



Policy Summary on Integrated Solid Waste Management

COUNCIL OF MINISTERS DECISION 45 DATED
JANUARY 11, 2018

Presentation Index

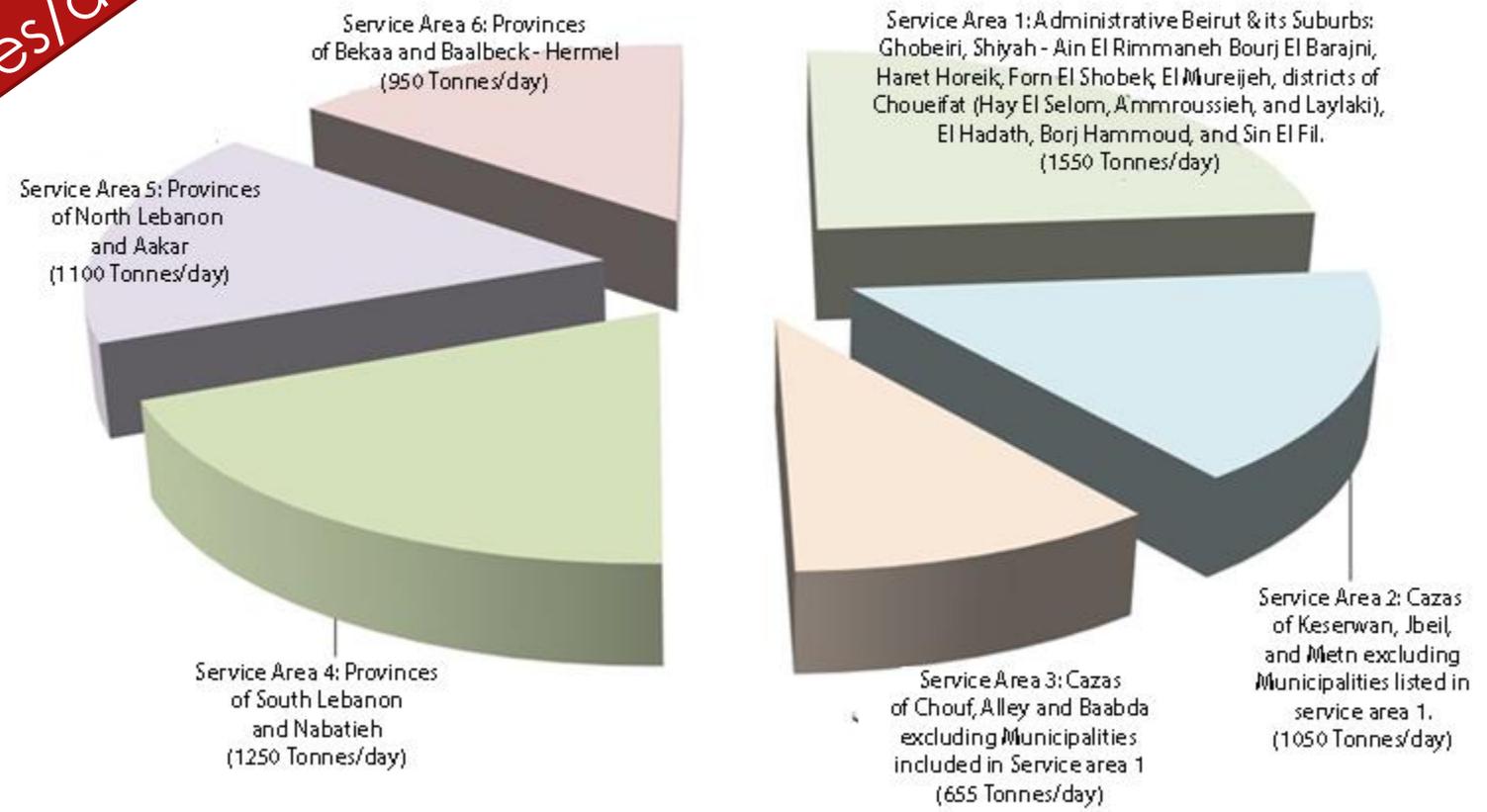


- ❑ Overview of Present State
- ❑ Policy Principles
- ❑ Policy Aspects

1. Quantity of Municipal Solid Waste Produced and Geographical Distribution

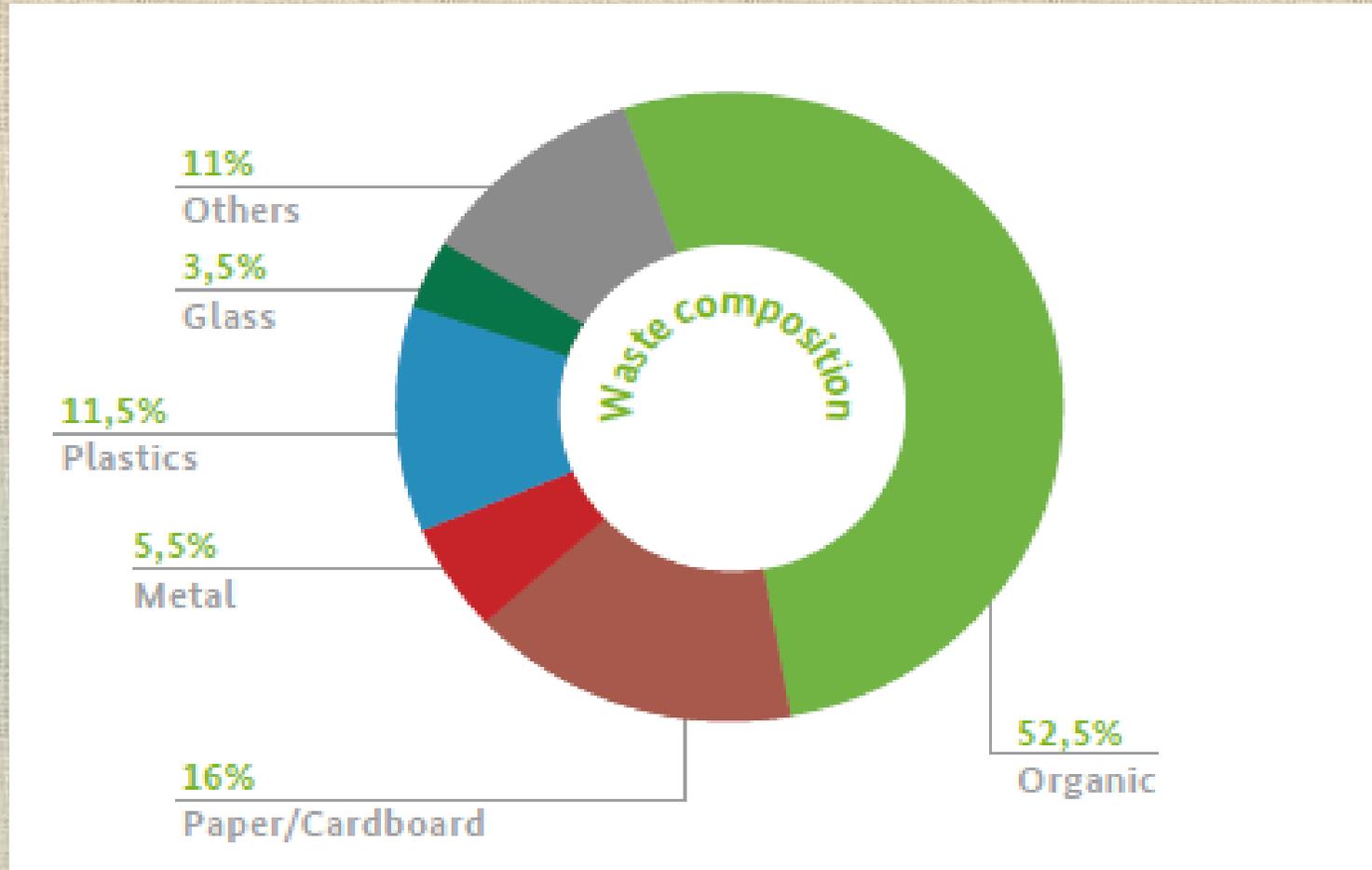
A total of about 6,500 tonnes/day

Municipal Solid Waste Quantities Produced (Tonnes/day)
Ref: Solid Waste Tender Documents (Year 2015)



