

The background of the slide is a photograph of plastic waste floating in water. In the foreground, a large, clear plastic bottle with a red cap and a label is partially submerged. Other smaller plastic bottles and debris are visible in the background, some floating on the surface and others partially submerged. The water is dark and murky.

Mitigating leakages from Municipal Solid Waste Management Systems

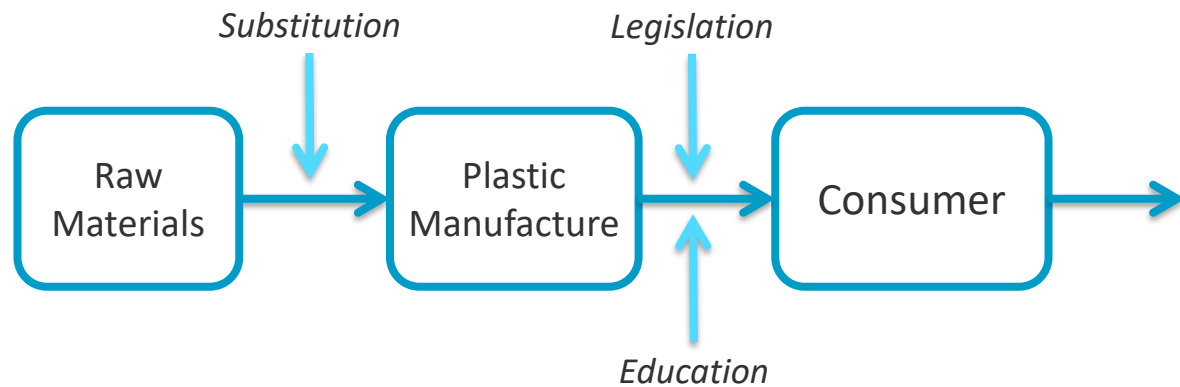
Possible measures & Interventions

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State of research – Sources of Marine litter



