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ЕРАУ

Ініціатива з розвитку екологічної  
політики й адвокації в Україні



JULY — NOVEMBER

2020

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LVIV

# WASTE & COVID-19

Study of new environmental  
impacts in the context of  
COVID-19 in Ukraine

fama  
custom research agency

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ZERO  
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*The Project, «The Study of New Environmental Impacts in the Context of COVID-19 in Ukraine», is implemented by the NGO «Zero Waste Lviv» in cooperation with the NGO «Ekoltava» and the Custom research agency «Fama» with expert support provided by the international organization «Zero Waste Europe». It is implemented within the framework of the «Environmental Policy and Advocacy Initiative for Ukraine» by the International Renaissance Foundation and funded by the Embassy of Sweden in Ukraine.*

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# ABOUT THE PROJECT

COVID-19 pandemics had a negative impact on the environment; in particular, it concerns the sphere of municipal solid waste management [MSW]. Often, the response measures of the local self-government bodies [LSGB] and state government bodies [SGB] to these temporary challenges are ineffective. At the same time, they may substantially impact the waste management strategies in human settlements, in particular, may strengthen the harmful practices impeding the transfer to the circular economy model. Improper management of highly infectious waste may negatively impact the epidemiological situation and human health. The spheres of individual knowledge and population skills in waste management are still the most challenging. It would be extremely hard to change the behavior of the population without communication that takes into account the awareness level and real practices.

The research focused on the study of the possibility to adapt and provide appropriate recommendations on the response of the waste management system to the COVID-19 crisis [which is a temporary situation]. We will follow the principle of ensuring the cross agreement with long-term courses of environmental protection measures and waste policies. We are guided by the set of European Union Directives on Waste Management [EU Circular Economy Package], focusing on the strategy concerning the use of disposable plastic products [Circular Economy Action Plan].

In the ongoing crisis caused by COVID-19, the termination of all activities and preventive measures have become the priority. There is still no vaccine that would change the situation and return the world to the normal state. At the same time, current approaches and technologies are able to solve only the temporary problem, and they may contradict the long-term road maps of sustainable waste and resource management. It isn't effective or reasonable both in terms of expenses/benefits and operation. Thus, the analysis of the long-term viability of the options and their correspondence to the circular economy model are the crucial factors in our evaluation.

**The objective of the project:** To study the practices of municipal solid waste in Lviv and Poltava oblast and develop recommendations to provide communication support to LSGB and SGB based on the scientific evidence of SARS-Cov-2 survival and inactivation to ensure an appropriate safety level and strengthen the capabilities of regions, communities, and citizens for compliance with sustainable and long-term waste management practices.

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In respect to lockdown prolongation, we subdivided our Study into 3 Stages.

## STAGE 1. PREPARATION

We collected the primary information about the state of waste management in case cities [Lviv, Truskavets, Poltava, Myrhorod].

In cooperation with international experts Enzo Favoino and Jack McQuibban, we analyzed the international experience, in particular, the materials and cases of the member-states of the «Zero Waste Europe» network and the «Zero Waste Cities» program.

## STAGE 2. ACTIVE PHASE

We carried out several waste assessments of municipal solid waste in Lviv and Poltava and performed an expert evaluation of the MSW structure.

We held 34 in-depth interviews with representatives of authorities, catering establishments and retail, MSW waste carriers, owners of recyclables collection points.

We finalized the content analysis of the media messages and defined the correlation between topics of «lockdown» and «waste management» in the period April 1-30, 2020.

We analyzed the reports of the Commissions on technogenic and ecological safety and emergencies [TESE] concerning the case cities and the orders of MoH on the operation of catering establishments, retail, hotels, beauty, and hairdressing salons.

### **STAGE 3. SUMMARY AND FINALIZATION OF THE STUDY RESULTS**

Based on the collected information and data, we developed following materials: detailed report; recommendations to the catering establishments, beauty and hairdressing salons, and retail; policy-brief for local self-government bodies.