- Present State
- Principles
- Aspects

2. Composition of Municipal Solid Waste Produced



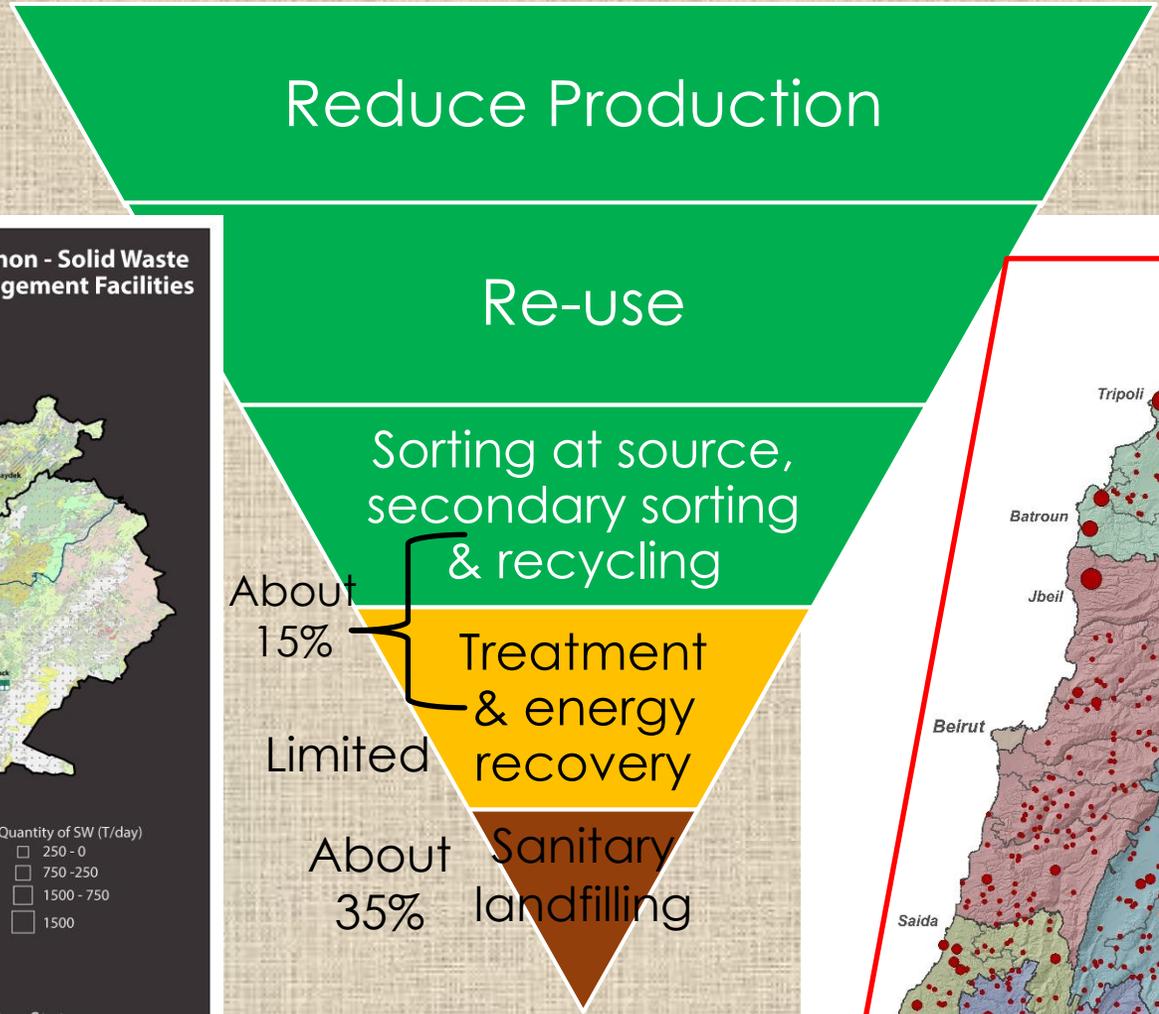
- Present State
- Principles
- Aspects

3. Management of Municipal Waste, 2017



Capacity

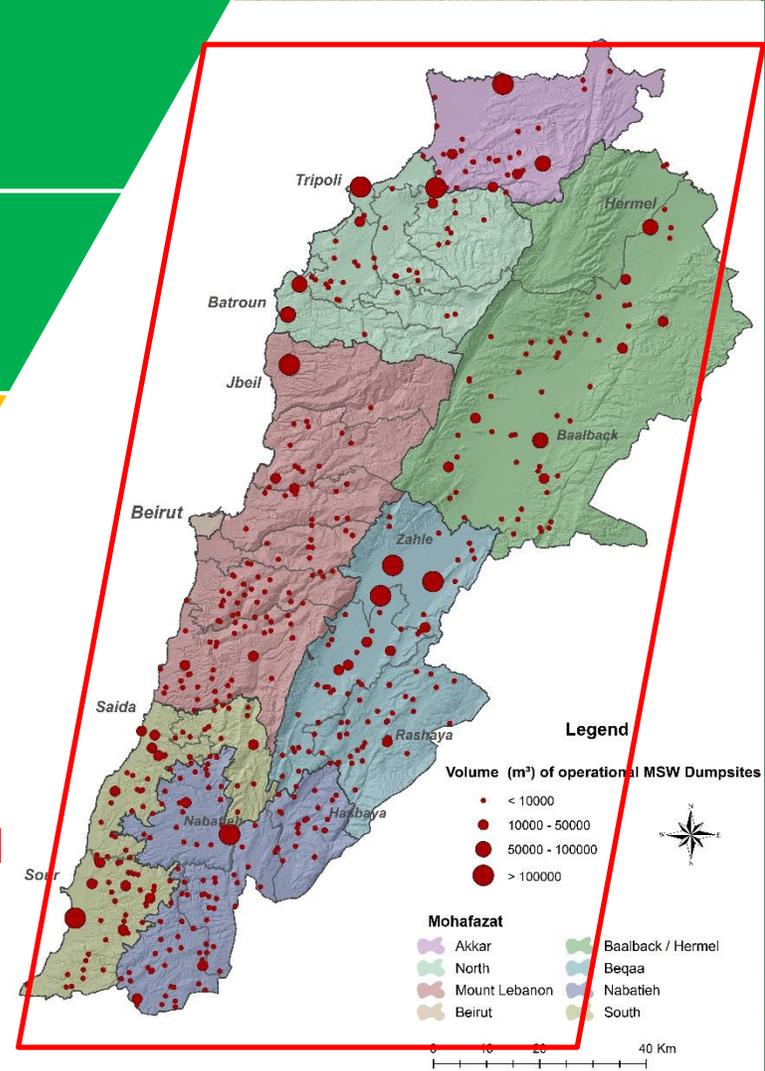
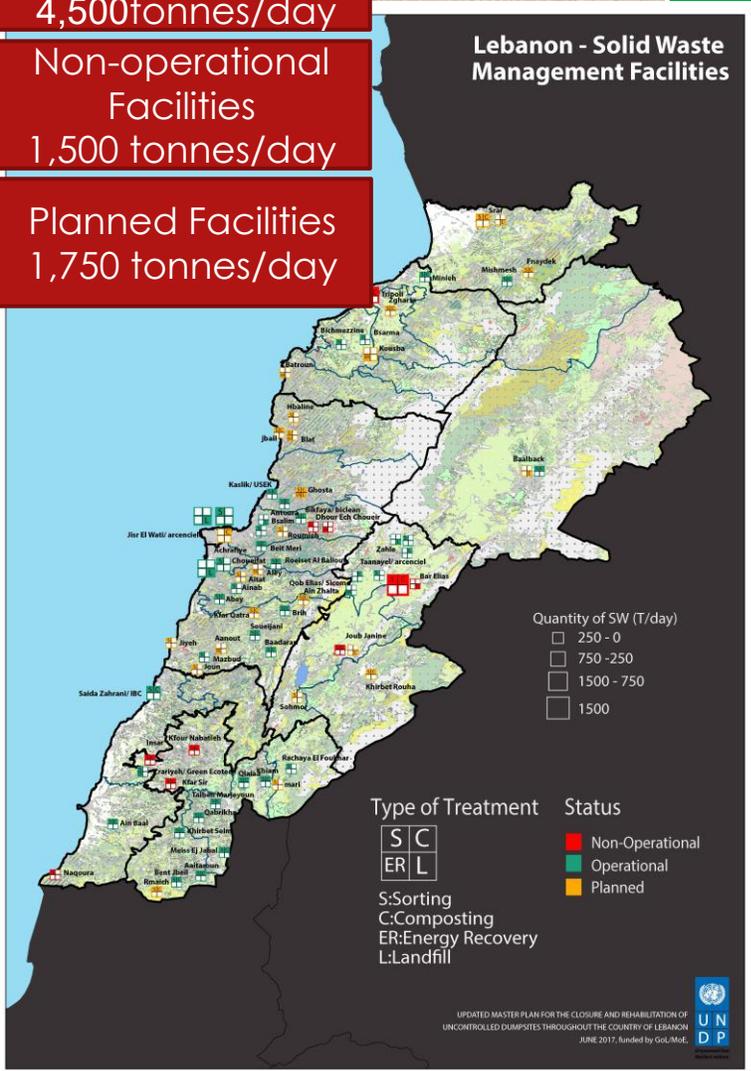
- Operational Facilities
4,500 tonnes/day
- Non-operational Facilities
1,500 tonnes/day
- Planned Facilities
1,750 tonnes/day



About 15%
Limited
About 35%

Treatment & energy recovery
Sanitary landfilling

Uncontrolled dumping:
About 50%



- Present State
- Principles
- Aspects

3. Management of Waste in European Countries, 2014



Municipal waste, 2014

	Generated, (kg per person)	Treated, (kg per person)	Municipal waste treated, %			
			Recycled	Composted	Incinerated	Landfilled
EU*	475	465	28%	16%	27%	28%
Belgium	435	439	34%	21%	44%	1%
Bulgaria	442	416	23%	2%	2%	74%
Czech Republic	310	310	23%	3%	19%	56%
Denmark	759	759	27%	17%	54%	1%
Germany	618	618	47%	17%	35%	1%
Estonia	357	303	31%	6%	56%	8%
Ireland**	586	531	34%	6%	18%	42%
Greece**	509	509	16%	4%	0%	81%
Spain	435	435	16%	17%	12%	56%
France	511	511	22%	17%	35%	26%
Croatia	387	374	15%	2%	0%	83%
Italy	488	455	28%	18%	21%	34%
Cyprus	626	626	13%	12%	0%	75%
Latvia	281	281	3%	5%	0%	92%
Lithuania	433	425	21%	10%	9%	60%
