Waste Management in Munich (Institutional Setting)



Year		1891		2016
Policy		Empire (1871 to 1918)		Democracy
Legal Regulation	Zie Münkener Gemeinde Zeitung. Buntidat vo Ragidrates, dei Utempflegsbellstutet, der Leinflege umd Kanligute Komeiden Seinstling Münken, ersseint Verlag in Richarden vorerlährlig Kunter Tollangkli. Eingelle Werer Die deit ertgegengenemmen in den gepellichen Die Kanligute Geschlichen Seinstling der Fallengelle (Begelle Werer Die des entgegengenemmen in den gepellichen Andere Bewer Die Kanligute Bewer Die Geschlichen der Seinstling der Angelle Bewer Die Kanligute Bewer Die Kanligute Bewer Die Kanligute Bewer Die Geschlichen der Geschliche	First regulation	Regulations by European Commission, Country etc.	EU-Legislation: Waste Framework Directive Treaty of Lisbon German Legislation: Closed Cycle Management Act Bavarian State Law: Bayerisches Abfallgesetz
Instrument "Harritsch- wagen"		Kind of car (1 horse) Invented by blacksmith Fischer	Verbung fair internal Advist	1,477 employees from 23 nations 146 collection crews with 703 collectors 177 trucks with waste compactors suitable for all types of waste
Reform		No waste on the streets in		
approach		the inner city no smelliness less rats		
Demand of citizens		Protection against epidemic plague	TRUNSTSTOP!	Full-Service, Under- floor-Container
Actors/stake- holders		Only a few		A lot of
Time	13	Service is growing slowly		
Recycling rate		100 % Preselected at house-holds		62% target: 65%
		1897 first recycling company at Puchheim transport by train		

Waste Management in Munich (Output)



Year		1891		2016
No regulation before		Dumping at the corner, Pitch in the ditches		forbidden
Main challenge Issue		Rhythm of collecting every week with bins 1898 Normed metal bin of 110 liter volume	The base of the second of the	Collecting of all - biowaste - paper - residual waste - plastic a.o. Acceptance of the citizens
Practical problems	Blacksmith Fischer	Stone streets No electricity anywhere Handcrafted bins with Blank / rivet 1898 Transport with train and steamengine to the Recyclingcenter "Puchheim"		"1.World problems"
Time		Slow process		Can be slow, because of long democratic processes
Waste		Is preselected in the housholds		Is preselected in the housholds
dirt/rubbish, broke rags/tatters	sh, organic from housh	nes, leather, rubber,		odern waste (nearby mical period system)
Norton 201	profile in Norton (2016 Organic Ash/soil Paper Plastic (LDPE and PET) Other plastic Glass Metal Other	Munich 1891 Organic (horses) Ash/soil Raps/tatters Rubber Leather Bones Broken glass Metal	Organik 36,6% Metalle 2,9% Kunststoffe 9,0%	3,3% Verbunde 5,8% Hygieneprodukte 10,6% sonst.Stoffe 3,2% Problemabfall 0,6% Elektronikschrott 0,8% Störstoffe in der MVA < 0,1% Rest < 10 3,9% Glas 6,8%
Recycling rate		100 %		62%
Collecting rate 2		Starting at 0%		

Waste Management in Munich (Approach)



Year		1891		2016
Methods		Top – down No democracy		Participation of the citizens in the democracy
Tools		Very restricted only a few horses, railway, no electricity	1969	A lot of Department for communication Marketing etc.
			1992	Public relations OF MILLS
Instrument		Index card,	1989	Full technical
		mechanical typewriter	First computer	equipment mobile phone, GPS, Internet, Whatsapp Twitter, Facebook
		Decentral structure AVVM Zentrale mit zwei Betriebshöfen und Kfz-Werkstatt Wertstoffhof Wertstoffhof plus Betriebshöf Orockenfermentationsanlage und Erdenwerk Gebrauchtwarenkaufhaus Halle 2 Heizkraftwerk Nord Entsorgungspark Freimann Mühlangerstraße 100 Arnulfs Tübing Sach Thalki Tischlerstraße 3	Werner-Heisenberg-Allee 62 Werner-Heisenberg-Allee 62 Werner-Heisenberg-Allee 62 Am Neubruch 23 Lindberghstraße 8a Georg-Brauchie-Ring 29 Wünchner Straße 22, Unterföhring Straße 280 Truderinger Straße 2a+10 Mauerseglerstraße 9 Mauerseglerstraße 9 Bayerwaldstraße 33	Decentral structure: Facilities of the AWM
		Not necessary		Second hand store: Municipal private social organisations (Oxfam)
Circumstances		In time of need 1. and 2. World War		Globalisation
Time	Metal bin from 1898	Slow processes,		Quick changes
	until 1985 in use	collecting system is growing in an		possible not predictable
	1891 until 1973: last	organic/natural way		
		stragt often stragt"		
	household connected	"street after street"		

