



# Public Attitudes towards Nuclear Safety Emergency Governance in Hong Kong

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# Outline

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2. Research Design and Questions
3. Results: Attitudes towards Nuclear Safety  
Emergency Governance
4. Statistical Analysis
5. Results Summary and Policy Implications

# 1. Background

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## Public Attitudes Towards Nuclear Safety Governance

- Part of the larger project that investigates the public attitude towards Nuclear Safety Contingency Governance in Hong Kong.
- The goal of this study is to investigate how the perception of the risk of nuclear safety is affected by the following factors.
  - ① Trust in the government
  - ② Knowledge in nuclear energy/safety
  - ③ Stakeholder Engagement

## Risk Perception – Slovic Fischhoff and Lichtenstein (1982)

### 1. What is risk perception research?

- Risk perception research aims to elicit opinions about risk and provides the basis for understanding and anticipating public responses to hazards

### 2. Why risk perception research?

- Risk perception concerns the judgments people make when they are asked to characterize and evaluate hazardous activities and materials
- Knowledge of how people perceive risk can be used to improve communication of risk among citizens, technical experts and policy makers

# Psychometric Paradigm (1)

1. Fischhoff et al. (1978): risk perception is multidimensional
2. Risk means different things to different people - public risk perception often contrasts sharply with expert assessments of risks (e.g. experts may rate risk accordingly to mortality rates)
3. Perceived risk moderately declines with an increase in perceived benefit
4. If risks are perceived to be high they are considered to be less publicly acceptable

# Psychometric Paradigm (2)

1	<b>Voluntariness</b> (voluntary-involuntary)	Do people get into these risky situations voluntarily?	<b>Dreaded</b>
2	<b>Immediacy of effect</b> (immediate-delayed)	To what extent is the risk of death immediate?	<b>Unknown</b>
3	<b>Knowledge about risk</b> (known precisely-not known)	To what extent are risks known precisely by the persons who are exposed to those risks?	<b>Unknown</b>
4	<b>Knowledge about risk</b> (known precisely-not known)	To what extent are the risks known to science?	<b>Unknown</b>
5	<b>Control over risk</b> (uncontrollable-controllable)	If you are exposed to the risk of each activity or technology, to what extent can you, by personal skill or dilligence, avoid death while engaging in the activity?	<b>Dreaded</b>
6	<b>Newness</b> (new-old)	Are these risks new, novel ones, or old, familiar ones?	<b>Unknown</b>
7	<b>Chronic-catastrophic</b> (chronic-catastrophic)	Is this a risk that kills people one at a time (chronic risk) or a risk that kills large numbers of people all at once (catastrophic risk)?	<b>Dreaded</b>
8	<b>Common-dread</b> (common-dread)	Is this a risk that people have learned to live with and can think about reasonably calmly, or is it one that people have great dread for – on the level of a gut reaction?	<b>Dread</b>
9	<b>Severity of consequences</b> (certain not to be fatal-certain to be fatal)	When the risk from the activity is realized in the form of a mishap or illness, how likely is it that the consequence will be fatal?	<b>Dreaded</b>



# Trust (1)

1. Trust generally refers to an assured reliance on the character, ability, strength, or truth of someone or something
2. Slovic (1993): risk perception strongly associated with trust
  1. Low trust = High risk
  2. Ten times harder to win trust than to lose trust



## Trust (2)

1. Metlay (1999): trust reflects both ‘affective’ elements and ‘institutional competence’ elements
  1. Openness – provides all relevant information
  2. Reliability – tries hard to keep promises
  3. Integrity – takes actions consistent with words
  4. Credibility – ignores the views of scientists
  5. Fairness – committed to impartial decision making
  6. Caring – can be counted on to do the right thing
  7. Competence – having necessary skills and expertise



# Public Engagement (1)

1. Public engagement can take place through different mechanisms and is thought to provide a basis for increasing public trust
2. Lofstedt (2005): public participation is seen as a prescriptive solution to public distrust particularly where risks are distributed unfairly