Luxembourg	616	616	28%	18%	35%	18%
Hungary	385	376	25%	6%	10%	59%
Malta	600	545	8%	4%	0%	88%
Netherlands	527	527	24%	27%	48%	1%
Austria	565	547	26%	32%	38%	4%
Poland	272	272	21%	11%	15%	53%
Portugal	453	453	16%	14%	21%	49%
Romania**	254	214	5%	11%	2%	82%
Slovenia	432	257	49%	12%	0%	39%
Slovakia	321	282	6%	6%	12%	76%
Finland	482	482	18%	15%	50%	17%
Sweden	438	438	33%	16%	50%	1%
United Kingdom	482	473	28%	17%	27%	28%
Iceland**	343	343	38%	7%	8%	49%
Norway	423	414	27%	17%	54%	3%
Switzerland	736	736	99%	21%	46%	0%
Montenegro**	508	451	1%	0%	0%	99%
FYR of Macedonia	370	370	:	:	:	100%
Serbia	302	236	1%	0%	0%	99%
Turkey	405	363	0%	0%	0%	100%
Bosnia & Herzegovina	349	234	0%	0%	0%	100%

Present State

Principles

Aspects

4. Hazardous and other wastes

About 50,000 tonnes/year

- Solid waste from the olive oil industry
- Slaughterhouse waste
- Construction and demolition waste
- Bulky refuse/waste, etc.

The fate of most these wastes?

- Hazardous industrial chemical waste
- Electronic waste
- Expired solid drugs and materials
- Healthcare waste (hazardous non-infectious waste, waste requiring special management, hazardous infectious waste, etc.)
- Used oil
- Used tires
- Used batteries
- Persistent organic pollutants from the energy sector or other sectors
- various types of sludge, etc.

