

Regional workshops outcomes

DPAC- DLGSEM and MRT

Three regional workshops:

- Launceston, Burnie, and Hobart
- 36 participants , plus MRT and DPAC
- Representatives from local government (elected, planners, and emergency management coordinators), state government, and industry .

The workshops covered:

1. Principles on why / how government intervenes in the use of land.
2. Outlined guide to risk that outlined a set of tools to integrate policy, evidence and risk tolerance.
3. Preferred approach to mapping landslide.
4. Review of our current approaches to landslide.
5. Application of the hazard treatment approach to landslide.

1: Principles

Proposed	Changes
Private risks associated with natural hazards are the responsibility of individuals and business.	
Governments should encourage public and private risks to be factored into investment decisions.	
Governments can support individuals to understand and manage private risks through the collection of evidence, provision of information, and facilitation of collective action.	
Governments should ensure that private investment minimises unacceptable public risk.	Expand text on this principle highlight that <i>...tolerance to natural hazards can be signalled in the land development cycle through strategic planning, zoning, or subdivision stages, rather than the development</i>
Governments should avoid investment, regulation, zoning, or policy that gives rise to unacceptable public or private risks.	
	<p>Addition of a new principle Government should have regard to, and support individuals or business to consider how relevant risks may change in to the future, including through climate change.</p>

2: Guide

- Generally supported.
- Reviewed risk based approaches to natural hazards in the planning system.
 - Outlined how the hazard treatment approach as the preferred approach overall.
- Need to consider supporting documents – eg. a landslide risk planning practice guide.
- Need greater clarity around why the hazard treatment approach is preferred.
- Issues of enforcement need to be considered (beyond the scope of this project).

3 : Preferred approach to mapping landslide

Approach to landslide mapping	Weakness	Strength
<p>Option 1 – Basic (slope) susceptibility</p>	<p>Needs a catch all clauses to developments in non-susceptible areas to be called in for assessment. Too broad in its application. Difficult to set a slope threshold that will capture all know landslip areas and not be too onerous.</p>	<p>Simple and straight forward. The default position. Precautionary, Conservative. Transparent.</p>
<p>Option 2 – Intermediate (slope and geology) susceptibility</p>	<p>Geology mapping is too crude outside of 1:25k geology mapping areas.</p>	<p>Well established in Hobart. Relatively simple and transparent. Allows the likely failure angle for each type of geology to be applied.</p>
<p>Option 3 - Intermediate (slope and geology) susceptibility, Basic (slope) susceptibility, and know landslides</p>	<p>Intermediate susceptibility mapping is only located over a small area of the state. Current system is not well set up to allow updates to the mapping. Intermediate susceptibility mapping is only located the majority of areas in the North West. Boundary of bands will be an issue. It will take up to a year to deliver the final overlay. Perception of inaccurate mapping at the boundaries for basic and intermediate susceptibility mapping.</p>	<p>Based on the advice of MRT. Intermediate susceptibility mapping covers 80% of the populated areas. Users our current knowledge, and AGS standards. Intermediate susceptibility mapping identifies areas with little to no potential exposure to landslide. Increased confidence in the mapping.</p>

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4: Our current approaches to landslide.

The workshops highlighted the following items:

- A lack of guidance from the State Government landslide.
- A highly varied approach to managing landslide hazard between and within councils.
- That landslide mapping while useful is difficult to interpret and apply.

4: State level approach

- LUPAA (1993) objectives
 - *'...a pleasant, efficient and safe working, living and recreational environment of all Tasmanians and visitors to Tasmania'* and providing
 - *'...a planning framework which fully considers land capability'*.
- Mapping of major population centres is underway or complete
 - Mapping is technical, employing a range of methods since the 1970s to now.
 - The current approach is overcoming many of the previous inconsistencies.
 - The mapping can be difficult to interpret.
- Building Code:
 - Structural Provisions (BCA 2009) objectives:
 - Safeguard people from injury caused by structural failure; and
 - Safeguard people from loss of amenity caused by structural behaviour; and
 - Protect other property from physical damage caused by structural failure;
- No policy guidance on landslide