# Public Engagement (2)

1. Arnstein's (1969) well known 'ladder of engagement' differentiates between lower and higher forms of engagement that vary in levels of participation and empowerment

LEVEL 8	Citizen control
LEVEL 7	Delegated power
LEVEL 6	Partnership
LEVEL 5	Placation/Concession
LEVEL 4	Consultation
LEVEL 3	Informing
LEVEL 2	Therapy
LEVEL 1	Manipulation



# Questions

1. What dimension(s) of risk characteristics affect **overall perceived risk** of a nuclear accident?
2. What dimension(s) of trustworthiness of HKSAR government affect **overall perceived trust** in nuclear safety governance?
3. What is the relationship between the overall perceived risk of a nuclear accident and the overall perceived trust in nuclear safety governance?
4. Which **engagement level** can increase trust?

## 2. Research Design & Questions

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# Research Design

- Telephone survey conducted by human interviewers
- Administered by the Public Opinion Programme, University of Hong Kong
- Random sampling
- Response rate: 64.7%
- 1032 successful cases, aged 18 or above
- Duration: Dec 2013 – Jan 2014
- Age and gender distributions re-adjusted based on the provisional figures obtained from the Census and Statistics Department, HKSAR government.

# 3. Results

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# Survey Questions

- Part A: Perception on Risks of a Nuclear Accident
- Part B: Perception on Government's Trustworthiness in Nuclear Safety Governance
- Part D: Levels of engagement and the trust on the nuclear safety governance
- Part E. Knowledge Questions on Nuclear Safety



