ANSWER KEY

Paper 1

Answer **all** questions.

CLUSTER 1: GEOGRAPHY IN EVERYDAY LIFE

Suggested Answers

(a) State where the students may have retrieved the map from and, other than showing location, explain one possible use of the map in their investigation. [2]

Award one mark for suggestion for retrieval of map.
Award one mark for explanation of one possible use.

- The students may have retrieved the map from a government website such as the National Parks Board (NParks) website. *(Accept any plausible government website or just government website or archive such as the library will suffice – do not accept the internet as this is too broad)* [1]

- Apart from showing the location, the map helps them to understand extensiveness of the PCNs thus it allows the students to understand better the significance of PCN to Singapore's landscape/ It shows how accessible the PCNs are to Singaporeans and so studying the impact of one can be significant as it can be used to understand the impact of the others as well. [1]

(Students need to elaborate on why the map is significant and not just state) [1]

Accept any other plausible answers.

(b)(i) Based on Fig. 1.2, assess the level of risk involved in conducting their investigation at the Southern Ridges.

Award one mark for low or low to moderate risk.
Award one mark for supported justification.

- The overall level of risk is low to moderate [1].
- This is because most of the risk levels falls between 2 to 9 which is well below the maximum risk possible, which is 25.[1]

Accept any other plausible answers.

(b)(ii) Suggest two strategies that the students can adopt to prepare for the hazard with the highest degree of risk. [2]

Award one mark for each appropriate strategy given.
Any of the strategies below may be accepted and awarded - *answers must relate to sun/heat* – 1 mark

- Bring water and regularly hydrate
- Wear light clothing, apply sunscreen
- Conduct the investigation during cooler parts of the day, such as early morning.

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- Know shelter points to rest

Accept any other plausible answers.

(c)(i) Describe how the data collected for Question 1 could be presented on map of Singapore. [2]

Award 2 marks for description of an acceptable method.

- Dot Distribution Map:[1]
- Each visitor's response is represented by a dot placed on the area they come from (e.g. Bishan, Pasir Ris, Clementi). If multiple people come from the same area, the number of dots increases, helping to show which areas have more visitors. [1]

Other methods: Choropleth Map/Flow map
Accept any other plausible answers.

(c)(ii) With reference to Fig. 1.4, explain how the students could sample visitors to collect the data needed to test their hypothesis. Justify your choice of sampling method.

Award 1 mark for identification of any valid sampling method.
Award 1 mark for description of the sampling method identified.
Award 1 mark for some reference to the map such as where to do the sampling
Award 1 mark for justification/advantage

- The students likely used convenience sampling [1]
- By interviewing visitors who were easily accessible/willing to be interviewed [1]
- At popular entry or rest points, such as near the Henderson Waves or Forest Walk. These are high-traffic areas, as seen in Fig. 1.4, making it convenient for students to approach people walking past or resting.[1]
- This method is suitable because the students had limited time and resources and were only conducting interviews on one weekend morning. It allowed them to collect responses quickly without complex planning.[1]

Accept any other plausible answers.

(d) Using Figs. 1.5 and 1.6 only, evaluate how well the data supports the students' revised hypothesis. [6]

Award 3 marks for positive and negative impacts of the Southern Ridges on visitors
Award 3 marks for positive and negative impact of the Southern Ridges on the environment Trends and patterns must be supported with data to be awarded marks. If no reference made award a max of 2 marks for this question for general patterns.

The expanded hypothesis suggests that the Southern Ridges contribute positively both to the experience of its visitors and the environmental quality of the area.

Evidence from the two surveys **generally supports the hypothesis. [3m – any of the points below or any other plausible answers]**

Positive impact on visitors

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- The visitors appreciate the ease of movement across the park, contributing to a positive experience as supported by 39 out of 50 respondents who agreed or strongly agreed to the statement that the trails are accessible and well-connected. [1]
- Visitors to the park also had an increase in environmental awareness for many, the experience encouraged reflection on environmental issues with 31 out of 50 respondents agreed or strongly agreed that their visit made them more environmentally conscious.[1]

Positive Environmental Impact

- There is a biodiversity presence at Telok Blangah Hill Park as the bipolar bar graph shows a score of +4, indicating that observers noticed visible biodiversity, such as flora and fauna, suggesting a healthy ecological condition in that zone.[1]
- Presence of educational features along Marang Trail. This area received a +3 score, reflecting the presence of educational signage that supports awareness and learning, reinforcing the idea of environmental stewardship. [1]

However, there is also evidence from the two surveys that **disagrees/contradict the hypothesis. [3 – any of the points below or any other plausible answers]**

Negative Impact on Visitors

- However, there are those who feel that there is limited impact on environmental awareness as although the majority are positive, 9 respondents disagreed and 10 respondents were neutral about becoming more environmentally conscious. This shows that for nearly 38% of visitors, the visit may not have significantly shifted their environmental attitudes.