### **ABBREVIATIONS**

<b>LSGB</b>	Local self-government bodies
<b>SGB</b>	State government bodies
<b>MSW</b>	Municipal solid waste
<b>PPE</b>	Personal protective equipment

# CHALLENGES POSED BY COVID-19

In Ukraine, like in many other countries, the epidemic of COVID-19 caused serious challenges in terms of municipal solid waste management. In particular, waste carriers report that due to lockdown, the volumes of MSW produced by households increased by ~30 %. Besides the MSW, it is also necessary to take into account the personal protective equipment [masks, gloves, tissues, etc.]. Since potentially infected waste may be present in general containers, waste carriers practice disinfection activities, which cause the increase in the price of the MSW removal services. It is unclear whether the measures taken to protect the employees working in this sphere are adequate.

Waste management in healthcare facilities is even more challenging. Media outlets report about unauthorized dumpsites and accumulations of medical waste that may cause an epidemic hazard. The situation is even more complicated due to the fact that the waste management sphere is on the primary stage of reform. In particular, Verkhovna Rada [the Parliament] of Ukraine still hasn't submitted for consideration any of the three registered framework laws «On waste». A number of measures were introduced to increase the volumes of product plastic packing, and this contradicts the bill «On limiting the turnover of plastic bags,» which was recommended to the second hearing. Not only does the efficiency of such measures in infection prevention lack evidence, but it may also cause a false feeling of safety.

At the same time, LSGBs strive to regulate the waste management sphere at their own discretion without sufficient evidence of effectivity or appropriateness of one or another action. On the one hand, it may result in a substantial increase in service charges; on the other hand – it may be unreasonable and insufficient to protect from the hazard.

Awareness level, attitudes, and real practices in waste management, including personal protective equipment, are still the most important issues. The study of awareness level and practices of the population may provide the foundation for the development of effective communication and advocacy campaigns to ensure effective methods for protection from the pandemic in this sphere, and what is more, they will contribute to the promotion of best waste management practices, including waste production, recovery, recycling and composting. The Ministry of Regional Development calls for it as well. But are the citizens aware of such activities?

## THE TIMELINE OF THE STRICT LOCKDOWN MEASURES IN UKRAINE

On March 11, 2020, pursuant to the resolution «On prevention of the spread of COVID-19 acute respiratory disease caused by the SARS-CoV-2 coronavirus in Ukraine»<sup>1</sup>, the Cabinet of Ministers of Ukraine introduced the national lockdown. Starting from March 17, it was forbidden: to visit educational establishments; to organize any mass events [more than ten people], except the events necessary to ensure the work of state government bodies and local self-government bodies; the work of catering establishments, shopping centers, entertainment and culture establishments, fitness centers. The work of food stores and supermarkets, petrol stations, pharmacies, mobile communication salons, banks and insurance offices, catering establishments functioning in delivery mode [on the condition that the staff is provided with personal protective equipment] was allowed.

March 16 – Ukraine closed its borders to foreigners. March 17 – Ukraine stopped international passenger flights, trains, and busses for 14 days. The citizens of Ukraine and foreigners with residence permits could cross the border only in special border crossing points.

March 18 – Domestic intercity and interblast air, rail, and bus travel were halted. The number of passengers in public transport was limited to 10 passengers [from March 25, it was possible to carry the number of passengers, which did not exceed 50% of the number of seats]. Subways in Kyiv, Dnipro, and Kharkiv were closed.

March 25 – The government introduced an emergency regime throughout Ukraine for a period of 30 days. According to the decision initiated by the [then-] Minister of Health of Ukraine Illia Yemets, healthcare institutions will examine

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<sup>1</sup> The resolution of the Cabinet of Ministers of Ukraine «On prevention of the spread of COVID-19 acute respiratory disease caused by the SARS-CoV-2 coronavirus in Ukraine».

<https://zakon.rada.gov.ua/laws/show/211-2020-%D0%BF#Text>

people who have symptoms of COVID-19 or have been in contact with people who are diagnosed with COVID-19, even if they refuse to conduct a voluntary examination, hospitalize such people, and lockdown people who are identified with the diagnosis of COVID-19 and those who evade voluntary treatment. At the same time, the National Police and the National Guard ensured public safety and order at the territory adhering to the objects, where compulsory examination, hospitalization or lockdown take place.

