

TIME TO STOP BLAMING THE PLANNERS – HOW FLOODPLAIN MANAGERS CAN IMPROVE THE PLANNING PROCESS

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Introduction

Why prepare this paper

"In land use planning, attention to flood risk has been ad hoc".¹

This is a quotation from the Queensland Floods Commission of Inquiry (**QFCoI**). It is a valid criticism that needs to be addressed. While it may be instinctive to expect the 'fix' to come from planners our thesis is that the substantive responsibility sits with the flood risk management (**FRM**) profession.

The criticism followed events associated with a cyclone and floods that resulted in the tragic loss of 37 lives, the whole of Queensland being declared disaster affected and an overall damage cost in the order of \$15 billion². The catastrophic consequences of such natural hazards are not isolated to any one state or urban area. Indeed the Hawkesbury-Nepean floodplain within the western edge of the Sydney metropolitan region has been identified as potentially the largest risk exposure in the nation with a repeat of the flood of record capable of requiring the evacuation of around 60,000 persons and imposing tangible costs alone in the order of \$3 billion.³

Town planning should be capable of understanding and responding to flood risk. To do this town planners ('planners') must be appropriately informed and operating in a planning system that allows this to occur. In this paper we explore current NSW and Queensland practice and make recommendations to address the above criticism.

The 2007 paper

In 2007 we presented a paper⁴ which examined NSW practice and concluded that planners had a poor understanding of the principles of FRM and worked within a planning framework indifferent to such principles. We suggested a number of remedies including guidelines to assist planners to better translate FRM strategies into strategic and statutory planning documents.

A lot has happened in six years but anecdotally those involved in FRM continually express the view that 'planners just don't get it.' Our view is that this is because planners are not provided with consistent and relevant guidance from the experts within the FRM profession i.e. floodplain managers.

What we seek to achieve with this paper

The objective of the paper is to determine whether the FRM profession should accept responsibility for sub-optimal engagement of the planning system and to outline how to rectify this.

We examine whether planners remain in need of the guidance identified as necessary in 2007. If this is the case, why, and what can be done to remedy this and by whom?

Indeed it has been our belief for some time that planners 'don't get it' because much of what floodplain managers communicate to planners is inconsistent, irrelevant and overly complex. In our view, planners still do not have the basic guidance needed to contribute to FRM such as how to map flood risks, how to apply a risk management approach or how to communicate flood risk.

Methodology for this paper

We resurveyed planners to determine their current level of understanding and guidance required. In the 2007 paper we surveyed only NSW planners while for this paper we extended the survey to include Queensland planners.

The 2001 Census identified 5400 planners in Australia. The majority of planners (50%) worked in local government, 30% worked in the private sector, 22% in state and territory governments and the remaining 2% in the Commonwealth. In 2001, NSW had the greatest number of planners (35%), followed by Victoria (24%) and then Queensland (19%).⁵ It was projected that the numbers of planners could increase by 28% over the following five to 10 years⁶. Assuming growth as predicted occurred and then levelled off, the current number of planners in NSW and Queensland would be in the order of 2,500 and 1,500 respectively.

A survey questionnaire was made available by email link to a cross section of town planners employed in local and state government and the private sector in NSW and Queensland. Notification of the survey was based on a register compiled from professional contacts in NSW, direct email to all local councils and relevant Government departments in Queensland and a notice within a Planning Institute of Australia newsletter.

A total of 202 responses were received to the survey, 150 from NSW and 52 from Queensland planners. This represents about 6%⁷ of NSW and 3.5% of Queensland planners. Overall, 21%, 58% and 21% were employed in state government, local government, and in private sector and other fields, respectively. The responses were from town planners with a range of years of experience: 4% currently attaining qualifications; 15% up to 5 years; 56% with 5 to 20 years and 25% with greater than 20 years experience, since graduation. The responses provide a generally representative cross section of the town planning profession in both states.

We examined trends using the 2007 survey and supplemented these findings with our more recent experience with the QFCol and projects in NSW.^{8 9}

What can Town Planning contribute to FRM?

To test the thesis of this paper we must first identify the role town planning can have and the FRM policy framework within which planners operate.

The role of planners within the FRM process will vary dependent on their employment sector and the type of work being undertaken. However, the following are what we consider to be the three principal FRM areas for planners' involvement:

Strategic Planning: *Directing strategic planning of new areas or the redevelopment of areas so that people and property are not exposed to unacceptable flood risks;*

Development and Building Controls: *Where development is permitted in locations where flood risk remains, ensuring that planning and building controls are applied so as to contain risk to acceptable levels;*

Communication of Flood Risk: *Ensuring that planning policies, controls and associated documentation communicates flood risk responsibly so the community can make informed decisions (where discretion exists) and to complement emergency management education and preparedness programs.¹⁰*

The planning policy framework for FRM¹¹

General

An appropriate planning response in each of the above key areas should be deduced from a broader floodplain risk management plan informed by a comprehensive floodplain risk management study. "A floodplain risk management study extends beyond a flood study that focuses on modelling flood behaviour, to address the economic, social and environmental consequences of both existing and possible future flood risks, in recognition that a balance between the use of land and minimising flood risks to property and persons needs to be achieved".¹² This reflects the FRM process of the *Floodplain Development Manual*¹³ (**NSW Manual**) and the *Floodplain Management Australia – Best Practice Principles and Guidelines*¹⁴ (**SCARM Guidelines**) mandated by NSW and Queensland state flood policies, respectively.

Nevertheless following this process is complex, costly and time consuming, and we have previously advocated changes to better engage planners¹⁵.

Queensland

State Planning Policy 1/03 Mitigating the Adverse Impacts of Flood, Bushfire and Landslide (SPP1/03) was adopted on 19 May 2003 under the previous Integrated Planning Act 1997 but remains applicable under the current *Queensland Sustainable Planning Act 2009*. SPP 1/03 refers to the *SPP 1/03 Guideline: Mitigating the Adverse Impacts of Flood, Bushfire and Landslide* (the **SPP Guideline**) as providing the detail on how to implement the Policy.

SPP 1/03¹⁶ provides the following:

The Queensland Government's position is that, generally, the appropriate flood event for determining a natural hazard management area (flood) is the 1% Annual Exceedance Probability (AEP) flood. However, it may be appropriate to adopt a different DFE [defined flood event] depending on the circumstances of individual localities. This is a matter that should be reviewed when preparing or undertaking relevant amendments to a planning scheme.¹⁷

A process is recommended for identifying natural hazard management areas in a Planning Scheme as a map overlay that triggers the application of planning controls.

Since the 2010–2011 floods, the above SPP 1/03 and Guideline have been supplemented by an extensive mapping program and supplementary interim measures prepared by the Queensland Reconstruction Authority.

New South Wales

In 2005, the current NSW Manual replaced both the 2001 and 1986 Manuals. The Manual is referred to in Section 733 of the Local Government Act 2003, which provides indemnity for councils.

