

# Approach to Sustainable City Yangon 2020

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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.**

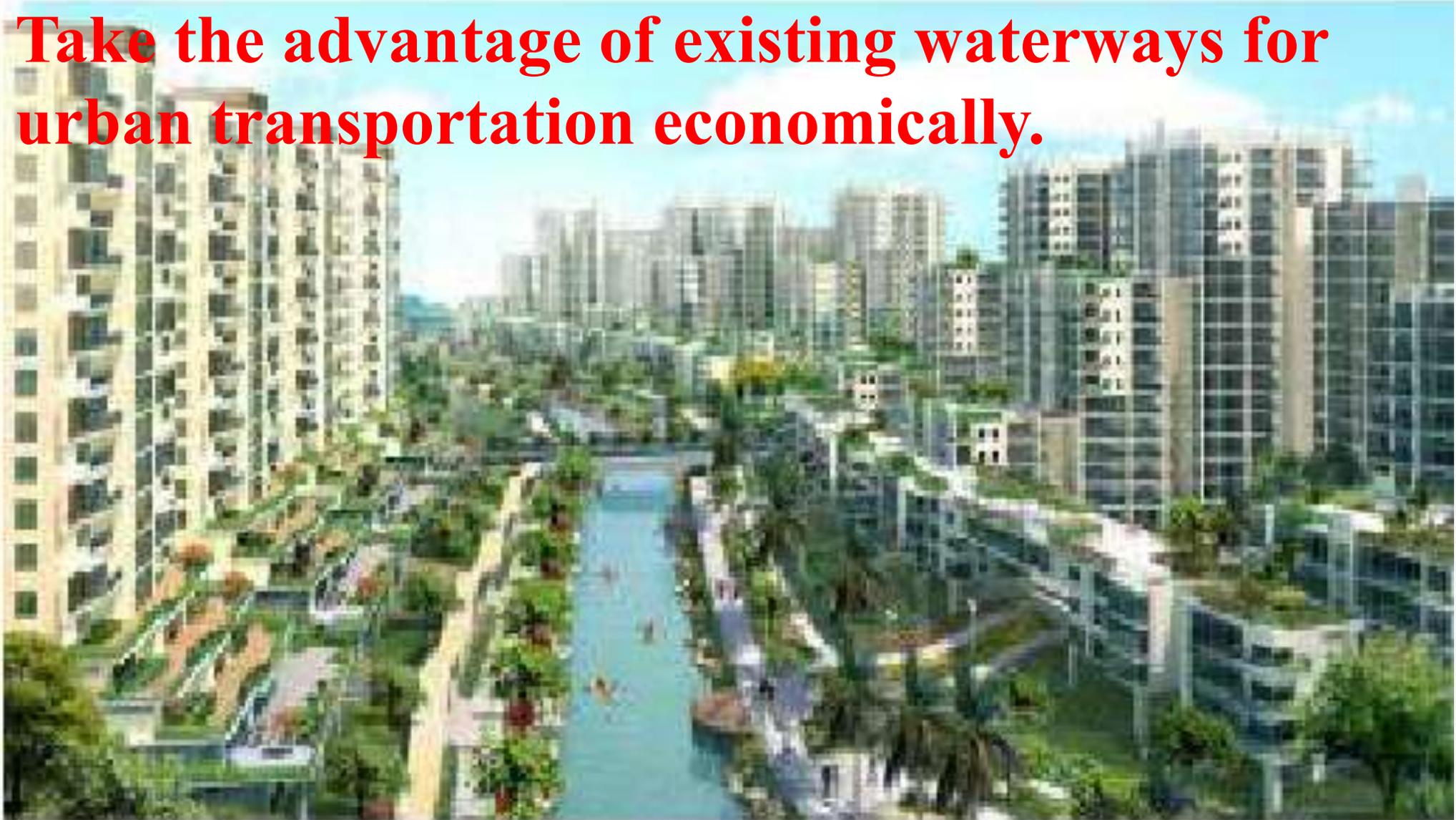


# Rowing and Sailing should be allowed to public in Inya



09 02 2017

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



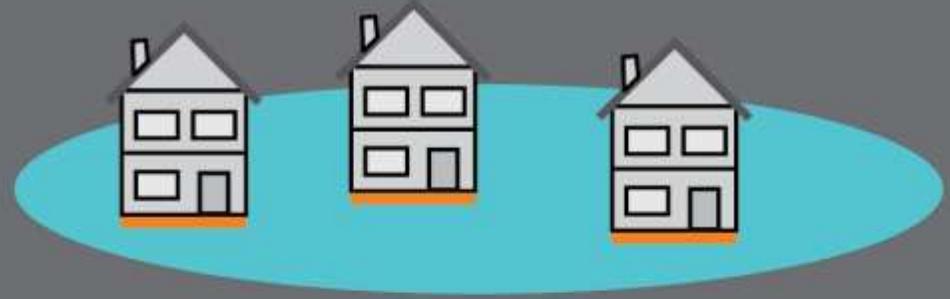
## **Land Resources**

- **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 CO<sub>2</sub> in  
atmosphere.**

