DEVELOPING OUR CITIES WITH AN IDENTIY AND SSUSTAINABILITY

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CONTENTS

- URBANIZATION AND URBAN PROBLEMS

- CONCEPT OF ONE CITY-ONE IDENTITY AND ITS EXAMPLES

- ECO-CITY AND CONCEPT OF FOOD GREEN CITY

- CONCLUSION

URBANIZATION AND URBAN PROBLEMS

Urbanized World

URBANIZATION PROCESS IN NEPAL

- Announced 72 new municipalities on May 8, 2014 ...reached 130 from 58.

- Added 61 new municipalities in 37 districts out of 75 districts through the cabinet decision on December 02, 2014.

- Become 191 municipalities with one metropolitan city (Kathmandu) and 11 sub-metropolitan city.
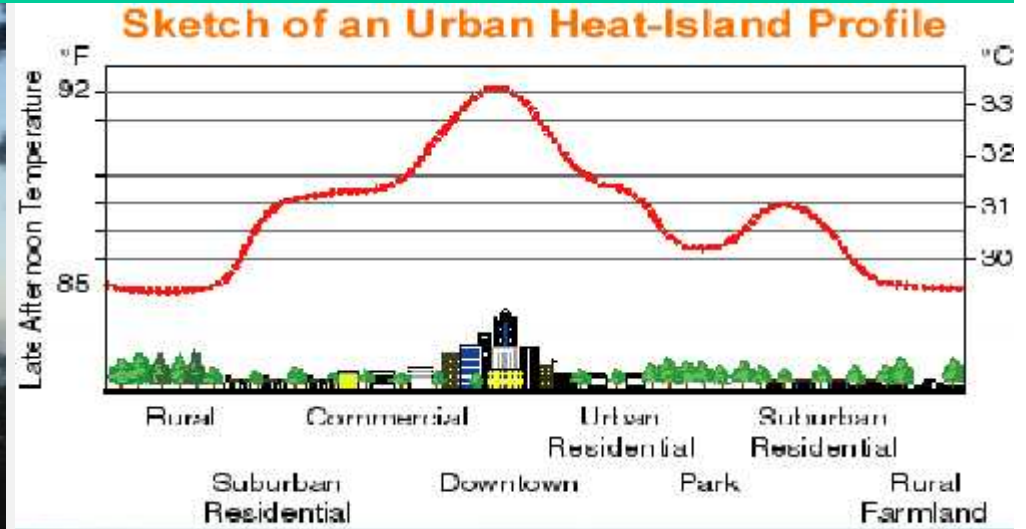
- Urban Population 38.26% (In 2014)

URBANIZATION IN SAARC COUNTRIES

Country Name	Urban Population in 2014 (%)
Afghanistan	26
Bangladesh	34
Bhutan	38
India	32
Maldives	44
Nepal	38*
Pakistan	38
Sri Lanka	18

Source: World Bank, 2014
*Updated data

URBAN PROBLEMS

Sketch of an Urban Heat-Island Profile

Loss of Agriculture Lands

Kath valley loose 0.5% or 400ha of agriculture land annually base of analysis in betn 1990 and 2012 (Genesis, 2013)
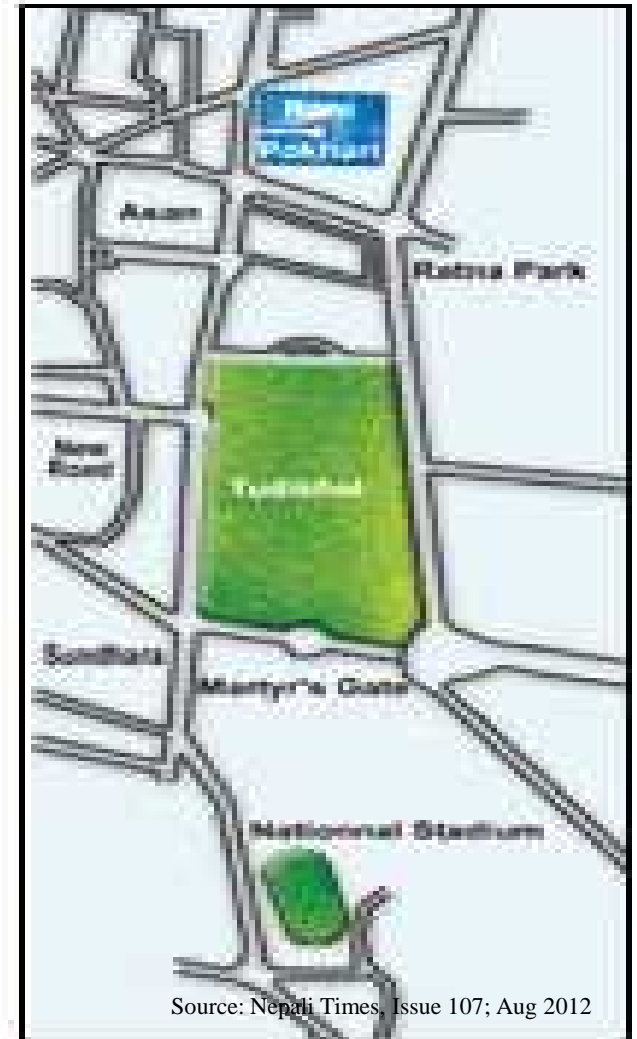
Shrinking Open Space in the Cities

Source: Nepali Times, Issue 107; Aug 2012

URBAN TRANSPORTATION

Description	Total Road Length, km	Road Density, km/ sq km	Population Influenced per km road
Urban EDR	2,601	2.866	319.06
Urban CDR	3,555	4.39	639.31
Urban WDR	2,367	4.115	323.15
Urban MWDR	1,007	2.674	320.18
Urban FWDR	1,157	1.892	288.49

Source:(DoR 2011)

Kathmandu relatively high road density covers 7.72% of municipality area

Total registered vehicles in FY 2013/14 : 198343 . 82.7% two wheelers; 8.6% light vehicles; Public utilities vehicles 2.2% (DoTMa,2014)

Modal travel share in Kath: 26% Motorcycle; 28% by bus, 41% walk , 4% by car and 1% bicycle (KSUITP,2010)

Amount of space required to transport the same number of passengers by car, bus or bicycle.