- Additionally, a small number of visitors – 5 respondents - found their experience to be meaningful and hence visiting the Southern Ridges did not improve their mental health with another 5 respondents expressed disagreement or strong disagreement with the mental well-being statement.

Negative Environmental Impact

- There was litter at Henderson Waves as it scored -2, this location showed observable litter,
- High noise pollution was also found near Alexandra Arch. This area had the lowest score of -3, highlighting that traffic or human-generated noise may be disturbing the natural environment and wildlife. Finaly the trail wear and erosion at Forest Walk scored -1, indicating some trail damage or erosion, which may be a result of overuse or insufficient maintenance.

Overall, the data from both graphs largely supports the expanded hypothesis. Visitors find the Southern Ridges beneficial to their well-being and awareness, while most environmental indicators reflect positive stewardship of the area. A few areas such as waste management and noise control may require attention, but the overall impact appears net positive for both people and nature.

Accept any other plausible answers.

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Cluster 2: Tourism

2 (a) With the help of an example, explain how ability to travel led to the growth of tourism. [3]

Award 1m for each point of explanation, up to 2m. Award one mark for a well-explained example.

- Over the years, air fares have significantly dropped, especially with the emergence of budget airlines, which offer air tickets at significantly lower prices. [1]
- With lower costs there is an increased affordability resulting in more people travelling (important link to answer the question) [1]
- Budget airlines, such as Scoot or AirAsia, have become increasingly popular for travel within Southeast Asia, accounting for 67% of the flights in the region. [1]

Accept any other plausible answers.

(b) Study Fig. 2 which shows two different perspectives about Chinatown.
Using Fig. 2, compare the role of Chinatown in Singapore over time and explain how this change may lead to cultural dilution if not carefully managed.[3]

Award 1m for similarity. Award 1 mark for difference. 1 mark for explanation of cultural dilution.

- Similarity in role – significant value for the Chinese culture [1]
- Difference in role – previously home for Chinese immigrants where they lived, worked, and supported each other now functions more as a cultural showcase for visitors, with festivals, trails, and souvenir shops [1]
- Cultural dilution: Chinatown may lose its authentic cultural roots. Over-commercialisation may result in superficial displays that no longer reflect the lived experiences and practices of the Chinese community.[1]

Accept other plausible answers.

(c) How does tourism positively affect the society and economy of places? Illustrate your answer with an example that you have studied. [5]

Award 1m for each point of explanation for positive impact on society, up to 2m; and 1m for each point of explanation for positive impact on the economy, up to 2m. Reserve 1 mark for relevant example(s). Examples can be awarded up to 2 marks. No example award a max of 4 marks

- Tourism positively affects the society of a place by helping to preserve the culture. [1]
- Tourism revenues boost the local economy which provides an incentive to protect traditional cultural practices and art forms. [1]

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- Tourism is labour intensive, and therefore provides employment opportunities in formal and informal tourism sectors. [1]
- It creates a large number and wide range of employment opportunities for people of varying skills in both tourist generating and destination regions. [1]

Accept other plausible answers.

(d) Explain pro-poor tourism and its limitations. [4]

Award up to 2m for the explanation of pro-poor tourism and community-based tourism. Award 1m for each explanation of a limitation, up to 2m.

- Pro-poor tourism is an approach to tourism development that focuses on improving the livelihoods of the poor through training and access to micro-finance. [1]
- Any type of tourism such as community-based tourism or eco-tourism can be classified as PPT, if they focus on improving the livelihoods of the poor and reducing poverty. [1]
- However, the effectiveness of PPT is limited by the inability to significantly reduce poverty as compared to direct investment in social services [1]
- And the economic benefits may be highly unevenly distributed, with most of the benefits being channeled to non-poor locals. [1]

Accept any other plausible answers.

[15 marks]

Cluster 3: Climate

3 (a) Study Fig. 3.1, which shows the intensity of the Urban Heat Island (UHI) effect in Singapore. Fig. 3.2 is a satellite image of Singapore, showing its rural and urban areas.

Using Figs. 3.1 and 3.2, describe the distribution of the UHI effect in Singapore. [2]

Award 1m for each description of the distribution.

- The UHI effect in Singapore is clearly stronger in the more urban areas of Singapore, in the Southern region of the island. [1]
- The UHI intensity is significantly lower in rural or natural areas, such as the Central Catchment area or the forests in the western region. [1]

Accept any other plausible answers.

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(b) Explain the formation of the regional winds experienced in Singapore during the months of October to February. [4]

Award 1m for each point of explanation.

