2024 Regional Telecommunications Review Submission (from BFPAG)

[redacted]

Dear Sir/Madam,

Thank you for visiting Cairns as part of the review. Given the recent floods, we are providing input from a local perspective with respect to reference item 4f "the suitability of regional communications during emergencies and natural disasters, including reliability, resilience, speed and coverage". Our highest priority concern in this context is the poor resilience demonstrated by the local telecommunications systems in the areas of Machans Beach and Holloways Beach during the Jasper flooding event (December 2023).

Please note that our proposals are also relevant to many other problems aired during the Cairns public consultation. Please contact us if you have questions.

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EVIDENCE

1) Loss of signal at the beaches;
2) Inability to place a call even with signal at the beaches;
3) Extreme hardship during the flooding event including people without communications performing heroic actions to save lives.

Our investigations show that at least 4 mobile phone tower locations are in the Barron River flood plain. More generally, there are media reports such as The Guardian 20-Dec-2023 (https://is.gd/9NQQWM) reporting mobile sites being offline e.g. "23 offline earlier in the week" (Telstra) and "Optus said 72 mobile sites have lost connection".

PROPOSALS

1) Perform an audit of the resilience of mobile phone networks to flooding in the Cairns flood areas including Machans Beach and Holloways Beach, propose the changes necessary to satisfactorily meet item 4f aims quoted above, and use this audit to form an open-access "living document" that contains up-to-date resilience information for people and businesses dependent on this communications system.

Desired Outcome: open-access accurate up-to-date resilience document with the following elements.

a. Identify the location of mobile communications infrastructure elements in the Barron River flood plain and nearby areas, including height above flood levels such as experienced in Jasper;
b. List all single points of failure and the backup options (or state no backups) for systems such as power supply for each tower or significant node. This is necessary as we observed some tower signals disappeared during the Jasper flooding event;
c. List single points of failure and backup options (or state no backups) for network links and protocols that connect towers to broader communications infrastructure. This is needed as we observed mobile phones had periods when signal was available but there was no ability to ever make a call;
d. List the expected period of operation of all backup options. When backup options have a limited life (e.g. fuel for backup generators), list how long the backup system can operate and compare it to the typical 4 or 5 days needed for flooding to subside in order to improve knowledge of resilience;

2) Adjust planning of how the telecommunications systems evolve to improve resilience.

Desired Outcome: future infrastructure development should state how it increases (or at the very least maintains) resilience in the face of floods and related disaster scenarios such as cyclones. The planning should consider weaknesses identified in item 1 above.

a. The Cairns area has NBN terrestrial links changing from wire to fibre. Resilience to flooding therefore requires that the end point electronics be located away from flood water and have a redundant power supply.
b. The Cairns area has its first mobile phone tower on the edges of the flood plain now listed with a 5G frequency. This highlights that we are on the verge of the next major change to higher frequencies and data rates, usually combined with smaller coverage cells and therefore a larger number of towers. Resilience to flooding requires that any new tower locations also have proper planning.

3) Free Domestic Roaming during a state of emergency

Desired Outcome: people can coordinate emergency survival.

a. Once a state of emergency is declared, we recommend that all mobile phone users be able to switch to alternative networks if their original network is unavailable.