

GIEL 1.1

tend to health
of protect of

>  $\xleftrightarrow{\text{depend on}}$  $\begin{cases} \text{provides essentials} \\ \text{pollination} \rightarrow \text{crops} \\ \text{recreational spaces} \end{cases}$

>  $\xleftrightarrow{\text{mutually affect}}$ 

>  $\xleftrightarrow{\text{benefits}}$  $\begin{cases} \downarrow \text{temp} \\ \text{remove pollutants} \\ \text{provide space for recreation} \end{cases}$
 $\begin{cases} \text{raise awareness} \rightarrow \text{protect} \\ \text{clean-up programmes} \end{cases}$

>  $\xleftrightarrow{\text{disadvantages}}$  $\begin{cases} \text{harms ppl} \rightarrow \begin{cases} \text{human-wildlife} \\ \text{conflicts} \end{cases} \\ \text{limits development} \end{cases}$
 $\begin{cases} \text{soil erosion} \\ \text{damage vegetation} \\ \text{worsen pollution} \\ \text{disturb wild life} \end{cases}$

RELATIONSHIPS between

PEOPLE & NATURE

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Relationship between people and nature in their neighbourhoods.

• People & nature are DEPENDENT UPON EACH OTHER

▶ People dependent on nature

↳ Nature provides essentials like air and water → humans can survive

↳ Living organisms like bees → pollinate crops → humans have continuous supply of food

↳ Nature provides spaces for recreation and leisure activities

↳ allows people to bond with family and friends → maintain humans'

physical & mental well-being

↳ connect ppl with nature and reduce stress → improves physical, psychological and social well-being

▶ Nature dependent on people

↳ Ppl tend to health of nature areas → ensuring the animals & plants living there thrive

↳ Ppl encourage one another to enjoy nearby nature areas in a sustainable manner

(protecting) ↓
without causing irreversible damage to nature

E.g. NParks organises activities for schs during the week of international day for

biodiversity in May. → Green Wave campaign — aims to educate youths about the importance of protecting our natural environment

• People & nature MUTUALLY AFFECT each other (benefit each other while doing same thing)

Green spaces and Urban wildlife

help ppl

- enhances mental health and well-being

help nature

- & existing

Human activities in nature areas

help ppl

- gain enjoyment and enhance mental health and well-being

help nature

- enhance biodiversity
- enhance overall health of natural environment
- due to more shelter and habitat for urban wildlife to thrive are provided

- Nature areas benefit people
 - lower temp
 - remove pollutants
 - provide spaces for recreation

► LOWERING AIR TEMPERATURES

① Provides shade and reduces the amount of direct sunlight that reaches the surface

② Cools the surrounding air thru evapotranspiration

↳ water absorbed by plants thru their roots is released into the air as water vapour

↳ this process uses heat from surroundings → ∴ cooling surrounding air temp.

► REMOVING POLLUTANTS

In air:

① Vegetation absorbs carbon dioxide and other air pollutants and releases oxygen during photosynthesis.

> removes air pollutions and clears the air

> X CO₂ ... = prevents buildings from corroding due to acid rain
(in air)

② Small particles are intercepted by leaves which are washed to ground when it rains

> lowers risk of respiratory problems (such as asthma)

In water:

> thus
improving
water
quality

① Wetland plants trap suspended materials in water

② Absorb excess nutrients in water

↳ from nearby farmland that contribute excess fertiliser into water that may be harmful to other creatures (chemical pollutants)

► PROVIDING RECREATIONAL SPACE

① Nature provides numerous opportunities for outdoor activities

↳ allows ppl to bond with fam and friends → maintain physical & mental well-being

↳ connect ppl with nature and reduce stress → improves social, physical, psychological well-being

② Direct and frequent interactions w nature

↳ brings about health and well-being benefits to ppl (allow ppl to feel relaxed)

↳ reduces severity and occurrence of health conditions (e.g. ↓ risk of myopia)

- People benefit + nature
 - raise awareness
 - clean-up programmes

▶ RAISING AWARENESS — nature benefits from: community activities that promote the importance of environ. protection

① Local communities — collectively raise awareness about the value of nature areas

> thru encouraging +ve behaviour that does not damage nature

E.g. NParks Citizen Science initiative, Dragonfly Watch

↳ trains ppl to identify diff dragonfly species at assigned sites

↳ results in: greater protection of dragonfly species by raising awareness of their importance in the environment

▶ CLEAN-UP PROGRAMMES — nature benefits from: conservation efforts organised/participated by local com.

① Clean-up programmes — remove pollutants from environment which

> helps restore natural habitats and

> provide a healthy environment for species to thrive.

E.g. Waterways Watch Society organises waterways clean-up programmes which creates opportunities for schs to pick up trash from the Marine Reservoir.

- People disadvantage nature
 - soil erosion
 - damage vegetation
 - worsen pollution
 - disturb wildlife

▶ SOIL EROSION

Ppl hike along non-designated trails in nature areas

↳ cause soil compaction → prevents rainwater from infiltrating the surface

↳ higher surface flows and soil erosion

↳ less/scarc water & mineral salts when flowing water washes away soil particles

for plant roots to absorb → stunt plant growth

▶ DAMAGE VEGETATION

Ppl trample on vegetation → damage plants and affect growth

E.g. In 2014, human activities led to severe soil erosion & habitat degradation in Bukit Timah Nature Reserve. Resulted in limiting of public access to the nature reserve for 2 years.

▶ WORSEN POLLUTION

Littering — worsen pollution in natural areas

▶ DISTURB WILDLIFE

> Animals cut by metal cans, become entangled with plastic containers and bags

> Animals mistake litter for food and consume them → get hurt and suffer, eventually die

> Feeding wild animals → animals associate food w ppl → ↑ human-wildlife conflict

→ In long-run, extensive feeding → ↑ no. of animals beyond carrying capacity

overcrowding

- Nature disadvantages people ^{wildlife harms ppl} ^{limiting development}

- Wildlife harms people (Human-wildlife conflict) ^{neutral} increases due to ↑ in human-wildlife encounters
- Reasons for increase in human-wildlife encounters in SG. — results in conflict
- ▶ **URBAN EXPANSION**

Natural habitats may shrink → wildlife venture out of nature areas into urban districts

in search of food/shelter

↳ ↑ frequency of h-w encounters → h-w conflicts (e.g. road kill)

- ▶ **PEOPLE'S GROWING INTEREST IN OUTDOOR RECREATION**

Ppl spend more time in nature areas → ↑ frequency of h-w encounters ^{+/-/0}

- ▶ **GREENING EFFORTS BY THE STATE**

SG aims to bring nature back into the city → promote human-wildlife encounters

- Reasons for human-wildlife conflicts

- ▶ Wildlife population increases → ppl who may not know how to deal w them may

unintentionally provoke wild animals → leads to attacks

- ▶ Animals may be confused and fearful — when they venture into unfamiliar urban spaces

↳ ↑ likelihood of attacks when fearful or triggered

- Limiting development

- Environmental protection may be perceived to be limiting development.

- ▶ Protection of nature is done at the expense of ppl's needs

E.g. Cross Island MRT Line — proposed to be built around, instead of under, the

central catchment Nature Reserve to protect our largest primary rainforest.

Residents afraid development would:

- Bring them inconvenience

- Damage their properties

- Result in homes being acquired to make way for the construction

Nature reserve is home to numerous critically endangered species.

Construction of the Cross Island MRT Line may damage their habitats, affecting their survival.

GIEL 1.2

Acquiring a SENSE
OF PLACE in their
neighbourhoods.

> SOP 101

> How to acquire a Δ SOP Δ

↳ Repeated encounters

↳ Iconic landmarks

↳ Shared experiences

> How is SOP represented?

↳ How does representations
enhance/contradict SOP?

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How ppl acquire a sense of place in their neighbourhoods.

