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Committee Secretary
Senate Standing Committee on Environment and Communications
PO Box 6100
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Submission to the Senate Committee on Recent Trends in the Preparedness for Extreme Weather Events

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Background

In July 2012 we commenced an Australian Research Council Discovery project entitled 'Governing for Food Security in an Era of Climate Change: A Sociological Analysis' focusing upon the severe weather events in Queensland during the summer of 2011. While our data collection has only begun (and no interviews have been conducted to date), we believe we can offer some insights to the Senate Committee from our preliminary investigations. Professor Lawrence is Co-Leader, Food Security, with the Global Change Institute at The University of Queensland and is involved in numerous projects relating to local and global aspects of food security.

Brief comments have been made under a number of the Terms of Reference.

(b) based on global warming scenarios outlined by the Intergovernmental Panel on Climate Change and the Commonwealth Scientific and Industrial Research Organisation of 1 to 5 degrees by 2070

(ii) the costs of extreme weather events and impacts on natural ecosystems, social and economic infrastructure and human health.

- The CSIRO climate change projections for Australia include:
 - more dry days, and more intense rainfall when it does rain
 - higher frequency of drought, particularly in the south-west
 - higher evaporation rates, particularly in the north and east

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- high-fire-danger weather, particularly in the south-east
 - more intense tropical cyclones
 - rise in sea levels.¹

These changes, including extreme weather events, will have a significant impact on Australia's food system – agricultural production, processing, distribution, food exchange and nutrition². As such, climate change is highly likely to impact negatively upon food security in Australia with an estimate that food production in Australia is likely to decline by between 15 and 30 per cent during the next four decades³.

(c) an assessment of the preparedness of key sectors for extreme weather events, including major infrastructure (electricity, water, transport, telecommunications), health, construction and property, and agriculture and forestry;

- Extreme weather events will affect all aspects of the food system, and recent extreme weather events have demonstrated points of vulnerability and resilience. Examples from 2010/2011 floods in Queensland are presented here.
- During and after the floods, there were disruptions to food production, processing and distribution, and impacts on the affordability and quality of some foods.
 - **Production:** Farms were flooded, causing some damage to land, delayed harvest, crop deaths and spoiling of produce. Affected crops included potatoes, brassicas, onions, lettuce, sweet corn, sweet potatoes, celery, capsicums, pumpkins, eggplant, tomatoes, garlic and ginger.⁴ Other impacts to agriculture included the washing away of topsoil, some damage to roads and infrastructure, and disruption to fertiliser production. However, other crops saw improved yields due to increased rainfall.⁵
 - **Processing:** Road closures also prevented supplies reaching processing factories and plants. Queensland Dairy Farmers reported significant reductions in production and distribution, with a limited supply of raw milk

¹ CSIRO 2007. *Climate change in Australia: technical report 2007*. Viewed 2 January 2013. Available at: <http://www.csiro.au/Organisation-Structure/Divisions/Marine--Atmospheric-Research/Climate-Change-Technical-Report-2007.aspx#a2>

² Edwards et al 2010. Food Systems, Climate Change Adaptation and Human Health in Australia. Viewed 2 January 2013. Available at: <http://climatehealthresearch.org/sites/default/files/documents/Discussion%20Paper%204%20-%20Food%20Systems%2C%20Climate%20Change%20Adaptation%20and%20Human%20Health%20in%20Australia.pdf>

³ PMSEIC 2010, *Australia and Food Security in a Changing World*, PMSEIC, Canberra.

⁴ CSIRO 2011. *Frequently asked questions about the impact of floods on agriculture and food*. Viewed 3 December 2011. Available at: <http://www.csiro.au/Outcomes/Environment/Australian-Landscapes/Flood-Impact-on-Agriculture.aspx>

⁵ CSIRO 2011. *Frequently asked questions about the impact of floods on agriculture and food*. Viewed 3 December 2011. Available at: <http://www.csiro.au/Outcomes/Environment/Australian-Landscapes/Flood-Impact-on-Agriculture.aspx>

arriving at processing plants from dairy farms, and processing capacity at some plants down to 10 per cent.⁶

- **Distribution:** There was disrupted access to aviation fuel and ground vehicle fuel supplies.^{7,8} Some trucking and logistics companies experienced flooding at depots⁹ and fleets of food transport trucks became stranded.¹⁰
- **Distribution:** Closures on major roads and highways prevented food and supplies reaching some wholesale distribution points, and some wholesale markets were forced to close due to flooding.¹¹ Road closures also affected stock being delivered to retailers in affected areas.¹²
- **Exchange:** Stores, including major supermarkets, were closed. This was due to flooding,¹³ stores becoming isolated due to floodwater, lack of stock, lack of electricity and staff shortages.¹⁴
- **Exchange:** Prices increased for some affected crops during and after the floods.¹⁵
- **Exchange:** 'Panic buying' exacerbated food shortages.^{16,17}
- Some resilience was demonstrated in the response of governments, retailers and other stakeholder. Positive responses included:
 - **Use of alternative transport modes:** Retailers collaborated with governments and emergency service agencies to make use of alternative

⁶ Brisbane Times 2011. *Flood zone faces food, beer shortages*. 13 January. Viewed 20 November 2012. Available at: <http://www.brisbanetimes.com.au/environment/weather/flood-zone-faces-food-beer-shortages-20110113-19oxd.html#ixzz2CeB89pan>

⁷ SMH 2011. *Queensland farmer used helicopter as lifeline*. 24 May. Viewed 21 November 2012. Available at: <http://news.smh.com.au/breaking-news-national/qld-farmer-used-helicopter-as-lifeline-20110524-1f14p.html>

