JC1 H2 Geography Promotional Exams 2023
Mark Scheme

H2 Fieldwork SQ (40m) AO1-13m, AO2-17m, AO3-10m

1	A group of four Geography students from Singapore conducted fieldwork to investigate the extent to which residents of Treelodge@Punggol practice eco-friendly habits. Treelodge@Punggol is an eco-estate in Singapore designed to encourage eco-friendly practices among their residents. They developed the following hypothesis: "Majority of the residents in Treelodge@Punggol adopt eco-friendly practices." They visited Treelodge@Punggol on a Friday afternoon during their June Holidays, from 12noon-2pm. As this was their first time there, they spent the first 15 minutes conducting a site reconnaissance in the estate to take photographs and recording aspects of Treelodge@Punggol that encouraged eco-friendly living. As Treelodge@Punggol provides free planter boxes for residents to grow herbs and plants in their balconies, they stood at the ground floor to count the number of balconies used by residents to grow plants. To do so, they spread themselves across 4 blocks to count. However, there were some uncertainties about how many potted plants counted as greenery. Next, the students split up and conducted surveys alone to find out if residents adopted eco-friendly practices. The students used convenience sampling and surveyed 12 residents in total. However, during the survey, there were language barriers when some elderly could only converse in dialect. Resource 1 shows the photographs taken by students showing eco-friendly features and messages in Treelodge@Punggol. Resource 2 shows the data collected by students on the balconies with and without greenery. Resource 3 shows their data recording sheet for the surveys. Resource 4 shows the survey findings.		
	a)	Explain one strength and one weakness in the students' hypothesis.	[4]
		<u>AO1</u> Award 1m for each relevant point. Award 1 additional mark for further development of each explanation. Strength: • It is of a suitable scale as the investigation is conducted in one location, Treelodge@Punggol. [1 mark] This is manageable for 4 students to complete the investigation within the time given. [1 additional mark] Weakness: • However, it is not feasible to investigate if majority of residents adopt eco-friendly practices as they would not be able to collect data on all the residents. [1 mark] This is because the students were only given 2 hours to complete their investigation, which is insufficient time. [1 additional mark]	

	b)	Explain how the students could minimise potential risks during data collection.	[4]
		AO1 Award 1m for each relevant point. Award 1 additional mark for further development of each explanation. • Stay well hydrated as the investigation is conducted at noon when the weather is hot. [1 mark] Students could also wear suitable clothing such as light-coloured & cool clothing, or a cap to protect themselves from the heat/sun. [1 additional mark]. • For their safety, students should not be alone during the investigation so that they do not get lost since it is their first time at the site. [1 mark] They should remain in pairs when surveying residents so they can look out for each other in case of a dispute. [1 additional mark]	
	c)	Explain how the students could minimise the potential impact of their investigation.	[5]
		AO1 Award 1m for each relevant point. Award 1 additional mark for further development of each explanation. • Students should keep noise to a minimum and refrain from talking loudly to avoid disturbing the residents in the estate. [1 mark] They can do so by resolving any disputes at a distance away from the homes, such as when discussing whether the presence of one potted plant in the balcony should be counted. [1 additional mark] • Students should ensure they collect all litter and fieldwork materials before leaving to avoid polluting the site. [1 mark] • Students should avoid taking too long when counting the number of balconies with greenery as residents may feel that they are invading their privacy. [1 mark] They should also take care to not take any photographs of residents in their homes when taking pictures of the estate. [1 additional mark] • Students should exercise sensitivity during the survey as residents may feel uncomfortable with their questions. [1 mark] They should not force residents to answer the survey questions if they do not wish to do so. [1 additional mark].	
	d)	With reference to Resource 1, explain the benefits of conducting a site reconnaissance at the start of their investigation.	[4]
		AO2 Award 1m for each relevant point. Award 1 additional mark for further development of each explanation. • As this is the first time at the site, conducting a site reconnaissance is useful for students to obtain primary data on the eco-friendly features in the estate. [1 mark] For example, students are able to observe that there are recycling posters and recycling chutes conveniently placed to encourage residents to recycle. [1 additional mark]	