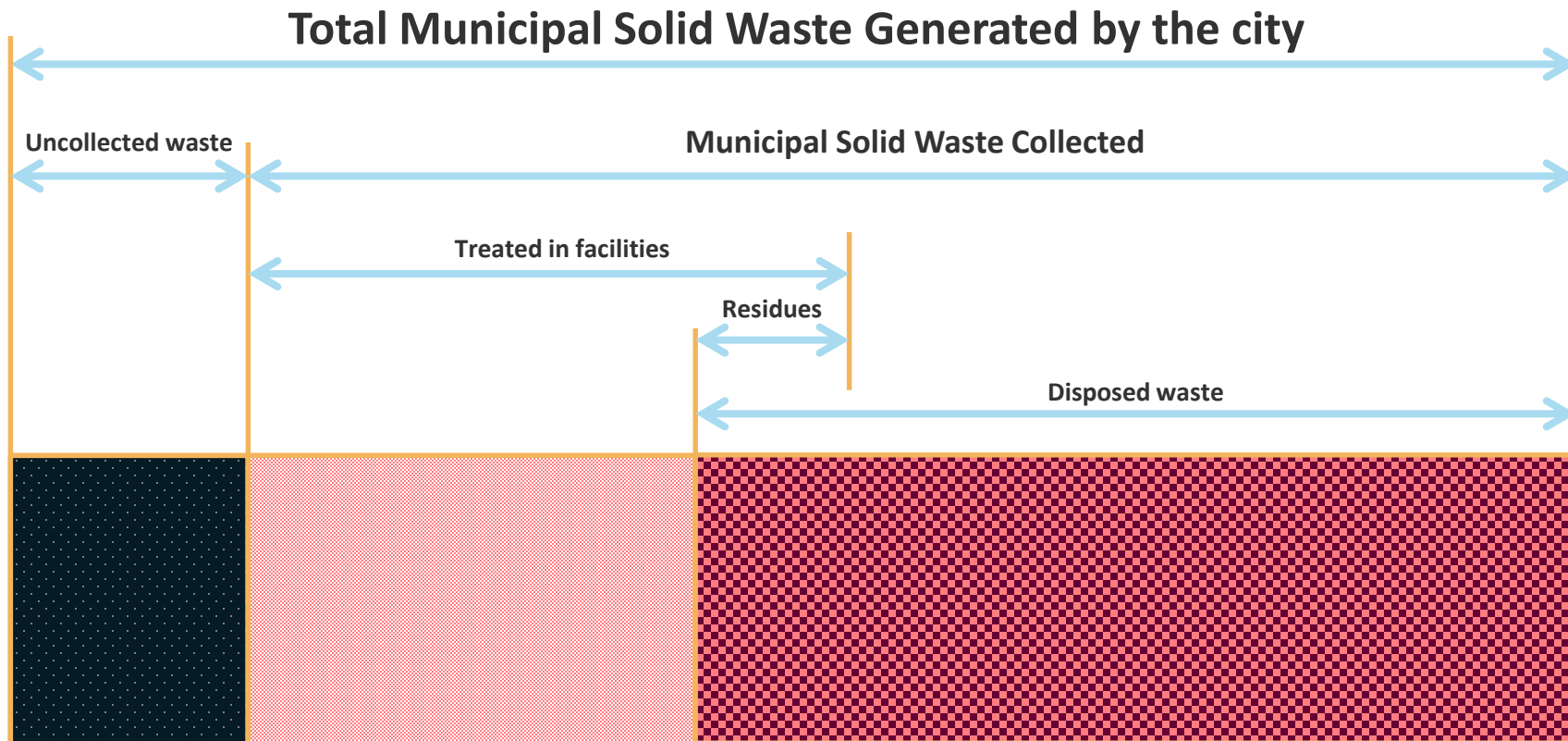
Prevention

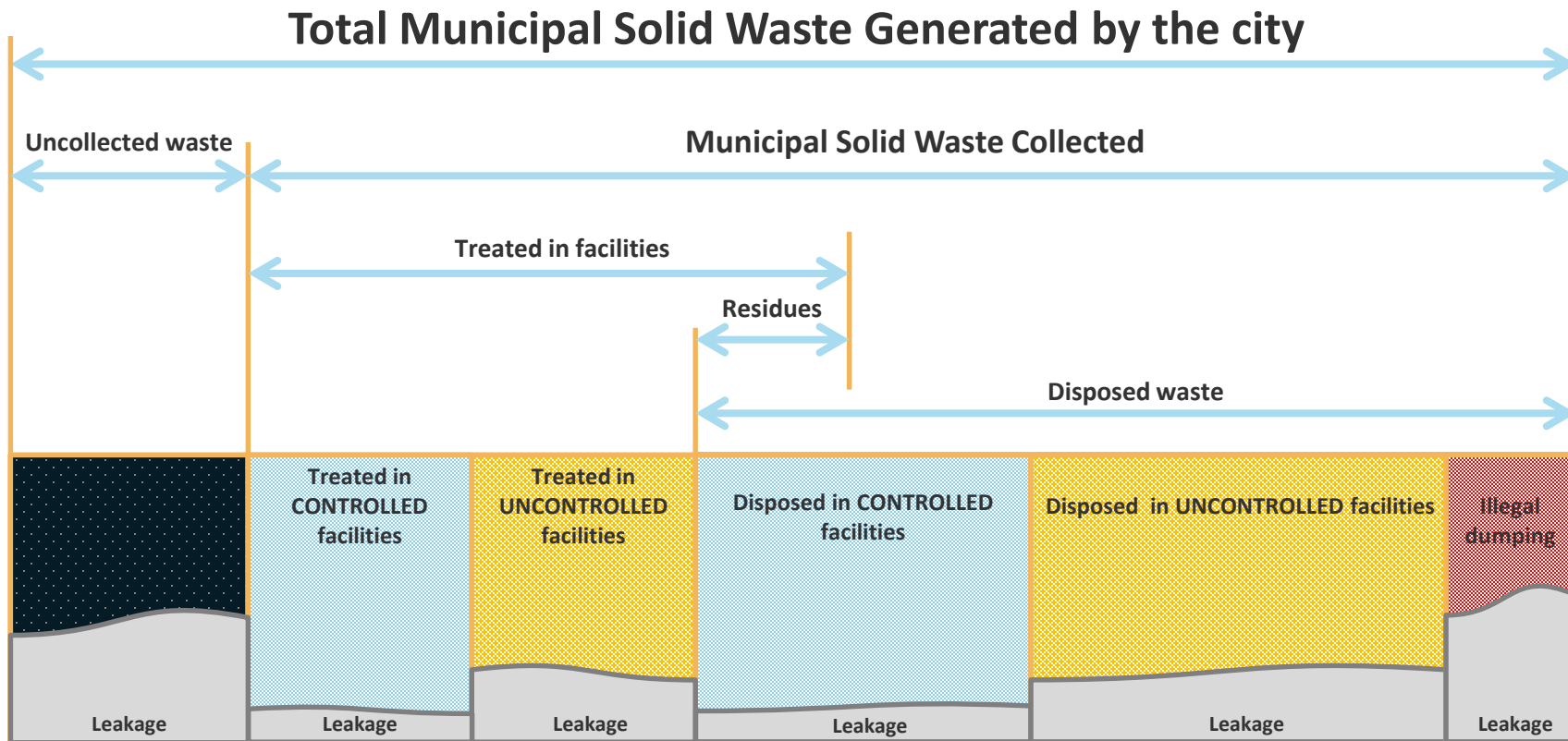


**Solid Waste
Management**

Discarded Plastic

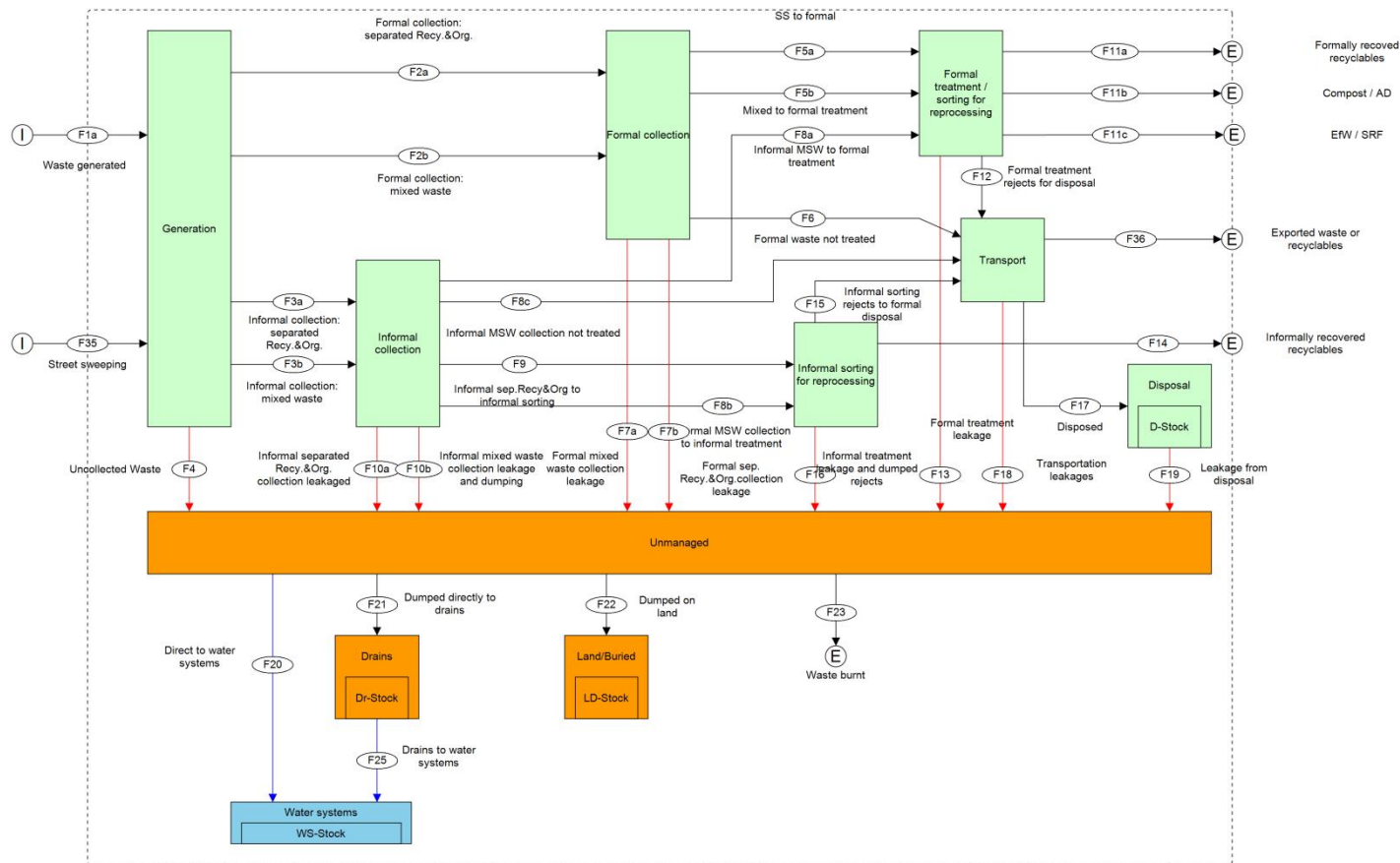






- Measure SDG 11.6.1
- Solid Waste MFA City/Municipal level
- Quick and Dirty assessment of plastic leakage
- Approach:
 - Understand and quantify SWM system of the city (formal & informal)
 - Fieldwork (2 weeks)
 - Assess leakages from the system
 - Evaluate fates
 - Stuck in land (buried, covered by vegetation, etc.)
 - Burnt
 - Drainage
 - ***Into waterways / waterbodies!***

Municipal Solid Waste Management model





Uncollected waste (result of no collection service)



River bed in Kibera Slum, Nairobi, Kenya



Neighborhood dump, Dar es Salaam, Tanzania

Leakage from collection system

Generation