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- Mapping of landslide susceptibility
 - Mapping of landslide susceptibility is partial or complete
 - The current mapping of landslide susceptibility dates from the 1970s to now.
 - The mapping of landslide susceptibility is inconsistent in its inconstancies.
- Building Code of Australia (BCA) objectives
 - Intermediate landslide susceptibility mapping does not cover the whole state.
 - BCA seeks to protect the occupants or neighbours from structural failure.
 - No policy guidance on landslide on how to apply LUPAA objectives.
- Structural failure
 - Structural failure; and
 - Safeguard people from loss of amenity caused by structural behaviour; and
 - Protect other property from physical damage caused by structural failure;
- No policy guidance on landslide

4: Regional approach to landslide

Cradle Coast regional land use planning Framework

•Response to natural hazards:

- “...direct places where people live and work from areas where there is an unacceptable level of risk for the health and safety of people, property, and the environment from natural or man-made hazards.”

•Risk and Policy:

- Level of risk, response and principles:
 - Vulnerable areas – avoidance, adaption and mitigation
 - Unacceptable risk – Avoid
- Risk, land use and development
 - Unacceptable risk – not to be used for sensitive uses, key infrastructure, or hazardous uses.
 - Low or moderate risk – apply discretion on acceptable risk, management guidelines, assessment, changes to the hazard, cumulative affects.

•Landslip definition (section 4.5(c)(v)),

- “geologically unstable areas such as steep slope, susceptibility to land slip, springs and seepage(particularly on the coastal escarpment and adjoining ridges and steep valley walls and including designated Class A and Class B Landslip) swelling clays, or subsidence, and including areas of landslip and movement susceptibility as indicated on Tasmanian Landslide Map Series prepared by Mineral Resources Tasmania.”

- Standard for risk assessment** is to be “... undertaken for each proposed use or development in accordance with the Australian Geomechanics Society 2007 Landslide Risk Management Guidelines”.

Northern region land use planning framework

- “Land designated for housing, industry, community and infrastructure services must not be located within or adjacent to areas which are vulnerable to an unacceptable level of risk including coastal inundation, landslip, flooding or contaminated land.” .
- The Northern regional framework identifies the following strategies to be promoted to reduce the risk from natural hazards including:
 - Ensure that new areas zoned for residential, commercial and community purposes are not within areas identified as being high risk areas.
 - Identification of hazard areas is to include the likely impacts of climate change such as sea level rise, storm surge, increased temperatures and intense/extreme rainfall events.
 - Reduce the risk for the loss of life and property by avoiding development on land which has been identified as being subject to a high risk from landslide, bushfire, sea inundation and flooding. and
 - Where avoidance of hazards is not possible or the level of risk is deemed acceptable, ensure best practice construction and design techniques and management practices are implemented. If required, plan for retreat in vulnerable areas.
- Spatial information identified in the framework include:
 - Landslip areas over Launceston (which are currently undergoing review).
 - Landslip A and B zones

Southern regional Land use planning framework

- Regional Policy 8: Managing Risks and Hazards
 - “Protect life and property from possible effects of land instability.
 - Prevent further development in declared landslip zones.
 - Require the design and layout of development to be responsive to the underlying risk of land instability.
 - Allow use and development in areas at risk of land instability only where risk is managed so that it does not cause an undue risk to occupants or users of the site, their property or to the public.”

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Northern region land use planning framework

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- The Northern regional framework identifies the

Key points:

- To protect life and property
- To avoid areas of unacceptable risk
- That zoning should consider the hazard
- That development should respond to the hazard
- Duplication between the building code and planning?

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 - Prevent further development in declared landslip zones.
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Tasmania

Explore the possibilities

4: Local government approach to landslide (current)

Burnie (1989)

- Development in landslip areas should cause a landslip on or adjacent to the property.
- Requires an engineers certificate state the above.
- Consider the capability of the land.
- Areas identified as doubtful land stability.

Central Coast (2005)

- Requires a vulnerability report based on the AGS guidelines.
- Development does not increase the risk of landslide.
- Development must have a acceptable risk to life and property.
- Triggered by land considered to of “doubtful land stability” which includes MRT mapping and a steep slope based on the opinion of the planner assessing the application.