		• Based on their observations, this could help students determine what other relevant primary data to collect, such as to count the number of balconies with greenery. [1 mark] • The students can also use the information to ask relevant questions about eco-friendly habits in their survey. [1 mark] For example, based on the posters encouraging residents to adopt eco-friendly transport, they can ask questions about the frequency of using bicycles / car sharing or walking to the MRT [1 additional mark].	
	e)	Explain the strengths and limitations of the data representation shown in Resource 2.	[4]
		<u>AO2</u> Award 1m for each relevant point. Award 1 additional mark for further development of each explanation. Strengths: • The use of different colours to represent balconies with and without greenery makes it easier to visualise the proportion of balconies with and without greenery. [1 mark] One can easily see that there are significantly more balconies without greenery than with greenery from the graph. [1 additional mark] • The use of a compound bar graph makes it easy to compare trends across the 4 different blocks. [1 mark] One can easily infer that Block 306D has the highest proportion of balconies with greenery while Block 306B has the lowest proportion of balconies with greenery. [1 additional mark]. • The unit in y-axis is represented in percentage, which makes it easy to analyse if the majority of balconies contain greenery. [1 mark] Limitations: • The unit in the y-axis is represented in percentage, hence it is not clear exactly how many balconies contain greenery. [1 mark] There is also no information on the total number of balconies counted at each block. [1 additional mark] • The use of the graph does not represent the spatial distribution of balconies with/without greenery across different levels of the block. [1 mark]	
	f)	With reference to Resource 3, explain how the design of the data recording sheet for the survey could be improved.	[5]
		<u>AO2</u> Award 1m for each relevant point. Award 1 additional mark for further development of each explanation. • The details required in the profile of residents could be more clearly specified to ensure consistency [1 mark]. For example, there could be options to indicate whether the resident is male or female [1 additional mark]. • The options given for questions 1 and 2 could be changed to the number of times, such as less than 2 times a week, 3-4 times a week, 5-6 times a week, everyday. [1 mark]. This is because there may be differences in one's understanding of what 'not often' or 'quite often' mean. [1 additional mark]	

		• To improve clarity, the question asking residents if they are aware of eco-friendly initiatives in Treelodge@Punggol can be changed to include options of different eco-friendly initiatives found in the estate. [1 mark] For example, students can include a checkbox of initiatives such as recycling chutes, free planters, car-sharing schemes and bicycle lots. [1 additional mark]	
	g)	Compare the survey findings for Question 1 and Question 2 as shown in Resource 4.	[4]
		<u>AO2</u> Award 1m for each relevant point. Award 1 additional mark for further development of each explanation. Similarities: • The least popular response is 'Never' for both questions. [1 mark] • 8% of the respondents similarly selected the option 'Never' in both questions. [1 mark]. Differences: • The most popular response for question 1 is 'not often', while the most popular response for question 2 is 'very often'. [1 mark]. • 62% of the respondents selected 'very often for question 2, which is higher than the most popular option in question 1 where 42% of the respondents selected 'not often'. [1 mark]	
	h)	The students concluded that Treelodge@Punggol is effective in encouraging majority of residents to adopt eco-friendly practices. Evaluate the validity of their conclusion.	[10]
		<u>AO3</u> Possible Approaches Candidates could consider how accurate and reliable the collected data of the students are for drawing conclusions. Candidates could look at the way data was collected and assess if the methods used could make accuracy and reliability of the data questionable. For instance, the students only interviewed 12 residents, which is insufficient to draw conclusions about whether the majority of residents adopt eco-friendly practices. Furthermore, there were some problems with the translation of survey questions in dialect, which would affect the accuracy of the data collected. The phrasing in the survey was also vague. For example, respondents might have selected that they rarely take car-sharing/public transport/walk to the MRT not because they do not practice eco-friendly habits, but because they do not travel to the MRT often. Additionally, candidates could also assess if the findings support the hypothesis. Candidates can also refer to data from Resource 2 and 4 on the percentage of balconies with greenery and survey findings to assess if the findings support the claims. Candidates could also consider what other data that would be needed for the	

investigation. They could reflect that the findings are insufficient in finding out if Treelodge@Punggol is effective in encouraging majority of residents to adopt eco-friendly practices as they did not collect data on resident habits before and after residing in the estate. Additionally, there could be other ways to measure eco-friendly habits. For instance, students could ask residents about energy saving habits, such as whether they use air-conditioning at home or remember to turn off the electricity when not in use.

