



**Urban Regeneration and Climate Change  
Training Program  
18 - 22 September 2017**

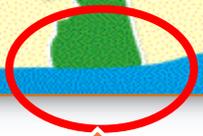
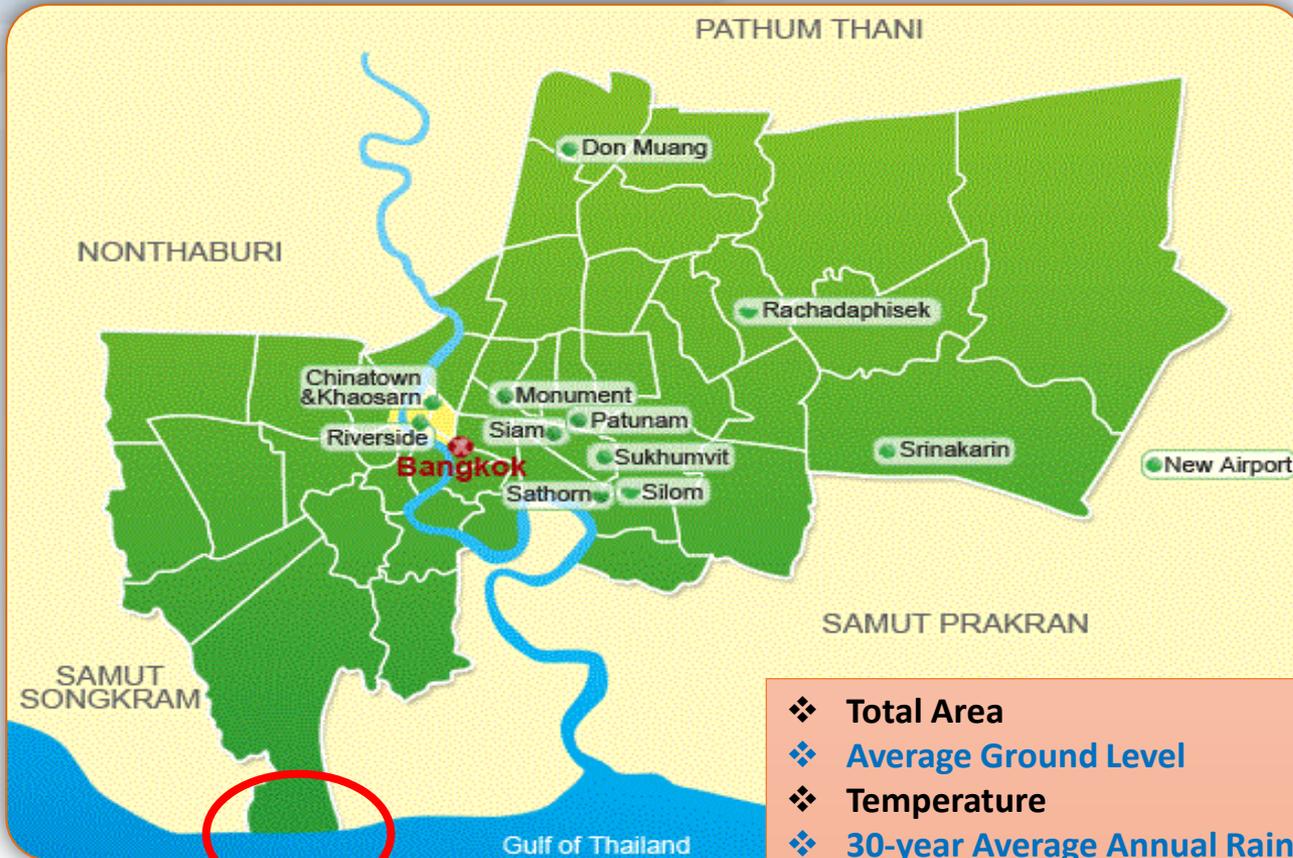
# **Bangkok : Climate Change Management**