Decree 13389/2004
Partial Exportation in accordance with Basel Convention

- Present State
- Principles
- Aspects

Ensuring competitiveness, innovation and the spirit of enterprise

Disseminating a culture of shared responsibility

Respecting the jurisdictions of the MoE

Recovery of the biggest possible portion of waste (towards a circular economy)

Protection of the environment and thus of public health

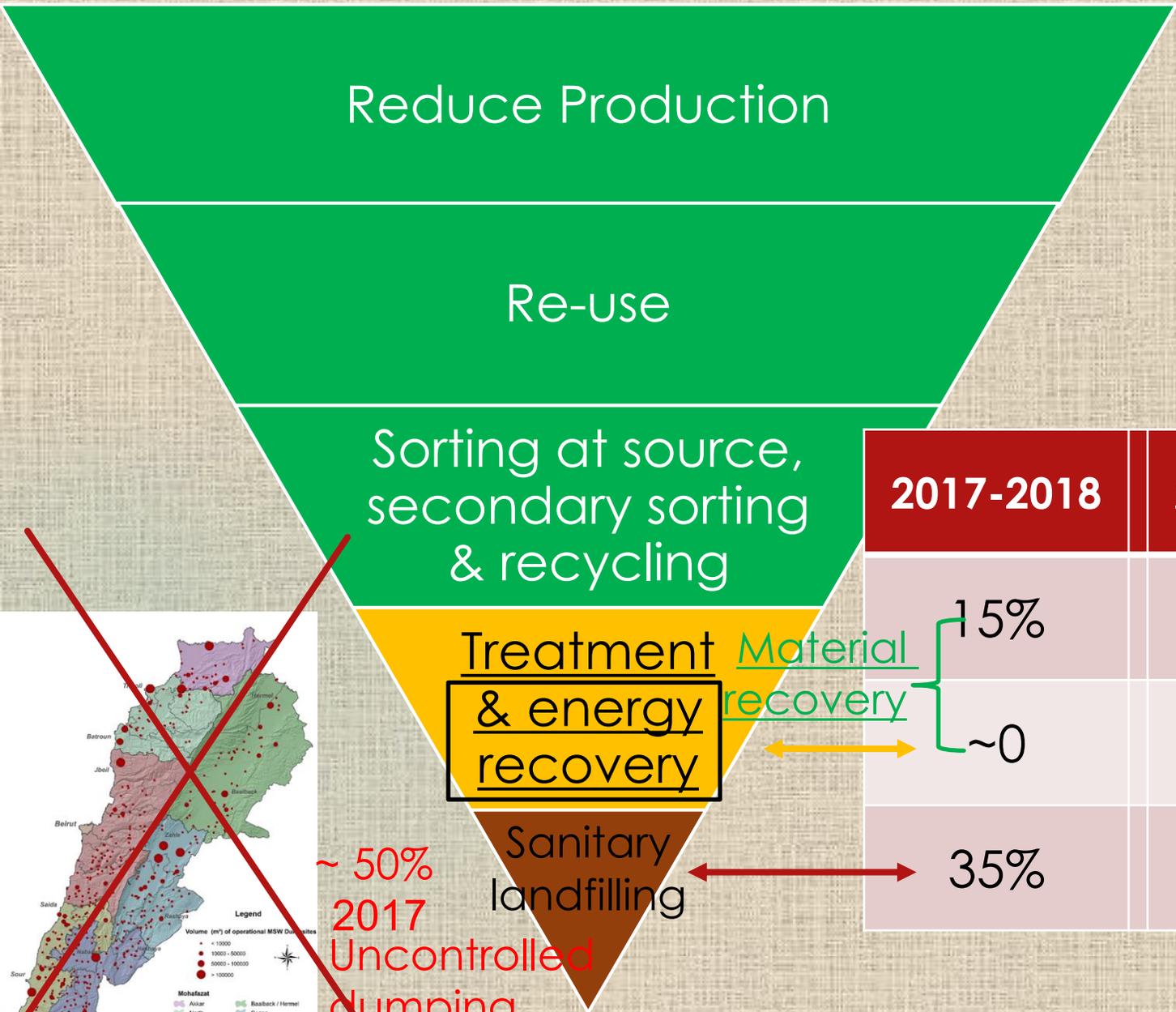
Administrative decentralization (environmentally and economically viable)

Central authorities' duty to ensure efficient resource allocation

Balanced development

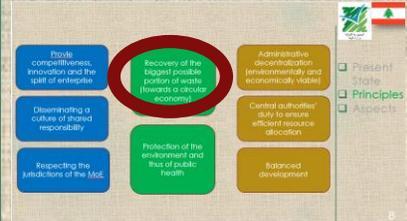
- Present State
- Principles
- Aspects

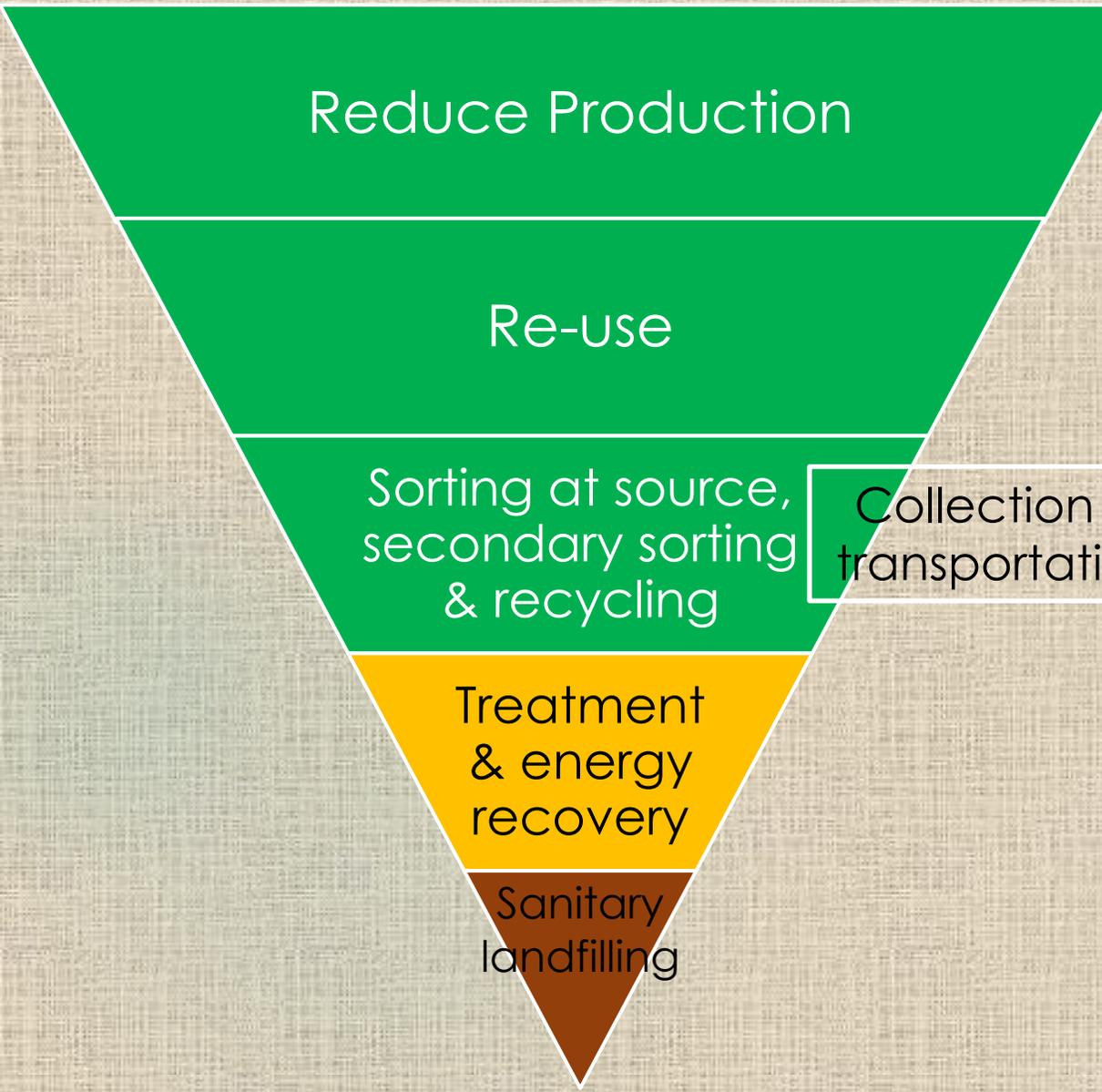
Recovery of as much waste as possible (towards a circular economy)



