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Learning from successes and failures: Lessons for the developing world

*Notre Dame University
Faculty of Engineering
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Tripoli, Greece





Tripoli, Greece



Local master plan started in 1995
Strong NIMBY against new facilities
 Decisions made on 2000
Then magicians arrive

After magicians we had elections
Then PPP were considered
 And now...





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Contents

- ❖ No more success stories
- ❖ Failures to be discussed
- ❖ Lessons learnt
- ❖ <http://wastelessfuture.com/pdf/ThePlanningChallenge.pdf>



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1. No more success stories...

- ❖ Some of the best success stories started with a failure
- ❖ Successful systems in SWM are gradually and step by step developed, so knowing just their current picture offers no real understanding



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Let's learn from failures



Many ways to fail

- Technical incompetence
- Economic issues
- Environmental failures
- Fraud
- Systemic Failure**

What Most People Think



What Successful People Know



@douglas.karr

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2. Systemic failures to be discussed

- ❖ New Delhi
- ❖ Cairo
- ❖ Mexico
- ❖ Netherlands
- ❖ Napoli



New Delhi, India

New Delhi, 1984

- ❖ In 1984, the Municipal Corporation of Delhi, India, built an incinerator to process 300 ton per day of solid waste and produce 3MW of power, with **technical assistance** from Denmark, at a cost of around US\$3.5 million.
- ❖ **The plant was designed for segregated waste as input, which was not practiced by the households or promoted by the municipality.**
- ❖ The plant had to be closed down within a week of its opening as the waste had a **very low heating value** and a high percentage of inert materials.



New Delhi, 2003

- ❖ In 2003, Lucknow Municipal Corporation built an anaerobic digestion plant, as a 5MW waste-to-energy project, to process 500 to 600 tons of municipal waste per day at a cost of US\$18 million.
- ❖ Private companies from Austria and Singapore provided the technical inputs, while Indian firms supplied the human resources for execution on a build-own-operate (BOO) basis.
- ❖ The plant was not able to operate even for a single day to its full capacity due to the high level of inert materials in the waste and was closed down.



Cairo, Egypt



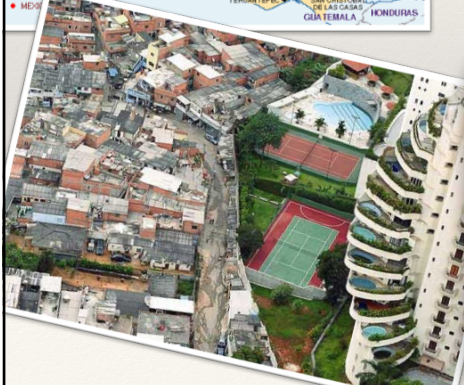



Cairo, 2008-9

- ❖ Government **privatized** waste management collection, recycling and disposal with a single global contract
- ❖ **Zabaleens**, the informal sector that made door to door collection and lived from recycling of organic fraction and packaging materials, were **completely ignored**
- ❖ The contractor put high tariff (almost triple than Zabaleens) and households served by Zabaleens **never paid** – instead they asked Zabaleens to continue their services although they were characterized as illegal
- ❖ The contractor gave up the contract and asked for a **huge compensation**




