SWIM and Horizon 2020 Support Mechanism

Working for a Sustainable Mediterranean, Caring for our Future

# Capacity building of the new Solid Waste Agency of Egypt

## Expert Facility Activity No: EFH-EG-1

## Training of trainer's Workshop on how to plan and implement new waste management streams

## (Case of Construction and Demolition Waste C&DW)


Presented by:

**Ms. Françoise BONNET, Mr Anis ISMAIL, Mr. Stéphane ARDITI,** Experts ACR+

**Mr Essam NADA - Ms. Mofida KAMAL EL DIN ALAAM, Experts…**


October 10-11, Cairo, Egypt


This Project is funded by the European Union

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# Capacity building of the new Solid Waste Agency of Egypt

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## Training of trainer's Workshop on how to plan and implement new waste management streams

# Session on Integrated Sustainable Waste and Resources Management (ISWRM)

Presented by:

**Ms. Françoise BONNET, Mr. Stéphane ARDITI,** Experts ACR+

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# The concept of ISWRM

# Supporting context of ISWRM

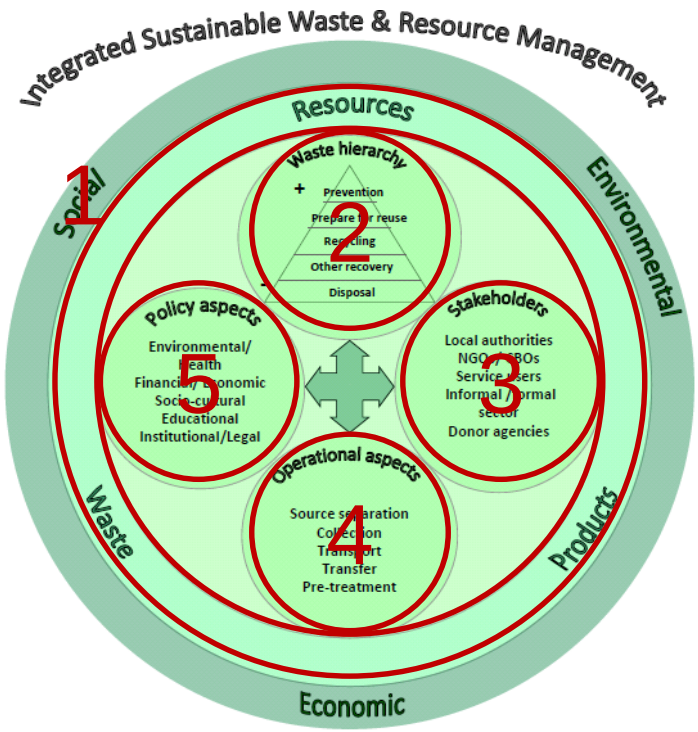
ISWRM is an approach that works best in a supporting environment:
-Political willingness
-Societal demand and economic opportunities
-Environment and human health issue

## Why is it important to deal with waste

## How to - roadmap

## What do we want – vision

# The 5 dimensions of ISWRM




**Dimension 1 - Life Cycle Thinking**

Dimension 2 - Waste hierarchy

Dimension 3 - Stakeholders

Dimension 4 - Operational aspects

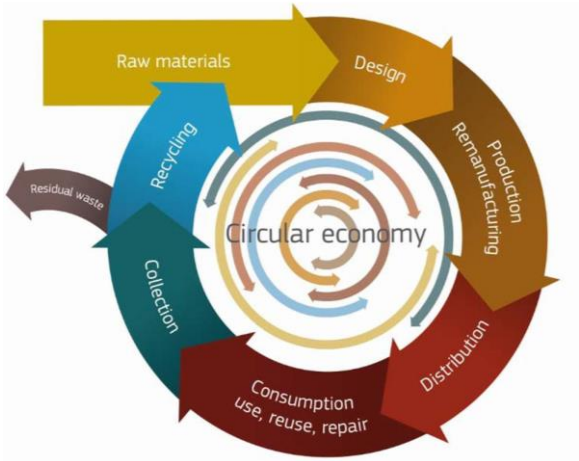
Dimension 5 - Policy aspects

# Dimension 1: Life cycle thinking

To help capture all impacts and all opportunities for optimisation of a material/product/service, and not focus on end of life only

Evolution from **cradle to grave** to **cradle to cradle** (*beware CtoC is registered trademark*) in line with Circular Economy

≠




*Linear life cycle thinking versus circular life cycle thinking*

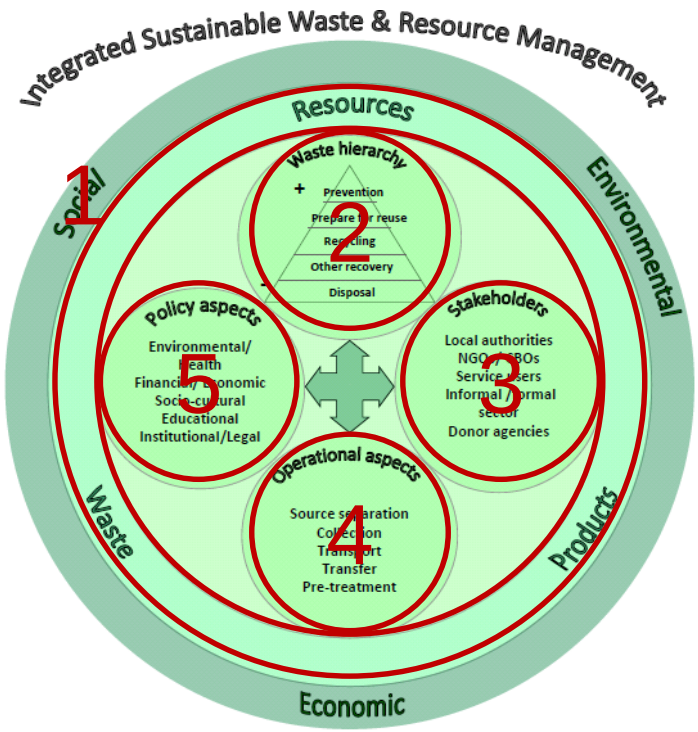
# Dimension 1: Life cycle thinking

LCA tool to identify opportunities at all stages of the life of a product.
From design & choice of raw material to usages and end of life.

✓*80% of the environmental impact is determined at design stage*
✓*Designing waste out of products*
✓*Seeing waste as resources*
✓*The future of discarded materials is new products*
…