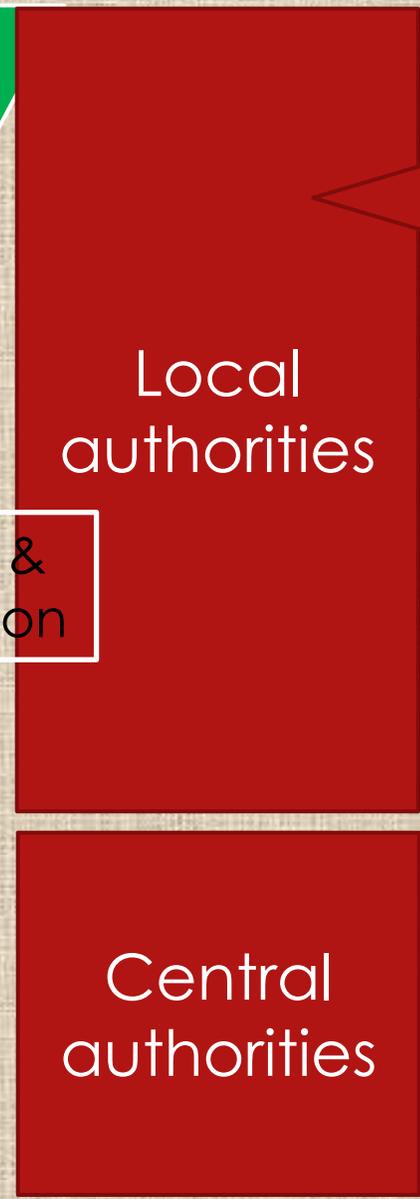
	2017-2018	2019-2024	2025-2035
Material recovery	15%	25%	35%
Energy recovery	~0	35%	50%
Sanitary landfilling	35%	40%	15%

- Present State
- Principles
- Aspects





Collection & transportation

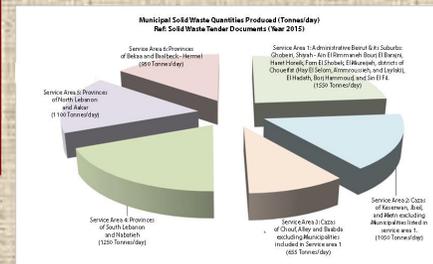


- Present State
- Principles
- Aspects

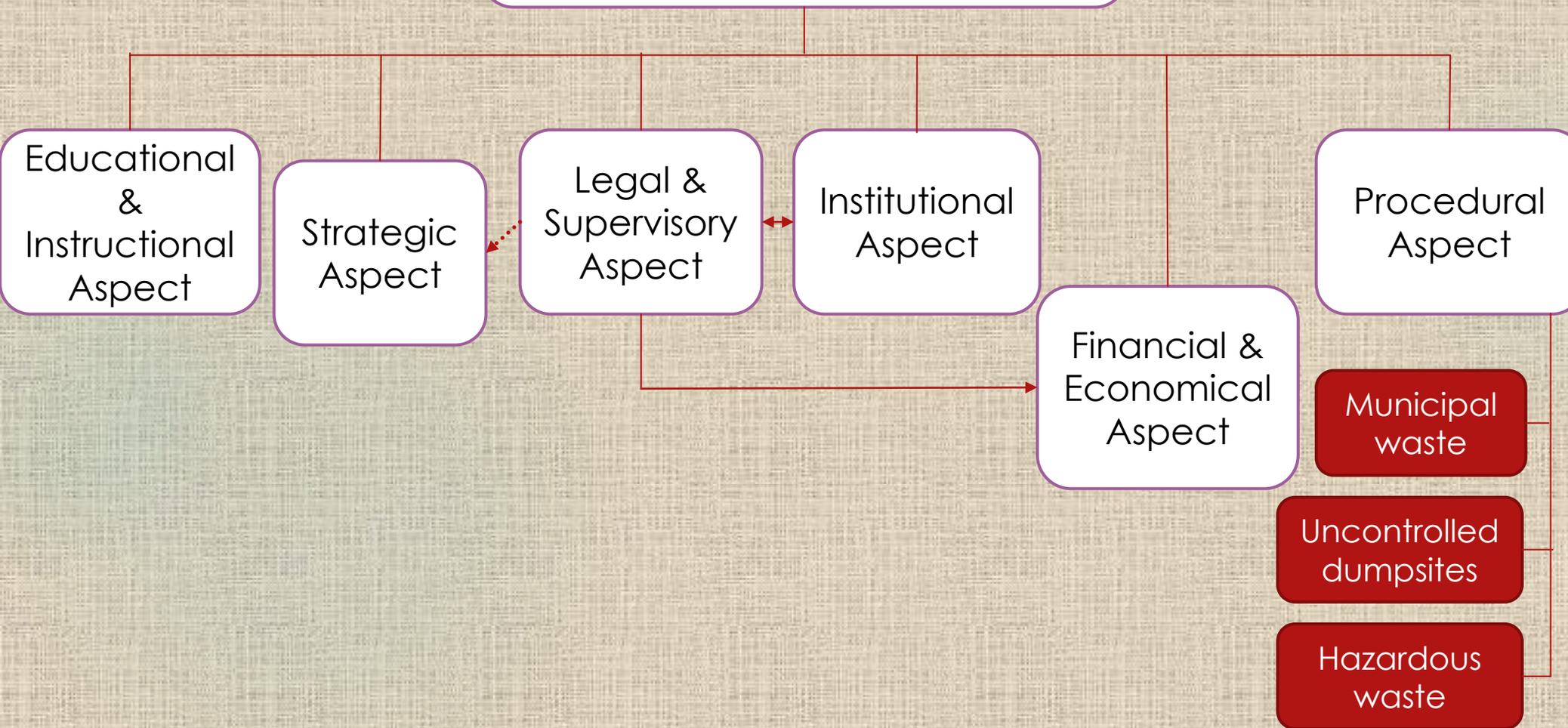
Administrative decentralization (environmentally and economically viable)

Central authorities' duty to ensure efficient resource allocation

Balanced development



Integrated Solid Waste Management Policy



- Present State
- Principles
- Aspects

Integrated Solid Waste Management Policy

Under way



الجمهورية اللبنانية
وزارة البيئة
مخبر رقم ٢ من تعدي وزارة البيئة رقم ١٧/٢٠١٨ تاريخ ٢٠١٨/٢٨

