

Fig 1.2 for Question 1

Map of Industrial Estates, Business Nodes, Institutes of Higher Learning, Airports and Ports in Singapore

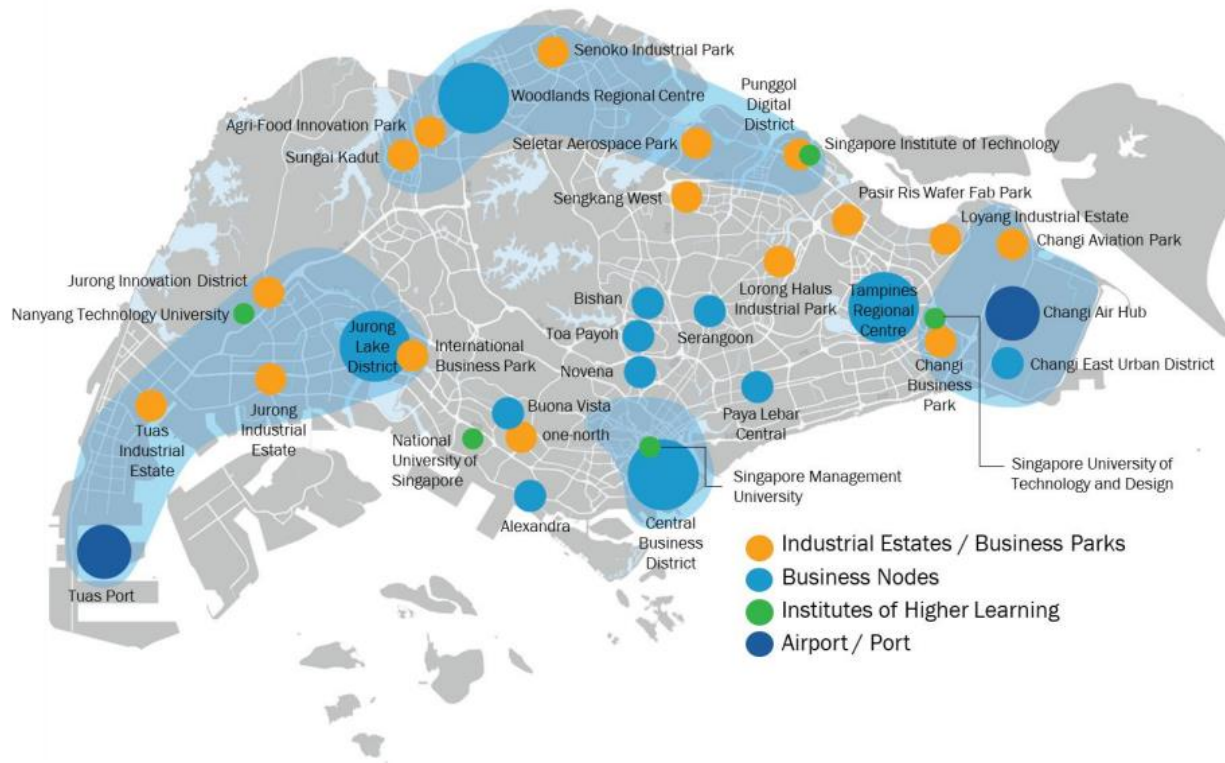
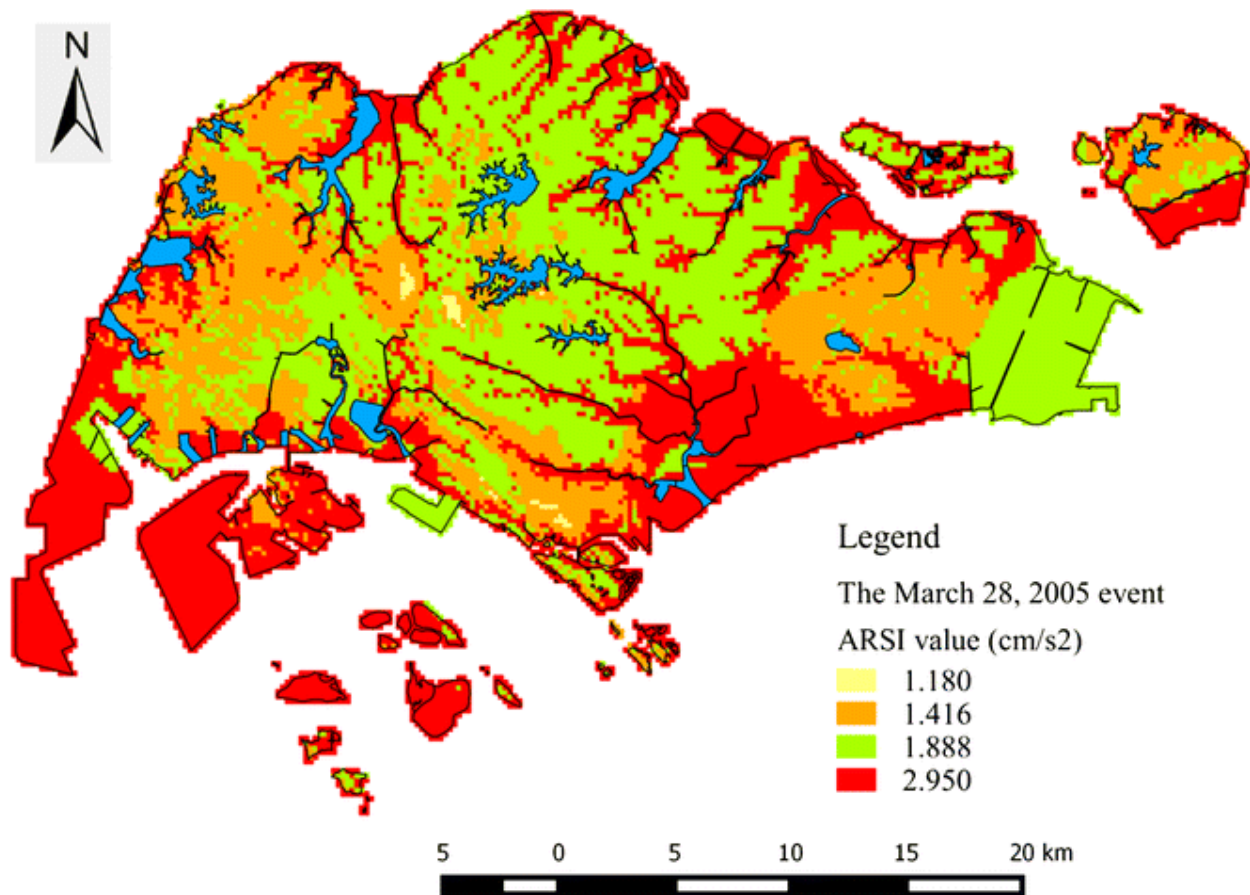


