


●No.4 “Knowledge management for smart city development”

Moderator: Mr. Gil-Hong Kim (Senior Director concurrently Chief Sector Officer, Sustainable Development and Climate Change Department, Sector Advisory Service Cluster, Asian Development Bank)

|    | City/Organization                   | Title   | Name   |
|----|-------------------------------------|---|--|
| 1  | World Bank Group                    | Senior Officer, Tokyo Development Learning Center (TDLC)            | Mr. Daniel Levine                                |
| 2  | PwC Advisory LLC                    | Vice President, Cities Solution Center Japan                        | Mr. Ryo Ishii                                    |
| 3  | City of Kitakyushu                  | Chief Executive, City of Kitakyushu                                 | Mr. Kengo Ishida                                 |
| 4  | Mandalay City                       | Mayor   | Dr. Ye Lwin                                      |
| 5  | Minglanilla                         | Director of MDCDCB-PROD, Minglanilla, Cebu                          | Ms. Evelyn Nacario Castro                        |
| 6  | Colombo Municipal Council           | Chief Municipal Veterinary Surgeon, Municipal Veterinary Department | Dr. Ilangange Vipulaguna Premalal Dharmawardhana |
| 7  | Mandaue City                        | Executive Secretary/Chief of Staff, City Mayors Office              | Ms. Mae Elaine Tantengco Bathan                  |
| 8  | Naga City                           | Mayor   | Ms. Kristine Vanessa Tadiwan Chiong              |
| 9  | San Fernando                        | Mayor   | Dr. Lakambini Generans Reluya                    |
| 10 | Bangkok Metropolitan Administration | Chairman of Advisers to Governor of Bangkok                         | Dr. Vallop Suwandee                              |
| 11 | Yokohama City University            | Global Cooperation Institute for Sustainable Cities                 | Prof. Hidefumi Imura                             |

|    |                                |   |                           |
|----|--------------------------------|---|---------------------------|
| 12 | Seikei Univeristy              | Professor Emeritus, Seikei Univeristy   | Prof. Ryokichi Hirono     |
| 13 | Durban, South Africa           | Deputy Head, Economic Development and Investment Promotion, Ethekwini Metropolitan Municipality | Takalani Edward Rathiyaya |
| 14 | Municipal Corporation Kakinada | Commissioner, Municipal Corporation   | Mr. Aleem Basha Shaik     |



# Scaling Innovation and Application through City Champions, Operations, Partners and Platforms

Daniel Levine, Senior Officer  
World Bank Group, TDLC Program  
November 11, 2016 - Yokohama, Japan



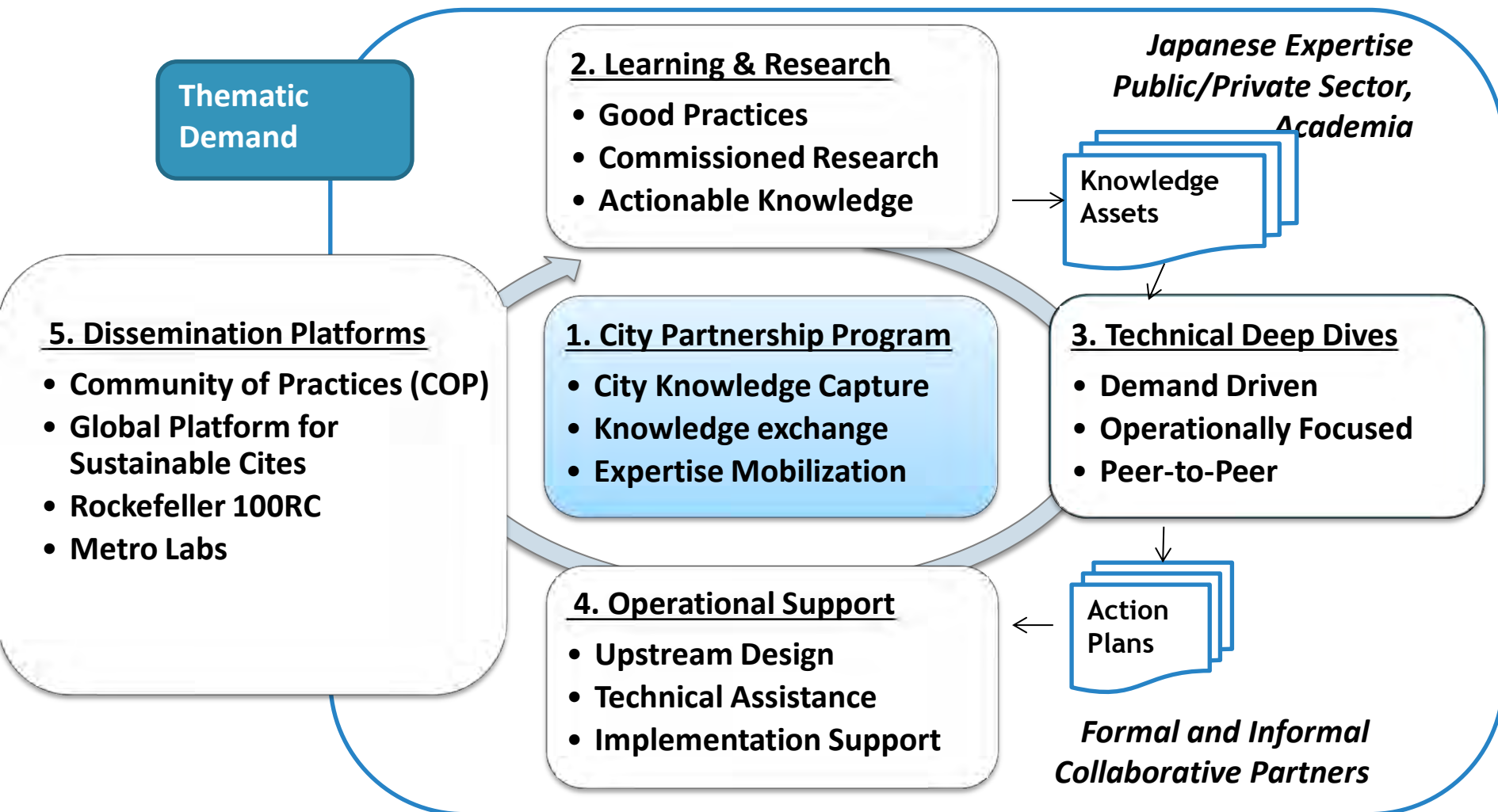
# About the TDLC Program



- TDLC is a partnership of the **Government of Japan and the Social, Urban, Rural and Resilience Global Practice (GSURR) of the World Bank Group**. GSURR has approximately 250 projects under active supervision with a total portfolio value of approximately USD \$22.55bn globally.
- TDLC supports and facilitates strategic WBG and client country collaboration with select Japanese cities, agencies and partners for **joint research, knowledge exchange, capacity building and other activities** that develop opportunities to link Japanese and global expertise with specific project-level engagements in developing countries to maximize development impact.
- The program is **global in reach and thematically focused on urban planning, urban service provision, urban management, social development, disaster risk management, municipal finance**. The mainstreaming of Quality Infrastructure Investment (QII) is an emergent area of focus for TDLC.



# Modality of Engagement for Complex Multi-sectoral Development Challenges



# Thank You



Daniel Levine  
Senior Officer of TDLC Program  
World Bank Group  
Social, Urban, Rural and Resilience Global  
Practice

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Tokyo 100-0011 Japan  
Tel: +81-(0)3-3597-1333  
<http://www.jointokyo.org/en/>



# Kitakyushu Asian Center for Low Carbon Society

## Center established as engine for green growth activities

**Concept :** Developing interactions that place value on the relationship between cities and that will help Japan gain respect from international society in order to contribute to the creation of green cities in Asia



Compile the experiences and know-how of the city from the process of overcoming pollution and becoming an environmental city in order to  
**Create the “Kitakyushu Model”**



141 projects in cooperation with 106 Japanese companies and universities in 57 Asian cities



# Exporting Green Cities Using the Kitakyushu Model

- Create the “Kitakyushu Model,” which is a systematic compilation of the technology and know-how of the city from the process of overcoming pollution to becoming an environmental city.
- Support tools to create sustainable green cities that integrate waste, energy, water and sewage, and environmental protection.



## — Organization of the Kitakyushu Model —

**Kitakyushu's Story**

- Overcoming pollution
- History as green city
- Background of the Kitakyushu Model

**Sustainable urban development (Sustainability framework)**

- Waste Management
- Energy Management
- Water Management
- Pollution Management
- Transportation Management

**Work Procedures**

- ① Baseline and policy Review
- ② Developing a Strategy
- ③ Technical Strategy Development
- ④ Strategy Testing and Measurement Tools
- ⑤ Procurement and Financing

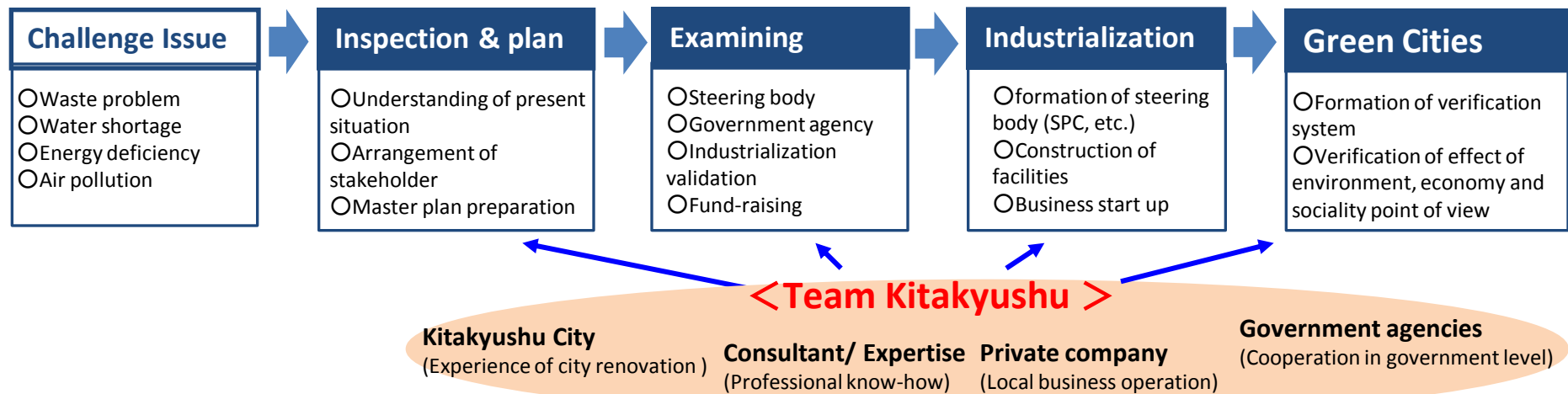
**Kitakyushu's case**



# Kitakyushu Model Initiative to Export the Concept of Green Cities

## Application of the Kitakyushu Model

Create green cities by providing optimal "comprehensive city solutions" for target countries



