

Impact of waste disposal on air pollution in Republic of Serbia

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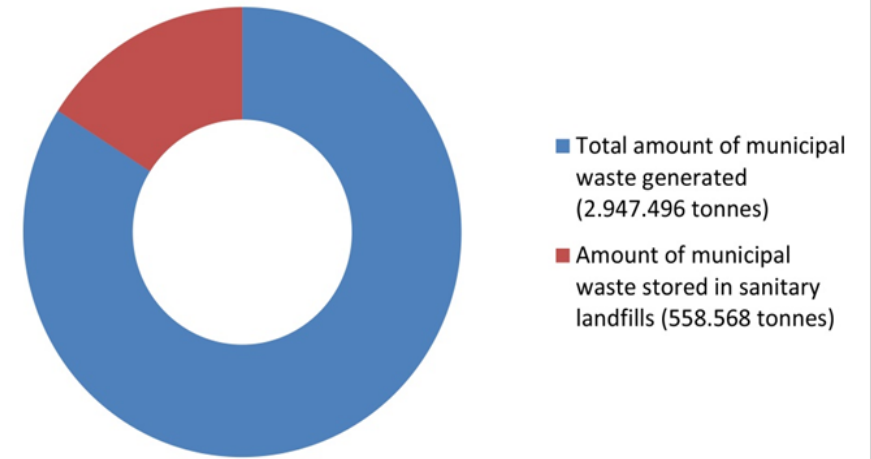
Serbia 2022

- The municipal waste management system in Serbia is still in its initial phase of development, dominated by waste disposal in unsanitary landfills/dump sites and illegal landfills without prior selection or treatment.
- The largest number of fires occurs in illegal and unsanitary landfills, where the largest part of the generated municipal waste is disposed of, entirely without, or with minimal measures implemented to control it and protect the environment.



ГРАДСКИ ЖИВОТ У СРЕДЊЕМ ВЕКУ — 1. Рупа за ђубре

Municipal waste stored in sanitary landfills
(Serbia, 2020)



