Evaluating Land Use Intensity and Their Implications for Ecosystem Services in Fung Yuen

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CONTEXTUAL TERMINOLOGIES OF FUNG YUEN

Spatial Zones

- Site of Special Scientific Interest (SSSI)
- Comprehensive Development Area (CDA)

Management Contexts

- Management Agreement (MA)
- Private Public Partnership (PPP)

MAPPING CONTEXT

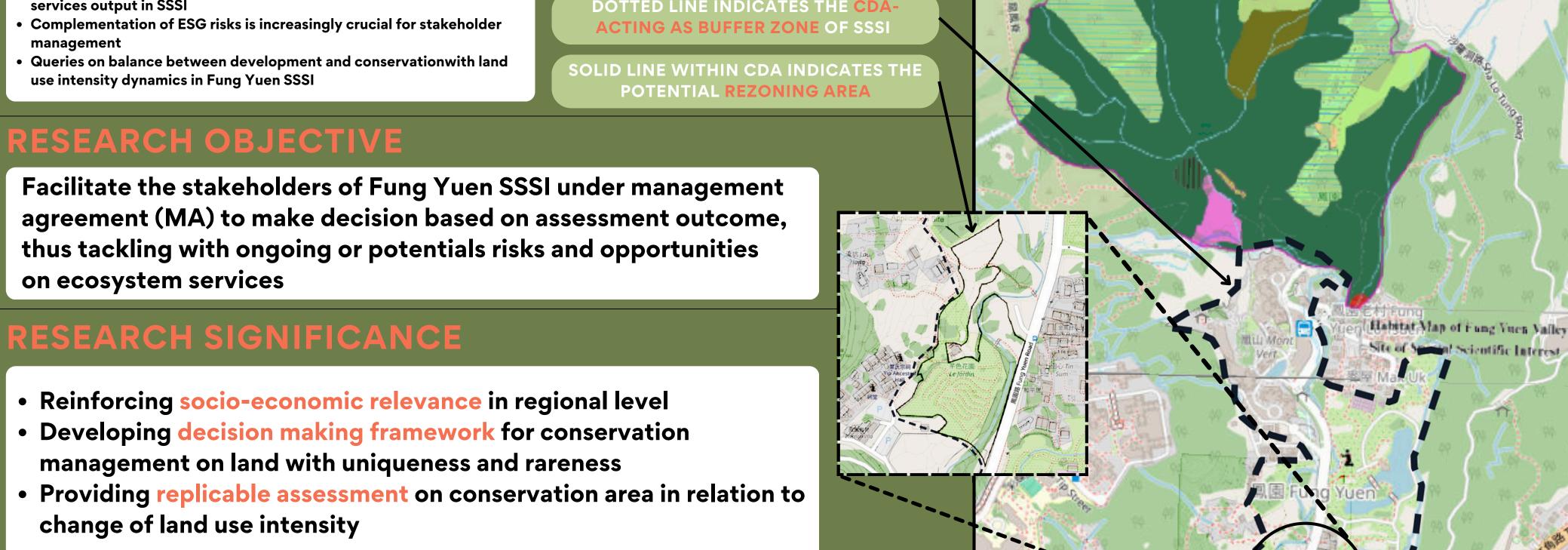
- Rezoning of CDA potentially reduces the area of original CDA
- Rezoning region accounts for 7.5% (13920m²) of total area of 183700m² which seems repetitive of government to expand development

RESEARCH BACKGROUND

- Rising concerns over policy inaction attributing to retreating ecosystem services output in SSSI
- Complementation of ESG risks is increasingly crucial for stakeholder
- Queries on balance between development and conservationwith land use intensity dynamics in Fung Yuen SSSI

BOUNDED WITH PURPLE LINE-->TOTAL AREA OF SSSI

DOTTED LINE INDICATES THE CDA-



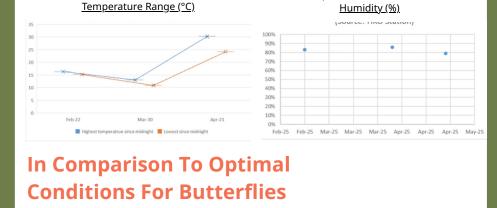
on ecosystem services

- Reinforcing socio-economic relevance in regional level
- Developing decision making framework for conservation management on land with uniqueness and rareness
- Providing replicable assessment on conservation area in relation to change of land use intensity

Study Period and Context

Time	Study Methodology
2.22(SAT)	Participants Experience and cultural events study
3.30(SUN)	Observation for special stakeholders in SSSI (Photographer)
4.21(MON)	Field study and comparative study between weekdays and weekends

Physical And Cultural Condition During Study Period



Comparison of Mean Relative

Humidity Context	Optimal Temperature Range	Climatic Risk
60% to 90%	22°C to 29°C	Heavy Rain and Extreme Temperature