Sense of Place

- > developed when ppl associate importance, meanings and memories w locations
 - ↳ reflects relationship ppl have w the places around them
 - > helps build our identity
 - ↳ enables us to understand ourselves & others better
 - > derived from experiences w natural and built environments, and interactions w others at such locations
 - > Subjective and highly personal → depends on personal experiences
- E.g. Homemakers associate hawker centres w ideas of convenience and variety due to daily interaction — have feelings for place over time

How do people acquire a sense of place?

- repeated encounters
- iconic landmarks
- shared experiences

▶ REPEATED ENCOUNTERS with objects and people

Helps up recall the character and features of places we come across

↳ create meanings and memories of them

▶ ICONIC/significant/memorable EVENTS at LOCAL LANDMARKS and GATHERING PLACES

- Acquire a sense of place from significant/memorable events that occur

- Landmarks are highly visible and easy for most ppl to remember

↳ may serve symbolic/historical purpose

▶ SHARED EXPERIENCES

- Public symbols — reflect a community's response to a tragedy → place for ppl to preserve memories of loved ones

Interaction w ppl
everyday
↓
develop attachment
↓
Sense of belonging

How is sense of place represented?

print, broadcast, internet-based media

Represented thru different forms and types of media by individuals & organisations

↳ reflects ppl's ideas, memories and significance of the location

E.g. Using the hashtag #sgmemory → users of the social media platform Instagram

share photographs of their memorable experiences of places around SG

How representations of sense of place enhances/contradicts one's sense of place?

- Respond well to representations that agree with how we feel about certain places.
- Such representations add new layers of meanings to places by revealing interesting info about them,
↳ enhancing sense of place

(+ve) E.g. Websites that feature the interesting history of the Beaulieu House in Sembawang

↳ develop in people a greater appreciation for the place → enhance attachment to it

- Respond defensively to media content that challenges our sense of place
- causes us to dismiss these media content — perceiving them as distortions or untruths

(-ve) E.g. Negative media portrayal of Yishun after the occurrence of rat problems and other crimes caused Nee Soon Town Council and residents to share official statistics to show that Yishun is just like any other towns in SG.

GIEL 1.3

> Region classification criterias

- ↳ Environmental characteristics
- ↳ Human characteristics
- ↳ Geographical location
- ↳ Sphere of Influence

> Spatial Patterns

- ↳ shapes & geometry
- ↳ clusters
- ↳ Spread out
- ↳ Repeated occurrences
- ↳ Located near...

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The relationship between locations in a neighbourhood.

- Regions are: areas with similar physical and/or human characteristics

vary in size

- environmental characteristics
- human characteristics
- geog. location
- sphere of influence

- Region classification criteria

▶ ENVIRONMENTAL CHARACTERISTICS

nature vs built-up areas

▶ HUMAN CHARACTERISTICS

commercial vs residential areas

▶ GEOGRAPHICAL LOCATION

east vs west, northeast vs southeast

▶ SPHERE OF INFLUENCE of services, events and objects on other locations in the area

(e.g. Town Council)

→ effect on ppl or objects, causing significant change

Transport: A region's boundaries are where the effect of the services, events or objects are largely absent.

Ease of movement
Convenience
Accessibility

Describe +
Explain

helps us understand the world around us

- Spatial patterns reflect non-random arrangements → recognisable as
 - shapes & geometry
 - clusters
 - spread out
 - repeated occurrences
 - located near...

▶ SHAPES and GEOMETRY (e.g. circle, lines)

- ① > Appear recognisable — for travellers (esp. tourists) to differentiate btwn train lines efficiently (pattern)
E.g. circle line → points of train stations form a circular shape on map.

- ② > Create more connections → shorten travelling time

E.g. circle line designed to intersect with other train lines & create more connections, allowing travelling time to be shortened.

▶ CLUSTERS / CONCENTRATIONS

- ① > Allows ppl to travel to their destinations effectively and conveniently

E.g. Train stations in SG appear to be clustered around the south side of SG,

where the Central Business District is located — a major commercial hub, where most ppl work

More train stations → allows more ppl to travel to their workplace more efficiently & conveniently

▶ EVENLY SPREAD OUT

- > Increases accessibility and convenience → enabling most ppl to use transport service.

