

# Small and Decentralized Water System

Lecture 3: Urbanization in developing  
world and options for water  
management (2 hrs)

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## Lecture outline

- Urbanization
  - Reasons
  - Reality
- Developing nations
  - Regional development
  - Example in Malaysia
- Basic infrastructures
  - Government budget and planning
  - Private development programs
- Water management options
  - Community-based
  - Household-based
- Future

## Question 1

- Which one you prefer, living in
    - Village,
    - Town
    - City or
    - Mega city?
  
  - Explain your preference
- 

# Urbanization

- Enlargement of urban population via migration and intra-development
- Reasons?
  - Job
  - Better opportunities
  - Education
  
  - Family gathering
  - Trends

# Lund, your city

## Question 2

- Uniqueness?
  - What you admire most?
-

# Urbanization: Reality?

- Congestion
  - Accommodation
  - Traffic system
  - Facilities – School, Job market, etc
- Insufficient level of service quality
  - Water supply and sanitation
  - Electricity etc

# Urbanization: Developing Countries

- Regional development
  - Centered in major cities
    - Industrialization
    - Service sector
  - Rural areas
    - Agricultural activities
    - Eco-tourism industry
    - Cottage industry

# Urbanization: The case of Malaysia

- Regional development
  - Based on 5 major regions
    - Klang Valley (Kuala Lumpur area)
    - Southern Corridor (South Johor, border to Singapore)
    - Northern Corridor (border to Thailand)
    - Eastern Corridor
    - Sabah & Sarawak (Borneo, border to Brunei and Indonesia)
- Every region specialized in a few economic activities



# WPI: Physical planning in 5 local authorities



- JB City Council
- JB Tengah Municipal Council
- Pasir Gudang Local Authority
- Kulai Municipal Council
- Pontian District Council

### 3.4 Urbanisation and Current Employment Centres

Johor Bahru urbanisation rate is 69.1%, which is higher than the average national urbanisation rate of 65.4% (National Physical Plan, 2005). This urbanisation rate can be related to the economic development of the SJER as the area of concentration for investment and employment. This is reflected by SJER's estimated GDP of USD20 billion, which is 60% of Johor's GDP. SJER is also where 70% of Johor's manufacturing establishments (4,266 establishments) are located.

Table 3.2 : Existing Land Use in SJER

Land Use	Hectares	%
<b>DEVELOPMENT AREA</b>		
<b>Residential</b>		
Villages	2,952.92	1.44
Planned Housing Area	6,771.93	3.30
<b>Subtotal</b>	<b>9,724.85</b>	<b>4.74</b>
<b>Commercial</b>		
<b>Subtotal</b>	<b>1,213.23</b>	<b>0.59</b>
<b>Industrial</b>		
<b>Subtotal</b>	<b>4,046.79</b>	<b>1.97</b>
<b>Institution/Public Amenities</b>		
Public Amenities	78.18	0.04
Government Use	266.83	0.13
Religious Reserve	157.10	0.08
Education Reserve	2,251.30	1.10
Security & Emergency Facilities	147.48	0.07
Health Facilities	354.91	0.17
Cemeteries	370.76	0.18
<b>Subtotal</b>	<b>3,626.56</b>	<b>1.77</b>
<b>Special Use</b>		
Airport	249.33	0.12
Army Camp	215.98	0.11
Palace	389.46	0.19
Port	971.80	0.47
<b>Subtotal</b>	<b>1,826.57</b>	<b>0.89</b>
<b>Infrastructure &amp; Utility</b>		
<b>Subtotal</b>	<b>1,294.03</b>	<b>0.63</b>
<b>Road/Transport</b>		
Highway/Road/Rail Reserves	9,385.29	4.58
Parking	344.31	0.17
<b>Subtotal</b>	<b>9,729.60</b>	<b>4.75</b>
<b>TOTAL</b>	<b>31,461.63</b>	<b>15.35</b>
<b>NON DEVELOPMENT AREA</b>		
Agriculture	119,302.09	58.20
Forest	6,926.63	3.38
Mangrove	13,449.49	6.56
Open Space/Recreation	4,051.30	1.98
Pond/River/Drain	12,401.21	6.05
Vacant Land	17,381.85	8.48
<b>Total</b>	<b>173,512.57</b>	<b>84.65</b>
<b>GRAND TOTAL AREA</b>	<b>204,974.20</b>	<b>100.00</b>
Sea	16,659.90	
<b>GRAND TOTAL IN SJER AREA</b>	<b>221,634.10</b>	