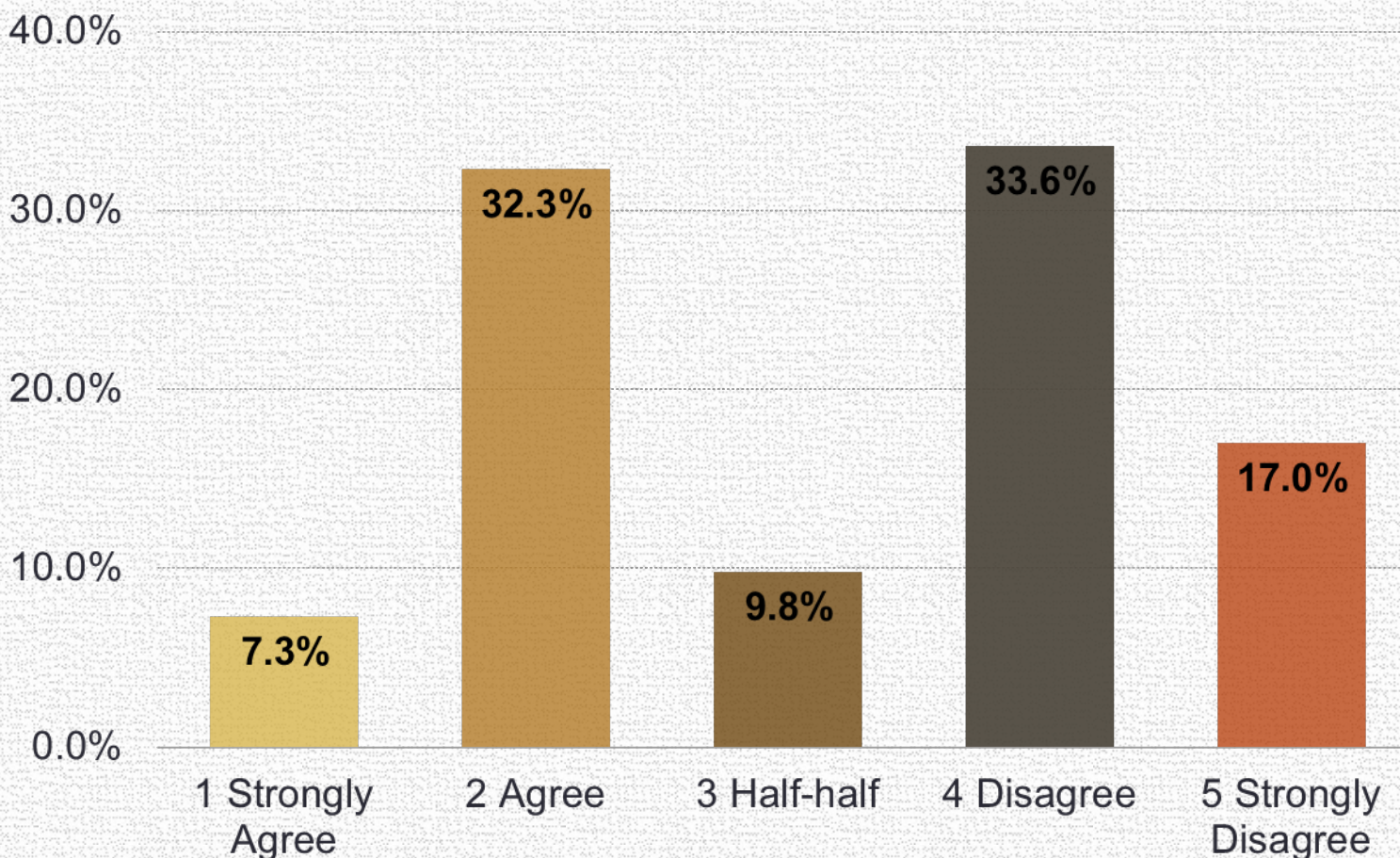


# Part A: Perception on Risks of a Nuclear Accident

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# Nuclear as Energy Fuel Mix

There's a view that Hong Kong needs nuclear power as a mix of energy sources to ensure the reliable supply of electricity. Do you agree with this statement? (A0)



# Psychometric Tests Results (1)

A1 Do you think citizens get into a nuclear risky situation voluntarily or involuntarily?

**Voluntary**

**4.1**

**Involuntary**

A2 If there's a nuclear accident, to what extent is the risk of death immediate?

**Will die immediately**

**3.3**

**Will not die immediately**

A5 If you are exposed to a nuclear accident, do you think you can, by personal skill or diligence, avoid death?

**Cannot avoid death**

**1.6**

**Can avoid death**

A7 Do you think the influence of a nuclear accident is chronic or acute?

**Chronic**

**2.6**

**Acute**

A9 How likely do you think the consequences of a nuclear accident are fatal?

**Certain not to be fatal**

**3.7**

**Certain to be fatal**

1 2 3 4 5  
Scale

# Psychometric Test Results (2)

A3 To what extent are the risks of a nuclear accident known clearly by the citizens who live within the nuclear radiation area?

Very clear

3.7

Very unclear

A4 To what extent are the risks of a nuclear accident known to science nowadays?

Very clear

3.1

Very unclear

A6 Is the saying "nuclear accidents would bring risks" familiar to you?

Very unfamiliar

3.4

Very familiar

A8 Do you think citizens have already accepted the fact that nuclear accidents are risky or still refuse to accept?