Car?   Bus?   Bicycle?

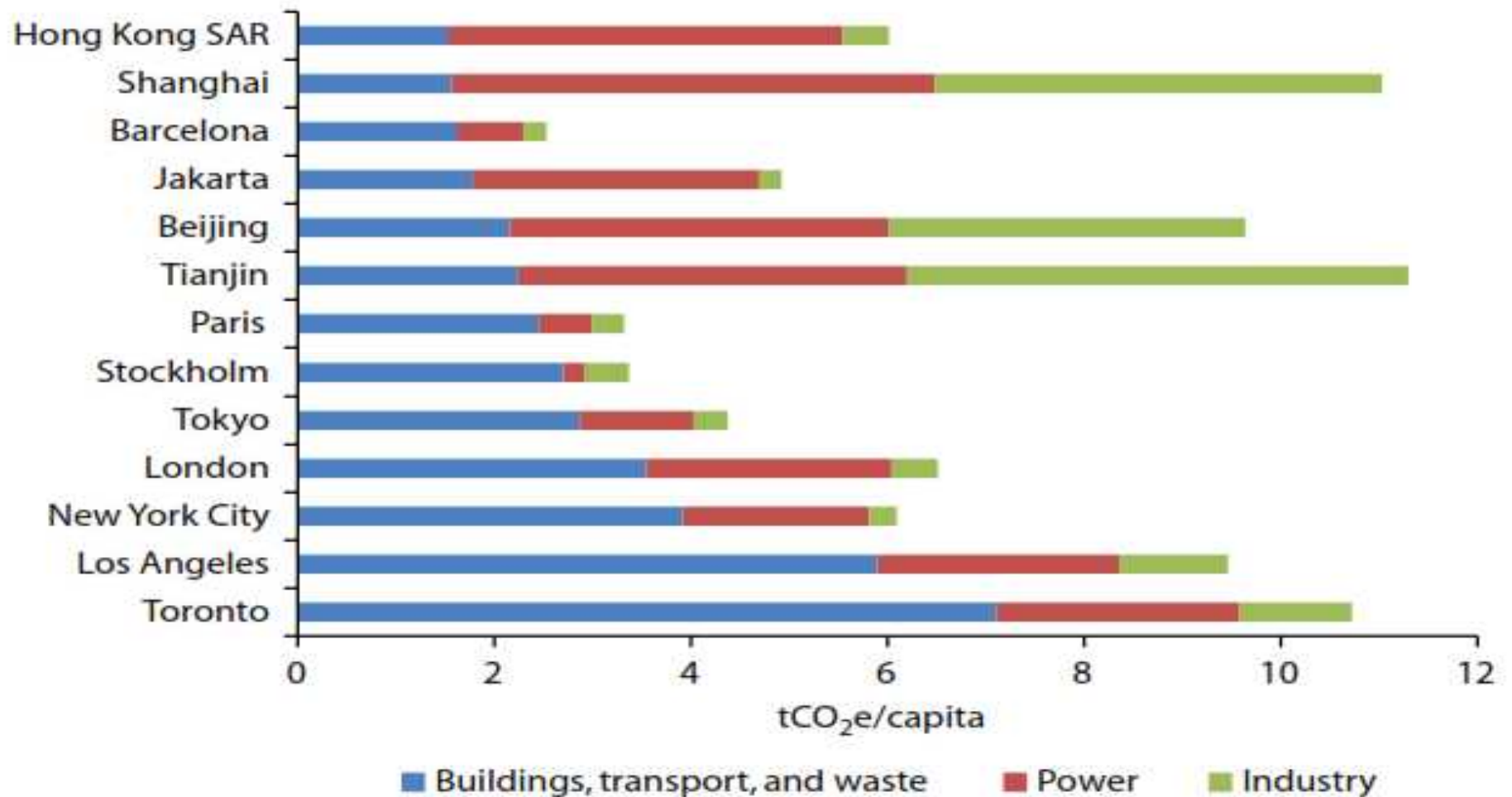(Poster in city of Muenster Planning Office, August 2001)