- In winter in the northern hemisphere, the air over Central Asia is cold, creating an area of high pressure. [1]
- In summer in the southern hemisphere, the air over Australia is warm, creating an area of low pressure. [1]
- Air moves from Central Asia (higher pressure) towards Australia (lower pressure) [1]
- In the northern hemisphere, winds get deflected to the right, forming the Northeast monsoon, which is experienced by countries such as India, Singapore and Malaysia. [1]

Accept any other plausible answers.

(c) Study Fig. 3.3 (insert), which shows strategies taken to manage the impact of climate change.
"The adoption of adaptation strategies is sufficient for communities to build resilience against climate change
With reference to Fig. 3.3, to what extent do you consider this statement to be true? Explain your answer. [9]

Level 1 (0-3 marks)	- At this level, answers lack detail. - A basic answer that has little development - Answers may be general in nature with little or no place-specific examples. - There may be no or little attempt at an evaluation.
Level 2 (4-6 marks)	- At this level, answers will contain some appropriate detail. - The content will lack balance and some relevant detail. This means that only one-sided responses are fully considered. - Or both sides are considered but support is patchy so that the answer is not full. - Assessment may be given but may be general in nature. - An example will be presented to support answers in at least one place in the answer.
Level 3 (7-9 marks)	- At this level, answers will be comprehensive and supported by sound knowledge. - There will be assessments of the extent to which different factors (include given) are fully considered. - Examples to support answers can be found in most places in the answer

Suggested answer – sample essay.

Communities which adopt adaptation strategies to climate change will be quite resilient, but in truth, they would also need to adopt mitigation strategies as well, to be truly resilient.

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As seen in Fig. 3.3, one of the structural adaptation strategies to build community resilience to climate change is to build infrastructure. One such infrastructure used by Singapore are water storage tanks. The underground water tank is used to store excess stormwater during periods of excessive rainfall to slow the water from rushing into canals and drains. This is an effective adaptation strategy as it prevents flooding in the canals and drains. It also allows excess water to be stored there temporarily, and the water will only be released when sensors detect that water levels in drains have fallen. A limitation to this strategy, however, would be that it is not feasible in some communities, due to lack of space or even the nature of the land. It is an expensive structure to build and manage, and therefore only economically developed countries can successfully utilize it.

In order to be resilient to climate change, mitigation strategies should also be put in place alongside adaptation strategies. One mitigation strategy that communities may adopt would be the use of low-carbon technologies such as carbon capture, utilization and storage or CCUS. CCUS involves the process of separating and capturing carbon dioxide (CO2) from power plants and other sources of emissions. After that, the CO2 is stored for a long period of time to prevent it from reaching the atmosphere through storage or utilization, where CO2 is used as a raw material to produce useful products. For example, scientists from Northwestern University in the United States have been working on developing carbon-negative construction materials using seawater, electricity and CO2. By doing this, carbon can be stored in structures, instead of remaining in the atmosphere. However, this is a new and expensive process, and it is likely that only countries that are economically and technologically more developed would be able to carry out this strategy.

One mitigation strategy that may be more accessible to all communities would be to change consumption patterns, particularly the use of plastics. Greenhouse gases are produced when chemicals sourced from fossil fuels are used to make plastics, and when plastics are recycled or incinerated. Communities can build resilience to climate change by refusing single-use plastics and opting for reusable daily plastic products and being informed about the right way to recycle different plastic products, reducing the amount of plastic waste. Many countries are already adopting this strategy, with as many as at least 90 countries fully or partially banning the use of plastic bags. Nearly half of those countries are in Africa, where the level of economic development is lower than most of the rest of the world, suggesting that this is a low-cost strategy in the fight against climate change. However, this strategy depends on social change, and it takes a long time for people's mindset and consumption patterns to change. Companies also need to commit to changing the resources used in the production of goods, which they may be reluctant to do, as it may reduce their profits.

Evaluation for 8-9 marks

Interdependence of both

While adaptation strategies—such as sea walls in the Netherlands—are essential in helping communities cope with the immediate and localised impacts of climate change, they are not sufficient on their own to build long-term resilience. Adaptation primarily addresses short- to medium-term consequences and varies in effectiveness depending on the spatial scale—wealthier urban areas may afford

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better defences, while poorer rural regions may remain vulnerable. Therefore, mitigation strategies such as reducing greenhouse gas emissions globally (e.g. through the Paris Agreement) are equally critical, as they tackle the root cause of climate change over a longer time scale. Without significant mitigation efforts, the severity and frequency of climate-related hazards will eventually overwhelm even the best adaptation measures. Hence, a combined approach—tailored to both spatial contexts and long-term goals—is required to truly build resilience.