Ground  
Space  
Index

GSI =

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



Floor  
Space  
Index

FSI =

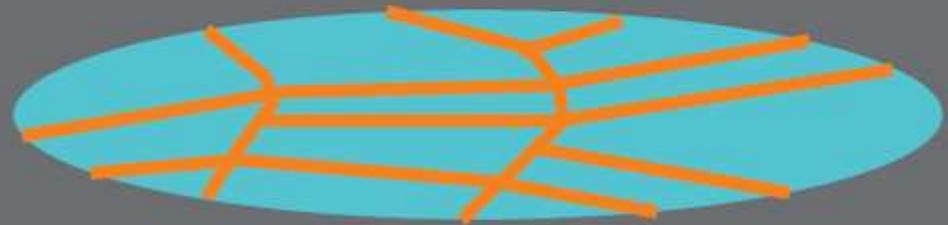
$$\frac{\text{floor area}}{\text{total area}}$$



Road  
Network  
Density

N =

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



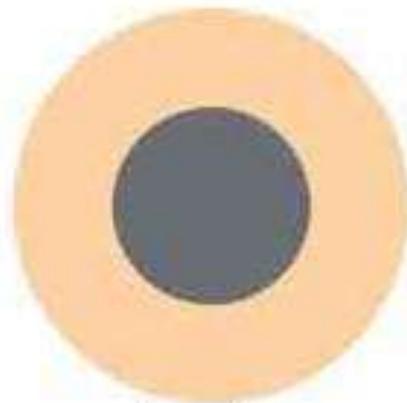
**Provide more roads and railways network areas to prevent traffic congestions and to have efficient transportation.**



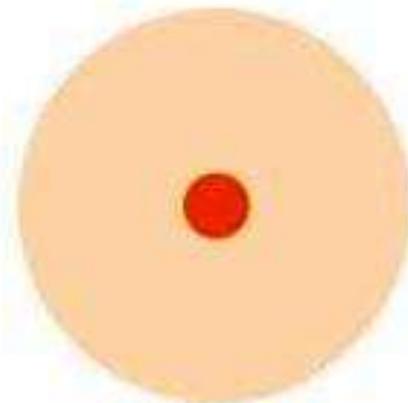
Tokyo  
18



New York  
16



London  
9



Beijing  
3

**Road density**  
in km of road surface per km<sup>2</sup> 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.**

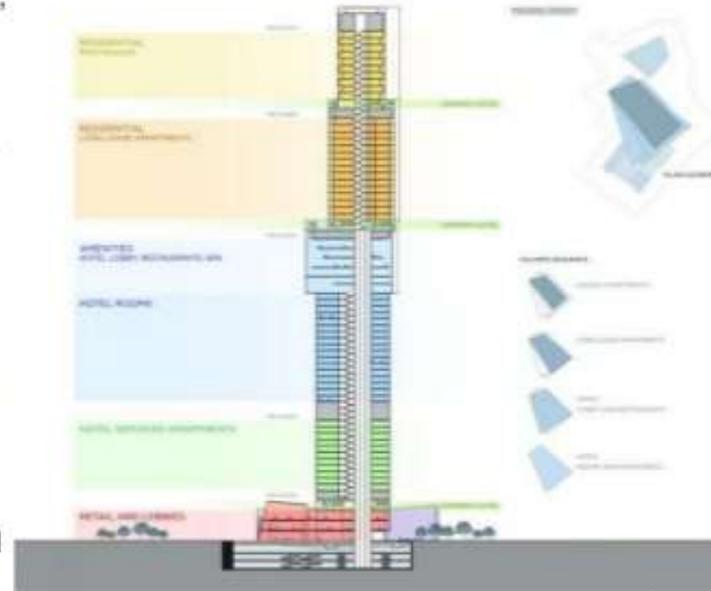


# 7

## Keep It Flexible

Facilitate good urban design and flexible zoning

- Facilitate good urban design through urban design review, planning, regulatory framework and an independent TPB
- Government should take a proactive approach in guiding more sensitive development to add long term value to the city
- Zoning needs to be more flexible to enable mixed uses, including a mix of public, private, and affordable housing
- Planning should be done at the district level with specific 3-D urban design plans
- Government could provide incentives to facilitate and ensure provision of high-quality public space at grade and pedestrian friendly streets within CDA developments