April 2 – The Cabinet of Ministers of Ukraine introduced new bans on being in public spaces without personal protective equipment; gathering with more than 2 people [besides the cases of service exigency and escort of persons under 14 of age]; being outside unaccompanied for persons under 14 years of age; visiting parks, squares, recreation areas, sports facilities, and playgrounds, etc.; carrying out any mass events [except for the events necessary to ensure the work of state government bodies and local self-government bodies under the condition of using personal protective equipment]; being on the street without identity documents; voluntary leave the observation site. At the same time, it provided a detailed list of entities allowed to work; the exceptions include veterinary markets and veterinary clinics, service stations, appliance and electronics service centers, accommodation facilities where medical workers and persons under observation live. The lockdown orders violation was punishable by a fine in the amount of 17 000 UAH or imprisonment for a term up to 8 years. Later, the Chief State Sanitary Doctor Viktor Liashko admitted that the ban to visit parks was introduced to evoke the feeling of fear in Ukrainians<sup>2</sup>.

The gradual loosening of lockdown restrictions started at the end of April – May 2020. On a condition of observation anti-epidemic measures, it was allowed to reopen agri-food markets [decision as of April 29, 2020]; museums, historical and cultural areas; summer terraces and takeout service at cafes and restaurants; notaries, audit and law firms; dental clinics [decision as of May 4, 2020]. The orders of the Chief State Sanitary Doctor of Ukraine regulated the work of business entities<sup>3</sup>.

## PUBLIC REACTION

Generally, Ukrainians observed lockdown restrictions. The number of people who deliberately violated the main bans [respondents who stated that they do not follow one or another restriction] according to the research of Kyiv International Institute of Sociology [KIIS]<sup>4</sup> was low:

- 5% did not comply with the ban on leaving home [except the cases of extreme necessity];
- 7% did not limit their contacts with other people;
- 11% were using public transport as usually;
- 14% did not use protective masks in public places due to their personal beliefs, 23% – due to the impossibility of buying a mask.
- 17% ignored the recommendations to disinfect mobile devices and other objects after returning home.

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<sup>2</sup>Interview by «Україна 24» as of May 8, 2020

<https://ukraina24.segodnya.ua/ua/obshchestvo-news/1261-ukraincam-specialno-vnushali-trevogu-v-minzdrave-obyasnili-svoi-shagi>

<sup>3</sup>The Orders and Decisions of the Chief State Sanitary Doctor of Ukraine

<https://moz.gov.ua/golovnij-derzhavnij-sanitarnij-likar-ukraini>

<sup>4</sup>Kyiv International Institute of Sociology. Do the Ukrainians observe lockdown restrictions

<https://www.kiis.com.ua/?lang=ukr&cat=reports&id=925&page=1&y=2020&m=3>



At the end of April, the new study by KIIS<sup>5</sup> indicated that the percent of the respondents that declared the intent to observe lockdown measures was 79%.

According to the data by KIIS, Ukrainians were more concerned about the possible negative consequences to the country's economy due to the introduction of the lockdown restrictions in May-April 2020 than about the epidemic itself.

## WHAT ARE YOU MORE CONCERNED ABOUT – CORONAVIRUS EPIDEMIC IN UKRAINE OR ECONOMIC CONSEQUENCES DUE TO LOCKDOWN RESTRICTIONS? OR NEITHER OF THESE CONCERNS YOU – THE SITUATION WILL BE BACK TO NORMAL IN 1-2 MONTHS?

	March 2020	April 2020
I'm more concerned about the coronavirus epidemic in Ukraine	34 %	26 %
I'm more concerned about economic consequences due to lockdown restrictions	43 %	54 %
Neither of these concerns me- the situation will be back to normal in 1-2 months	14 %	13 %
It's hard to answer, refused to answer	10 %	7 %

Source: KIIS

In this period, most Ukrainians were concerned about:

- health of their family [38 % – in March, 36 % – in April];
- increase in the price of food products [29 % – in March, 29 % – in April];
- financial hardships [20 % – in March, 26 % – in April];
- difficulties in buying personal protective equipment [27 % – in March, 20 % – in April];
- fear that they won't get medical assistance if they need it [20 % – in March, 20 % – in April];