## Expected Results

### <Merits for Cities Overseas>

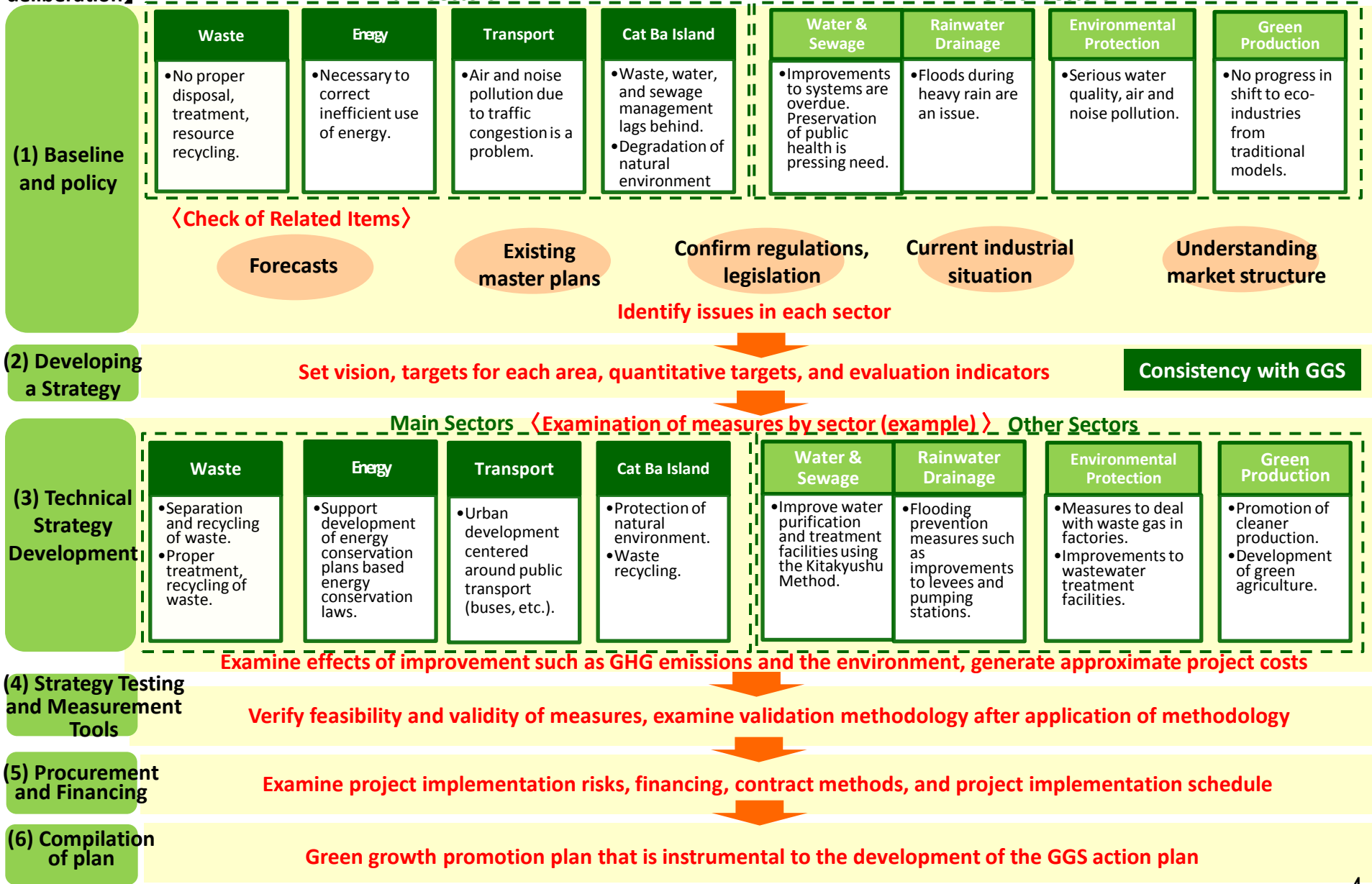
- Cities can share Kitakyushu's know-how and receive technological support.
- Cities can develop plans on their own with high potential for implementation according to the situation in each city.
- All stakeholders have a clear picture of the information, vision, detailed policies and impacts.

### <Merits for Kitakyushu>

- Various business opportunities will emerge by taking part in planning from the initial stage of the development of master plans.
- Information, human resources, and technologies can be consolidated from both within and outside Japan on the development of urban environmental infrastructure overseas.

# Support for Development of Green Growth Promotion Plan in Haiphong





【Items under deliberation】



# Hai Phong Green Growth Promotion Plan



## Promoting 15 Pilot Projects

|  |  |   |
|--|--|---|
| Waste                                    | ① Separation and composting of household waste   |    |
|  | ② Waste heat recovery power generation & utilization of industrial waste                   |   |
|  | ③ Recycling of e-waste   |   |
| Energy                                   | ④ Energy savings and introduction of decentralized energy systems in factories & buildings |   |
| Transportation                           | ⑤ Introduction of low-emission buses   |    |
|  | ⑥ Promotion of the use of public transportation  |   |
| Cat Ba Island                            | ⑦ Development of comprehensive resource recycling system                                   |   |
|  | ⑧ Energy savings and introduction of renewable energy and EV buses in Cat Ba Island        |   |
| Water & Sewage,<br>Rainwater<br>Drainage | ⑨ U-BCF expansion project  |   |
|  | ⑩ Handicraft village wastewater measures   |   |
|  | ⑪ Introduction of sewerage registry system   |   |
| Environmental<br>Protection              | ⑫ Restoration of Tay Nam canal   |   |
|  | ⑬ Development of air and noise monitoring systems  |   |
| Green<br>Production                      | ⑭ Installation of high-efficiency furnaces in foundries                                    |  |
|  | ⑮ Promotion of green agriculture   |   |

# Mandalay to Become a Smart City



## CHALLENGES

The 1962 coup turned Myanmar from second-wealthiest country in South-East Asia into Least Developed Country status in 1987 after decades of stagnation, mismanagement and isolation. Lack of HR and Infrastructure retards recent reforms and developments of the new government, in collaboration with foreign countries.

## RECENT TRANSFORMS

### 1. ICT Sector

#### Infrastructure Development

- Metropolitan Network by Micro Trenching System starting in 2016, 150km/year and a second Traditional Duct System covering 180km (60km left)
- Community Wi-Fi, average 8000 poles will provide additional internet service in May 2017.
- Deploying GIS based Monitoring Tool
- Monopoles to upgrade Telecommunication to 4G



## Data Transformation for the Smart Mandalay

1. Transform to e-Office and Implement the Integrated Land Management and information System
2. e-MCDC Integrated One Stop Service System
3. Integration to the e-MCDC LMIS in 2017;
  - (a) Building information.
  - (b) Water Supply System
  - (c) Public Transportation
  - (d) Solid Waste Management
  - (e) Taxation
4. To integrate the systems with other Regional Ministries .

## 2. Road and Transportation

1. Real Time Traffic Light  
plan to cover whole city from existing 21 sites in next year
2. Public Transportation  
Modified BRT with Transit Signal Priority (TSP) (Pre emptioin)

### **3. Solid Waste**

#### **Challenges**

- Generation rate in 2016 is 1020 Ton per Day and collected rate is 800 Ton per day.
- Improper collecting vehicles, only 20 Compactors, Mainly Open Trucks, Tri-motorcycles, Haul Containers
- Insufficient budgets, workers, modernized trucks & equipment and Two open dumping sites
- Lack of public participation

#### **Plans**

- Environmental Education program for the students is started in 2014 by the cooperation of Kitakyushu City, Japan.
- Public awareness program for waste segregation at sources is being started.
- Plan for Waste to Energy
- Final disposal sites will be upgraded to become the sanitary landfill sites.

#### **4. Current Water Supply Situation**

- Total production : 1,36,363 cubic meters/day (30 MGD)
- Surface water (10%) Ground water (90%)
- Population Served - 70%

#### **Mandalay Urban Services Improvement Project (MUSIP)**

- Rehabilitation and extension of the water supply system / Non Revenue water reduction.
- Expected implementation period: 2016 to 2023

#### **5. Waste Water**

Need to improve the capacity of Existing Creeks and Drains

#### **MUSIP**

- Wastewater collection and treatment phase 1
- Septic management, sludge treatment/disposal and gas to energy
- Dredging drainage canals and improve flow / Non structural storm water management
- Improved urban planning, integrating climate change resilience
- Utility capacity building and corporatization
- Public awareness raising



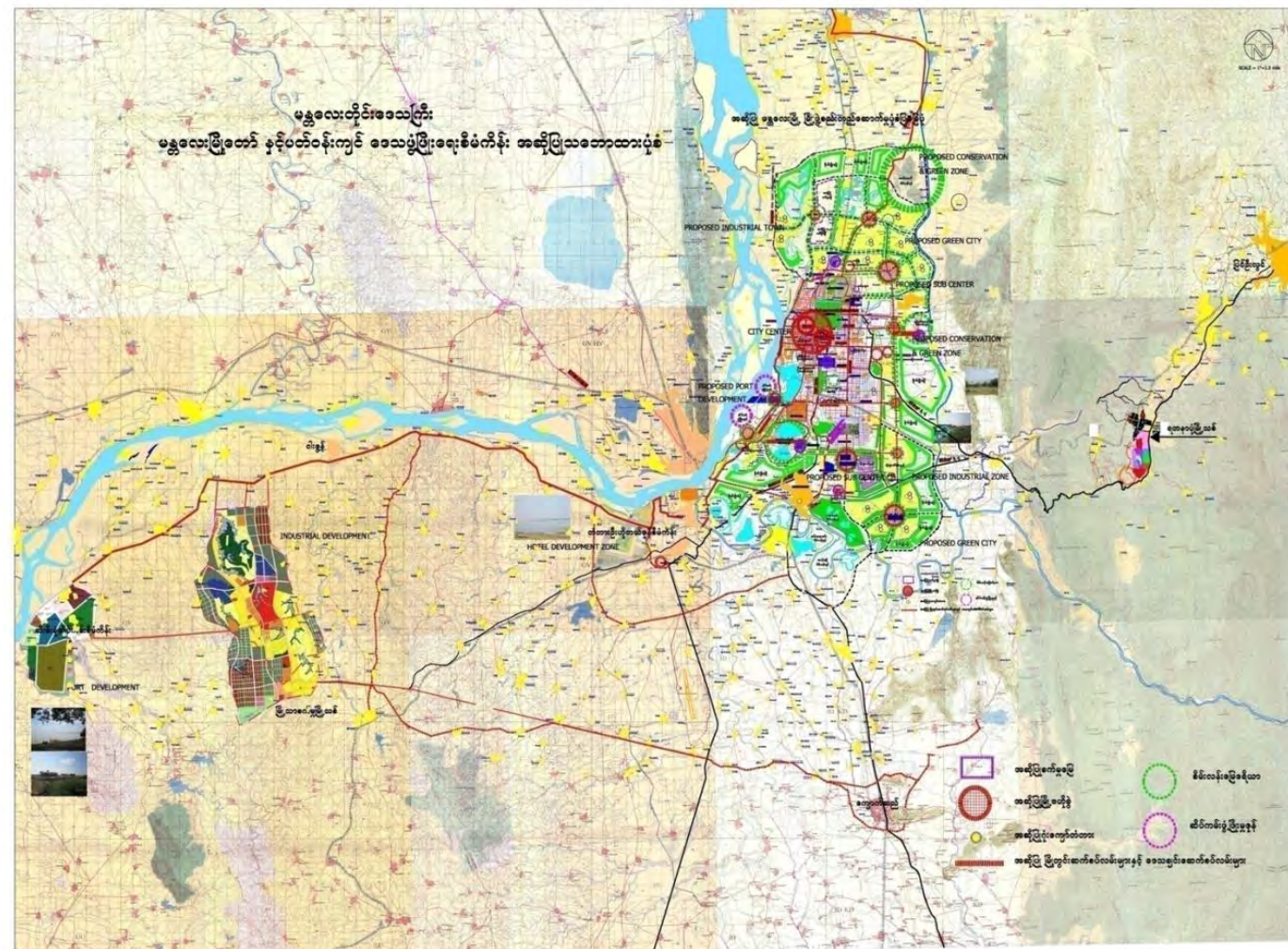
## 6. Smart Building and Home For Poor Citizens

- low cost housing project - 1344 Units
- Affordable Cost Housing Project – 3360 Units

