, August/September and November/December periods, taking 1 to 2 weeks to complete all the field work, including but not limited to:
  - clean-up and maintenance of Sheds
  - whipper snipping/mowing of sites
  - checks and maintenance of gas lines
  - cleaning of Tipping Buckets
  - Battery inspections & Checks
  - Checks of sensors and transmitting equipment
  - Calibration
  - Checking and changing of gas bottles
  - Accompany BoM representative on Annual inspections (usually timed to coincide with a routine round of inspections)
  - Maintain Base station and Repeater connections in consultation with BoM, SES and LCC
  - Reporting is made within 4 weeks of finishing each round of routine site visits.



Reporting to include, but not limited to:

- Status of each asset
- Checks carried out
- Calibrations and adjustments made
- Repairs required
- Quotation to carry out repairs as flagged during inspections

3. BOM controls Data transfer redundancy. Data is transferred from the stations via radio transmitters and repeaters to Wyreema tower, LCC servers and SES computers. This data is transferred to BoM directly from Wyreema via radio repeaters and online – The LCC server acts as a redundancy in the transmission process.

4. Cessation of river level transmission time

Tuncester ceased transmitting at 5:17pm, 28/2/22 – River at 14.82m

Channon Ceased transmitting at 1:57 am, 28/2/22 – Creek at 12.59m

Corndale ceased transmitting at 9:45am, 28/2/22 – Creek at 12.54m

Repentance started to show erratic behaviour at 5:32am, 28/2/22 – Creek at 9.010m – it didn't stop transmitting. BoM may have taken it off line as it was obvious it was malfunctioning – that's their call.

5. Cessation of rainfall transmission time

Last recorded Rainfall data for Terania was 3:10 am 3/2/22 – It did not cease transmitting data, but it ceased recording rainfall amounts sometime after this – We haven't been able to gain access to this gauge since this malfunction was identified.

Last recorded Rainfall data for The Channon – 4:23am, 28/2/22 – the rainfall equipment is mounted higher in the enclosure than the river level sensor.

6. Following the first flood, the stations were all inspected when access was available. Parts were ordered the same day and fast tracked. We aren't the only council with damaged warning stations, and we had to wait for parts to be manufactured and back ordered. We keep a quantity of commonly needed spare parts for the stations, but not enough to replace all of the hardware and software components of multiple stations.

Second hand parts were sourced to get Lismore, Browns Creek, Dawson street and Tuncester at least partially operational before the second flood – They were not able to be calibrated at the time because of the damage sustained. We didn't have the parts needed to repair Corndale, Channon, and Repentance. Terania Creek rain gauge was showing a fault and was repaired in September. It started to malfunction again just before the first flood event. We were not able to gain access to the station as it is dry weather accessible only located in a residents horse paddock - we still are not able to gain access. While ever the Channon Rain gauge is operational, the loss of the Terania gauge isn't a big deal.

As the new components arrive we are installing them in the stations quickly to get normal operations back. Longer term, over the next month or two, more permanent repairs are scheduled to be carried out, including installing the equipment above the Feb Flood level, high on the wall within their enclosures, rather at bench level as they currently are.

The Channon, Corndale, Tuncester and Bentley had temporary repairs carried out this week in anticipation of rain this weekend using some of the parts that have arrived. We don't have any parts for Repentance Ck yet.

7. BoM know when the Council gauges are inoperative as the data that they use stops being received – they don't need us to tell them. None the less they were informed following the first flood and were aware that

there was damage that couldn't be fixed before the second flood occurred – Our maintenance contractor is in constant communication with BoM.

8. Other agencies have gauges within the same enclosures as some of ours. It is up to them to maintain their own assets. BoM have processes and protocols to switch between data sources as needed – these may not be reflected in their website, but used for modelling and forecasting purposes – how this works is a question for them
9. BoM and SES manage manual readings of Data – LCC is not involved.

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## My questions to LCC submitted by Councillor Darlene Cook 27/4/22

**1 The Terania rain gauge ceased transmitting sometime after 3/2/22.** Rain at Terania is generally 50% higher than at The Channon. Terania rain gauge is still out of action. LCC stated that it has not been possible to access the gauge, yet the property owners affirm that the gauge can be accessed by 4WD vehicle.

1.1 Is the contractor equipped with a 4WD vehicle?

1.2 Does LCC require maintenance contractors to service gauges using 4WD?

**2 Several people nearly lost their lives in the Keerrong valley during the February flood.** With no flood warnings for this valley, the only thing they can rely on is data on Terania catchment which is normally very limited, and more so with Terania gauge inoperable. Gauges at The Channon are very close to impact and Keerrong residents need upstream data.