Mexico City, Mexico





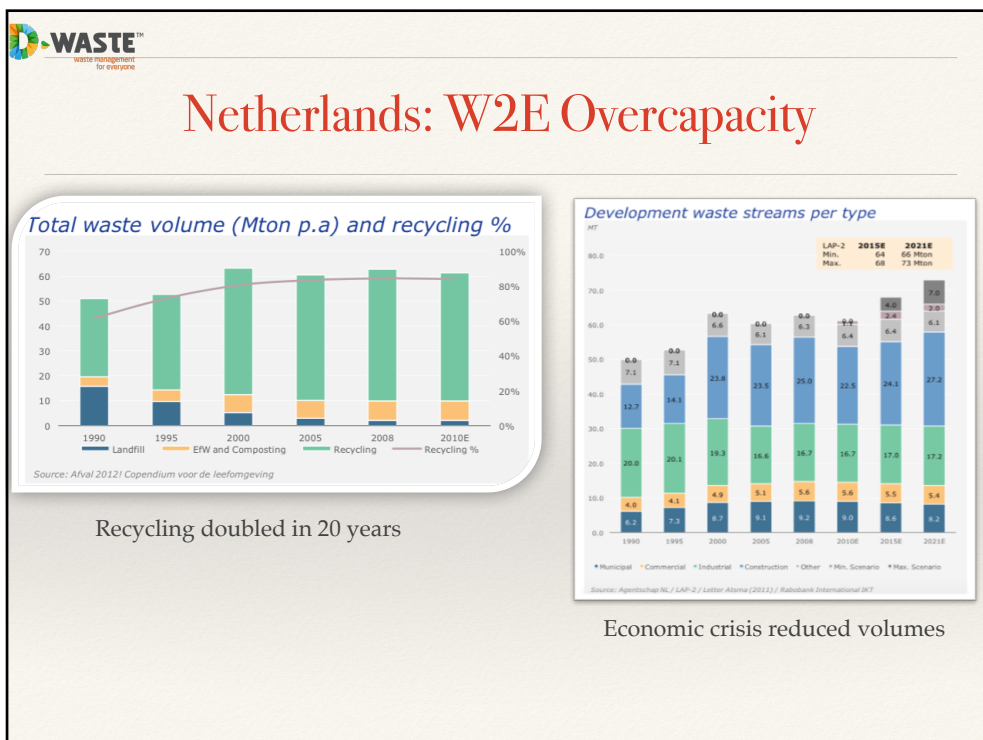
Mexico City, 1997

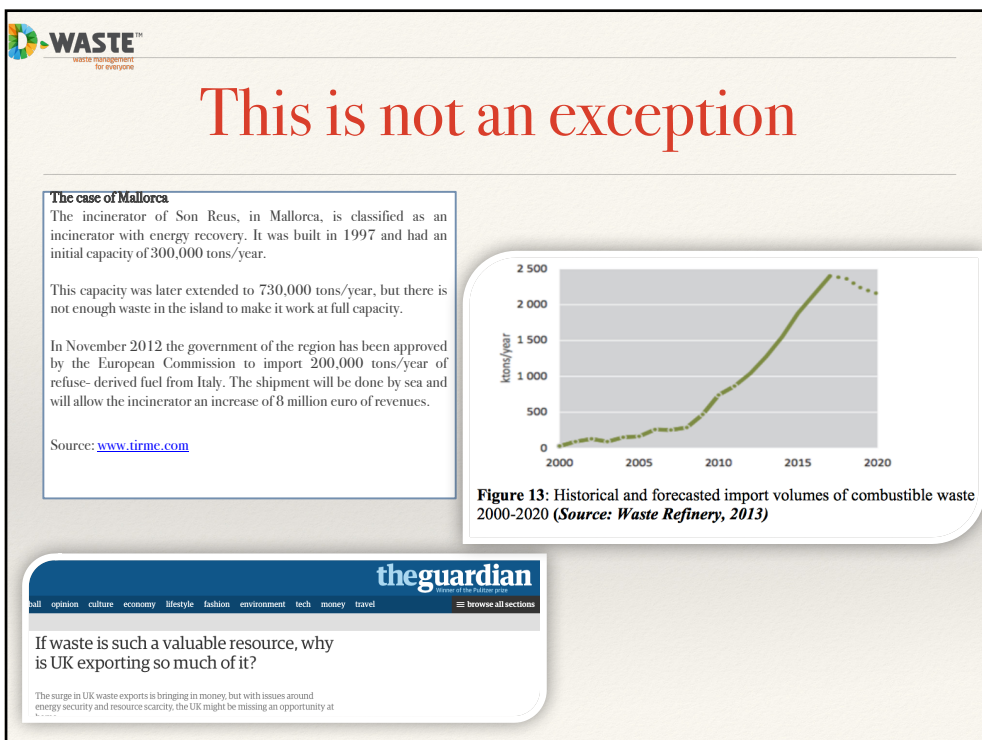
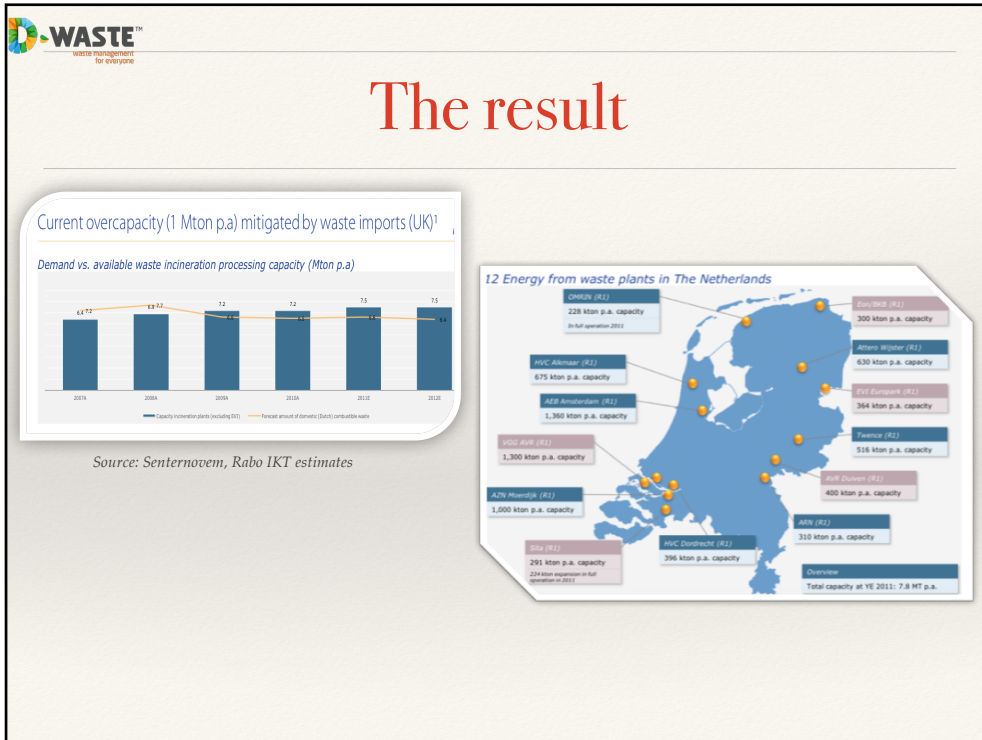
- ❖ A whole fleet of Collection Vehicles were **donor-provided**.
- ❖ The vehicles were fitted with tires of an uncommon size, which were **not available locally**.
- ❖ So when the tires needed replacing, the vehicles could **no longer** be used without import of tires.



Summary 1

New Delhi	Cairo	Mexico
<ul style="list-style-type: none"> ❖ Local composition was ignored. ❖ Local culture and practices were not taken into consideration. ❖ Technology export instead of technical assistance. 	<ul style="list-style-type: none"> ❖ Strong informal sector was ignored. ❖ Privatization was copy-paste not adapted to local conditions. ❖ No feasibility resulted to no viability. 	<ul style="list-style-type: none"> ❖ Donations do not include operational requirements. ❖ Local resources are the key for sustainable operations.