## For Squatters

- Rental housing project – 1584 Units

## Future Master Plan







## 5th Asia Smart City Conference

Yokohama, Japan

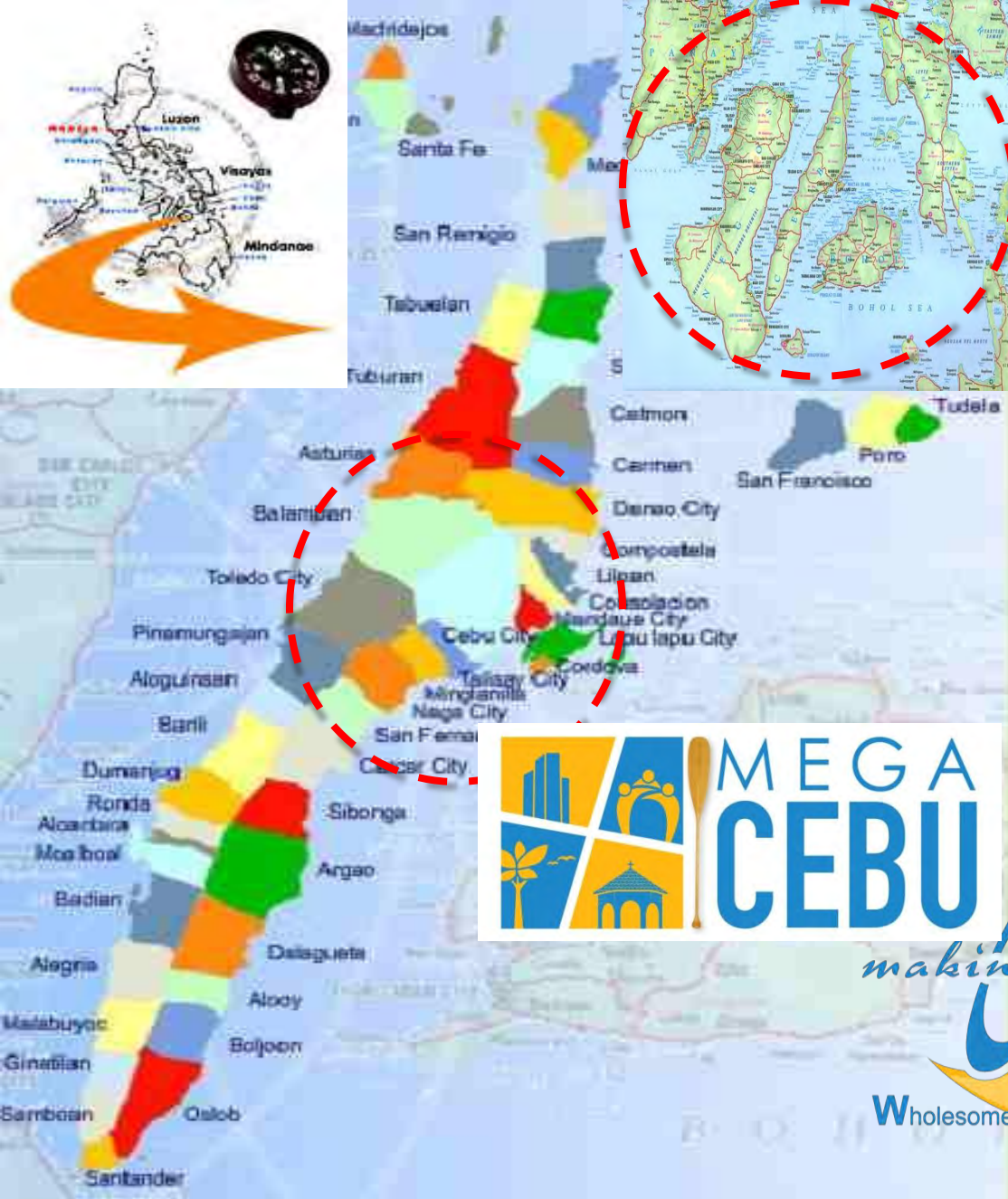


# Platform for Knowledge Management

November 18, 2016

Knowledge Management for  
Smart City Development

# Platform for Knowledge Management





# Evidence, Expertise, Engagement



**Integrated  
Development  
& Spatial  
Planning**

**Traffic &  
Transport  
Management**

**Solid Waste  
Management**

**Water  
Supply,  
Septage &  
Sewerage  
Management**

**Disaster Risk  
Reduction &  
Management**

**Five**

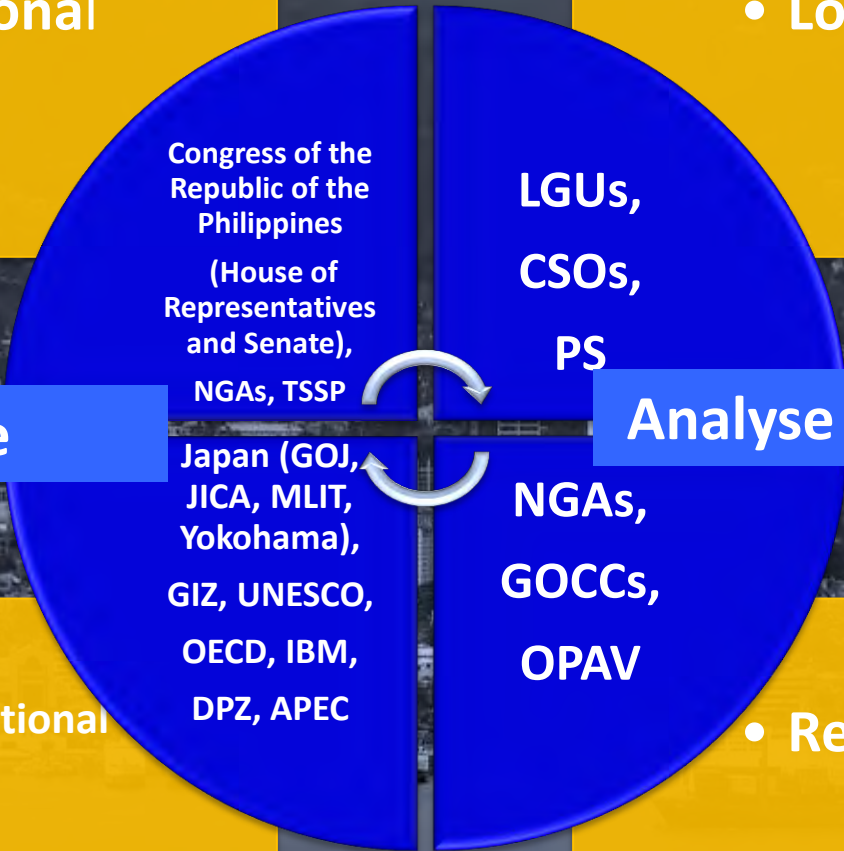
**Focal**

**Themes**

# Gather & Consolidate

• National

• Local



# Disseminate

• International

# Analyse & Synthesize

• Regional

# Finalize & Package

KM: Circle of Partners



**Publications**

**References**

**Trainings**

**Researches**

**Newsletters**

**Online**

**Directory**

**Library**

**Maps**

**Charts**

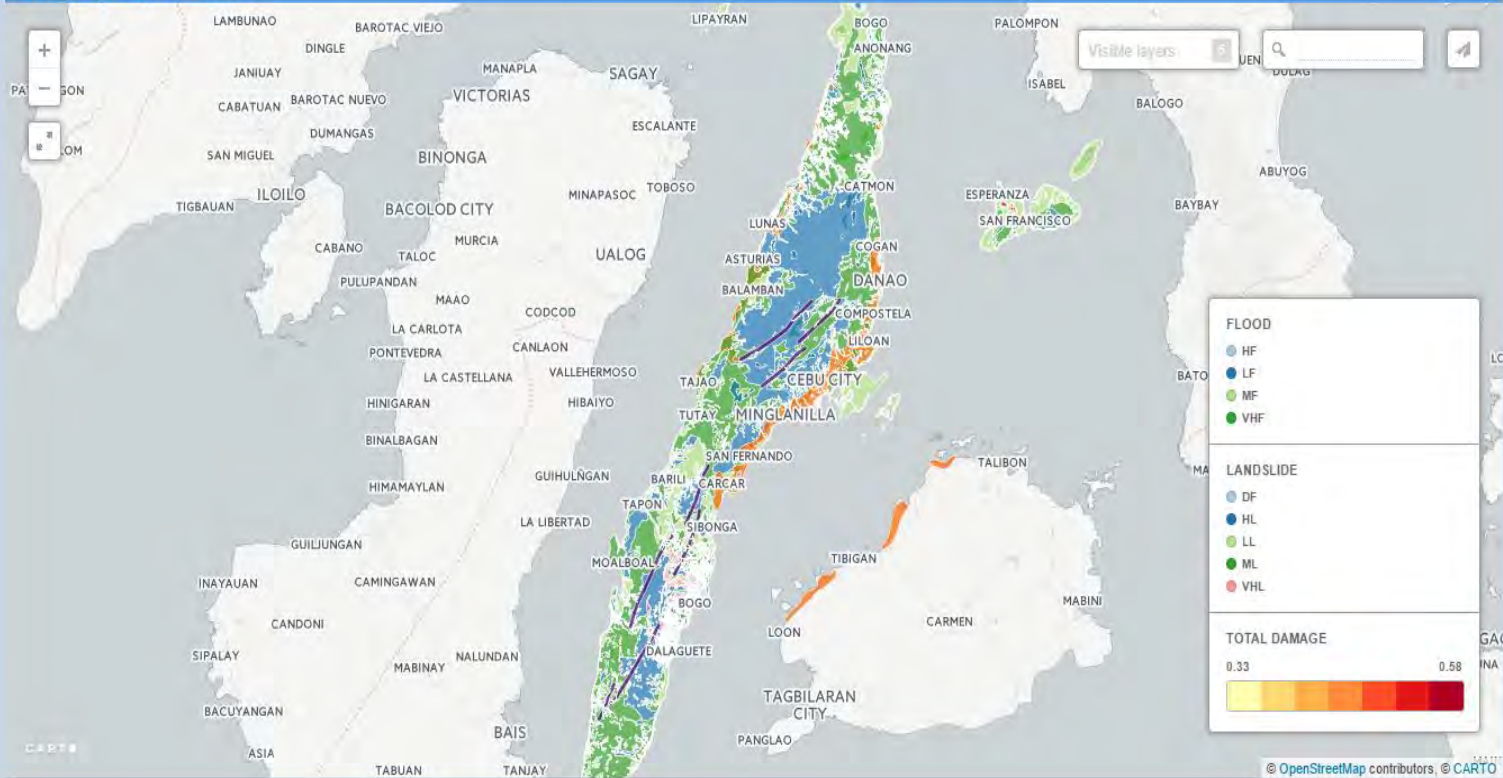
Subpages (7): [Charts](#) [Maps](#) [Newsletters](#) [Readings](#) [References](#) [Researches](#) [Trainings](#)

**Comments**

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**KM: iKNOW library**

## Suitability Map of Cebu



### Comments

You do not have permission to add comments.





[ACCESS NHTS MAP HERE](#)

## Philippine National Poverty Data

Region  + Province  + Municipality  + Barangays

1 - 11444 / 11444

Population 2010

**18,003,940**

Population 2012

**18,520,980**

Rate of Poverty - Weighted Sum (Municipal Level Filtering)

**166.628**

Electricity Needs - Weighted Sum (Municipal Level Filtering)

**119.786**

Disability - Weighted Sum (Municipal Level Filtering)

**22.023**

Population 2011

**18,257,551**

Population 2013

**18,788,371**

Water System Needs - Weighted Sum (Municipal Level Filtering)

**211.145**

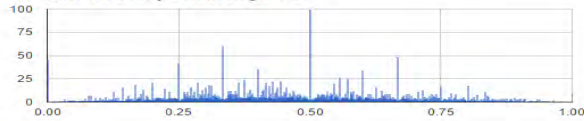
Toilet Needs - Weighted Sum (Municipal Level Filtering)

**100.915**

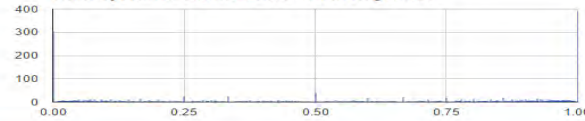
Displacement - Weighted Sum (Municipal Level Filtering)

**7.081**

Rate of Poverty - on average: 0.44



Water System Needs Incidence - on average: 0.56



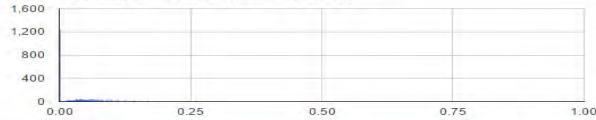
Electricity Needs Incidence - on average: 0.32



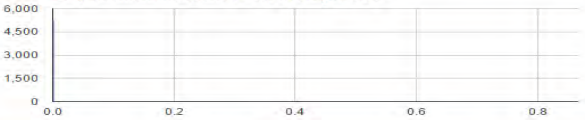
Toilet Needs Incidence - on average: 0.26



Disability Incidence - on average: 0.06



Displacement Incidence - on average: 0.02



1 - 11444 / 11444

### Comments

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**RAFI Data-Info Needs Summary**

Team + Theme + Data-Information Availability + Urgency + Document Type + Format +