Time argument for one is more effective

Although mitigation tackles the root causes of climate change, its impacts are slow to materialise and often depend on coordinated global action, which is difficult to enforce. In contrast, adaptation strategies provide communities with immediate and context-specific protection. For example, Bangladesh's early warning systems and floating agriculture directly reduce vulnerability and save lives in the short to medium term. From a time perspective, the benefits of adaptation are more immediate and tangible compared to mitigation, which may take decades to show results. Given the urgency of current climate threats such as rising sea levels and heatwaves, prioritising adaptation is more effective in building community resilience in the short term. Therefore, while mitigation is important, adaptation alone can be justified as the more practical and sufficient strategy—especially in the face of urgent climate risks.

Accept any other plausible answers.

[15 marks]

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Paper 2

Answer **all** questions.

1 Cluster 1: Geography in Everyday Life

(a) Study Fig. 1.1 (Insert), which shows people gathering near a temple to celebrate Diwali festival in Ayodhya, India.

With reference to Fig. 1.1, describe how a sense of place is acquired. [3]

Award 1m per point

- Memorable events that happen, such as the Diwali festival, give residents a sense of belonging as they participate in a shared activity [1]
- Landmarks such as the temple in the background are highly visible and makes it easy for people to remember [1]
- Doing a meaningful activity that has cultural / religious significance can help people associate the place positively [1]
- Community events like this where many people gather to celebrate a festival allow them to bond and interact with each other [1]

Accept other plausible answers.

(b) Explain the benefits that supporting ecosystem services provide for the urban neighbourhoods. [4]

Award 1m per point and 1 additional mark for further elaboration

- Soil formation: Organic matter in the environment is broken down and decomposed to smaller particles and form soil providing a habitat for plants to grow on and small organisms to live in, contributing to biodiversity [1]
- Pollination: Animals in the environment like wild bees can help to pollinate crops in turn this ensures the reproduction of crops and that they can provide food [1]
- Photosynthesis: Plants in the environment absorb carbon dioxide and give out oxygen during photosynthesis this maintains the oxygen content of the earth's atmosphere so animals can live. [1]

Accept other plausible answers.

(c) Study Fig. 1.2, which shows the number and causes of traffic accidents in Singapore in 2022 and 2023.

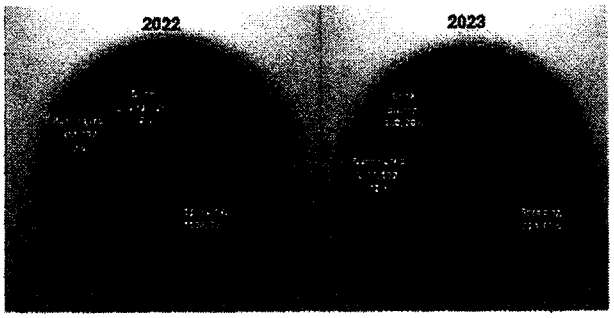


Fig. 1.2

[3]

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Using Fig. 1.2, describe the occurrences of traffic accidents in 2022 and 2023.

Award 1m per description. Students are not required to compare across years. Failure to give data will result in marks being capped at 2m.

General: [compulsory]
Traffic accidents have decreased
Data there are fewer accidents in 2023 compared to 2022, from 1450 in 2022 to 916 in 2023. (1m)

Any other data observation:
- The biggest cause of traffic accidents is speeding, with 1138/79% in 2022 and 624/68% in 2023. [1]
- Speeding incidents have shown the largest decrease from 1138 to 624 – almost half [1]
- The smallest/least significant cause of traffic accidents is running red light, which has also shown a slight decrease, from 137 in 2022 to 112 in 2023. [1]
- However, drink driving incidents have slightly increased, from 175 in 2022 to 180 in 2023 [1]

Accept other plausible answers

(d) Study Fig. 1.3 (Insert), which shows a community park in an urban area in the USA.