11

Credit: PressOffice City of Münster, Germany

Understanding of Cities

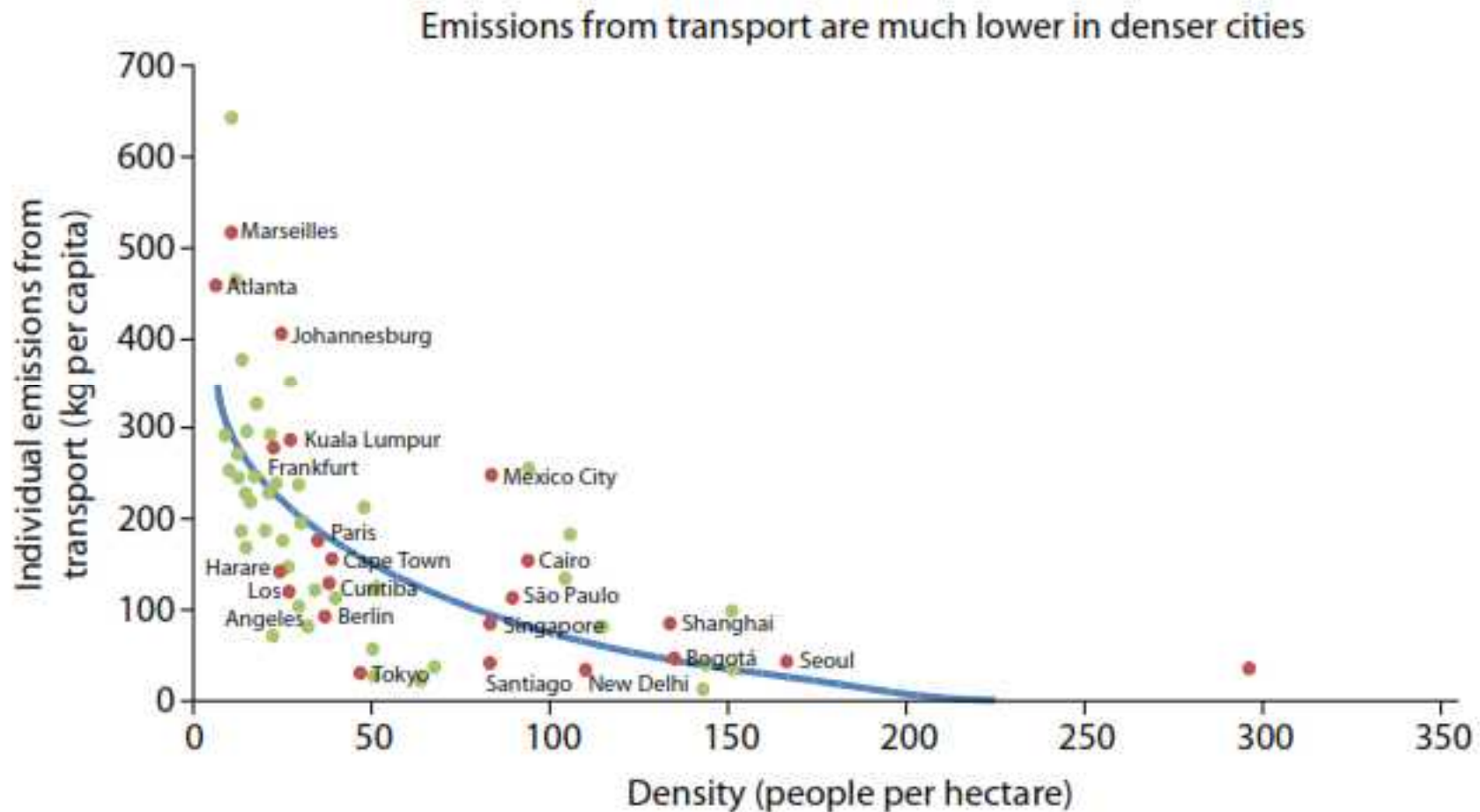"The world's cities take up just 2% of the Earth's surface, yet account for roughly 78 percent of the carbon emissions from human activities, 76 percent of industrial wood use, and 60 percent of the water tapped for use by people."
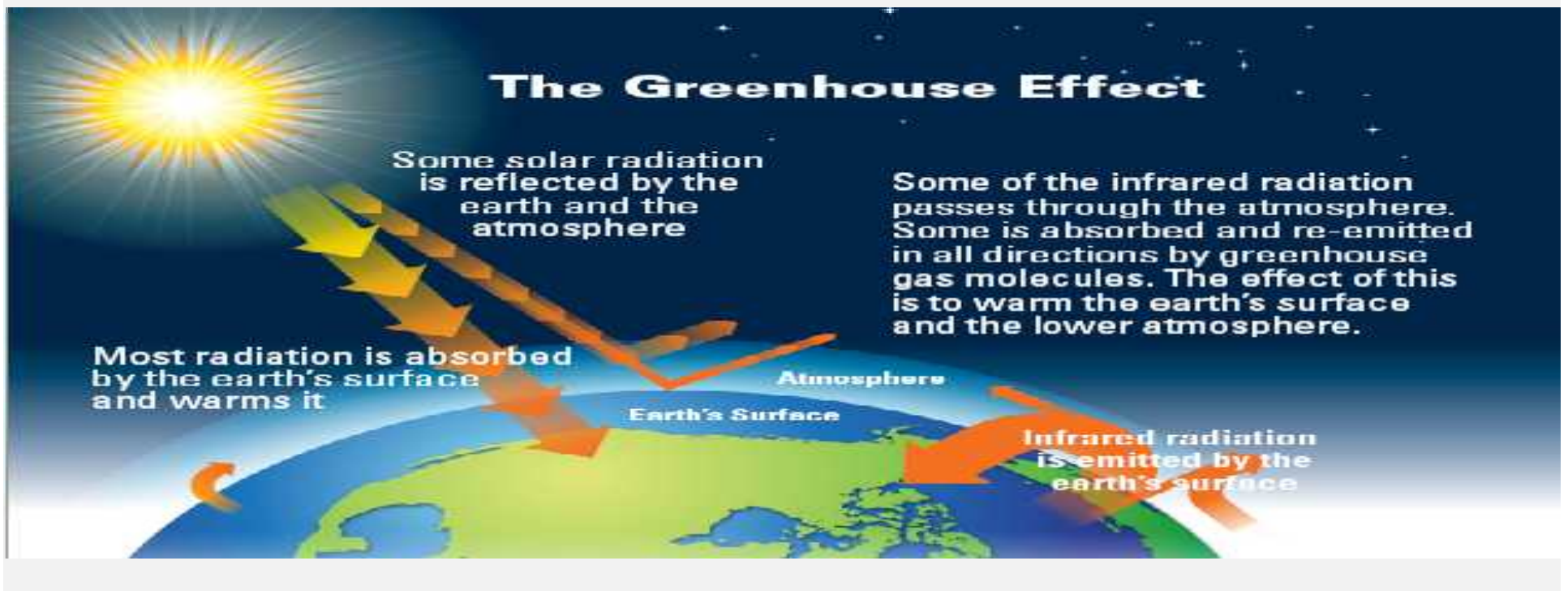
Per Capita Carbon Emissions of Selected Cities

Source: World Bank 2010, Adopted from sustainable low carbon city development in china

Urban Density and per capita CO2 Emission from Transport

Emissions from transport are much lower in denser cities

(Individual emissions from transport (kg per capita) vs Density (people per hectare))

Labeled cities: Marseilles, Atlanta, Johannesburg, Kuala Lumpur, Frankfurt, Mexico City, Paris, Harare, Cape Town, Cairo, Los Angeles, Curitiba, São Paulo, Berlin, Singapore, Shanghai, Tokyo, Santiago, New Delhi, Bogotá, Seoul

Adopted from sustainable low carbon city development in china

Ecological Foot Print:
An Indicator of Sustainable Development

An Ecological Foot print is a way of measuring a population's resource consumption or energy flows in terms of corresponding productive area.