استمارة حول واقع الإدارة المتكاملة للنفايات المنزلية الصلبة في بلدية/محافظة

معلومات عامة					
أ. البلدية/المخبر:	ب. القضاء:				
ج. المحافظة:	د. العدد التقريبي للسكان المقيمين فيها:				
هـ. الكمية التقريبية للنفايات المنزلية الصلبة المتجهة يومياً (طن/يوم):					
مستوى	تفصيل	تفصيل	تفصيل	تفصيل	تفصيل
مستوى	تفصيل	تفصيل	تفصيل	تفصيل	تفصيل
معلومات عن الوضع الحالي:					
١. الجهة التي تتركز فيها كمس وجمع ونقل النفايات من أصل المزارع والأحياء أو من النفايات في الشوارع:					
أ. الاسم:	ب. رقم الهاتف الخليوي:				
ج. رقم الهاتف الثابت:	د. العنوان:				
٢. أي من التالي ينطبق على هذه النفايات:					
أ. <input type="checkbox"/> إلى محل داخل البلدة (محدّد مساحته أو الترخيص)					
ب. <input type="checkbox"/> مكان وجود المعمل: الموقع:					
ج. <input type="checkbox"/> مستودع:					
د. <input type="checkbox"/> إلى محل خارج البلدة (تحديد اسم المعمل والبلدة/المحافظة التي يقع ضمنها)					
هـ. <input type="checkbox"/> إلى مكتب داخل البلدة (تحديد الموقع وخطه)					
و. <input type="checkbox"/> إلى مكتب خارج البلدة (تحديد الموقع واسم البلدة/المحافظة التي يقع ضمنها وخطه)					
ز. <input type="checkbox"/> إلى مستودع محلي (تحديد الموقع وخطه)					
ح. <input type="checkbox"/> إلى جهة معيّنة عبر جهة (متركة/معمد/مؤسسة) تقبل صلبة النفايات					
٣. الفرق من المصدر والفرق القروي الأخرى:					
هل يتخذ الفرق من المصدر في نطاق البلدية؟ <input type="checkbox"/> نعم <input type="checkbox"/> لا					
هل يتم ذلك بمبادرة من البلدية؟ <input type="checkbox"/> نعم <input type="checkbox"/> لا					
هل يتم ذلك بمبادرة من جهة أخرى؟ <input type="checkbox"/> نعم <input type="checkbox"/> لا					
ب. أي من نقل النفايات المنزلية الصلبة لإعادة التوزيع وما هي اسمها للتوزيع؟*					
البلديات	البلديات واتحادات البلديات والقائمين والمحافظين				

Procedural Aspect

- Present State
- Principles
- Aspects

Municipal waste

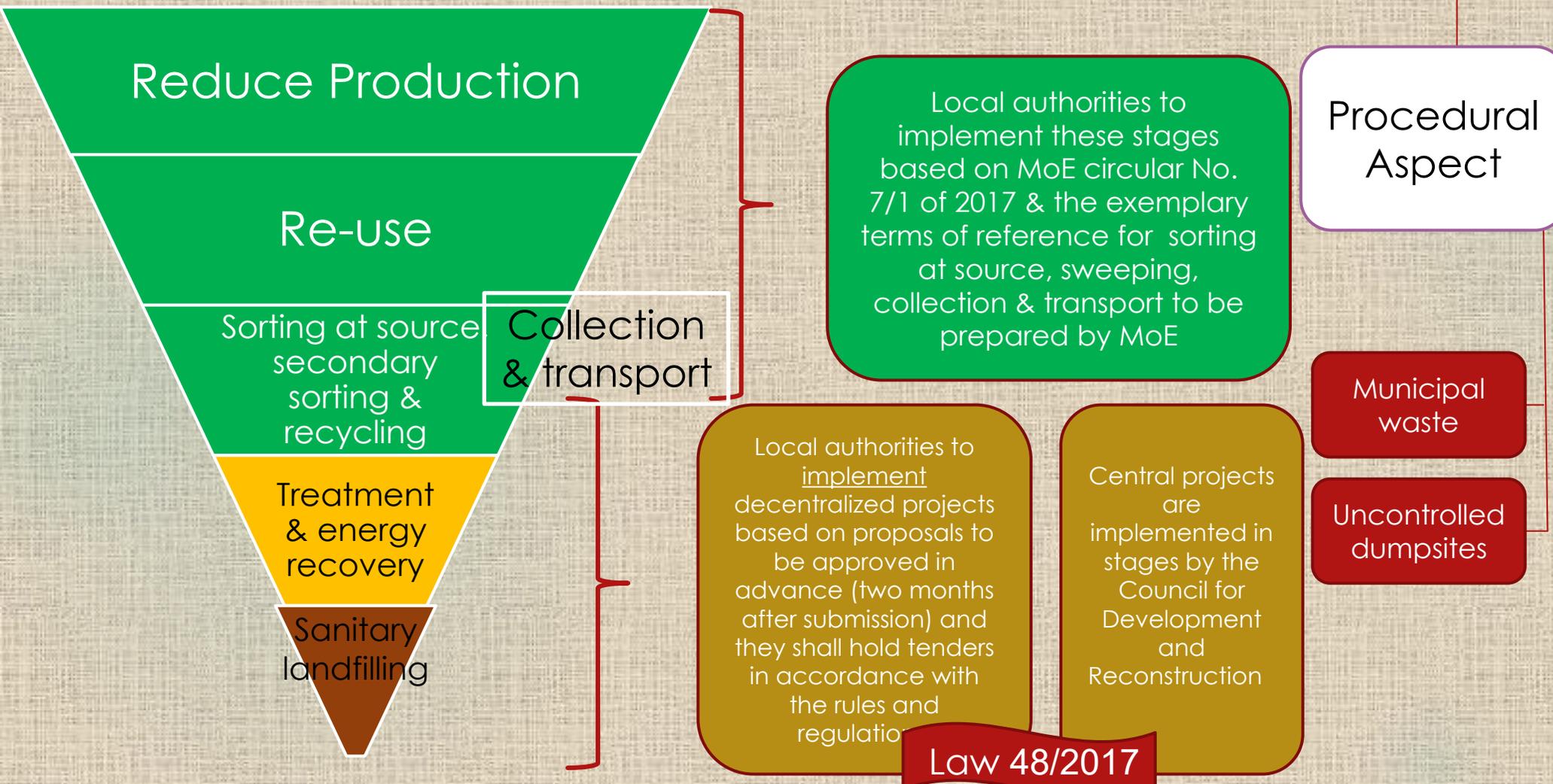
Uncontrolled dumpsites

The need for central projects: a preliminary picture, April 2018

وزارة البيئة
مرسوم رقم ١٦٧
تحديد دقائق تطبيق المادة ٢٠ من قانون
حماية البيئة رقم ٤٤٤ تاريخ ٢٩/٧/٢٠٠٢
إن رئيس الجمهورية،