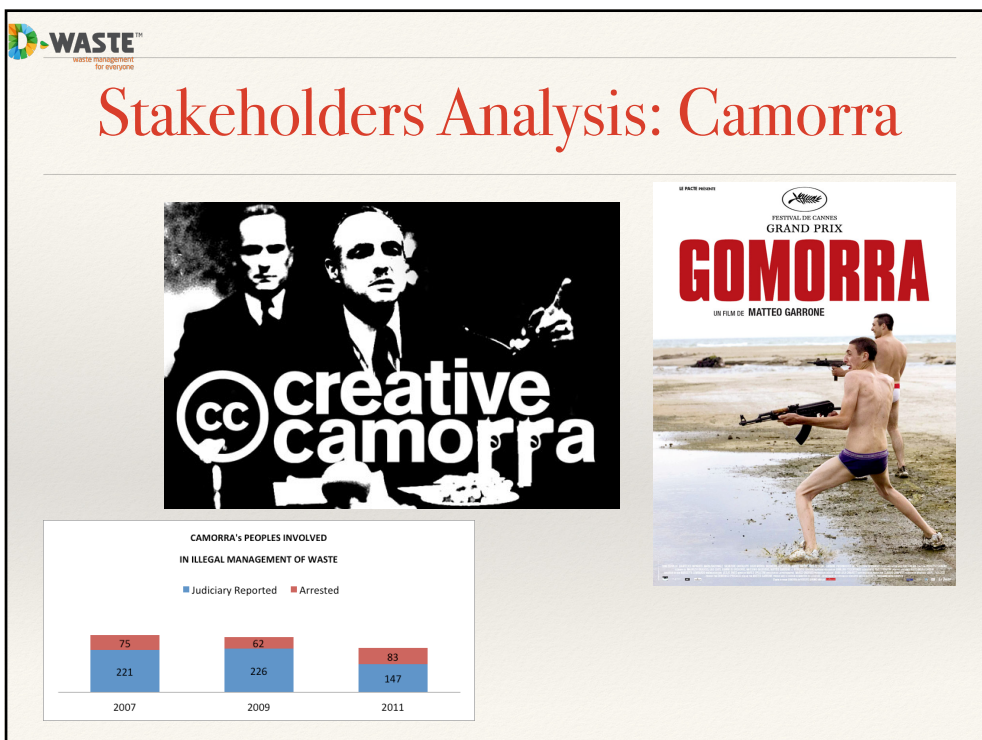
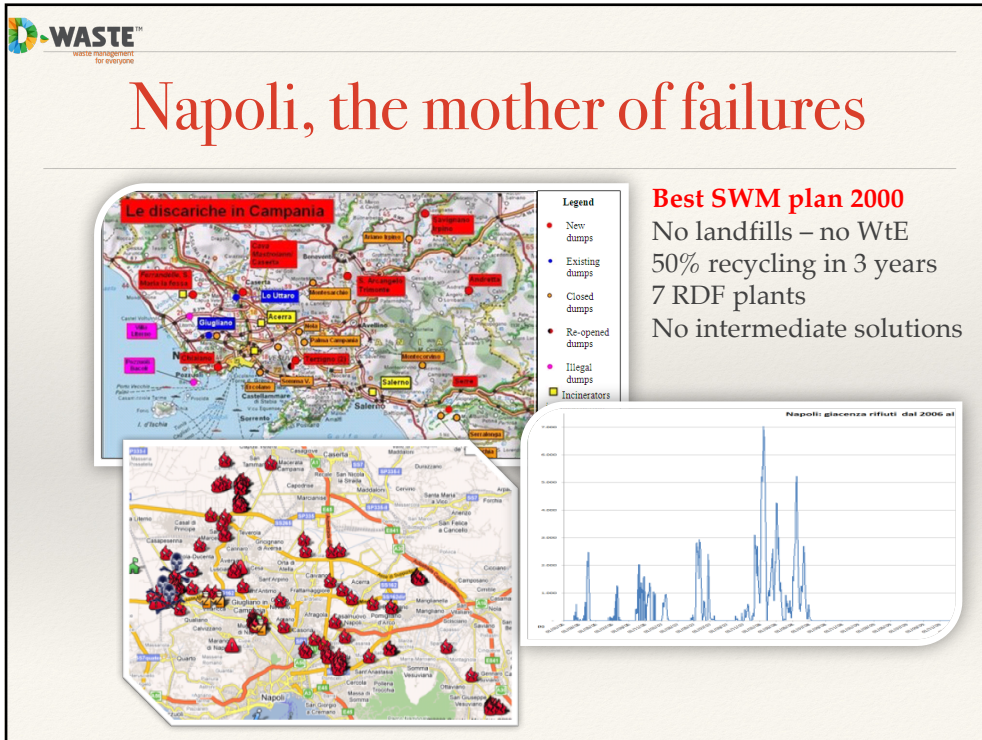
Key-points

- ❖ European network or proximity principle?
- ❖ Costs and benefits or market development?
- ❖ Crisis reduced waste
- ❖ Forecast and uncertainties
- ❖ The less efficient plants will close
- ❖ **Society overcame expectations**



Napoli, 2000 - now





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Stakeholders Analysis: Governance