The Ecological Footprint

MEASURES
how fast we consume resources and generate waste

Energy   Settlement   Timber & paper   Food & fibre   Seafood

COMPARED TO
how fast nature can absorb our waste and generate new resources.

Carbon Footprint   Built-up land   Forest   Cropland & pasture   Fisheries

Share of Food Footprint?

ECOLOGICAL FOOTPRINT=

CARBON FOOT PRINT+

FOOD FOOT PRINT (30-50% OF TOTAL)

+

HOUSING FOOT PRINT +
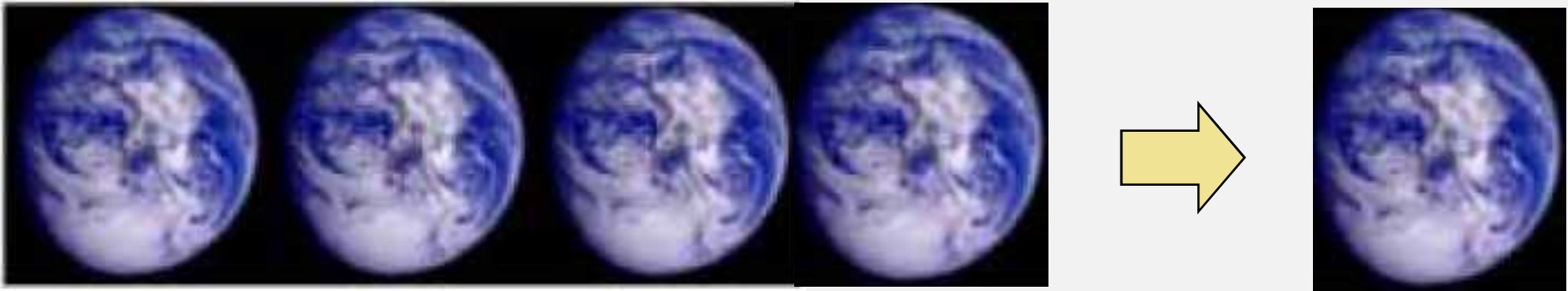
GOODS AND SERVICES FOOT PRINT

16

Decide Wheat or Meat?

253litres of water needs to produce ½ Kg of Wheat….

10515 litres of water needs to product ½ Kg of Meat….

UN Report, 2006

Lets Make One Planet Lifestyles

Four Planet Life Styles is not Sustainable and is not possible. Therefore we must change our lifestyles.
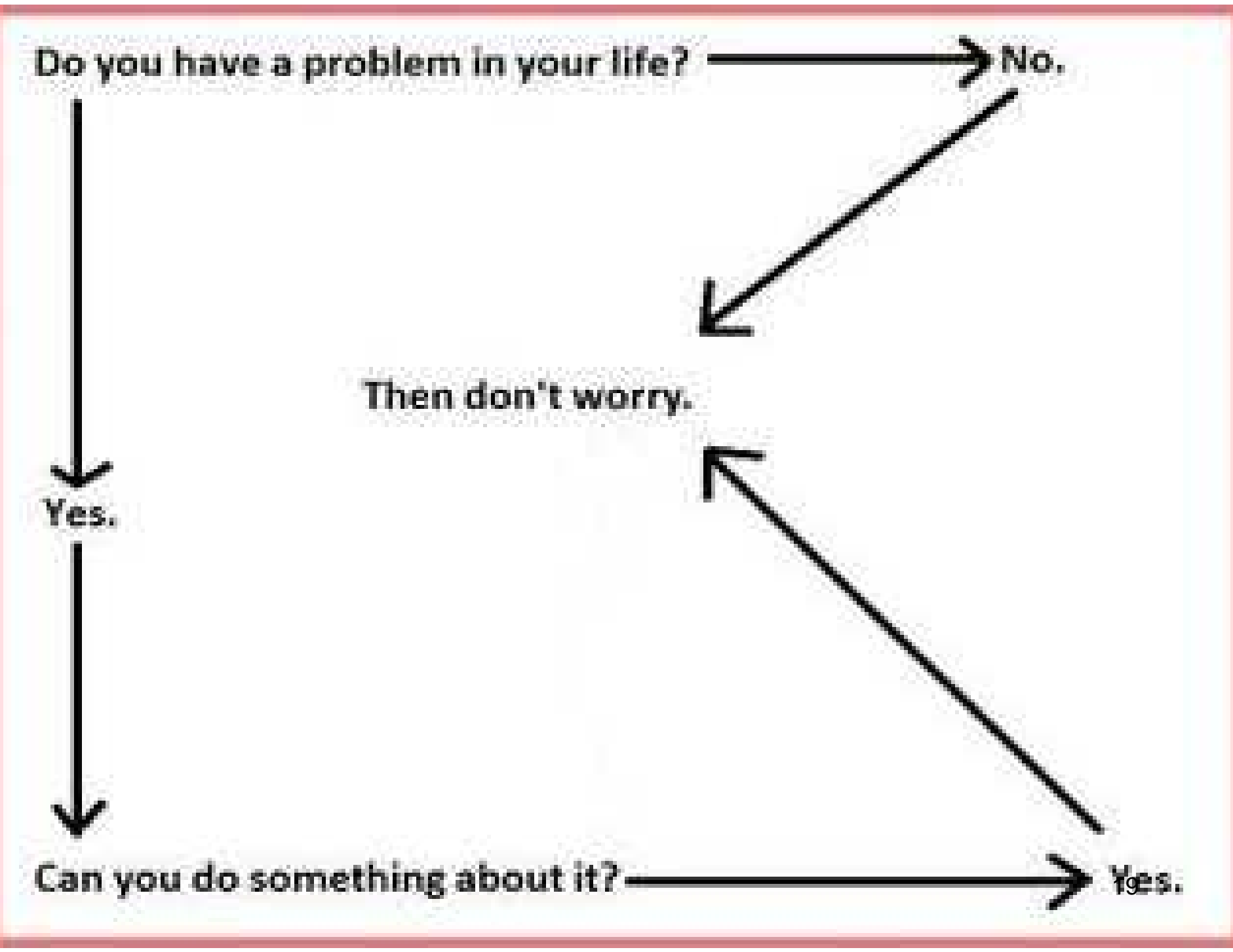
Do you have a problem in your life? ⟶ No.