Source : Johor Bahru District Draft Local Plan, Pontian District Draft Local Plan

Table 3.1: Current Major Economic Centres and Land Use Activities

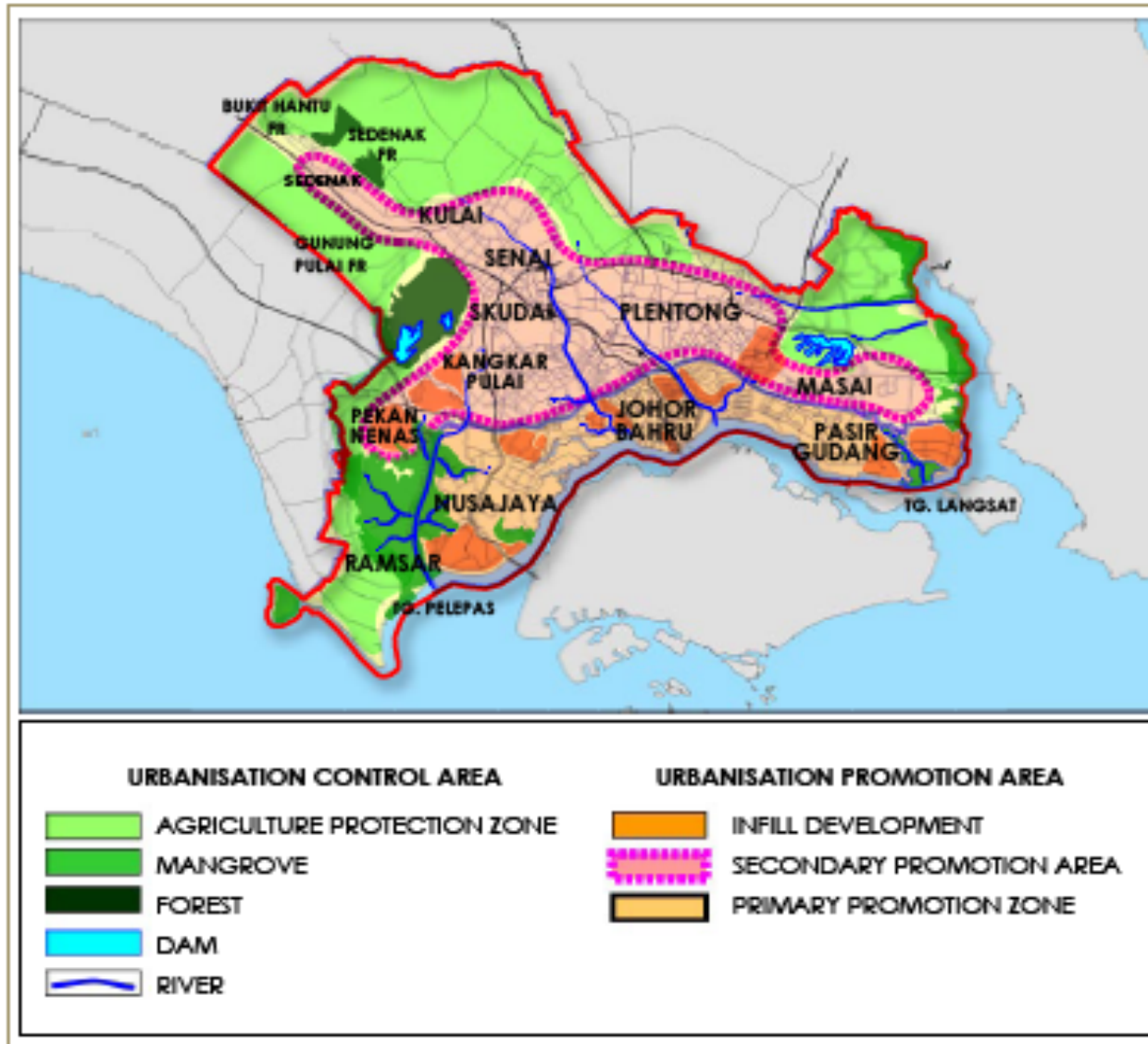
Employment Centre	Economic Activity	Activities
Johor Bahru City	Services	Plastics, Electrical and Electronics (E&E), Food processing
	Manufacturing	Commerce, Finance, Meeting/Incentives /Conference/ Exhibition (MICE), Retail trade, Hospitality & Entertainment, Arts & Culture
Pasir Gudang	Manufacturing	E&E, Chemical, Oleo-Chemical, Chemical-Biofuels, Engineering-based industries, Food Products
	Services	Port-related services
Tanjung Langsat	Manufacturing	Chemical, Oleo-Chemical, Plastics, Research & Development, Engineering-based industries
Senai-Kulai	Manufacturing	E&E, High-value Food processing and Agro-based processing, Biotech, Aviation-related downstream industries, Engineering-based industries
	Services	Airport-related services, Education