Marked using Generic Level Descriptors for H2 Fieldwork Evaluative Questions

Levels	Marks	Generic Level Descriptors for H2 Fieldwork Evaluative Question
3	9–10	Evaluation is analytical and coherent. Response addresses the question and demonstrates good knowledge and understanding of fieldwork methods relevant to the given context.
2	5–8	Evaluation is mostly analytical and coherent. Weaker responses in this level will have evaluation that is broadly analytical and generally coherent. Response generally addresses the question and demonstrates adequate knowledge and understanding of fieldwork methods relevant to the given context.
1	1–4	Response is descriptive with limited or no analysis and evaluation. Response is fragmented and lacks clarity. Response lacks focus on the question and may be largely irrelevant to it. Response shows basic knowledge and understanding of fieldwork methods. Response has some, though limited, relevance to the given context.
0	0	No creditworthy response

Resource 1

Photographs taken by students showing eco-friendly features and messages in Treelodge@Punggol.

Recycling posters at rubbish chute

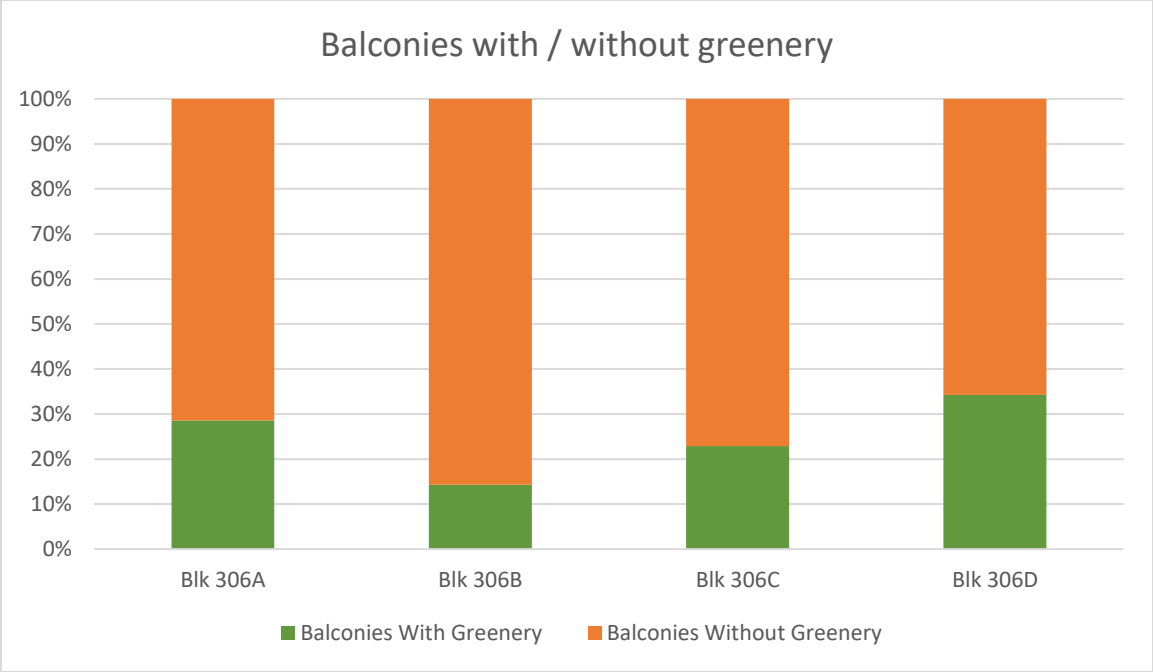
Recycling Chute on the 6th floor

Balconies with greenery

Signages to encourage residents to use eco-friendly transportation

Resource 2

Data collected by students on balconies with and without greenery.



Resource 3

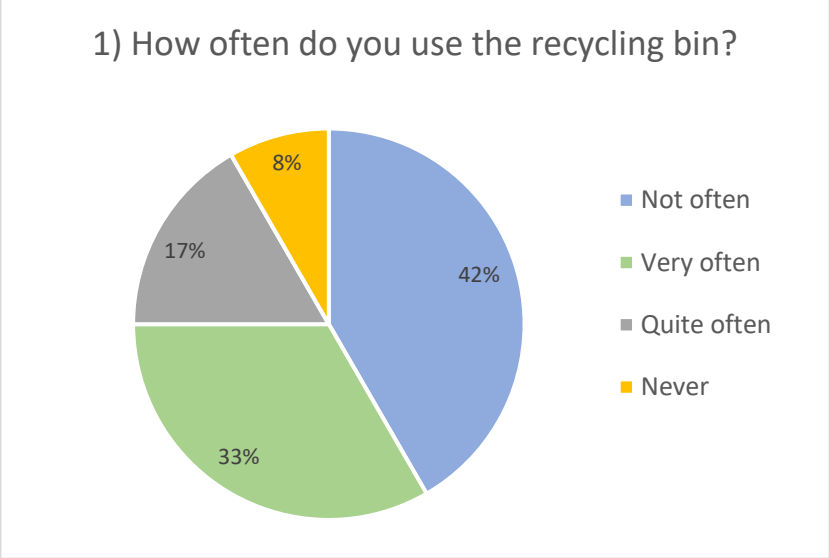
Data recording sheet for survey

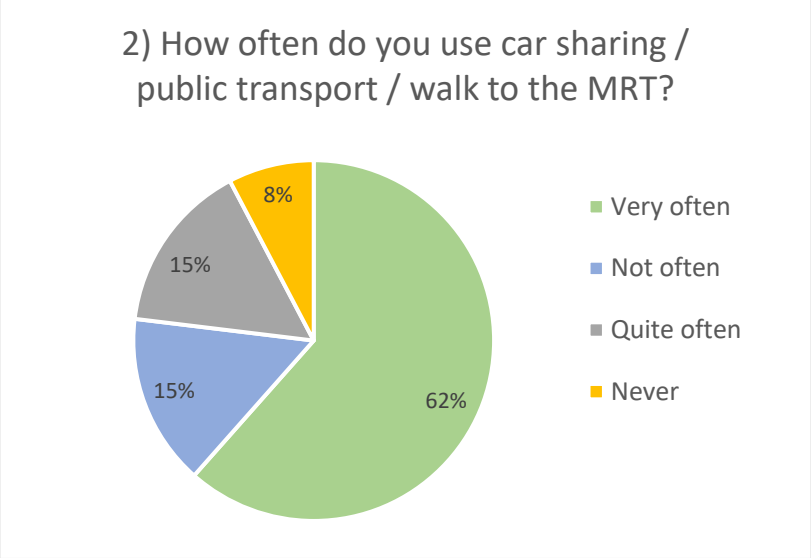
Profile of resident: Teenage Boy

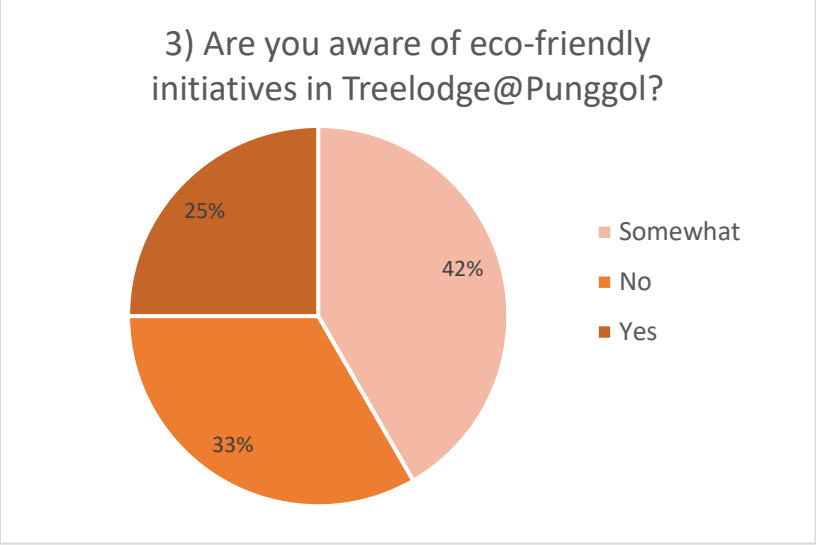
1. How often do you use the recycling bin? Never/Not often/Quite often/Very often
2. How often do you use car sharing / public transport / walk to the MRT? Never/Not often/Quite often/Very often
3. Are you aware of eco-friendly initiatives in Treelodge@Punggol? No/Somewhat/Yes