Then don't worry.

Yes.

Can you do something about it? ⟶ Yes.

CONCEPT OF ONE CITY ONE IDENTITY AND EXAMPLES

ONE CITY- ONE IDENTITY

CONNECTING CITIZENS TO CITIES (c2c)

Putrajaya city of Malaysia- open green space, well planned townships and water ways (Intelligent Garden City)

Chiang Mai City of Thailand- handicraft industries; handicraft villages stretching several kilometers (City of Handicraft)

Banglore city – Electronic goods_ Electronic City (Silicon Valley of India)

ONE CITY- ONE IDENTITY

CONNECTING CITIZENS TO CITIES (c2c)

POKHARA- TOURISM CITY

BIRGUNJ – COMMERCIAL CITY

KATHMANDU- CAPITAL CITY

BHARATPUR – MEDICAL CITY

BIRATNAGAR- INDUSTRIAL CITY

JANAKPUR- CULCURAL CITY/ POND CITY

GORKHA- HISTORIC CITY

LEKHA NATH- LAKE CITY

SIDDARTHANAGAR - PEACE CITY

LUMBINI CULTURAL MUNICIPALITY- CULTURAL CITY

23

ONE CITY- ONE IDENTITY

CONNECTING CITIZENS TO CITIES (c2c)

PANCHKHAL- AGRICULTURE CITY

? – EDUCATION CITY

JIRI- FILM CITY

?MUNICIPALITY – SPORT CITY/ GREEN INDUSTRIAL CITY

?MUNICIPALITY- ENTERTAINMENT CITY

?MUNICIPALITY- CONFERENCE CITY/ GARDEN CITY

?MUNICIPALITY- LITERATURE/ ART CITY
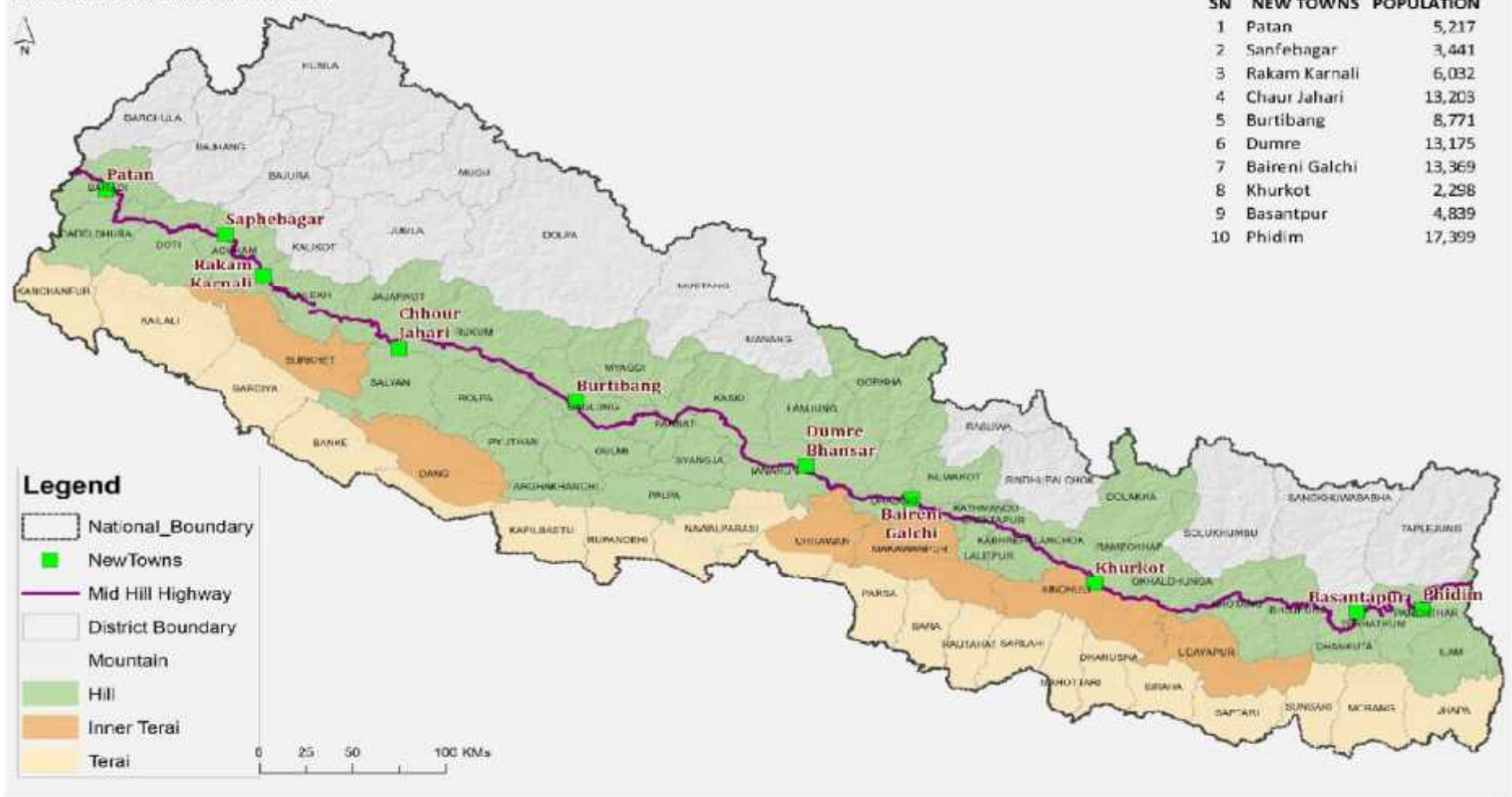
 ? MUNICIPALITY- BANK CITY

 ?- MUNICIPALITY- IT CITY

ILAM - TEA CITY

Osaka – Universal Studio of Japan

Tokyo- Disney land

24

PROPOSED TEN NEW TOWNS ALONG MID HILL HIGHWAY

NEW TOWNS AND MID HILL HIGHWAY

SN	NEW TOWNS	POPULATION
1	Patan	5,217
2	Sanfebagar	3,441
3	Rakam Karnali	6,032
4	Chaur Jahari	13,203
5	Burtibang	8,771
6	Dumre	13,175
7	Baireni Galchi	13,369
8	Khurkot	2,298
9	Basantpur	4,839
10	Phidim	17,399