Source: Economics and Social Aspect Report, SJER 2006

## PRESENT FOCUS

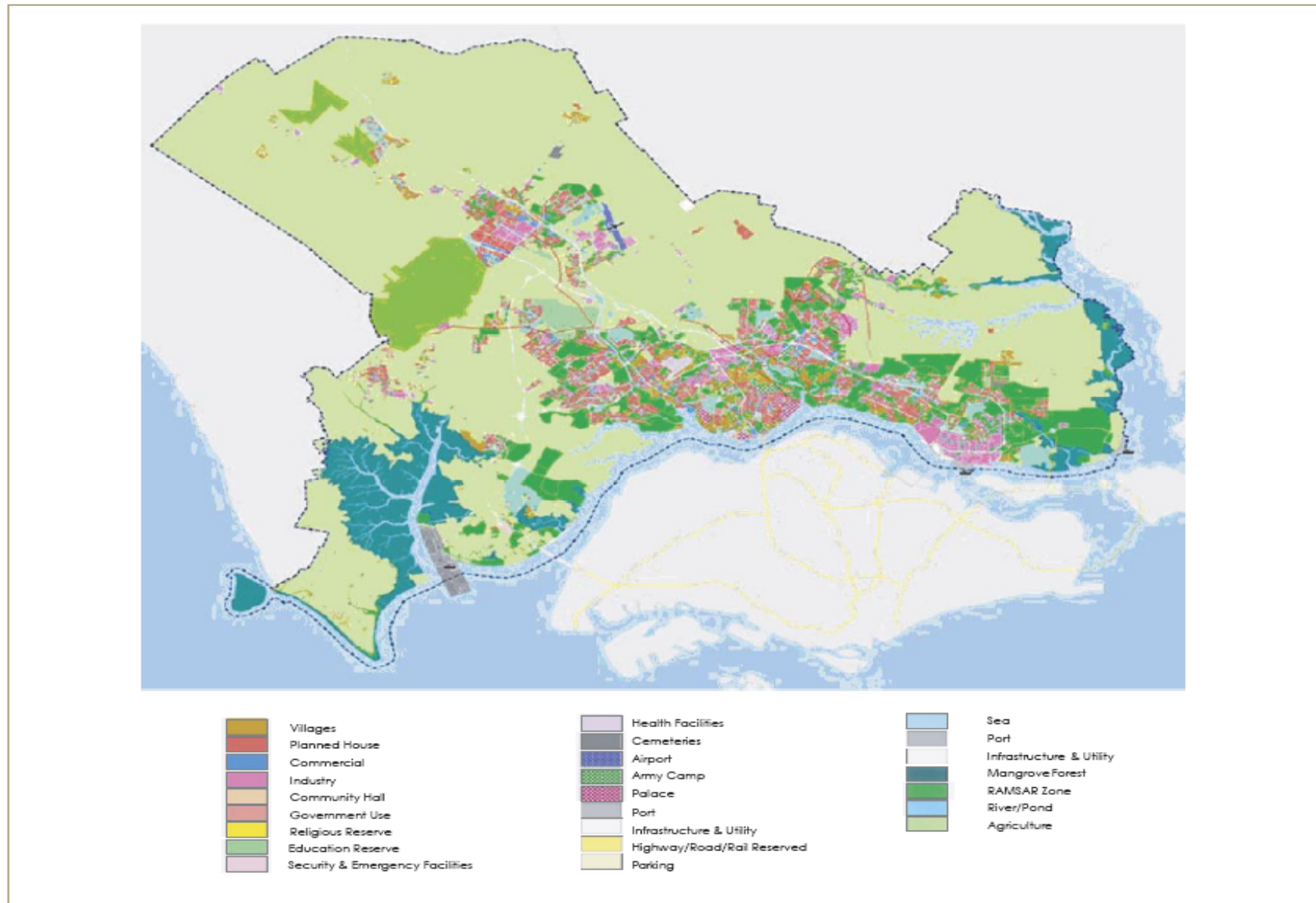
- Manufacturing
- Services

Figure 3.3 : Urbanisation - Promotion and Control Areas



Source : SJER CDP 2025

Figure 3.4: Existing Land Use Distribution Plan



Source : Johor Bahru District Draft Local Plan, Pontian District Draft Local Plan