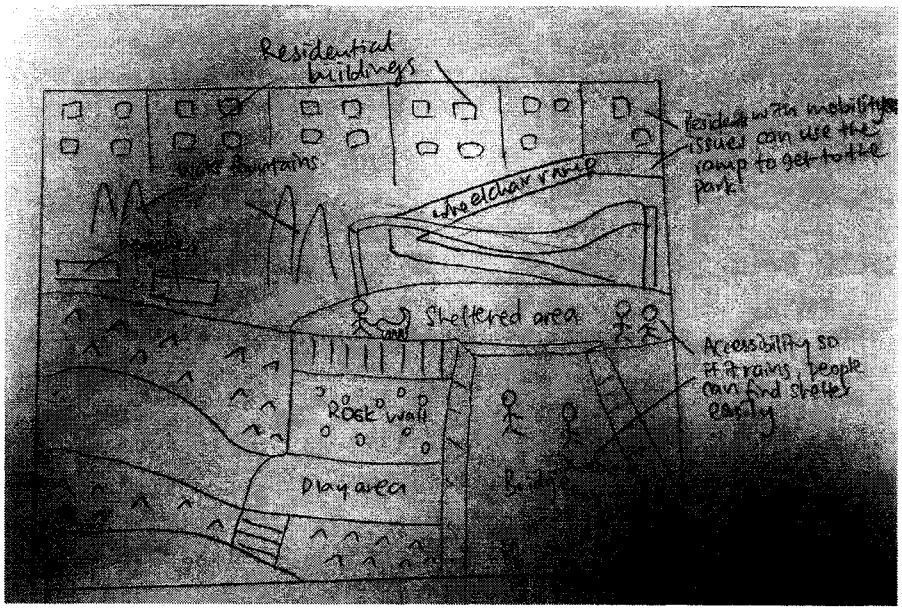
(i) Sketch the community park shown in Fig. 1.3. Annotate the sketch by identifying **two pairs** of spatial associations in the area. [3]

Award 1m for sketch with accurate perspective.
Award 1m for each annotation showing spatial associations.

- The rock-climbing wall and children's play area are close to each other so children can play within the same area [1]
- The residential building and ramp are close to each other so people with mobility challenges can easily get home/get around the park [1]
- The bridge and sheltered pavilion are next to each other for accessibility so if it rains, people can find shelter easily [1]
- The benches are near the water fountains so people can sit down, relax and watch the fountains [1]

*Accept any plausible answers – as long as reasons are given that can **enhance everyday living***

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(ii) With reference to Fig. 1.3, explain how people using the community park may bring problems to nature. [2]

Award 1m per point

- People may disturb wildlife by disturbing their habitats, or feed them, thus they may have to seek shelter elsewhere or may have health issues [1]
- People may litter and pollute the environment, which may give off unpleasant smells or cause an eyesore [1]
- People may trample on vegetation when the walk on the grass, this causes soil compaction and erosion [1]

Accept other plausible answers.

[Total: 15]

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2 Cluster 4: Tectonics

(a) Study Fig. 2.1, which shows a mid-ocean ridge.

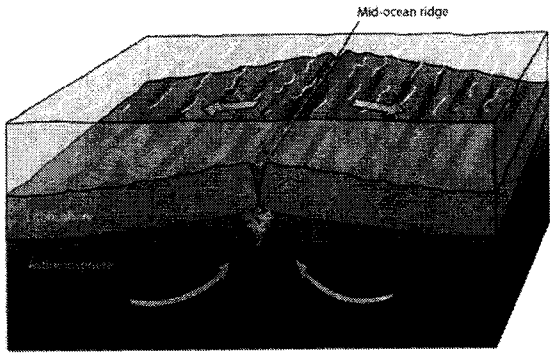


Fig. 2.1

With reference to Fig. 2.1, account for the change in the age of oceanic rocks with increasing distance from the mid-ocean ridge. [3]

Award 1m for correct identification of seafloor spreading and rocks are younger closer to the centre of the ridge.
Award 1m each for explanation of the process of seafloor spreading

- Seafloor spreading results in rocks closer to the centre of the mid ocean ridge to be younger / rocks are older the further away from the ridge. [1]
- At divergent plate boundaries when two plates move away from each other, magma from deep within the earth's crust rises to the surface through the mid ocean ridge [1]
- Lava cools, solidifies and forms new oceanic crust. As divergence continues, the new crusts formed continue to spread out laterally from the mid-ocean ridge [1]

(b) Study Fig. 2.2 (Insert), which shows Mount St Helens before and after an eruption in 1982. With reference to Fig. 2.2, explain how volcanic eruptions may cause damage to natural ecosystems. [3]

Award 1m for each response, the hazards associated with volcanic eruptions (lahars, pyroclastic flows etc) must be written, otherwise award a maximum of 2m.

- Lahars: mudflows of volcanic ash and water cover forests with thick mud and destroy them, pollute rivers, killing aquatic life [1]
- Pyroclastic flows: Cloud of hot gases and ash travels down the slope of the volcano at high speeds, burning forests and cause biodiversity loss [1]
- Ash/tephra: Ash is dispersed many kilometres away from the site of eruption, which causes air pollution and suffocate wildlife [1]
- Volcanic gases: contain acidic sulfur dioxide that causes acid rain, damage vegetation and crops and kill wildlife [1]

Accept other plausible answers.

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(c) Study Figs. 2.3 and 2.4 (Insert), which show some information about earthquakes that happened in different places. [9]

"The disaster risk caused by an earthquake at a place is most affected by its distance from the earthquake epicentre."