Legend

- National_Boundary
- NewTowns
- Mid Hill Highway
- District Boundary
- Mountain
- Hill
- Inner Terai
- Terai

0   25   50   100 KMs

ECO-CITY AND CONCEPT OF FOOD GREEN CITY

Natural Resource Use Vs. Quality of Life

Major Component of Eco-City

1. Sustainable Land use

2. Eco-buildings

3. Renewable energy and energy efficiency

4. Environment (Air, water, waste, land etc) Management
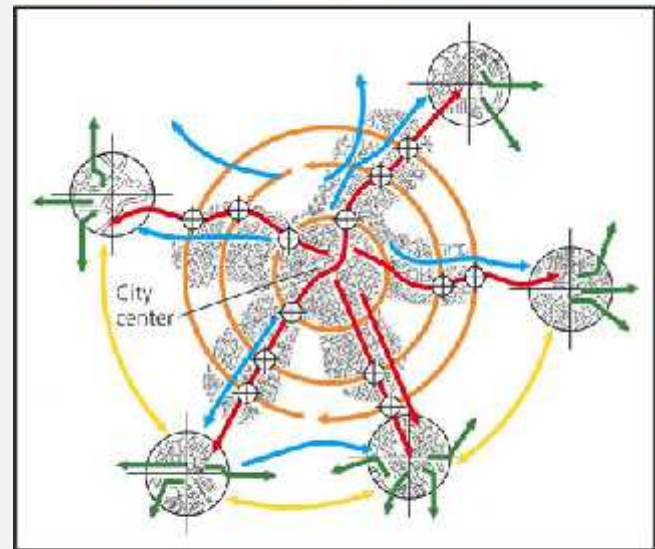
5. Green Transportation

6. Green Economy

Community Cooker, Kibera, Kenya

*consume some 500 kg of rubbish every day

Eco-city Concept: Curitiba, Brazil

- Bus system: cars banned in certain areas

  ➢Master Plan-1965;

  ➢carries 50times more passengers than it did in 20 years ago;

  ➢30% less gasoline consumption per capita

- Recycling of materials

Route
— Express — Interdistrict — Direct — Feeder — Workers

Photo Source: Internet
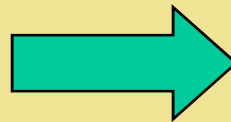
The Solar City: Freiburg, Germany

What is Food Green City?

A Food Green City (FGC) is a kind of Eco-city that enables its residents to live a good quality of life with minimum consumption of resources, in harmony with nature, culture and future. It is also a process of converting Green into Productive Green (Food + Green).

Green

Food + Green (Productive Green)

Greenery (Parks) in Cities

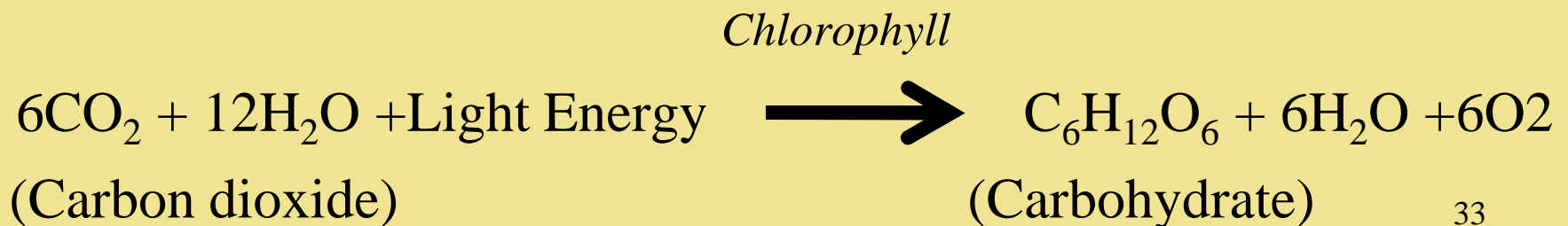average per capita park of Japanese cities (5.6 m^2/ person)

Consider the total oxygen requirement of a community of 1000 people. To balance the oxygen- carbon dioxide cycle during an average year, including the winter months, a park of 440 acre is needed. Whereas 1/4 acre= 1000 m^2. A community of 15000 people covers an average of 1600 acres of land during urban and suburban development; it requires a greenbelt of over 6000 acres to maintain an atmospheric balance.

Source: *Environmental Pollution, Editor: William A. Andrews*: 1972

What is Food Green City?