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Head of Vehicle Emission Control Sub-division  
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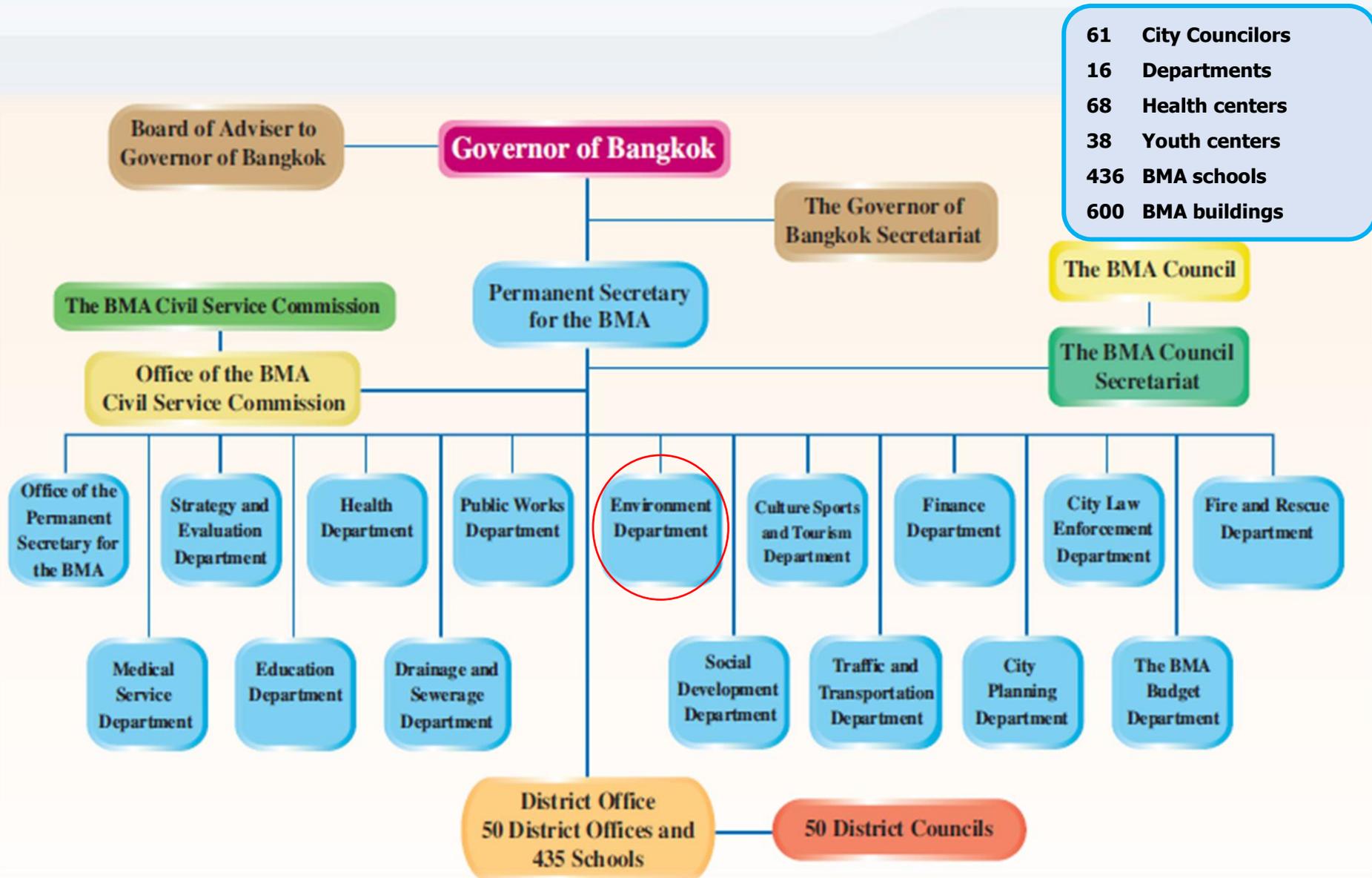
# Bangkok Map



**Bang Khun Thian District**

- ❖ **Total Area** 1,568.737 km<sup>2</sup>
- ❖ **Average Ground Level** +0.50 to +1.50 m MSL
- ❖ **Temperature** 17.6 - 39.3°C
- ❖ **30-year Average Annual Rainfall** 1,648 mm
- ❖ **Population** Registered 5,692,284 persons (2014)  
Non Registered ~ 4 million persons
- ❖ **Density Population** 3,629 persons/km<sup>2</sup> (2014)
- ❖ **District** 50 districts
- ❖ **House** 2,681,713 households (2014)
- ❖ **Community** 2,054 Communities (2014)
- ❖ **Length of the Chao Phraya river in Bangkok** 35 km

# Bangkok Metropolitan Administration



- 61 City Councilors
- 16 Departments
- 68 Health centers
- 38 Youth centers
- 436 BMA schools
- 600 BMA buildings

# Bangkok 20 Years Development Plan (Bangkok 2032)



## VISION : Vibrant of Asia

“In 2032 Bangkok will become a capital, a key social and economic driving force in ASEAN and Asia.