# Questions

# The 5 dimensions of ISWRM




Dimension 1 – Life Cycle Thinking

**Dimension 2 - Waste hierarchy**

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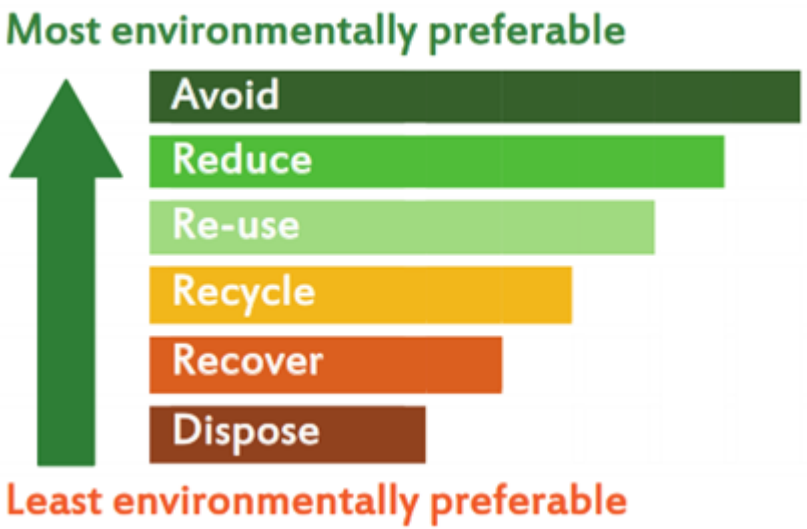
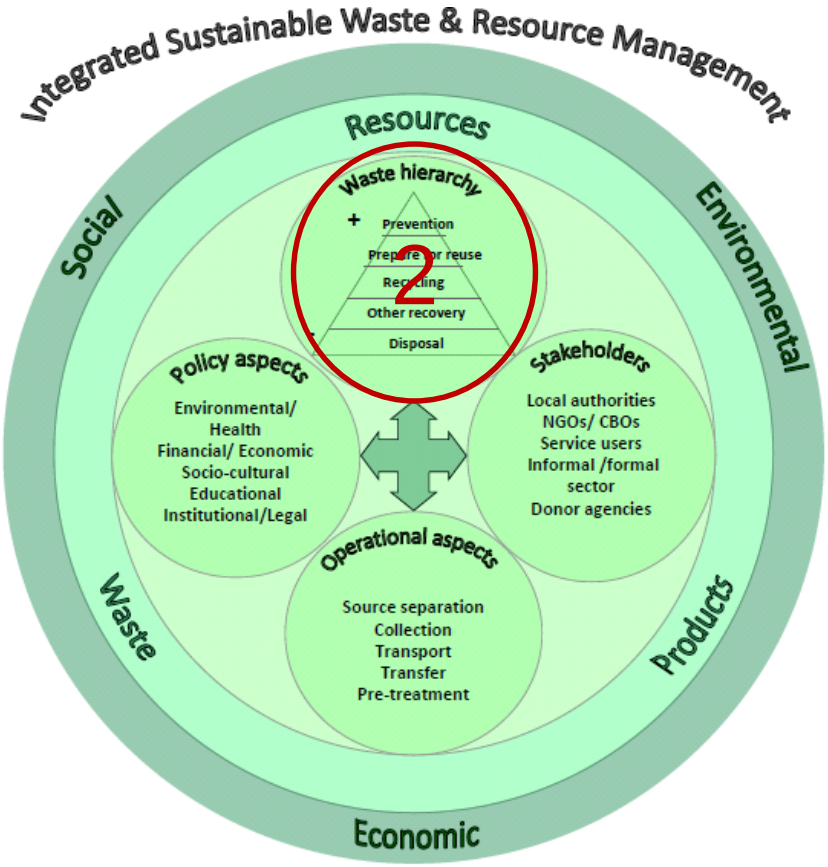
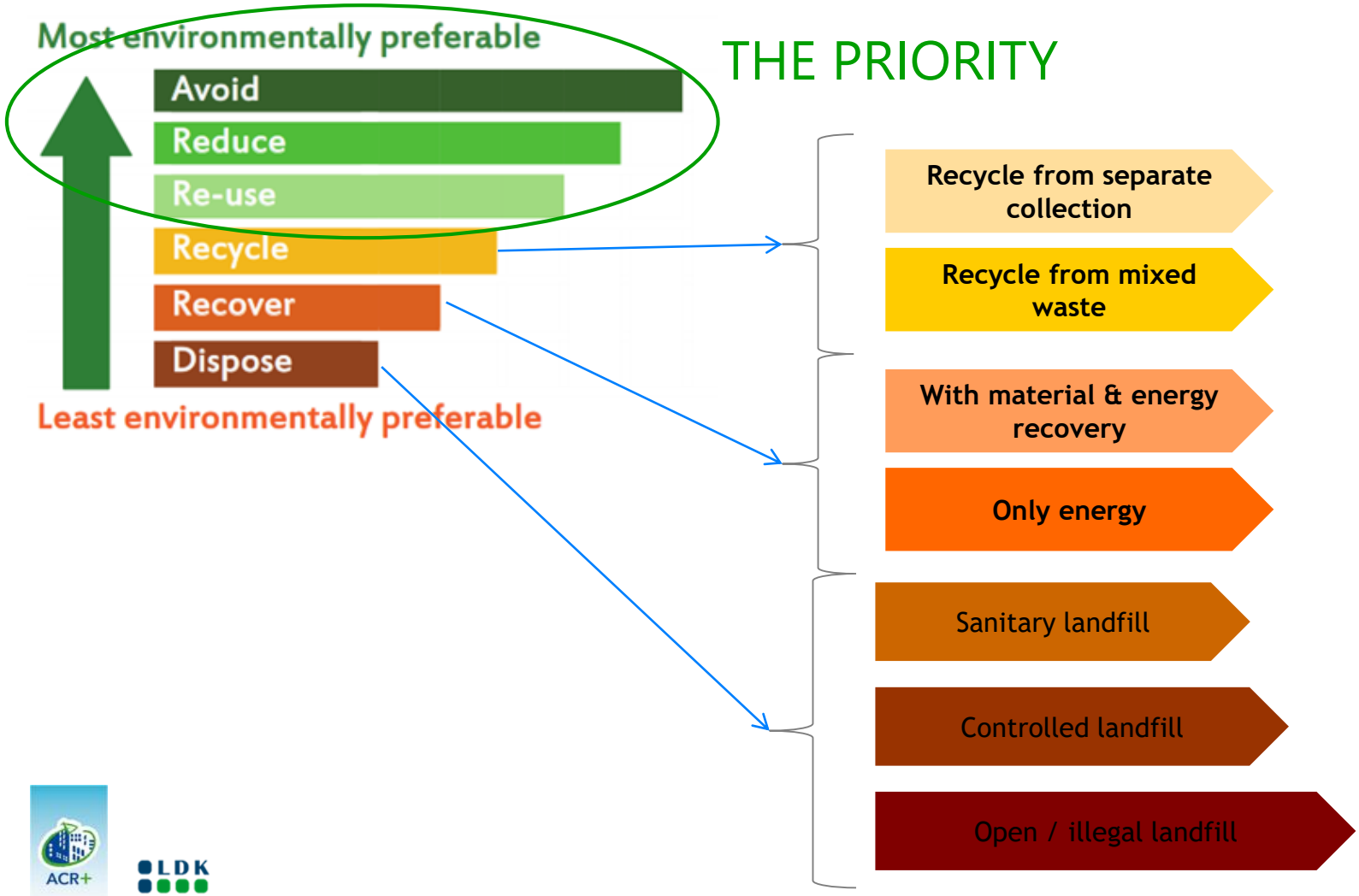
# Dimension 2: Waste treatment hierarchy

