

III MIĘDZYNARODOWA KONFERENCJA LOGISTYKA ODZYSKU – ODPADY

History and future of waste management in Japan from the view point of waste composition





Dofinansowano ze środków Narodowego Funduszu Ochrony Środowiska i Gospodarki Wodnej

Misuzu Asari Kyoto University, Japan

ORGANIZATOR:

WSPÓŁORGANIZATOR:







PATRONI:







PATRONI MEDIALNI: Logistyka Odzysku SeniorLO 50+





MSW/domestic waste



Food loss





Disaster waste



ORGANIZATOR: W

EKCYKL

WSPÓŁORGANIZATOR: PATRONI:









MSW Compositional Analysis



Kyoto city and Kyoto University continue the survey since 1980



300 categories based on the product type and material





ORGANIZATOR:

ECYKL

WSPÓŁORGANIZATOR:

M&M CONSULTING











Example of contribution to policy making (MSW)



Kyoto city: 50% reduction of food loss

National level: Packaging recycling law

Kyoto city: reduction of plastic shopping bag



WSPÓŁORGANIZATOR: PATRONI









Today's main focus is "incineration".

But, it's better to let you know the basic knowledge about Japanese waste management.



Waste Management and Public Cleansing Act Each municipality has responsibility. Separation is decided by municipality **Domestic waste** Waste **Municipal** (ごみ) Office waste Solid waste Sewage Waste Specially controlled MSW 20 categories of Including wastes defined by plastics, Industrial the regulation metals, waste glasses, Specially controlled etc. Industrial waste Each generator has responsibility





Dofinansowano ze środków

Narodowego Funduszu

Ochrony Środowiska

i Gospodarki Wodne

Current flow of MSW in Kyoto city



Number of waste incineration plant in Japan

- MSW: approx. 1,100 plants (2,000 incinerators)
- Industrial waste: approx. 1,200 incinerators
- Sewage sludge incineration: 280 plants
- Cement plant: 51 plants



Temporary incineration plant was implemented at "Great East Japan earthquake" (2011-2014).



WSPÓŁORGANIZATOR:









Dofinansowano ze środ Narodowego Funduszu Ochrony Środowiska Gospodarki Wodne

OECD2008

- USA 351
- France 188
- Germany 154
- 28
- 55

How to treat MSW (2013) Municipal waste disposal and recovery: recycling, incineration, landfilling Material recovery (recycling + composting) Incineration with energy recovery Incineration without energy recovery Landfil % 100 90 80 70 60 50 40 30 20 10 And had sales particular sale point conditions are conditioned and the sale of Information and they a Desmalt Ó Swittenand Sweden stretends al posta coal coal print celand celand Germany OFCO Belgum Japan Municipal wainto disposal and recovery shares, 2013 or latent year available. Source: OECD Environment Statistics (database), Trash icon by Pauel Teplkin, The Noun Project. OECL www.oecd.org/environment Environment at a Glance 2015 http://doi.org/8cd

Source: OECD (http://www.oecd.org/env/environment-at-a-glance-19964064.htm)



ORGANIZATOR:

EK CYKĽ

WSPÓŁORGANIZATOR: PATR









Scale of MSW incinerator



"Waste to Energy" at MSW incineration



Laboratory waste treatment on campus (Kyoto Univ) "Treatment from the source" & "polluter responsibility"

Illegal emission (1972)





- Treatment of laboratory liquid waste inside the campus from 1970's
- Environment Preservation (Research) Center from 1977













Why incineration became major?

- Edo(江戸) period (1603-1868): "waste" issue and recycling
- Confusion of The Meiji Restoration (1868) led ruined city
 →repeated "clean-up" statement
- late 1870-1880: epidemic cholera and other infectious disease →1900: Clean-up law (汚物掃除法)
 - City had a responsibility of MSW
 - Incineration had priority
- Advantage: hygienic, powerful (large scale), etc.
- Other reasons: limitation of final disposal sites, etc.



Problems

- 1971- Tokyo waste war: HCl of exhausted gas from incinerator and heavy metal in emitted water \rightarrow Plastic waste separation was started
- 1983- Dioxin crisis focusing on waste incinerator
- Cost, transportation, consciousness of residents, etc.

Source: http://www.env.go.jp/press/files/jp/29596.pdf



WSPÓŁORGANIZATOR: PATRONI

M&M CONSULTING

DXN emission from waste incineration (1997-2014)



Future challenges

- Post "incineration" of MSW → Biomass utilization
- OReduction of plastic and paper by recycling \rightarrow The rest is food waste/organic waste.
- ODifficulty of electricity generation at small scale incinerator
- ODifficulty of maintenance
- of incinerator by municipal government
- 2R (reduce and reuse)
- Future composition ???





ORGANIZATOR:

WSPÓŁORGANIZATOR: PA









Niniejszy materiał został opublikowany dzięki dofinansowaniu Narodowego Funduszu Ochrony Środowiska i Gospodarki Wodnej. Za jego treść odpowiada wyłącznie Eko Cykl Organizacja Odzysku Opakowań S.A.



Dofinansowano ze środków Narodowego Funduszu Ochrony Środowiska i Gospodarki Wodnej



ORGANIZATOR:













WSPÓŁORGANIZATOR: PATRONI: