CONSULTATIVE SESSION FOR EFFECTIVE SOLID WASTE MANAGEMENT SYSTEM UC 202 & 203
Contents of Presentation

- Introduction
- Background of area
- Transformation Manual → Digital System
- Digital Monitoring System
- Community Participation and Local Wisdom
Introduction

- Solid Waste Management System – Key Points
- Why Technology is important?
- Use of Geographical Information System (GIS)
- Importance of Digital Monitoring
- Combination of Technology and Local Wisdom
- Role of Community and its importance
Background of Area

- UC-202 & UC-203 as Pilot Project
- Gulberg – Main Hub of Lahore
- Dynamic Importance of Gulberg

<table>
<thead>
<tr>
<th></th>
<th>UC-202</th>
<th>UC-203</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population</td>
<td>39,599</td>
<td>36,882</td>
</tr>
<tr>
<td>Waste Generation (tons)</td>
<td>25.739</td>
<td>23.973</td>
</tr>
<tr>
<td>Street Length (km)</td>
<td>29.467</td>
<td>40.796</td>
</tr>
<tr>
<td>Daily Visitor of Area</td>
<td>75,000</td>
<td>75,000</td>
</tr>
<tr>
<td>Traffic Density</td>
<td>Very High</td>
<td>Very High</td>
</tr>
<tr>
<td>No. of Commercial Units</td>
<td>5000</td>
<td>4000</td>
</tr>
<tr>
<td>Existing Primary Collection Model</td>
<td>Proposed Primary Collection Model</td>
<td></td>
</tr>
<tr>
<td>-----------------------------------------------------------------------</td>
<td>---------------------------------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>No schematic deployment of workers</td>
<td>Scientific calculation for identification of resources</td>
<td></td>
</tr>
<tr>
<td>Un even distribution of beats</td>
<td>Equitable distribution of beats</td>
<td></td>
</tr>
<tr>
<td>Difficult to identify unallocated beats</td>
<td>Gap analysis and additional resources deployment accordingly</td>
<td></td>
</tr>
<tr>
<td>No monitoring mechanism on presence of workers in beats.</td>
<td>Monitoring through digital means in beats. Biometric System</td>
<td></td>
</tr>
<tr>
<td>Un-even distribution of resources</td>
<td>Classification of areas: Residential / Commercial / Semi Commercial / Problematic.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Classification of areas according to demographical needs. Urban/Rural/Semi-Urban</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Special focus towards public places (Hospitals, School, Graveyards, mosques etc.)</td>
<td></td>
</tr>
<tr>
<td>Existing Primary Collection Model</td>
<td>Proposed Primary Collection Model</td>
<td></td>
</tr>
<tr>
<td>----------------------------------</td>
<td>-----------------------------------</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Addition of 2nd &amp; 3rd shifts</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Combination of scientific approach and local wisdom</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Community participation in planning, implementation and monitoring.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Feedback from Public Representative and local opinion leaders.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Feedback for improvement till workers level.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Ensure uniform of workers/ Zone wise colouring of uniforms.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Use of proper PPE’s for Health and safety of workers.</td>
<td></td>
</tr>
</tbody>
</table>
Existing Beat Map

UC-203 Existing Beats Map

Legend
- UC-203
- UC_203_Streets
- Beats
  - Beat-1
  - Beat-10
  - Beat-11
  - Beat-12
  - Beat-13
  - Beat-14
  - Beat-15
  - Beat-16
  - Beat-17
  - Beat-18
  - Beat-19
  - Beat-2
  - Beat-20
  - Beat-21
  - Beat-22
  - Beat-23
  - Beat-24
  - Beat-25
  - Beat-26
  - Beat-27
  - Beat-28
  - Beat-29
  - Beat-3
  - Beat-30
  - Beat-4
  - Beat-5
  - Beat-6
  - Beat-7
  - Beat-8
  - Beat-9
  - Empty Beat

Workers Beats Detail
- Out of UC Length = 8930 (m)
- Total Streets Length = 40796 (m)
- Total No of Workers = 32
- Per worker Length = 827 (m)
- Total Operating Length = 26459 (m)
- Unallocated Length = 14337 (m)
Proposed Beat Map

UC-203 Proposed Workers Beat Map

Legend
Workers_Beats
Beats
- Beat-1
- Beat-2
- Beat-3
- Beat-4
- Beat-5
- Beat-6
- Beat-7
- Beat-8
- Beat-9
- Beat-10
- Beat-11
- Beat-12
- Beat-13
- Beat-14
- Beat-15
- Beat-16
- Beat-17
- Beat-18
- Beat-19
- Beat-20
- Beat-21
- Beat-22
- Beat-23
- Beat-24
- Beat-25
- Beat-26
- Beat-27
- Beat-28
- Beat-29
- Beat-30
- Beat-31
- Beat-32
- Beat-33
- Beat-34
- Beat-35
- Beat-36
- Beat-37
- Beat-38
- Beat-39
- Beat-40
- Beat-41
- UC-203

Proposed Workers Beats Detail
Proposed Workers = 41
Total Streets Length = 40796 (m)
Per worker Length = 1000 (m)
Total No of workers = 41
Supervisors = 3
Checker = 1
Malba Inspector = 1
Commercial & Problematic Area

UC-203 Map

UC-203 Detail

<table>
<thead>
<tr>
<th>Sr No</th>
<th>Problematic Area</th>
<th>Commercial Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Ghalib Road</td>
<td>Noor Jahan Road</td>
</tr>
<tr>
<td>2</td>
<td>C-3 Pratha Galli</td>
<td>Ali Zaib Road</td>
</tr>
<tr>
<td>3</td>
<td>Nursery Wala Point</td>
<td>Main Boulevard Gulberg</td>
</tr>
<tr>
<td>4</td>
<td>Askari-7 Wala Point</td>
<td>Qaddafi Stadium Roundabout</td>
</tr>
<tr>
<td>5</td>
<td>Khair Colony</td>
<td>Ferozepur Road</td>
</tr>
<tr>
<td>6</td>
<td>UCH Wala Point</td>
<td>Hall Road</td>
</tr>
<tr>
<td>7</td>
<td>Sunfert Wala Point</td>
<td>Parkview Streets</td>
</tr>
<tr>
<td>8</td>
<td>Saint Mary Church Point</td>
<td>Zahoor Elahi Road</td>
</tr>
<tr>
<td>9</td>
<td>Imam Hussain Road</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Punjab Text Book Board Road</td>
<td></td>
</tr>
</tbody>
</table>

Legend
- UC-203
- Commercial Areas
- Problematic Areas
Existing & Proposed Containers Map

UC-203 Containers Map

Legend
Size
- 0.8cm
- 5cm
- Streets
- UC-203
- Proposed Containers
Size
- 0.8cm
- 5cm

UC-203 Containers Detail

<table>
<thead>
<tr>
<th>Sr No</th>
<th>Category</th>
<th>Qty</th>
<th>Points</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Existing Containers</td>
<td>53</td>
<td>16</td>
<td>0.8cm</td>
</tr>
<tr>
<td>2</td>
<td>Existing Containers</td>
<td>1</td>
<td>1</td>
<td>5cm</td>
</tr>
<tr>
<td>3</td>
<td>Proposed Containers</td>
<td>19</td>
<td>4</td>
<td>0.8cm</td>
</tr>
<tr>
<td>4</td>
<td>Proposed Containers</td>
<td>3</td>
<td>3</td>
<td>5cm</td>
</tr>
<tr>
<td>Total Containers</td>
<td>76</td>
<td>24</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Proposed Compactor Route Map

Legend

<table>
<thead>
<tr>
<th>Size</th>
<th>Route</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.8cm</td>
<td>Route-1</td>
</tr>
<tr>
<td>5cm</td>
<td>Route-2</td>
</tr>
</tbody>
</table>

Route Detail

- **Compactor-1 (13cm)**
  - Route-1 = 2.75 Km
  - Route-2 = 2.11 Km
  - Route-3 = 1.48

- **Compactor-2 (7cm)**
  - Route-1 = 0.74 Km
  - Route-2 = 2.18 Km
  - Route-3 = 0.94 Km

Parking to UC = 3.28 km
UC to Shadman WE= 4 km

Containers (0.8cm) Detail

- **Compactor-1 (13cm)**
  - Route-1 = 17 Containers
  - Route-2 = 21 Containers
  - Route-3 = 22 Containers

- **Compactor-2 (7cm)**
  - Route-1 = 12 Containers
  - Route-2 = 13 Containers
  - Route-3 = 14 Containers

Total Containers = 99
Proposed Beat Map

UC-202 Proposed Beat Map

Legend
Beats
- Beat-1
- Beat-2
- Beat-3
- Beat-4
- Beat-5
- Beat-6
- Beat-7
- Beat-8
- Beat-9
- Beat-10
- Beat-11
- Beat-12
- Beat-13
- Beat-14
- Beat-15
- Beat-16
- Beat-17
- Beat-18
- Beat-19
- Beat-20
- Beat-21
- Beat-22
- Beat-23
- Beat-24
- Beat-25
- Beat-26
- Beat-27
- Beat-28
- Beat-29
- Beat-30
- UC-202

Proposed Workers Beats
Total Streets Length = 29467 (m)
Per worker Length = 1000 (m)
Total Proposed Workers = 30
Supervisor = 1
Baildar = 1
Checker = 1
UC-202 Commercial & Problematic Area Map

Legend
- Commercial Area
- Problematic Area
- Streets
- UC-202

<table>
<thead>
<tr>
<th>Sr No</th>
<th>Problematic Area</th>
<th>Commercial Area</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Kabootar Pura</td>
<td>MM Alam Road</td>
</tr>
<tr>
<td>2</td>
<td>Akram Park</td>
<td>Noor Jahan Road</td>
</tr>
<tr>
<td>3</td>
<td>Gurumangat</td>
<td>Man Mehmood Ali Qasori Road</td>
</tr>
<tr>
<td>4</td>
<td>7up Point</td>
<td>Guru Mangat Road</td>
</tr>
<tr>
<td>5</td>
<td></td>
<td>Ghalib Market</td>
</tr>
<tr>
<td>6</td>
<td>Main Boulevard Gulberg</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td></td>
<td>Ghalib Road</td>
</tr>
</tbody>
</table>
Existing & Proposed Containers Map

UC-202 Containers Map

Legend
- Existing Containers
- Proposed Containers
- 0.8cm
- 5cm

UC-202 Containers Detail

<table>
<thead>
<tr>
<th>Sr No</th>
<th>Category</th>
<th>Qty.</th>
<th>Points</th>
<th>Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Existing Containers</td>
<td>23</td>
<td>7</td>
<td>0.8cm</td>
</tr>
<tr>
<td>2</td>
<td>Existing Containers</td>
<td>4</td>
<td>4</td>
<td>5cm</td>
</tr>
<tr>
<td>3</td>
<td>Proposed Containers</td>
<td>4</td>
<td>2</td>
<td>0.8cm</td>
</tr>
<tr>
<td>4</td>
<td>Proposed Containers</td>
<td>4</td>
<td>4</td>
<td>5cm</td>
</tr>
<tr>
<td></td>
<td><strong>Total Containers</strong></td>
<td><strong>35</strong></td>
<td><strong>17</strong></td>
<td></td>
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</tbody>
</table>
Digital Monitoring System

- Bio-Metric Attendance System
- GPS Based Beat Attendance Verification
- Performance Evaluation through Quality Checks
- Efficiency Improvement
- Real Time Status of UC
- Transformation into HRIS
Combination of Technology and Local Wisdom

- Participation of Sanitary Worker and Supervisor
- Participation of Trade Unions / Commercial Entities
- Participation of Local Residents
- Participation of Public Representatives
- Participation of other communities / departments
  Schools / Mosque / PHA / TEPA etc.
Thank You