When people think of Asia, they will think of Bangkok as one of the world’s leading cities, with a stable and growing economy, and as a safe, beautiful, and environmentally friendly city.

Bangkok will also be regarded as a vibrant city with a rich cultural heritage”.



# Strategic Plans on Development of Bangkok Metropolis 2013 – 2032



# Challenges



Waste generation  
9,900 tons /day,  
(2014)



Wastewater to be treated  
1,112,000 m<sup>3</sup> / day  
46 % of total wastewater generated  
(2014)



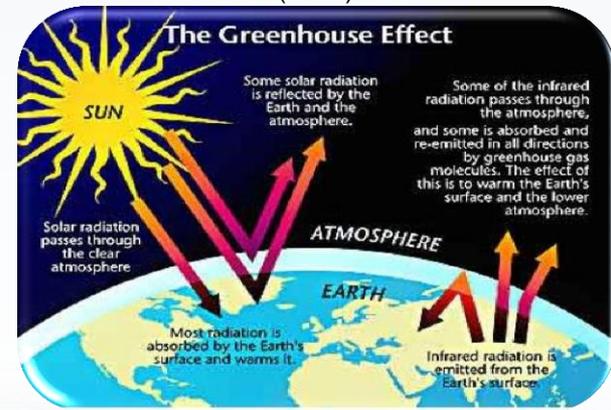
8.6 million registered cars  
Increase 5% each year  
6 million trips of car usage/day.  
(2014)



PM10 on roadside  
exceeded the 24-hour average  
(120 µg/m<sup>3</sup>) in some areas.  
(2014)



Fuel consumption  
353,707 million MJ.  
Electricity consumption 32,605.44 GWh  
(2013)



GHG Emission 42.65 million tons (2007)



# Bangkok Master Plan on Climate Change 2013-2023



Building upon the efforts on the Bangkok Action Plan on Global Warming Mitigation 2007-2012, the BMA cooperated with JICA to develop the Bangkok Master Plan on Climate Change 2013-2023.

