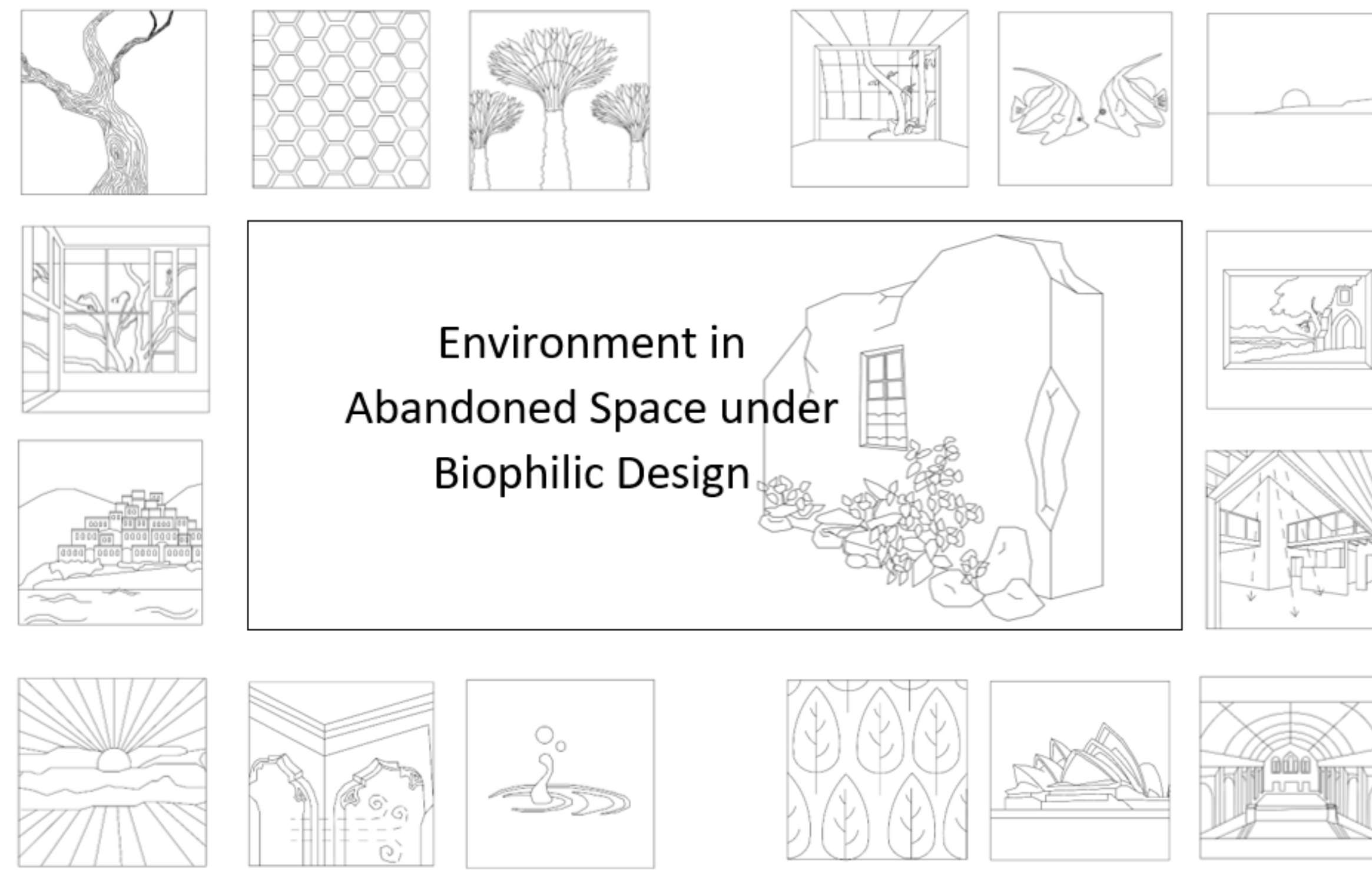


The Environment in Abandoned Spaces under Biophilic Design

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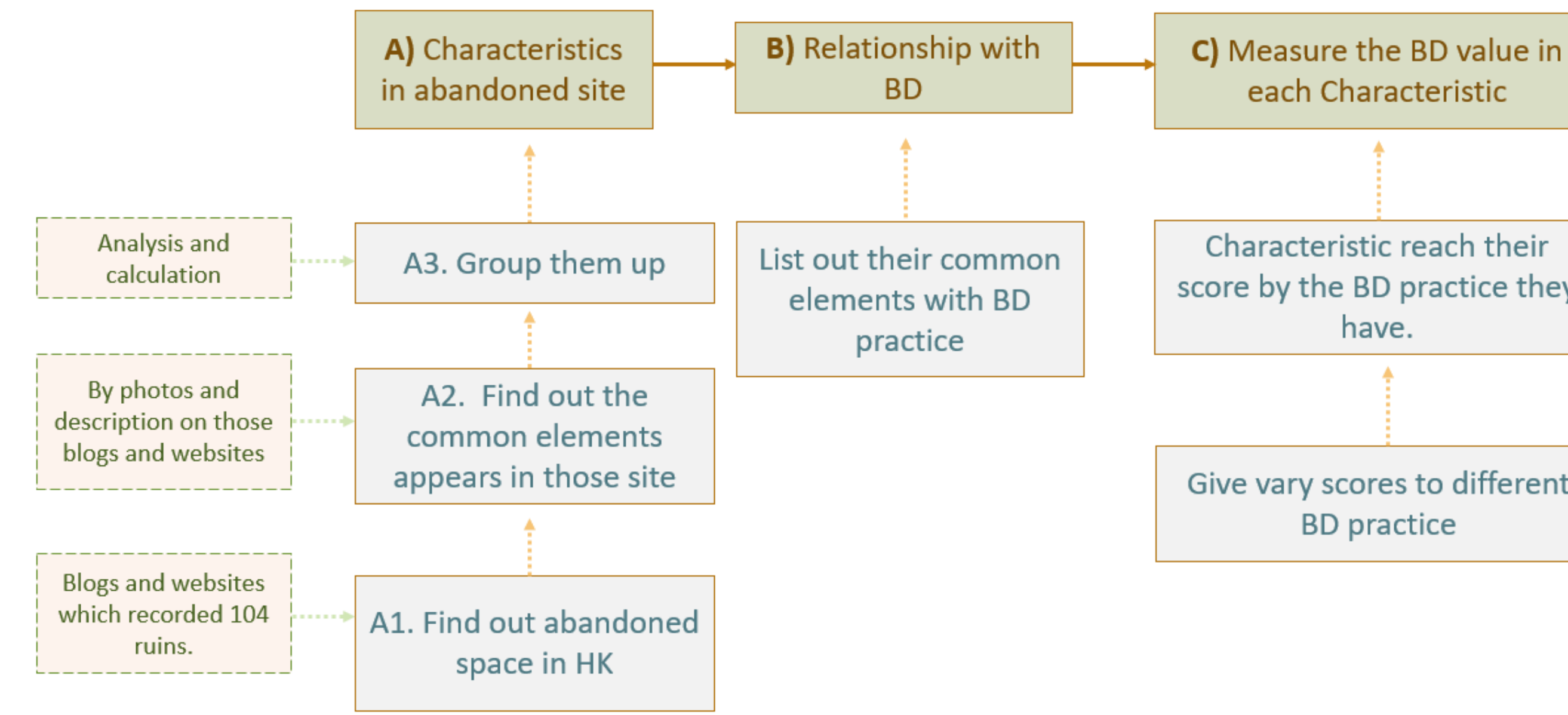
Supervisor: Mr THOMAS Michael, Assistant Professor



Environment in Abandoned Space under Biophilic Design

The methodologies used in the study include literature and lecture reviews, laptop research, site investigation, site visit and case studies. Through studying the literature, the pattern and practices of biophilic design are well designed overseas but rarely applies to Hong Kong's abandoned space development. Through site investigation of 104 abandoned sites in Hong Kong, the major types and characteristics of Hong Kong's abandoned sites were found. The study compared, matched and analyzed the similarity of those characteristics and the practices of biophilic design.

Methodologies



This study investigates and evaluates the environmental potential and limitations in Hong Kong's abandoned spaces under biophilic design patterns and practices.

Biophilic Design Definition

Based on an idea called biophilia hypothesis which the word "biophilia" means 'love of life or living systems'.

