

Ukraine is drowning in waste... ecological catastrophes on the horizon...

by Matthias Vogel (Country Manager Ukraine and Executive Director Waste Management in Central and Eastern Europa at Veolia)

The ecological catastrophe of L'viv with a burning landfill and a lack of solution for waste treatment is not forgotten. Everyone blamed the Authorities of L'viv – but the truth is: other catastrophes in other Cities will follow soon because of a complete lack of places and installations for waste utilization. If not finally necessary measures will be taken to enforce waste management solutions (we are aware of development projects for MBT/splitting plants only in L'viv and Khmelnytskyi...), Ukraine will completely drown in waste.

Ukraine produces approximately 13 Mio. tons of municipal solid waste (MSW) each year, out of which >95% are dumped on landfills, which do not correspond to any standards. According to official estimates, 10,000 ha of land is covered by appr. 6,700 waste dumps, though unofficial numbers might be even higher.¹ Over 15% of waste disposal facilities are overloaded (...). Possibilities to expand active landfills are largely limited.² Despite of different recent legal initiatives³, no real progress has been made in waste management since Ukraine's independence. Despite of dumping waste, there is only one incineration plant working in Kiev, but with completely outdated equipment and without energy recovery (utilizing less than 0.5% of the total MSW tonnage of Ukraine). In addition, there are around 20 simple sorting installations for picking out recycling materials, but also without significant success in reaching any significant recycling rates. Obviously, the practical introduction of a simple and efficient waste management system is not among the top priorities of politicians, neither on Government level, nor on the level of Oblasts or Municipalities. Instead, there are repeated myths of so called "waste processing factories", with the help of which waste would disappear or at least be transformed into clean secondary raw materials without any leftovers. Very often, pyrolysis is also named as a wonder weapon to transform MSW into fuel... But, bad enough, not one single factory with such abilities can be seen in Ukraine (and, by the way, there are not any of such factories elsewhere in the world). So, what would be necessary to change this sad and dangerous situation and start with a real, simple and effective waste management...?

First of all - waste cannot disappear... this is a fact. On a simplified level, there are two major methods how to deal with (non-hazardous) MSW: Either, it is incinerated and heat and electricity can be produced (waste as a fuel). In this case, there are different kind of ashes as leftovers, which would have to be recycled and/or landfilled. Or, municipal solid waste is sorted and treated in specialized sorting/splitting plants, so called mechanical-biological treatment installations. In this case, recycling materials are sorted out, an organic-inert fraction is separated and dried (which could be used for the recultivation of old landfills) and the rest/the leftovers would be deposited at (modern) landfills. Have you noticed? – In any case a final place of deposit for leftovers is necessary: You always need a sanitary landfill... Taking into account that we are starting more or less at "0" with a waste management system in Ukraine and any new system has to consider, that it should be financially affordable, our suggestion is to go step-by-step:

1. Introduction of a simple, but effective separate collection: As already defined in the "Waste Law", Municipalities are already obliged to organize a separate collection of recycling materials.

¹ Status of the Ukrainian Household Waste Management Sector in 2013. Ukrainian Ministry for Regional Development, Construction, Housing and Utilities, March 2014 (in IFC: Municipal Solid Waste in Ukraine: Development Potential, 2015).

² Municipal Solid Waste in Ukraine: Development Potential. IFC/World Bank Group, 2015.

³ The „Law on waste“ and the recent program on MSW management focus on development of recycling technologies and minimization of volumes of disposed waste. Thus, disposal of non-recycled waste on landfills is forbidden from 1st January 2018. (!!!)



Our experience shows, that the separate collection of a so called “dry” fraction in special containers can be successful. This dry fraction has to be sorted afterwards and recycling materials have to be taken out. The costs for the separate collection are more or less the same as for collection of mixed waste, but there will be savings of landfill costs due to reduced volumes for disposal. Thus, tenders for waste collection should include an obligatory separate collection of the “dry” fraction with a simple sorting line to pick out recycling materials.

2. Obligatory construction of state-of-the art sanitary landfills: An updated “Law on Waste” should oblige smaller municipalities to set up associations with the purpose that there should be one “waste management region” for approximately 150,000 inhabitants, which make any solutions economically more feasible. Per each “waste management region”, the association of municipalities (in rural areas) or the City Administration (in cities >150,000 inhabitants) has to be **forced**, to find a suitable territory and build a new, modern sanitary landfill with leachate and biogas collection and treatment. As a (future) option, the sorting of the “dry” fraction could take place in a simple sorting line based near to the landfill and a mechanical-biological treatment of MSW with production of alternative fuel (RDF/SRF) for cement plants or future co-generation could be planned (to be checked on a case-by-case basis).
3. Waste-to-energy plants for huge cities with >1.0 Mio. inhabitants: All over Europe, modern waste-to-energy facilities are considered as a suitable method for MSW treatment and energy recovery. Obviously, this is not a solution for the rural areas in Ukraine, but for the four largest Cities (Kyiv, Kharkiv, Dnipro, Odesa) the construction and operation of such state-of-the-art waste-to-energy plants would solve the dramatic waste problem which will obviously lead to catastrophes in all four Cities very soon. Supported by a (practically already existing) green tariff for electricity production, the costs per ton of incinerated MSW could be limited to an affordable level.