Resource 4

Survey Findings







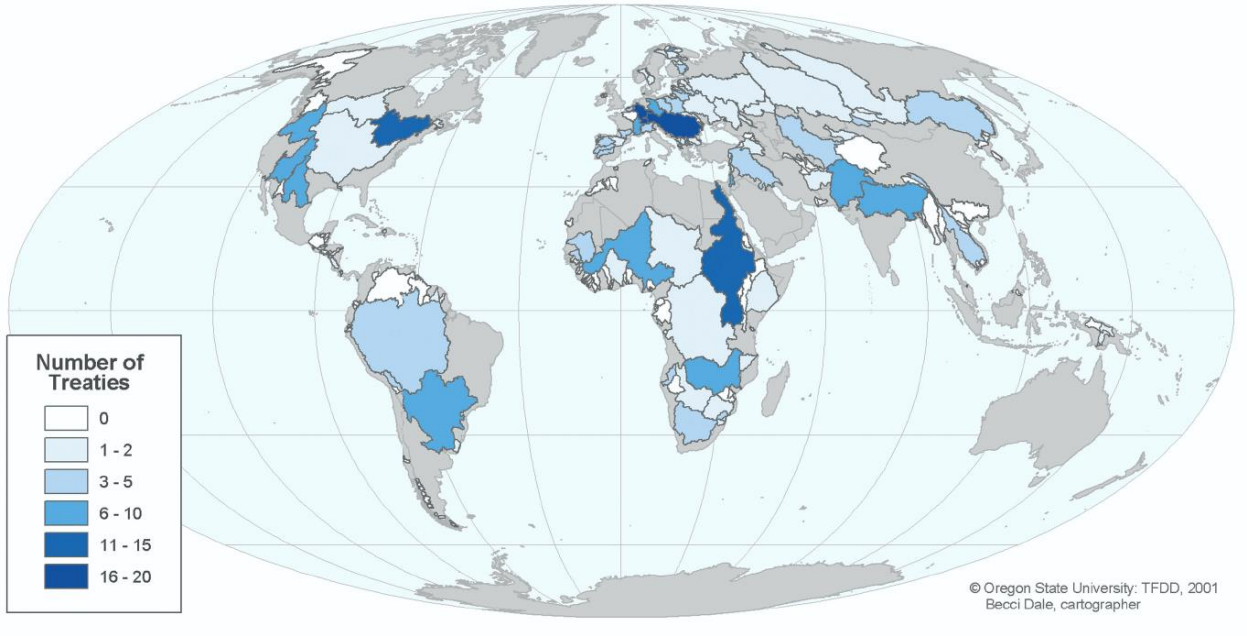
H2 Cluster 1 SQ (AO1 (12); AO2 (18)) – Development, Economy, and Environment

1	Resource 5 shows the distribution of international agreements over international (i.e. transboundary) river basins worldwide. Resource 6 shows a map of the Brahmaputra River Basin, and the development of dams over it by China and India. Resource 7 shows how much different countries depend upon other upstream countries for access to freshwater sources. Resource 8 shows a graph depicting changes to China's energy mix over time.		
	a)	Describe the distribution of agreements across International River Basins as seen in Resource 5.	[3]
		AO2 Award 1m for each relevant description. Possible responses include: - There is no clear pattern for distribution [1] - However, three basins have an overwhelming number of 11 to 20 agreements in Africa, North America, and Europe. [1] - Asia and South American continents tend to have a moderate number of agreements (maximum of 10) per international basin [1] - There are a few basins with no treaties at all across all continents. [1]	
	b)	With reference to Resource 5, suggest possible reasons for the distribution of agreements across International River Basins.	[5]
		AO2 Award 1m for each explanation, with a maximum of 1 additional mark for further development. Maximum of 2m if no data is used for substantiation Possible responses include: - Treaties require signatories to be able to trust each other, and have mechanisms for monitoring of river usage. [1] - As such, it is likely that there are more treaties in areas where there is mutual trust between political governments [1] (e.g. in North America, between USA and Canada; in Europe, between 9 EU countries and 5 non-EU countries; in the Nile Basin because of historical colonial powers) [1 additional] - Conversely, where there is little capacity (organisational or technological) for monitoring, there might be fewer treaties [1] - There are more international basins without treaties in Asia, South America, and Central Africa, possibly due to inability to trust the other party, or desire to manage the resource as a domestic source. [1] (e.g. Orinoco Basin between Venezuela and Colombia)	
	c)	Explain the reasons for transboundary water conflicts	[6]
		AO1 Award 1m for each explanation, with a maximum of 1 additional mark for further development.	