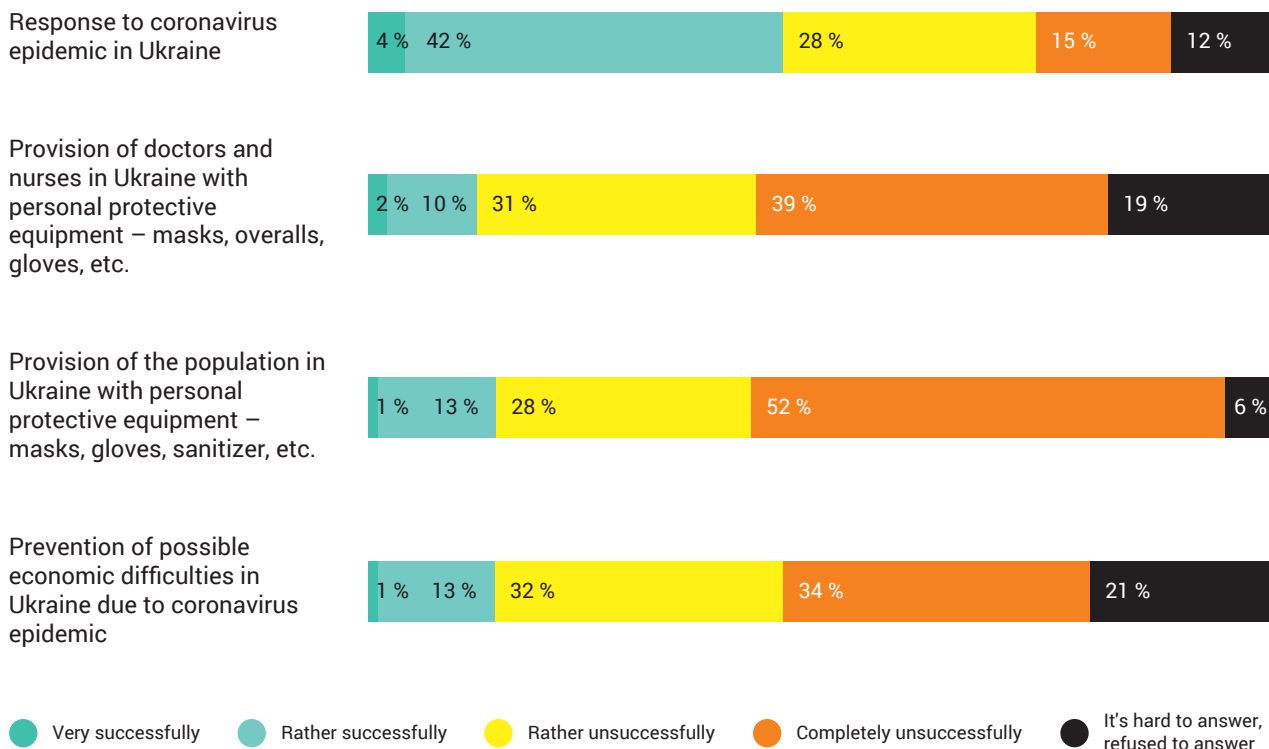
According to KIIS's data, the government was rather unsuccessful in combating the epidemic.

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<sup>5</sup>Kyiv International Institute of Sociology. Are the Ukrainians ready to lockdown prolongation?