With reference to Figs. 2.3 and 2.4, to what extent do you consider the above statement to be true? Support your answer with relevant examples.

Level 1 (1 – 3 marks)	• Brief description of the factors that may not necessarily be accurate • No evaluation / limitations given • No location-specific examples provided
Level 2 (4 – 6 marks)	• Clearly state/identify at least two factors • Describes factors but description may lack details / describes one factor in detail but description for the other method may be vague or lacking in details • Attempted at evaluating the extent of disaster risk • General examples provided • Evidence of incoherent answer or misconception
Level 3 (7 – 8 marks)	• Clearly identify at least three factors • Balanced response: describes a mix of nature of nature of hazard, vulnerable conditions and exposure • Evaluate all factors and form a logical conclusion • Specific examples provided • Well-organised and coherent answer • Incl overall conclusion, with an insightful analysis. Demonstrate clear link between points discussed and key question.

Suggested answer, sample essay

Given factor: **Distance from epicentre**
The distance from the epicentre of the earthquake will greatly determine the amount of ground shaking felt and the damage to infrastructure as a result. From Fig. 2.3, the most severe ground shaking felt after the Sichuan earthquake was close to the epicentre, and from about 100km away from the epicenter, it was only "moderate". Seismic waves which cause the ground shaking radiate out from the epicentre. Generally, exposure is lesser the further away from the epicentre as seismic waves are absorbed by the rocks before they reach the place. Infrastructure is thus less likely to collapse, leading to fewer injuries and fatalities.

Level of preparedness of a place
However, there are also other factors that affect disaster risk, such as the level of preparedness of a place. Countries who frequently experience earthquakes can increase preparedness through ways such as earthquake resistant building designs, and installing earthquake monitoring and warning systems to reduce their vulnerability to earthquakes. Buildings can be reinforced with shock absorbers and cross bracers to prevent too much swaying and collapse, so people are less likely to get trapped in collapsed buildings and die. Earthquake Early Warning (EEW) systems can be used to detect seismic waves and provide

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advance warning for evacuation. For example, even though Japan has the 4th highest number of earthquakes in the world (2.4), there are few loss of lives even in a major earthquake like the magnitude 9.0 Tohoku Earthquake in 2011. This is because monitoring and warning systems detected strong tremors and a signal was sent out to stop their bullet trains, saving thousands of lives. Buildings in major Japanese cities are also reinforced with shock absorbers so there was little collapse.

Time of shaking

Another factor that can affect disaster risk is the time of occurrence of the earthquake. This affects the activities people are carrying out and how they respond when the earthquake strikes. If people are at work or school during the day, they are more alert and would be better equipped to evacuate, hence saving precious lives. For instance, the Kobe earthquake in 1995 was only a magnitude 6.9 and Japan being an earthquake-prone country had reinforcements like warning systems, and seawalls to counter tsunamis in place. However, as the earthquake hit at 6am in the morning, many people were still asleep and evacuation was slow. They were trapped at home and this led to more than 6000 lives lost.

Soil and rock properties

Another factor that affects disaster risk is the soil and rock properties of the area. The softer the soil of the place, the higher the disaster risk as seismic waves are amplified and shaking is more intense, which increases the likelihood of more infrastructure collapsing. Loose soil is also more vulnerable to liquefaction, as buildings may sink into liquefied soil and tip over. For example, the Haiti earthquake in 2010 had a magnitude of 7.0 but the ground shaking was perceived as much worse due to the soft soil in the capital Port-au-Prince. The seismic waves were amplified and led to the collapse of many buildings and more than 200000 lives lost. From Fig. 2.3, it can also be seen that during the Sichuan earthquake, Chengdu, about 80km from the epicentre had moderate ground shaking but Mianyang, about 150km from the epicentre had more severe ground shaking. This is likely due to the different soil and rock properties of the area.

Reasoned conclusion

In conclusion, there are many different factors that can affect the disaster risk of an earthquake, in addition to just the distance from the epicentre. The distance from the epicentre is generally a good gauge of where the most intense ground shaking would be. However, to determine if a place would suffer injuries, fatalities and cost of rebuilding infrastructure, other factors like the level of preparedness would affect disaster risk more. Level of preparedness helps to reduce vulnerability and exposure to disaster risk of an area, and it is necessary to put in place such measures especially for countries along tectonic boundaries that are very exposed to earthquakes. They can counter the damage done by an earthquake, hence I do not agree with the statement.

[Total: 15]

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3 Cluster 5: Singapore

(a) Study Fig. 3.1 (Insert), which shows a map of some of Singapore's coastal ecosystems.

Using Fig. 3.1, describe the distribution of mangroves and corals. [2]

Award 1m per description of mangroves and corals each.