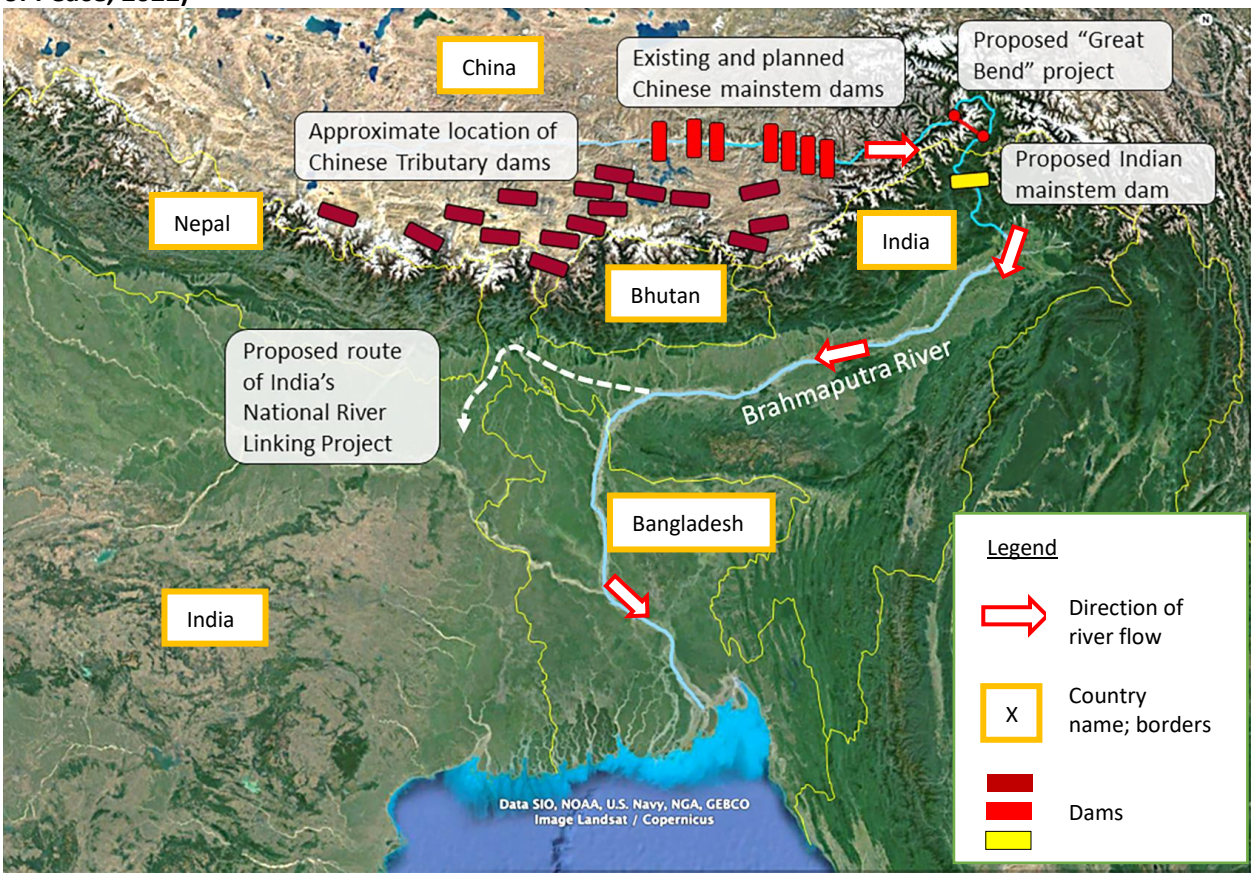
		Possible responses include: - A river provides a multitude of ecosystem services. [1 additional] - Dependency on river water in water scarce areas for consumption experiencing stress with growing population [1] - Dependency on river water for irrigation purposes [1] - Dependency on river resources for economic activities [1] (e.g. fish, transportation) [1 additional] - River projects can cause flooding along the river (both upstream and downstream) [1]	
	d)	Referring to Resources 6 and 7, suggest the possible challenges facing transboundary water management.	[5]
		AO2 Award 1m for each challenge identified, with a maximum of 1 additional mark for further development. Maximum of 2m if no data is used for substantiation Possible responses include: - Many Chinese and Indian dams upstream of the Brahmaputra would constrict nutrient flow [1] and possibly change flow patterns across the year [1] - Downstream activities that depend on river flow and volume could be negatively impacted [1] - Bangladesh is most vulnerable to these upstream changes as 91.4% of freshwater resources originate from other countries. [1] - China is unlikely to empathise with downstream riparian states as only 1.0% of their water originates from other countries. [1] - Political relationship between Chinese and Indian governments could complicate management of the upper reaches of the Brahmaputra. [1] - Bangladesh river resources are challenging because of the impact of changes in sea level (since the river empties out into the delta [1]	
	e)	Referring to Resource 8, describe the changes in China's consumption of solar, hydropower, and fossil fuels between 1965 and 2022.	[5]
		AO2 Award 1m for each description provided, using evidence from the resource. Maximum of 2m for any source of energy. Possible responses include: - Solar o Use only began significantly from around 2016, with about 3-5% contribution to energy consumption in 2022. [1] o Relatively nascent technology, growing only from 2016. [1 additional] - Hydropower o Present as energy source since 1965 [1] o About 5% of total consumption between 1965 and about 2010, when it increased slightly to about 7-10% by 2022. [1]	