**(1) Environmentally sustainable transport**

**(2) Energy efficiency and alternative energy**

## Scope of Master Plan

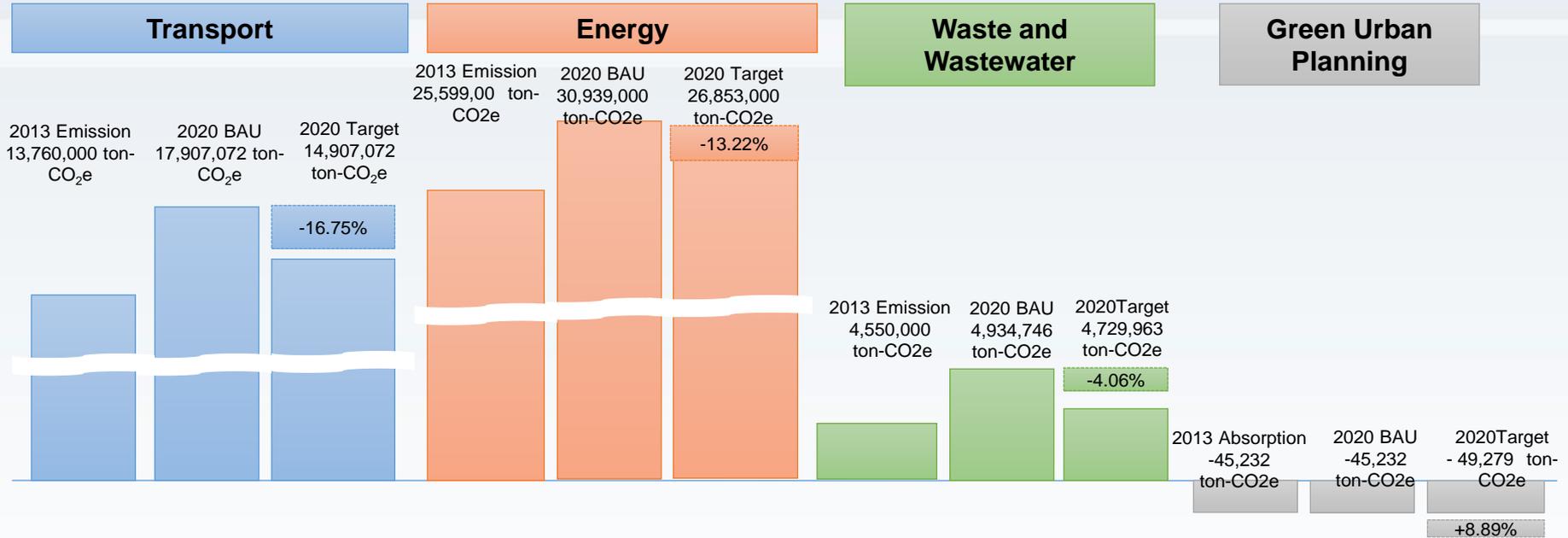
**(5) Adaptation planning**

**(4) Green urban planning**

**(3) Efficient solid waste management and wastewater treatment**



# GHG Emission in 2013 and BAU Emission and Mitigation Targets in 2020 (by Sector)



Sector	GHG Emission in 2013	Future GHG Emission in 2020 under BAU (million tons CO <sub>2</sub> eq)	Future GHG Emission in 2020 under Bangkok Master Plan on Climate Change 2013-2023 Implementation (million tons CO <sub>2</sub> eq)	Target Reduction (million tons CO <sub>2</sub> eq)
Transport	13.76	17.91	14.91	3.00 (-16.75%)
Energy	25.60	30.94	26.85	3.24 (-13.22%)
Waste and Wastewater	4.55	4.93	4.73	0.20 (-4.06%)
Green Urban Planning	-0.045	-0.045	-0.049	-0.004 (-8.89%)
<b>Total</b>	<b>43.87</b>	<b>53.74</b>	<b>46.44</b>	<b>7.29 (13.57%)</b>



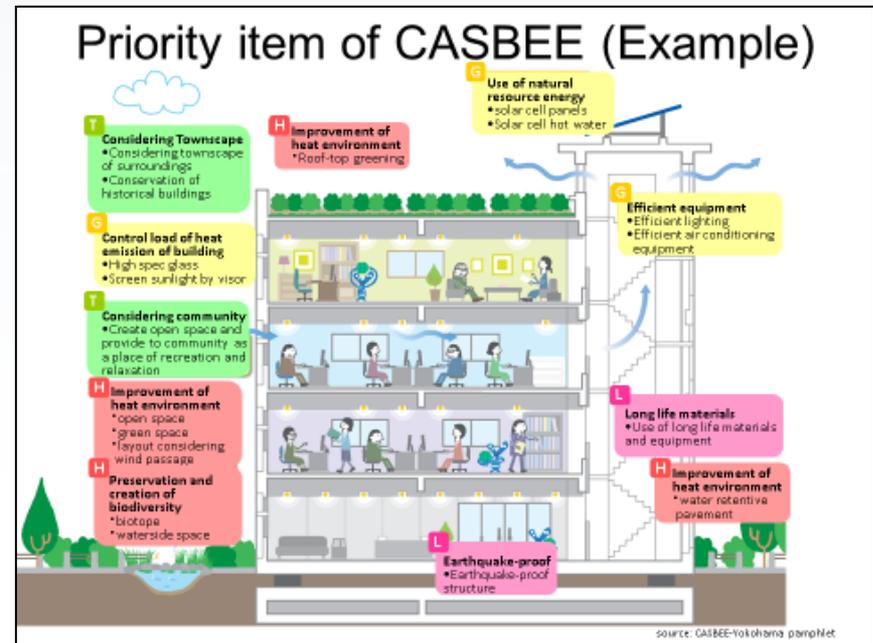
# Mitigation Measures



## 2. Energy Efficiency and Alternative Energy

### (BMA's building and facilities)

- Energy saving renovation/repair work for existing building and facilities
- Energy Saving Priority for new construction
- Information Campaign
- Promotion of low carbon city