Figure 3.5: Sustainable Development Integrating Three Main Elements



Source: SJER CDP 2025

Figure 3.6: PDS 1 – Balanced Development within SJER



Source: SJER CDP 2025

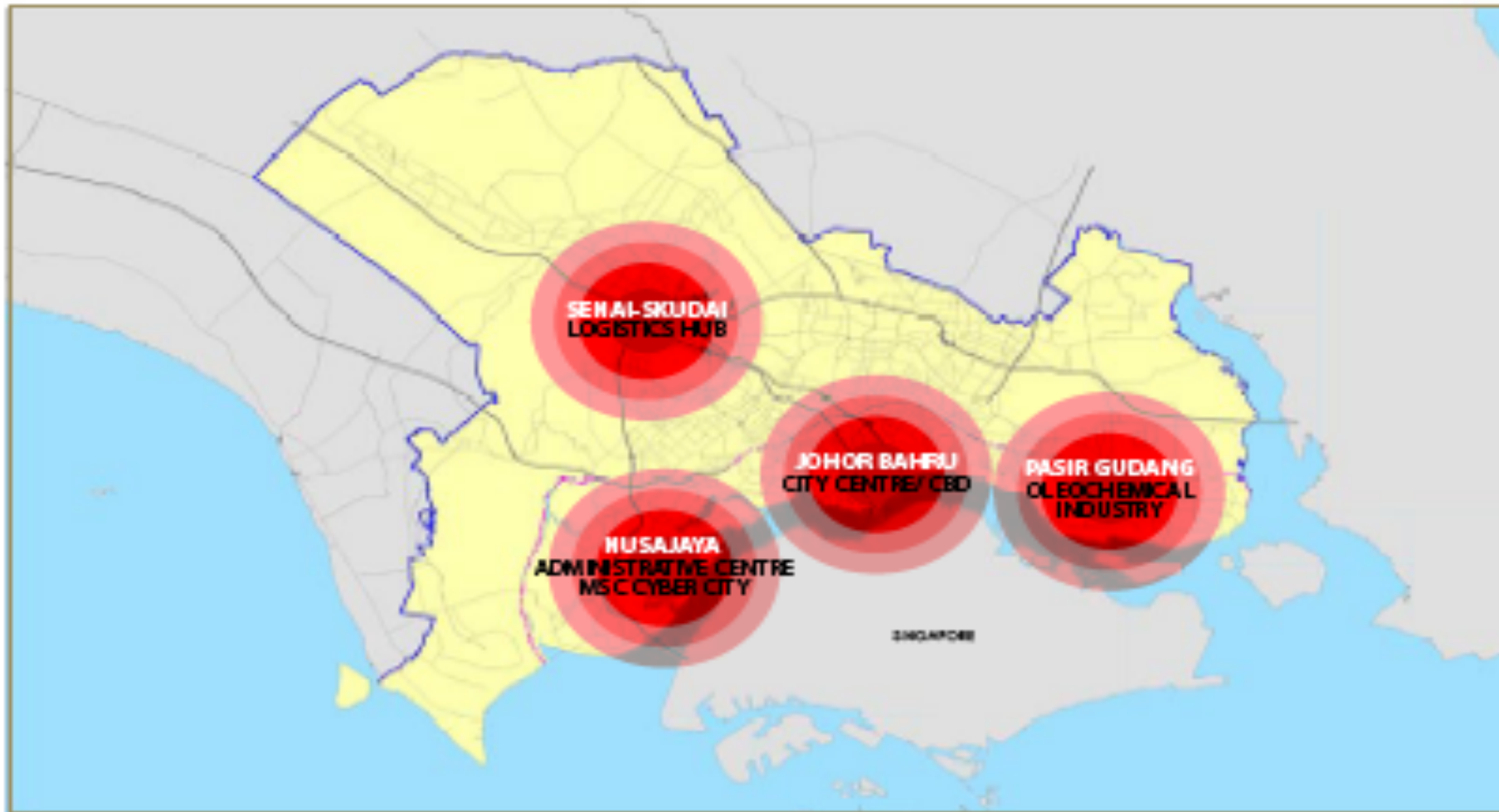


Figure 3.7: PDS 2 – Protect and Conserve



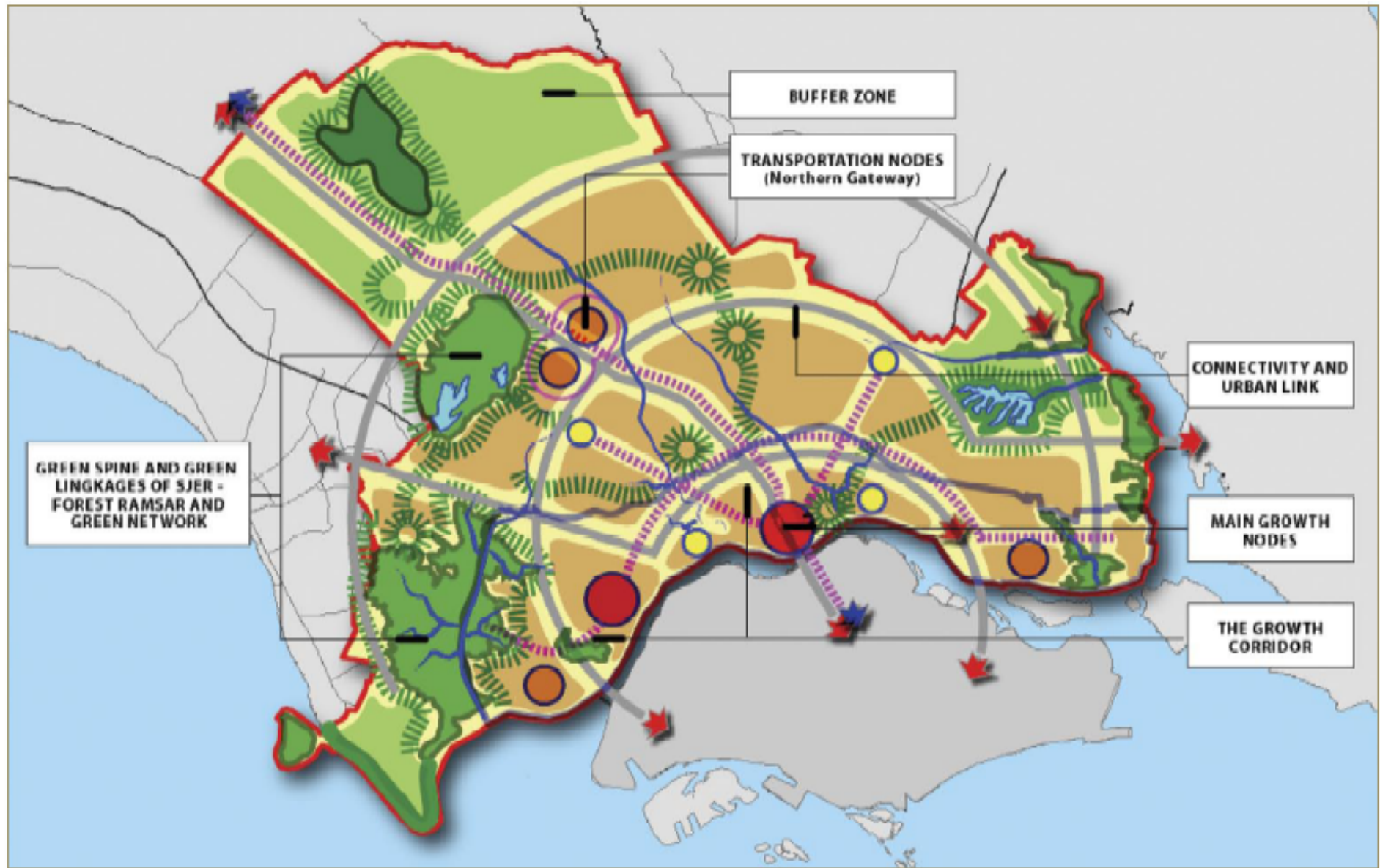
Source: SJER CDP 2025

Figure 3.10: PDS 6 – Key Economic Initiatives as Focal Points for Growth



Source: SJER CDP 2025

Figure 3.13: Development Planning Concept



## Question 3

- What do you think about the planning of WPI?
  - Advantages
  - Disadvantages
  - Suggestions?

# Urban metabolism

- Urban like human body
- Rivers are blood vessels
- Trees are cloth
- Land is skeleton
- Activities are inter-related
- “Industrial ecology”



## Basic infrastructures

- Government budget and planning
  - Road
  - Electricity
  - Water supply (& sewerage?)
  - Schools
  - Police station
  - Fire Departments
  - Hospitals
- Private development programs
  - Housing estate as a whole
  - Inclusive township

## Water management options

- Government budget and planning
  - Water supply
  - Sewerage services
- Private development programs
  - Overall facilities
- Community-based
  - Stand pipe
  - Shared facilities
  - Fully subsidy or provided by the community
- Individual initiatives
  - Overall facilities



## Community-shared facilities - Toilet





## Community-shared toilet facilities



## Community-shared facilities – Water supply





Beneficiary enjoying water  
from newly-installed  
household spigot



## Question 4

- You are suppose to be consulted to develop a water facilities in a small township in Indonesia.
  - Township: Old town, since 1800s
  - Population: 30,000
  - Venue: Jungle, 300 km from sea
  - Water sources: Rivers, groundwater
  - Closest major town: 50 km downstream the river
  - Economic activities: Agriculture
  - Politics: Two units – inner town (20,000 people) and rural areas
- Consider 5 major issues to consider