

# Level of preparedness of the residential building industry in Australia to climate change adaptation: A case of residential building companies in Brisbane, Queensland

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## Introduction

The consequences of climate change are profound for the residential building industry and, unless appropriate adaptation strategies are implemented, will increase exponentially.

The consequences of climate change, such as increased repair costs, can be reduced if buildings are designed and built to be adaptive to climate change risks.

This research investigates the preparedness of the Australian residential building sector to adapt to such risks, with a view to informing the next review of the National Construction Code (2022), which at present does not include provisions for climate change adaptation.

As described by the framework developed by Moser and Luers (2008), the preparedness to adapt with climate change risks is based on three dimensions which are linked together: awareness of climate change risks, analytical capacity to translate climate change risk information into planning, and actions taken to climate change.

According to this framework, these dimensions must be equally enhanced to increase preparedness for adapting climate change risks (Figure 1).

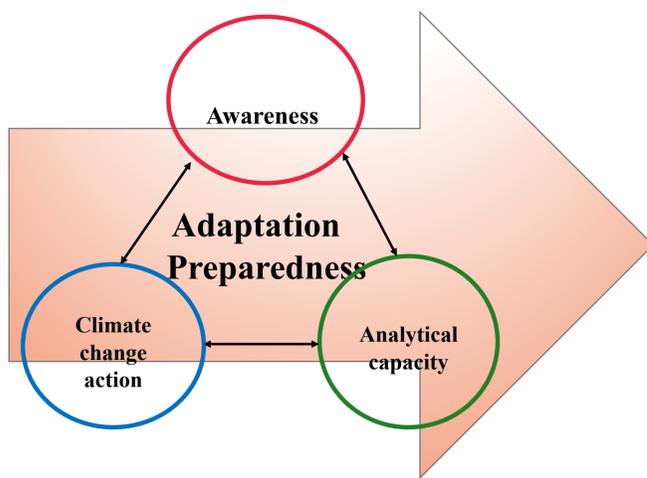


Figure 1: Interlinked three dimensions of preparedness to adapt with climate change risks (Ekstrom et al 2017, p.468)

## Method

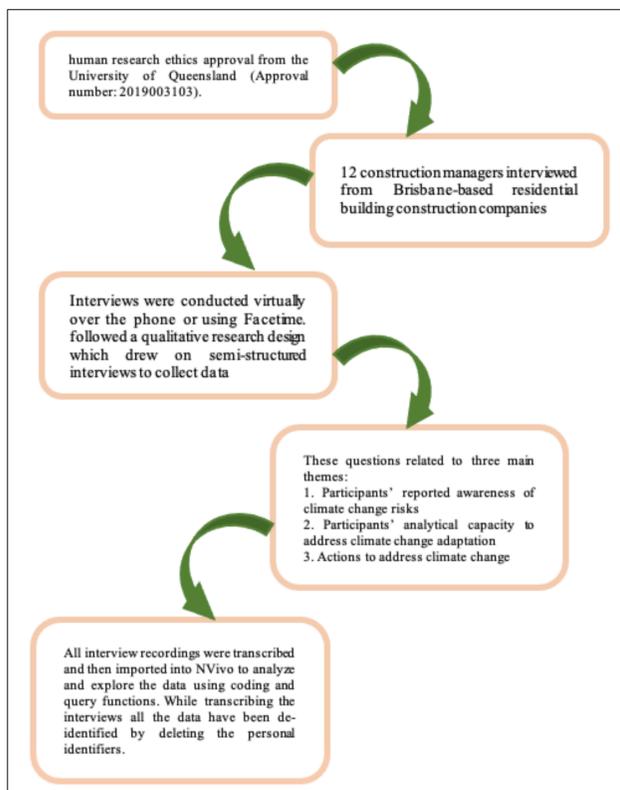


Figure 2: Step wise illustration of the Methodology

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Table 2.1: Climate change risks identified from past and present construction projects.

Identification of climate change risks	Number of interviews the topic was mentioned	Number of mentions
Hot/high heat (affects the housing materials)	8	11
Drought (prolonged drought period causing changes to working schedules)	6	9
Heavy rains causing molding	5	7
Floods	2	3
Storm	2	2
Fire	1	2

Table 2.2: Reported ways climate change information is used for construction work (past, present and future).