Already accepted

3.2

Still refuse to accept

1

2

3

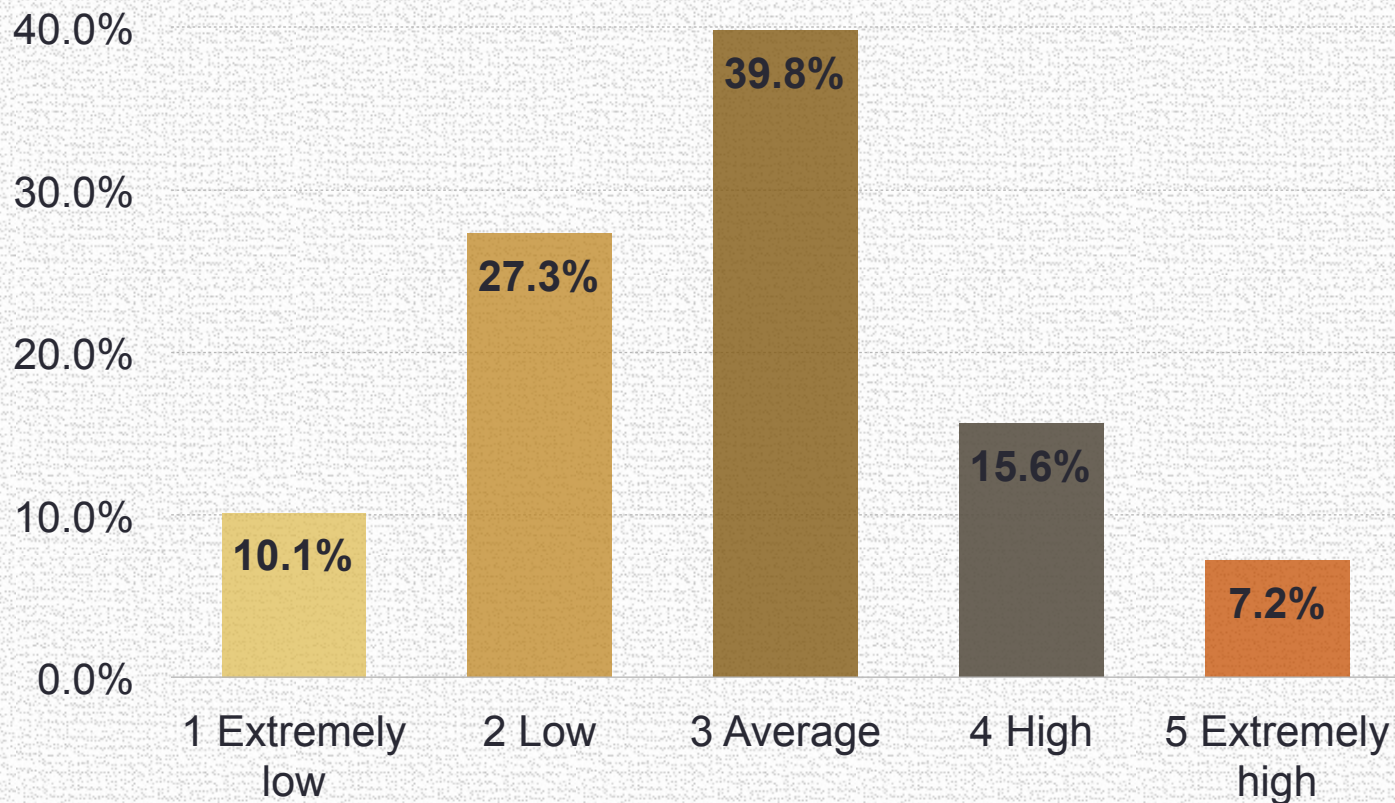
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5

Scale

# Overall Risk Perception

What is Your Perceived Level of a Nuclear Accident in Hong Kong? (A10)



# Part B: Perception on Government's Trustworthiness in Nuclear Safety Governance

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# Trust Worthiness (%)

B1 The government provides all relevant unclassified information.



B3 The government tells the whole truth of issues.



B6 The government tries hard to keep its promises.



B7 The government takes actions that are consistent with its words.



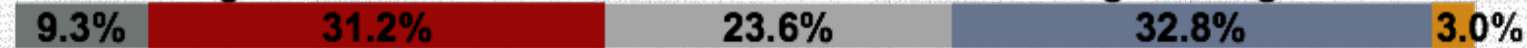
B14 The government is committed to impartial process for making decisions.



B15 The government makes a good faith effort to treat everyone even-handedly.