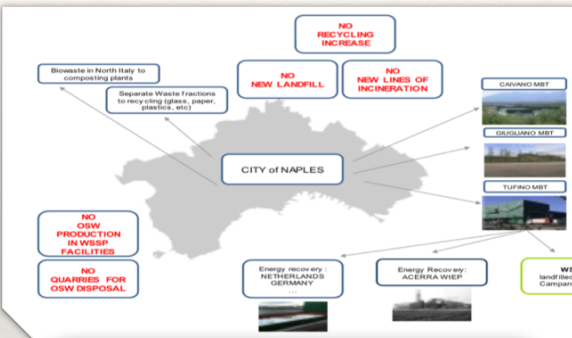
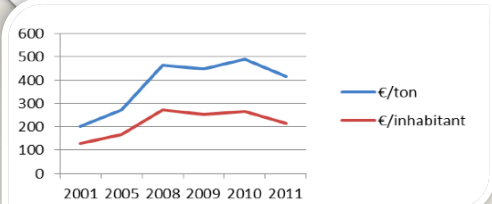
Political Parties Coalitions	2007	2008	2010	2011
ITALY National Government	Center-Left	Center-Right	Center-Right	Center-Right
CAMPANIA Regional Council	Center-Left	Center-Left	Center-Right	Center-Right
PROVINCE of NAPLES Council	Center-Left	Center-Right	Center-Right	Center-Right
NAPLES Municipality Council	Center-Left	Center-Left	Center-Left	Left

keep calm and no more landfill sites




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The results

— €/ton
— €/inhabitant

2001 2005 2008 2009 2010 2011





Key-points

- ❖ Inertia of policy makers
- ❖ **Political “correctness”** about recycling and landfills
- ❖ High recycling → concrete planning, money and **time**
- ❖ Decentralization sounds good but...
 - ❖ It is not easy and cheap
 - ❖ It means also many **local reactions**
- ❖ There is no system without a **landfill**



Summary 2

Netherlands

The social context of waste management was *underestimated or ignored*. Recycling grew faster and diverted much more quantities from W2E plants. Economic crisis resulted in lower consumption and less waste generation.