Waste Management in Munich



Which Output	1891	2016	
Tangible result	see	From the past to dade charts of collected with inhabitants, recycling	aste,
3 bin system		letters, envelopes	ts, potatoes, eggs and nuts, cooked habags habags potted plants (without pots), limited titing soil und as leaves, grass, weeds, or of tree or shrubbery cutting in enversaper and paper towels ing liquids) to absorb moisture Dok: - vacuum cleaner bags, street sweepings, ashes, cigarette butts, cat litter - drop cloths, carpet remnants, wallpaper - nappies (diapers), toilet paper - dried paint -> packed in bags - cooked leftover food, prepared salads, meet, bones, fish -> wrapped in bags - dirty or coated paper, wax paper, carbon paper or carbonless copies NOT OK: - metal, glass or plastic packaging -> take to local
Outcomes			successfull, municipal owned corporation in sustainable waste management
Impacts	clean city, no epidemic plague	Econ Award: Communicating "Sustainability"	some prizes
Our birthday in 2016:		125 Jahre Verantwortun Abfallwirtschaftsbe München	g trieb AVA ®
We have a vision for 2022:		Der AWM steuert die gesamte Wertschöpfungskette und übernimmt Verantwortung für deren Nachhaltigkeit. "Wir garantieren als kommunales Wertstoffwirtschaft für alle Si Stoffströme werden nach Ökoeffizienzkriterien gesteuert: von Akquise über Sammlung, Transport und Behandlung bis zur Vermarktung.	
Every day we produce "emptiness" in 50.000 bins and people are very happy about it			High value of the "orange workers" in the citizenship "Your waste – our responsibility"
How do they ensure sustainability of the practice?			

Waste Management in Munich



Year	5	1891		2016
Main lessons		The conditions to start are very good because of the circumstances at that time		We can export the waste to the moon. There are many holes, which could be filled up.
87 C233 88 C260 89-103 Rad Ac-Lr Rad Dibb Seg Bbh His Million Mill	13	Only some materials, no plastic, no eWaste, no hazardous waste, no chemicals, no asbestos, no mercury no batteries		Lithium batteries in a lot of technical equipment Very dangerous for the dumpsites!
		n paper, using wood, cal to heat the houses	"Smog"	until 1991: heating my bathroom every saturday with wood
1. Reuse		regular situation Services of waste management corporation external services	glass plastic metal garbage containers collection recycling yards recycling yards sorting plant material utilization	house hold waste garden waste paper organic waste for disposal waste recycling yards 3-Bin-System pin
2. Reduce		Not necessary at that time		Necessary; campaigns; deposit
3. Recycling / Recovery		Regular situation Nearby 100% First: 1898 until 1949 Second: 1954 until 1965 Großlappen		Necessary, more difficult, combined materials (Tetrapak)
4. Incineration	The first incineration plant started in Puchheim 1910 (until 1949)	Second: 1964 until now Line 1 and 2 Line 3 and 4 1980 Seveso, Dioxine, Furane		Heat and power production flue gas cleaning emission of 37 kg mercury per year 2016: carbon fibre
5. Landfill Implementation of the good practice		1891 until 2005		closed statistic, yearbook, charts

Waste Management in Munich



Year	1891	2016
Open questions be dealt with		
Recycling rate	perfect,	62% to 65%
Recycling	no question	How to realize? Down-Cycling; "Thermo-Recycling"
Materials	was reality	Cradle to cradle; circular economy, "a long way to go" Carbon fibre, Lithium batteries etc.
Problems, example:		First audit: Ökoprofit
"organisational blindness"		"No separation at source in the office"
Future of regulations		Fight between different stakeholders Lobbyisme in Bruessel at the EU Complexity of the
		system, Need of systemic thinking
	Regiogeld Tauschen Euro Bewusstsein schaft	Frederic Vester, "Urban Systems in Crisis – Understanding and Planning Human Living Spaces: the Biocybernetic Approach" 1976, "UNESCO - Man and the Biosphere"
	END	