- Corals are found mainly in the waters of offshore islands south of Singapore eg P Hantu, Semakau [1]
- Mangroves are found at the coastal areas northwest of Singapore in Lim Chu Kang and Sungeu Buloh and the offshore islands of P Ubin and Tekong Island [1]

Accept other plausible answers.

(b) Study Fig. 3.2, which shows a population pyramid of Singapore in 2024.

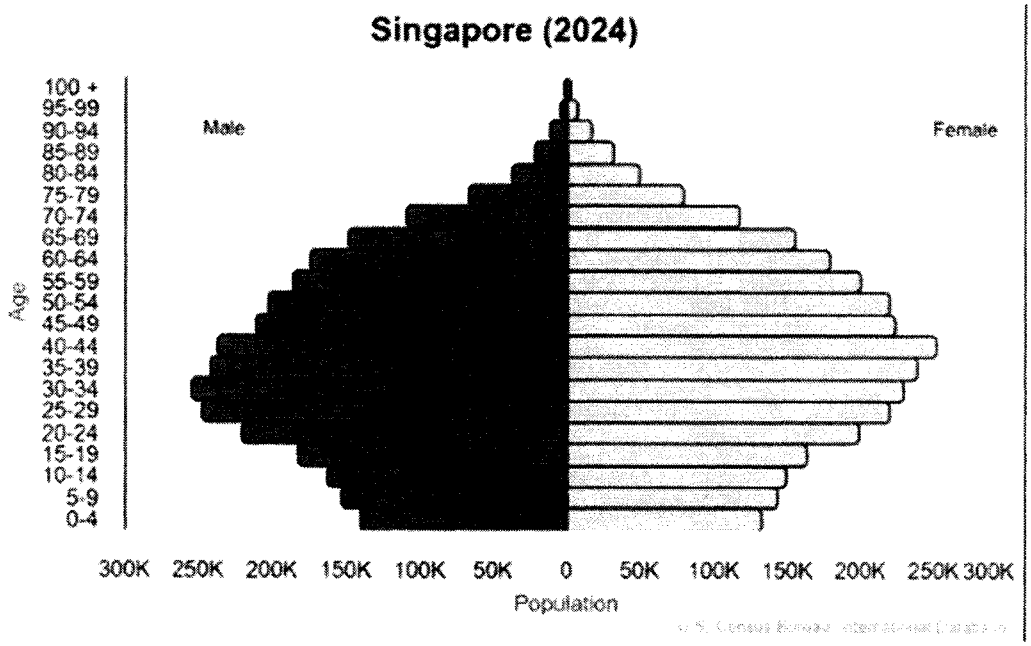


Fig. 3.2

With reference to Fig 3.2 only, identify a possible demographic challenge and explain its impact on the economic viability of Singapore. [4]

Award 1m for identification
Award 1m for each explanation of impact

- Identification - Declining BR (Base of the pop pyramid are narrower) and ageing population (more are living longer, up to even a 100) [1]

Explanation of impact
- Fewer people in the workforce leading to foreign investors losing interest in Singapore [1]
- Due to the small workforce Singapore become expensive and loses its competitiveness [1]

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- Heavy reliance of migrant workers/foreign talent can lead to greater vulnerability to labour shortages when there is a lack of foreign workers, making us less competitive. [1]
- Increase foregen workers may lead to increase diversity and may increase conflict in the society → less cohesive society. [1]

Accept other plausible answers.

(c) Study Fig. 3.3, which shows the SkillsFuture scheme introduced by the Singapore government.