Each version of the Manual accompanied an alternate NSW Flood Policy which consistently promoted:

...a merit based approach to selection of appropriate flood planning levels (FPLs). This recognises the need to consider the full range of flood sizes, up to and including the probable maximum flood (PMF) and the corresponding risks associated with each flood, whilst noting that with few exceptions, it is neither feasible nor socially or economically justifiable to adopt the PMF as the basis for FPLs. FPLs for typical residential development would generally be based around the 1% AEP flood event plus an appropriate freeboard (typically 0.5m).¹⁸

Consistent with the principles of the merits based approach, the 1984 Flood Policy specifically noted “*deletion of the 1 in 100 definition of flood prone land and a cessation to floodplain mapping*¹⁹.”

In 2007 a new Guideline for development control on floodplains²⁰ was introduced that relates to a package of directions and changes to the Environmental Planning and Assessment Act, Regulation and Floodplain Development Manual. The Guideline confirms that unless there are “*exceptional circumstances*”, Councils are to adopt the 100 year flood as the flood planning level (**FPL**) for residential development, with the exception of some sensitive forms of residential development such as seniors living housing.

As noted above, the Manual outlines a FRM process that culminates in the adoption of a Floodplain Risk Management Plan. This FRM process operates in parallel to the planning process – ultimately the planning recommendations of the FRM process must be implemented through the planning process²¹. We maintain the view that the commonality between these processes is a factor that creates unnecessary complexity and the assumed ‘ownership’ of the separated FRM process by the engineering profession disengages planners.

The planning process in NSW is currently substantially underpinned by the preparation of Local Environmental Plans (**LEPs**) in a *Standard Instrument* format. No State Environmental Planning Policy provides any specific direction for FRM. The Standard LEP does not contain a mandatory flood clause but a local provision is typically promoted and applied in a manner that perfunctorily adopts a 100 year flood FPL for all land uses and for all FRM development considerations. Councils have limited flexibility in the adoption of more detailed development control plans (**DCPs**) due to the 2007 Guideline.

Some overall observations

The following are our observations of the NSW and Queensland FRM and planning processes, some of which may frustrate the effective engagement of planners:

- The frameworks within both states purport to support adoption of flood risk management plans that should in effect be consistent with *AS/NZS ISO 31000:2009 Risk management - Principles and Guidelines*.
- Local Government is principally responsible for the FRM process in both states, but only in NSW is this accompanied by indemnity against legal action.
- The FRM process has been NSW policy since 1984/86 but only policy in Queensland since 2003.
- The FRM process forms part of the planning system in Queensland, being incorporated within a State Planning Policy and required to be addressed prior to the making of any new Planning Scheme. In NSW the FRM process sits separate to the planning system.
- Both NSW and Queensland direct the adoption of a singular 100 year flood standard (normally plus freeboard) unless an alternate standard is shown to be appropriate. This direction applies to most residential development in NSW and all development in Queensland. Whilst this typically relates to a floor level there is no guidance to this effect or on other development parameters such as car parking and emergency management.
- LEPs in NSW typically adopt the 100 year standard as a FPL for all land uses and all development considerations. New DCPs typically provide a range of FPLs for different land uses and different development considerations but controls on standard residential development commonly adopt the 100 year standard.
- Planning Schemes in Queensland have more recently adopted a singular DFE but this may include variable flood frequencies such as the highest recorded flood. Planning schemes may also provide a range of subordinate Codes and associated documents that may impose variable flood related standards on different land uses and different development considerations²².

While the above is a simplified explanation of the FRM and planning processes within which planners are expected to operate – it undeniably presents as complex.

The following sections of the paper examine planners' appreciation of these processes.

How well do Town Planners understand and apply FRM?

FRM education

The extent of FRM education obtained or being obtained by respondents is depicted in Figures 1 to 3.

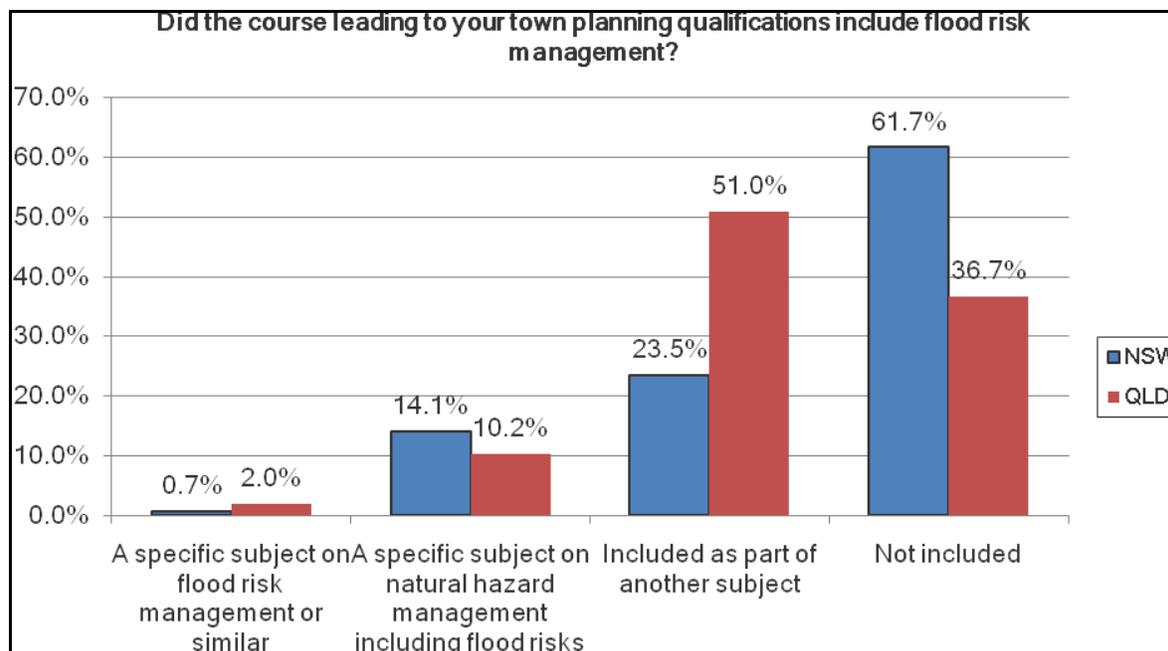


Figure 1: FRM as part of Planning Education (Queensland & NSW)

The majority of NSW planners (62%) received no FRM education as part of their planning course. In Queensland about the same (63%) received some sort of flood education, albeit mostly as part of another subject (51%).

We surmise that as FRM is included, together with other natural hazards, within the Queensland planning policy framework it is more likely to be addressed in planning courses. The detachment of the NSW Flood Policy and FRM process from the planning process is, in our view, reinforcement that traditionally FRM is not a relevant area of education for planners.

Conversely, a small proportion (about 3%) of NSW planners have or are undertaking post graduate FRM studies. This is likely to be due to both the increasing recognition of flooding as an issue for planners as a consequence of recent large floods and the commencement of FRM short course in 2010²³.

