

Disaster Resilience Workshop

Focus Question:

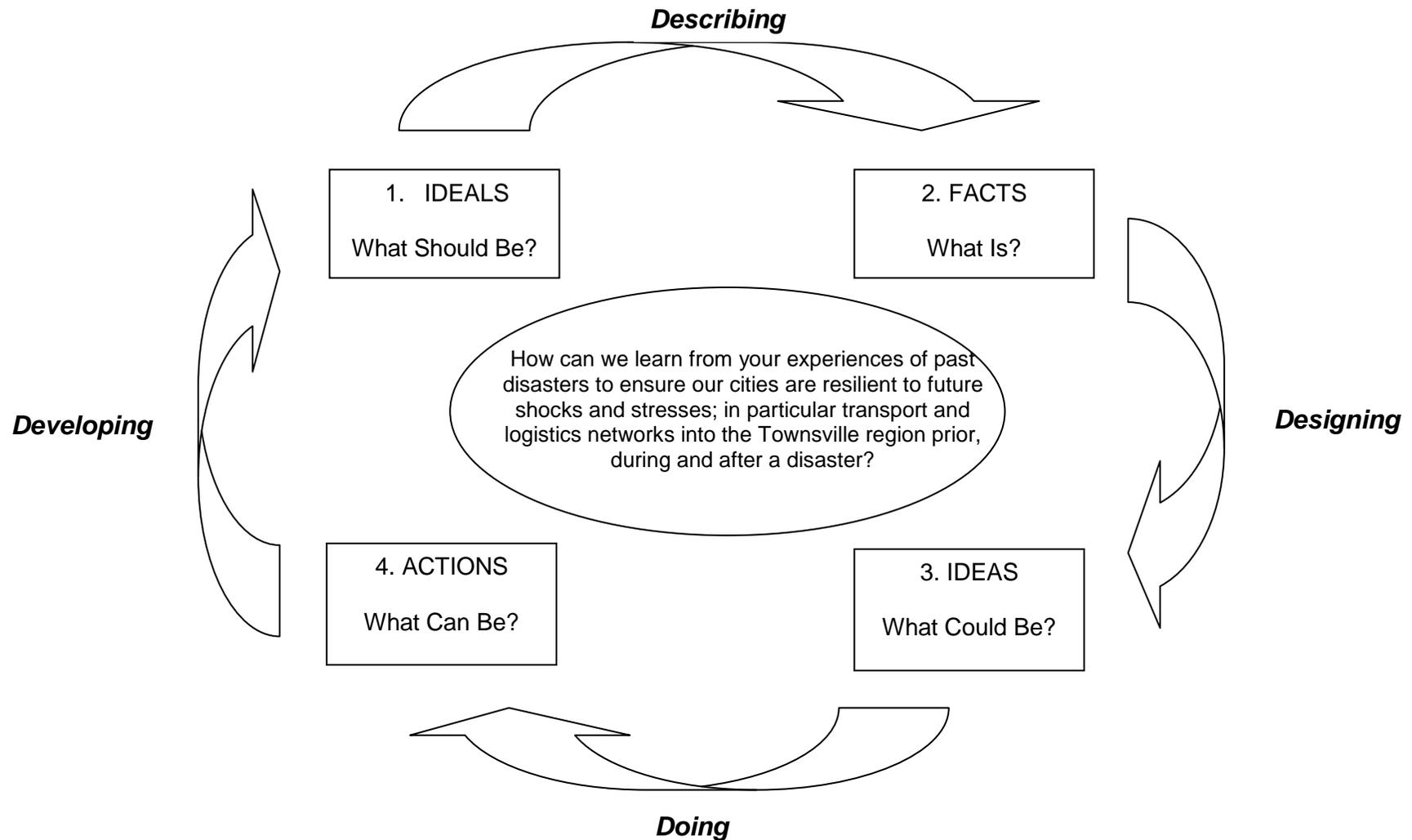
How can we learn from your experiences of past disasters to ensure our cities are resilient to future shocks and stresses; in particular transport and logistics networks into the Townsville region prior, during and after a disaster?

Tuesday 04th November 2014

Organisations

- ❖ Townsville City Council
 - Mayor
 - Integrated Sustainability Services
 - Disaster Management
 - Corporate Communications
- ❖ Queensland Government
 - Queensland Health
 - Queensland Rail
 - Department Science, Information, Technology and Innovation
- ❖ Telstra
- ❖ Supergreen Solutions
- ❖ Safety Culture
- ❖ Griffith University
- ❖ Curtin University

The Workshop process – Collective Social Learning (Professor Valerie Brown)



The details of **What Should Be? What Is? What Could Be? and What Can Be?** are detailed in the following pages for each group (table)

Workshop facilitated by Candia Bruce (Working On It) on behalf of Townsville City Council with support of Queensland and Western Australian Government on 04th November 2014.