⁸ Sunshine Coast Daily 2011. *Food and fuel crisis hits coast*. 13 January. Viewed 21 November 2011. Available at: <http://www.sunshinecoastdaily.com.au/news/fuel-and-food-crisis-hits-coast-floods-2011/743170/>

⁹ Brisbane Times 2011. *Rocklea devastation a double blow*. 15 January. Viewed 2 January 2013. Available at: <http://www.brisbanetimes.com.au/environment/weather/rocklea-devastation-a-double-blow-20110114-19r6w.html>

¹⁰ ABC Southern Queensland 2011. *Truckies stranded throughout Southern Queensland*. 12 January. Viewed 20 November 2012. Available at: <http://www.abc.net.au/news/stories/2011/01/12/3111119.htm?site=southqld>

¹¹ WA Today 2011. *Supermarkets enlist big guns to get food to stores*. 14 January. Viewed 2 January 2013. Available at: <http://www.watoday.com.au/environment/weather/supermarkets-enlist-big-guns-to-get-food-to-stores-20110113-19pwj.html>

¹² SMH 2011. *Major supermarkets close as shelves empty*. 12 January. Viewed 19 November 2012. Available at: <http://www.smh.com.au/environment/weather/major-supermarkets-shut-down-as-shelves-empty-20110112-19nrh.html>

¹³ Woolworths 2011. *Flood Update*. 14 January. Viewed 2 January 2013. Available at: <http://woolworths.com.au/wps/wcm/connect/website/woolworths/about+us/woolworths-news/flood+update>

¹⁴ Foodnews 2011. *Flood causes concern for Woolworths in Australia*. 17 January. Viewed 2 January 2013. Available at: <http://www.foodnews.co.nz/18831/floods-cause-concerns-for-woolworths-in-australia/>

¹⁵ SMH 2011. *Floods empty the food bowl*. 24 January. Viewed 15 November 2011. Available at: <http://www.smh.com.au/environment/weather/floods-empty-the-food-bowl-20110123-1a18b.html#ixzz2EcFxnSLt>

¹⁶ SMH 2011. *Major supermarkets shut down as shelves empty*. 12 January. Viewed 21 November 2012. Available at: <http://www.smh.com.au/environment/weather/major-supermarkets-shut-down-as-shelves-empty-20110112-19nrh.html>

¹⁷ DAFF 2011. *Resilience in the Australian food supply chain*. Viewed 21 November 2012. Available at: http://www.daff.gov.au/_data/assets/pdf_file/0009/1915290/resilience-food-supply.pdf. Pp. 31.

transport modes such as ADF planes and helicopters, private planes and helicopters, and boats and barges.

- **Use of alternative supply lines:** Food was shipped by sea to North Queensland and food trucks used alternative inland road routes to reach affected areas.¹⁸
- **Use of alternative supply sources:** Food was shipped from interstate to deal with shortages in Queensland.¹⁹
- **Relaxation of retailer food quality standards:** Retailers relaxed their food quality standards and stocked blemished fruit and veg damaged by floods, in order to maintain supply.²⁰
- **Collaboration:** Collaboration occurred between State government, ADF, emergency response agencies, retailers and transport/logistics companies, and local governments to ensure supply and make emergency deliveries.
- **Methods to deal with panic buying:** preparation of the 'pantry list' and announcements from retailers and other stakeholders.²¹

Other responses included:

- **Increase in food prices following the floods:** Increased prices for fruit and vegetables in low supply.²²
- **Imported food:** Some fresh foods and raw goods were imported to deal with shortages.

(e) the current roles and effectiveness of the division of responsibilities between different levels of government (federal, state and local) to manage extreme weather events;

- During the Queensland floods, federal, state and local governments worked with emergency response agencies, major retailers (Coles, Woolworths and IGA),

¹⁸ SMH 2011. *Groceries going via NT and sea barges*. 13 January. Viewed 15 November 2012. Available at: <http://www.smh.com.au/environment/weather/groceries-going-via-nt-and-sea-barges-20110112-19oaz.html>

¹⁹ SMH 2011. *Floods empty the food bowl*. 24 January. Viewed 15 November 2011. Available at: <http://www.smh.com.au/environment/weather/floods-empty-the-food-bowl-20110123-1a18b.html#ixzz2EcFxnSLt>

²⁰ SMH 2011. *Floods empty the food bowl*. 24 January. Viewed 15 November 2011. Available at: <http://www.smh.com.au/environment/weather/floods-empty-the-food-bowl-20110123-1a18b.html#ixzz2EcFxnSLt>

²¹ SMH 2011. *Major supermarkets shut down as shelves empty*. 12 January. Viewed 21 November 2012. Available at: <http://www.smh.com.au/environment/weather/major-supermarkets-shut-down-as-shelves-empty-20110112-19nrh.html>

²² SMH 2011. *Floods empty the food bowl*. 24 January. Viewed 15 November 2011. Available at: <http://www.smh.com.au/environment/weather/floods-empty-the-food-bowl-20110123-1a18b.html#ixzz2EcFxnSLt>

suppliers, logistics companies, and other key stakeholders to address food shortage issues.

- In Queensland, responsibility for food resupply to remote areas lies with local governments and local disaster management groups (LDMGs). However, some local governments were better equipped to respond than others.²³
- Examples of coordination included the ADF carrying out food drops to supermarkets in isolated areas.
- Coordination was not, however, automatic, and took several days to establish. The development of a comprehensive and well-understood and endorsed plan, involving key stakeholders, is recommended.²⁴
- Australia's food system is highly concentrated and efficient, dominated by the two main retailers, Coles and Woolworths.²⁵ These major retailers were able to work closely with government to maintain supply to their outlets, and adopt other measures, such as changes in food standards and prices. However, it is unclear how smaller retailers and other food exchange systems were able to deal with shortages, limited distribution and cost increases.