Circular Head (1995)

- Consider if the land is subject to landslip or excessive slope
- No development in areas of know landslip, unless council is satisfied that the development will not cause or further a land slide.
- Regard for the impact of landslip
- Triggers – know landslide or a slope 1 in 4

Devonport (1984)

- Consider the potential for landslip.
- Consider the capability of the land.
- Perform a geotechnical assessment in areas of doubtful land stability identified in scheme.
- Assessment must demonstrate the development is safe.
- Areas of doubtful land stability are based on MRT mapping.

Kentish (2005)

- Development should not cause a landslip to present a risk to life or property.
- Comply with the proclaimed landslide zones A and B.
- Hazard risk assessment that considers landslip in the cradle gateway

King Island (1995)

- Consider the affect of landslip
- Have regard to landslip when considering a development
- Consider the capability of the land

Latrobe (1994)

- Consider if the site is subject to landslip
- Consider the capability of the land

Waratah-Wynyard (2000)

- No increase in landslide potential.
- Identifies A and B zones in scheme

West Coast (?)

- Consider the level of risk from natural hazards (inc landslip).
- Does not cause or accelerate land instability.
- Development should avoid landslip areas.
- Developers must assess if the hazard will occur on their land.
- Does not provide guidance on how to respond to natural hazards.

Break O’Day (1996)

- reasonable avoidance in landslip
- Demonstrate management in landslip
- A and b zones and some areas a 10% slope
- no development in high risk coastal areas

Dorset (1996)

- Consider landslip on slopes >20%
- Consider capability of land

Flinders island (1994)

- Consider landslip on excessive slope
- No development on land with a unacceptable level of risk
- Other risk levels responded to through design
- Landslide is assessed on a slope of 1 in 4, or is known to be susceptible

George Town (1991)

- In mapped landslip areas refer to MRT for advice.
- Building sites must be free of hazard

Launceston (?)

- Class v – prohibit development
- May apply discretion for 3 and 4 - for some type of developments, this would include a geotech report
- Minimise the risk from hazard
- Prevent development in active landslide areas.
- Prevent the increase in risk to life and property
- Building envelope to be free of landslip
- Consider capacity of land

Meander Valley (1995)

- Consider landslip
- No increase in risk or landslide potential in areas of known / suspected landslip or on slopes greater than 25%.

Northern Midlands (1995)

- Consider landslip
- No increase in risk or landslide potential in areas of known / suspected landslip or on slopes greater than 25%.
- Consider land capability

West Tamar (2006)

- Do not cause or contribute to landslip
- Consider the risk of landslide in areas identified by MRT
- To protect human life and property by avoiding where practicable or lessening the adverse impacts of landslip.
- Assess risk in accordance with MRT

Glenmorgan Spring Bay (1994)

- No consideration of landslide

Brighton (2000)

- Development must minimise the need for engineered solutions to protect life and property

Clarence City (2007)

- Identification and mitigation of the risk from landslide

Derwent valley council (1993)

- Consider landslip
- Consider if land is subject to landslide
- Consider the capability of the land

Hobart city (1982)

- Risk from landslip is to be reduced to an acceptable level.
- Consider the capability of the land
- Consider land stability as part of a site development plan.
- Identify potential impacts

Battery Point (1979)

- Consider the capability of the land

Glenorchy (1992)

- Consider landslide as part of a site development on land with a slope greater than 1 in 4 or know to be potentially unstable.
- Council must be satisfied a development will not cause a landslip
- The development must not place an undue risk to the occupants, the public, or property.

Sullivans Cove (1997)

- Consider the capability of the land

Esperance planning scheme (1989)

- Risk from landslide is to be acceptable
- Consider landslip
- Consider the capability of the land
- Account if the development contributes to an increase in exposure to landslide
- Stormwater will not increase the risk from landslide.
- Development will not cause landslide
- Development is not affected by landslide

Huon Planning scheme (1979)

- Consider the capability of the land
- Council must be satisfied that the risk is acceptable
- Avoidance of land instability

Port Cygnet planning scheme (1988)

- Council must be satisfied that the risk is acceptable
- Consider if the land is affected by landslip
- Consider the capability of the land
- Rural B zone is to maintain soil stability on steep slopes.