Financing and international expert know-how for new landfills, sorting installations and waste-to-energy plants could be attracted by design, build and operate tenders which should be supported by valid state or municipal guarantees and international finance institutions. BUT... where are the problems, what has to be done to switch from plans, studies and theories to a practical implementation of waste management solutions?

Availability of suitable land plots and permits: Nobody wants to have a landfill, sorting line or waste-to-energy plant near to his house or flat... This is understandable. Moreover, land is the main subject of speculation in Ukraine... In other words: no chances for new landfills and waste treatment installations...? ***If the problem of suitable land plots (maybe next to already existing old landfills) and necessary permits for new installations would not be solved by Authorities, there won't be any solution for waste treatment and Ukraine will drown and die from waste which is further simply dumped to the nature.***

Legal framework and tariff structure: Any significant infrastructure investment needs a secure basis for re-financing and a fair return on investment. Thus, ***tariffs for waste collection and treatment should be based on real cost calculations with fair margins and include index based correction formulas (e.g. for fuel costs, personal costs, energy costs)*** – as it is practiced in Western Europe already for years. Investments in new landfills, sorting/splitting lines and waste-to-energy plants require ***bring-or-pay guarantees for waste input and offtake guarantees for heat and electricity*** – issued by Municipal or State Bodies (and secured by international financial institutions) and ***contract durations which give the investors a fair time frame for the payback of their investments.***

And finally, independent, professional and transparent control is necessary: It seems that nobody is really taking responsibility for the waste management sector in Ukraine. While the legislation process is complicated, slow and not really stimulating the implementation of waste treatment solutions, many Municipalities are acting in their own way and obviously do not feel obliged to follow the directives outlined in the relevant legislation. A kind of ***“environmental police”, in which***



international independent experts and financial donors (e.g. from EBRD, IFC and others) could have a kind of control and advisory function, should support and control the implementation of new waste treatment solution – and help on the one hand with permits and administrative procedures, and control on the other hand that everything is done in line with Ukrainian legislation and international financial and compliance rules. This new body could be under the joint supervision of Ministries of Environment and Municipal Affairs.

Some words about costs... Today a Ukrainian citizen is paying between 100-300 UAH [between 3.00 and 9.00 € ...] per year for waste collection, transportation and landfilling. Compared to fees paid by inhabitants in EU countries, this is at least ten times (rather twenty times) less than the average. *In case if tomorrow* – waste collection would be provided with EURO 6 trucks (defined by law as from 2019), separate collection and sorting lines would be in place and new sanitary landfills would be constructed in Ukraine, we assume that costs per inhabitant and year for waste management would increase to a level of between 400-800 UAH [12.50-25.00 €] per inhabitant and year.⁴ If the waste after sorting would be brought not to landfills, but to waste-to-energy plants (in cities >1.0 mio. inhabitants) we would expect costs by inhabitant and year of between 700-1,500 UAH [22,00-47,00 €]. Of course, this would be an increase of 3-5 times (depending on the system) in comparison to today, but – as to our subjective view – not completely out of a realistic range.

Coming to a conclusion, despite of all difficulties, the Ukraine is still considered as an interesting country for investments into environmental infrastructure, especially in waste treatment.⁵ As representative of one of the leading environmental services companies, I do not have the right to give “intelligent advises” to Ukrainian Authorities, but rather to attract the attention to a huge number of successfully implemented efficient solutions for waste treatment in other countries – from low-cost sorting plants over modern sanitary landfills to state-of-the-art waste-to-energy plants. International companies are able and willing to bring technical know-how, funding, efficient and transparent project and operational management and their world-wide experience to Ukraine, if frame conditions would change and investments would be supported by the described measures.

“Changing the behavior” was the name of a EBRD study about municipal waste management in Ukraine.⁶ Let’s start with realistic, simple and tangible pilot projects for waste treatment before the next ecological catastrophe will appear – there is no more time to lose.

⁴ Basis for cost estimation “today”: Exchange rate 1 € = 32 UAH; Waste production of 300 kg MSW per inhabitant and year; actual costs for collection and landfilling between 325-755 UAH per to. / Cost estimation “tomorrow” based on: Exchange rate 1 € = 32 UAH; Waste production of 300 kg MSW per inhabitant and year; costs for collection 145-360 UAH/to.; costs for sorting 55-120 UAH/to.; costs for sanitary landfill 225-350 UAH/to; costs for waste-to-energy plant 500-1,500 UAH/to. [All cost estimations without VAT. Estimations based on experience and own research – no legal relevance.]

⁵ Länderprofil zur Kreislauf- und Wasserwirtschaft in der Ukraine. Uve GmbH Managementberatung in Kooperation mit GermanReTech Partnership. Berlin 2016. P.10.

⁶ European Bank for Reconstruction and Development: Changing our Behaviour. A Municipal Waste Strategy for Ukraine (2015).