Fig 3.1 for Question 3

ARSI map of Singapore



*Average Response Spectrum Intensity (ARSI) is a way of communicating general level of shaking a structure might face during an earthquake. The higher the value, the stronger the shaking of a structure built in the area in the event of an earthquake.

Copyright acknowledgements

- Fig 1.1 <https://www.propertyguru.com.sg/property-management-news/2019/12/185330/hdb-raises-solar-target-for-2030-to-540mwp>
- Fig 1.2 https://lkyspp.nus.edu.sg/docs/default-source/ips/forum-2_lim-eng-hwee.pdf
- Fig 1.3 <https://www.todayonline.com/singapore/improved-flood-prevention-measures-around-orchard-road-month>;
<https://www.theonlinecitizen.com/2021/08/30/over-s2-billion-already-spent-has-it-paid-off/>
- Fig 2.1 <https://www.nps.gov/subjects/geology/plate-tectonics-evidence-of-plate-motions.htm>
- Fig 2.2 https://www.researchgate.net/figure/Tsunamis-that-caused-more-than-100-deaths-by-year-in-Japan_fig6_259172075
- Fig 3.1 https://www.researchgate.net/figure/The-ARSI-map-of-Singapore-for-the-March-28-2005-earthquake-event-N-S-direction-based_fig3_311394397
- Fig 3.2 <https://redcross.sg/component/content/article/166-clare.html?catid=34:local-services&Itemid=207>
- Fig 3.3 <https://rosa.smu.edu.sg/sites/rosa.smu.edu.sg/files/Briefs/Singapore%20Resilience%20Study.pdf>

Answer **all** questions.

1 Cluster 1: Geography in Everyday Life

- (a) Explain how environmental stewardship can be fostered to build sustainable urban neighborhoods.