<https://www.kiis.com.ua/?lang=ukr&cat=reports&id=936&page=1&y=2020&m=4>

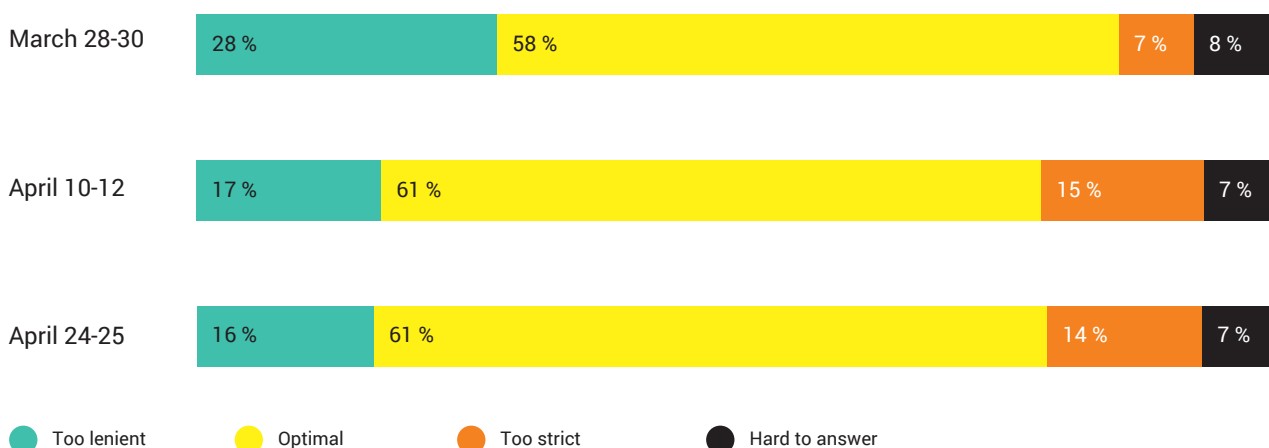
## IN YOUR OPINION, HOW SUCCESSFULLY OR UNSUCCESSFULLY THE NEW GOVERNMENT [PRESIDENT ZELENSKY, THE CABINET OF MINISTERS OF UKRAINE, VERKHOVNA RADA, LAW ENFORCEMENT AUTHORITIES] TACKLED THE FOLLOWING TASKS...



Source: KIIS

At the same time, the findings of the study conducted by the Sociological group «Rating»<sup>6</sup> show that most Ukrainians believed that the government's activities were optimal.

## EVALUATE THE MEASURES INTRODUCED BY THE GOVERNMENT IN RESPONSE TO CORONAVIRUS.



Source: Sociological group «Rating»

<sup>6</sup>Sociological group «Rating». Ukrainians on lockdown: monitoring of public attitudes

<http://ratinggroup.ua/research/ukraine/1f899becb5cbe23739dc1f91bc61a97d.html>

# WASTE MANAGEMENT IN CASE CITIES

According to the data of the Ministry of Regional Development, in 2019 Ukraine [exclusive of data from AR Crimea and the city of Sevastopol] produced almost 53 mil m<sup>3</sup> of municipal waste or more than 10 mil tonnes, with 94% of them buried at the territory of 6 000 landfills and disposal sites with the total area of almost 9 ths. ha<sup>7</sup>. The indicators for the oblasts, where the study was carried out:

- Lviv oblast:
  - the volume of collected waste: 4.1 mil m<sup>3</sup> or 690 ths. tonnes;
  - total number of landfills and dumpsites: 20 [11 of them are overloaded; 20 – do not comply with safety regulations];
  - the total area of landfills and dumpsites -155.57 ha;
  - the percent of waste that is taken to the landfills: 98 %
- Poltava oblast:
  - the volume of collected waste: 1.9 mil m<sup>3</sup> or 309 ths. tonnes;
  - total number of landfills and dumpsites: 556 [9 of them are overloaded; 219 – do not comply with safety regulations];
  - the total area of landfills and dumpsites – 451.73 ha;
  - the percent of waste that is taken to the landfills: 99 %

The average waste production rate in Ukraine is 250-300 kg per person/year.

## LVIV

The city is serviced by 6 municipal solid waste carriers: municipal enterprise «*Lvivspetskomuntrans*» and private companies «*GreenEra Ukraine*», «*Ecoway Waste Management*», «*Spetsavtotrans Lviv*», «*DV-Ekosvit*», «*Sankom*». There are some differences in the organization of municipal waste collection processes. Generally, the population is provided with containers for PET bottles, less often – for glass and waste paper.

	Lvivspetskomuntrans	GreenEra Ukraine	Ecoway Waste Management	Spetsavtotrans Lviv	DV-Ekosvit	Sankom
PET bottles	+	+	+	+	+	+
waste paper	+	+	+	+		
glass	+	+	+	+		
metal		+				
food scraps	+	+				
mixed waste	+	+	+	+	+	+
bulky waste	optionally	optionally	optionally	optionally	optionally	optionally

<sup>7</sup>Waste management in Ukraine in 2019 – Ministry for Communities and Territories Development of Ukraine

<https://www.minregion.gov.ua/napryamki-diyalnosti/zhkh/terretory/stan-sfery-povodzhennya-z-pobutovymi-vi/>

There are recyclable **waste sorting stations** in Lviv.