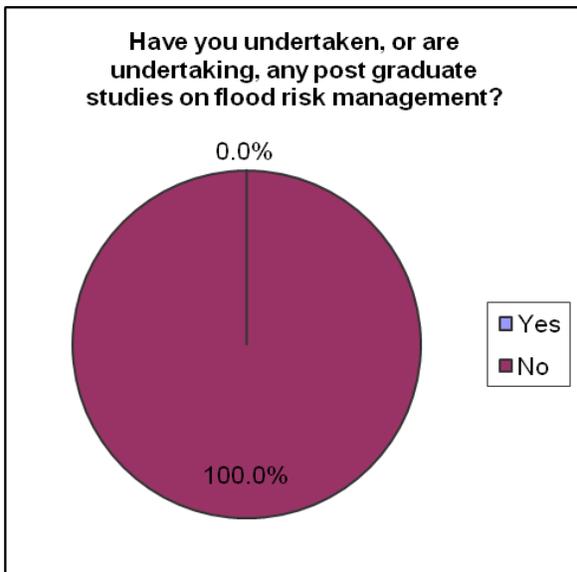


Figure 2: Current FRM Education (Queensland)

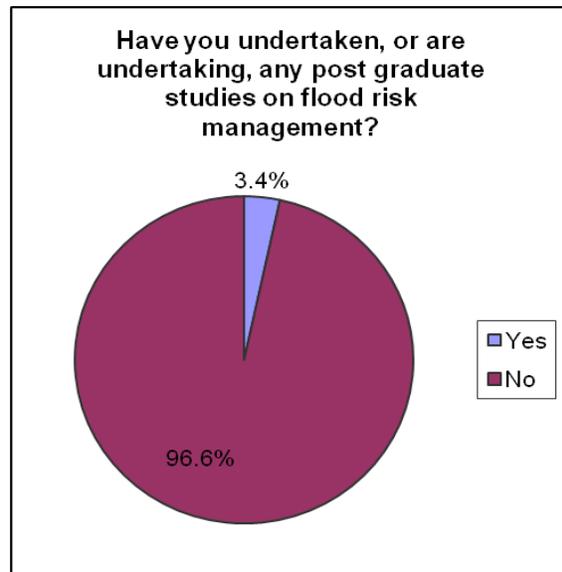


Figure 3: Current FRM Education (NSW)

Knowledge of policies and guidelines

The level of understanding of key FRM policy and associated guidelines was probed in three questions, the results of which are summarised in Figures 4, 5 and 6.

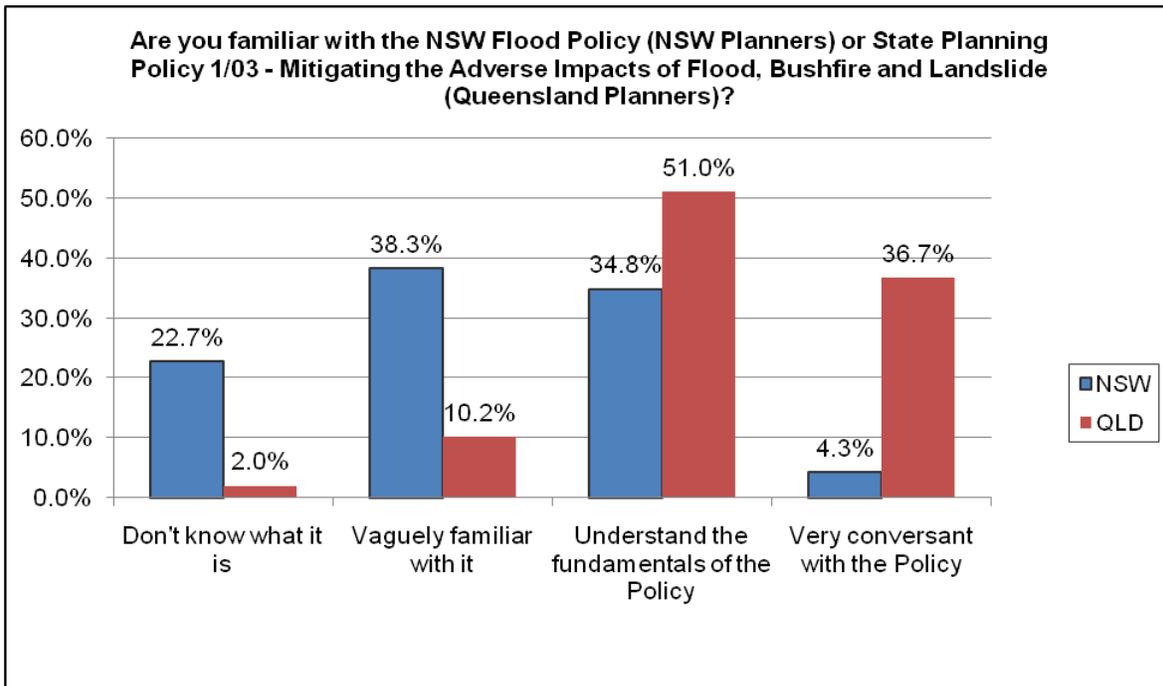


Figure 4: FRM Policy Knowledge (Queensland & NSW)

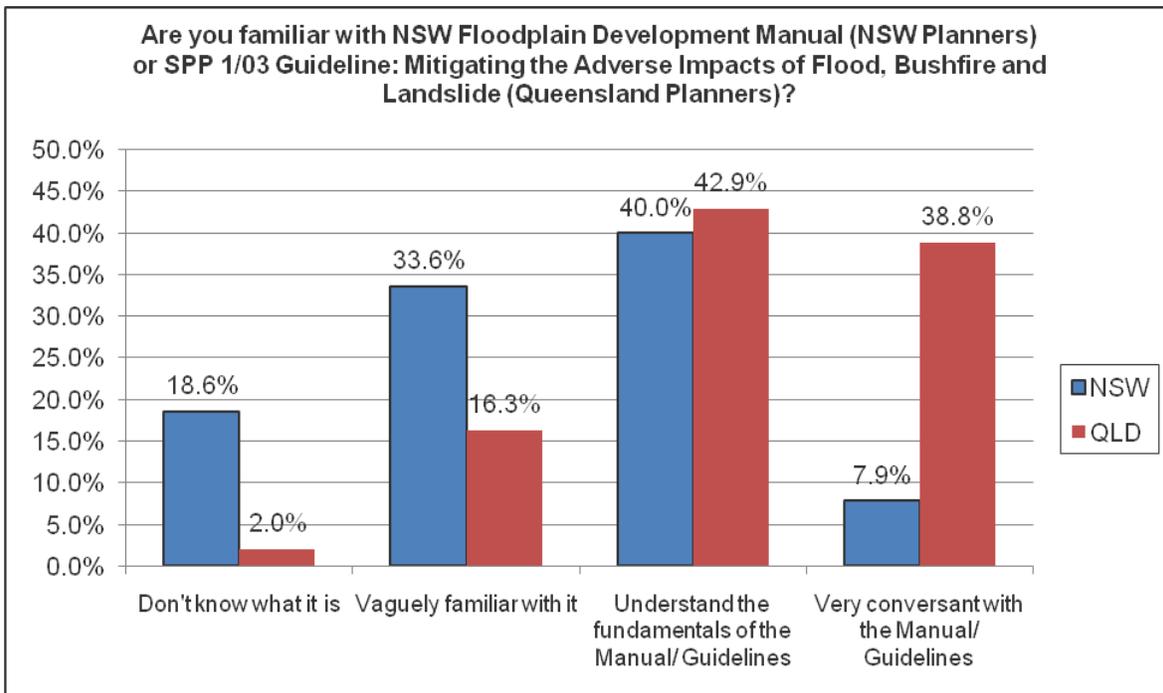


Figure 5: FRM Manual/Guidelines Knowledge (Queensland & NSW)