(g) any gaps in Australia's Climate Change Adaptation Framework and the steps required for effective national coordination of climate change response and risk management;

- 1.2 - Regional climate change and vulnerability studies should capture the impacts of climate change on food production, distribution, affordability and availability, to highlight areas at risk of food insecurity and food shortages or disruptions associated with extreme weather events.
- 2.4a – Research on the implications of climate change on agriculture should also consider the integrated aspects of the food system beyond farming: that is, agricultural inputs; food processing; distribution; availability and affordability of food. More broadly, there is a need to consider the social impacts and distributional consequences of Australia's food system. How, for example, does the food system operate to assist in poverty reduction, create greater social equality and to address growing social justice issues?

²³ DAFF 2011. *Resilience in the Australian food supply chain*. Viewed 21 November 2012. Available at: http://www.daff.gov.au/_data/assets/pdf_file/0009/1915290/resilience-food-supply.pdf. Pp. 36.

²⁴ DAFF 2011. *Resilience in the Australian food supply chain*. Viewed 21 November 2012. Available at: http://www.daff.gov.au/_data/assets/pdf_file/0009/1915290/resilience-food-supply.pdf. Pp. 36.

²⁵ Edwards et al 2010. *Food Systems, Climate Change Adaptation and Human Health in Australia*. Viewed 2 January 2013. Available at: <http://climatehealthresearch.org/sites/default/files/documents/Discussion%20Paper%204%20-%20Food%20Systems%2C%20Climate%20Change%20Adaptation%20and%20Human%20Health%20in%20Australia.pdf>

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- 2.5 – Research and adaptation regarding human health should incorporate food security including food availability, affordability, nutrition and sustainability of production.
 - 2.8 – Natural disaster management should incorporate planning for food security, including information and plans for governments and stakeholders throughout the food supply chain, to ensure adequate response.

A brief chronology of the effects of flood and cyclone events that occurred in Queensland in early 2011 is presented in the Appendix. While this is incomplete (and remains in need of some updating), it does highlight the events of the time as they affected food provisioning.

Issues/Questions that may be of Interest to the Senate

Food availability in times of crisis

In maintaining a steady supply of food in Queensland, many suppliers reported sourcing food from other parts of the country, including interstate. What conditions in food availability allowed this to happen? How did these other markets have food available to meet a widening demand in Queensland, particularly considering that foods that may have been shipped to these other States – NSW in particular – from Queensland, were not available? Is this food that would otherwise have been exported, or wasted? How did this practice not create a ‘food vacuum’?

Food prices in times of crisis

What was the impact of the floods on food prices in Queensland and Australia more broadly? Food prices were already high at the time of the floods, and apart from some fruits and vegetables, there were only short-term disruptions to food production. In addition, the large supermarkets, Coles and Woolworths, took measures to keep prices low, including stocking blemished foods, in order to avoid costly imports. Which foods - and which pockets of the community - were affected by potentially increased food prices, and why?

Governance

How effective are complex networks of governance (public, private and civil society) in securing Australia’s food supply under climate change and other critical transformations? What are the gaps in governance, and how might the regulation of

food security in Australia be improved? What policy and governance frameworks would best safeguard Australia's food security?

Food 'literacy'

There are reports that some sections of the community suffered from low levels of 'food literacy' during and after the floods. Food literacy captures peoples' ability to identify and use fresh and nutritious food, ensuring a healthy diet and avoiding waste. There are reports of panic buying in supermarkets; people were not able to distinguish between 'best before' and 'used by' dates, leading to food wastage, particularly of dairy products; panic buying of foods that perished when power went out, such as frozen foods; inability to select otherwise safe fruit and vegetables in supermarkets, which may have been flood damaged; inability to cook with the dry food and other foods still available and plentiful during and after the floods. Some agencies tried to improve food literacy by publishing 'pantry lists'. Key questions include: to what extent were food shortage issues exacerbated by low levels of food literacy? Were practices such as panic buying and food waste significant contributors to short-term food shortage problems in Queensland? How could food literacy be improved to prepare for times of crisis?

Long and short food supply chains

Food retailers, transporters and governments demonstrated good flexibility during the floods. This included using alternative modes of transport, using alternative routes and using alternative sources of food. This ability to alter the established food supply chains helped to ensure that food shortages were only short term. However, there is evidence that 'long' food supply chains, such as those of the supermarkets were quite vulnerable, while 'short' food chains based upon regional sourcing and delivery were quite robust. Questions include: how did long and short food chains operate during the crisis? Did they remain separate entities or did they 'merge' in a manner that added resilience to the food supply and distribution system? What lessons might there be outside of times of crisis, for a more adaptive food supply system?

Appendix: A Brief Chronology of the Effects of Flood and Cyclone Events in Queensland in Early 2011

Prior to floods

- **Food Costs:** Some reports that food costs were increasing prior to the floods: Sept to Dec, fruit rising by 13% and veg rising by 11%.¹

27 December

- **Rockhampton:** Reports that a private resident, Mr Mayne, with a helicopter tried to take food to isolated areas around Rockhampton, in Rolleston, but there was little food left in Rockhampton, and stores were limiting how much milk and bread people could buy.²

31 December

- **Shortages in Rockhampton:** Food shortages in Rockhampton, with the main highways about to close.³
- Rockhampton mayor reports lots of supermarkets running out of 'essentials', in Rockhampton & Yeppoon.⁴
- Woolworths sends 43 trucks to Rockhampton, to act as a distribution point – fresh & long life milk, 14,000 loaves of bread, flour, sugar, and pallets of produce.⁵

3 January

- **Food drop to Rockhampton:** The Bruce and Capricorn highways leading to Rockhampton from the south have been cut. RAAF today flying C130 aircraft, carrying: bottled water, canned food, nappies and toilet paper into Mackay, from where they will be transported to Rockhampton by truck⁶
- Police force working with defence and retailers to restore 'functionality of towns'.⁷
- **Food supply coordination:** Rockhampton Mayor assures residents that they have access to an aircraft which can deliver food to stranded communities.