Disclaimer:

The following information represents the individual truth and experiences of each participant.
The objective was to generate collective and individual thinking and communication.
The content is as recorded by group participants.

What Should Be?

- ❖ Authorities don't know it all, try talking to the communities
- ❖ Storage warehouse in North QLD
- ❖ Just in time supply needs to be reconsidered
- ❖ More info on 3 day supply of food
- ❖ Apps to guide us away from disaster zone
- ❖ Uninterrupted power supply – NBN power both ends
- ❖ Bruce Hwy upgraded to be open North & South of Townsville in wet seasons
- ❖ Airport above flood
- ❖ Tree plantings on main access routes need to be reconsidered
- ❖ Evacuation routes identified and prioritised for clearing to keep open
- ❖ Power roads
- ❖ Utilise local supplies of produce / goods / services
- ❖ Promote self-sufficiency of the community as far as possible
- ❖ Tville CBDSSCL System of
 - Habitable buildings after HBADWSE
- ❖ All buildings structurally sound
- ❖ Flood proofed
- ❖ Resources & personnel are in place before disaster and secure to enable recovery with less stress ie fuel, goods, businesses committed to the area
- ❖ People well educated
- ❖ Council assets disaster proofed
- ❖ Timely and accurate communication and vision of disaster area
- ❖ PV + Wind + DESS + ESS + general EV + Cehhuk + C local + Smouts = Virtual Hub = Emergency Power
- ❖ Super Stadium designed as world leading transport logistics hub
- ❖ Charging stations in each car park
- ❖ 100MW Solar farms
- ❖ PV microgrids in CBD
- ❖ Solar street lights with targeted smart sensors, battery storage & wifi comms network
- ❖ City wide wifi network
- ❖ TCC Drone Fleet
- ❖ Bring all information together and make it available to all for response
- ❖ Central Services Portal: Adaptive Power Grid (load balancing on the fly)
- ❖ Self healing radar
- ❖ Preparedness is the key! 'An ounce of prevention is better than a pound of cure'
- ❖ Business Continuity Planning BCP
- ❖ Remove Political Influence / Interference
- ❖ Response

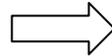
- Organisational structure
- Role clarity
- Policies & procedures SOP
- Trg & Ex
- Succession plan
- Manning
- ❖ Community Education
- ❖ Personal responsibility shared
- ❖ No run on shops prior to an event
- ❖ Integrate into core business
- ❖ Build on communications and relationships between groups
- ❖ Education
- ❖ Planning
- ❖ People know where to get consistent info
- ❖ Continued expansion of social media & tech integration
- ❖ Resistant
 - Infrastructure
 - Roads transport power comms
 - Planning

What Is?

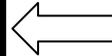
How can we learn from your experiences of past disasters to ensure our cities are resilient to future shocks and stresses; in particular transport and logistics networks into the Townsville region prior, during and after a disaster?

Enabling Factors

Towards “Disaster resilience”



Limiting Factors



Away from “Disaster resilience”

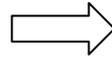
- ❖ TLDMG – synergy, planning, responding (pre, during, post)
- ❖ Community coordination
- ❖ Preparedness in response organisations & community
- ❖ First responders – QPS, Ambos, Fire & Rescue
- ❖ Army
- ❖ Community involvement
- ❖ Community events – cyclone Sunday
- ❖ Community awareness
- ❖ Educating the whole community
- ❖ Role clarity – organisation / community
- ❖ Storm tide zones
- ❖ Information availability
- ❖ Social media
- ❖ Building social fabric so that neighbours can support each other
- ❖ NDRRA
- ❖ Taggle network 50% complete, energy, water
- ❖ Townsville water strategy (demand)
- ❖ Low cost telemetry
- ❖ 10 yrs, Dcell, sensor
- ❖ Political will – nothing like a good disaster
- ❖ Min. infrastructure footprint embedded – new city plan has smart growth strategy
- ❖ Technology explosion – anything is possible
- ❖ Smart energy & water technology exists now and becoming affordable
- ❖ White roof website project, lots of great examples transformation underway
- ❖ Social
- ❖ Proactive communication
- ❖ City is opportunity for design and implement disaster