▶ LOCATED NEAR...

Bus stops near HDBs.

- > bus stops' close proximity to homes facilitates ease of movement; increases accessibility and convenience for residents

- > adults travel to work via bus → bus stops nearby their homes provide convenience

enhances our everyday living

- Spatial Associations — the tendency of a pair of services/events/objects to be located near each other

E.g. Lifts and stairways → suggests connections btwn services, events or objects
(old ppl homes)

E.g. Fitness centres and studio HDB blocks → allows elderly to easily access fitness centre without travelling to another estate or block

E.g. Train stations and Bus interchanges → ↑ convenience of switching from one mode of transport to another.

↳ help residents plan their trips to decrease travelling time

GIEL 1.4

ORGANISATION OF NEIGHBOURHOODS

> Spatial scales in SG

↳ Town centres

each town
has a

> Spatial hierarchies in SG

single res. unit → precinct → neighbour-
hood → Town

> Aims of Town Planning in SG

— serves residents,
provides for qp

— create connections
and synergies

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How neighbourhoods are organised in Singapore.

Spatial scales → extent of an area in which a phenomenon/process takes place

↳ helps us understand how events & processes at one spatial scale may affect people and nature at other spatial scales

↳ Examining processes/phenomena at diff scales → provide diff perspectives based on spatial patterns and trends observed.

Spatial Scales in Singapore

In each town, there is a town centre w a concentration of activities

↳ may serve as the commercial and social hub for ^{neighbourhood} residents

Town centres → have integrated transport hubs — bus interchanges & train stations near shopping ^{malls}

↳ convenience of such town centres

↳ attracts visitors from other towns to visit → ^{viable for large shopping} malls to be located there

↳ attracts businesses to locate their office in these town centres

↳ can take advantage of lower costs & reduce travelling time for ^{workers}

E.g. Bishan bus interchange & train station → convenient for visitors from other towns to visit junction 8 mall.

→ Large gathering places in town centres — community activities take place regularly

(e.g. Punggol Town Square, Festive Plaza @ Our Tampines Hub)