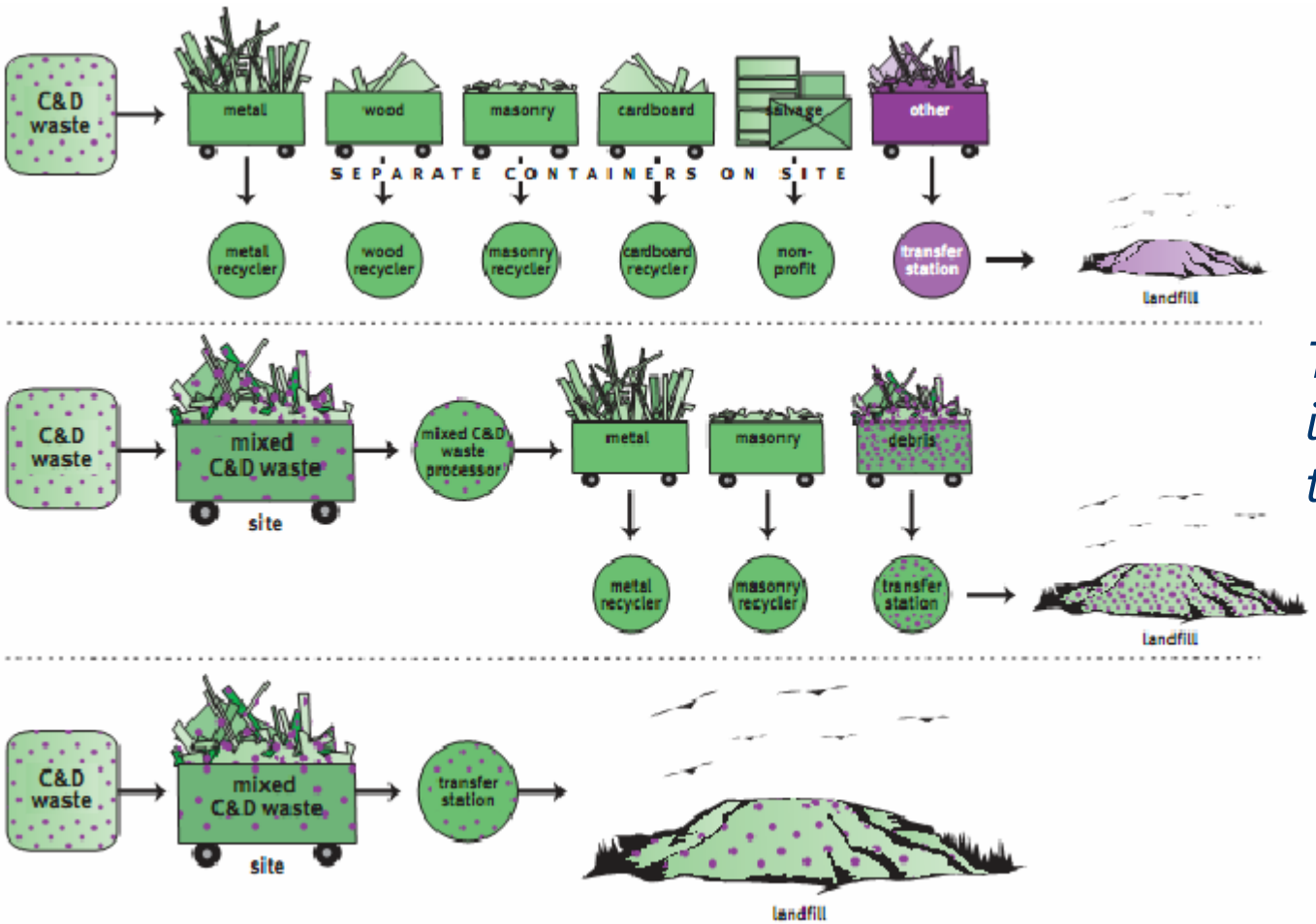


# Dimension 2: Waste treatment hierarchy
## ...within each step as well



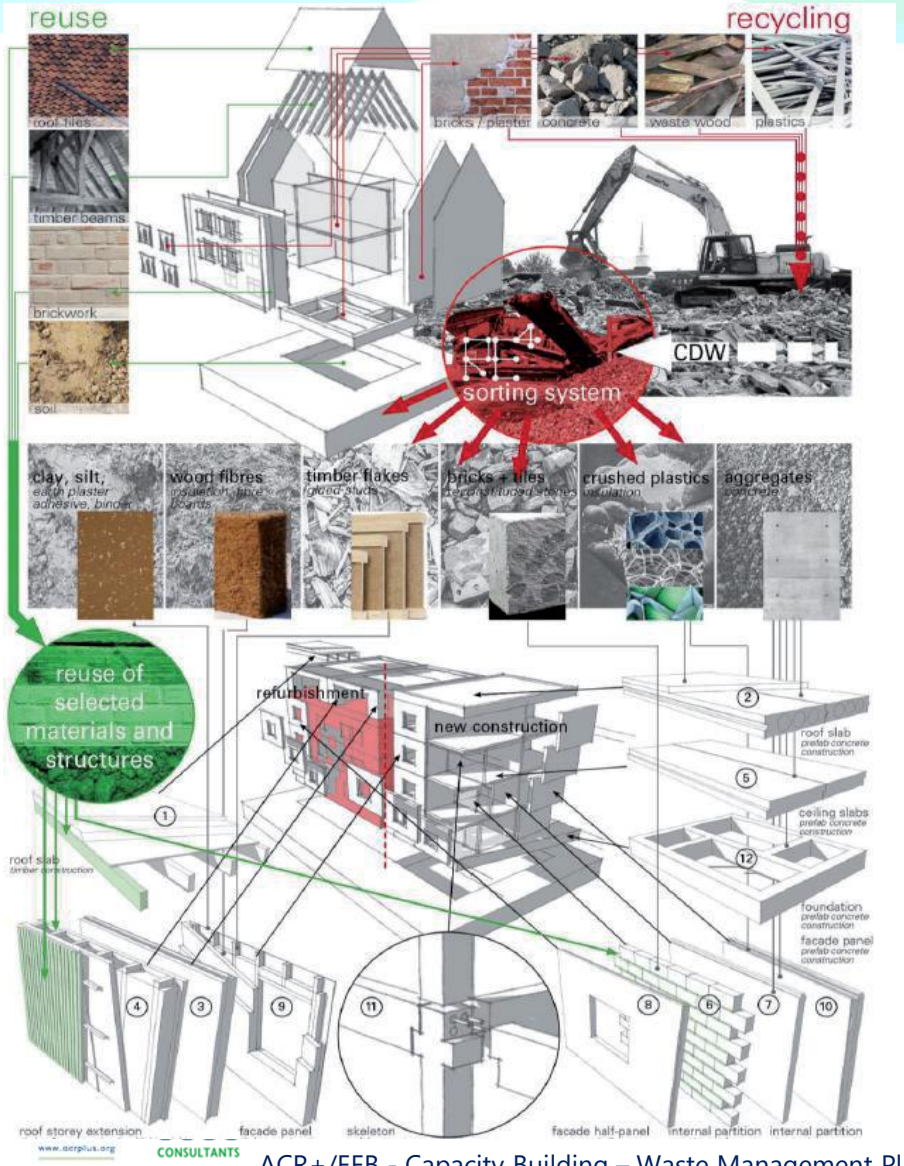
# Dimension 2: Waste treatment hierarchy – example C&D recycling & disposal




*The earlier it is separated the more value it is*

Source: https://www.researchgate.net uploaded by Tong T. Kien

# Dimension 2: Waste treatment hierarchy – example C&D reuse and recycling

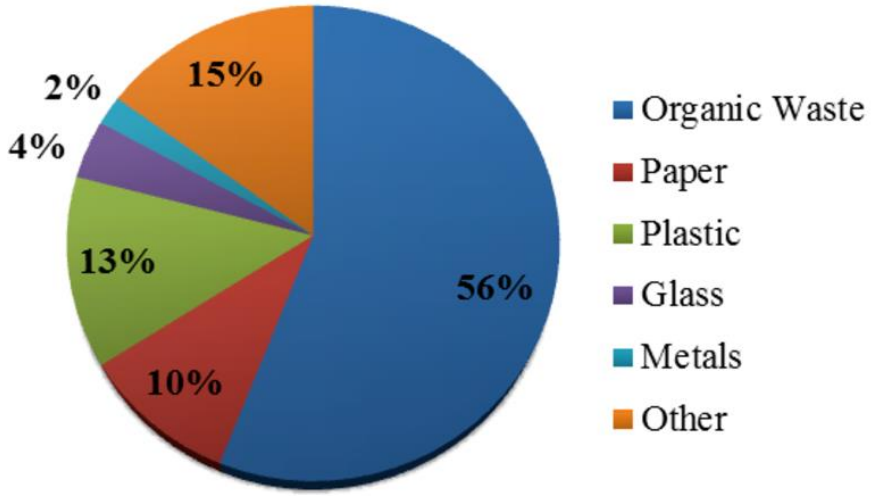



*Beyond separation on site and recycling, reuse of materials*

www.scientevents.com/proscience/ Agnese Attanasio*, Alessandro Largo

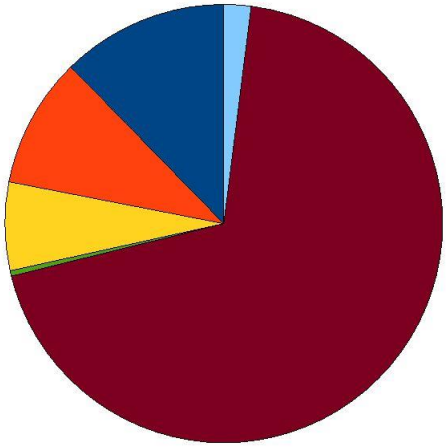
# Dimension 2: Waste treatment hierarchy – waste characterisation to best know the potential routes

At national (sampling) , local (sampling ) … or site level (pre-audit)




Municipal solid waste composition in Egypt (2012), (SWEEPNet 2014)