¹ <http://www.smh.com.au/environment/weather/food-prices-were-soaring-even-before-the-floods-20110125-1a4b6.html>

² <http://news.smh.com.au/breaking-news-national/qld-farmer-used-helicopter-as-lifeline-20110524-1f14p.html>

³ <http://www.brisbanetimes.com.au/environment/weather/rockhampton-food-stocks-plunge-20101229-19a4p.html>

⁴ <http://www.brisbanetimes.com.au/environment/weather/rockhampton-food-stocks-plunge-20101229-19a4p.html>

⁵ <http://www.brisbanetimes.com.au/environment/weather/rockhampton-food-stocks-plunge-20101229-19a4p.html>

⁶ <http://www.brisbanetimes.com.au/environment/weather/military-rushes-food-to-rockhampton-20110102-19cvo.html#ixzz2CYgOYCjp>

⁷ <http://www.brisbanetimes.com.au/environment/weather/military-rushes-food-to-rockhampton-20110102-19cvo.html>

People needing food re-supply directed to call their Local Disaster Coordination Centre (coordinated by Council) which will co-ordinate the food supply. Mayor urged people not to bulk buy, supply could continue, to avoid food going to waste.⁸

- **Water in Dalby:** Water treatment plant flooded, water being trucked in from Toowoomba.⁹

8 January

- **State government Funding:** The State government activates disaster relief funding for isolated communities in central and southwest Queensland, giving councils money for disaster operations.¹⁰
- **Food drops to Longreach:** Shire CEO Michelle McFadyen said a helicopter would deliver food and medical supplies to six properties that had been cut off since December 25. The helicopter delivers flour, milk, bread, eggs, baby formula, and medical supplies.¹¹
- **Food shortages in Muttaborra:** Muttaborra's Exchange Hotel bartender Rebecca Lampson said the pub had nearly run out of rum, and the town was expecting a food and alcohol drop today. Reports of bartering chooks and meat.¹²

12 January

- **Port closure:** Port of Brisbane closed, due to floating debris.¹³
- **Cause of food shortages:** Coles spokesperson reports food shortages in supermarkets has been due to 'panic buying' and road closures limiting supply.¹⁴
- **Alternative supply routes:** Stock trucks being diverted inland to avoid roadblocks and rising waters.¹⁵
- **Food trucks stranded.**¹⁶

⁸ <http://qcl.farmonline.com.au/news/state/cropping/general-news/food-supply-secured-to-rocky/2038396.aspx>

⁹ <http://www.brisbanetimes.com.au/environment/weather/military-rushes-food-to-rockhampton-20110102-19cvo.html>

¹⁰ <http://www.couriermail.com.au/news/queensland/flood-supplies-flown-in-to-central-queensland/story-e6freoof-1225817128523>

¹¹ <http://www.couriermail.com.au/news/queensland/flood-supplies-flown-in-to-central-queensland/story-e6freoof-1225817128523>

¹² <http://www.couriermail.com.au/news/queensland/flood-supplies-flown-in-to-central-queensland/story-e6freoof-1225817128523>

¹³ <http://www.smh.com.au/environment/weather/groceries-going-via-nt-and-sea-barges-20110112-19oaz.html>

¹⁴ <http://www.smh.com.au/environment/weather/major-supermarkets-shut-down-as-shelves-empty-20110112-19nrh.html>

¹⁵ <http://www.smh.com.au/environment/weather/major-supermarkets-shut-down-as-shelves-empty-20110112-19nrh.html>

¹⁶ ABC Southern Queensland 2011. *Truckies stranded throughout Southern Queensland*. 12 January. Viewed 20 November 2012. Available at: <http://www.abc.net.au/news/stories/2011/01/12/3111119.htm?site=southqld>

13 January

- **Store closures:** Woolworths has closed 8 to 10 supermarkets, and reports that 60 stores are isolated.¹⁷ Other reports state that thirteen Woolworths supermarkets are closed in Brisbane: Brassall, Darra, Goodna, Fernvale, Ipswich Central and Riverlinks, Kenmore, Mount Ommaney, Sherwood, Toowong and Yamanto.
- **Store closures:** Coles has closed 15 stores, and there are reports that more than 50 are facing shortages.¹⁸ Other reports state that 16 Coles stores were closed across Queensland. These are Arana Hills, Corinda, Mount Ommaney, New Farm, Bellbowrie, Brisbane CBD, Emerald, Fairfield, Ipswich CBD, Jindalee, Kenmore, Myer Express, Redbank, Riverlinks, Toowong and West End.¹⁹
- **Collaboration:** Woolworths, Coles & IGA working with the government and army – have set up a ‘committee’²⁰
- Army enlisted to fly food to **Bundaberg and Townsville**, carrying dry goods & essentials, with planes flying out of Brisbane and Sydney. Police convoy trucks are sent to Gympie & Hervey Bay.²¹
- **Food drops to Hervey Bay and Gympie:** Food trucks sent with a police convoy to these locations.²²
- **Access issues:** North and West of Brisbane reported as difficult to access.²³
- **Produce affected:** Ausveg reports “supply pressures of sweet potatoes, capsicums, pumpkins and eggplant.”
- **Market closure:** Brisbane wholesale market shut down.
- **Food trucks heading to Helidon & Grantham.**²⁴
- **Private food drops:** Residents outside affected areas of Helidon & Grantham, east of Toowoomba, have this morning commandeered a private helicopter to drop in supplies.²⁵
- **Water:** Water supply down in Withcott and throughout Lockyer Valley²⁶