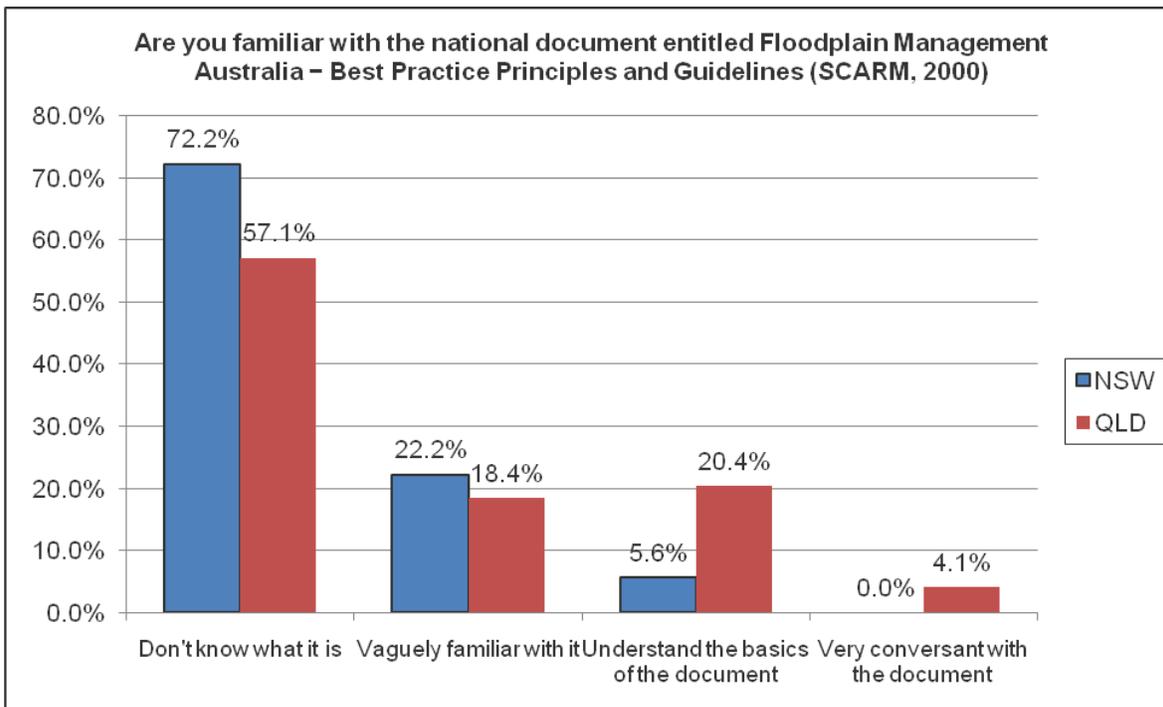


Figure 6: SCARM Knowledge (Queensland & NSW)

The majority of Queensland planners (89%) stated that they either understood the basics or were very conversant with their relevant state policy on FRM while this was much less for NSW planners (39%). The result for this question put to NSW planners in the 2007 survey was similar (42%).

Consistently the majority of Queensland planners (82%) stated that they either understood the basics or were very conversant with SP1/03 Guideline of their relevant state policy on FRM while this was again much less for NSW planners in regard to the Floodplain Development Manual (48%).

Again we surmise that this significant difference is a consequence of the Queensland FRM Policy being directly incorporated within planning policy.

Notwithstanding, the level of understanding of FRM policy and guidelines indicated by Queensland planners we question whether this understanding is relatively superficial. Fundamental to SP1/03 is its adoption the of the FRM process within SCARM. Only 25% of Queensland planners understood the basics or were conversant with this document. Our experience in the QFCoI indicated a poor understanding of the processes of preparing FRM plans espoused in SCARM, compared with flood studies. One of the largest Queensland councils, Brisbane City Council, had initiated this process in accordance with a recommendation of the 2011 Joint Flood Task Force but it was yet to be undertaken²⁴.