الجريدة الرسمية - العدد ٥٦ - ٢٠١٧/١١/٣٠ - ٤٢٢٤
وزارة البيئة
تعميم رقم ١/٧
تعديل التعميم رقم ١/٨ تاريخ ١٦ تشرين الثاني ٢٠١٥
المتعلق ببعض الإرشادات بشأن الإدارة المتكاملة للنفايات المنزلية الصلبة
للبلديات واتحادات البلديات والقائمين والمحافظين

Integrated Solid Waste Management Policy



- Present State
- Principles
- Aspects

Integrated Solid Waste Management Policy

Environmental impact assessment or environmental audit (technique; location; subsequent supervision by an advisory company and employee, environmental engineer by the local authorities)



Procedural Aspect

- Present State
- Principles
- Aspects

Municipal waste

Uncontrolled dumpsites

2015 Tenders – Permissible techniques

- | | |
|---|----|
| 1. Sorting | 4 |
| 2. Composting | 7 |
| 3. Anaerobic Digestion (AD) | 10 |
| 4. Mechanical Biological Treatment (MBT) | 13 |
| 5. Mechanical-biological Stabilisation (MBS) or Mechanical-thermal Stabilisation (MTS) for RDF Generation | 16 |
| 6. Incineration | |

Economy of scale; allocative efficiency, sources of financing

Integrated Solid Waste Management Policy



	Proposal	Mechanism
1	Exportation	In accordance with the Basel Convention – producer pays
2	Build interim storage plants prior to exportation – on sites to be proposed by the government or offerors within specified criteria	Proposal by private sector <u>or</u> tender by government (with a min quantity guarantee) – producer pays
3	Impose treatment units in plants that produce these wastes	Within the licensing / construction terms for new plants, and within license renewal terms for existing plants
4	Use the ovens of some plants	Based on environmental impact assessments and pilot tests – producer pays
5	Build treatment plants on sites to be proposed by the government or offerors within specified criteria	Proposal by private sector or tender by government – producer pays
6	Build special incinerators on sites to be proposed by the government or offerors within specified criteria	Proposal by private sector or tender by government – producer pays
7	Rehabilitate an abandoned quarry in each district	Proposal by private sector or tender by government, taking into account environmental standards

Procedural Aspect

Producer Responsibility

Hazardous and other wastes

- Present State
- Principles
- Aspects

Sample

Integrated Solid Waste Management Policy

Equipping & operation costs

Financial & Economic Aspect

Variations in prices due to differences in techniques and, therefore, in waste recovery rates: Recovery rates are under 15%

2015 tenders: The cost of collection, transport, treatment and final disposal (a 60% recovery rate over the first 3 years and 75% over the following 4 years): about USD 120/ton

- Present State
- Principles
- Aspects

SWEEPNET

Costs of SWM vary greatly in Lebanon.

2014

	Cost of Collection and Transport	Total Cost from Collection to Disposal with Sweeping
Greater Beirut and Mount Lebanon (Except Jbeil)	USD 32 / tonne	USD143 / tonne
Tripoli	USD 64 / tonne	USD 92 / tonne
Zahle	USD 18 / tonne	USD 37 / tonne
Some rural areas	USD 10-18 / tonne	USD 20-30 / tonne

Integrated Solid Waste Management Policy



Table 1: BML Cost Assessment of Environmental Degradation and Opportunity Loss, 2012, US\$ million

Typology of Degradation Costs	CASWD		Lower Bound	Upper Bound	Opportunity Loss	
	US\$ million	%	US\$ million	%	US\$ million	%
Collection	0.0	0.0%	0.0	0.0	18.7	25.3%
Discharge	0.0	0.0%	0.0	0.0		
Recycling and composting	0.0	0.0%	0.0	0.0	39.7	53.7%
Landfill area avoidable	0.0	0.0%	0.0	0.0	15.5	21.0%
Underground water contamination from active landfills	14.3	21.6%	5.5	65.4		
Loss of land value around waste processing plants	2.5	3.8%	2.0	3.0		
Loss of land value around active landfills	2.8	4.2%	2.2	3.4		
Loss of land value around passive landfills	0.0	0.0%	0.0	0.0		
Loss of land value in active dumps	0.0	0.0%	0.0	0.0		
Loss of land value in high risk passive dumps	40.9	61.5%	32.7	49.1		
Health effects	NA	0.0%	NA	NA		
Methane emission avoidable	3.1	4.7%	2.9	3.3		
Forgone energy generation	2.8	4.2%	2.6	3.0		
Total	66.5	100.0%	47.9	127.2	73.9	100.0%
% GDP Beirut and Mount Lebanon	0.3%		0.2%	0.6%		0.4%
% GDP Lebanon	0.2%		0.1%	0.3%		0.2%

Cost of environmental degradation

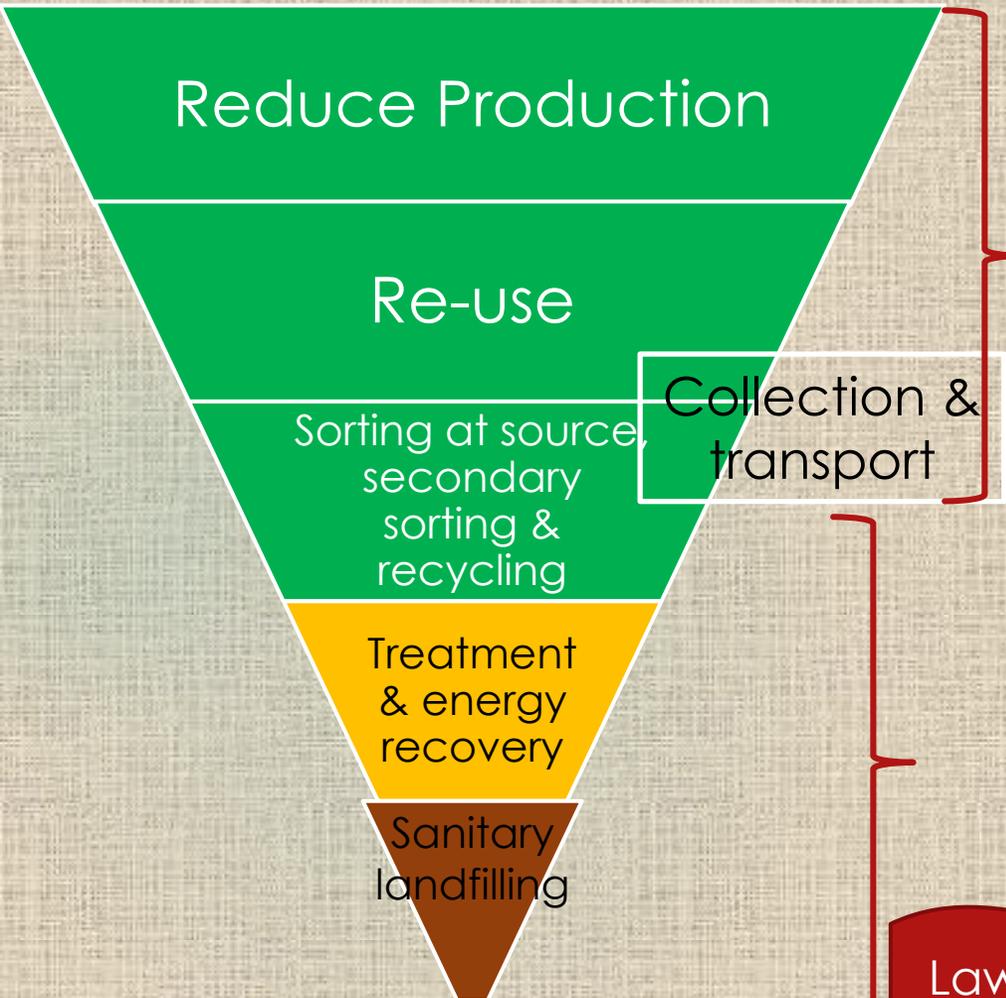
Financial & Economic Aspect

- Present State
- Principles
- Aspects

LEBANON

Cost of environmental degradation due to solid waste management practices in **BEIRUT** and **MOUNT LEBANON** (BML)

Integrated Solid Waste Management Policy



Collection & transport

Municipal fees; the independent municipal fund, including mobile telephony revenues; donations, etc.