¹⁷ <http://www.watoday.com.au/environment/weather/supermarkets-enlist-big-guns-to-get-food-to-stores-20110113-19pwj.html>

¹⁸ <http://www.watoday.com.au/environment/weather/supermarkets-enlist-big-guns-to-get-food-to-stores-20110113-19pwj.html>

¹⁹ <http://www.brisbanetimes.com.au/environment/weather/flood-zone-faces-food-beer-shortages-20110113-19oxd.html#ixzz2CeAhqeCv>

²⁰ <http://www.watoday.com.au/environment/weather/supermarkets-enlist-big-guns-to-get-food-to-stores-20110113-19pwj.html>

²¹ <http://www.watoday.com.au/environment/weather/supermarkets-enlist-big-guns-to-get-food-to-stores-20110113-19pwj.html>

²² <http://www.watoday.com.au/environment/weather/supermarkets-enlist-big-guns-to-get-food-to-stores-20110113-19pwj.html>

²³ <http://www.watoday.com.au/environment/weather/supermarkets-enlist-big-guns-to-get-food-to-stores-20110113-19pwj.html>

²⁴ <http://www.heraldsun.com.au/news/special-reports/devastating-flood-leaves-lockyer-valley-running-out-of-drinking-water/story-fn7kabp3-1225987134685>

²⁵ <http://www.heraldsun.com.au/news/special-reports/devastating-flood-leaves-lockyer-valley-running-out-of-drinking-water/story-fn7kabp3-1225987134685>

²⁶ <http://www.heraldsun.com.au/news/special-reports/devastating-flood-leaves-lockyer-valley-running-out-of-drinking->

- **Collaboration:** Food suppliers have been working with Queensland Emergency Services in affected parts of rural and regional Queensland.²⁷
- **Information response:** Australia Food and Grocery Council develops a 'Pantry List' (<http://pantrylist.com.au/>) to help people with shopping for daily essentials.²⁸
- **Road closures at Coffs Harbour:** Up to 80 trucks loaded with food stranded at Coffs Harbour, with the main highway between Sydney and Brisbane closed due to flooding.
- **Road closures:** Flooding at Gympie and Rockhampton has closed the main highway and train lines have been washed away, worsening food shortage problems.²⁹
- **Alternative supply modes, lines & sources:** Logistics companies are sending trucks through NT to reach Northern Queensland, and using sea barges to deliver food. Linfox is redirecting trucks through western Queensland, and is opening an extra shipping route from Sydney to ferry supplies to cities such as Townsville and Cairns.³⁰
- **Alternative supply modes, lines & sources:** Woolworths is sending trucks up the Adelaide-to-Darwin rail line, and then trucking food from Tennant Creek in the Northern Territory. Woolworths has also started barging supplies to Townsville.³¹
- **Shortages:** Woolworths running low on fresh foods, although maintaining a supply of dry-goods to most Brisbane stores.
- **Transport disrupted:** 150 Linfox trucks are stranded north of Brisbane, and unable to restock.³²
- **Health:** Anecdotal reports of food contamination and food poisoning in Rockhampton.³³

Shortages

water/story-fn7kabp3-1225987134685

²⁷ <http://www.brisbanetimes.com.au/environment/weather/flood-zone-faces-food-beer-shortages-20110113-19oxd.html#ixzz2CeBXvBhg>

²⁸ <http://www.brisbanetimes.com.au/environment/weather/flood-zone-faces-food-beer-shortages-20110113-19oxd.html#ixzz2CeBXvBhg>

²⁹ <http://www.funtours.com.au/travel-blog/queensland-holidays/food-shortages-queensland-floods.html>

³⁰ <http://www.smh.com.au/environment/weather/groceries-going-via-nt-and-sea-barges-20110112-19oaz.html>

³¹ <http://www.smh.com.au/environment/weather/groceries-going-via-nt-and-sea-barges-20110112-19oaz.html#ixzz2EijSQ0pn>

³² <http://www.smh.com.au/environment/weather/groceries-going-via-nt-and-sea-barges-20110112-19oaz.html>

³³ <http://www.smh.com.au/opinion/society-and-culture/our-woes-are-just-beginning-20110112-19o66.html>

- **Fruit and veg:** Reports from Sunshine Coast that suppliers only have one day's worth of stock left. Gympie markets and Brisbane markets remain closed. One store reports that there are some Brisbane stores/markets with produce, but with limited lines and accessibility. The main problem is lack of stock.³⁴
- **IGA reports shortages:** IGA in Pomona (North of Sunshine Coast) reports shortages, as most of their produce comes from the south – supplies from NSW and Victoria to Brisbane warehouse have not been able to get through. Fresh produce and bread have been an issue, with limited bakeries working. Pomona IGA foresaw troubles, and made an extra order of pasta, rice, tinned items and UHT milk.³⁵
- **Shortages:** Fresh food most difficult to distribute.³⁶
- **Shortages:** Shortages of XXXX beer in Brisbane and elsewhere, due to unsafe supply lines.³⁷
- **Shortages:** Retailers warn that there may be shortages of staples, including dairy products and bread.³⁸
- **Shortages in Kingaroy:** Bakery sells its last loaf of bread, as it has run out of supplies.³⁹
- **Shortages of Dairy:** Queensland Dairy Farmers processing and distribution chains have also been cut off. Only 10 per cent of the 450,000 litres of milk processed through Crestmead and Booval plants processed. Major problems include: getting the milk from the farms to processing plants; processing the products at plants; delivering the milk and milk products to stores in the affected areas.⁴⁰