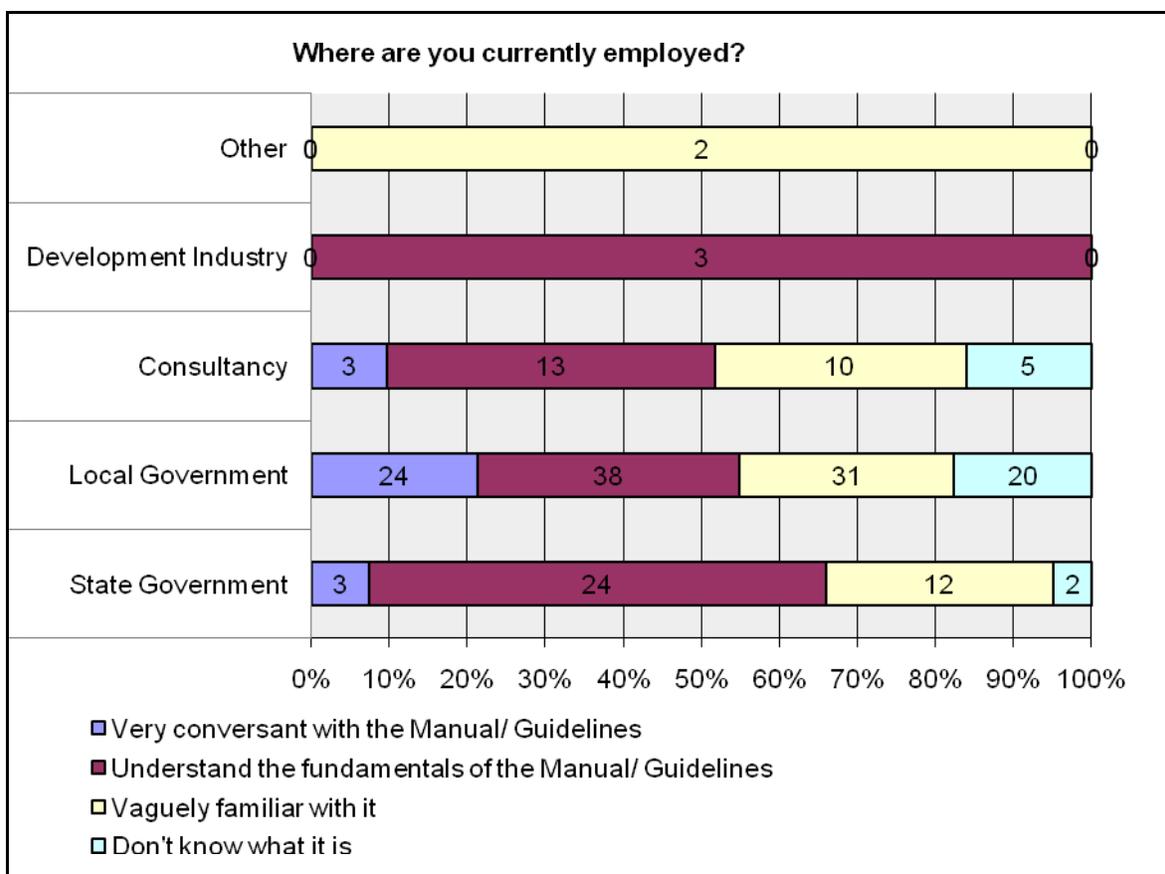


Figure 7: Knowledge of Manual/Guidelines by Employment (Queensland & NSW)

The survey explored the understanding of each state's 'flood standard' (Table 1). We thought this would be an indicator of clarity in regard to policy and Manual/Guidelines. The most striking conclusion was the range of responses to what should be fundamental to FRM policy and almost unanimous. The most common answer was the 100 year flood, followed by the PMF in NSW and flood of record in Queensland.

Table 1: Knowledge of Flood Standard (Queensland & NSW)

What do you understand is the flood standard in your state? (More than one response may be chosen).				
Answer Options	QLD Response Percent	NSW Response Percent	Total Response Percent	Total Response Count
No specific standard - determined on merit	6.4%	6.1%	6.1%	11
The largest recorded historical flood	19.1%	2.3%	6.6%	12
100 year flood	78.7%	81.1%	80.7%	146
200 year flood	4.3%	1.5%	2.2%	4
Probable maximum flood (PMF)	19.1%	38.6%	34.3%	62
Don't know	4.3%	3.0%	3.3%	6
Other (please specify)	27.7%	12.1%	16.0%	29
			answered question	181
			skipped question	23

We further interrogated understanding of FRM processes by cross tabulating knowledge of the relevant state Manual/Guidelines with knowledge of the flood standard (**Figure 8**). In doing this we recognised that whilst multiple flood standards should be outcomes of the FRM process²⁵ the process often defaults to the 100 year flood (plus freeboard) in NSW and the 100 year flood in Queensland. Nevertheless legal advice to the FMA²⁶ indicates NSW councils are obligated to determine the need for higher flood standards and apply for "exceptional circumstances" if required.

After examining open ended responses specified against the "other" answer, we conclude that less than 5% of planners understand how the flood standard is determined, despite many stating they understood the basics or were conversant with their state policy or Manual/Guidelines. The 2007 Survey found that only 12% of NSW planners then understood the flood standard was merit-based, (but this has since been complicated by the 2007 Planning Guideline).

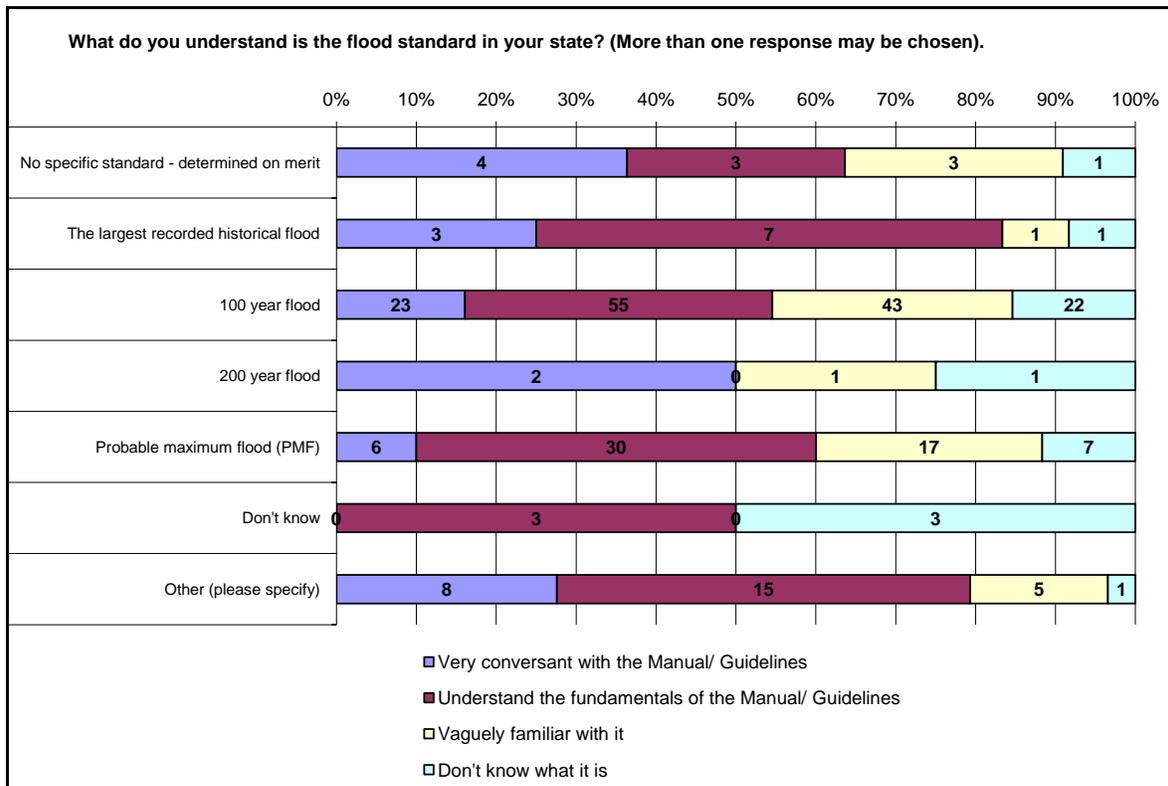


Figure 8: Knowledge of Flood Standard (Queensland & NSW)

Adequacy of policies and guidelines

About half of the respondents considered that their relevant state FRM Policy and Manual/Guidelines did provide practical guidance to applying a risk management approach to either strategic planning or development assessment tasks while the other half did not know or considered these documents did not do this (Figure 9).

Given the results depicted above (Figure 8) we question whether these documents have actually provided the level of guidance reported by respondents or whether this is moreover a reflection of what guidance the respondents anticipated the documents would provide.

The need for guidance is reflected in the responses to the question on the difficulty of resolving FRM issues in comparison to other planning issues (Figures 10 and 11). A consistently high proportion of planners in both states (about 40%) considered FRM issues more difficult to resolve than other issues. This is considered alarmingly high after considering that 45% thought FRM and other issues were of equal difficulty and the recent effort directed towards assisting planners to deal with FRM issues in the wake of a number of flood related disasters.