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

Good urban design, sensitive and integrated developments should be encouraged by commending developers and designers

- **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.**

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# Clean and Healthy City

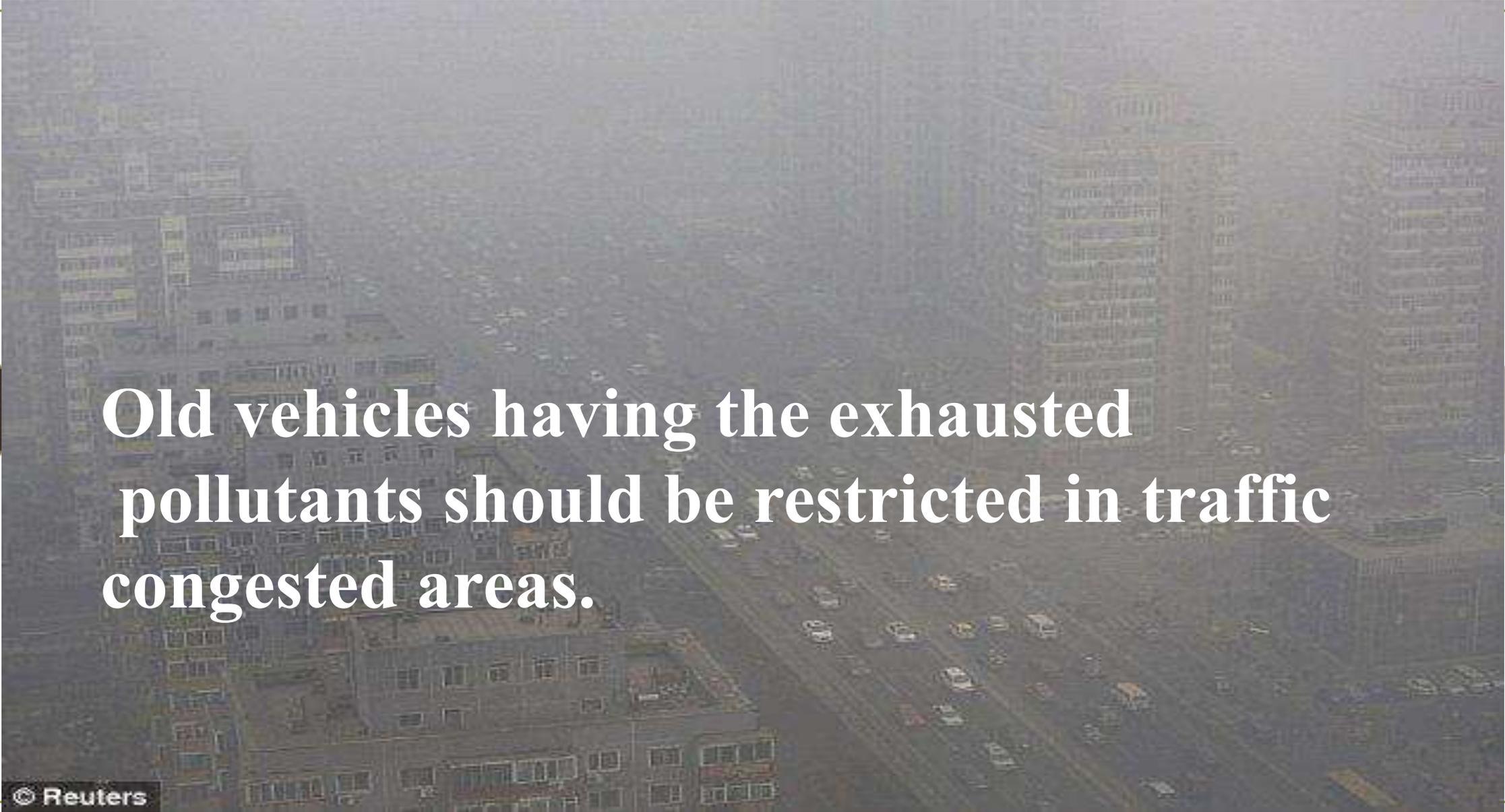
- 1. Pollution Control

- **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 an urban area, showing a multi-lane road with heavy traffic. The surrounding area is filled with buildings of various heights and colors. The image is slightly blurred, suggesting a focus on the overall scene rather than individual details. The text is overlaid on the center of the image.