1 - 137 / 137

| Team  | Top results |
|-------|-------------|
| EADSC | 26          |
| RAFI  | 19          |
| KAC   | 18          |
| IDU   | 17          |
| DACF  | 12          |
| RMF   | 11          |
| CHU   | 10          |
| EDU   | 10          |
| FAD   | 9           |
| EJACC | 5           |

| Theme                            | Top results |
|----------------------------------|-------------|
| Directory/ Inventory             | 20          |
| Miscellaneous                    | 10          |
| Biophysical                      | 6           |
| Inventories on Education         | 6           |
| Policies,Laws, Ordinances        | 6           |
| Economic Data-Info               | 5           |
| Education Governance             | 5           |
| Health                           | 5           |
| Spatial and Visual Info          | 5           |
| Tourism                          | 5           |
| Industry Trends & Best Practices | 4           |
| Research and Development         | 4           |
| Standards                        | 4           |
| Statistics on Education          | 4           |
| Best Practices in Education      | 3           |

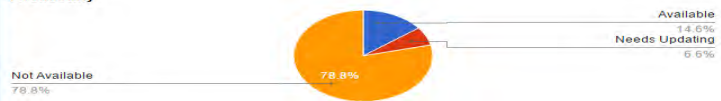
Data-Information - Top words

INSTITUTIONAL TRAINING MORTALITY PER STANDARDS INVENTORY  
 COMPENDIUM YOUTH LGUS DATA PRIVATE MORBIDITY  
**ORGANIZATIONS** MAPPING COUNTRY INTERNATIONAL TRENDS LOCAL  
 PROGRAMS POPULATION SCHOOLS **BEST** ECCD WATER  
 MAPS **DEVELOPMENT** FUNCTIONALITY SECTOR CITIES PHILIPPINES  
 SCHOOL **CEBU** EDUCATION PROFILE MANAGEMENT SUPPORT  
**DIRECTORY** AREAS FINANCIAL PRACTICES RESEARCH RATE  
 SERVICES TOURIST INTERVENTIONS MUNICIPALITIES URBAN PUBLIC  
 PROGRAM LIST  
 Details ▾

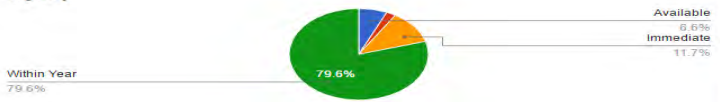
Provider - Top words

CSB UNICEF **TEAMS** CENTER DEPED DILG  
**NATIONAL** DEMOGRAPHIC PROGRAM BFAF PLANNING HISTORICAL  
 PROFILE OD CNSUELO **DSWD** NUTRITION NETWORKS  
**ECCD** RESOURCE **CEBU** REGIONAL RA **INTERNET**  
 WORLD UP **WWW** DENR STUDIES CUSW  
 CHAMBERS EDITION SILLIMAN BUSINESS SEC INSTITUTE  
 SAVE PCNC **CHED** CENSUS BASED LGU  
 PHILIPPINE **FAD** COUNCIL SOCIOECONOMIC PSA NGOS  
**NSCB** IBP  
 Details ▾

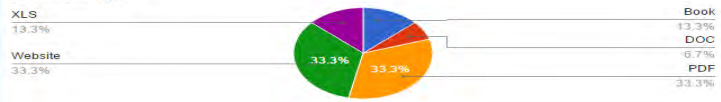
Availability



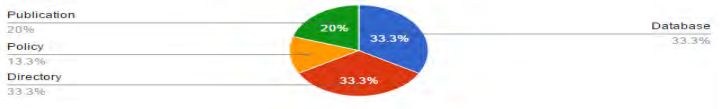
Urgency



Document Type



Format



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Comments

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**KM: iKNOW library**

**Vision 2050 & 3+1 Development Strategy**

**Roadmap for Sustainable Urban Development**

**Studies & Conferences: Flood Control, Urban Green Growth, Low Carbon, IWRM, Suitability, Transport & Traffic Management**

**Training & Policy Formulation: Traffic Enforcers Academy; Synchronization of Traffic Policies**

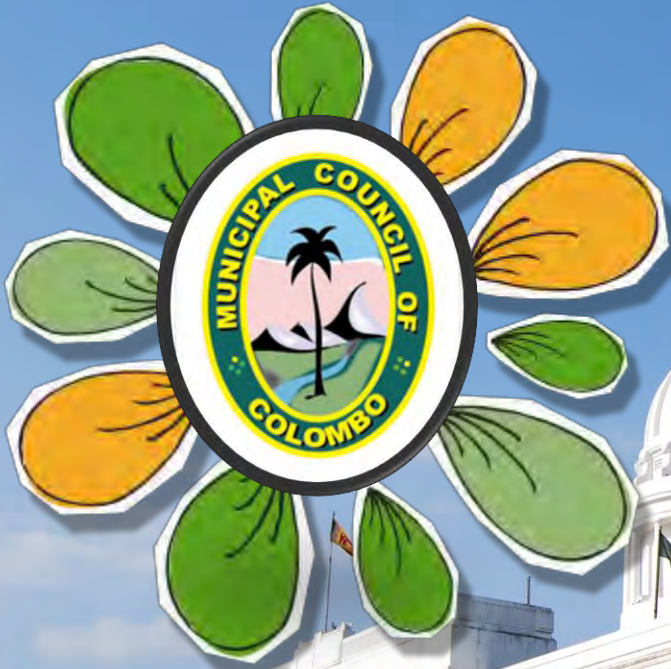
**Relationship Building: Multi-stakeholder, Multi-disciplinary Coalition and Partnerships**

**KM: Areas of Application**



# COLOMBO MUNICIPAL COUNCIL

Dr. Vipula Dharmawardene,  
Chief Municipal Veterinary Surgeon,  
Colombo Municipal Council, Sri Lanka.  
Email: [ivpdharmawardene@yahoo.com](mailto:ivpdharmawardene@yahoo.com)





**37 Square kms**

**555000+ inhabitants**

**500,000 floating people**

**120,000+ housing stock**



**Since  
1865**

**6 districts, 47 wards**

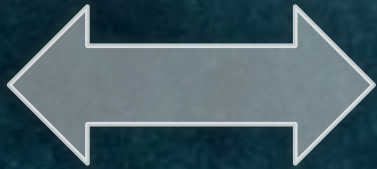




# SUSTAINABLE DEVELOPMENT



**GOOD GOVERNANCE**



**PUBLIC PRIVATE  
PARTNERSHIP**



**PLANNED SYSTEMATIC  
DEVELOPMENT**





Towards  
Becoming  
a Smart  
City

COLOMBO  
AIMING TO

BECOME A SMART CITY





# Colombo Municipal Council



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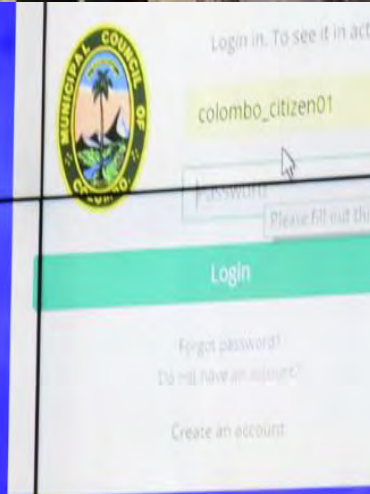
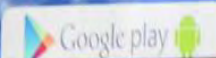
*E-mail - [mtcmc@mobitelnet.lk](mailto:mtcmc@mobitelnet.lk)*

## CPS COLOMBO

Civic Participation System

Civic Participation System encourages direct civil participation in administration, so that limited administrative power can be supplemented. Also, it contributes public opinion either directly or indirectly to administration activities and pursues to provide citizen-centred services

How to use?



**Another Step Forward from CMC**



**THE**

**TRANSFORMATION**

**IN THE CITY OF**

**COLOMBO**















# BENEFITS

- Faster access
- Quality environment
- Good health of people

# CHALLENGES

- 
- Resources (Human/ physical/ financial)
  - Sustainability
  - Commitment (political/ citizens/ officials)
- 





**THANK  
YOU!**



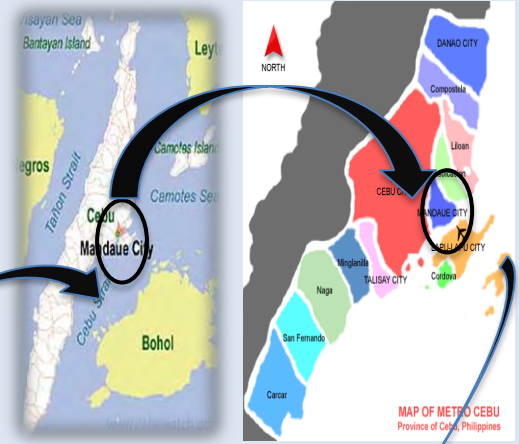


# KNOWLEDGE SHARING IN THE IMPLEMENTATION OF CITY STRATEGY

ATTY. MAE ELAINE T. BATHAN  
Chief of Staff, City Mayor's Office

# Mandaue City Quick Facts:

- Population: 362,654 (2015 NSO Census)
- Land Area: 32.85 square kilometers
- Population density of 10,100 per sq. km.
- 27 barangays (villages)
- Located at the heart of Metro Cebu
- Smallest City in Metro Cebu
- The junction of major roads going to north, south, mid-east and Mid-west of Cebu
- Highly-Urbanized City since 1991





A nighttime photograph of Mandaue City, Philippines, viewed from across a body of water. The city's lights are reflected in the water, creating a shimmering effect. The sky is dark with some clouds. The text "MANDAUE CITY AT NIGHT." is overlaid in white, bold, sans-serif font on the right side of the image.

MANDAUE CITY AT NIGHT.



## PERFORMANCE GOVERNANCE SYSTEM

Balanced Scorecard: a management tool used to monitor the performance of the organization based on sound measurement of strategic objectives and targets.







# The Seal of Good Local Governance

---



Good financial  
housekeeping



Disaster  
preparedness



Social protection



Peace and order



Environmental  
management



Business-friendliness  
and competitiveness





A  
P  
P  
E  
C



# Mandaue selected as 'green' model town in Asia-Pacific

## APEC experts to study feasibility of planned growth areas, railway

**M**andaue City has been selected as a low-carbon model town of the Asia-Pacific Economic Cooperation (APEC) forum, acting Energy Secretary Zenaída Monsada announced at the end of the Energy Ministers' Meeting yesterday.

APEC experts will be coming over to help study the feasibility of establishing 3 to 5 new growth areas in Mandaue City that will be connected to the rest of Metro Cebu through a mass transit system.

Mandaue City Administrator Zenaída Monsada said that the growth areas, which are 100 to 200 hectares, were identified based on the city's Comprehensive Land Use Plan.

"These will be developed in the Mandaue North Reclamation Area, between the second Mandaue-Mactan Bridge and Cansaga Bridge, and in



Energy Undersecretary Monsada



James Abadia, Mandaue City Administrator

the interior portion of the city. Abadia said the size of each growth area will vary from 20 to 30 hectares. The growth areas will be developed in a way that economic drivers will be required to construct environment friendly buildings based on the Philippine Green Building Code.

Abadia said the grant from APEC will leapfrog the city into a higher

level of development but, at the same time, strike a balance between development and sustainability. "We will address the problems at the city level, such as traffic management, drainage and flooding. If we require buildings to be environment friendly, we must also have a way to mitigate the impact of their developments on the environment," he said.

BERDE, or the Building for Ecologically Responsive Design Excellence rating system, was developed by the Philippine Green Building Council (PGBC). Buildings that comply with the BERDE rating system will get tax incentives.

The APEC feasibility study, which is targeted to be completed in six months to one year, will also cover a proposed automated guideway transit (AGT) system that will connect the growth areas to the rest of Metro Cebu.

Abadia said this study will align with the economic plan of the city. It is a project of the Metropolitan Manila Development Authority (MMDA) in the Mega Cebu road map. "We will have a model town in Mandaue where these four cities in the Asia-Pacific region that also received technical assistance from APEC experts in urban develop-

ment planning. The other low-carbon model towns are Tianjin in China, Da Nang in Viet Nam and Samui Island in Thailand.

The lessons learned by these cities will guide other APEC economies.

Mandaue bested two other nominees for the LCMT project, namely, Krasnoyarsk City in Russia and Subang Jaya in Malaysia.