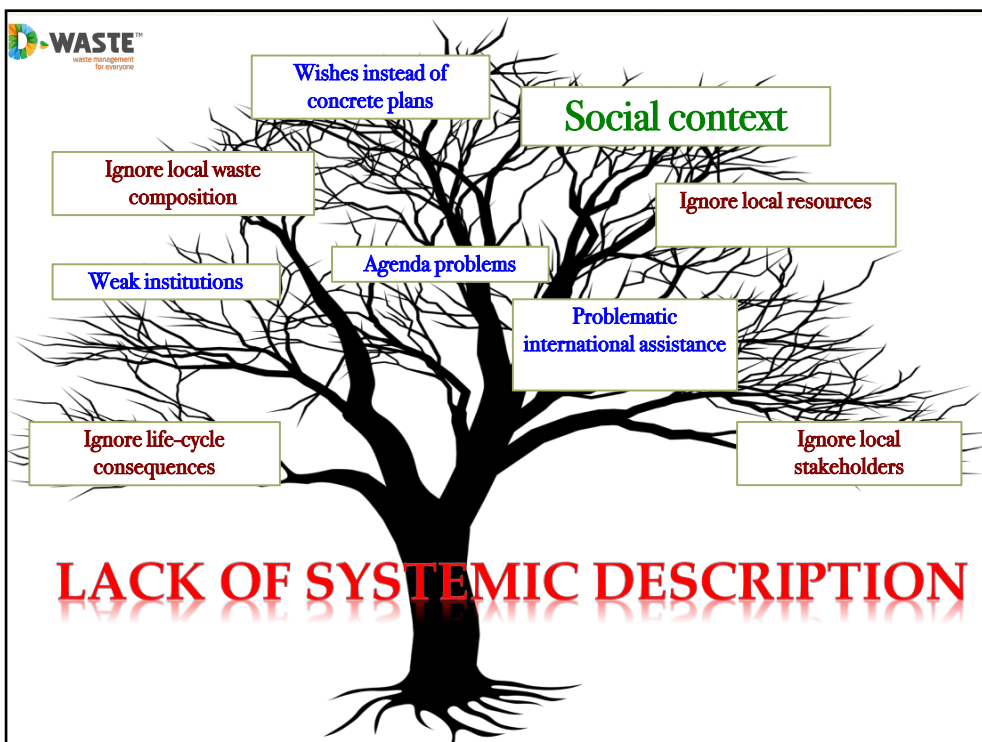
Napoli

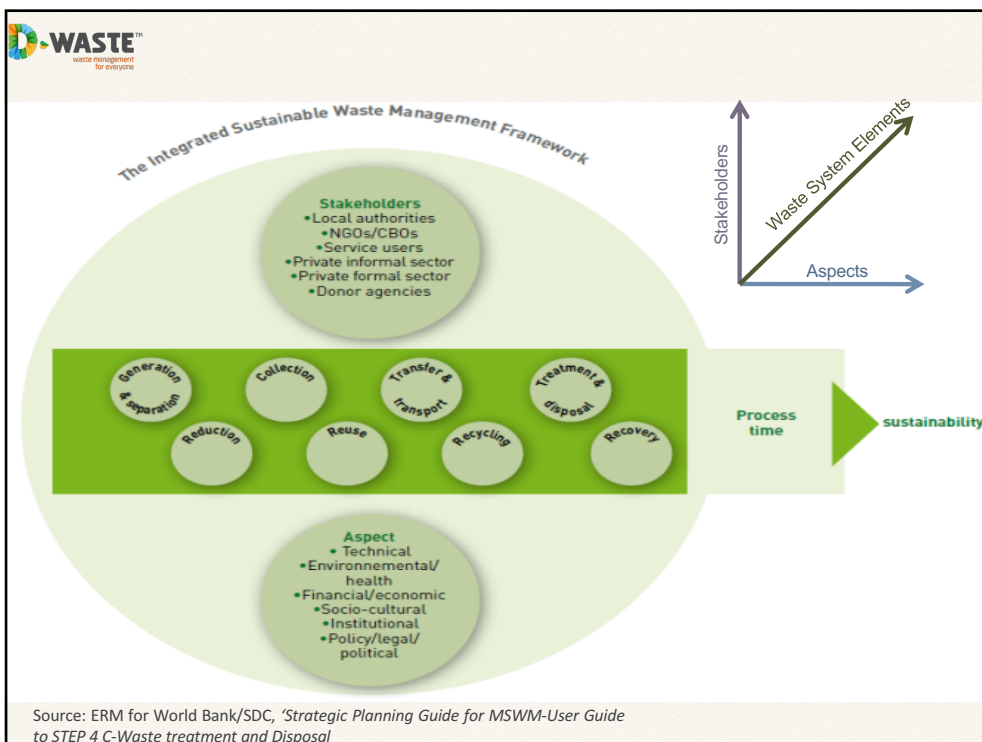
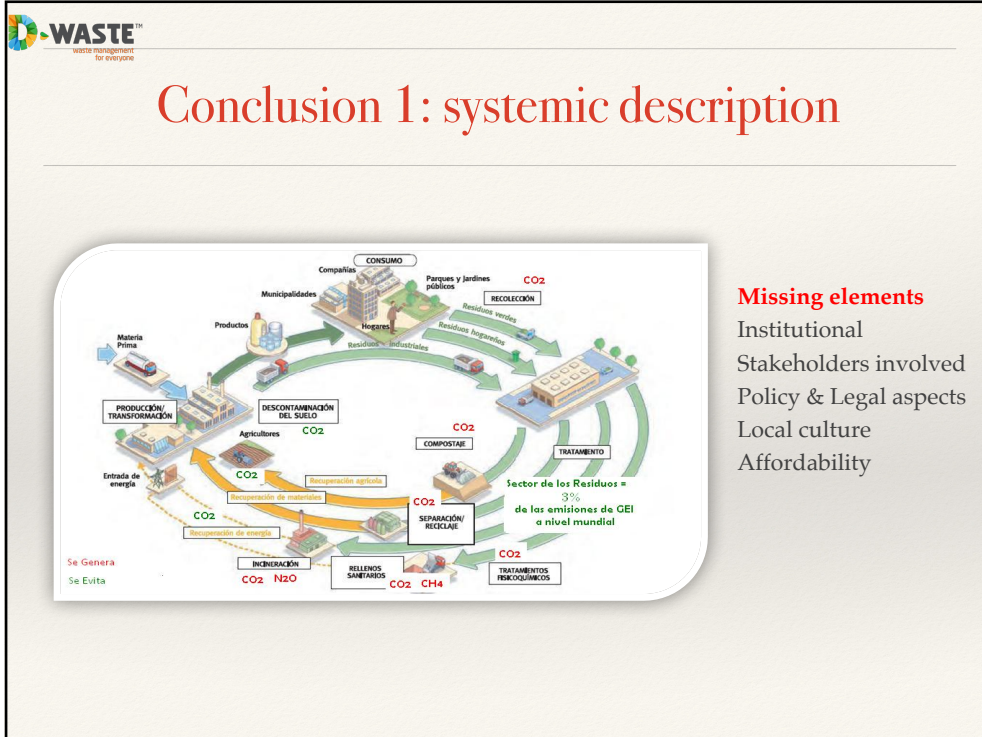
The social context of waste management was used as *an excuse for doing nothing* for many years. Mafia business kept dumpsites open and supported reactions against landfills. High recycling rates are wishes without planning, money and time

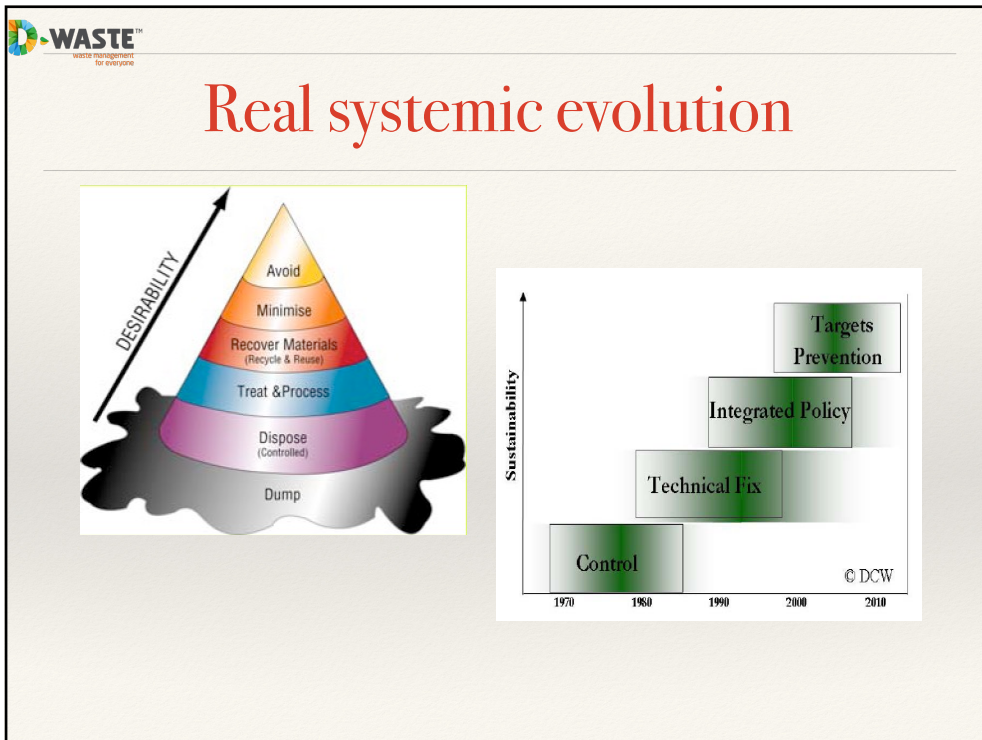
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What were the results?