14 January

- **Government reaction & collaboration:** QLD Minister for Primary Industries, Fisheries, Rural and Regional Queensland, Tim Mulherin, hosts teleconference with food manufacturers and processors to discuss food supply issues.⁴¹

³⁴ <http://www.sunshinecoastdaily.com.au/news/fuel-and-food-crisis-hits-coast-floods-2011/743170/>

³⁵ <http://www.sunshinecoastdaily.com.au/news/fuel-and-food-crisis-hits-coast-floods-2011/743170/>

³⁶ <http://www.watoday.com.au/environment/weather/supermarkets-enlist-big-guns-to-get-food-to-stores-20110113-19pwj.html>

³⁷ <http://www.brisbanetimes.com.au/environment/weather/flood-zone-faces-food-beer-shortages-20110113-19oxd.html>

³⁸ <http://www.brisbanetimes.com.au/environment/weather/flood-zone-faces-food-beer-shortages-20110113-19oxd.html>

³⁹ <http://www.watoday.com.au/environment/weather/supermarkets-enlist-big-guns-to-get-food-to-stores-20110113-19pwj.html>

⁴⁰ <http://www.brisbanetimes.com.au/environment/weather/flood-zone-faces-food-beer-shortages-20110113-19oxd.html#ixzz2CeB89pan>

⁴¹ <http://www.foodmag.com.au/news/queensland-floods-food-supplies-a-top-priority->

- **Government reaction & collaboration:** QLD government sends media release on discussions with food manufacturers and processors. Reports that Coles, Woolworths and Metcash are working closely with the State and federal governments on contingency measures to maintain supply of essential provisions to communities across Queensland.
- **Supermarkets & supply sources:** Major retailers are shipping pallets of food from Sydney to Townsville.
- **Role of ADF:** The Australian Defence Force has been assisting in delivering food and urgent supplies, inc. medicine, to affected communities. The ADF has delivered 55,524 kg of food and supplies to flood affected areas.⁴² Woolworths reports that ADF airdrops into Townsville & Bundaberg will continue.⁴³
- **Fast food shortages:** KFC and McDonalds out of chicken in Mackay, as supplied have not been able to make it north. McDonalds out of lettuce and chicken. Hungry Jacks unaffected – they have lots of frozen stock.⁴⁴
- **Food drop to Mt Crosby:** Supplies drop low in Mt Crosby; military helicopters airlift in food and medical supplies to an emergency centre at Mt Crosby State School.
- MP Bruce Flegg tries to organise a private helicopter to make food drops in Mt Crosby, but the police rejected the plan, stating that the army were already scheduled to deliver food on that day.⁴⁵
- **Some roads reopening:** Woolworths re-commences road deliveries to Roma, Dalby & Lockyer Valley.⁴⁶

15 January

- **Supermarkets reopening :** Coles & Woolworths stores start re-opening.⁴⁷
- **Wholesalers reopening:** Brismeat reopens.⁴⁸
- **Prices:** Conflicting reports of price-hiking at stores.⁴⁹
- Reports that trucking company depots are flooded.⁵⁰

⁴² <http://statements.qld.gov.au/Statement/Id/73293>

⁴³ <http://woolworths.com.au/wps/wcm/connect/website/woolworths/about+us/woolworths-news/flood+update>

⁴⁴ <http://www.dailymercury.com.au/news/kfc-mackay-weekend-shut-supply-block-flood/747448/>

⁴⁵ <http://www.qt.com.au/news/inquiry-hears-50-cap-would-stop-food-riots-ipswich/841763/>

⁴⁶ <http://woolworths.com.au/wps/wcm/connect/website/woolworths/about+us/woolworths-news/flood+update>

⁴⁷ <http://www.qt.com.au/news/ipswich-food-supply-low-flood-rain/744994/>

⁴⁸ <http://www.qt.com.au/news/ipswich-food-supply-low-flood-rain/744994/>

⁴⁹ <http://www.qt.com.au/news/ipswich-food-supply-low-flood-rain/744994/>

⁵⁰ <http://www.brisbanetimes.com.au/environment/weather/rocklea-devastation-a-double-blow-20110114-19r6w.html>

16 January

- **Fast food shortages:** KFC stores closed due to lack of chicken now re-open. KFC reports having to use different supply routes to keep the business running.⁵¹

17 January

- **Wholesalers reopening:** Brisbane Markets at Rocklea reopened.⁵²
- **Alternative supply modes:** Federal Agriculture Minister Ludwig reports that alternate routes and all modes of transport from air, rail, land and sea, are being utilised. The Commonwealth Government is in regular contact with key food producers, suppliers and distributors to monitor the situation.⁵³
- **Cooperation:** Coles, Woolworths and Metcash are working closely with the state and federal governments on measures to maintain supply of essential provisions to affected communities.
- **Alternative supply lines:** Major retailers are shipping food from Sydney to Townsville for the flood affected communities in regional Queensland.
- **Role of ADF/alternative supply modes:** The Australian Defence Force assists in providing food and urgent supplies to isolated communities.⁵⁴
- **Woolworths store closures:** Brismeat at Ipswich, petrol stations, supermarkets closed due to power outages and staff shortages.⁵⁵