The project, which was launched in 2010, is part of APEC's "Green Growth" initiative to promote low-carbon and energy efficient technologies. APEC Secretary General Rosendo Montano said the project is a key element of the APEC Economic Cooperation Initiative (APEC ECI) in the Planning Bureau, said the feasibility study should be completed in six months to one year. It will be presented to the energy ministers at the next APEC ministerial meeting. /MARITES VILLAMOR-ILANO WITH BRAD REDDERSEN

| Stock Market in brief   |                         |
|-------------------------|-------------------------|
| 7,013.44<br>-136.89     | 4,030.03<br>-64.10      |
| <b>PSEI</b>             | <b>All Shares Index</b> |
| 1,560.92<br>-30.59      | 10,955.48<br>-120.32    |
| <b>Financials</b>       | <b>Industrial</b>       |
| 6,499.89<br>-115.77     | 1,688.34<br>-29.59      |
| <b>Holding Firms</b>    | <b>Services</b>         |
| 11,398.92<br>-127.26    | 2,982.62<br>-61.77      |
| <b>Mining &amp; Oil</b> | <b>Property</b>         |
| No. of Advances : 66    |                         |
| No. of Declines : 109   |                         |
| No. of Unchanged : 43   |                         |

**Peso-Dollar Closing Rate**  
**P46.075 = \$1**  
October 13, 2015

**Reference Rates**  
released by BSP today

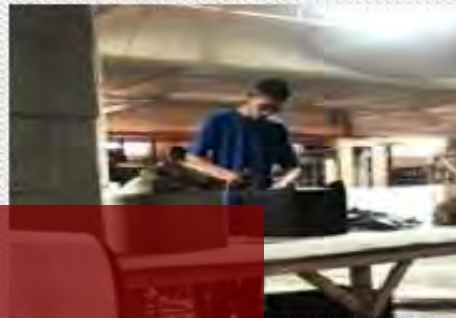
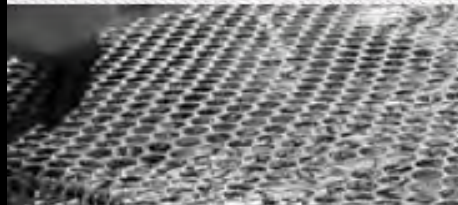
| COUNTRY                | Rate    |
|------------------------|---------|
| United States          | 1.0000  |
| Japan                  | 1.0000  |
| Hong Kong              | 1.0000  |
| Canada                 | 35.4833 |
| Singapore              | 32.9384 |
| Australia              | 33.6553 |
| Korea                  | 0.0401  |
| United Arab Emirates   | 12.5040 |
| European Monetary Unit | 52.1640 |

**DISCLOSURES**

# LOW CARBON MODEL TOWN AWARD

By the APEC EMM 2015





# MANDAUE'S QUALITY MANUFACTURED PRODUCTS





**PHI STAR**  
The Fine Jewelry Co.

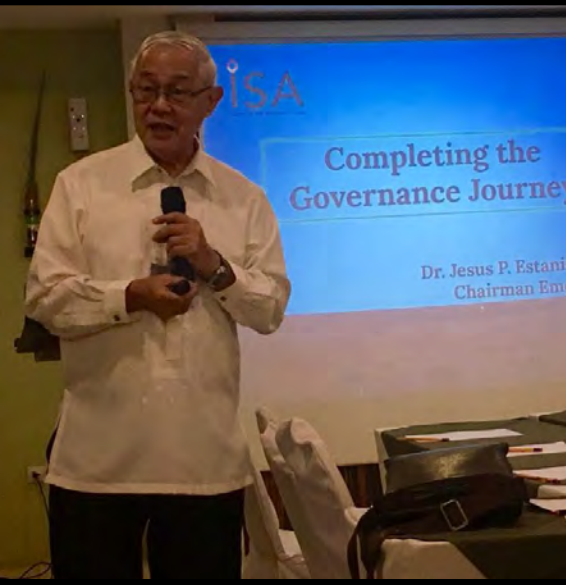












ENHANCE FINANCIAL PERFORMANCE

...in line with the principles of  
**SUSTAINABLE DEVELOPMENT** for  
the benefit of the entire community.



LOCAL TAX HOLIDAYS

AMNESTY

*EXPENSE INCENTIVES*

REAL PROPERTY DISCOUNTS







47  
YEARS 1969-2016

# #iammandaue AWARDS NIGHT



A photograph of a cable-stayed bridge at dusk. The bridge is illuminated with warm lights, and its reflection is visible in the water below. The sky is a mix of blue and purple. The text "MANDAUE, OUR HOME." is overlaid in a large, white, sans-serif font.

MANDAUE,  
OUR HOME.



*Daghang Salamat!*



#iammandaue



# **MANAGING KNOWLEDGE FOR CITY DEVELOPMENT**

**BY:**

**ATTY. KRISTINE VANESSA T. CHIONG  
CITY MAYOR, CITY OF NAGA, CEBU, PHILIPPINES**





# **THE CITY OF NAGA COMMUNITY BASED MONITORING SYSTEM (CBMS): *A BRIEF DESCRIPTION***

- **A powerful tool to diagnose poverty, identify appropriate interventions to targeted beneficiaries**
  - **who are the poor**
  - **where they are**
  - **why they are poor**
- **An organized way of collecting information at the local level using the household survey questionnaire for use of the City Government, national government agencies, non-government organizations, and civic society organizations to create a good urban vision**
- **The CBMS is implemented in partnership with the Department of Interior and Local Government and the Cebu Provincial Government**



# **THE CITY OF NAGA COMMUNITY BASED MONITORING SYSTEM (CBMS) : *OUR OBJECTIVES***

- **To establish a monitoring tool for poverty diagnosis and SDG monitoring; for a more data - based or evidenced-based planning and programming; and in monitoring the effects of policies, programs and strategies on the socio economic-conditions within the jurisdiction;**
- **To capacitate the City Government in building-up the CBMS database, institutionalizing and maintaining a community-based monitoring system; and**
- **To equip the City Government with the necessary information and skills for the implementation of CBMS and pave way for knowledge management in the local arena.**





# **THE CITY OF NAGA COMMUNITY BASED MONITORING SYSTEM (CBMS): *SIGNIFICANT LESSONS***

- **It involves the complete enumeration of all households.**
- **LGUs take the lead in the data collection and processing, serve as the repository of the database and use the data in the formulation of annual development and investment plans**
- **Members of the community become involved in the whole CBMS process**



# **THE CITY OF NAGA COMMUNITY BASED MONITORING SYSTEM (CBMS): *SIGNIFICANT LESSONS***

- **data are submitted to the next higher geopolitical level, allowing for the establishment of databanks at each geopolitical level**
- **it uses mapping softwares (StatSim Pro and QGIS) to facilitate CBMS-based poverty mapping and storing and displaying household and individual level information that enables knowledge sharing within the City Government systems and structures.**





# **THE CITY OF NAGA COMMUNITY BASED MONITORING SYSTEM (CBMS): *CONCLUSIONS***

- **The CBMS as a venue for knowledge sharing not only at the city level but also for international/interdisciplinary networking.**
- **There is now a poverty monitoring tool with clear evaluation standards and indicators to measure how responsive the City Government will be towards attaining the SDGs**
- **There is available data to provide comprehensive picture on the extent of poverty in the grassroots level, hence felt needs of the people are integrated in plans and strategies and effectively addressed.**





## **KNOWLEDGE MANAGEMENT FOR SMART CITY DEVELOPMENT... THE CBMS WAY.**

- ***Atty. Kristine Vanessa T. Chiong  
Mayor, City of Naga, Cebu  
Philippines***

x



# Managing the 'New Normal'

It is the paramount duty of the local government to increase the sense of awareness and understanding on disaster management, with the view to develop people's resilience and decrease their vulnerabilities.

Lakambini G. Reluya, DM  
San Fernando, Province of Cebu  
Republic of the Philippines

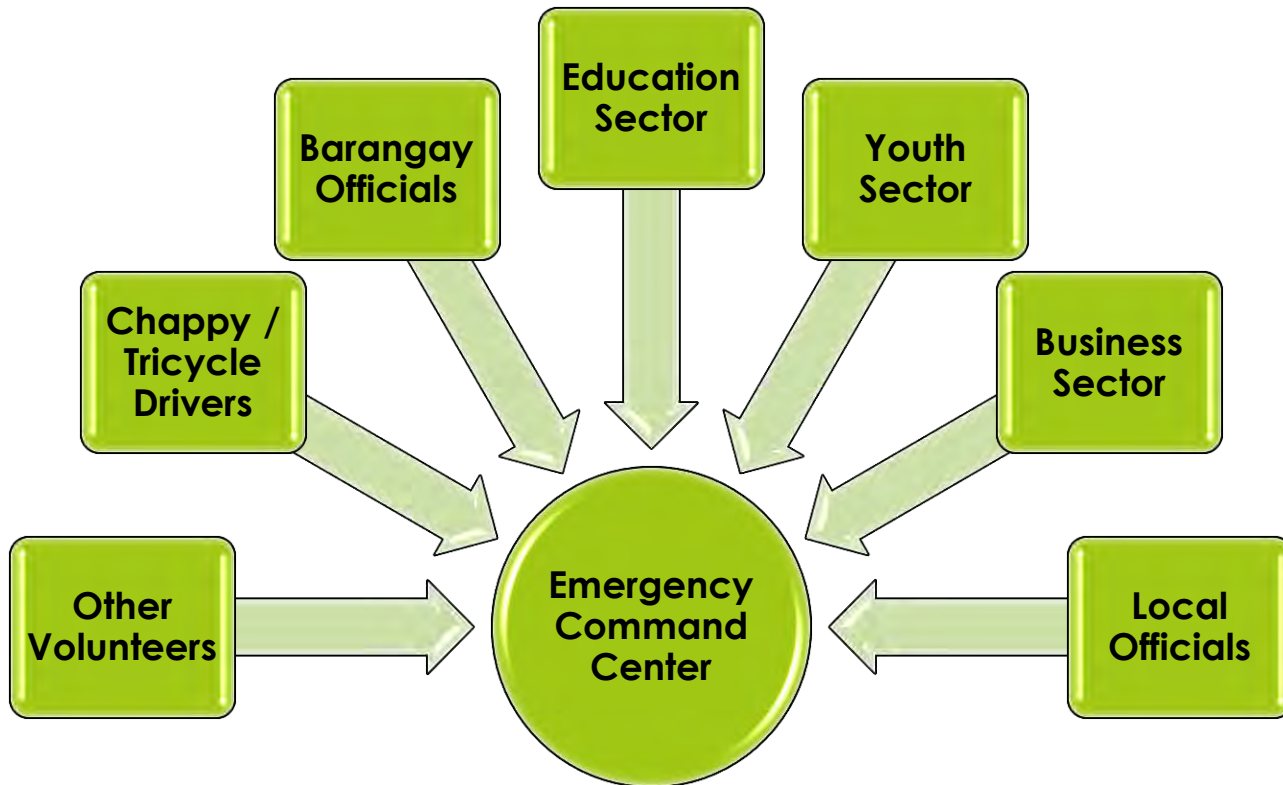
# The Philippine Disaster Risk Profile

1. Pacific Ring of Fire
2. Pacific Typhoon Belt
3. Climate Change
4. Human-Induced Disasters





**Multi-sectoral approach to achieve organizational objectives by employing the best use of knowledge and full utilization of resources.**