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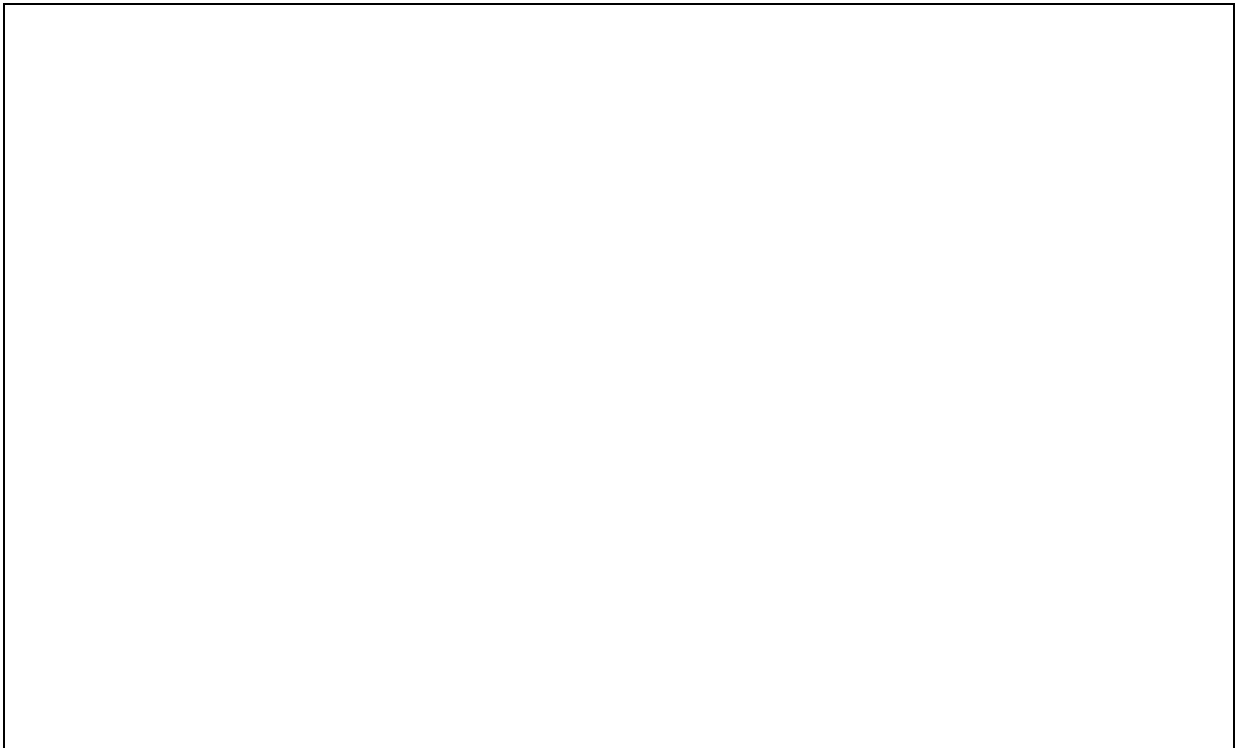
(b) Fig 1.1 is an exemplary residential estate in the HDB's Green Towns Programme.

Model Estate of HDB Green Towns Programme



Fig 1.1

Sketch the residential estate as shown in Fig 1.1. Annotate the sketch to show two features that promote environmental sustainability.



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(c) Explain how media representations of place may affect an individual's sense of place.

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- (d) Fig 1.2 (Insert) shows the distribution of industrial estates, business nodes, institutes of higher learning, airports and ports in Singapore.

With reference to Fig 1.2, describe the spatial pattern that is shown on the industrial estates of Singapore.

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- (e) Describe the negative impacts of fire hazards on the community.