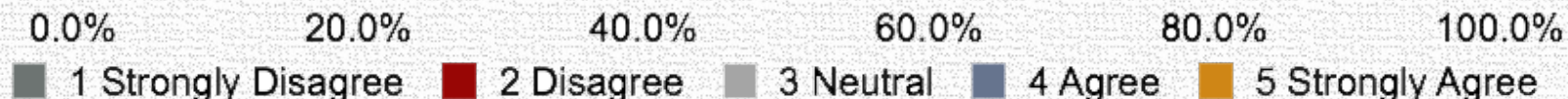
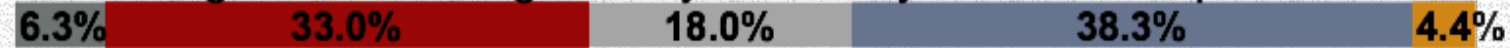
B16 The government can be counted on to do the right things.



B18 The government has the necessary skills and ability to carry out its job.



B19 The government is generally staffed by first-class experts.



# Trust Worthiness (%)

B2 The government does not explain the reasons for the decisions it makes.



B4 The government does not take its commitments seriously.



B5 The government changes policies without good reasons.



B8 The government rarely acknowledges the mistakes it has made.



B10 The government is too influenced by politics.



B11 The government ignores the views of scientists who disagree with them.



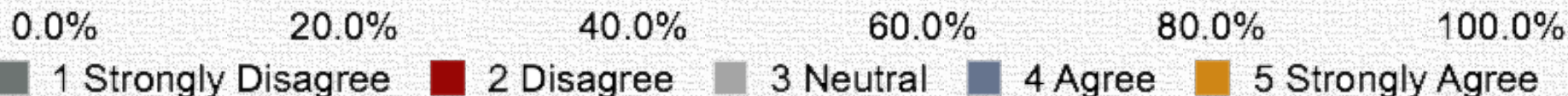
B12 The government has difficulty in explaining its studies before independent nuclear experts committee.



B13 The government distorts the facts to make its case.



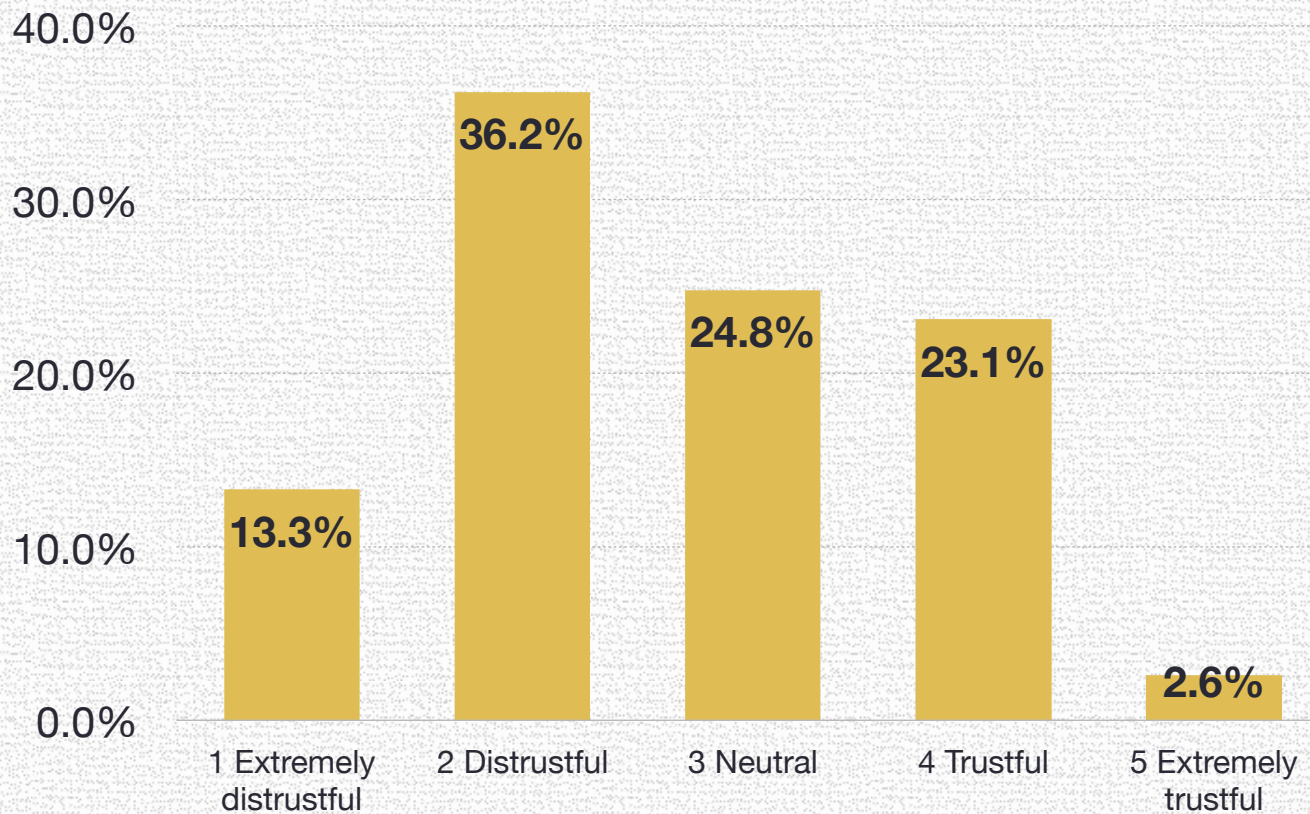
B17 The government does not listen to concerns raised by people like you.