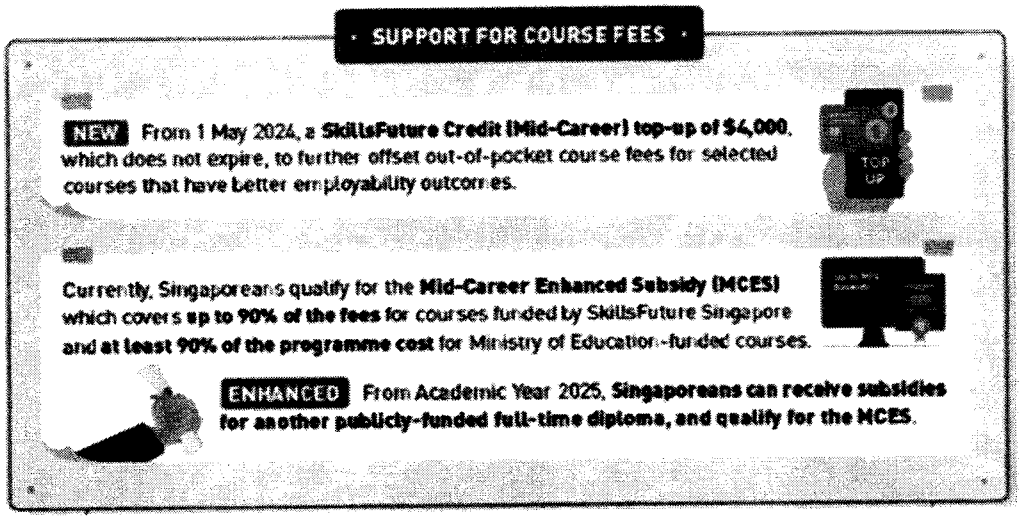


Fig. 3.3

With reference to Fig. 3.3, explain how schemes like SkillsFuture help in building social resilience in Singapore. [4]

Award 1m per explanation

- All sectors of society play an integral role in Singapore's resilience efforts as the population ages and becomes increasingly diverse. [1]
- With the rapid pace of technological development, Singaporeans need to go beyond their academic qualifications acquired during their schooling years and focus on lifelong development of knowledge and skills. To stay relevant amidst changes. [1]
- For example, the SkillsFuture national movement provides every Singaporean the opportunity to develop their potential throughout life. [1]
- As seen in the Fig, SkillsFuture helps mid-career Singaporeans to enable them to reskill and upskill to stay relevant amidst rapid changes [1]

Accept other plausible answers.

(d) Study Fig. 3.4 (Insert), which shows some tectonic information in Southeast Asia.

With the help of Fig. 3.4, explain the potential tectonic threats to Singapore and how Singapore has managed to turn it into opportunities. [4]

2m for potential threats based on Fig. 3.4 and 2m for opportunities
Award 1m per explanation

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Potential Threats

- Earthquakes – Any movement of the faults could lead to earthquakes forming, if they are higher in magnitudes, the seismic waves could bring devastation to Singapore / Earthquakes resulting from faults closer to Singapore like the East Vietnam Fault could lead to seismic waves reaching Singapore, resulting in possible destruction. [1]
- Tsunami-Undersea volcanoes eruption may lead to tsunami that may affect Singapore especially those in the South China Sea [1]
- Volcanic ash-Undersea volcanoes eruption could also lead to volcanic ash forming that could be carried by wind to Singapore [1]

Opportunities

- To reduce risks, Singapore has implemented stricter building codes and conducted seismic risk studies. [1]
- These preparedness efforts have also led to economic opportunities in engineering consultancy and disaster risk management services regionally.[1]

Accept other plausible answers.

(e) Evaluate Singapore's effort in building food resilience to mitigate the impact of climate change. Support your answer with relevant examples. [6]

Award up to 4m for explaining the 3 aspects of successes of building food resilience with examples. Award up to 6m for explaining 3 aspects of successes of building food resilience with examples and at least 2 limitations
Cap at 4m if there are no examples

Singapore puts in place robust infrastructure and systems to tackle emerging challenges such as food security and sea level rise by looking at 3 areas :

- Diversify, Grow Local 30 by 30 and Growing overseas [1]
- Diversify : Importing food from many different countries reduces the risk of over-reliance on a single supply source. This allows importers to ramp up supply from other sources if the supply from any source country is disrupted. [1]
    - Today, we have diversified our food sources to over 170 countries and regions.
    - For importers of key food items, the SFA has also introduced a requirement to adopt business continuity plans, which may include import source diversification to mitigate the impact of food supply disruptions. [1]
- Local food production mitigates our reliance on imports and provides a critical buffer during supply disruptions.[1]
- Grow Local 30 by 30 : We are working to build up the capability and capacity of our agri-food industry to produce 30% of our nutritional needs locally and sustainably by 2030. [1]
    - For example local fisheries such as Eco-Ark and The Fish Farmer rear fish that supplement those that are imported for our consumption.

Limitations:

With global warming, there may be greater incidence of both droughts as well as heavy, intense storms, which could affect local food production and food imports. For instance, thousands of fish died in 2015 in the Lim Chu Kang fish farms that can potentially affect local aquaculture production

- Growing overseas: Singapore is also supporting local food production companies to set up overseas and export their produce back to Singapore, contributing to our food security. By venturing overseas, companies can overcome land and manpower

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constraints, and access new and bigger markets. [1]
- This strategy helps Singapore build strategic relations with key partners and helps local companies export their urban food solutions. [1]
- Eg : Barramundi Asia in Australia
- Sky Greens in Thailand: vegetables are grown overseas in Thailand that are meant for Singapore consumers

Limitations:
Climate change may affect Singapore's imports. Vegetables and fruits production could be affected as the growing season may be lengthened or shortened, which affect the crop yield. [1]

Accept other plausible answers.

[Total: 20]

END OF PAPER

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