		- <u>Fossil Fuels</u> o Dominant source of energy throughout 1965-2022 [1 additional] o Fell slightly from about 95% in 1965 to around 80% in 2022. [1] o Dependency on oil fluctuates over time, although gas dependency seems to be increasing from 2010 [1 additional]	
	f)	Explain how the environment supports various ecosystems services.	[6]
		<u>AO1</u> Award 1m for each explanation, with an additional 1m for further development up to a maximum of 2m. Possible responses include: - Provisioning service o The environment can provide resources that can be extracted from nature like food, energy, for human populations. [1] o The extent to which an environment can provide provisioning resources is dependent upon technology and socio-cultural norms [1] - Cultural service o The environment can provide non-material benefit that contributes to cultural advancement of people living within it. [1] o E.g. development of cultural, traditional, spiritual worlds. [1] - Support service o The environment can help sustain basic life forms through processes like photosynthesis and nutrient cycling [1] - Regulating service o Parts of the environment help regulate natural phenomena [1] o E.g. through pollination, decomposition, erosion and flood control, or carbon storage and climate regulation [1]	

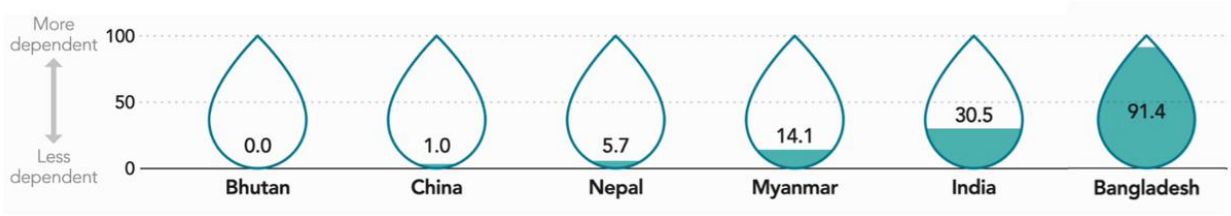
Resource 5 – Map of the Number of Treaties per International River Basin (Source: Oregon State University)



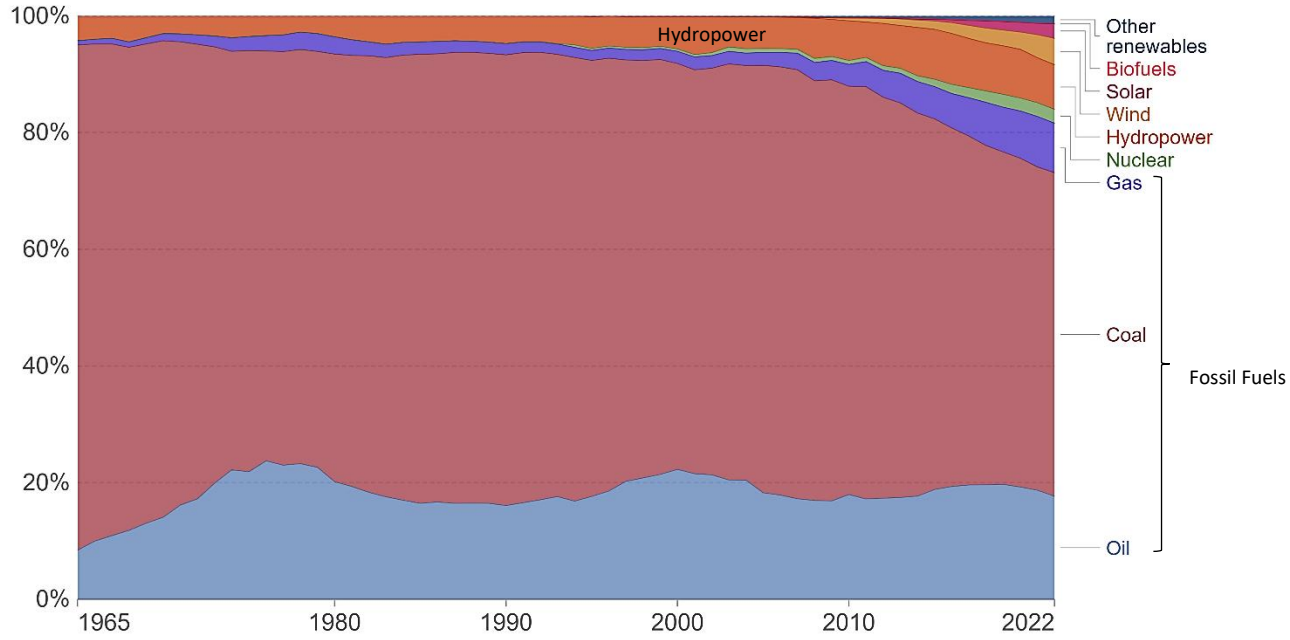
Resource 6 – Map of the Brahmaputra River Basin and proposed dams (Source: United States Institute of Peace, 2022)