- ❖ Public apathy
- ❖ Insurance – cost of
- ❖ Media – southern (sensationalising, wrong messages)
- ❖ Political interference
- ❖ Understanding disaster
- ❖ Communication – many msgs, everyone’s an expert
- ❖ People’s expectations
- ❖ People’s behaviours
- ❖ Needs vs wants
- ❖ E.g. after yasi food waste from disconnected fridges vs only stocking what is needed (uht milk etc) or sharing what they don’t need.
- ❖ Lack of \$\$\$ & resources
- ❖ At risk evacuation / resupply infrastructure – bruce hwy, rail, port, airport
- ❖ Logistics bare shelf in grocery / shops
- ❖ NDRRA funds diminishing
- ❖ Existing design – built on a floodplain
- ❖ Media
- ❖ Challenge of automation & us
- ❖ Needs funding
- ❖ Climate and economy stresses increasing vulnerability
- ❖ Human predisposition to ‘dip the toes in’ – we need to leap into how technology can aid us (taggle rollout an example)
- ❖ Built structures & roads where they can be harmed by the natural disasters
- ❖ Knowledge – many people and families are ‘cooking’ themselves & their families / homes with extremely hot roofs, galvanised, black, red
- ❖ Submissions not yet funded
- ❖ The apparent lack of understanding, awareness & local

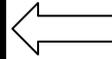
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Enabling Factors

Towards “Disaster resilience”



Limiting Factors



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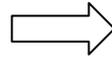
- exemplar in resilience / sustainability
- ❖ Better disaster prevention knowledge education to locals
- ❖ Idea of EV trucks exists now – CEO Ergon idea integrated service & recovery utility vehicle with solar and batteries.
- ❖ Renew the build structures of roads to better self resilience
- ❖ Lots of sunny days
- ❖ Wind, tides, high flow, wind, energy in disaster
- ❖ Townsville smart city solar city projects implemented & Townsville unit of sustainability / resilience is known – white roof / solar and battery, LED street light trials & submissions
- ❖ Townsville water futures program.
- ❖ Visionary local government know their communities
- ❖ Experience of events of the people in the disaster management networks
- ❖ Penetration of smart phones
- ❖ Legislation
- ❖ Technology
- ❖ Awareness
- ❖ Early warning system
- ❖ Local
- ❖ Information
- ❖ Communication (well-connected network)
- ❖ Understanding the need for action
- ❖ Education
- ❖ Accuracy of information / timeliness ‘ one message / authority’
- ❖ Need
- ❖ Time
- ❖ Individual responsibility acceptance
- ❖ Community willingness to participate in assisting their own recovery
- ❖ Volunteer community spirit
- ❖ Self-lessons of people
- ❖ Developed disaster plan

- expertise around soil science – geology and hard infrastructure
- ❖ Commercial business decision making is contra to disaster decision making
- ❖ Public apathy – someone (Govt will be always there to help)
- ❖ State Gov
- ❖ \$
- ❖ Politicians
- ❖ Non local media
- ❖ Same same
- ❖ One size doesn’t fit all
- ❖ Silo based data storage
- ❖ Failure of transport networks (HWY)
- ❖ Reliance of society on power
- ❖ Town planning – vehicles
- ❖ Cost
- ❖ Budget constraints
- ❖ Getting individuals to do the right thing
- ❖ Post disaster info
- ❖ Government policy
- ❖ More than one message
- ❖ People
- ❖ Apathy
- ❖ Lack of motivation to prepare
- ❖ Confused / mixed messages
- ❖ Insurance
- ❖ Response during crisis
- ❖ Lack of direction / focus / fractured response network
- ❖ Expectation of help by external agencies
- ❖ Lack of understanding / education on where to focus / act
- ❖ Selfishness of people (self-focussed on own family)
- ❖ Lack of refinement / fit for purpose
- ❖ Lack of willingness to rehearse
- ❖ Infrastructure
- ❖ Damage
- ❖ Failure to use experience (re-inventing the wheel)

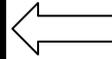
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Enabling Factors

Towards “Disaster resilience”



Limiting Factors



Away from “Disaster resilience”

- ❖ Time / ability to rehearse plans
- ❖ Well-constructed & designed
- ❖ TLDMG + advisors
- ❖ Past experience / post activity reports
- ❖ Use of predictive technology
- ❖ Enthusiasm
- ❖ Response planning
- ❖ Self-reliance / resilience
- ❖ Leadership
- ❖ Technology
- ❖ Social media
- ❖ \$
- ❖ DMG
- ❖ Disaster plan
- ❖ Attitude
- ❖ Experience
- ❖ QDMA
- ❖ NDRRA
- ❖ NDRP
- ❖ SES
- ❖ QCPS
- ❖ Rockefeller 100 resilient cities submission
- ❖ Energy storage
- ❖ JCU & cyclone testing station
- ❖ Ergon EV trial
- ❖ JCU tropical data hub
- ❖ AURIN project
- ❖ JCU eResearch
- ❖ IBM Research trials
- ❖ Smart buildings
- ❖ Smart water
- ❖ CBD smart infrastructure and sustainable energy framework