• 'The innate tendency to focus on life and lifelike process'

• Kellert, Stephen R., and Edward O. Wilson. *The Biophilia Hypothesis*. Island Press, 1993.

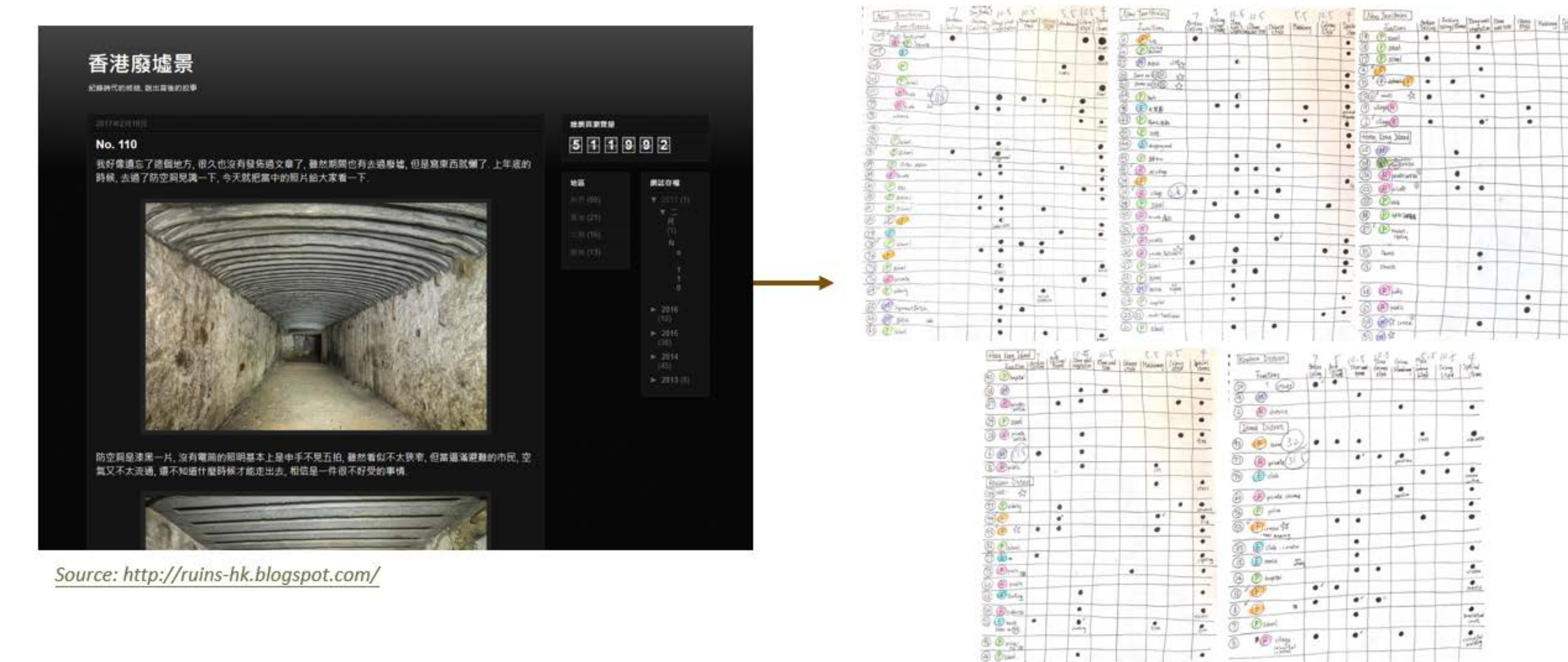
• 'Humans have an inherited need to connect to nature and other biotic forms due to our evolutionary dependence on it for survival and personal fulfillment'

• Gullone, Eleonora. "The Biophilia Hypothesis and Life in the 21st Century: Increasing Mental Health or Increasing Pathology?" *Journal of Happiness Studies*, vol. 1, no. 3, 15 June 2000, pp. 293-322., doi:10.1023/a:1010043827986.