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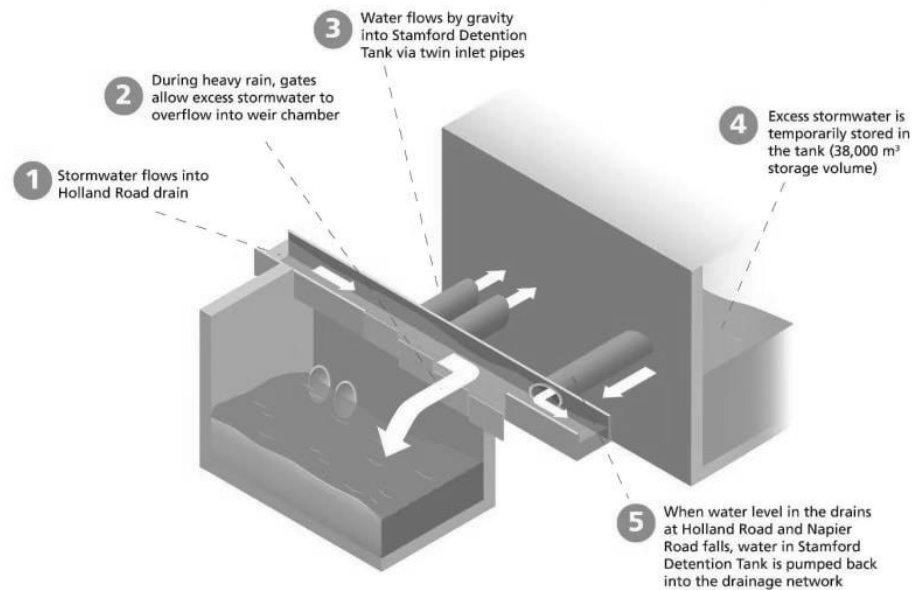
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- (f) Fig. 1.3 shows flooding along Holland Road and one of the disaster risk management strategies employed in Singapore.



HOW EXCESS STORMWATER ENTERS AND EXITS THE SDT



*SDT stands for Stamford Detention Tank

Fig 1.3

Using Fig 1.3, explain how this disaster risk management strategy enhances the sustainability of the neighborhood.

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2 Cluster 4: Tectonics

(a) Explain how slab-pull force causes the movement of tectonic plates.

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- (b) Study Fig 2.1, which shows information about the different plate margins in the world.

Map of Plate Boundaries on Earth

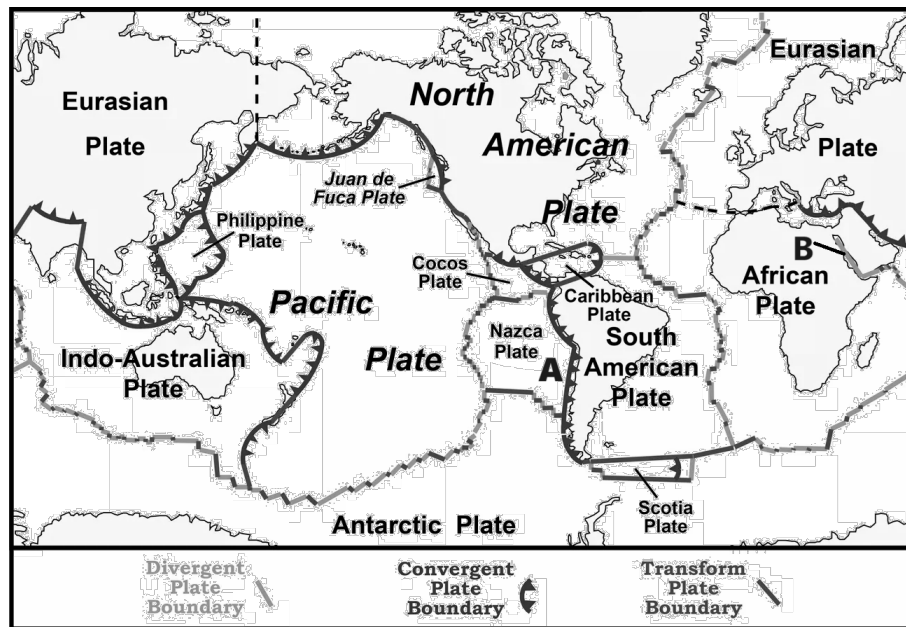


Fig 2.1

With reference to Fig 2.1, compare the processes and tectonic features formed at the plate boundaries **A** and **B** respectively.

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| Year | Number of Tsunamis | Number of Deaths | Location | Deaths |
|------|--------------------|------------------|-----------------------------------|--------|
| 1923 | 3 | 2310 | Sagami Bay | 2310 |
| 1933 | 2 | 3022 | Sanriku | 3022 |
| 1944 | 1 | 3358 | Off Southeast Coast Kii Peninsula | 3358 |
| 1946 | 1 | 1362 | South Coast of Honshu | 1362 |
| 1964 | 3 | 476 | Honshu | 476 |
| 1983 | 3 | 424 | Noshiro | 424 |
| 1993 | 3 | 441 | Hokkaido | 441 |

Using Fig 2.2, comment on any relationship between the number of tsunamis in Japan and the number of deaths from the Tsunamis from 1923 to 1993.