Fires are the primary source of landfill air pollution

Biggest landfills and next to big cities

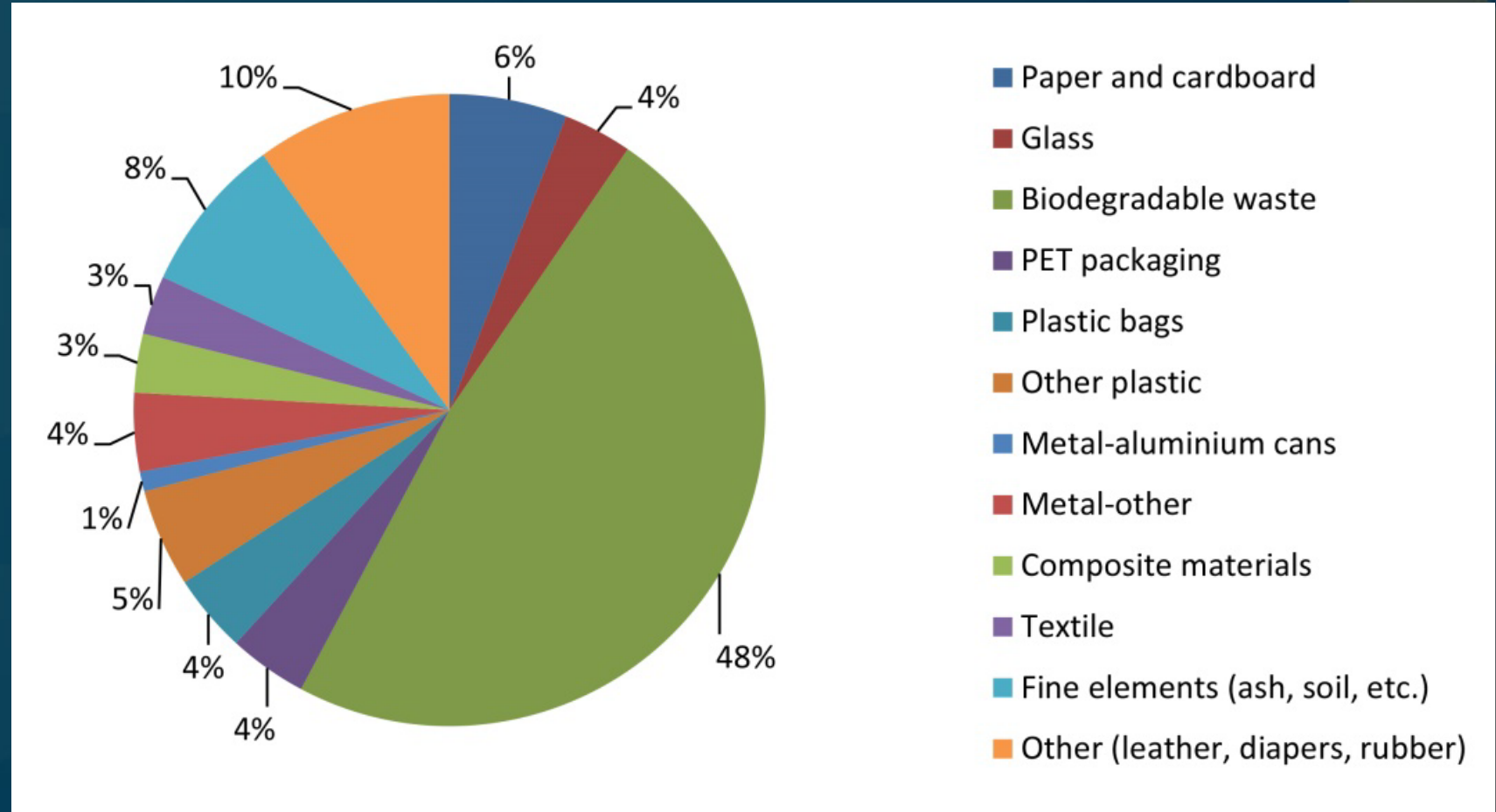


List of the largest unsanitary landfills in Serbia
(FTN, 2013)

Number	Location	Area (ha)	Waste depth (m)	Waste volume (m ³)
1	Vinča	42.33	30	12,698,673
2	Kragujevac	14.20	15.0	2,129,803
3	Novi Sad	28.11	7	1,967,700
4	Niš	13.53	10	1,353,401
5	Subotica	14.48	6	868,800
6	Novi Pazar	2.39	35	835,190
7	Kruševac	5.35	15.0	801,861
8	Kraljevo	6.27	13	815,088
9	Prokuplje	11.49	6	689,336
10	Obrenovac	10.09	4.5	454,235
11	Sombor	14.38	3	431,400
12	Arandjelovac	3.21	12.0	384,617
13	Zaječar	5.60	5	280,000
14	Zrenjanin	6.71	4	268,400
15	Pančevo	11.26	2	225,200

Morphological content of municipal waste in Serbia in 2020

Data: Serbia Environmental Protection Agency



The most important pollutants released from landfills into various environmental media in open combustion processes are:



- *PM particles (PM_{10} and $PM_{2.5}$)*
- *Heavy metals*
- *Pesticides*
- *Chlorinated paraffins*
- *Polycyclic aromatic hydrocarbons (PAH)*
- *PCDD/PCDFs and other unintentionally produced POPs*
- *Polybrominated and brominated/chlorinated dibenzo-p-dioxins and dibenzofurans (PBDD/PBDF and PXDD/PXDF)*
- *Polychlorinated biphenyls (PCBs)*
- *Polybrominated diphenyl ethers (PBDE) and other flame retardants (BFR, PFR)*
- *Per- and polyfluorinated alkylated substances (PFAS)*
- *Bisphenol A (BPA) and its derivatives*