2.1 Is LCC willing to revise the assessment that failure of Terania rain gauge is *'not a big deal if The Channon gauge is operational'*

2.2 Is LCC willing to make the functioning of Terania gauge a priority, for the safety of people in Keerrong valley?

**3 The rain gauge at The Channon is still inoperable. It sends wrong data to BOM, as it has for 8 weeks.** According to BOM there has been zero rain at The Channon all this time. The rain gauge malfunctions despite a contractor visiting the shed to get the creek gauge working.

3.1 Is LCC aware that this rain gauge continues to send wrong data to BOM, as it has for 8 weeks?

3.2. Has LCC informed BOM that the creek gauge malfunctions? It would be better if BOM displayed an empty line next to The Channon, as they do for the defunct Terania gauge.

**4 The rain gauge at The Channon has overhanging shrubs.**

4.1 Does LCC have a standard for maintenance regarding vegetation that will interfere with rain recordings?

4.2 What quality control systems are in place for creek and rain gauge maintenance contractors?

**5 NSW government [open data policy](#) states that data should be available to communities, and that data should be open by default, prioritised, discoverable and timely.** The joint management of gauges by various entities creates an impenetrable, inaccessible barrier to citizens who want to make a submission to the Flood Inquiry. Access to this information is sought as there does not seem to be one single, effective point of access to this critical information. (WaterNSW provides access to current and historical data for some but not all of the sites, BoM to most and MHL to several, but requests for historical data to these latter agencies are conducted only for a substantial fee).

5.1 Will LCC provide historical data on all creek and rain gauges it owns from 1st January to the present? Access to the actual data, rather than the graphical representation of it is required. The received data for all rainfall and river height sensors in LCC from 1st January 2022 to date is requested as a matter of urgency to assist in the preparation of submissions to the inquiry.

5.2 All sites and sensors are uniquely numbered. Names may be ambiguous. To avoid confusion, please provide a catalogue of all sites and sensors, with their formal descriptions to avoid confusion in future.

6 The NSW government [open data policy](#) states that data should be available to communities to enhance citizen engagement. There is strong potential to improve collective management of catchment information with increased community involvement.

6.1 Please provide the contact details for those within the BoM & SES that are responsible for manual collection of data in the event of system failure so that their protocols and lines of communication can be understood.

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## LCC response to these questions 30/4/22

Council's contractor has a suitable 4WD vehicle to undertake the maintenance of the flood/rain gauge network. The comment about access being unavailable to repair the Terania gauge related to the time that the contractor first tried to access the site having been advised that the gauge was not operating. The contractor deemed it was unsafe and driving onto the property was very likely to unnecessarily damage the property. The issue at present is not access to the site. The issue is that the replacement parts ordered to repair the gauge have not arrived.

There is a shortage of replacement parts for these types of gauges as significant damage was caused throughout the rain and stream gauge network up and down the east coast of Australia as a result of this event. All damaged gauges will be repaired as soon as the required parts arrive. There is no delay because Council does not consider it a priority.

The comment regarding The Channon gauge being a suitable back up if the Terania gauge is not operating is not a reflection of priorities but was rather an indication that there is other information available in the event of the Terania gauge not working. It could have been better described.

The rain gauge at The Channon cannot be repaired until the replacement parts arrive. These are different parts to what was required for the stream gauge hence the reason that the contractor did not repair the rain gauge on their visit to The Channon to repair the stream gauge. The BOM is aware of the damaged river gauge at The Channon. Any requests as to how or what information is displayed from damaged or non-operational gauges should be directed to the BOM.

Council has a very detailed regular maintenance regime performed by its contractor. The schedule requires a routine site visit every 12 weeks, typically during February/March, May/June, August/September and November/December periods, taking 1 to 2 weeks to complete all the field work, **including but not limited to:**

- clean-up and maintenance of Sheds
- whipper snipping/mowing of sites (this includes all vegetation control)
- checks and maintenance of gas lines
- cleaning of Tipping Buckets
- Battery inspections & Checks
- Checks of sensors and transmitting equipment
- Calibration
- Checking and changing of gas bottles
- Accompany BoM representative on Annual inspections (usually timed to coincide with a routine round of inspections)
- Maintain Base station and Repeater connections in consultation with BoM, SES and LCC.
- Reporting is made within 4 weeks of finishing each round of routine site visits. Reporting includes, but is not limited to:
  - Status of each asset
  - Checks carried out
  - Calibrations and adjustments made
  - Repairs required
  - Quotation to carry out repairs as flagged during inspections
- This reporting is reviewed by council staff upon receipt.

Council will happily provide the data that it has upon lodgement of a GIPA application. Please note that Council does not necessarily hold all of the information identified in the request. Council does not have any knowledge of what manual processes the BOM or SES use when automated gauges malfunction, nor the names of individuals within those organisations that are involved. Those enquiries should be directed to the BOM and SES respectively.

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