[illegible]

- (d)** Discuss how effective is increasing residents' preparedness for response and recovery in building community resilience to earthquakes.

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3 Cluster 5: Singapore

(a) Explain why Singapore is vulnerable to energy insecurity.

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(b) Describe how climate change could impact Singapore.

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- (c) (i) Fig 3.1 (Insert) shows a map that indicates the intensity of shaking at each area of Singapore in the event of an earthquake from neighboring countries.

Using Fig 3.1, describe the distribution of building shaking intensity in Singapore due to earthquakes in neighboring countries.

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- (ii) With reference to Fig 3.1 and what you have learnt from Fig 1.2 (Insert) in question 1, explain how earthquakes in another country can pose a risk on the economy of Singapore.

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- (d) Figs. 3.2 and 3.3 shows some of the considerations Singapore took in building social resilience in its citizens.

Community Services provided by Singaporean Volunteers

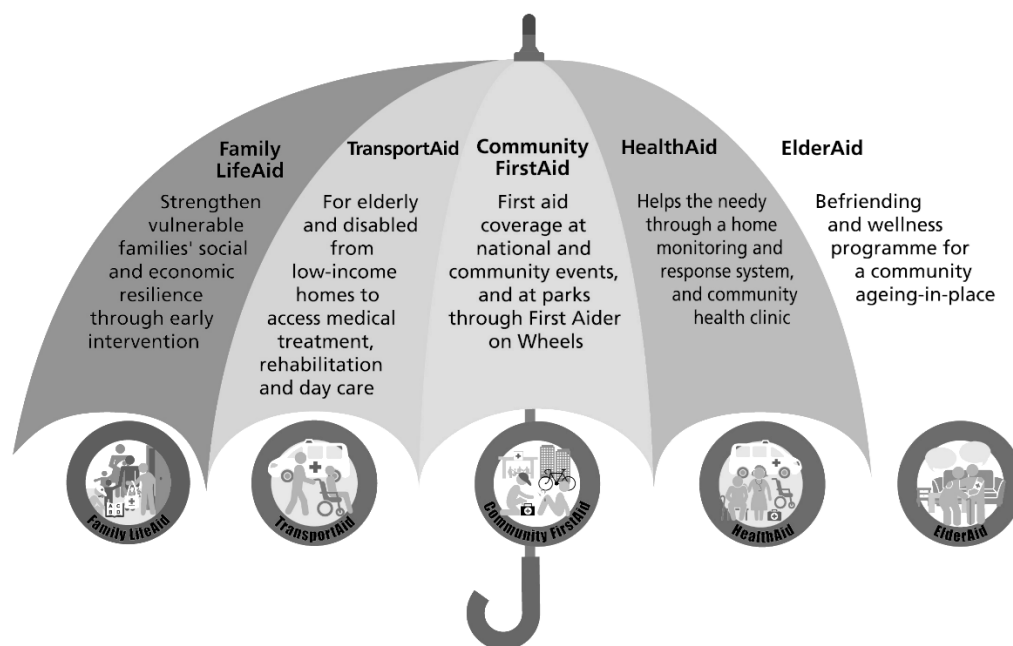


Fig 3.2

Vulnerable Groups in each Domain of Resilience

| Vulnerable groups within each domain of resilience | | | |
|---|--|---|---|
| Mental Resilience | Social Resilience | Physical Resilience | Financial Resilience |
| <ul style="list-style-type: none"> • Unemployed • Females • Lower education levels | <ul style="list-style-type: none"> • Unemployed • Lower education • Older adults • Single • Smaller housing types • Lower education levels | <ul style="list-style-type: none"> • Unemployed • Older adults • Smaller housing types • Lower education levels | <ul style="list-style-type: none"> • Unemployed • Single • Smaller housing types • Lower education levels |

Fig 3.3

With reference to Fig. 3.2 & 3.3, evaluate Singapore's social resilience efforts.

[9]

Additional Page

If you use the following page to complete the answer(s) to any question(s), the question number(s) must be clearly shown.

This image shows a single page of white paper with horizontal ruling lines. The lines are evenly spaced and extend across the width of the page, typical of notebook or legal stationery. There are no margins, text, or other markings on the page.

Additional Page

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- Fig 3.3 <https://rosa.smu.edu.sg/sites/rosa.smu.edu.sg/files/Briefs/Singapore%20Resilience%20Study.pdf>