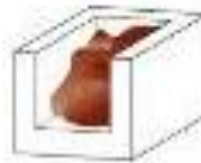
Collection point



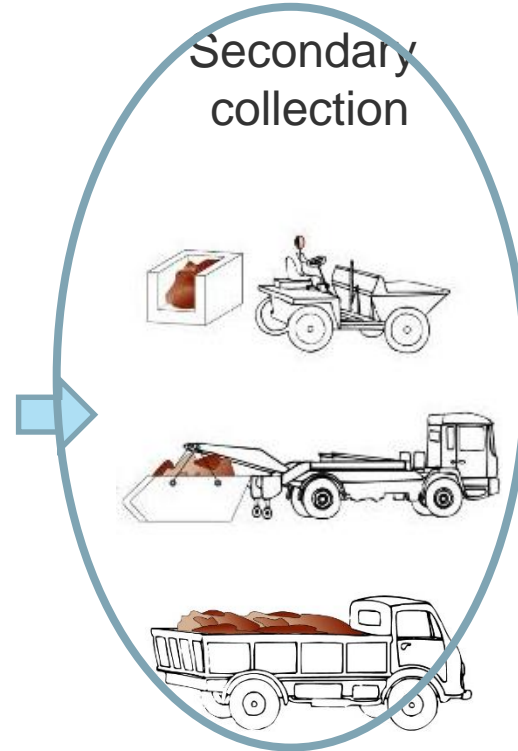
Primary
collection



Transfer
station



Secondary
collection



Leakage from collection system - Secondary Collection

- Descriptors and possible measures:
 - Selection of collection truck (cover)



- **Descriptors and possible measures:**
 - Selection of collection truck (cover)
 - Avoid careless cherry picking on vehicle (recyclables)
 - Promote good domestic waste practices (containment)



Leakage in sorting/treatment plants

- **Descriptors and possible measures:**
 - Lack of env. standards
 - No containment of materials
 - Lack of fencing
 - Bad management of rejects
- **Sound vs Unsound installations (SDG 11.6.1)**



- **Cause of leakage:**
 - Main cause: WIND
 - When disposal site next to water bodies: direct discharge (e.j. Saida, Lebanon; Malabon, Philippines)



- **Descriptors and measures:**
 - Load management:
 - Clearly defined discharge zone
 - Avoid scavengers
 - Immediate covering or sprinkling
 - Compaction
 - Avoid wind exposure
 - Coverage
 - Fencing




Illegal dumping



Very tricky to quantify!!

- **Deficiencies in SWM lead to plastic leakage -> into waterways & oceans**
- **Understanding how, where and why is crucial for decision making**
 - Need to Monitor (WFD, ISWA Calculator, etc.)
- **Few quantitative studies:**
 - Studies to generate primary data (empirical ground truthing)
 - Assess impact of interventions with “down stream” measurements (rivers, beaches, oceans, etc.)
 - Plan in advance for a coherent and harmonized data gathering (e.g. units)

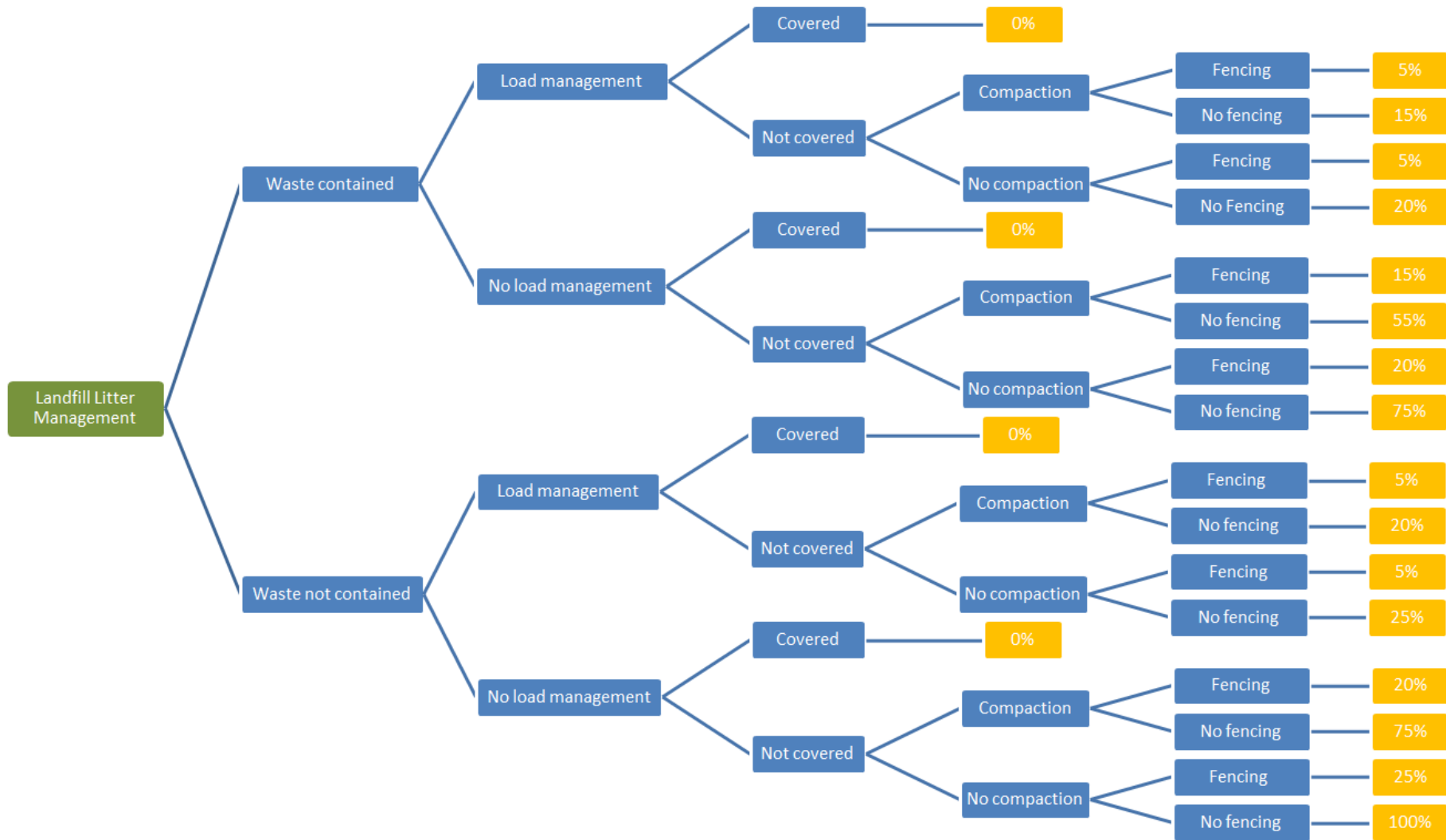
Waste Flow Diagram	 PLASTIC WASTE POLLUTION CALCULATOR
<p>Main strength:</p> <ul style="list-style-type: none">• Evaluate SDG 11.6.1• MFA model of SWM system• City / Municipality level <p>Also serves:</p> <ul style="list-style-type: none">• Quick and dirty plastic leakage estimation• Plastic fraction of MSW	<p>Main Strength:</p> <ul style="list-style-type: none">• Robust and detailed calculation of plastic leakage• District, scalable to regional level• Plastic item-specific evaluation• GIS based

Thank you for your attention



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Medium accuracy

50% to water body (sea)

50% to land

**To the amount going to Land the
same fate-TCs are applied as to
uncollected waste**

