

Approach to Sustainable City Yangon 2030

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Sustainable Urbanism: Urban Design with Nature

- **Increasing sustainability through density.**
- **Integrating transportation and land use.**
- **Creating sustainable neighborhoods, including housing, car-free areas, locally-owned stores, walkable neighborhoods, and universal accessibility.**
- **The health and environmental benefits of linking humans to nature, including walk-to open spaces, neighborhood storm water systems and waste treatment, and food production.**
- **High performance buildings and district energy systems.**

Resources Management

Water Resources

1. Ground Water

Gradually reduce the supply of ground water to prevent ground subsidence, ground water depletion and saltwater intrusion. Find more river water resources to take responsibility for sufficient and clean water supply sustainably.

2.Lakes and Ponds

- **Maintain the existing lakes and ponds to have the recreational and relaxing areas.**

3.Riverfronts

- **Create the promenades along the riversides for walking exercise and areas for physical exercise.**

4.Waterways

- **Take the advantage of existing waterways for urban transportation economically.**

Existing lakes can be used as a recreation and relax areas



Create the promenades along the riversides for walking exercise and areas for physical exercise.

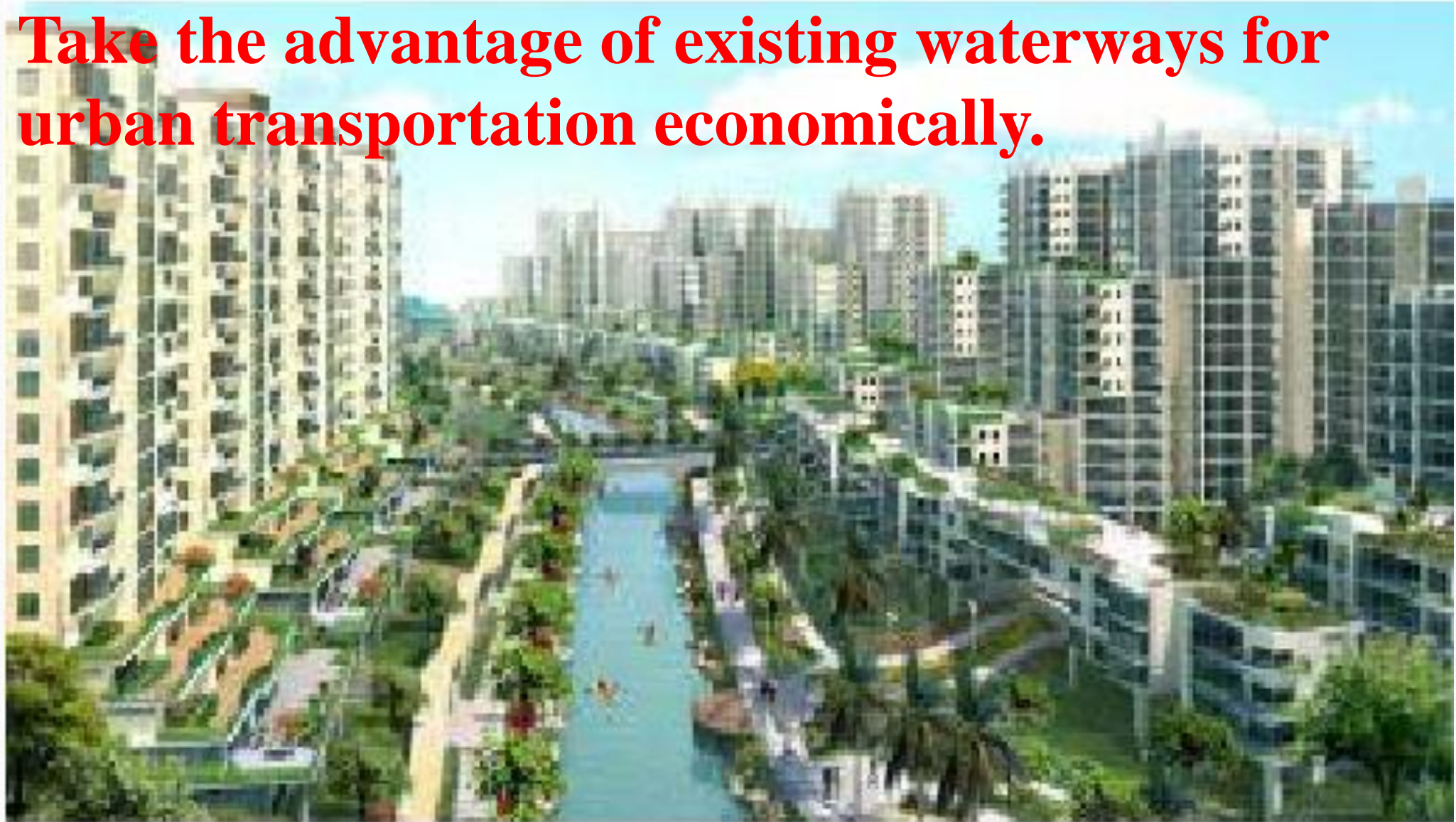


Rowing and Sailing should be allowed to public in Inya



09 02 2017

Take the advantage of existing waterways for urban transportation economically.