Financial & Economic Aspect

- Fees set in the draft law
- International donations (including climate change)
- Other sources

Law 280/2014

Sources of financing

- Present State
- Principles
- Aspects

Exemption from debt incurred from solid waste management during the previous period

Integrated Solid Waste Management Policy

Fees, taxes and incentives

Financial & Economic Aspect

	Laws & regulations in force	Draft Law on Integrated Solid Waste Management
Fees	Pavements & sewage; etc.	Direct & indirect fees
Taxes	—	Progressive tax at the bottom of the pyramid?
Incentives	Law 280/2014; Decree 167/2017	Other incentives?

- Present State
- Principles
- Aspects

Integrated Solid Waste Management Policy

Educational & Instructional Aspect

- Prepare a communication program on integrated solid waste management
- To reach all stakeholders in the private and public sectors and in the civil society
- In coordination with the Ministry of Education and Higher Education and the Ministry of Information

- Present State
- Principles
- Aspects

Integrated Solid Waste Management Policy

Under consideration

Legal & Supervisory Aspect

1. Definitions & principles
2. Institutional framework (planning, coordination, implementation, monitoring & supervision, financing, information management)
3. Principles of non-hazardous SWM
4. Principles of hazardous SWM
5. Financing, fees and incentives
6. Obligations, violations & penalties

Ratify the draft law on Integrated Solid Waste Management (Decree 8003/2012)

- Present State
- Principles
- Aspects

Integrated Solid Waste Management Policy

Legal & Supervisory Aspect

Project owner (government or local authority)

Ministry of Environment

Competition TBA soon

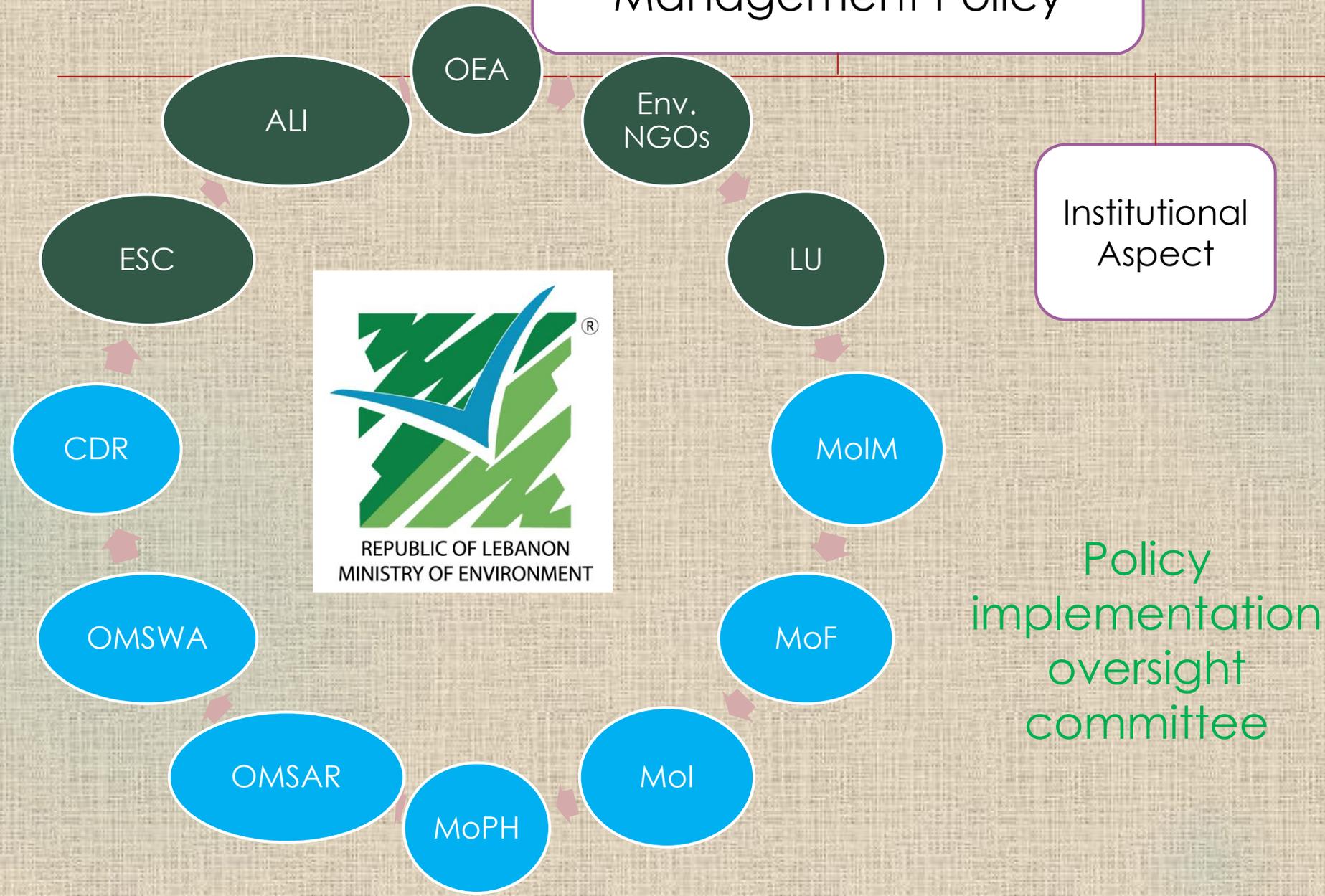
Environmental Police (Decree 3989/2016)

Public environmental persecutors and environmental investigating judges (Law 251/2014)

Periodic reports
Periodic inspections

- Present State
- Principles
- Aspects

Integrated Solid Waste Management Policy



- Present State
- Principles
- Aspects

Integrated Solid Waste Management Policy

Strategic Aspect

- Prepare a draft strategy in application of Article 10 of the draft law
- Based on the questionnaires filled in by the local authorities and other guidelines being prepared
- To be developed based on participatory methodology
- To be approved by the Council of Ministers

- Present State
- Principles
- Aspects

Policy Summary on Integrated Solid Waste Management



961-1-976555



961-1-976535



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www.moe.gov.lb

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