From Military Base to Smart, Green, Resilient City: The Experience of CLARK GREEN CITY

Forum 2015
COHRED
GLOBAL FORUM ON RESEARCH AND INNOVATION FOR HEALTH

27 August 2015
Clark Green City

1. **WHAT**
   A NEW CITY, SERVING AS AN ADMINISTRATIVE AND COMMERCIAL CENTER
   >1 MIL POPULATION

2. **WHERE**
   ...AT THE CENTER OF A GROWING REGION – CENTRAL LUZON

3. **WHY**
   TO FOSTER A NEW FORM OF ECONOMIC DEVELOPMENT FEATURING THE LATEST IN SMART & SUSTAINABLE PLANNING

4. **WHO**
   BCDA IS THE MASTER DEVELOPER

5. **WHEN**
   PHASING OF DEVELOPMENT EXPECTED OVER 50 YEARS

6. **HOW**
   IMPLEMENTATION VIA PUBLIC PRIVATE PARTNERSHIP (PPP)
Economic Drivers and Trends

- Growing Population / Urbanization
- Located in a thriving center and ease of doing business in Clark
- Booming Business Process Outsourcing (BPO) Industry
- Clark Airport, Seaport and Road Infrastructure Development
- Secured Business Regime
- Residential Requirements
- Need for Smart and Green City to sustain momentum in economic growth
Clark Green City Conceptual Master Plan

The 9,450-hectare Clark Green City aims to create a destination where nature, lifestyle, business, education and industry converge into a global city, based on principles of sustainability, that aim to protect and enhance the delicate balance between nature and built environment.

INTERWEAVING GREEN ASSETS TO CREATE A HOLISTIC, VIBRANT, AND SUSTAINABLE DEVELOPMENT.
Clark Green City

Conceptual Master Plan

Land Use Distribution*

- Landfill
- Water Feature
- Road ROW
- Transport Hub
- Sports & Recreation
- Open Space
- Industrial
- Light Industrial
- Institutional
- Residential

*excludes 5,567-ha. Timber Area
Clack Green City Residential & Employment Projections

Population Projection, Clack Green City, Based on Different Capture Rate, 2020F to 2050F

more than 1.2 M population

Employment Projection, Clack Green City, Based on Different Capture Rate, 2020F to 2050F

more than 800,000 jobs
## Health and Well-being thru the Built Environment of Clark Green City

### 10 Leading Causes of Mortality in the Philippines (2009)

<table>
<thead>
<tr>
<th>No.</th>
<th>Cause</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Diseases of the Heart</td>
</tr>
<tr>
<td>2.</td>
<td>Diseases of the Vascular System</td>
</tr>
<tr>
<td>3.</td>
<td>Malignant Neoplasms</td>
</tr>
<tr>
<td>4.</td>
<td>Pneumonia</td>
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<tr>
<td>5.</td>
<td>Accidents</td>
</tr>
<tr>
<td>6.</td>
<td>Tuberculosis, all forms</td>
</tr>
<tr>
<td>7.</td>
<td>Chronic lower respiratory diseases</td>
</tr>
<tr>
<td>8.</td>
<td>Diabetes Mellitus</td>
</tr>
<tr>
<td>9.</td>
<td>Nephritis, nephrotic syndrome and nephrosis</td>
</tr>
<tr>
<td>10.</td>
<td>Certain conditions originating in the perinatal period</td>
</tr>
</tbody>
</table>


7 out of 10 are Chronic Diseases which are long-term medical conditions that are generally progressive.

Design of Built Environment has become a key element in combating the risk factors for chronic diseases.

Health does not stop or start at the doctor’s office – it begins in homes, workplaces, schools, and communities.
### 10 Leading Causes of Mortality in the Philippines (2009)

1. Diseases of the Heart
2. Diseases of the Vascular System
3. Malignant Neoplasms
4. Pneumonia
5. Accidents
6. Tuberculosis, all forms
7. Chronic lower respiratory diseases
8. Diabetes Mellitus
9. Nephritis, nephrotic syndrome and nephrosis
10. Certain conditions originating in the perinatal period


Those who participate in regular physical activity experience lower mortality rates; lower risk for heart disease, stroke, and diabetes; and improvements in emotional well-being.
## 10 Leading Causes of Mortality in the Philippines (2009)

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Source: http://www.doh.gov.ph/node/198.html

- Each hour spent in a car each day = associated 6% increase in body weight
- Every kilometer walked each day = associated with a 5% decrease in body weight
- An active student is a better learner, kids can walk to school if it is located at the center of the neighborhood
- Climbing stairs can reduce stroke
- Daylight and views of nature can reduce pain and depression
Health and Well-being thru the Built Environment of Clark Green City

Communities designed in a way that supports physical activity:
- wide sidewalks, safe bike lanes, attractive stairways, accessible recreation areas
- encourage residents to make healthy choices and live healthy

Healthy Places attract both young and older workers and appeal to a skilled workforce and innovative companies
### What Makes CGC Green & Smart?

<table>
<thead>
<tr>
<th>RESOURCE MANAGEMENT</th>
<th>ACCESSIBILITY</th>
<th>IDENTITY</th>
<th>LEADERSHIP &amp; GOVERNANCE</th>
<th>DIVERSITY &amp; DENSITY</th>
<th>ECONOMIC VIBRANCY</th>
<th>RESILIENCE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air Quality</td>
<td>Reduced Automobile Dependence</td>
<td>Good Public Spaces</td>
<td>Collaboration</td>
<td>Compact Development</td>
<td>Stimulate Sustainable Growth</td>
<td>Assess Climate Threat</td>
</tr>
<tr>
<td>Biodiversity</td>
<td>Alternative Modes of Transportation</td>
<td>Heritage &amp; Culture</td>
<td>Management</td>
<td>Mixed-Use Neighborhood Centers</td>
<td>Improve Quality of Life</td>
<td>Avoid Traps &amp; Vulnerabilities</td>
</tr>
<tr>
<td>Water Conservation</td>
<td>Universal Design</td>
<td>Public Health &amp; Service</td>
<td>Planning</td>
<td>Mixed-Income Communities</td>
<td>Develop Local Skills</td>
<td>Prepare for Long-Term Adaptability &amp; Short-Term Hazards</td>
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<tr>
<td>Energy Efficiency</td>
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<tr>
<td>Materials</td>
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**Key Performance Indicators**

- Air Quality
  - Reduced Automobile Dependence
- Biodiversity
  - Alternative Modes of Transportation
- Water Conservation
  - Universal Design
- Energy Efficiency
  - Reduced Automobile Dependence
- Materials
  - Good Public Spaces
- Identity
  - Heritage & Culture
- Leadership & Governance
  - Collaboration
- Diversity & Density
  - Compact Development
- Economic Vibrancy
  - Stimulate Sustainable Growth
- Resilience
  - Assess Climate Threat
Health and Well-being thru the CGC’s 7 Key Performance Indicators

Ten Principles for Building Healthy Places

1. Put People First
2. Recognize the Economic Value
3. Empower Champions for Health
4. Energize Shared Spaces
5. Make Healthy Choices Easy
6. Ensure Equitable Access
7. Mix It Up
8. Embrace Unique Character
9. Promote Access to Healthy Food
10. Make It Active

Source: http://uli.org/report/ten-principles-for-building-healthy-places/
Health and Well-being thru the CGC’s 7 Key Performance Indicators

Ten Principles for Building Healthy Places

1. Put People First

Individuals are more likely to be active in a community designed around their needs.
Health and Well-being thru the CGC’s 7 Key Performance Indicators

Ten Principles for Building Healthy Places

1. Put People First

2. Recognize the Economic Value

ECONOMIC VIBRANCY
- Stimulate Sustainable Growth
- Improve Quality of Life
- Develop Local Skills
- Local Food Production

Walkable Retail that Enlivens the Streets and Improves Economic Value

Source: http://uli.org/report/ten-principles-for-building-healthy-places/
Health and Well-being thru the CGC’s 7 Key Performance Indicators

Ten Principles for Building Healthy Places

1. Put People First
2. Recognize the Economic Value
3. Empower Champions for Health

Grass root leadership from the community: business owners, health practitioners, community organizers, faith-based leaders, etc.

A Shared Vision of a Healthy Community for the Residents and Workers of Clark Green City
Health and Well-being thru the CGC’s 7 Key Performance Indicators

Ten Principles for Building Healthy Places

1. Put People First
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3. Empower Champions for Health
4. Energize Shared Spaces

Public gathering places have a direct, positive impact on human health.
Health and Well-being thru the CGC’s 7 Key Performance Indicators

Ten Principles for Building Healthy Places

5. Make Healthy Choices Easy

Communities should make the healthy choice the one that is SAFE – safe, accessible, fun, and easy.

GEOHARD: Flooding

Clark Green City

Metro Manila
Health and Well-being thru the CGC’s 7 Key Performance Indicators

Ten Principles for Building Healthy Places

RESILIENCE

Assess Climate Threat

Avoid Traps & Vulnerabilities

Prepare for Long-Term Adaptability & Short-Term Hazards

5. Make Healthy Choices Easy

Communities should make the healthy choice the one that is SAFE – safe, accessible, fun, and easy.

Active Fault Lines

Clark Green City

Metro Manila
Health and Well-being thru the CGC’s 7 Key Performance Indicators

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Ten Principles for Building Healthy Places

Pedestrian walks and Dedicated bike lanes

Good Public Transportation System
Health and Well-being thru the CGC’s 7 Key Performance Indicators

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5. Make Healthy Choices Easy
6. Ensure Equitable Access

Road Hierarchy to Protect the Residents and Workers from Motorized Vehicles

Universal Design
Health and Well-being thru the CGC’s 7 Key Performance Indicators

Ten Principles for Building Healthy Places

Mixed-Income Rental Housing Development

7. Mix It Up

A variety of land uses, building types, and public spaces is used to improve physical and social activity
Health and Well-being thru the CGC’s 7 Key Performance Indicators

Ten Principles for Building Healthy Places

**8. Embrace Unique Character**

Places that are different, unusual, or unique can be helpful in promoting physical activity.
Health and Well-being thru the CGC’s 7 Key Performance Indicators

Ten Principles for Building Healthy Places

1. ECONOMIC VIBRANCY
   - Stimulate Sustainable Growth
2. Improve Quality of Life
3. Develop Local Skills
4. Local Food Production

9. Promote Access to Healthy Food

Food Terminal
Health and Well-being thru the CGC’s 7 Key Performance Indicators

Ten Principles for Building Healthy Places

10. Make It Active

Urban design can be employed to create an active community