## 3. Efficient Solid Waste Management and Wastewater Treatment

### Solid Waste Management

- Waste reduction and separation at source
- Improve fuel efficiency of waste collection and transportation systems
- Promote utilization of organic waste
- Construct waste-to-energy incineration facility
- Construct waste segregation plant
- Install environmentally friendly landfill system

### Wastewater Management

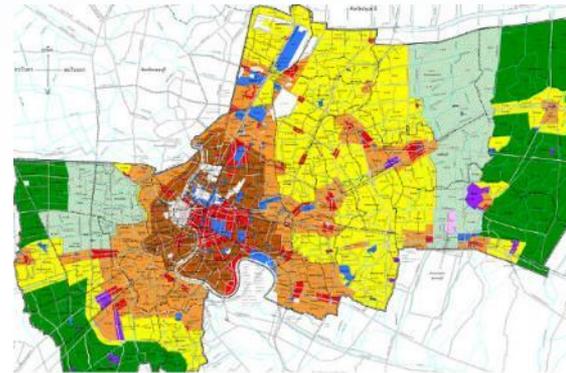
- Promote reduction of water usage at house
- Promote collection of wastewater tariff
- Feasibility study for construction of separated sewerage collection system
- Improve operation and equipment of existing WWTPs
- Promote utilization of sludge
- Promote water reuse





## 4. Green Urban Development

- Increasing new green areas
- Planting new trees along roadside areas
- Increasing the Biotope Area Factor (BAF) in Private land
- Reforestation mangroves
- Well-managing & maintaining of planted trees
- Rooftop greening and wall greening
- Public awareness campaign



# 5. Adaptation Measure



- Bangkok has undertaken the measures for climate change adaptation by implemented structural measures such as
  - Flood Barrier
  - Pumping Station
  - Drainage Tunnels
  - Retention Area
  - Coastal Erosion and Wave Protection



# How to Build Resilience in Bangkok



## Background

- Bangkok was selected as one of the first 32 cities to partner with **100 Resilient Cities (100RC)** pioneered by the **Rockefeller Foundation**.
- The project is designed to enable 100 cities from around the world to better address the increasing shocks and stresses of the 21<sup>st</sup> century.





## Technical Support and Resources

**BMA receives technical support and resources from 100 Resilient Cities (100RC)**

- To hire a Chief Resilience Officer (CRO)
- To develop and implement a City Resilience Strategy
- To exchange and learn among 100RC cities





## Bangkok Resilience Strategy

Vision

Safe, Livable & Sustainable City for All

Strategic Area

#1: Increasing Quality of Life

#2: Reducing Risk and Increasing Adaptation

#3: Driving a Strong and Competitive Economy

Goal

#1: Health and Wellbeing for All City Residents, Now and into the Future

#2: Safe, Accessible & Convenient Transportation Network

#3: Environmental Friendly Urbanization

#4: Improving the City's Flood Resilience

#5: Increase Public and Community Driven Action on Awareness, Preparedness and Adaptation

#6: Strengthening Institution Capacity and Regulation

#7: Facilitating City and Community-Based Economy

#8: Expanding Tourism, Service Industry & Hospitality

Actions

(60 projects)



## 10 of 60 projects to be implemented in short term :

- 1) Event Based Surveillance for Pandemics
- 2) Improving work Places and Living Conditions for Migrant Workers in Bangkok
- 3) Driver Behavior Change Campaign to Reduce Road Accidents
- 4) Sustainable Waste Management
- 5) Developing New Recreational Parks
- 6) Development of Green Space and Riverside Promenade along the Banks for the Chao Phraya River
- 7) Youth Education Program for Disaster Safety
- 8) Search and Rescue Training Program
- 9) Resilience Training for BMA Social Planners and Analysts
- 10) Develop Economy, Trade, Finance and Investment Analysts for BMA



## Lessons & Challenges to Build Resilience in Bangkok



Inclusive policy



Coordinated actions



Database



Raising awareness and participation



Networking



Capacity building

A group of approximately 20 diverse children of various ethnicities and ages are holding hands in a circle around a large blue globe. The globe shows the continents in light blue. The children are wearing colorful clothing. The background is a light blue grid pattern.

**Resilience Future**  
**is**  
**everyone's**  
**business**