It integrates Urban Agriculture with Land Use Planning to combine the benefits of both rural and urban areas for achieving the goal of food self sufficiency for sustainable city development. This helps in converting *Carbon dioxide city* to *Carbohydrate city,* decreasing human impacts on urban environments and making the affirmative action for climate positive.

$$6CO_2 + 12H_2O + \text{Light Energy} \xrightarrow{\text{Chlorophyll}} C_6H_{12}O_6 + 6H_2O + 6O2$$

(Carbon dioxide)   (Carbohydrate)

33

Eight Guiding (P-L-E-A-S-U-R-E) Principles of Food Green City (FGC)

- **P**lenty of Food Green Space (Urban Productive Greening).
- **L**iving and Working Together.
- **E**nsuring minimum consumption of resources.
- **A**ttaining sustainable neighborhood through Public Private Partnership
- **S**ystem of 3B's (Boot, Bike and Bus).
- **U**se of energy efficiency and eco-friendly technologies.
- **R**estructuring the cities through Community participation and local resources.
- **E**ffort for Zero Waste Emission

34

Benefits of Urban Agriculture

1. Physical Benefits

a) Utilize the unused land

b) Provides green environment

c) Maintain balance between built up and open space

d) Prevents surface sealing

e) Maintains clean atmosphere

f) Allow for emergency spaces during fire and earthquake

Benefits of Urban Agriculture

2. Social Benefits

a) Opportunity for part time work

b) Increases household food security

c) Improve supply of food in the city

d) Social integration among the neighbors

e) Support for cultural activities

f) Supply food with energy efficient manner

Benefits of Urban Agriculture

3. Ecological Benefits

a) Improves microclimate

b) Decrease air pollution

c) Maintain ground water table

d) Keep biodiversity

e) Reduce urban heat island effect

f) Support waste management and soil nutrients

Application of Urban Agriculture

Where to do?

a) Utilize unused and vacant land

b) Part of greenery places and parks

c) Vacant area of house/ building/ government or non government organization

d) Roof tops

Application of Urban Agriculture

How to do?

a) Integrate Urban agriculture with urban planning

b) Adopt middle natural farming

c) Practice 3R policy

d) Farming at three level: i) private ii) community iii) city

Application of Urban Agriculture

Who will do?

a) Part time work/ who lives at home

b) Job holders at leisure

c) Low skilled people

d) Interested/ volunteers

Comprehensive Plan of Osaka

- Osaka city has prepared basic greenery plan in accordance with comprehensive plan of osaka. Target is by mid of 21st century to achieve per capita park of 7m^2 per person (in1998, 3.9m^2 per person)

- $^{25\%}$ of increased park can provide food for 10000 population.

Sustainable Park: Food Green Park

Roof Top Garden

Energy Efficient Food Supply System of FGC
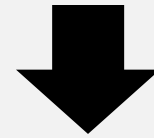

Local Production commercially
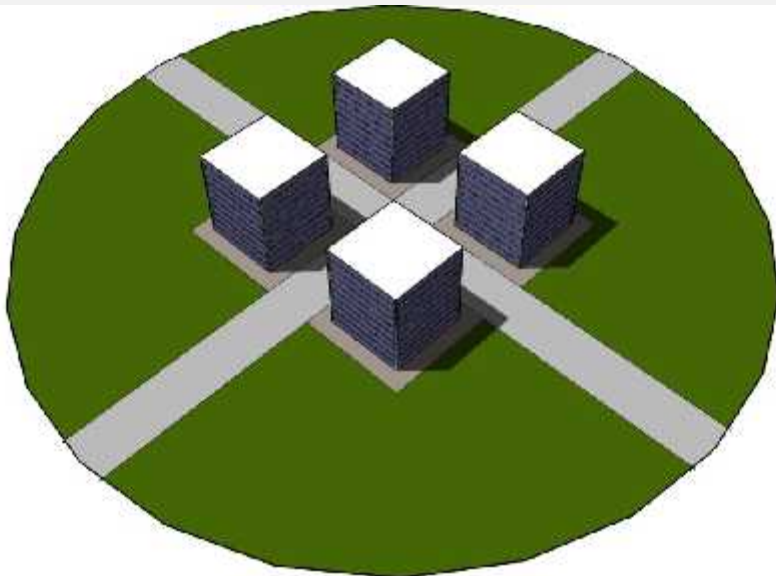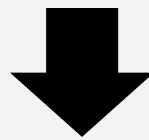
↓
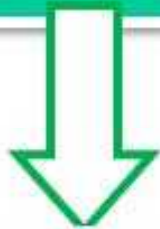
Distributers/Sellers

↓
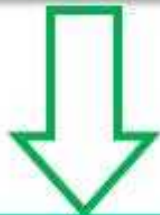
Local Consumers

Lets grow food locally.

Housing System

Lets Initiate Food Green Plantation

Some Examples Urban Agriculture

Lets Change Vacant and Unutilized land into Productive Green Land.

Lets transfer the river banks into Productive Green Infrastructure.

Lets Conserve Agriculture Lands.

White House Gardening

White House Gardening

Some Initiatives in Urban Agricultures

Capital Growth project hope that they can get 2,012 new local gardens prior to the Olympics in 2012.

It is estimated that there is about 100 km^2 of flat roof space with the potential to grow food across the capital (London).

100,000 houses in KMC which have available 600 sq.ft area (400 sq. ft. at roof top and 200sq.ft at front and backyard of house) for the productive greening. Then, the area available for the productive greening is 5.57 Sq. Km. (which comes around 11.2% of total area and 16.5% of built up area of KMC)

Urban Agriculture with Land Use Planning

Urban Gardens in Havana, Cuba

Photo source:
http://thecroft.wordpress.com/2009/06/01/cubas-urban-gardens

Dongtan City

CONCLUSION

IDENTITY: CONCEPT OF ONECITY ONE IDENTIY

SUSTAINABIILTY: CONCEPT OF FOOD GREEN CITY

FOOD GREEN CITY = HAPPY CITY

I'm still waiting for the day that I will actually use

17. $\dfrac{\partial^2 u}{\partial x^2} + \dfrac{\partial^2 u}{\partial x \partial y} + \dfrac{\partial^2 u}{\partial y^2} = 0$

18. $3\dfrac{\partial^2 u}{\partial x^2} + 5\dfrac{\partial^2 u}{\partial x \partial y} + \dfrac{\partial^2 u}{\partial y^2} = 0$

19. $\dfrac{\partial^2 u}{\partial x^2} + 6\dfrac{\partial^2 u}{\partial x \partial y} + 9\dfrac{\partial^2 u}{\partial y^2} = 0$