# Multi-Sectoral Synergy



## Local Officials

Policies  
Plans  
Execution  
Monitoring

Review  
evaluate

## Barangay Officials

Data collection

Integration of  
plans, policies,

## Chappy/Habal-Habal Drivers

Alert

## Youth Group

Social  
Media

## Education Sector

IEC  
training

## Business Sector

Joint  
venture

## Other Volunteers

Inter  
Local  
Health  
Zone

Other  
Resources



# ECC is the venue for:

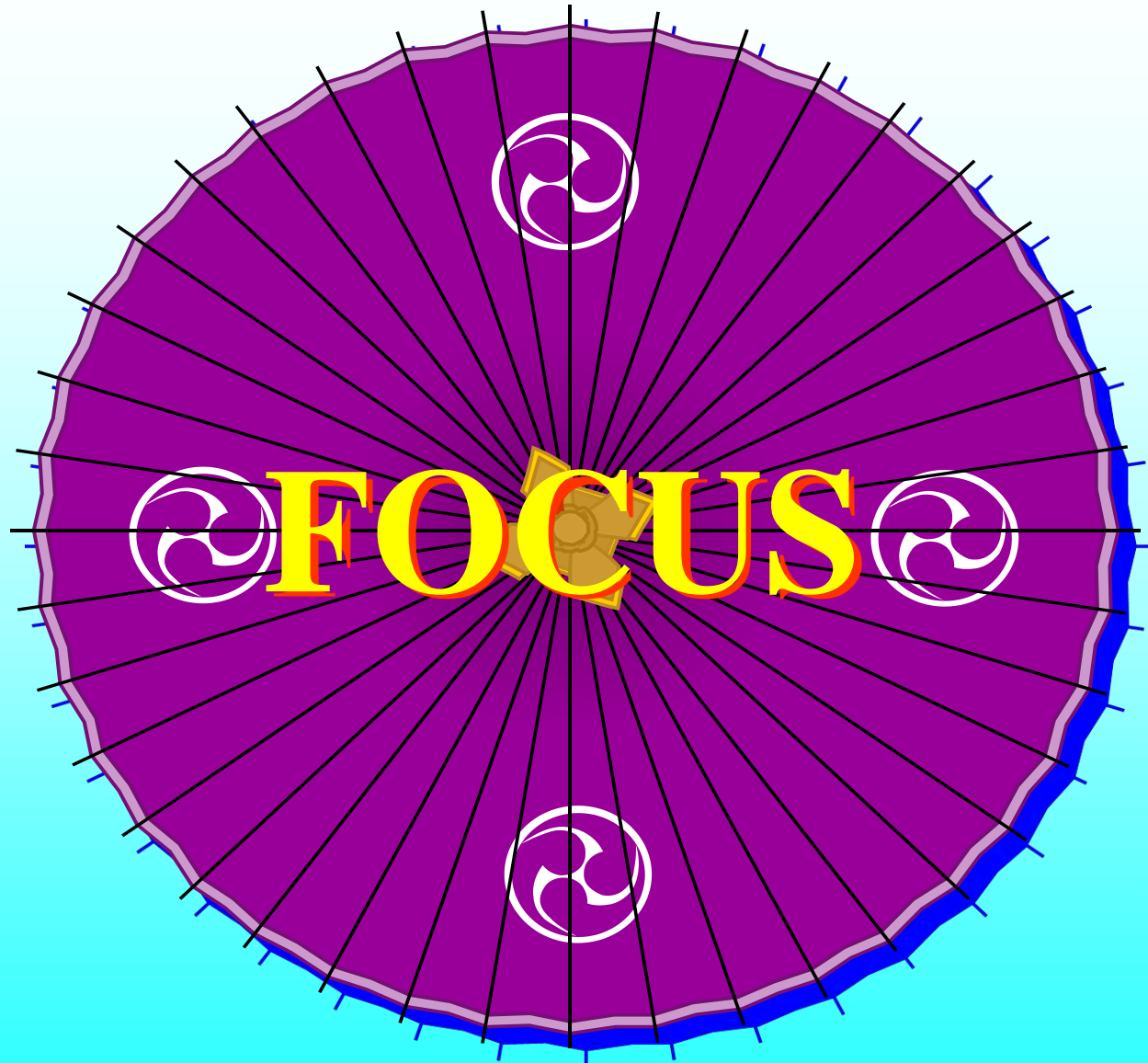
- Information creation
- Sharing and management of the knowledge and information.
- Mobilizing people and resources.
- Promotion of awareness of the existing and potential problems to realize how to cope with the environment - the New Normal

**The 5<sup>th</sup> Asia Smart City Conference**

**Yokohama, Japan**

**15 – 19 November 2016**







***Pol. Gen. Aswin Kwanmuang***  
***The Governor of Bangkok***



# Relocation of Encroachment on Public Water Ways with Collaboration of the Central Government





# **Relocation of Encroachment on Public Water Ways with Collaboration of the Central Government**

## **Keywords**

**strategy of knowledge management : application**

**urban vision**

**interdisciplinary network**





**Flooding in Bangkok in 2011**







REAL  
T.V.A.M.T.

# Decommissioned planes at the old airport







## **Causes of Flooding in Bangkok in 2011**

- **mismanagement on water control of all governmental agencies**
- **inappropriate coordination between Bangkok Metropolitan Administration and those governmental agencies on water control**
- **encroachers on public water ways deterring flows of incoming water**





**Encroachment on Public Water Ways in Bangkok**



**Encroachment on Public Water Ways in Bangkok**





**Encroachment on Public Water Ways in Bangkok**





**Encroachment on Public Water Ways in Bangkok**

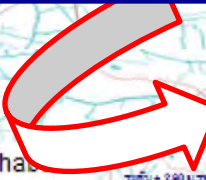




# Master Plan Flood Protection Bangkok

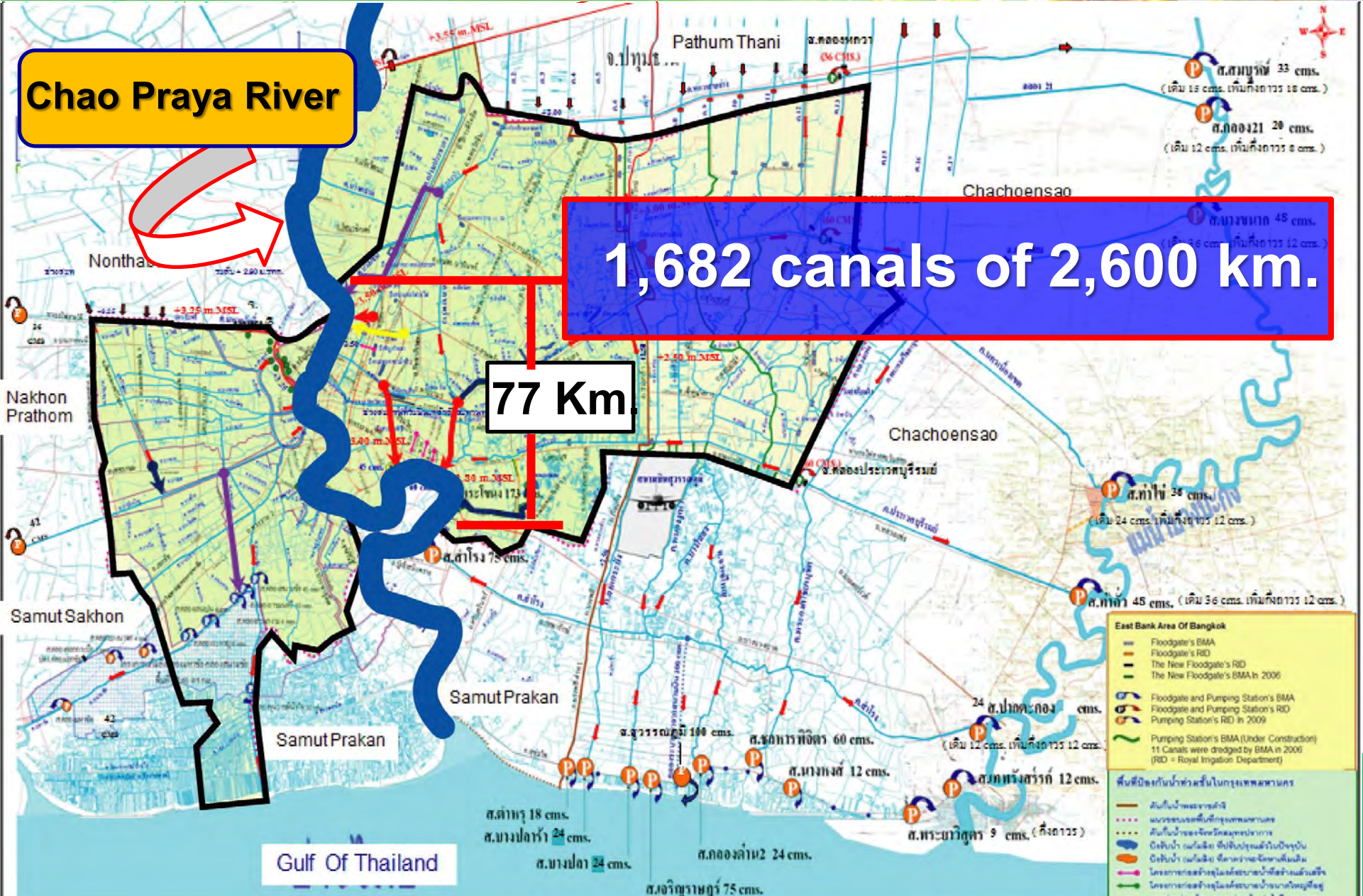


Chao Praya River



1,682 canals of 2,600 km.

77 Km



**East Bank Area Of Bangkok**

- Floodgate's BMA
- Floodgate's RD
- The New Floodgate's RD
- The New Floodgate's BMA in 2006
- Floodgate and Pumping Station's BMA
- Floodgate and Pumping Station's RD
- Pumping Station's RD in 2009
- Pumping Station's BMA (Under Construction)
- 11 Canals were dredged by BMA in 2006
- (RD = Royal Irrigation Department)

**พื้นที่ป้องกันน้ำท่วมในพื้นที่กรุงเทพมหานคร**

- คันน้ำป้องกันน้ำท่วม
- แนวเขตป้องกันน้ำท่วม
- คันน้ำป้องกันน้ำท่วม
- ประตูน้ำ (คันน้ำ) ที่ป้องกันน้ำท่วม
- ประตูน้ำ (คันน้ำ) ที่ป้องกันน้ำท่วม
- โครงการก่อสร้างใหม่ในพื้นที่ป้องกันน้ำท่วม
- โครงการก่อสร้างใหม่ในพื้นที่ป้องกันน้ำท่วม
- โครงการก่อสร้างใหม่ในพื้นที่ป้องกันน้ำท่วม

Pathum Thani, Chachoensao, Nonthaburi, Nakhon Prathom, Samut Sakhon, Samut Prakan, Gulf Of Thailand

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 สถานีสูบน้ำ 24 cms.  
 สถานีสูบน้ำ 24 cms.  
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 สถานีสูบน้ำ 34 cms. (เดิม 24 cms. เพิ่มที่ต.125 12 cms.)  
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**1,682 canals of 2,600 km.**