# Overall Trust Perception

Do You Trust HK Government in its Nuclear Safety Governance?  
(B20)

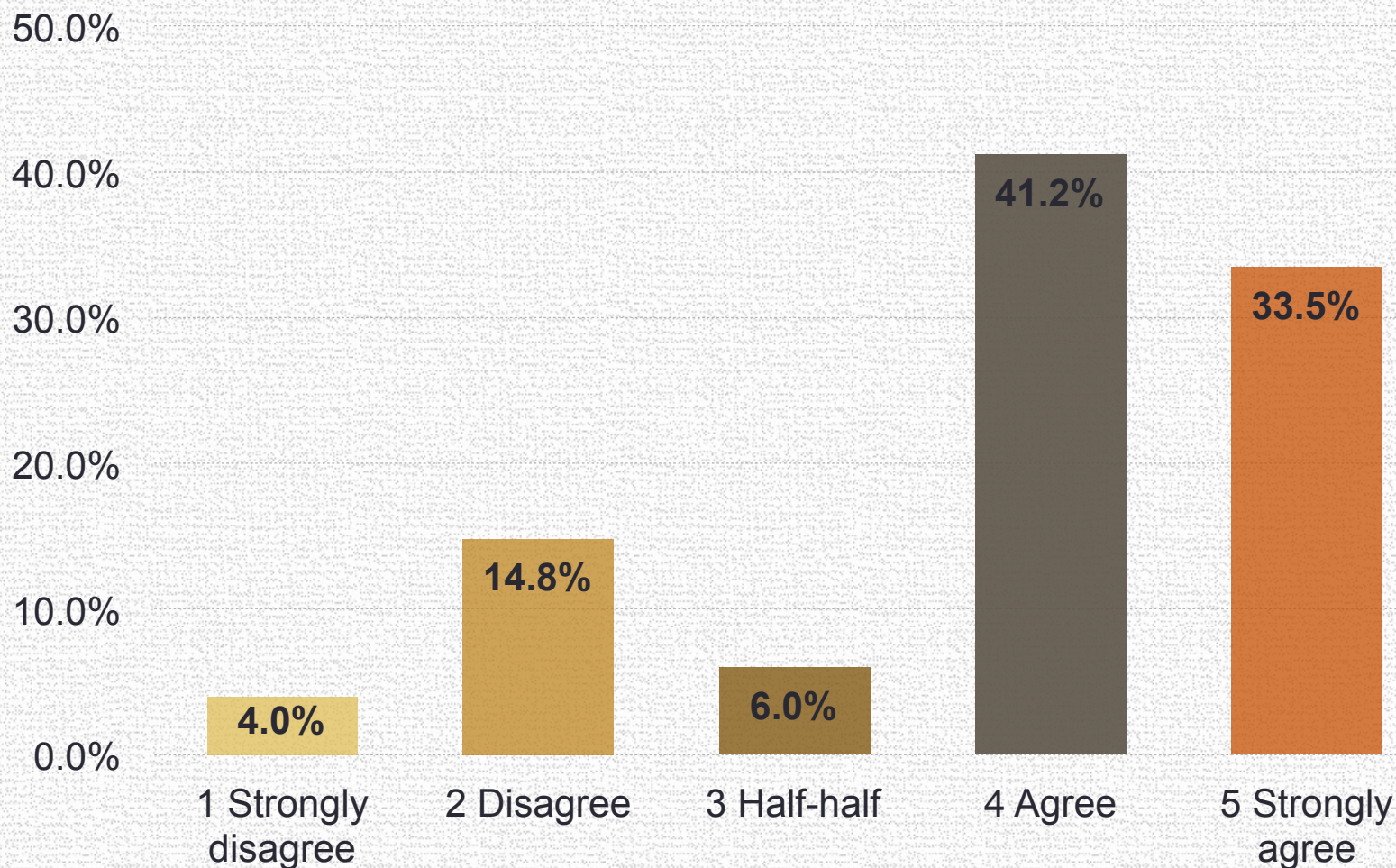


## Part D: Stakeholder Engagement

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How would the level of engagement affect your trust on the nuclear safety governance?

# Do You Think HK Citizens Should Get Involved in Nuclear Safety Emergency Planning?



# Engagement Level & Trust in the Contingency Plan (%)

Level 6 Make Full Decisions for the Contingency Plan



Level 5 Take Part in Decision-making of the Contingency Plan



Level 4 Veto the Contingency Plan



Level 3 Join the Conversation on the Contingency Plan



Level 2 Your Opinions About the Contingency Plan are Collected



Level 1 Be Informed of the Contingency Plan



0.0%

20.0%

40.0%

60.0%

80.0%

100.0%

■ 1 Decrease a lot

■ 2 Decrease a bit

■ 3 No change

■ 4 Increase a bit

■ 5 Increase a lot

# 5. Results Summary and Policy Implications

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# Results Summary (1)

1. Perceived risk on nuclear accidents can be predicted by both Dreaded Risk and Unknown Risk, but dreaded risk has a stronger influence than unknown risk.
2. Trust worthiness can be grouped into three categories, including (a) Fairness and Competence (b) Credibility and Reliability and (c) Transparency
3. Overall perceived trust in nuclear safety governance can be predicted by (a), (b) and (c), with Fairness and Competence having the strongest influence on perceived trust.

## Results Summary (2)

4. Overall Perceived Risk of a nuclear accident is negatively correlated with Overall Perceived Trust in nuclear safety governance. But the correlation is weak.
5. The group mean difference between engagement levels is statistically significant. The greatest mean difference occurs between Highest Level of Engagement (citizens can make full decisions of the plan) and Lowest Level of Engagement (citizens are being kept informed of the plan)
6. D5 generates the highest trust while D4 generates the lowest trust.

# Policy Implications (1)

1. Concerning public communication/education, more attention should be directed to tackle the fear that citizens have with nuclear accident. The higher the citizen's fear of a nuclear risk, the higher their overall risk perception.
2. Government that demonstrates **fairness** and **competence** will receive high public trust in nuclear safety governance.
3. The higher the risk, the lower the trust, and vice versa.
4. HK citizens prefer to be **passively informed** by the nuclear safety plan than taking full control for the plan. Providing **more information** to the citizens may gain a higher citizen trust than letting them getting more control of the plan.



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**THANK YOU!**  
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