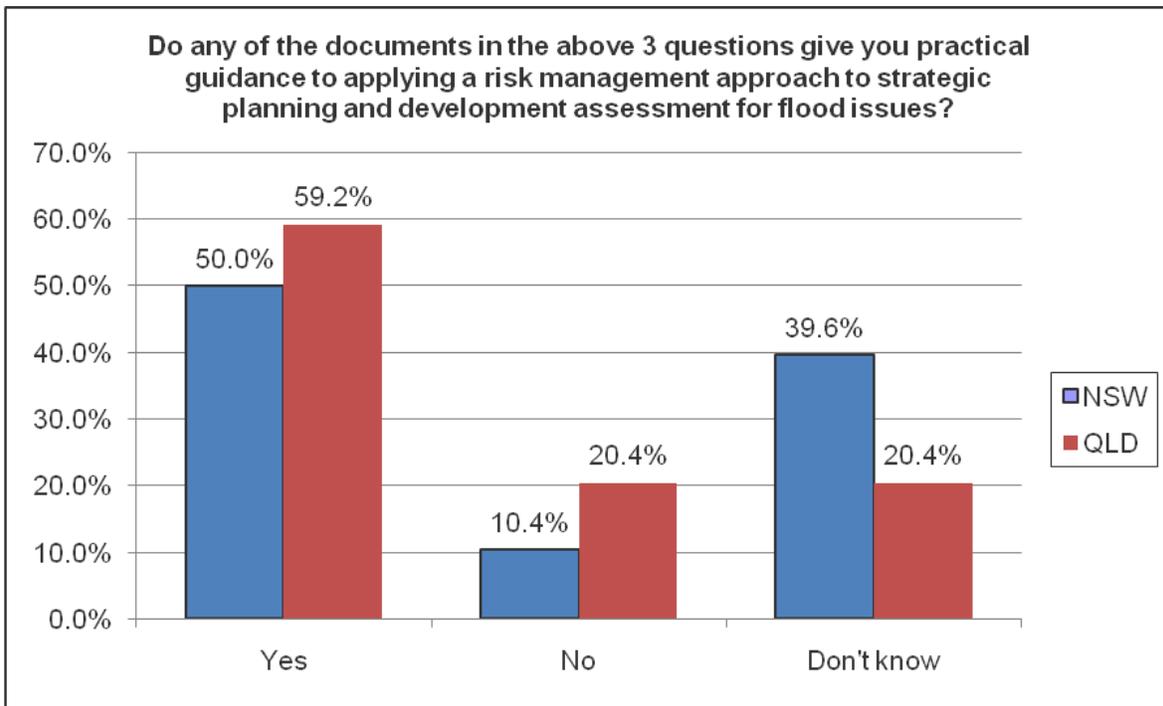


Figure 9: Adquacy of Policies & Guidelines (Queensland & NSW)

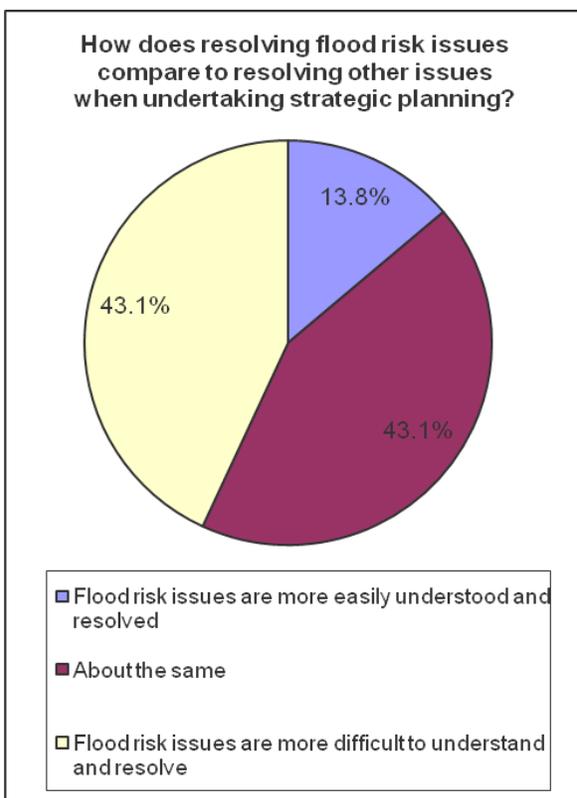


Figure 10: FRM & Strategic Planning (NSW & QLD)

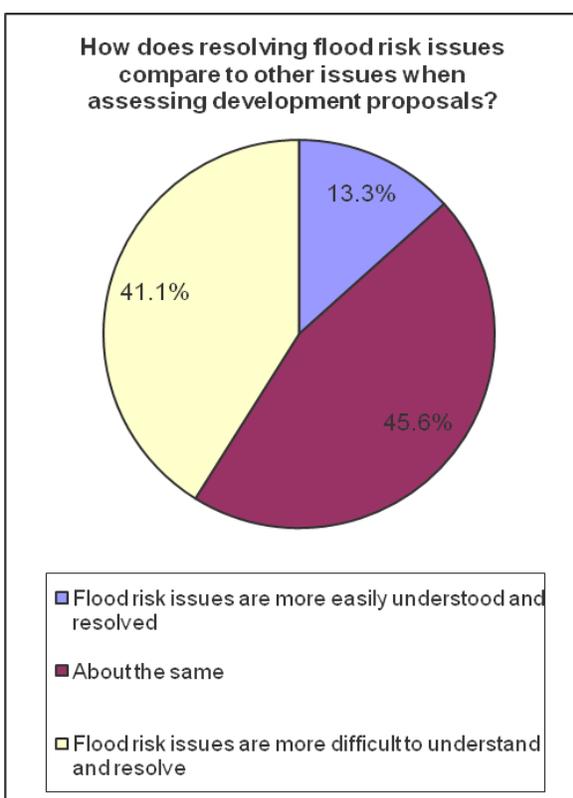


Figure 11: FRM & Development Assessment (NSW & QLD)

Perceived role of Town Planners

The majority of respondents in both states recognised that planners had a role to protect property and the personal safety of people but with limitations (**Table 2**). About a third to a half of respondents considered flood risk protection of property and personal safety should extend to the probable maximum flood (PMF) respectively. Minimal variation was observed between the states.

The majority of planners (93%) considered that engineers, planners and other disciplines are collectively responsible for FRM. This response varied marginally between Queensland (98%) and NSW (91%).