Land Resources

- **Make land utilisation policy for future generations
Set guidelines for building coverage area ratio to
create a more pleasant urban environment.**
- **Provide more roads and railways network areas
to prevent traffic congestions and to have efficient
transportation.**
- **Create sufficient green areas and forested
landscapes to reduce urban heat and CO₂ in
atmosphere.**

Ground
Space
Index

GSI =

$$\frac{\text{ground area}}{\text{total area}}$$



Floor
Space
Index

FSI =

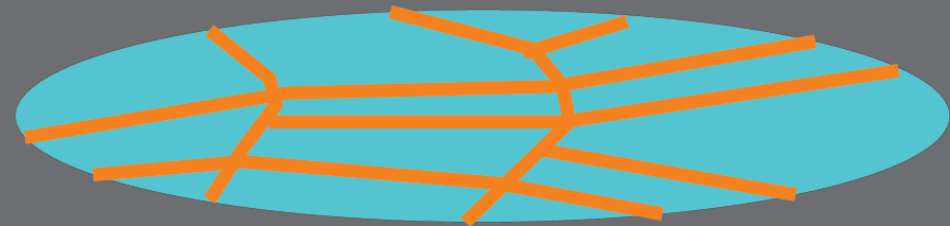
$$\frac{\text{floor area}}{\text{total area}}$$



Road
Network
Density

N =

$$\frac{\text{total road length}}{\text{total area}}$$



Provide more roads and railways network areas to prevent traffic congestions and to have efficient transportation.



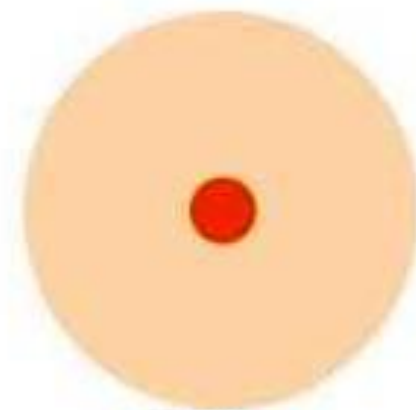
Tokyo
18



New York
16



London
9



Beijing
3

Road density
in km of road surface per km² of land.

Create sufficient green areas and
forested landscapes



Provide green roof and plantation at new buildings to reduce urban heat and CO₂ in atmosphere.



Zoning needs to be more flexible to enable mixed uses, including a mix of public, private and affordable housing

- **Organize the existing land plots combining to be a sufficient area for better development in future.**
- **Create new urban areas around and available lands for future sustainable developments.**
- **Encourage for mangroves reforestation and maintain the existing mangroves in the surrounding rivers.**
- **Create the riverfronts for Yangon skyline with innovative imaginations and public recreations.**



Create the riverfronts for Yangon skyline with innovative imaginations and public recreations.

17.12.2009 07:02



**Encourage for mangroves reforestation and
maintain the existing mangroves in the
surrounding rivers.**

21.03.2009 10:51

Clean and Healthy City


- 1. Pollution Control

- **Air pollution** : Old vehicles having the exhausted pollutants should be restricted in traffic congested areas in the city.

Industries and factories which may emit pollutants and suspended particulate materials should be away from populated city area.

Old vehicles having the exhausted pollutants should be restricted in traffic congested areas.



An aerial photograph of a city street, likely in Beijing, showing heavy traffic and significant air pollution (smog). The street is filled with cars, and the surrounding buildings are partially obscured by the haze. The image is framed by a white border with a black ribbon-like element on the left and right sides.

**Old vehicles having the exhausted
pollutants should be restricted in traffic
congested areas.**

Industries and factories which may emit pollutants and suspended particulate materials should be away from populated city area.



- **Sewage Pollution** : Central or Sub-stations for Sewage Disposal Systems should be organised to have better pollution control and healthy environment.
- **Water Pollution** : Domestic wastewater should be Retained and recycled to be reused as grey water. Industrial waste water should be treated in treatment plants according to guidelines before discharging into the rivers or drains.

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- **Solid Waste Pollution** : Systematic Solid waste management should apply to prevent groundwater pollution from solid waste dump sites and infections through insects and rats.
Since landfill sites of solid waste can be source of groundwater pollution new technology for incineration of solid waste should be encouraged.
- **Flood Control**: To prevent pollution from flood water, organize proper drainage system.