20. $\dfrac{\partial^2 u}{\partial x^2} - \dfrac{\partial^2 u}{\partial x \partial y} - 3\dfrac{\partial^2 u}{\partial y^2} = 0$

21. $\dfrac{\partial^2 u}{\partial x^2} = 9\dfrac{\partial^2 u}{\partial x \partial y}$

22. $\dfrac{\partial^2 u}{\partial x \partial y} - \dfrac{\partial^2 u}{\partial y^2} + 2\dfrac{\partial u}{\partial x} = 0$
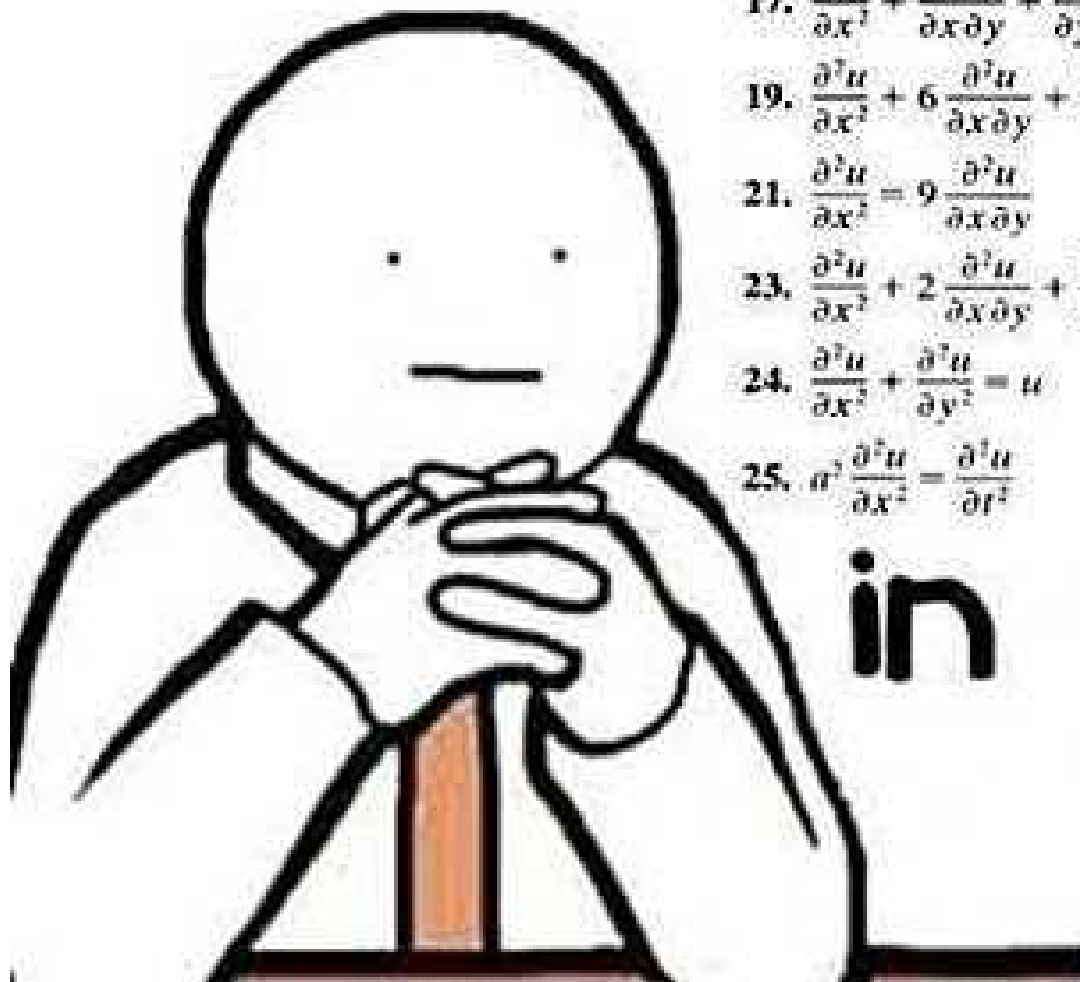
23. $\dfrac{\partial^2 u}{\partial x^2} + 2\dfrac{\partial^2 u}{\partial x \partial y} + \dfrac{\partial^2 u}{\partial y^2} + \dfrac{\partial u}{\partial x} - 6\dfrac{\partial u}{\partial y} = 0$

24. $\dfrac{\partial^2 u}{\partial x^2} + \dfrac{\partial^2 u}{\partial y^2} = u$

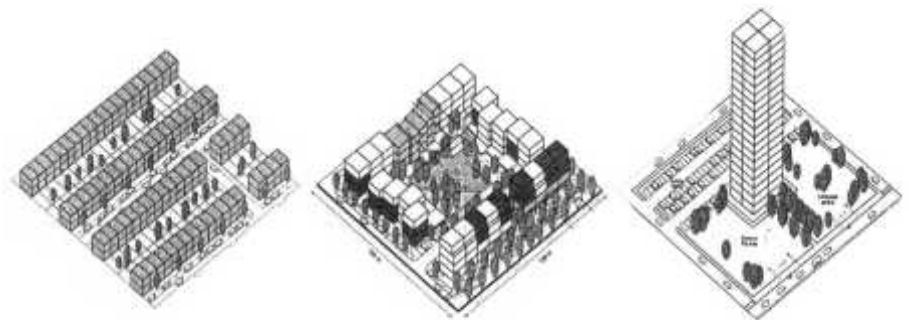25. $a^2\dfrac{\partial^2 u}{\partial x^2} = \dfrac{\partial^2 u}{\partial t^2}$

26. $k\dfrac{\partial^2 u}{\partial x^2} = \dfrac{\partial u}{\partial t}, \quad k > 0$

in real life

IT'S OUR CHOICE....

➢Homogenous city or Having Identity

➢Healthy City or Hazardous City

➢Planned city or Polluted city

➢Prosperous or Poor city

➢Livable city or Lethargic city

➢Smiling city or Silence city

Begins with you.........And Success belongs with togetherness

Thank you for your kind attention!
धन्यवाद !