Table 2: Extent of Application of FRM Controls (Queensland & NSW)

Should flood risk mitigation measures be limited to (more than one response may be chosen) :				
Answer Options	QLD Response Percent	NSW Response Percent	Total Response Percent	Total Response Count
Protecting property within a high hazard/ floodway area	59.6%	52.6%	54.9%	100
Ensuring personal safety within a high hazard/ floodway area	63.8%	66.2%	65.9%	120
Protecting property within the extent of the 100 year flood	63.8%	66.2%	65.9%	120
Ensuring personal safety within the extent of the 100 year flood	66.0%	75.2%	73.1%	133
Protecting property within the extent of the probable maximum flood (PMF)	34.0%	30.1%	31.3%	57
Ensuring personal safety within the extent of the probable maximum flood (PMF)	44.7%	54.9%	52.7%	96
None of the above	6.4%	1.5%	2.7%	5
Don't know	4.3%	3.8%	3.8%	7
			answered question	182
			skipped question	22

The majority (about two thirds) of planners considered that “*the relevant authority should proactively inform the community of all known flood risks whether they ask or not*” (**Table 3**). A relatively high proportion of planners in Queensland (36%) considered that “*notifications should be limited to risks up to the 100 year flood extent*” compared to NSW planners (15%).

Table 3: Notification of FRM Controls (Queensland & NSW)

Should the general public be notified of flood risks? (More than one response may be chosen).				
Answer Options	QLD Response Percent	NSW Response Percent	Total Response Percent	Total Response Count
Never	0.0%	0.0%	0.0%	0
Only if they make a formal enquiry	10.6%	3.0%	5.0%	9
The relevant authority should proactively inform the community of all known flood risks whether they ask or not	68.1%	61.4%	63.5%	115
Notifications should be limited to risks up to the 100 year flood extent	14.9%	36.4%	30.9%	56
Notifications should be limited to risks up to the probable maximum flood (PMF) extent	14.9%	19.7%	18.8%	34
Notifications should be limited to notifying where flood related development controls apply	14.9%	27.3%	23.8%	43
Don't know	4.3%	3.0%	3.3%	6
answered question				181
skipped question				23

Issues raised

Comments were provided by 89 respondents in response to an open ended question “on the ease of obtaining guidance from technical documents or specialists reports to implement a risk management approach to planning in floodplains and how the system might be improved?” The comments were mostly detailed criticisms of existing policies and processes with suggested remedies. The dominate themes, in order of frequency, are summarised as follows:

- Existing technical advisory documents are difficult to understand, complex, not tailored to planners, jargonistic and ultimately reliant on engineering advice.
- Flood policies are difficult to understand and are sometimes contradictory.
- Devolving of FRM responsibility to local government has resulted in fragmented and inconsistent outcomes and a reluctance to identify and manage flood risks due to parochial politics.
- The FRM process is complicated, costly and time consuming.
- Flood impact assessments can selectively reference existing policies and guidelines resulting in different approaches to FRM. “They provide little guidance on risk management.”
- An objective and rigorous understanding of flood risks is required, as opposed to media and politically driven responses after catastrophic floods

In our experience, the above issues are typical of those raised by planners who participate in FRM projects.

Solutions offered

Solutions were not proffered for all issues raised by respondents. “*Not that easy*” is a quote that pertinently sums up the underlying vibe. Nonetheless, a summary of the prevailing suggestions follow:

- Prepare a technical advisory document tailored to town planners. The document must provide clear guidance on issues relevant to planning such as shelter in place, evacuation criteria and types of flood sensitive uses.
- “*The use of legible and simple maps are [sic] the best way to communicate flood information simply to the public and also for planners*”. Flood maps should be widely distributed, accurate, catchment based, and publically available.
- Promote FRM within the planning profession as a field in which planners can make a positive contribution, as opposed to being solely the domain of engineers.
- Foster greater acceptance of FRM mapping and the application of FRM controls with community education.
- Provide professional education of planners in FRM in association with the Planning Institute of Australia.
- Ensure flood impact assessments provide clear guidance on appropriate planning outcomes.

While our experience over the last 20 years corroborates that obtaining agreement and implementing planning solutions for FRM issues is not easy – it should be. Flooding is widely known as the hazard that leads to the highest economic costs in Australia and yet remains the most manageable of all natural disasters²⁷.

Conclusion and Summary of Findings

In spite of the attention given to improving the understanding of FRM amongst planners since 2007 we conclude that the majority of planners continue to have a poor understanding of relevant FRM policy and guidelines. This is despite the recognition by the majority of planners that they, together with engineers and other disciplines, are collectively responsible for FRM.

What can be done to improve the capabilities of Town Planners in FRM?

In our 2007 paper we outlined the implications of planners remaining disengaged from the FRM process and proffered that the most successful means to engage planners was likely to be multi-faceted. We consider these previous conclusions remain valid.

Our suggestions in 2007 to increase the understanding and involvement of town planners with FRM were discussed under the following headings:

- Education system
- Legislative changes
- Guidelines directed at planners
- Involvement in continuing professional education
- Preparation of floodplain risk management strategies

- Audits of existing flood information dissemination systems.

Some of these suggestions have eventuated (such as the FRM course now run in Sydney) while in other respects there have been setbacks (such as the introduction of the 2007 Planning Guideline in NSW). However, to some extent all these avenues remain valid. We have simplified our renewed suggestions to three categories: policy; guidelines and education.

Recommendation 1: – Policy Structure

- Persist with the FRM process of preparing floodplain risk management studies and plans but seek to simplify the process and promote the tailoring of the process to suit the severity of the risk and the availability of resources.
- In Queensland, promote the adoption of statutory provisions to provide indemnity against legal action similar to that available in NSW²⁸.
- In NSW, include requirements within statutory state planning provisions to undertake the FRM process (unless minor or irrelevant) prior to preparing new LEPs (similar to Queensland). This would redress the duality of the FRM and planning ‘parallel’ processes, make planners ‘own’ FRM, and require FRM be properly considered at the initial plan making stage²⁹.
- Disband mandating that FRM considerations in planning be limited to land located within the extent of a singular flood (typically the 100 year flood). This perpetuates a traditional and outdated FRM approach³⁰ and conflicts with adopting a risk management approach which inevitably results in variable standards being applied to different land uses and different development considerations. In our view, this could be the single most effective means of focusing planners on best practice FRM, remove obstructive inconsistencies between layers of planning controls (such as standard instrument LEPs and best practice FRM DCPs in NSW) and allow planning policies to better communicate actual flood risks.

We reject the notion that this would result in unreasonable restrictions on development. More detailed controls in the Queensland capital (Brisbane City) already provides a range of standards for different land uses and development considerations³¹ as do DCP controls of many local government areas in NSW. For example while the 100 year flood (plus freeboard) may continue to be considered an appropriate floor level standard for standard residential development in most cases, it is simply that, and can be excessive for less sensitive land uses and insufficient for emergency management. We strongly submit that the DFE and FPL are obsolete and unhelpful concepts.

Recommendation 2: – Guidelines

- Prepare a national FRM guideline for planners that is succinct, written in a language targeted to planners and provides unequivocal direction. Documents such as the NSW Floodplain Development Manual, Hawkesbury Nepean Guidelines and SCARM 2000 document³² may all be useful resources but are not focused on providing guidance on planning outcomes and provide too many alternative approaches to be applied at the planning end. As determined above, planners do not have the training (or motivation) to decipher such documents to

decide on the best approach for each area of a planning project. This is clearly a responsibility for FRM professionals – the failure to have done this to date cannot be blamed on planners.