18 January

- **Alternative supply modes & lines:** Fruit and vegetables are being trucked and flown into the region after floods cut off supply routes to the nearby Lockyer Valley.
- Supplies of pumpkin, sweet potato, tomatoes, garlic and ginger remain low.⁵⁶

⁵¹ <http://www.dailymercury.com.au/news/kfc-mackay-weekend-shut-supply-block-flood/747448/>

⁵² <http://www.brisbanetimes.com.au/business/floods-should-only-affect-limited-number-of-foods-consumer-advocates-20110118-19uxs.html>

⁵³ <http://www.foodmag.com.au/news/queensland-floods-food-supplies-a-top-priority->

<http://www.foodmag.com.au/news/queensland-floods-food-supplies-a-top-priority->

⁵⁵ <http://www.foodnews.co.nz/18831/floods-cause-concerns-for-woolworths-in-australia/>

⁵⁶ <http://www.brisbanetimes.com.au/business/floods-should-only-affect-limited-number-of-foods-consumer-advocates-20110118-19uxs.html#ixzz2CeHFXK3F>

- **Price Rises & price gouging:** Choice and consumer advocates report: there should only be higher prices for pumpkin, sweet potato, tomatoes, garlic and ginger.
- Retailers are absorbing the extra transport costs, but reports of price gouging in Ipswich, west of Brisbane, have emerged since the floodwaters receded.⁵⁷
- Fair trading minister Peter Lawlor reports that shoppers in Ipswich and Rockhampton, in central Queensland, have reported some stores were charging \$10 for milk and bread.⁵⁸
- **Alternate Supply Lines:** Choice spokeswoman said that wholesalers are stocking from around the country. The Melbourne markets sending three times their average stock load to Brisbane.⁵⁹
- **Food Quality:** Food with blemishes, due to wet weather, on the shelves. Choice reports that “larger retailers relax their policies about the appearance of fruit and vegetables so there is not significant food wastage at this time”.⁶⁰

19 January

- A voucher system is being used to distribute flood donations is helping get the region's businesses back on their feet. Cash donated to the Theodore Recovery Trust Appeal will be passed on to households in the form of \$50 vouchers, to be redeemed at local businesses.⁶¹

20 January

- Meat supplies to far North Queensland cut, due to shortages at wholesalers in Brisbane, Townsville & Cairns.⁶²
- Dairy farmers are seeing a 10 to 15 per cent drop in production due to the floods. Full availability expected in 7 days.⁶³
- Thousands of beehives damaged in the floods.⁶⁴
- Damage to horticulture industry estimated by Growcom to be in the hundreds of millions of dollars, with an average of \$250,000 to \$30,000 per producer.⁶⁵

⁵⁷ <http://www.brisbanetimes.com.au/business/floods-should-only-affect-limited-number-of-foods-consumer-advocates-20110118-19uxs.html>

⁵⁸ <http://www.brisbanetimes.com.au/business/floods-should-only-affect-limited-number-of-foods-consumer-advocates-20110118-19uxs.html#ixzz2CeGmf75>

⁵⁹ <http://www.brisbanetimes.com.au/business/floods-should-only-affect-limited-number-of-foods-consumer-advocates-20110118-19uxs.html#ixzz2CeHYjKAW>

⁶⁰ <http://www.brisbanetimes.com.au/business/floods-should-only-affect-limited-number-of-foods-consumer-advocates-20110118-19uxs.html#ixzz2CeHiu9Wk>

⁶¹ <http://www.abc.net.au/news/stories/2011/01/19/3116245.htm?site=capricornia>

⁶² <http://www.abc.net.au/news/stories/2011/01/20/3117197.htm?site=farnorth>

⁶³ <http://www.abc.net.au/news/stories/2011/01/20/3117535.htm?site=southqld>

⁶⁴ <http://www.abc.net.au/news/stories/2011/01/20/3117118.htm?site=southqld>

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- IGA in North Queensland expects to be re-stocked again in a few days' time. Re-opening of Bruce Highway and rail lines beneficial.⁶⁶
 - Sugar production in Mackay region estimated to be down by a quarter.⁶⁷

21 January

- Reports of people eating rabbits near Chinchilla due to food shortages.⁶⁸

24 January

- **Imports/Exports:** Retailers stocking shelves with damaged produce from local growers. Coles and Woolworths considering whether to support Australian producers - and sell water-damaged crops - or favour imports and keep prices down.
- **Food Quality:** Coles is already selling fruit with blemishes, so-called 'ugly' fruit, relaxing its quality classifications to keep shelves stocked.
- **Food quality and consumer demands:** Woolworths said it would offer some types of fruit and vegetables with surface blemishes, but faced consumer resistance in many cases.⁶⁹
- **Food prices:** The price of watermelons, sweet potatoes, broccoli, zucchini, bananas and capsicum have already soared at wholesale markets. Costs of tomatoes, mangoes and lettuce have also increased.⁷⁰
- **Impacts to agriculture:** Planting of autumn crops expected to be disrupted due to the vast amount of topsoil that has washed away.
- **Alternative supply sources:** The supermarkets said they would first try to obtain produce from NSW, Western Australia and South Australia. However, the transport costs would add to food bills.⁷¹
- **Consumer choices/demands:** The government's agricultural forecaster and NSW Fruit and Vegetable Chamber are encouraging consumers to switch to eating different kinds of fruit and veg to avoid the higher costs.⁷²