How climate change information is used for future planning	Number of interviews the topic was mentioned	Number of mentions
Discussions with the management teams (Upfront discussions)	4	5
Scheduling future projects considering the past weather pattern especially the drought period	2	3
Try to identify mitigation measures to applied for the future projects	1	2
No action	5	8

Table 2.3: Actions taken to address climate change

Actions taken to date	Number of interviews the topic was mentioned	Number of mentions
Doing research on and/or utilizing durable and resistant materials (adaptation)	4	6
Energy efficient constructions to emission reduction	3	3
Ensuring adequate availability of water/electricity/sanitary facilities in the construction sites during the extreme weather events	2	2
No action reported	3	3

Figure 3: Compilation of the results from the Nvivo analyses on participant's awareness, analytical capacity and the actions to address climate change

## Results

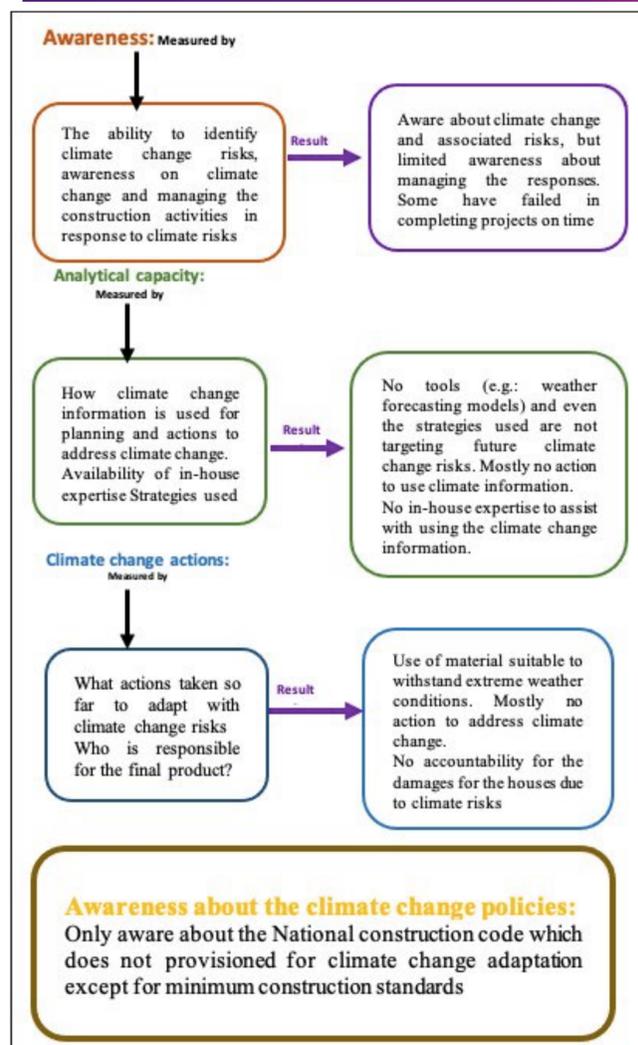


Figure 4: Summary of the results

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## Conclusion

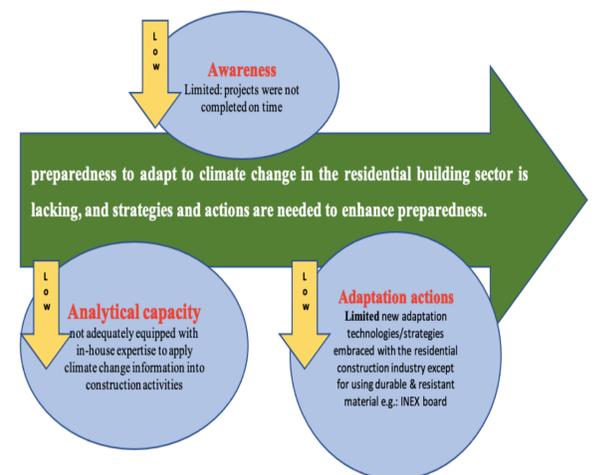


Figure 5: Conclusion represented according to the Framework of preparedness

## Recommendations (Inputs for next NCC review)

1. Legislate climate adaptation practices and the use of sustainable building material
2. Implement strategies to build corporate knowledge, within residential construction companies, regarding future climate change risks and climate-adaptive construction.
3. Implement more effective communication strategies to connect residential building constructors and the government in preparing adaptation policy frameworks with clear parameters to implement actions for future climate risks.
4. Promote a culture of accountability in the residential housing sector regarding preparing and adapting to climate risks.