	NEW DELHI	CAIRO	MEXICO	NETHERLANDS	NAPOLI
ENVIRONMENT		X			X
HEALTH		X			X
COST	X	X	X	X	X
SOCIAL		X		X	X
HISTORY	X	X	X	X	X



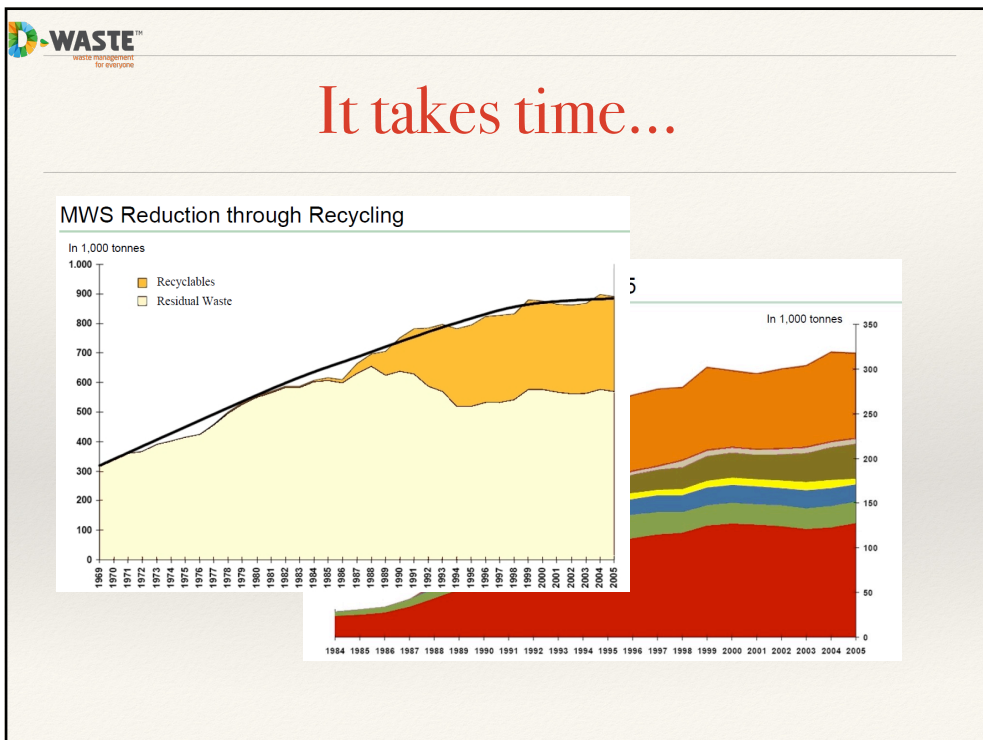
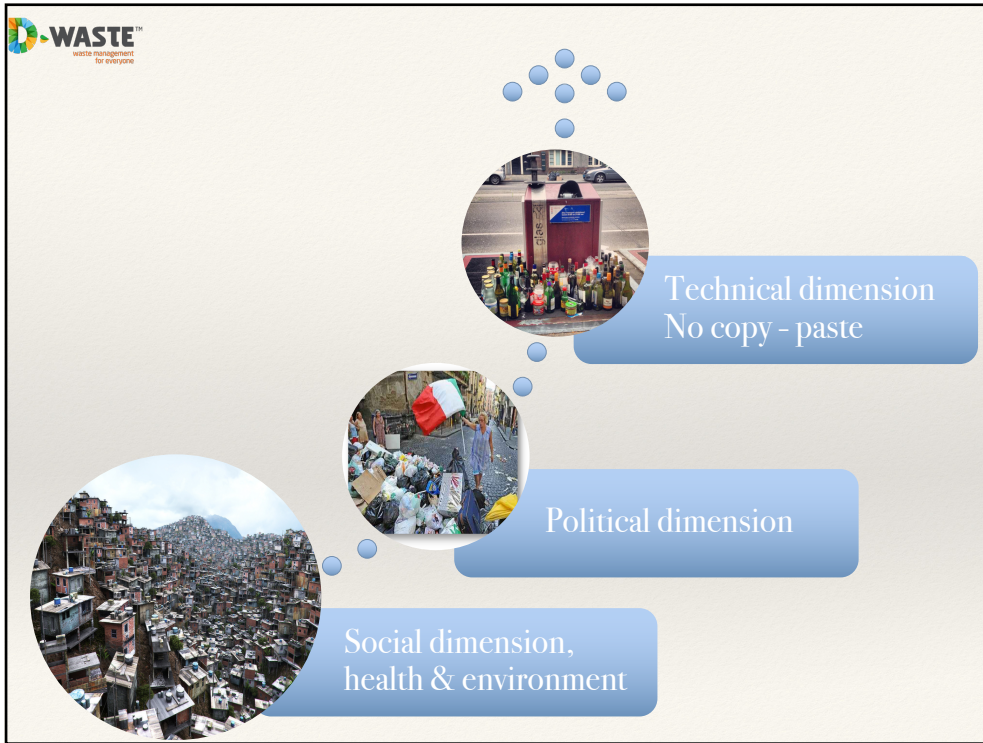