- ❖ Willingness of community to participate
- ❖ Lack of direction
- ❖ Implement the plan
- ❖ Conflicting agendas and timelines.
- ❖ Central
- ❖ No-one likes paying the insurance policy for an event that may not happen.
- ❖ \$
- ❖ Technology not talking
- ❖ Ergon
- ❖ Attitude
- ❖ Experience
- ❖ Climate change
- ❖ Resourcing
- ❖ Interest groups
- ❖ Behavioural change
- ❖ Lack of funding for research
- ❖ Resistant not resilience
- ❖ Better land use planning
- ❖ Improved building codes

What Could Be?

- Fuel supplies/energy storage
- Solar PV and Energy storage projects
- Wind turbine
- Accurate information from agencies/ government
 - Collection & sharing
 - E.g. social media
- Learning's from other comparable contexts
- Self sufficiency
- Self- organising Apps – supplies, self-assessments – damage etc.
- Landing craft
- Build Flood proof roads or self-healing
- Attracting funding complete – business case
- Real time coordination and response pipelines (2way) between Orgs and Gov't
- Connected engaged citizens
- Backed up integrated business with disaster management
- Local power storage
- Community Disaster Group (tap into the disenfranchised apathetic mass audience to: Community take ownership – change behaviour.
- Two way community & coordination network.
- Change mental models
- Achieve majority , courage of receiving networks(toggle)integrate temp, flow, energy sensors
- Emergency management hub – disaster check lists – NORRA response frameworks & reporting - sensing information.
- Disaster Kit Free (energy, water people, water) Obtained through disaster training framework
- Facebook – sharing information
- Encourage battery backup through solar/wind etc.
- Provide ready made up food packs with instructions for public to purchase
- Real time community involved disaster exercise (biannually)
- Volunteers 20k - funding from state gov't

- Empower communities to do for themselves e.g. P&C, Scouts, and Lions etc.
- Bounce forward, not back
- Sociological studies already there are natural leaders in communities - tap into this
- Community take ownership – change behaviour
- Implement a system of low cost sensing and data management& analytics to help predict how e.g. pre-positioning of response agency responds
- Promote self-sufficiency and resilience - solar /battery systems etc.
- Develop a program to move beyond awareness into behaviour – self-sufficient & prepared
- Strong roots & branches plantation can help to reduce the damage & prevent
 - houses and networks
 - Wind break
- Emergency supply stations after the disaster. People could easy access to food, water daily supplies even shelters
- Storm tide barriers
- Relocate/ lift Bruce Highway or inland HWY
- Reward preparedness – find a way to influence behavioural change
- Impact assessment – technology solution to accurately identify the damage post event and including info provided by community. “citizen as sensors”
- Relocate Townsville
- NQ Distribution for fresh foods
 - PV Array for walk ways- roads – streets
- All new bldg. approvals to have energy source(PV -Bett) + water storage
- Total Community awareness education including ESL. People
- Pre wire large parks to accommodate tent cities
 - Solar –Fixed or portable
 - Wind
 - Generator
- Check before Dig
- Fund community education behaviour change social learning - resilience
- Project/ Pilot/Trial Council/ Utility electric truck to provide post disaster recovery capacity across city augmenting generator-battery – solar
- Every house has a contingency water supply tank not only connected to roof, but to mains water (filled in preparation of disaster)
- Concept – Project Recovery: whatever remains is able to support the rest of Townsville
- Unit of measure of resilience & sustainability: ability to bounce back and fitness to recover
- Understand battery phone usage