The 24 Biophilic Design elements

Direct	Indirect	Space and Place
1. Light	9. Image of nature	19. Prospect and refuge
2. Air	10. Natural materials	20. Organized complexity
3. Water	11. Natural colours	21. Integration of parts to wholes
4. Plants	12. Stimulating natural light and air	22. Transitional spaces
5. Animals	13. Naturalistic shapes and forms	23. Mobility and wayfinding
6. Weather	14. Evoking nature	24. Cultural and ecological attachment to place
7. Natural landscapes and ecosystems	15. Information richness	
8. Fire	16. Age, change, and the patina of time	
	17. Natural geometries	
	18. Biomimicry	

Preservation in Hong Kong, particularly environmental preservation and architectural preservation, shows that redevelopment projects place a higher value on building structure than its surrounding environment. This overlooks the benefits of the environment, leading to a lack of interaction between humans and the environment. Is there a way to preserve the beauty of abandoned spaces and fulfill the needs of redevelopment?



Characteristic of HK Abandoned Space

Characteristic	Factory	Military Site	Residential	Public Facility	Entertainment	Others	Overall
Broken Ceiling	50% (6)	10% (1)	15.4% (4)	11% (4)	20% (2)	33.3% (3)	19.2% (20)
Arching Ceiling	58.3% (7)	10% (1)	19.2% (5)	10.8% (4)	10% (1)	11.1% (1)	18.3% (19)
Stone Wall with Vegetation	50% (6)	80% (8)	65.4% (17)	54.0% (20)	40% (4)	33.3% (3)	55.8% (58)
Stone Wall Tree	8.3% (1)	20% (2)	15.4% (4)	8.1% (3)	0% (0)	0% (0)	9.6% (10)
Machinery	33.3% (4)	0% (0)	3.8% (1)	8.1% (3)	40% (4)	11.1% (1)	12.5% (13)
Colony Style	0% (0)	0% (0)	30.8% (8)	10.8% (4)	10% (1)	44.4% (4)	16.3% (17)
Special Items	83.3% (10)	1% (1)	50% (13)	75.7% (28)	90% (9)	66.7% (6)	64.4% (67)
Special Shape	25% (3)	3% (3)	3.8% (1)	0% (0)	0% (0)	22.2% (2)	8.7% (9)
Total	100% (12)	100% (10)	100% (26)	100% (37)	100% (10)	100% (9)	100% (104)

B) Relationship with Biophilic Design Practice

Score of Characteristic

Characteristic	Direct BD	Indirect BD	Potential BD	Local Identity
Broken Ceiling	1,2	4,7		
Concrete, Stone Wall with Vegetation	4,7	10, 11, 16		Military and Residential History
Stone Wall Tree	4,7	10, 11, 16		Military and Residential History
Machinery		14,15,16		Factory Identity and Entertainment ruins
Colony Style	1,2,6,8		12,13,17	Colony Period
Special Items			15,16	✓ According to their location
Arching Ceiling			13, 16	✓ Factory Identity
Special Shape			15,16	✓ According to ruins function