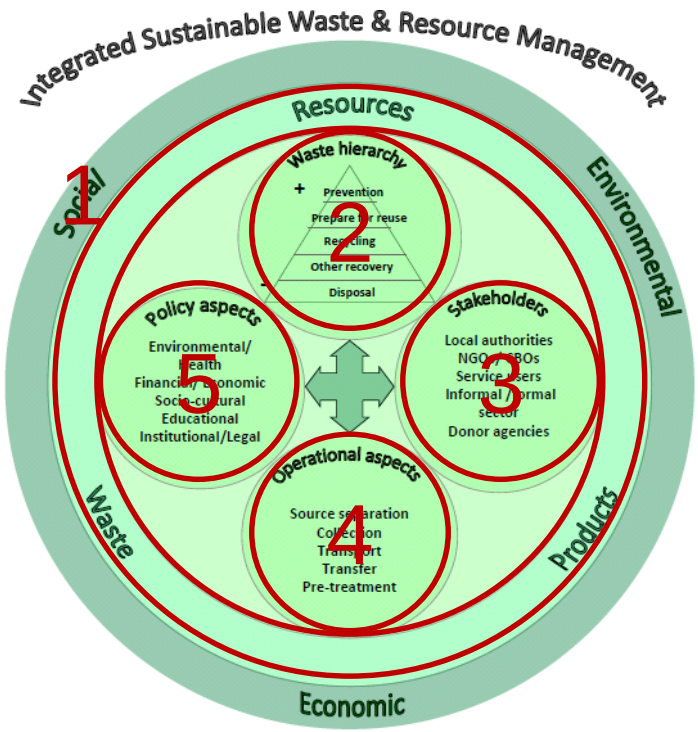
**CONSTRUCTION AND DEMOLITION WASTE COMPOSITION**




| | Percentage (%) |
|---|---|
| Concrete | 12.3 |
| Metal | 9.6 |
| Bricks | 6.5 |
| Plastic | 0.4 |
| Woods | 69.1 |
| Others | 2 |

# Questions

# The 5 dimensions of ISWRM




Dimension 1 – Life Cycle Thinking

Dimension 2 - Waste hierarchy

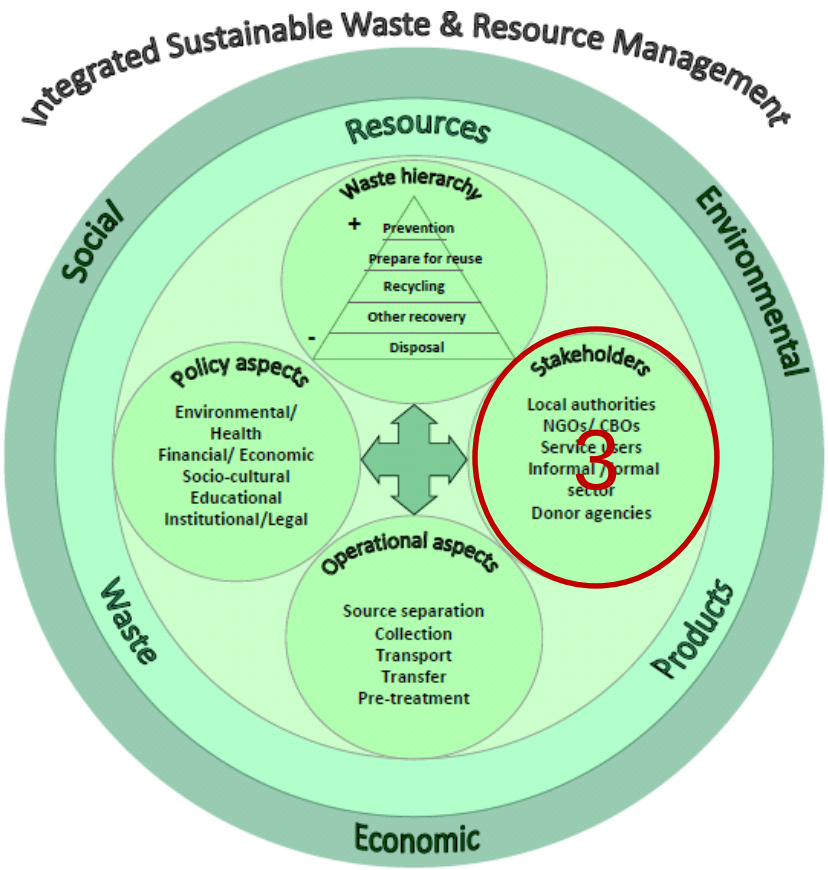
**Dimension 3 - Stakeholders**

Dimension 4 - Operational aspects

Dimension 5 - Policy aspects

# Dimension 3: Stakeholders

**A stakeholder is a person or organisation that has a stake, that is, they can claim a legitimate interest in a certain issue, because they are affected by it and benefit or suffer accordingly.**



# Dimension 3: Type of stakeholders

- Enablers of the service
- Users of the service
- Providers of the service
- Overseers of the service
- Commodity traders

# Dimension 3: Type of stakeholders

## Enablers of the service

- Analyse the constraints on effective service delivery and build in strategies
- Overview the existing political, legislative and legal framework and set the framework for service provision
- The municipality is the most important local enabler
  - Develops local stakeholder capacity
  - Promotes national stakeholder partnerships
  - Allows for technical know-how exchange

# Dimension 3: Type of stakeholders

## Users of the service

- Are usually neglected when the system is set up
- Have a right to say what kind of service they want
- Pay fees to obtain the services
- Need to understand <u>what</u> they must do
- Cooperate better if they understand <u>why</u> it is set up in a particular way
- Are the best source of information as to how it is working
- Care more about it than anyone else

***Participatory planning techniques can help with this***

# Dimension 3: Type of stakeholders

## Providers of the service

- Make the system work (supplying the services)
- Usually have their focus on the technical parts of the service
- Are under pressure to please the political and administrative authorities
- Don't have much contact with the clients
- Communication on options and choices

***Educational or public relations events can help communicate these things!***

# Dimension 3: Type of stakeholders

**Overseers of the service**

**Monitor** and ensure service quality and price

**Commodity traders**

Buy and sell waste and are part of the valorisation of the resources (waste)

# Dimension 3: Type of stakeholders

## Possible shortcoming in stakeholders consultation

**Such as:**

- Stakeholder reduced to listeners
- Poor composition and not representative
- Disadvantaged groups excluded
- Stakeholders only invited in election periods
- Coordinator of the stakeholder process lacking professionalism to lead and coordinate
- One way relationship with researchers

# Dimension 3: Type of stakeholders

## Do not overlook the informal sector

# Dimension 3: The private sector

**Government remains responsible** to ensure that a service is provided, and that it meets required standards in terms of reliability, efficiency, customer relations and environmental protection

Common **misconceptions concerning private sector participation?**

1. The private sector is **always cheaper and more efficient**
2. The private sector is **always more reliable**
3. The private sector does **not care about the environment, and so will cause serious pollution**

*Main arrangements with private sector*

| Arrangement | Source of income | Monopoly of service area | Type of work | Examples |
|---|---|---|---|---|
| Contract | Government | Yes | Service | Collection, street sweeping,… |
| Franchise (= exclusive delegation) | Customers | Yes | Service | Collection, coll. of user charges |
| Private subscr. | Customers | No | Service | Collection of C&DW, collection of industr. waste |
| Concession | Government and user fees | Yes | Construction & operation | Disposal of healthcare waste |

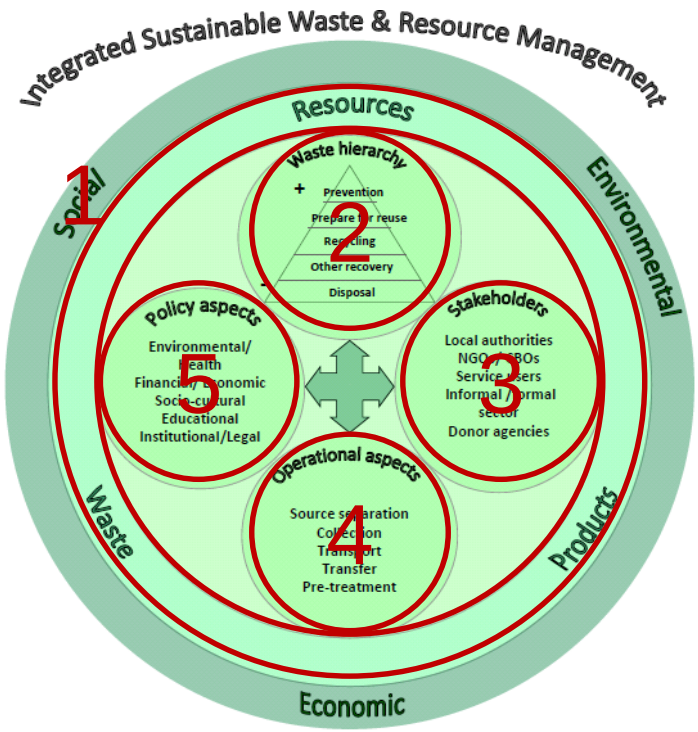
# Dimension 3: The private sector

*Some recommendations for successful private sector participation*

1. Build government capacity to be an effective partner (monitoring)
2. Balance between private sector and government
3. Negotiations with labor unions over restrictive labor practices
4. Realistic contractual periods
5. Economies of scale
6. Rationalise collection and transfer haul distances
7. Favor private sector joint ventures with foreign expertise while optimising the use of local knowledge and skills

# Questions

# The 5 dimensions of ISWRM

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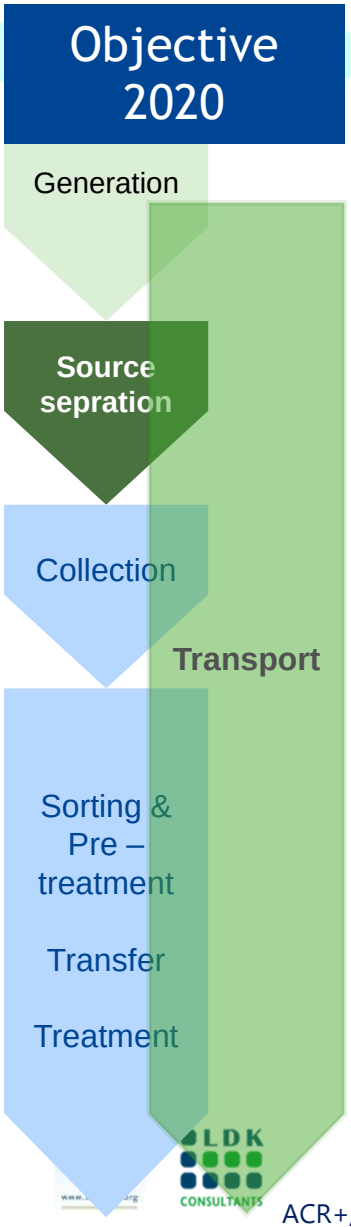
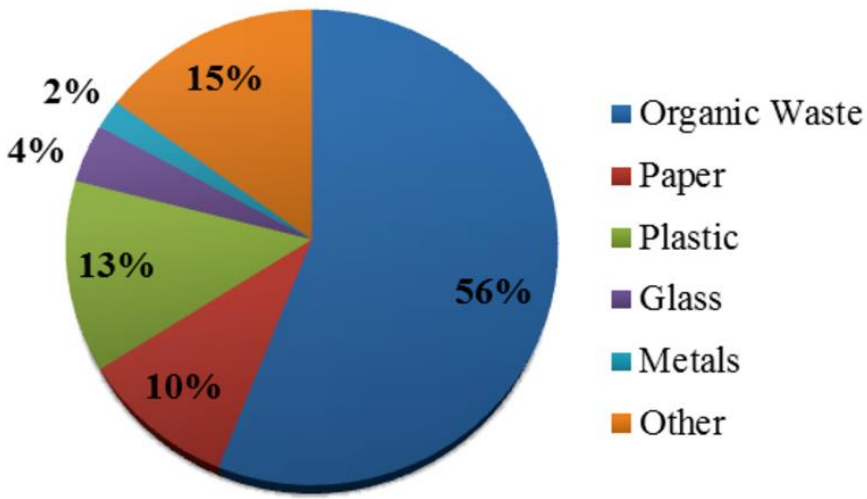
# Dimension 4: Operational aspects – waste characterization



Generation

Characterization




Municipal solid waste composition in Egypt (2012), (SWEEPNet 2014)

# Dimension 4: Operational aspects – source separation

**Objective 2020**

Generation

**Source separation**

Collection

**Transport**

Sorting & Pre – treatment

Transfer

Treatment

Prevention & reuse

Goods consumption

Deposit/Refund – Street containers

At least separate

WET waste from DRY waste

# Dimension 4: Operational aspects – collection

**Objective 2020**

Generation

**Source separation**

Collection

**Transport**

Sorting & Pre – treatment

Transfer

Treatment

Main parameters for collection of Municipal Solid waste:

- Overall system – Door to door, street containers, container parks
- Concerned population
- Type of equipment for collecting and storing waste incl age and density
- Distance to sorting/treatment processes
- Frequency
- Private or public collection
- Costs
- Quantity
- Type of workers, notably formal or informal

# Dimension 4: Operational aspects – Depending on waste Sorting, pre-treatment & treatment

**Objective 2020**

Generation

**Source separation**

Collection

**Transport**

Sorting & Pre – treatment

Transfer

Treatment

- Source separation
- Specific collection scheme
- Manual or/and mechanical sorting
- Composting
- Anaerobic digestion
- Recycling processes
- Mechanical Biological Treatment (mixed)
- Thermal treatment
- Landfill
- Specific treatment/disposal (e.g hazardous)