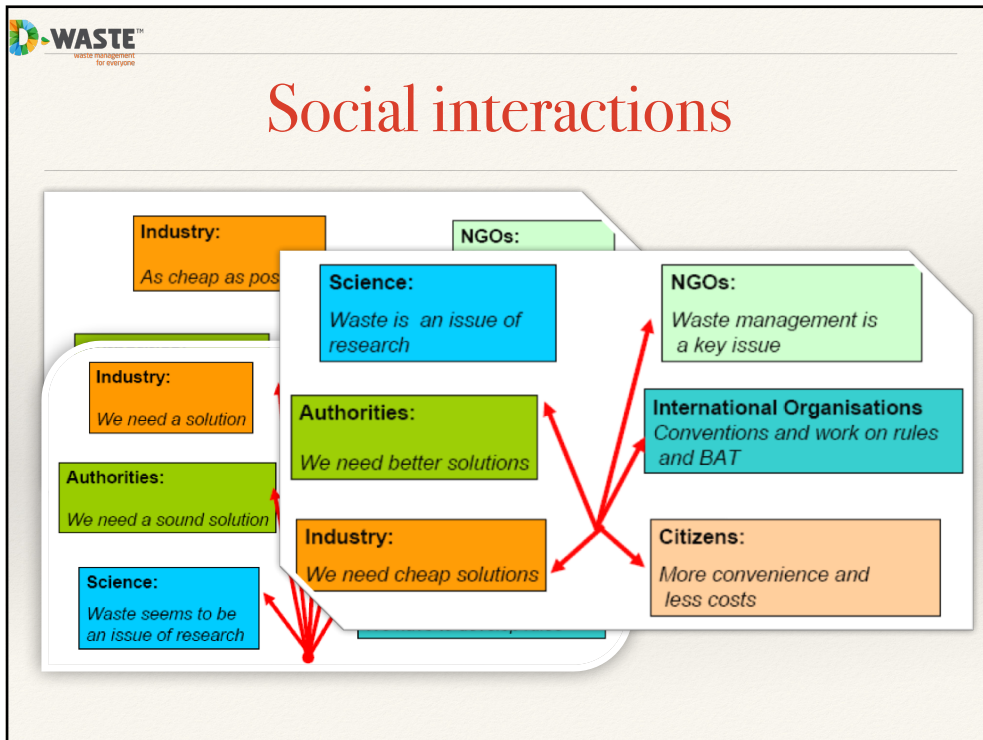


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Conclusion 2: a social output

- ❖ All waste management technologies as well as recycling are not religions
- ❖ They are business & technologies that can provide solutions to environmental problems.
- ❖ Technologies may be imported but they are going to work with local waste
- ❖ Technologies may be donor – funded but they will be operated, maintained, paid and supported by local resources, markets and citizens



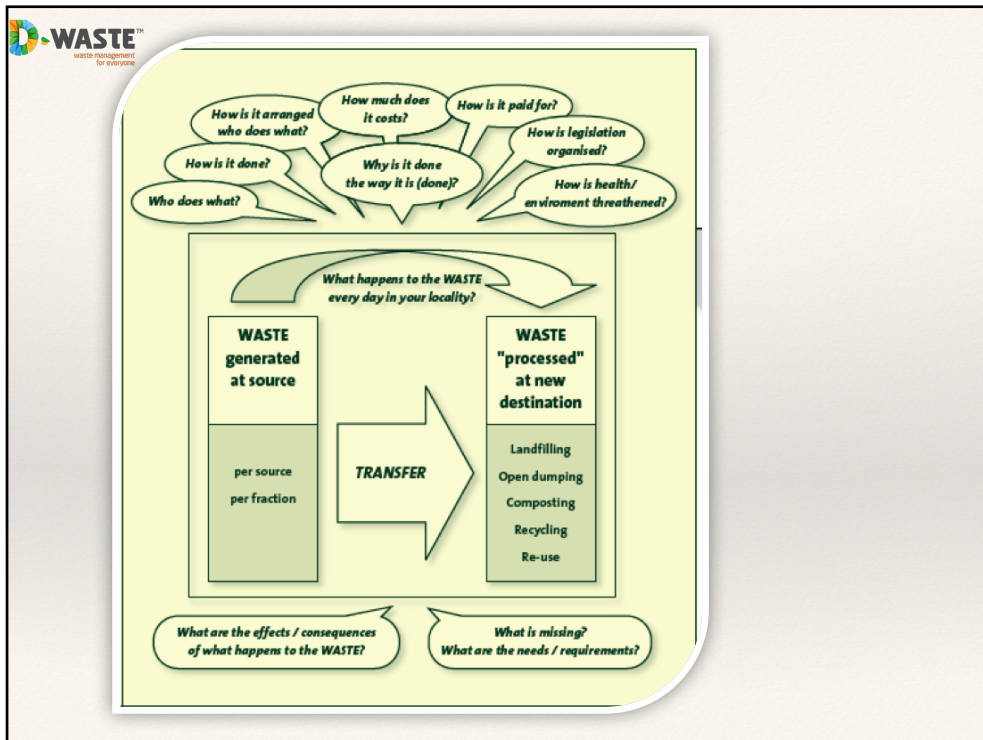


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Conclusion 3: study, study, study

