



VICTORIA JUNIOR COLLEGE

JC2 PRELIMINARY EXAMINATIONS 2025

H2 GEOGRAPHY

9173/02

Paper 2

INSERT

3 hours

READ THESE INSTRUCTIONS

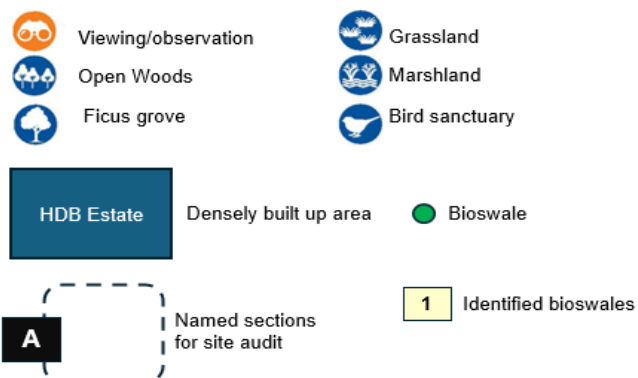
The Insert contains all the Resources referred to in the questions.

Resource 1 for Question 1

Map of Bidadari Park



Legend



Note: Bidadari Park is the size of 18 football fields, with 5.2km of walking trails.

Resource 2 for Question 1

Site Audit of Nature Based Flood Management Features in Bidadari Park

Date & time: 20 June 2024; 10am

Weather conditions: Hot and dry day

Section	Feature	Quantity
A	Retention Pond (Alkaff Lake)	1
	Terraced wetland (surrounding Alkaff Lake)	1
	Bioswale	1
	Creek (small stream)	1
	Extensive grass surfaces	All across Section A
	Permeable pavement	1
Additional notes	Permeable pavement is the footpath. Alkaff Lake is highly vegetated, noted presence of vegetated mid channel bars. Public broadcast system is next to the lake. Red safety markers and fences observed in the perimeter of the lake.	
B	Open woodland	1
	Bioswale	2
	Extensive grass surfaces	All across Section B
	Permeable pavement	1
Additional notes	Open woodland is on the west side of Section B. Wooded Experiential trail is a wooden boardwalk with mature trees.	
C	Marshland	1
	Bioswales	4
	Open woodland	1
	Grassland (tall grass)	1
	Extensive grass surfaces	All across section C
Additional notes	Wooded Experiential trail is a wooden boardwalk with mature trees. Marshland is in the east of Section C. Grassland with tall grasses is in the centre of Section C. Open Woods is in the Northeast of the section. Section C seems to be the most diverse in types of vegetation.	
D	Bioswales	2
	Extensive grass surfaces	1
	Permeable pavement	1
Additional notes	Most built up area with HDB flats NE/E/SE of the section Some hills in the area (not sure if this is for flood management?)	

Resource 3 for Question 1

Questionnaire Survey

Gender/Age:

Resident of Bidadari: Yes/ No (Pls circle)

Duration of residence in estate:

1 How often do you visit Bidadari Park?

- ☐ Daily
- ☐ Weekly
- ☐ Monthly
- ☐ Rarely

5 How would you rate flood risk in Bidadari?

- ☐ High
- ☐ Medium
- ☐ Low

2 Do you think Bidadari Park is designed differently from other parks in Singapore?

- ☐ Yes
- ☐ No

If yes, how so:

6 How effective do you think these flood mitigation measures are in reducing flood risk?

- ☐ Highly effective
- ☐ Effective
- ☐ Don't really know
- ☐ Ineffective
- ☐ Very ineffective

3 Which of the following have you noticed in the park?

- ☐ Bioswales
- ☐ Big drains
- ☐ Pipes hidden in slopes
- ☐ Water retention pond
- ☐ Small streams
- ☐ Marshland
- ☐ Boardwalk

7 Do you feel vulnerable to floods in Bidadari?

- ☐ Yes
- ☐ No

4 Have you experienced a flood in Bidadari?

- ☐ Yes
- ☐ No

8 Do you think Bidadari Park is effective in lowering flood risk in the estate?

- ☐ Yes
- ☐ No

Resource 4 for Question 1

Results for Question 6 from the questionnaire survey

Question	Highly effective	Effective	Don't know	Ineffective	Very highly ineffective
How effective do you think these flood mitigation measures are in reducing flood risk?	25	40	10	15	10