# Dimension 4: Operational aspects – logistics optimisation

**Objective 2020**

Generation

**Source separation**

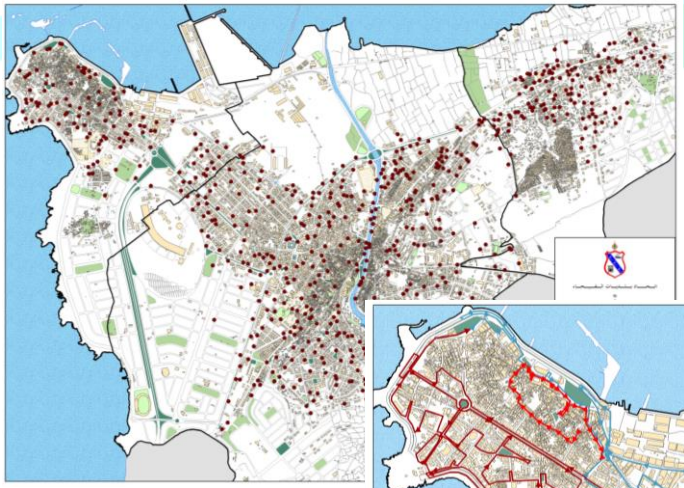
Collection

**Transport**

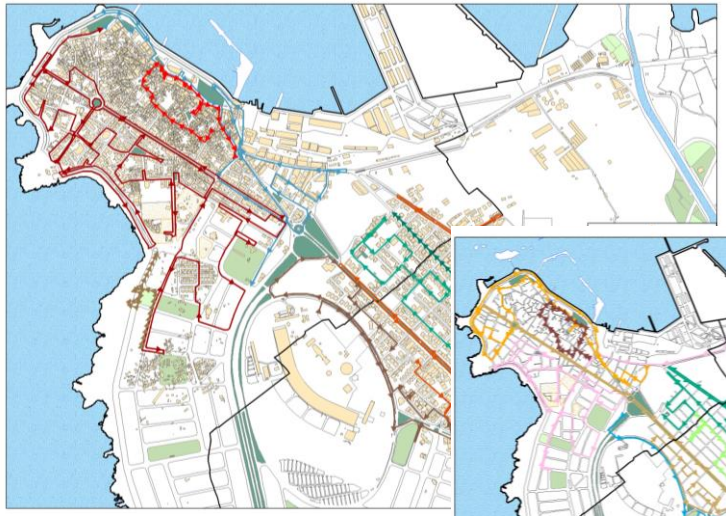
Sorting & Pre – treatment

Transfer

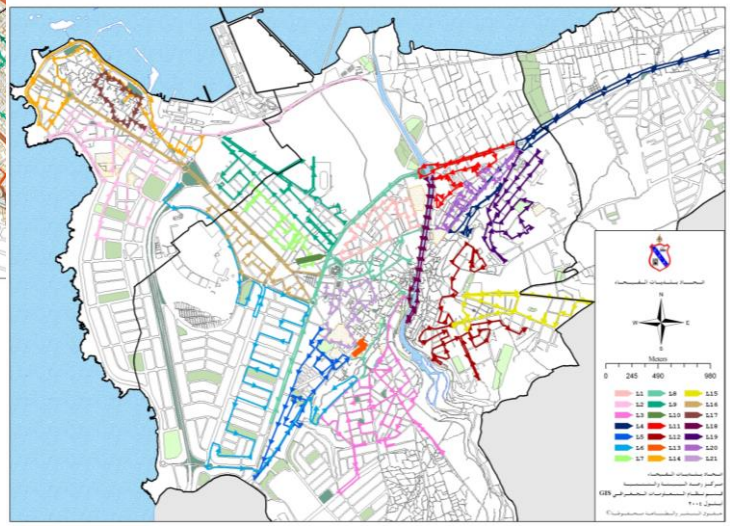
Treatment



Collection points e.g:Containers



Collection journey -Day



Collection journey - Night

# Dimension 4: Operational aspects – digital tools

**Objective 2020**

Generation

**Source separation**

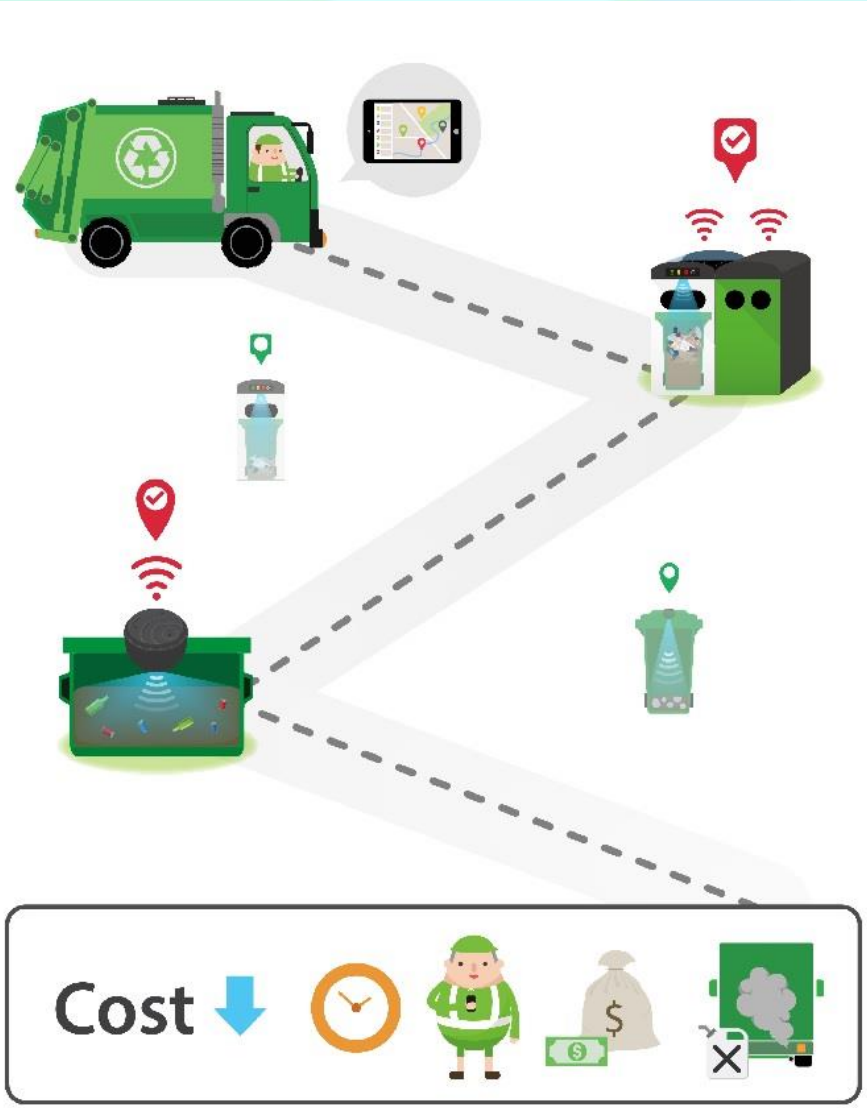
Collection

**Transport**

Sorting & Pre – treatment

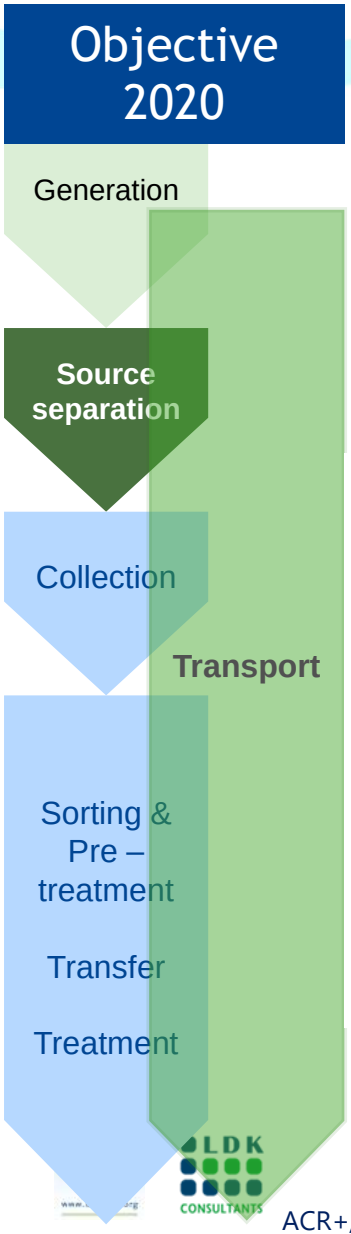
Transfer

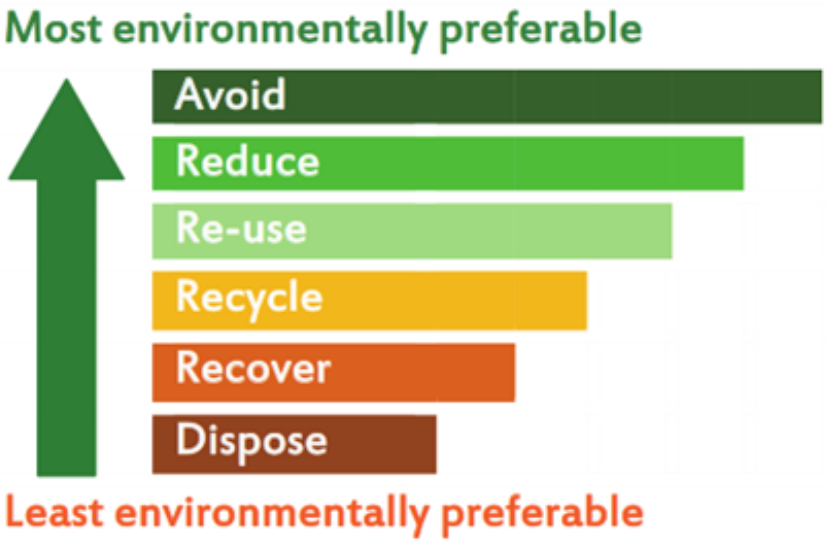
Treatment




Source: https://rctom.hbs.org/submission/connecting-waste/

# Dimension 4: Operational aspects – combining technologies



# Questions

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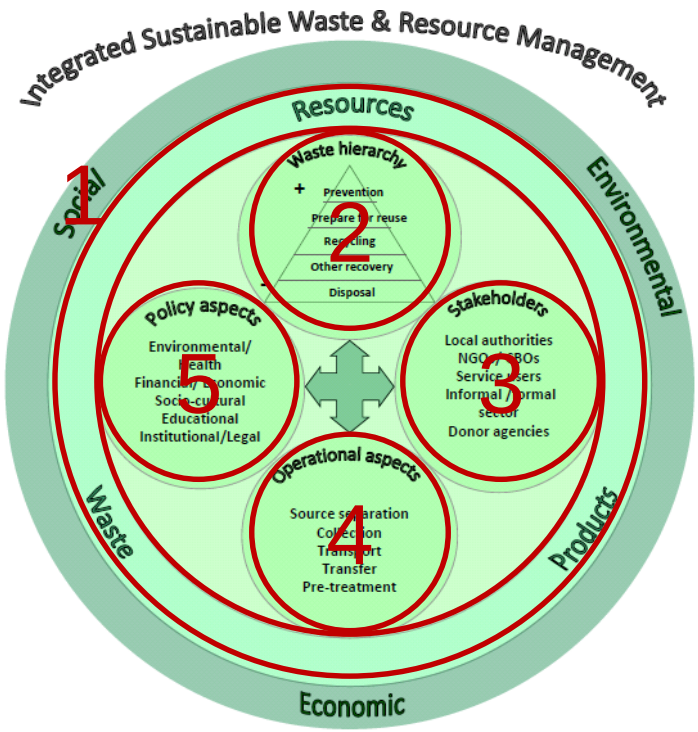


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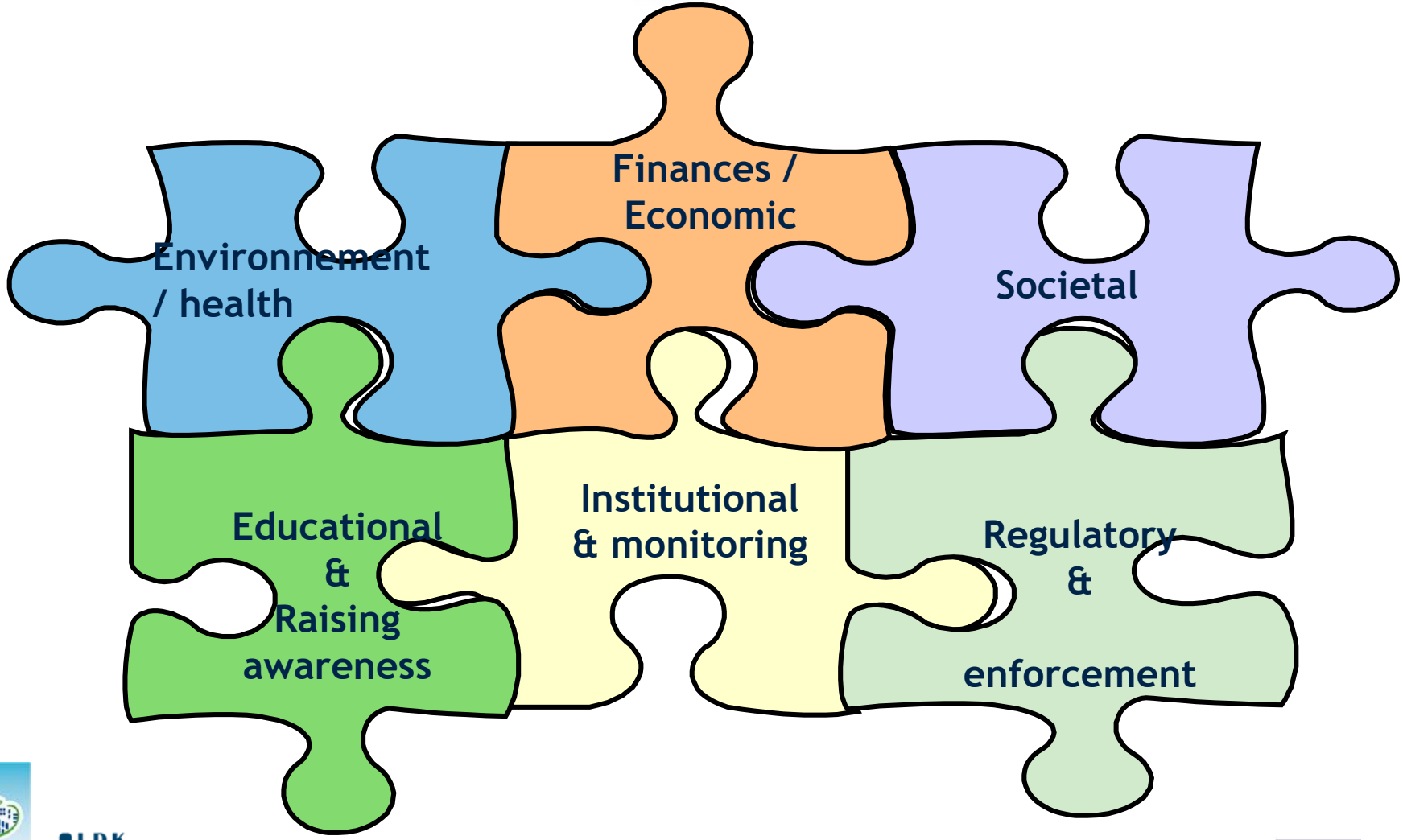
# Dimension 5: Policy aspects



# Dimension 5: Policy aspects – Environment and health

- waste generation and sub standard management impacts on air, climate, water and soils
- toxic leakages
- direct and indirect waste/pollution impacts on human health
- resources depletion

...and related costs