Best Seasons(s)For Butteflies Watching

- Expected: Spring and Autumn
- Actual: *Early Winter (November)*
- →Empirically speaking, conservationist suggests the best month to watch should be around November 2024 (Migratory Reason) →underpinned by the climatic conidition in Hong Kong compared to other East Asian regions e.g. Japan

CONCEPTUAL FRAMEWORK

Assessment of Land Use Methodological Triangulation Intensity Surveys Interviews Aillennium Ecosystem Assessment

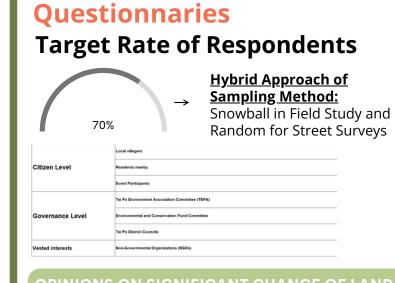
Hypothetical Relationship ustrative Sum of Ecosystem servie values Provisioning Service Land use intensity gradient -->Marginal Dynamics of Ecosystem Service Output

Eventually Diminishes With Higher Land Use Intensity Establishing MCDA Analysis to Explain Land Use Intensity

• To comprehend 6 major factors based on literatures about Weigh the importance of each criteria

• Select the parameters which account for the land use change

KEY FINDINGS





SENTIMENT OF PARTICIPANTS EXPERIENCE OUTLOOK ON LAND USE PATTERNS AND **CONSERVATION LEVEL IN SSS**

On-Site Research and Experience



NATURAL

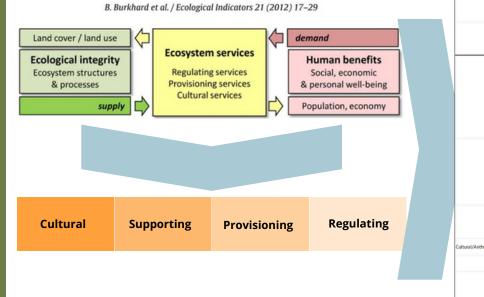
CULTURAL

Major Challenges Identified

- Low incentive to enjoy ecosystem services output
- Lack of resouce management and management coordination
- 'The Place Should Have Better Off' reduces conservation demand in SSSI, facilitating the urban enchroachment from real estate development

knowledge: significance leve (.002) much lower than p=0.05 Land cover / land use indicate a statistically influence by low incentive to enjoy

Multi Criteria Decision Analysis Framework In Reference: Millennium Ecosystem Assessment



ne	Natural	Biophysical	a.vegeuion	10
		o opily acus	3.Biodiversity (butterflies, pollinators etc)	
			4. Rareness	
		Accessibility	Static distance from urban areas	
		Accessibility	2. Proximity to homeplace	
			Anthropology,	
			2. Human behavior	
		Population	3. Perceptions,	
			4. Education level	
			5. Cultural Engagement	
			Prioritization of strategy	
		Political/Governance	2. Conservation policy	
		Political/Governance	3. Funding	
	1	1		

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Status Quo	Impact Score:0	
Real Estate Development	Impact Score:-10.6	
Funding Cut	lmpact Score:-16.2	

Scenario Analysis

Conclusion

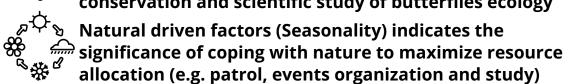


Effective Conservation Management of Fung Yuen is multidisciplinary and cross-departmental under MA scheme and



Decision making could be incorporated by systemtic and representative by systemtic and representative approach of MCDA based on MA





Suggestions and Recommendations



- **Visitor Management Strategies** • To improve ticketing and security by enhancing
 - patrol and e-booking Guide with current technologies incorporated to
 - allure tour experience



Compensation Strategies

 Developers nearby SSSI should be obligated to contribute financial compliance for compensation of potential loss in ecosystem services in SSSI

 Government funding for upgrading facilities to comply with visitors' expectation

Immersive Technology Application • Incorporating with Al-driven e-guiding to offer

personalized tour via devices and maps **Establishing interactive workshops with visual** techonologies to increase site attractiveness on



Community Integration Initiative

Training residents to lead tours and share cultural

knowledge in Fung Yuen Organizing workshops and competition to guarantee an immersive hands on experience for participants

Limitation/Future Prospect

MCDA Limitation by Nature Inadequate Sample Size Determination of

Could be subjective if more

variety of literatures

existing resources

discretionary criteron are selected More robust foundation of framework could be archieved by systemtic framework from a

and Proximity Bias

 Resolved through longer research period for greater randomness and representation

qualitative response

- Subjectivity arises through
- interpretation Qualitative and more ditchonomous indicator to better quantify the information