**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**

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- **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

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- **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  
Sewerage and Drainage    Electricity  
Solid Waste Management    Water Supply  
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**

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**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 DUTTON and DAVID BE

## 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

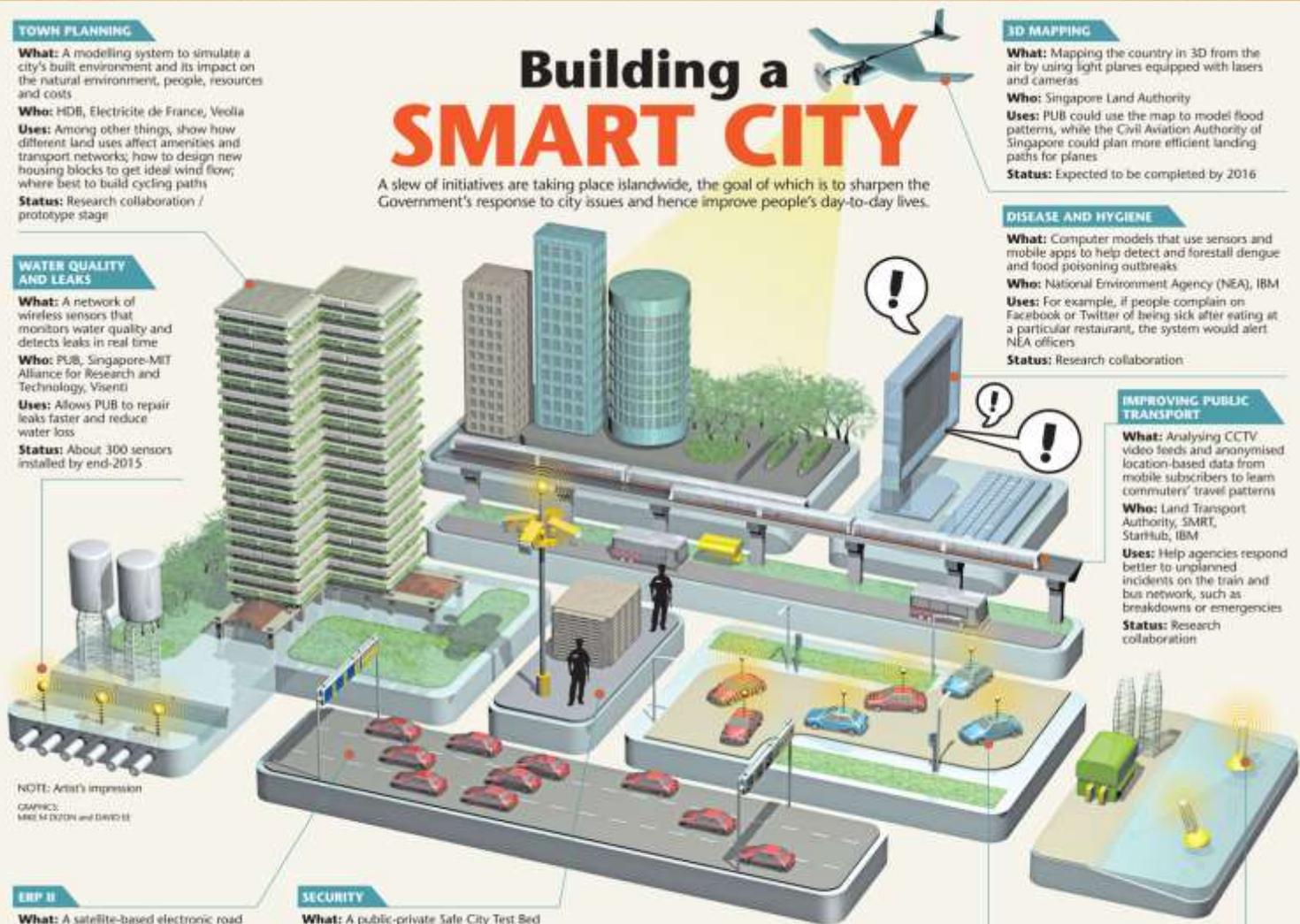
## PROTECTING THE SEA

**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 !**