# Dimension 5: Policy aspects – Finances and economics

**Cost of non action and lost opportunities**

- human health and pollution costs ( as far as possible to estimate/assess)
- potential jobs and investment
- technical and social innovations

**Cost of ISWRM plan**

- how is the plan financed?
- what part of national/local budget?
- can the private sector help financing?
- Is it possible to recover part of the costs?
- What is the willingness to pay?
- what are the real net costs (vs revenues of recovered material/energy)?

**Proper cost/benefits accounting is key**

# Dimension 5: Policy aspects – Finances and economics

Possibilities to recover costs of waste management beyond revenues generated by recovered material

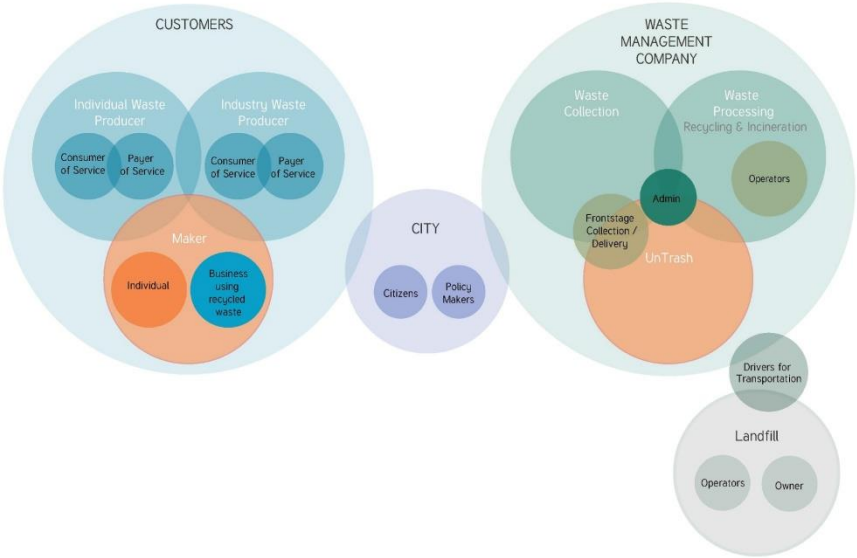
- Producers responsibility schemes
- Taxes (local taxes/disposal taxes)
- Subsidies and financial support by authorities
- Deposit systems
- Penalties and fines

# Dimension 5: Policy aspects – Societal

## Identify social and cultural barriers and opportunities, as well as qualify the stakeholders system

- Identify and document community and cultural practices
- Explore the relations among the stakeholders
- Identify ways to increase participation/involvement of concerned public
- Pay attention to most vulnerable publics (children, women, informal sector)