Kingborough (2000)

- Development can occur on slopes greater than 1 in 5 if development will not be subject to landslip

Sorell Planning scheme (1993)

- Consider landslip as part of a development
- Account for landslide as part of a development where it applies
- Consider the capability of the land

Southern Midlands (1998)

- Clearance of vegetation will not cause a landslip
- Consider if the development is subject to landslide

Tasman Planning scheme (1979)

- In areas of soft rock over a slope of 25% councils should make reference to the MRT mapping
- Refer development to MRT if landslide is a potential

Central Highlands (1998)

- No consideration

4: Local government approach to landslide (current)

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- Requires an engineers certificate state the above.
- Consider the capacity
- Areas identified as

Central Coast (2005)

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- Development does
- Development must
- Triggered by land
- which includes MRT
- opinion of the planner

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Break O'Day (1996)

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- Demonstrate management in landslip
- A and b zones and some areas a 10% slope

Brighton (2000)

- Development must minimise the need for engineered solutions to protect life and property
- ## Clarence City (2007)
- Identification and mitigation of the risk from landslide

Key points:

- No consistency on when landslide should be considered
 - Landslip A and B areas
 - Slope (between 10 and 25 % slope)
 - Some susceptibility mapping (Tamar Valley)
 - Areas of doubtful stability
 - Opinion of the planner
 - Applicant required to demonstrate that the development is safe and within the capacity of the land
- No consistency on how the development should consider landslide.
 - What standard should it be constructed too – should it be their at all?
- Difficulty in measuring the quality of a landslide report outside of a referral to MRT, peer review, or council consultant
- Zoning may not consider landslide:
 - Lack of mapping
 - Lack of awareness of the problem.

4: Proposed Codes

Cradle Coast

Burnie
Central Coast
Circular Head
Devonport
Kentish
King Island
Latrobe
Waratah-Wynyard
West Coast

Proposed common hazard code in the regional planning project as an interim until the state wide code:

The Common Natural and Environmental Hazard Management Code (E8)

- Minimise unacceptable public and private risk
- Identify a tolerable level of risk
- Private risk is to be owned by the individual (not sure how this will be interpreted given the Clarence precedent)
- Application:
 - *shown on the planning scheme map; or*
 - *land identified in any Mineral Resources Tasmania Advisory Landslide Susceptibility or Hazard Map; or*
 - *if the characteristics or investigations of the site and surrounding area suggest that there is a potential for landslide movement; and*
 - *land within a Landslip A or B area proclaimed under Part 9A of the Mineral Resources Development Act 1995*
- *The level of likely risk from exposure to a natural or environmental hazard is tolerable for the type, scale, and density of use or development*

Northern

Break O'Day

Common landslide code (E3)

Dorset

Flinders island

- Common landslide code (E3)
- Considers landslip as part of controls on coastal hazards, utilities, flood prone areas, vegetation management, rural resources and agricultural zones, land stability, and environmental protection.

George Town

Glenmorgan Spring Bay

Launceston

- Common landslide code (E3)
- Avoid areas of land slide hazard when possible, or mitigate to acceptable levels (\$2.0)
- Prevent development on instable land (\$3.10)
- On land with a slope >15% the minimum lot size is 1000sqm. On lots less than 1000 sqm a geotechnical assessment is required. (\$10.4.4.3)
- Environmental zone is to provide for areas of significant likelihood of risk from a natural hazard (\$29.0).
- Coastal hazards consider landslide (E18.3)

Meander Valley

Common landslide code (E3)

- Consider the impact and minimise the consequences (E3.4.3)
- Considers landslip as part of controls on coastal hazards, utilities, flood prone areas, vegetation management, rural resources and agricultural zones, land stability, and environmental protection.

Northern Midlands

Common landslide code (E3)

West Tamar (2011)

- Common landslide code (E3)
- Considers landslip as part of controls on coastal hazards, utilities, flood prone areas, vegetation management, rural resources and agricultural zones, land stability, and environmental protection.