26 January

- **Dairy:** Dairy producers reported to be facing \$50 million in damages.⁷³

27 January

⁶⁵ <http://www.abc.net.au/news/stories/2011/01/20/3117066.htm?site=southqld>

⁶⁶ <http://www.abc.net.au/news/stories/2011/01/20/3117126.htm?site=tropic>

⁶⁷ <http://www.abc.net.au/rural/news/content/201101/s3117316.htm?site=tropic>

⁶⁸ <http://www.abc.net.au/rural/news/content/201101/s3118097.htm?site=southqld>

⁶⁹ <http://www.smh.com.au/environment/weather/floods-empty-the-food-bowl-20110123-1a18b.html#ixzz2EcFTSxh1>

⁷⁰ <http://www.smh.com.au/environment/weather/floods-empty-the-food-bowl-20110123-1a18b.html#ixzz2EcFxnSLt>

⁷¹ <http://www.smh.com.au/environment/weather/floods-empty-the-food-bowl-20110123-1a18b.html#ixzz2EcGi8CYU>

⁷² <http://www.smh.com.au/environment/weather/floods-empty-the-food-bowl-20110123-1a18b.html#ixzz2EcHKA13X>

⁷³ <http://www.abc.net.au/news/stories/2011/01/26/3121975.htm?site=farnorth>

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- **Sugar:** Reported damage to sugar crops, however, sugar prices are high.⁷⁴
 - **Cattle industry, cooperation & collaboration:** Reports that the cattle industry begins to re-start, after floods, blocked roads, etc. Damage to roads and bridges has made it unsafe to move cattle. This report notes farmers sharing resources in order to get cattle to market.⁷⁵
 - **Organics:** Organic supermarkets in Mackay particularly hard-hit by flood shortages of fresh produce. This is due to the small number of organic farmers, and farmers experiencing farm damage and transport difficulties.⁷⁶

Dates unknown

- **Alternate Supply Lines & modes:** The Harbour Master in Bundaberg assisted the Queensland Police Service in providing food drops to stranded boaties and houses along the Burnett River.⁷⁷

Inquiry

- During the flood inquiry, Mr Mayne, who had tried to deliver food in his private helicopter, asked why no official food drop was made to Rolleston, which has an air strip.⁷⁸
- Central Highlands Regional Council's Gail Nixon told the inquiry she had insisted five times in 10 days that state authorities provide a helicopter to drop food to isolated properties. There was a system under which homes would call her and then a grocer to order their deliveries.⁷⁹
- Agforce Queensland regional manager Danielle Hogarth told the inquiry how she made databases of property owners with stranded stock and private helicopter owners, and co-ordinated fodder drops. She agreed there were problems accessing **aviation fuel**.⁸⁰
- Reports from Theodore that helicopters carried non-essential food items.

Impact on Agricultural Industry

- Impacts to wheat, sugar, and agricultural inputs companies:

⁷⁴ <http://www.abc.net.au/news/stories/2011/01/27/3122794.htm?site=farnorth>

⁷⁵ <http://www.abc.net.au/am/content/2011/s3122643.htm?site=southqld>

⁷⁶ <http://www.abc.net.au/rural/news/content/201101/s3122995.htm?site=tropic>

⁷⁷ http://www.amsa.gov.au/marine_environment_protection/national_plan/Reports-Fact_Sheets-Brochures/Onscene/ONSCENE19.pdf

⁷⁸ <http://news.smh.com.au/breaking-news-national/qld-farmer-used-helicopter-as-lifeline-20110524-1f14p.html>

⁷⁹ <http://news.smh.com.au/breaking-news-national/qld-farmer-used-helicopter-as-lifeline-20110524-1f14p.html>

⁸⁰ <http://news.smh.com.au/breaking-news-national/qld-farmer-used-helicopter-as-lifeline-20110524-1f14p.html>

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- Incitec Pivot, fertiliser producer, suspended operations on Dec. 23. The company plans to return to full production by the end of next week. This will depend on road access to Bowen Basin coal mines.⁸¹
 - Farm chemicals maker Nufarm expects some lost sales due to ruined crops, including cotton and sugar. However, improved soil moisture is expected to drive strong demand for a number of products.⁸²
 - GrainCorp: Floods halted transportation of grains in Queensland last week, but the harvest was already largely complete in that state, which anyway accounts for a small share of national output.⁸³
 - Queensland Sugar Ltd: buying more raw sugar from Brazil and Thailand, as floods damage sugar cane crops.⁸⁴
 - Crops of wheat, cotton, sugar cane, citrus, fruit, vegetables and grains were destroyed. The flood also damaged infrastructure, rail, road networks, vehicles, and machinery.⁸⁵

Impact on Retailers

- Supermarket operators Wesfarmers and Woolworths face logistical issues getting produce into affected areas, according to local media. Woolworths said last week about 47 of its stores were affected.
- Soft drinks bottler Coca-Cola Amatil warned on Jan. 6 that wet weather and a cooler summer would affect its earnings.⁸⁶

⁸¹ <http://www.smh.com.au/business/queensland-flood-impact-fact-box-20110111-19m3v.html>

⁸² <http://www.smh.com.au/business/queensland-flood-impact-fact-box-20110111-19m3v.html>

⁸³ <http://www.smh.com.au/business/queensland-flood-impact-fact-box-20110111-19m3v.html>

⁸⁴ <http://www.smh.com.au/business/queensland-flood-impact-fact-box-20110111-19m3v.html>

⁸⁵ http://www.amsa.gov.au/marine_environment_protection/national_plan/Reports-Fact_Sheets-Brochures/Onscene/ONSCENE19.pdf

⁸⁶ <http://www.smh.com.au/business/queensland-flood-impact-fact-box-20110111-19m3v.html#ixzz2EcF5HnE9>