KEEP CALM AND STUDY THE

baseline

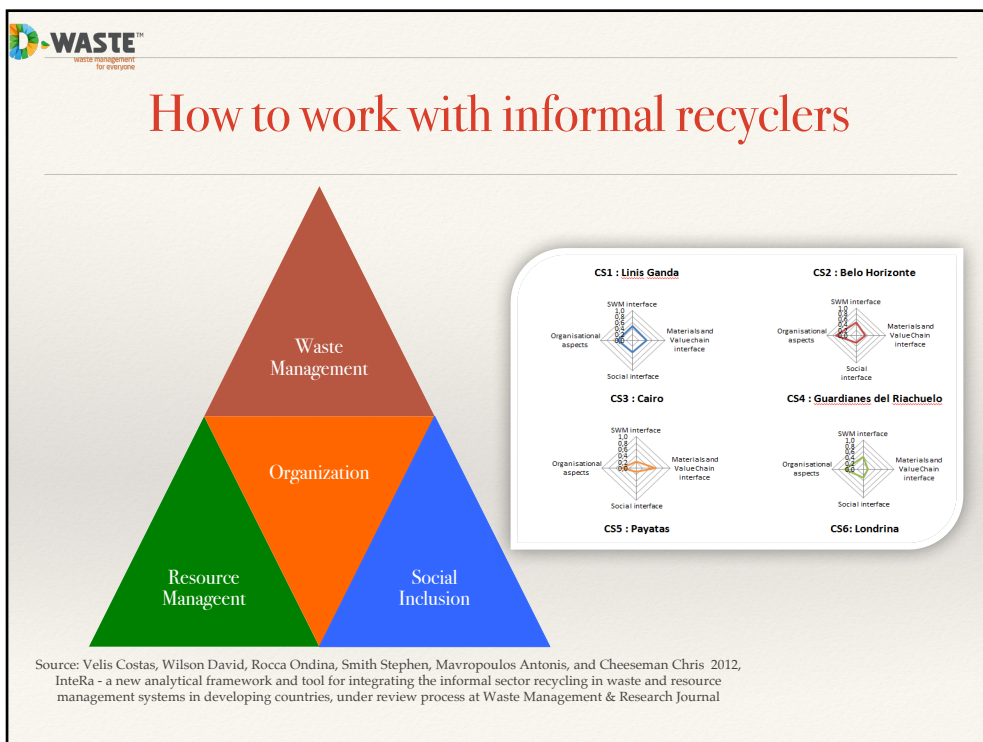
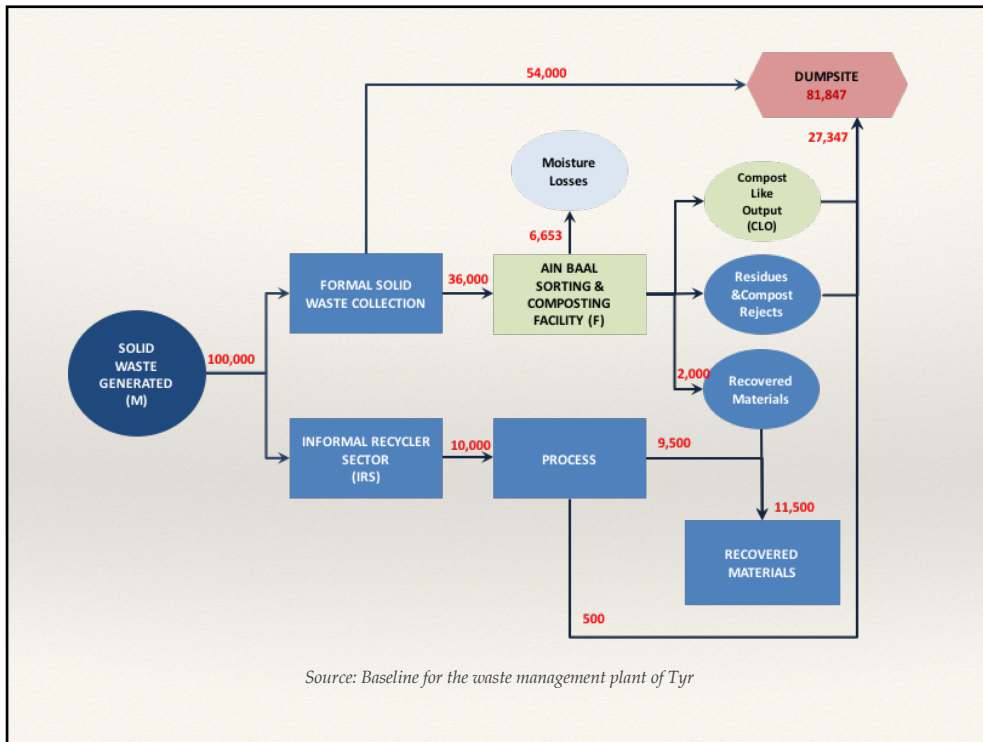


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Conclusion 4: Informal recyclers

MATERIALS	DAILY RECOVERY (t/d)	ANNUAL RECOVERY (t/d)	ANNUAL REVENUES \$	RECOVERY FROM MSW (t/y)
Cardboard	19	5.657	113.143	5.657
Iron	6	1.800	63.000	900
Copper	3	771	131.143	386
Batteries	4	1.286	11.571	0
Plastics	8	2.314	69.429	2.314
PET	4	1.286	51.429	1.286
Wood	5	1.543	15.429	0
	49	14.657	455.143	10.543

Source: Baseline for the waste management plant of Tyr



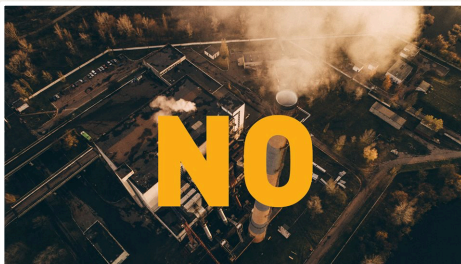


Conclusion 5: build a team

- ❖ Understand your system's strengths and weaknesses
- ❖ **Built a mind model regarding your success and failures, especially about the last**
- ❖ Create your own appropriate mixture of recycling initiatives, treatment solutions and disposal options
- ❖ **Adopt and adapt them in your local conditions and financial resources**
- ❖ Create effective management and realistic vision and make the social and political alliance to push forward
- ❖ **Create a team that will take the responsibility to implement**



Conclusion 5: the social context



Perception of risk assessment

Experts

- Rely on risk assessment
- Objective
- Analytic
- Wise
- Rational
- Based on the real risk

Public

- Based on perceptions of risk
- Subjective
- Hypothetical
- Emotional
- Irrational



Thanks for your attention

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