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NATURAL SYSTEM BENEFITS

- ✓ Provide Habitat
- ✓ Slowly Release Storm Flow
- ✓ Filter Pollutants
- ✓ Recharge Groundwater
- ✓ Reduce Erosion



Create a pleasant landscape ,walkway and drain along the pipeline

Improve the Habitation and Environs

- **Urban population will be increasing like all mega cities in Asian countries.**
- **Propose Master Plan for future sustainable city**
- **It will be the responsibility of concerned authorities and all stakeholders to provide the affordable housing units to the increasing urban population.**

Propose Master Plan for future sustainable city



- **Housing complexes should be complete with required community facilities and near access to public transportation.**
- **The inhabitants should have safe and secure environment with pleasant and refresh environs.**
- **The existing cultural and historical heritages should be protected and safeguarded from new development projects since these are prestigious for our people.**

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Create Opportunities

- **Job Opportunities :** Create labor intensive industries to have job opportunities for increasing urban population.
- **Learning Opportunities:** Encourage for the establishment of training and learning centres.

To be an International HUB City

International Gateway
Development Economy
Employment Opportunity
Center of Nation Growth Center
Non-traditional Industry

To be a Comfortable City

High Living Standard Health-care
Rich Green Multi Ethnic
Knowledge Heritage & Culture
Education Disaster Risk Reduction

Yangon 2040

The Peaceful and Beloved Yangon
- A City of Green and Gold -

To be a Well-Managed Infrastructure City

Transportation and Road Electricity
Sewerage and Drainage Water Supply
Solid Waste Management
Telecommunication
International Gateway

To be a City of Good-Governance

Sustainability Law and Rule
Housing Sytem Good Governance
Systematic Land-use Leader of Nation
Development Control

Vision 2040

Smart City - Yangon

Building a SMART CITY

A slew of initiatives are taking place islandwide, the goal of which is to sharpen the Government's response to city issues and hence improve people's day-to-day lives.

TOWN PLANNING

What: A modelling system to simulate a city's built environment and its impact on the natural environment, people, resources and costs

Who: HDB, Electricite de France, Veolia

Uses: Among other things, show how different land uses affect amenities and transport networks; how to design new housing blocks to get ideal wind flow; where best to build cycling paths

Status: Research collaboration / prototype stage

WATER QUALITY AND LEAKS

What: A network of wireless sensors that monitors water quality and detects leaks in real time

Who: PUB, Singapore-MIT Alliance for Research and Technology, Visenti

Uses: Allows PUB to repair leaks faster and reduce water loss

Status: About 300 sensors installed by end-2015

NOTE: Artist's impression

GRAPHICS:
MIKE M DIZON and DAVID EE

ERP II

What: A satellite-based electronic road pricing (ERP) system that can use an on-board monitor to charge motorists according to distance travelled

Who: Land Transport Authority, IBM

Uses: This may replace the current system, which charges motorists each time they pass through an ERP gantry during certain times

Status: Feasibility being studied

SECURITY

What: A public-private Safe City Test Bed that produced, for example, a mobile app for commanders to track security forces in real time

Who: Economic Development Board, Ministry of Home Affairs, AGT International, Airbus Defence and Space, NCS, NEC Asia Pacific

Uses: Could help commanders respond to incidents more quickly and precisely

Status: Test bed completed

JURONG LAKE DISTRICT - 'SMART CITY'

What: A government vision for the area to use smart technologies such as driverless cars to improve liveability for residents

Who: Singapore Government, various partners

Uses: For now, driverless cars will ply the Chinese and Japanese Gardens later this year. Expected to be used at Jurong East MRT next year

Status: Ongoing

3D MAPPING

What: Mapping the country in 3D from the air by using light planes equipped with lasers and cameras

Who: Singapore Land Authority

Uses: PUB could use the map to model flood patterns, while the Civil Aviation Authority of Singapore could plan more efficient landing paths for planes

Status: Expected to be completed by 2016

DISEASE AND HYGIENE

What: Computer models that use sensors and mobile apps to help detect and forestall dengue and food poisoning outbreaks

Who: National Environment Agency (NEA), IBM

Uses: For example, if people complain on Facebook or Twitter of being sick after eating at a particular restaurant, the system would alert NEA officers

Status: Research collaboration

IMPROVING PUBLIC TRANSPORT

What: Analysing CCTV video feeds and anonymised location-based data from mobile subscribers to learn commuters' travel patterns

Who: Land Transport Authority, SMRT, StarHub, IBM

Uses: Help agencies respond better to unplanned incidents on the train and bus network, such as breakdowns or emergencies

Status: Research collaboration

PROTECTING THE SEA

What: Eight buoys along coastline with sensors that test waters for pollutants and send real-time updates wirelessly to the NEA

Who: National Environment Agency (NEA)

Uses: Early detection of oil or chemical spills

Status: In place

Thank you for your attention !