Common landslide code (E3)

- Development will not cause or have a cumulative effect to increase the risk of landslide (E3.0)
- Applies to all areas identified in the code overlay, or potentially affected by landslide. (E3.2)
- Avoid development in areas of landslide risk, A or B Zones, or take suitable measures to protect life and property by demonstrating (in a landslip management report) that the residual risk is low or very low as defined in the scheme (E3.5.1).
- Risk based approach (E3.5.2).
- Triggered by the MRT landslide susceptibility mapping.
- Development trigger risk ?

Southern

Brighton

Clarence City

Derwent valley council

Hobart City (2009)

- Includes Sullivans Cove, and Battery Point
- Minimise the risk from landslide (\$2.0)
- Avoid or minimise the risk to the people, property, environment when developing(\$17.0)
- triggered by a either a rock type and slope, or landslide A and B zones (\$17.0)
- Protect life and property by making the residual risk acceptable (\$17.4)
- Development can not affect the land stability of neighbouring parcels (\$13.4)

Glenorchy (2011)

- Plan to avoid, manage, or mitigate the impact of landslide on a development.
- Triggered by MRT landslide mapping and Landslide A and B zones

Huon Valley Planning scheme

- Includes the Esperance and Port Cygnet Schemes

Kingborough

Sorell Planning scheme

Southern Midlands

Tasman Planning scheme

Central Highlands

Key points:

- Zoning considers landslide where known
- North and Cradle Coast are proposing interim landslide/ hazard codes until Sate releases one.
- Risk based approach
- Risk is mitigation / tolerance is proportional to the proposed development

5 : Application of the hazard treatment approach to landslide.

Band	Workshop Statement on control level
Acceptable	<ul style="list-style-type: none"> • Development and use is not subject to landslide controls. • Development will be subject to normal building standards. • Emergency management will respond to any event.
Low	<p>The hazard should be treated primarily at the subdivision. General development controls could be used, as an example:</p> <ul style="list-style-type: none"> • Light weight construction, • No excavation below 1 metre, • Drainage design, or • Storm water is connected to the mains. <p>Should include 'acceptable' solutions that consider the form of the development, not if the development should occur.</p>
Medium	<ul style="list-style-type: none"> • Development areas in subdivisions should not be affected by a landslide. • A landslide risk assessment could be trigger, for most types of development. • Small use and development including extensions (not including swimming pool) should not be a planning issue. But would require some development assessment.
High	<ul style="list-style-type: none"> • Ideally, identified high landslide hazard areas should not be zoned for residential or industrial uses. • Discourage development. • Require a landslide risk assessment.

Option 3: includes the following landslide mapping features:

Option 3 – Proposed bands

Combination of option 1 and 2, known landslides, A and B Areas

Acceptable : defined by exclusion from the Low, Medium, and High hazard bands, or has been assessed by MRT regional (1:25000 scale) mapping as having very low to no susceptibility to landslides.

Low : areas with a slope greater than nine degrees, and has not been assessed by MRT regional landslide susceptibility mapping (Acceptable or Medium), and is not in the High band.

Medium has known landslide features, or is within an identified regional (1:25000 scale) landslide susceptibility zone, has a declared Landslip B area.

High : is within a declared Landslip A area, or a active landslide, or above 42 degrees slope.

Landslip A areas	Debris flow susceptibility Mountain source + run out >30 Q1
Landslip B areas	Debris flow susceptibility Mountain run out 30-26 Q2
Slope 25m and LiDAR 0-9 or 0- 12	Debris flow susceptibility Mountain run out 26-22 Q3
slope 25m and LiDAR 9-14 or 12-21	Debris flow susceptibility Mountain run out 22 - 12 Q4a
slope 25m and LiDAR 14-42 or 20 - 42	Debris flow susceptibility Mountain run out 12-5 Q4b
slope 25m and LiDAR > 42	Deep seated susceptibility
Rock fall susceptibility source + run out area 1	Landslides Activity known- multiple deep seated slides
Rock fall susceptibility run out area 2	Landslides Activity known
Shallow slide and flow susceptibility source high	Landslides Activity unknown
Shallow slide and flow susceptibility source moderate	
Shallow slide and flow susceptibility source low	