- Go West – Prepare West
- Designate specific car parks as collection points to act as nodes prior to delivery
- Evac centre by centralised transport plan
- Creation of street/community Disaster response packs (equipment/stores / supplies) of community leaders/first responders
- Planning Policy to be implemented to enforce compliance with Disaster response/ Resilience development by individual households solar/battery/ water tanks/communication)
- Implement a designated Disaster Plan Rehearsal day for Townsville each year prior to Cyclone/Monsoon season
- Decentralise provision of essential services trailer mounted/ mobile power generation/water supply
- Electric vehicles used as mobile battery storage/energy distribution systems to decentralise demand
- Pre design parks to be evacuation centres, tent cities and kitchen layouts
- All major buildings no longer ‘cook’ the building so what remains after disaster can provide to the community
- Unified communication
- Community information
- Increased water storage capacity through improved leakage detection and information
- Integrated priority recovery system
 - Sensor data
 - Pipes
 - Roads
 - Power lines
 - Drone data
 - Video feeds
 - Infra-red
 - Lidar
- Solar hot water on evac centres
- Better communication between Ergon – Gov’t and local companies re virtual grid and energy storage
- Integrating batteries and EV charging stations into RSL stadium 348kw Solar
- Resilient Street program – Just your neighbours
- Set up social impact Bonds (SIBs) for data resiliency - funds banks – smart infrastructure & sustainable energy.
- Sensors on power poles(tilt)
- Low cost power systems
 - LED lights

- Fridge
- Gadgets
- 2000-4000 less

What Can Be?

Name	Commitment/ Action	By When/ date of action	Resources
Ed	Develop my own home's food / sustainables store to provide 28 days capacity Further develop my street relationships outside of immediate neighbours	01 Jan 2015 By xmas	Time & money time
Emma	Provide information & change thinking within my workplace. Start a proactive chain reaction in regards to disaster management, info sharing etc.	End of 14/15 cyclone season	Staff engagement
Sean	Develop an emergency kit and a list of which items should be in that kit, get TSCC, local business t sponsor	Before 15 cyclone season	Greg & TSV city council and local business leaders
Mark	Look into the \$\$ numbers related to disaster impacts and have conversations with financiers about potentially setting up social impact bonds (SIBs) for Townsville community	Prior to xmas	Financial data
Daryl	Develop consistent information &	By end of 14/15 season	Research

	communication tools that work across agencies		
Mark	Ensure supporting agencies to provide restoration of power supply ASAP	Continuous process	time
Simon	Investigate the idea of tilt sensor	End of dec	Ergon, phone, email
Bob	Develop ongoing system / structure to engage & incorporate community resources	Current & ongoing	Minor publications & community manpower
Scott	Create sensing platform that can attach any sensor type	2015	\$1.4 million sensor Q
Chris	Explore opportunities for data analytics and production for disaster management that builds on the data being or will be collected	Jan 2015	Phone / email
Dylan	Build resilient cities wall that takes the lessons from 100 resilient cities that can inform carbon cycle activities Visit resilient cities	Over life of resilient cities program time	Computer Self fund
Peter	Spend quite a few hours making sense of all the brilliant inputs from the workshop today	Jan 2015	tiem
Ian	Send pyrOz proposal to TCC	10 Nov	Email
Andrew	Smarter bushfire preparedness - tech	1 Jan	

Sara	iauditor and Edify are free apps Build a checklist in iauditor 'prepare for the cyclone' Build a training in Edify "prepare for cyclone"	January 2015	Luke approval
Cindy	Learn more about native plants in TSV landscape design with disaster prevention in rowes Bay as a model	On going	Sri, database on line, Greg & Candia
Debbie	Review hospital energy storage capacity / infrastructure Understand electric cars, how do they work better in disasters. Introduce in QH fleet	December	Townsville hospital
Paul	Local / regional social media focus group to improve / enhance our SM use for EM	Jan 2015	Relationships, knowledge
Chris	Review leave planning to ensure adequate resourcing available during season.	Dec 14	Self
John	Coordinate / start unified communications & information sharing	Jun 2015	LDMG, Business, DDMG
Michael	Continue to work on education communication materials that integrate energy & disaster resilience management	Feb 2015	Relationships & knowledge
Tony	Review shut down /	Nov 2014	Self

	recovery plans		
Ray	Generator pads in open space	2015	Budget
Greg	Work with Allen M. Wayne P, and peter (research) & Charlie hargroves to create an exemplar project from this. Work communication (corp coms) on extending life map for resilience and sustainability as action tool	November – January 2015 2015 / 16	TCC, Griffith, Adelaide / Paul Canon, Rachel, CUNY Bronx Energy Centre Tamara, ISS, Allen M, with Bronx
Allen	Increase availability of community education within schools and community groups	Mid 2015	Staff
Luke	Community incident response app, help self-organise resources & supplies	Mid 2015	Staff
Wayne	Share thoughts / ideas from today	ongoing	LDMG, DDMG, LG's
Jason	Shoot Allen an email to add an agenda item to next TLDMG meeting – SensorQ project opportunities	Today by 5pm	Time
Rachel	Cyclone preparedness messaging on Townsville Telstra Facebook page 'How do you charge your mobile when you don't have power' Meet with Ergon to review critical sites	Friday 7/11/2014	Time / social media team