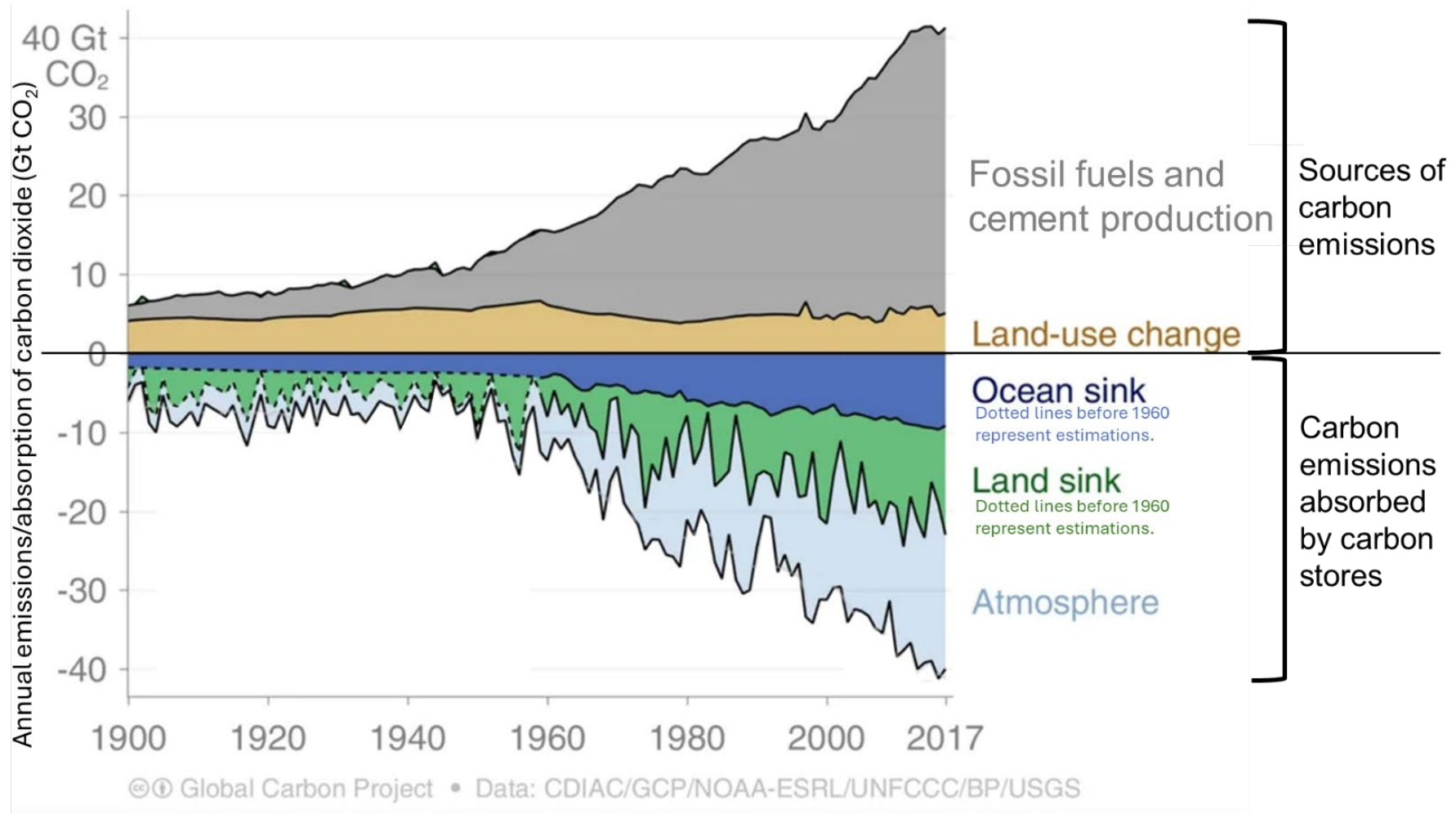
Resource 5 for Question 1

Record of conditions of bioswales with photographs

Bioswale 1 - narrow channel - tall trees sheltering above - minimal water flow - no visible standing water - ground is damp but not waterlogged	Bioswale 2 - located on lower ground, near Alkaff Lake - active water-flow (cascading?) - many plants at the sides - can hear flowing water - ground looks waterlogged	Bioswale 3 - unsheltered - dense vegetation - water : inconsistent trickle - standing water at parts of the channel - ground is soft, random puddles
		

Resource 6 for Question 2

Changes in sources of carbon emissions and carbon emissions absorbed by carbon stores between 1900 and 2017



Note:

Gt CO₂ = gigatonnes of carbon dioxide

The higher the negative values, the higher the amount of CO₂ absorbed.

Resource 7 for Question 2

Cartoon about challenges related to implementing strategies to respond to climate change

OUR NEW CLIMATE PLAN: PLANT A TREE!...



Resource 8 for Question 2

PepsiCo India's Special Mobile Van that collects post-consumer plastic waste from local establishments as part of its Tidy Trails program in New Delhi



Fact file:

- Tidy Trails is a community-driven program developed by PepsiCo India (a subsidiary of PepsiCo International) in collaboration with The Social Lab (a social organisation) and focuses on responsible plastic waste management.
- It involves local governments, market associations, shopkeepers, and consumers to drive meaningful behaviour change around plastic waste segregation and recycling.
- The collected plastic is recycled into functional items such as benches and chairs, which are installed in public spaces.
- Tidy Trails was initially launched in cities such as New Delhi, Pune, and has been extended to Agra and Guwahati.

Sources

Resource 1	Adapted from https://www.channelnewsasia.com/singapore/bidadari-park-opens-hundred-acre-wood-lake-trails-playground-bird-watching-4581141
Resource 2	Author's own, based on site recce.
Resource 3	Author's own, based on site recce.
Resource 4	Author's own, based on site recce.
Resource 5	Author's own, based on site recce.
Resource 6	Adapted from https://www.environmentalgraphiti.org/all-series/sources-and-sinks
Resource 7	https://www.inquirer.com/opinion/cartoons/trillion-tree-planting-global-warming-donald-trump-epa-20200209.html
Resource 8	Adapted from https://www.sustainabilitymea.com/pepsico-india-social-lab-scale-up-sustainable-waste-solutions-with-tidy-trails/ and https://fintechbloom.com/pepsico-india-and-the-social-lab-scale-sustainable-waste-solutions-across-four-cities-with-tidy-trails/