- The guidelines need to provide planners with basic and nationally consistent tools, including:
 - how to read flood data for planning purposes;
 - how to undertake flood risk mapping;
 - the extent of the floodplain to consider in the application of FRM planning controls;
 - advice on the relative flood sensitivity of different land uses;
 - typical FRM development controls (such as floor level controls, structural soundness, flood compatible building, assessing flood effects on others, car parking and driveway access, evacuation or on site refuge requirements; and environmental management considerations such as pollution risks);
 - what to do when no flood data or policies exist; and
 - what FRM information to notify the public of and by what means.

The fact that such basic matters are not agreed on by the FRM profession in a manner that provides unequivocal guidance to planners is a failing of the FRM profession – not the planning profession.

- The guidelines should be given force in statute.

Recommendation 3: – Education

- Continue to nationally employ initiatives such as the FRM course recently established in Sydney.
- Once guidelines such as those recommended above are produced, these should be promoted throughout the planning profession as best practice, and accompanied by training courses. This is a proven approach that was successfully employed in the introduction of the NSW Bushfire Hazard Guidelines³³.

We hope that the next time the understanding and involvement of town planners with FRM is surveyed, substantial improvements will be recorded. However, we consider that a lack of improvement since 2007 should be mostly seen as a failure of the FRM profession in providing the necessary leadership and guidance in the formation of government policy and consistent and efficacious guidelines for planners.

The ‘fix’ of the criticism that “*in land use planning, attention to flood risk has been ad hoc*” is not one that can be achieved by planners without appropriate assistance from the FRM profession.

References and End Notes

¹ Queensland Floods Commission of Inquiry (**QFCoI**), 2012. *Final Report*. Prepared for the State Government of Queensland. p31.

² Queensland Government, September 2011. Resources for Reconstruction, Discussion Paper No.1. p7.

³ Infrastructure NSW, 2012, *The State Infrastructure Strategy 2012 – 2032*. Prepared for the NSW Government. p161. Note: the flood of record occurred in 1867 and is currently estimated to have a return frequency equivalent to about a 200 year flood.

⁴ Grech P and Bewsher D, 2007, *Getting Planners On-Board — The Key To Successful Floodplain Management. (2007 Paper)* Paper presented at 47th Annual Floodplain Management Authorities of NSW Conference, Gunnedah NSW.

⁵ Planning Institute of Australia (**PIA**), 2004. Findings and Recommendations of the National Inquiry Into Planning Education And Employment.

⁶ PIA 2004, p23.

⁷ The proportion of NSW planners responding to the 2007 Survey were estimated at 5%.

⁸ Grech P, October 2011. *Report to Queensland Floods Commission of Inquiry Addressing Town Planning Issues*. Prepared for The Queensland Floods Commission of Inquiry.

⁹ Bewsher D, 9 November 2011. Queensland Floods Commission of Inquiry Advice on Flood Risk Management For Land Use Planning within Floodplains. Prepared for Brisbane City Council.

¹⁰ Grech P, October 2011, p12.

¹¹ The description of the NSW and Qld FRM and planning systems is limited to provide only the basic context to understand the survey results and is not intended to be exhaustive overview.

¹² Grech P, October 2011, p12.

¹³ NSW Government, December 1986, *Floodplain Development Manual* (reference PWD86010, ISBN724030115).

¹⁴ Standing Committee on Agriculture and Resource Management (**SCARM**), Agriculture and Resource Council of Australia and New Zealand, 2000, *Floodplain Management Australia – Best Practice Principles and Guidelines*.

¹⁵ Bewsher D and Grech P, presentation of the *Parallel Planning and FRM Processes* at the 47th Annual Floodplain Management Authorities of NSW Conference 27 February–2 March 2007. Gunnedah, NSW.

¹⁶ Clause A3.2 of Annex 3.

¹⁷ The provision continues with the direction - Local Governments proposing to adopt a lower DFE in their planning scheme to determine a natural hazard management area (flood) for a particular locality will be expected to demonstrate to the satisfaction of the Department of Emergency Services (DES) and the Department of Natural Resources and Mines (NR&M) that the proposed DFE is appropriate to the circumstances of the locality.

¹⁸ Department of Infrastructure Planning and Natural Resources (DIPNR), 2005. *Floodplain Development Manual*. NSW State Government, Sydney. p18.

¹⁹ NSW Government, 1986. *Floodplain Development Manual*. NSW Government, Sydney. p16.

²⁰ An overview of the new Guideline and associated changes to the EPA Act and Regulation was issued by the Department of Planning in a Circular dated January 31, 2007 (Reference PS 07-003).

²¹ Grech P and Bewsher D, 2007. p4 and presentation to the 47th Annual Floodplain Management Authorities of NSW Conference

²² Grech P, October 2011, pp32-41, concludes this after examining the Brisbane City Council flood related controls as a case study.

²³ The FRM Course is a collaborative effort of the Floodplain Management Association, University of Technology (Sydney) and the NSW Department of Environment and Heritage.

²⁴ Grech P, October 2011, p17.

²⁵ The adoption of a range of flood standards that reflect the sensitivity of different land uses to the flood hazard is considered to be consistent with FRM policy in both NSW and Qld and be fundamental to the implementation of a risk management approach to FRM. This was discussed by Grech (October 2011), Bewsher and Grech (2007) and outlined in the Hawkesbury Nepean Guidelines (HNFMSC 2006).

Bewsher D & Grech P, May 1997, A New Approach to the Development of Floodplain *Controls for Floodplains*, paper presented to the 37th Annual Floodplain Management Conference, Maitland.

Hawkesbury-Nepean Floodplain Management Steering Committee (HNFMSC), June 2006, Managing Flood Risk Through Planning Opportunities – Guidance on Land Use Planning in Flood Prone Areas.

²⁶ Letter dated 23 February 2007 from the Marsdens Law Group to the NSW Flood Mitigation Authorities.

²⁷ SCARM 2000, p5.

²⁸ The COI (2012, p130) noted that the Queensland Government will investigate this option.

²⁹ This would be consistent with of the future review of the NSW planning legislation discussed within the Green Paper on planning reform in NSW, *A New System for Planning for NSW*, published by the NSW Government in 2012 and with the reported thrust of the soon to be released White Paper.

³⁰ The traditional versus new approach to FRM is discussed in Bewsher, D & P Grech, May 1997.

³¹ Bewsher D & Grech P, May 1997, pp 32-41.

³² It is understood that the Consultation Draft of *Managing the Floodplain: A Guide to Best Practice in Flood Risk Management in Australia* circulated for comment on 2012 would ultimately replace the SCARM 2000 document. PIA provided a detailed submission on the Draft and concluded that it would not satisfy the need of planners for guidance on how to address FRM issues in planning.

³³ NSW Rural Fire Service (RFS) and Planning NSW, 2001. *Planning for Bushfire Protection*. NSW Government, Sydney. [An updated version of this document is now published].