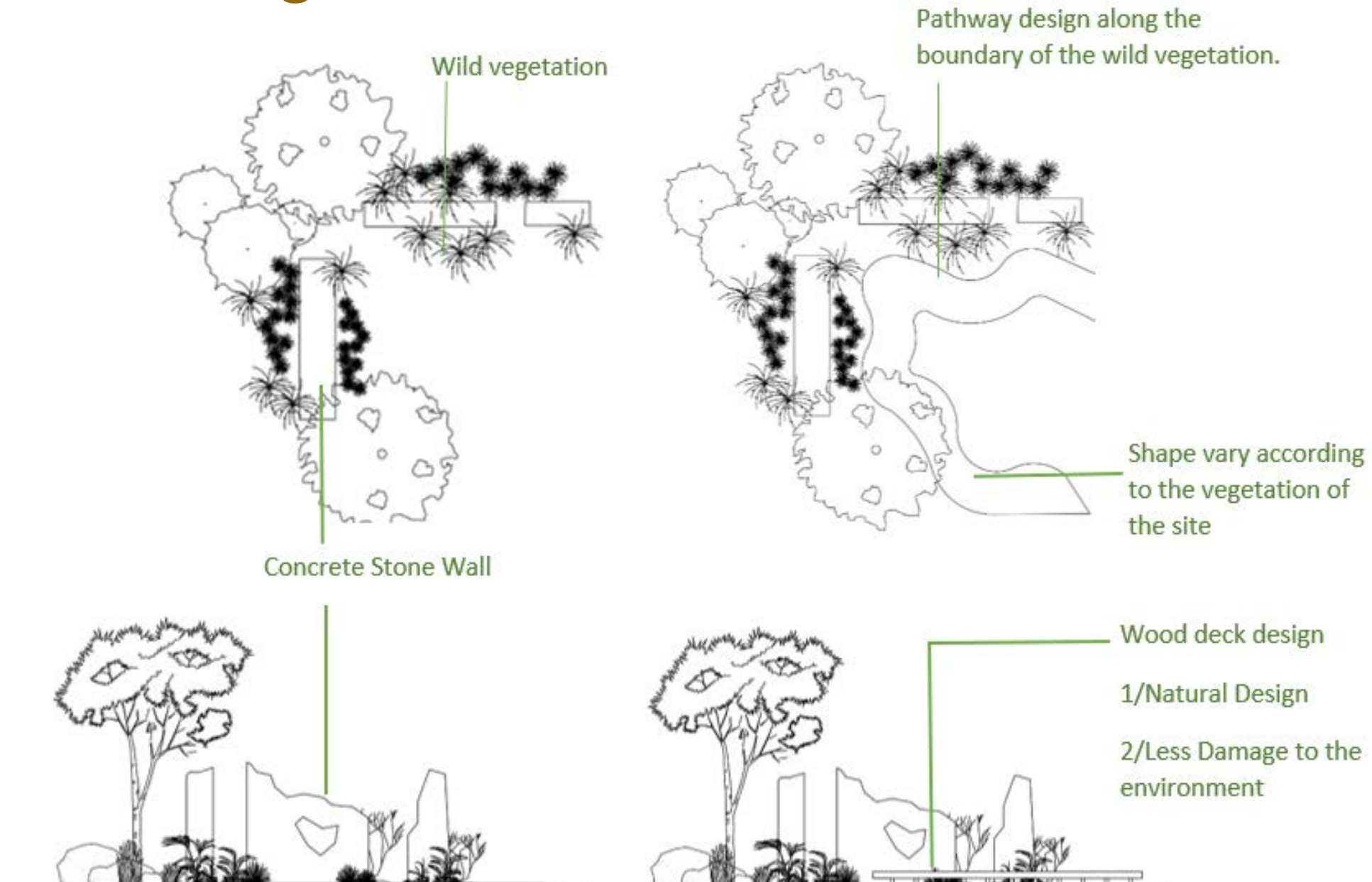
Total Score of Characteristic

Characteristic	Direct BD (1-3, 5-6, 8)	Direct BD (4, 7)	Indirect BD (9-18)	Potential BD (Must achieve through further design)	Local Identity (History background)	Total Score
Score	1 point each	2 point each	1.5 point each	-1 point	2 point	26
Broken Ceiling	✓ (2pt.)	✓ (4pt.)				6
Arching Ceiling			✓ (3pt.)		✓ (2pt.)	5
Stone Wall with Vegetation		✓ (4pt.)	✓ (4.5pt.)		✓ (2pt.)	10.5
Stone Wall Tree		✓ (4pt.)	✓ (4.5pt.)		✓ (2pt.)	10.5
Machinery			✓ (4.5pt.)	✓ (-1pt.)	✓ (2pt.)	5.5
Colony Style	✓ (4pt.)		✓ (4.5 pt.)		✓ (2pt.)	10.5
Special Items			✓ (3pt.)	✓ (-1pt.)	✓ (2pt.)	4
Special Shape			✓ (1.5pt.)	✓ (-1pt.)	✓ (2pt.)	2.5

Elements that cannot be replace and recreate e.g. Living things Historical items

The results show that there is a huge potential for abandoned spaces to carry out biophilic designs. The characteristics of Hong Kong's abandoned sites will be scored by how they can achieve a biophilic design (quality and quantity). These characteristics create opportunities for achieving biophilic designs. A further design should be raised to achieve the purpose of biophilic designs, e.g., the connection between humans and nature.

Possible design to apply biophilic design in abandoned feature



Characteristics Ranking

Ranking	Characteristics
1	Stone Wall with Vegetation
1	Stone Wall Tree
1	Colony Style
4	Broken Ceiling
5	Machinery
6	Arching Ceiling
7	Special Items
8	Special Shape