**Khlong Lad Prao**

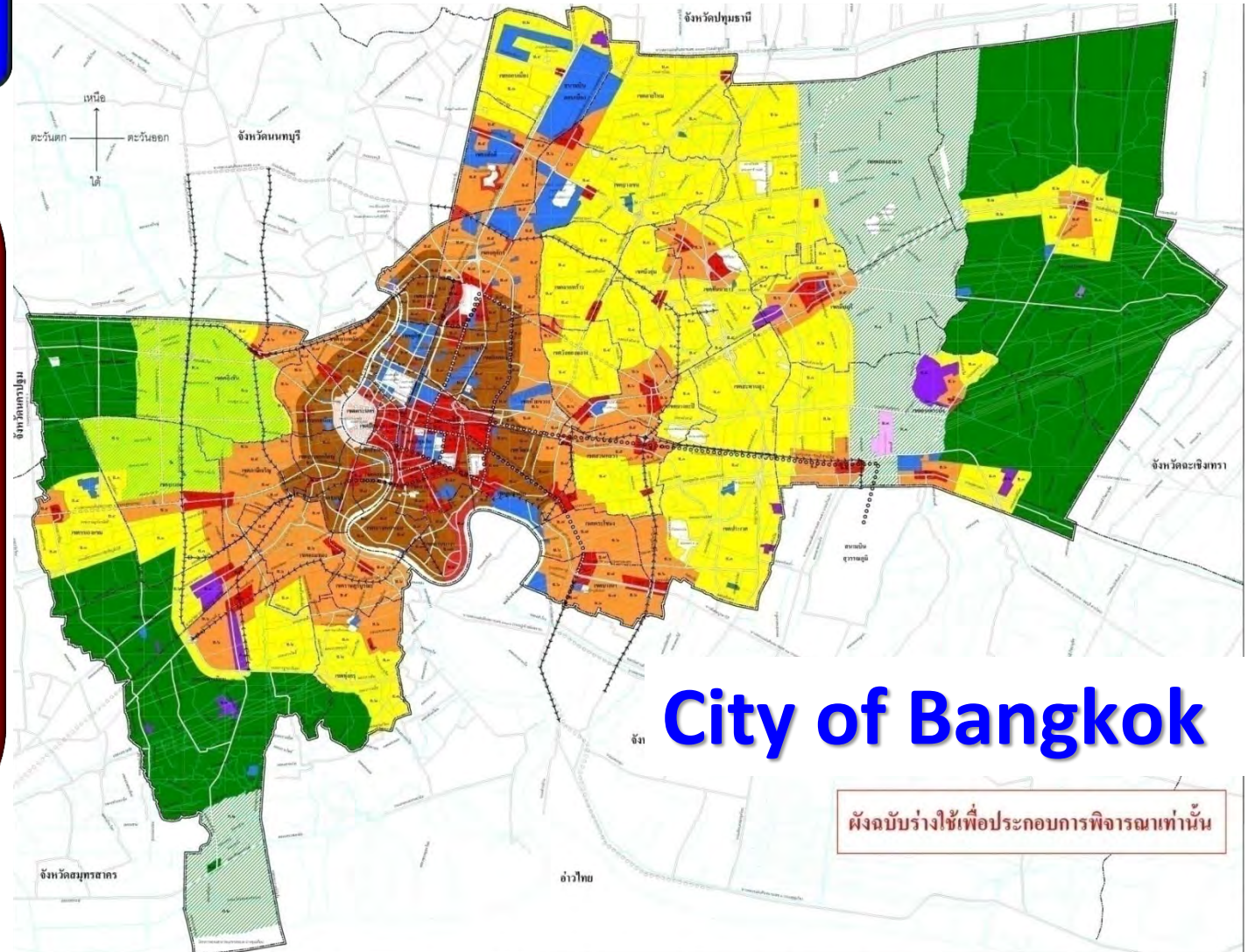
**Khlong Prem Prachakorn**

**Khlong Bang Sue**

**Total Length of 54 km.**


**Total Number of Households**

**Encroaching : 11,000**










**A great number of governmental agencies own plots of land along public water ways.**

**Those agencies lack manpower and coordination to constantly check their plots.**





**Political parties have been  
reluctant to tackle the problems  
for fears of losing popularities.**









**Solutions**



**Strategy : Civic / Community  
Engagement**

**Approaches: consulting  
co - researching  
co - planning  
self managing**

**Strategy : Civic / Community  
Engagement**

**Rationals : addressing**

- local needs**
- local ways of life**



**The City of Bangkok or the Bangkok Metropolitan Administration (BMA) collaborates with the Community Organization Development Institute of the Ministry of Social Development and Human Security.**

**The collaboration provides the appropriation of the National Budget for the establishment of the Community Fund for Investment in Housing.**

***Fund Saving Groups for Housing*** are formed among community members.

Members of the ***Fund Saving Groups for Housing*** are entitled to housing loan on the condition that savings must exceed 5 % of the loan acquired.

***Saving and Credit Cooperative*** is formed among those Fund Saving Groups for Housing.



## ***Saving and Credit Cooperative***

- is entitled to lease plots of land from governmental agencies and then rent them to their members to build houses.**
- is entitled to establish business units to earn revenues and thus share profits to the members.**
- is entitled to an appropriation on budget of 65,000 Bahts for each household to build public utilities, waste treatment facilities, etc.**

## ***Financial Supports Provided :***

- each family is entitled to 18,000 Bahts on renting home during the construction of the new home.**
- the new home of 2 floors has a minimum size of 4.00 x 7.00 meters at the cost of 200,000 Bahts per unit.**
- the monthly installment is 3,000 Bahts (the minimum wage is 10,000 Bahts.)**









## ***Challenges :***

- all governmental agencies must closely supervise their plots so so as not to be taken by any encroachers again**
- all political parties must sacrifice fears of losing votes.**

*Thank You  
for  
Your Kind  
Attention*





The 5th Asia Smart City Conference  
2016.11.17, Yokohama

Knowledge Management for Smart City Development

# **The Role of Universities for Smart City Development**

**Hidefumi IMURA**

Assistant President for International Cooperation  
Professor, Global Cooperation Institute for Sustainable Cities  
Yokohama City University

# The Role of University Urban Knowledge Platform

## 1. The Role of Universities

- Basic Function: Education and Research, Visions and Ideas to Lead the society
- Changing Missions: Cooperation with Administrations and Businesses, Services to Local Communities, International Cooperation
- Function as an Urban Knowledge Platform

## 2. Urban Knowledge Platform (UKP)

- Knowledge and Data Stocks: Urban Planning, Design, Management, Etc.
- Knowledge Transfer: International Cooperation, Foreign Students
- Capacity Building: Students plus Practitioners including City Officers
- Collaboration of Stakeholders
- Application of the Knowledge in Planning and Implementation of Smart City Development

## 3. Challenges

- Constant Communication and Collaboration with Stakeholders
- Establishment and Improvement of Systems for UKP
- Learning from and Teaching of Practitioners

# Challenges of YCU (1)

## IACSC (International Academic Consortium for Sustainable Cities)

### 1. Members

- YCU (Yokohama, Japan)
- USM (University Sains Malaysia, Penang)
- Thammasat University (Bangkok, Thai)
- Philippine National University (Manila)
- USSH (University of Social Sciences and Humanities, HoChiMinh City)

### 2. Background and History

- Contribution to Inter-City Cooperation of Yokohama City
- Promotion of ECO<sup>2</sup> (Ecological Cities as Economic Cities) of World Bank
- 2009

### 3. Main Activities

- Cooperation in Research and Education
- SUDP (Sustainable Urban Development Program)
- YUSS (Yokohama Urban Solutions Studies)



# Challenges of YCU (2)

## Sustainable Urban Development Program (SUDP)

- 1. Conducted in English**
- 2. Problem-solving Approach**
- 3. Group work and presentation**
- 4. Field trip**
- 5. Cases of Asian cities (variety of sectors)**
- 6. Variety of resource speakers including municipality, NGO, private sector**
- 7. Faculty exchange**



# Sustainable Urban Development Program (SUDP)

## Common Topics

- Introduction to the World Bank's ECO2
- What is Sustainability?
- Global Warming
- Case Study of Cities



## Focus

**2012, 2013, 2015, 2016**  
**Yokohama (YCU)**

- ◆ Land Use & Transportation
- ◆ Public Health and Water
- ◆ Waste Management
- ◆ Case of HoChi Minh
- ◆ Case of Penang
- ◆ Case of Yokohama

**2013, 2015, 2016**  
**Penang (USM)**

- ◆ Heritage Conservation
- ◆ Waste Management
- ◆ Case of Japan
- ◆ Case of Penang

**2016**  
**HoChiMinh**

- ◆ Urban Development
- ◆ Flood Control
- ◆ Waste
- ◆ Transportation

# Challenges of YCU (3)

## YUSS (Yokohama Urban Solutions Studies)

### 1. YUSS

- Advanced Study Course for Graduate Students from Asian Universities
- 3 months
- 2016: 6 participants (Malaysia 3, Vietnam 3)
- Solution-Oriented Urban Studies: Lectures and On-the-Site Studies
- Internship

### 2. Topics

- Urban Planning
- Transport
- Water
- Waste
- Other Urban Issues

### 3. On-the-Site Studies (2016)

- Transportation: Subways and Bus Systems, Operation and Maintenance of Systems
- Urban Development: Kohoku New Town, TOD (Transport Oriented Development), Role of Public and Private Sectors
- Water: Water Supply System, Water Source Forestry Conservation, River Basin Management, Waste Water, Urban Flood Control
- Municipal Solid Waste: Separation at Source, Incineration Plants, Recycling



# Activities of YUSS



Internship at  
Yokohama City  
Transportation  
Bureau



*Thank you!*



*Thank you!*



*Fin*



# Smart City Development: Evaluation Guideline and Indicators

Ryokichi HIRONO

Seikei University, Tokyo and Adviser, Y-Port Center, Yokohama

At the 5<sup>th</sup> Asia Smart City Conference

At Intercontinental Yokohama Grand Hotel

18 November, 2016

# 1. What we used to mean by “Smart City” : Was this a joke or reality ?

**1) FOLLOWING THE LAW OF THE JUNGLE:** Smart city is the *city* where city administrators, interested in the city’s economic growth and employment, in the name of making their city competitive on the national and regional markets, are ready to provide indiscriminately those public resources and services required by those private enterprises in the city in response to their respective corporate priorities, resulting often in inefficient and even wasteful public expenditures for oversize physical infrastructures, with no heed to maintenance expenditures in the coming decades. **The lack of transparency and participation led their citizens unaware of and blind to these malpractices!**

**2) EAT CAKE AND HAVE IT, TOO:** Smart city is the city where city administrators, instead of resisting those socially irresponsible politicians demanding all sorts of goodies for their personal favours vis-à-vis their own constituents, try their best to finance ever increasing budgetary deficits by drawing on the budgetary support from prefectural and national governments as well as through municipal bond issuance, thus resulting not only in the increased burden on the future generations but also in the loss of self autonomy in managing the city; **The absence of good governance and watchdogs!**

**3) LOOKING FOR INTERNATIONAL MARRIAGE:** Smart city is the city where city administrators, in the name of enhancing international understanding, friendship and cooperation, are seeking sister-city arrangements and enter into other foreign networks so that they or city council members can visit those foreign countries at taxpayers’ cost, often without any improvement on any aspects of city management thereafter, in spite of those “observations and studies” made. **Masuzoe Syndrome!**



## 2. What we mean today by Smart City: In Search of TAPES - Musashino City

- 1) CITIZEN'S OWNERSHIP and COMMITMENT TO SHARED VISION:** Smart city is the city which is owned and managed by its citizens for their own economic, social, environmental and cultural sustainability at the community, national and global levels and where its citizens are concerned not only with improving the quantity, quality and variety of public services rendered, but also seeking active interactions among its citizens for mutual benefits, and committing themselves to enhancing the wellbeing of everyone in its community, prefecture, country and the world.
- 2) POLICY, PLANNING, EQUITY AND EMPOWERMENT-ORIENTED:** Smart City is the city where its citizens try to realize their agreed vision, mission and goals through their rolling long-term development plans containing all the goals prioritized by its citizens, with an emphasis on social equity and empowerment, as in the SDGs adopted by the UNGA in the fall of 2015;
- 3) INTEGRATION, EFFICIENCY and EFFECTIVENESS:** Smart city is the city where all the citizens' goals specified in its development plans are pursued in an integrated and efficient manner so that leveraging synergies among different goals under the planetary boundary and budgetary constraints facing the city the achievement of each goal specified is reinforced effectively by that of the other goals of its development plans;
- 4) TRANSPARENT, INCLUSIVE AND PARTICIPATORY APPROACH:** Smart city is the city where the decisions of its development plans, implementation, monitoring and evaluation are participated actively by all its citizens in partnership with various stakeholders, with full transparency and accountability of city administration assured through persistent vigilance by its citizens;

# 3. Monitoring and Evaluation (M&E) Guideline for Improving Smart City Management

## 1) Drafting and Installing the Smart City M&E Guidelines

### i) Making the M&E Guideline as focused and as simple as possible for day-to-day monitoring

- Objectives: city management improvement and accountability to its citizens by means of relevant indicators;
- Requirements for documentation: development plans and performance data (input/output);
- Major steps to be taken: M&E frame-working, evaluation criteria such as policy relevance, impact, etc.
- Quantitative and qualitative assessment: benchmarking, objective evidences
- Interpretation and judgment: interface for recommendations

### ii) Prepared by the external review/evaluation committee (ER/EC) in consultation with the municipal evaluation group (MEG)

### iii) Preliminary testing by MEG with small representative groups for each priority programme area in the municipal office, such as economic vibrancy, high-quality education and health services, greening urban living, resilient community development and wellbeing of the aged, children and other disadvantaged;

## 2) Reviewing M&E Guidelines in response to:

### i) Changing development panorama requiring quick and timely review/evaluation

### ii) Alternative evaluation criteria dictated by changing plan and programme objectives and priorities.

# 4. Development Performance Indicators for Smart City Management

1) Well organized smart city indicators for effective M&E must address themselves to:

i) Social objectives such as education, health, gender, inequality, etc. ii) Resources such as population dynamics, water, soil and energy, etc. iii) Economy such as growth, employment, infrastructure, iv) Environment such as climate change, land use, solid waste management, biodiversity, etc., and v) Governance such as rule of law, disclosure, inclusiveness, participation, etc.

ii) All indicators shall be made, by adopting internationally agreed standards. to enable international inter-city comparisons to the extent possible;

2) Quantitative and Qualitative Indicators for shorter-term municipal investment and recurrent service delivery, based on the evaluation criteria; i) Relevance/Consistency, ii) Efficiency/Productivity (Output/Input), and iii) Outcome/Results;

3) Integrated and Comprehensive Indicators especially for longer-term investment programmes bearing upon life cycle cost and benefits; i) Impact and ii) Sustainability;

4) Possible Pitfalls of Indicator usages; i) Physical indicators: national and international comparisons at city level without regard to their city size (population and area) and quality standards, and ii) Financial indicators: current price comparisons without adjustment to constant, PPP and shadow pricing over time;



# 5. Monitoring and Evaluation (M&E) of Development Performance for Smart City Management

## 1) Annual Review of Development Performance

i) Internal review: Conducted continuously by MEG professionally trained, located in the planning and management section of municipal office under the direct supervision of the Mayor;

ii) External review: Conducted by ER/EC composed of professional evaluators, administration experts and citizen representatives active in some aspects of municipal programmes, located in the Office of the Mayor;

## 2) Training of Municipal Staff in M&E

i) Constant provision of M&E training for all staff throughout the municipal office

ii) Constant review of the established M&E training manual and on-site practices for effective evaluation;

## 3) Dissemination and reviews of the external review/evaluation committee findings

i) Public hearings on the ER/EC's preliminary findings with appropriate policy recommendations for comments

ii) Presentation of the final findings with such policy recommendations by the ER/EC to the Mayor;

iii) Review of the final findings at the City Council and its oversight committee, with some commentaries by the Mayor

iv) Timely dissemination of the final findings and all its reviews in the City Newletters/Circulars for further comments by citizens and others.