Resource 7 – Water dependency ratio of countries within the Brahmaputra basin on rivers originating outside their borders (in percent, as of 2020) (modified from Source: Nikkei Asia)



Resource 8 – Energy Consumption by Source in China (Source: Our World in Data)



Source: Energy Institute Statistical Review of World Energy (2023)
Note: 'Other renewables' includes geothermal, biomass and waste energy.

OurWorldInData.org/energy • CC BY

H2 Essays

1	"Women's equal 'right to the city' is still far from being realised, especially among lower-income women." Evaluate this statement. [20]
	Possible Approaches: Candidates could approach this question by exploring the issues faced by women living in cities related to their economic, social, and psychological well-being. Men and women experience cities in different ways due to gendered social rules and norms, with micro-aggressions and institutionalised gender bias serving to perpetuate asymmetrical power distribution between men and women. Public transport, for example, can be liberating for men to affordably access urban amenities, but terrifying for women who may not have personal safety and be at risk of sexual harassment. Candidates could also approach this question by exploring the impact of strategies to address issues faced by women living in cities, whether through improving access to education, or addressing employment barrier. Candidates could explore how these strategies are complicated by external factors such as poverty.
2	'Response to contemporary climate change is mostly complicated by international relations.' Evaluate this statement. [20]
	Possible Approaches: Candidates could approach this question by exploring how response to climate change can take place at both domestic spheres as well as international cooperative efforts. At the domestic level, responses can be scoped to be within the sphere of influence of local communities and governments. Candidates could also acknowledge how domestic politics can also complicate the response to climate change, especially in countries without strong central leadership. Candidates should recognise the difficulties of international cooperation when states have varying developmental priorities, citing examples from the various conflicts or concessions made at the Conference of Parties. Candidates could also approach the question by suggesting that there are other things that complicate response, such as the uncertainty of climate predictions, or the lack of common understanding on the nature of climate change. Further, given the prevalence of the impact of climate change, and the differing nature of its impact across geographical region, response could be complicated by scarcity of resources alone. Candidates could also approach the question by suggesting that international relations have lubricated political responses to climate change. Candidates could also explore how physical, economic, and technological factors complicate response to climate change.

Levels	Marks	Generic Level Descriptors for H2 Essays
5	18–20	Evaluation is consistently analytical and coherent. Response is well-supported by relevant material, including the effective use of examples. Response features accurate geographical knowledge and reflects good understanding of the subject content relevant to the question.
4	14–17	Evaluation is analytical and coherent. Response is mostly well-supported by relevant material, including the appropriate use of examples. Response features accurate geographical knowledge and reflects adequate understanding of the subject content relevant to the question.
3	10–13	Evaluation is broadly analytical and generally coherent. Response is moderately well-supported by relevant material, including some appropriate use of examples. Response features accurate geographical knowledge and reflects adequate understanding of the subject content relevant to the question.
2	6–9	Response is largely descriptive with limited analysis and evaluation. Response is partly coherent and may lack clarity in parts. Response is poorly supported by relevant materials, including the limited use of examples. Response features inaccurate geographical knowledge and poor understanding of the subject content relevant to the question.
1	1–5	Response is descriptive with no analysis or evaluation. Response is fragmented and lacks clarity. Response consists of unsupported assertions. Response features largely inaccurate geographical knowledge and a lack of understanding of the subject content relevant to the question.
0	0	No creditworthy response