The design of town centres helps us understand SG's larger and long-term goals

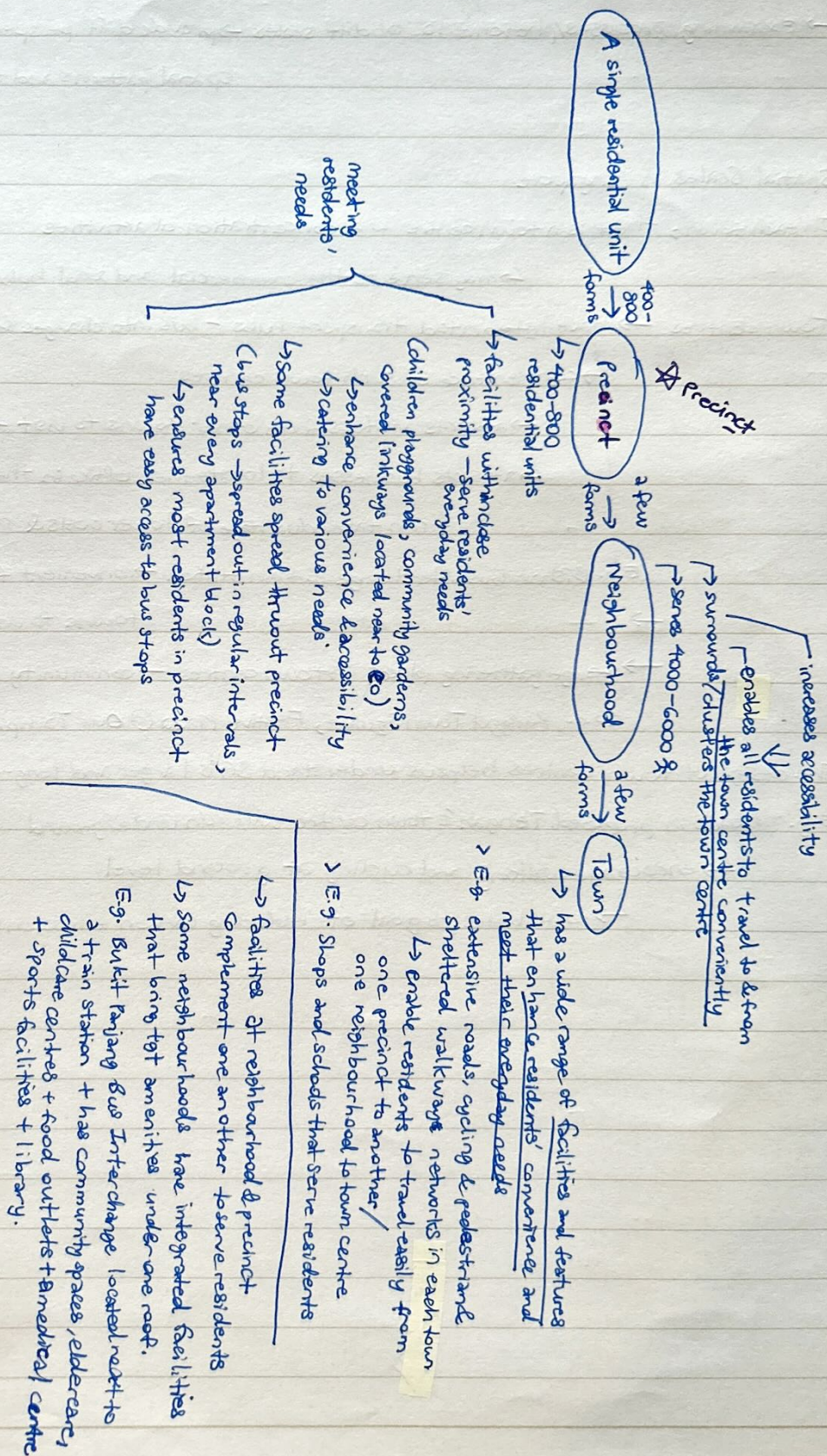
E.g. Roads in proposed Tengah's town centre will run underground

↳ encourage walking and cycling at ground level

↳ contributes to goal of reducing carbon emissions & enhancing liveability

Spatial hierarchies in SG

nested areas (smaller area in larger areas) of diff sizes, beginning w single residential unit.



Town Planning in SG: sustainability + wellness of residents.

► Serves residents and provides for nature at precinct, neighbourhood, town levels

> Land in each town → mostly allocated for housing, industrial and commercial development
→ remaining land set aside for roads, schs, parks, other essential facilities

> Facilities at precinct, neighbourhood & town levels

↳ enable each town to be self-sufficient

↳ provide employment opportunities

↳ often complement each other

► Creates connections and synergies across precincts, neighbourhoods, towns
E.g. Tengah.
2 or more parties work tog

> Connections and synergies → help achieve sustainability

↳ long-term plans at national level seek to achieve this

↳ by optimising scarce land resources to cater to the diverse needs of current and future generations

E.g. In SG, the Urban Redevelopment Authority (URA) coordinates the long-term planning for SG. - involves multiple stakeholders and agencies

Long-Term Plan → maps out land uses and infrastructure needs in SG over next 50 yrs,
plans reviewed every 10 yrs

→ Diverse needs, competing land uses and space for key infrastructure, train lines and cycling networks are considered

> SG needs to accommodate other uses typically not located in cities ∵ SG is a city and sovereign state

↳ Urban planners have to consider planning for - military facilities

E.g. 'Senoko Waste-To-Energy Plant' - waste treatment plants

↳ waste treatment plant located near - power stations

Woodlands and Sembawang towns - seaports

↳ manages pollution concerns thru waste - airports

treatment, as well as

↳ maximises benefits: - job creation

- education opportunities for students in the nearby towns



∴ Synergy is produced as both nature and people are taken into account