„Strategic“ approach

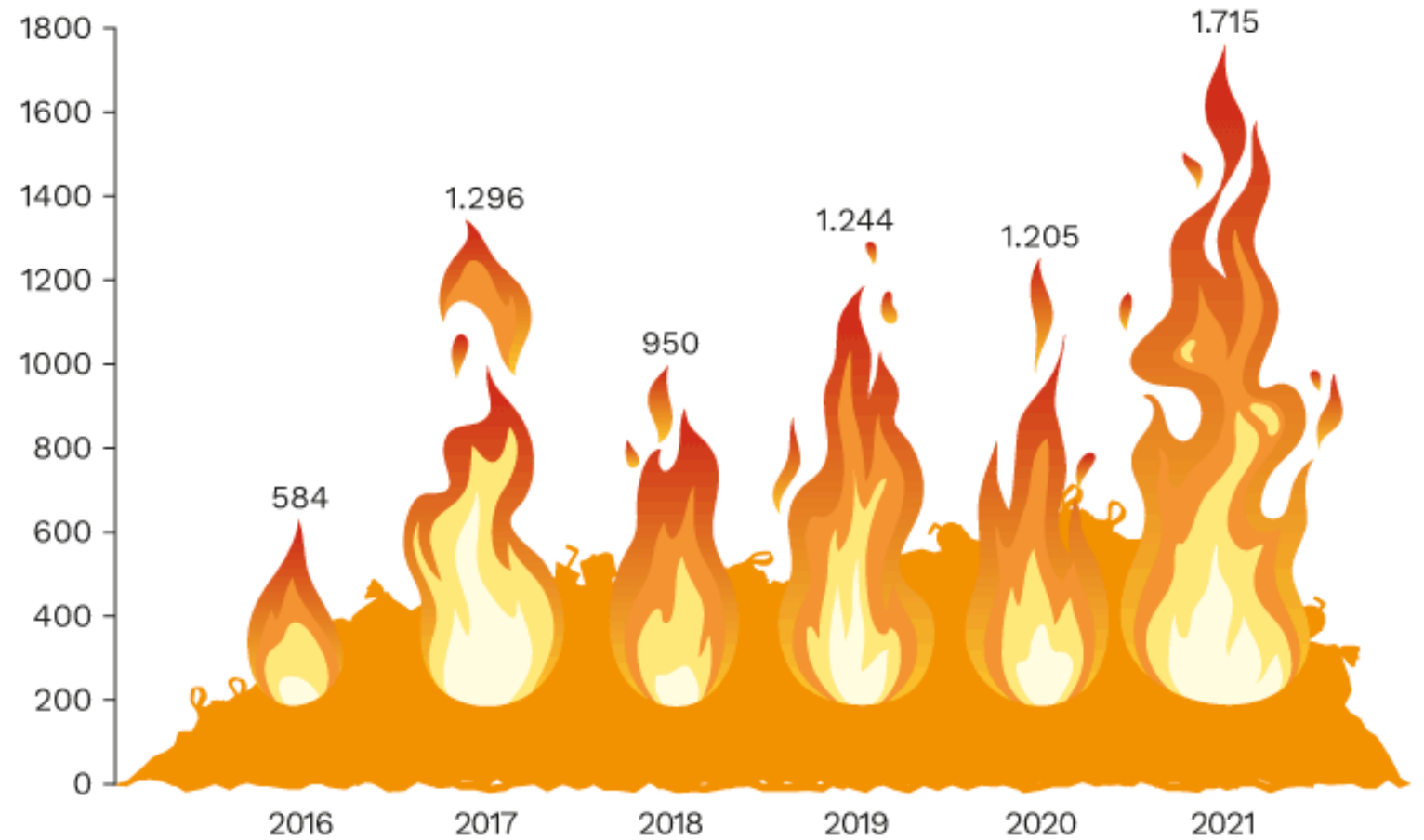
Most of the relevant strategic and planning documents of the RS at the national and local level related to air protection and waste management do not recognize the impact of waste disposal on air quality at all (e.g. Waste Management Program in the RS for the period 2022-2031), or they recognize it insufficiently.

There is lack of measurement of air pollution during landfilled fires but also in non accident situation.



Number of register fires on landfills in Serbia (2016-2021)

Data: Ministry of internal Affairs



Our choice



Conclusion

- Number of fires on landfills in Serbia will increase
- We need to implement preventing measures immediately
- We need to predict and stop development of fires on landfills
- We need to use bio waste for production of energy and for production of air pollution

Thank You!



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