STAKEHOLDER MAP




https://www.jenniferbriselli.com/UnTrash-Service-re-Design

# Dimension 5: Policy aspects – Education & Awareness

- Know what you want to achieve…
- Understand who you are engaging…
- Know how to influence them…
- Know how to reach them…

# Dimension 5: Policy aspects – Education & Awareness

## Passive methods

- ✓moving posters on buses, trucks or collection carts
- ✓ posters in shops or on billboards
- ✓ meetings with community leaders
- ✓ newspaper or magazine articles
- ✓ information painted on buildings
- ✓ radio or TV ads or announcements
- ✓ poster, art, song or slogan contests
- ✓ distribution of leaflets

## Active methods

- ✓ workshops, training, courses
- ✓ fairs, festivals, puppet shows
- ✓ clean-up and launching events
- ✓ community contests (cleanest street, building, park)
- ✓ home discussion / demonstration visits
- ✓ sermons by religious leaders/celebrities
- ✓ school events, field visits
- ✓ community meetings (in community halls, health centres, social clubs, etc)

**+ social media**

# Dimension 5: Policy aspects – Institutional & monitoring

## Set a supporting institutional system

✓ Who are the institutions/agencies to operate, plan, control and monitor ? Are they staffed and equipped?

✓What is the monitoring and reporting system and related procedures?

✓ What are the links/dependencies between the agencies in charge and the different ministries/government bodies?

# Dimension 5: Policy aspects – Institutional & monitoring

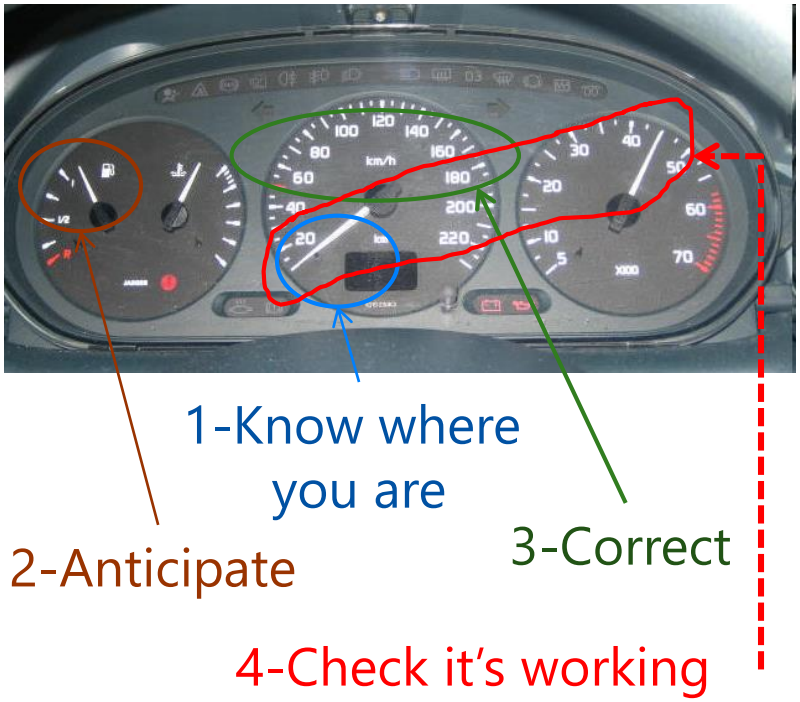
## Get a comprehensive (as far as possible) picture of situation

- Assess waste generation per material streams, sources, regions
- Describe the policy and institutional landscape
- Identify existing infrastructure and initiative, and their current relevance
- Identify concerned stakeholders (and gather for consultation workshops)
- Point to inspiring best practices within and outside country/region
- Identify gaps, barriers & opportunities for improvement
- Suggest improvement scenarios with technical and policy options
- Assess expected environmental/health, social and economical effects
- Consolidate cost/benefits analysis

# Dimension 5: Policy aspects – Institutional & monitoring

## Set a proper monitoring system

✓ Data to collect, frequency and granularity
✓Driving indicators (KPIs)
✓Reporting procedures to decision makers, public, other (e.g funders)
✓Information system to consolidate and analyse data
+
✓Ability to conduct pilot experience and/or conduct ad hoc studies



# Dimension 5: Policy aspects – Regulatory

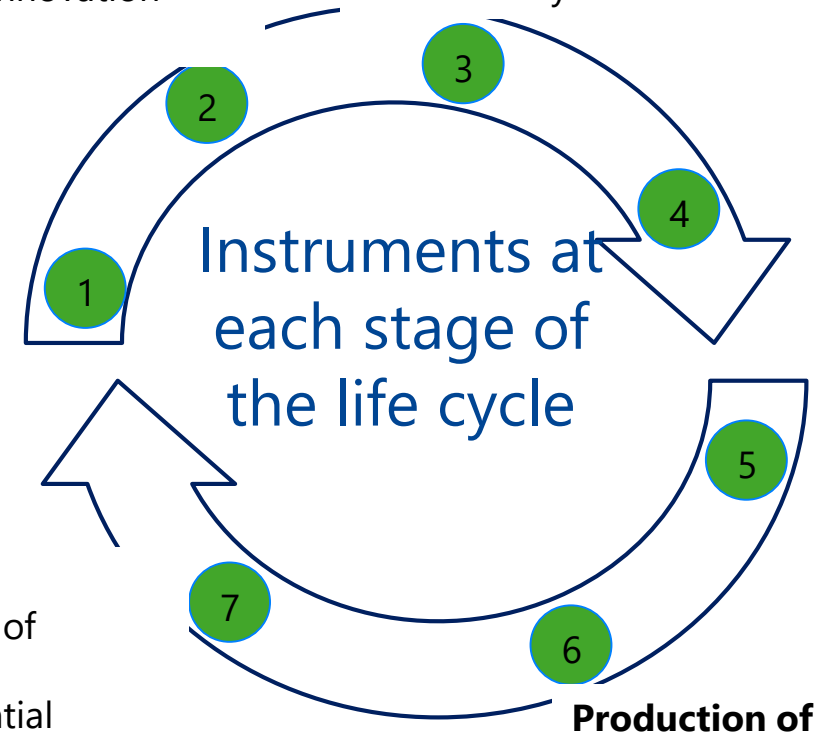
## Activate public policy

✓ Is the existing legal and regulatory system in place to fulfill the vision?
✓Are local rules aligned with the vision?
✓ Are there clear objectives & targets & timelines per specific waste/material streams?
✓Are the instruments for waste and resources management in place?
✓Is there enforcement mechanism to ensure proper implementation?
✓Are roles and responsibilities defined for the operations, the monitoring, the enforcement?

# Dimension 5: Policy aspects – Instruments

**Design of product/material**
-Standards on durability, repair, recyclability
-Restrictions of toxics
-Support for innovation
-Bonus/Malus

**Use**
-Vouchers for products generating less waste
-VAT reduction for best products
- Higher taxes on hazardous containing, disposable products
-Trustworthy information scheme (e.g: Ecolabel)




**Discard**
-Reuse and repair centers
-Pay as You throw
-Taxes on disposal
- Eco-Pollution tax
-Extended Producer Resp
-Deposit/Refund

**Raw material**
-Tax on raw material
-Restrictions on hazardous contents
-Sustainable mining certification

**Waste treatment**
-Collection, treatment standards (BATs)
-Reporting duties

**Use of recycled:**
- Incentives for use of recycled
- Labelling of potential contamination
- Compostability standards

**Production of recycled**
-Recycling quality standards, incl toxic contents restrictions
-Support to innovation/investment

# Dimension 5: Policy aspects – Enforcement

huffingtonpost.com

✓ *Make it a business case*
(= more profitable to comply)

thebutlerinstitute.org

✓Avoid legal uncertainties in policy setting

✓Use as a condition for funding allocations

[redacted]

✓ Dedicate Resources
✓Partner with CSO & business
✓Dissuade through exemplary sanctions

# Questions

# Thanks for attention

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