## 4) Feedback of the evaluation findings to policy formulation under the mayoral leadership and citizen's vigilance.



**ANDHRA PRADESH**  
India's Sunrise State



# 5<sup>th</sup> Asia Smart City Conference

## Smart City Development

**Principal Secretary**  
Municipal Administration & Urban Development Department  
Government of Andhra Pradesh, India

**16-18<sup>th</sup> November 2016**  
Yokohama, Japan

# Presentation Structure



**1. Smart Cities Development Context**

**2. Smart Cities Road Map**

**3. Economic Master Plan**

**4. City Branding**

**5. Smart Cities Development in Andhra Pradesh**

**6. Institutional Innovation**

**7. Leveraging City Competitiveness**



# Smart Cities Development Context

## Smart Cities Mission

- **Pan-India initiative** by Government of India; Covers 100 cities in the Country

- To **drive socio-economic growth** by enabling sustainable development and harnessing technology

## Comprehensive Development in Smart City includes

**Promoting mixed land use** in area-based developments

**Applying Smart Solutions** to infrastructure and services

Making **governance citizen-friendly and cost effective**

**Housing and inclusiveness**

**Preserving and developing open spaces**

**Promoting a variety of transport options**

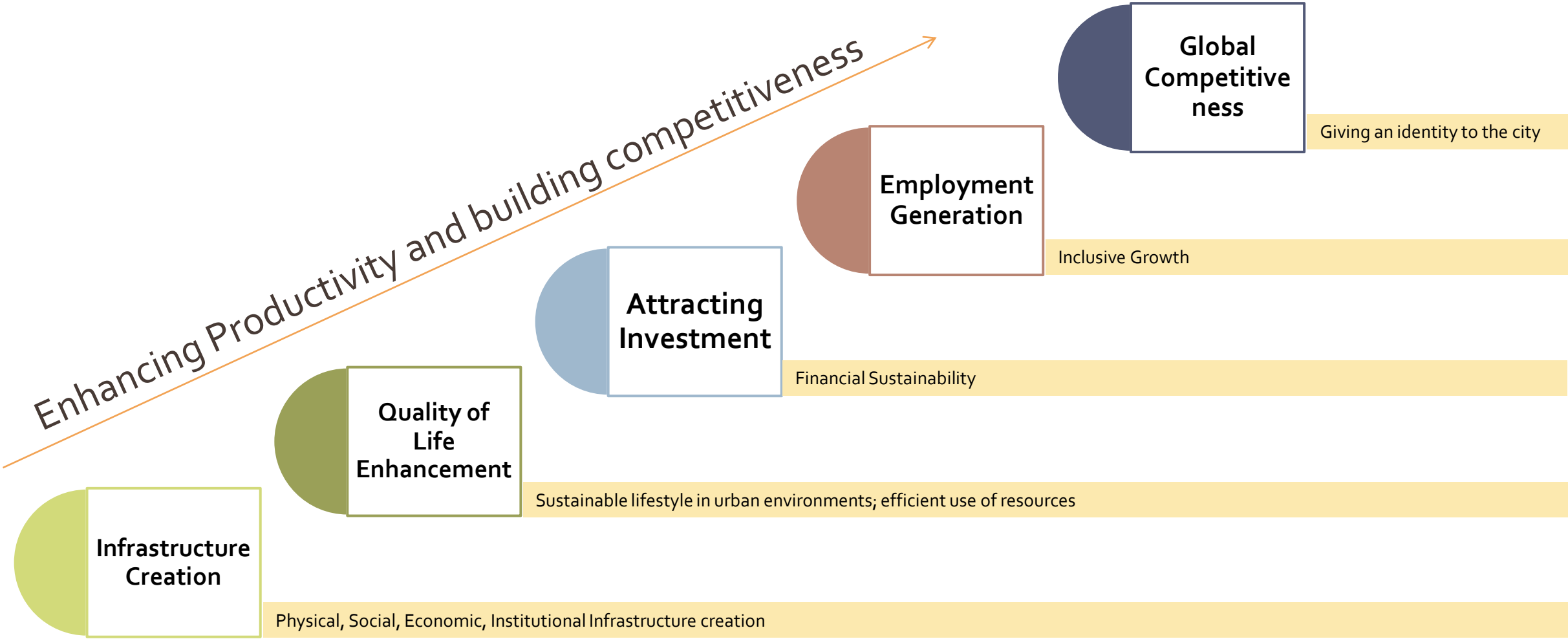
The contribution by State and Centre for each Smart City development is USD 150 mn

Private Sector Investment opportunities

The implementation of the Mission at the City level will be done by a Special Purpose Vehicle (SPV) created for the purpose. The SPV will plan, appraise, approve, release funds, implement, manage, operate, monitor and evaluate the Smart City development projects

# Smart Cities Road Map

## Smart Cities Development



# Economic Master Plan – “Employment Generation”

Investment into urban development (Greenfield and Brownfield Development) to be strategic, focused and with high priority to economy generation and employment creation

**City Growth** is characterised by their Economic Functions and hence need to evolve an “**Economic Master Plan**”

**National / International Partnering** is key to bring in investments, exposure and expertise

Economic Master Plan provides a **clear economic direction** to enable partners to focus on **delivering the city’s key priorities** in its envisioned context

## Goals

- Supports Local Economic and Employment Potential
- Diversified business attraction
- Promotes Entrepreneurship and encourages small business development
- Sustainable physical and economic vitality
- Community development
- Delivers intended Quality of Life

## Thematic Considerations for Economic Cities



Industrial



Education



Sports



Tourism



Health



# City Branding – “A Valuable Asset”

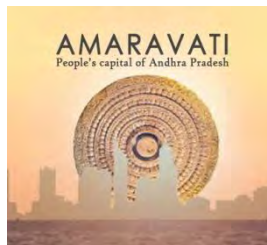
In the era of globalisation, Cities compete for **attracting investments, talent, lifestyles**

**Branding of Cities** to leverage their economic positions - based on the **inherent strength** of the city, its unique proposition and **strategic positioning** to be achieved

City brand can strengthen a place and **engage its stakeholders around a common vision**

Andhra Pradesh envisions its cities to be **Productive, Inclusive, Smart, Sustainable and Well-Governed** thereby bringing social, environmental and economic benefits to the residents and businesses of AP cities

**City branding** would build up its positioning in the **global marketplace**, attract various types of investment, people and markets, sustainable competitive advantage thereby bringing in **socio-economic transformation**



Kakinada – *Port City*

Tirupati – *Temple City*

# City Management Approach – “Citizen Centric”

- ▶ Citizen interaction and active participation in city functioning
- ▶ Modeling citizen behaviors
  - ▶ Lifestyle processes
  - ▶ Citizen sentiments
  - ▶ Response and feedback
- ▶ Monitoring and Management of City Processes
- ▶ City needs to provide multiple ways to deliver information and choices to the citizen
- ▶ Leverage on Information Communication Technology

## E-Governance

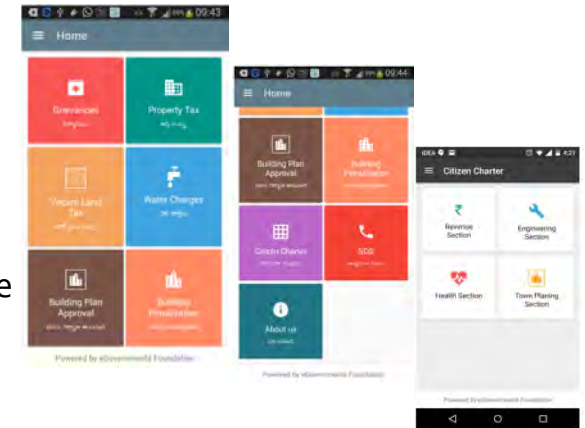
### PuraSeva APP

An integrated portal based citizen help desk and grievance redressal mechanism, wherein citizens can send their complaints/suggestions/grievances to the Municipalities through post or phone or Fax/E-mail



### Features

- Grievances
- Property Tax
- Vacant Land Tax
- Water Charges
- Building Plan Approval
- Building Penalization Scheme
- Citizen Charter
- SOS
- Birth / Death Certificates



# Andhra Pradesh: Urban Development

The people of Andhra Pradesh envision transforming their State into a **happy, inclusive, responsible, globally competitive and innovation-driven society** through structural transformation and by **sustaining inclusive double-digit economic growth**, to become one amongst the three best states in India by 2022, the best state by 2029, and a leading global investment destination by 2050.



**Urbanisation from 30% to 50% to achieve double digit economic growth requires structured urban growth and development**

**Investment opportunity of about USD 30 bn in Urban Development**

**Vision:**

Cities and towns of Andhra Pradesh to be transformed into growth engines

**Mission:**

Best-in-class urban governance to make the cities smarter with delivery of efficient urban services for sustainable development



# Kakinada - Smart City



**Municipal Area**  
31.4 sq.km



**Population**  
(2011 Census):  
3.3 lakh

## Growth Drivers

Deep Water Port  
Industries  
Fisheries  
Petrochemical  
Special Economic Zone  
Tourism

## Vision and Goals

Transform Kakinada from Pensioners' Paradise to Economic Destination

-Economically Vibrant, **Inclusive**, **Liveable** & **Sustainable** based on the strengths of Ports, Marine & Tourism

## Citizen Engagement



## Projects

- 1 Smart Transport Facilities
- 2 Water Management
- 3 Storm Water Mgmt
- 4 ICT based Mun. Solid Waste Mgmt.
- 5 Housing
- 5 Solar Roof Top and LED
- 6 Underground Wiring
- 7 Waterfront Development
- 8 Smart Health and Education
- 9 ICT Solutions
- 10 Greenery

# Institutional Innovation in Andhra Pradesh

**An Innovative Institutional Framework** created to bridge the financing requirements for urban development in the State and End-to-End Project Delivery along with **Capacity Building**

## ANDHRAPRADESH URBAN DEVELOPMENT FUND

*Under SEBI guidelines*

Blending and Leveraging of Public Capital with Private Capital through Urban Reforms  
"Fund of Fund across Urban Sectors through innovative instruments"

## ANDHRA PRADESH URBAN INFRASTRUCTURE ASSET MANAGEMENT LIMITED

A Joint Venture of Government of Andhra Pradesh and IL&FS, acting as an AMC for Fund  
Approaching Multilateral and Bilateral Agencies for partnering in APUIAML

**Infrastructure Projects worth about USD 0.5 bn being taken up through Project  
Specific SPV's**



**Sectors for Development**  
Water Supply | Sewerage  
Urban Transport | Solid Waste  
Management | Smart City  
Tourism | Waterfront

# Smart City attributes leveraging City Competitiveness

- ▶ **Smart Cities approach enable leveraging City Competitiveness**
  - ▶ **Physical Infrastructure**
    - ▶ Inter-operability between City Systems
    - ▶ Service delivery and performance benchmarks
  - ▶ **Creative Economy**
    - ▶ Strategic Tie-ups, Partnering
    - ▶ Entrepreneurship, Innovation, Knowledge
  - ▶ **Human Capital**
    - ▶ Participatory and Complementing
    - ▶ Awareness and Responsible





**Thank You**