1. **Public recyclable waste sorting station «Green Box»** collects products from PET, HDPE and PP plastic, juice and milk containers [Tetra Pak, EloPak, Pure-Pak], paper cups and popcorn buckets, paper and cardboard, electronics and batteries, glass containers and broken glass, aluminum and metal cans, banners.
2. Recyclables collection point #SilpoRecycling collects plastic [PET bottles, stretch wrap, plastic bags, other packaging with HDPE labeling], paper [cardboard, paper, magazines, newspapers, paper packing, Tetra Pak packing], glass [glass bottles, jars, baby food bottles], metal [aluminum cans]. The clients of the supermarket chain «Silpo», who practice recycling, obtain intensities in the form of points in the discount program «Your account [Власний рахунок]».
3. It is also possible to bring waste paper [notebooks, newspapers, magazines], plastic [transparent and colored PET bottles, multi-liter water bottles, Tetra Pak], aluminum cans, and glass bottles [clear and colored glass] to the parking near «Metro» shopping center.

The Subsidiary Company «**Bodnarivka**» is responsible for hazardous waste management [including batteries, fluorescent lamps, and thermometers] in Lviv. There is a mobile point for the collection of used lamps and batteries, «Ecobus» that drives throughout the city according to a previously published schedule of its stops. Only the citizens of Lviv, Vynnyky, Briukhovychi and Rudne can bring used lamps and batteries in a safe package free of charge for collection. The amount of hazardous waste that could be delivered by one person at once is limited: lamps – up to 10 pcs., thermometers – up to 5 pcs., batteries – up to 10 kg. The increase of this amount could be prearranged. For example, if the waste is collected by an Apartment Building Co-Owners Association [ABCOA].

There are also 212 points for battery collection in the city established by Lviv City Council.

## POLTAVA

The city is serviced by the municipal transport enterprise «KATP-1628» subordinated to the Department of Housing and Communal Services of Poltava City Council. The enterprise collects the municipal solid waste in Poltava and subcontracts other organizations for bulky waste collection.

For the last two years, the system of separate waste collection functions in the city. The containers for separate collection of plastic, paper, glass, metal, and mixed waste are installed in residential districts and near municipal buildings. But not all the container sites are equipped with containers for all these materials. By November 21, 2019, the number of containers installed for the separate waste collection was 296.

The waste that was incorrectly sorted or unsuitable for recycling is picked out and delivered to a landfill. The sorted waste is sold to the contractors for further processing. In 2019, 632 tonnes of recyclables were sorted. In the period from February to November of 2019, Poltava KATP-1628 earned 2 mil 600 ths. UAH by selling sorted waste.



*«In 2017, the municipal enterprise earned 15 ths. UAH by selling sorted waste, and, in 2019, the enterprise earned almost 3 mil UAH by selling plastic,» – an official [Poltava].*

«KATP-1628» is also responsible for the «Ecobus» – a minibus that collects hazardous waste from the population: batteries, luminescent lamps, mercury thermometers. Poltava «KATP-1628» hands luminescent lamps, mercury thermometers over to LLC «Polekozakhyst» licensed to handle hazardous waste under the agreement on disposal; the final recycling of mercury takes place in SC «Bodnarivka» [Lviv]. The batteries are delivered to LLC «Ecological Investments» and after that to «Green WEEE» in Romania, because there are no facilities for their processing in Ukraine. In the first six months of its operation, i.e. from September 2019 to March 2020, «Ecobus» collected 21 753 luminescent lamps, 842 thermometers, 4 400 batteries.

There are almost 20 recyclables collection points in Poltava that collect waste paper, plastic, PET bottles, stretch wrap, glass, broken glass, colored metals, aluminum cans, used rubber, tires. Some points also collect furniture, boxes, and accumulator batteries<sup>8</sup>.

<sup>8</sup>[https://www.google.com/maps/d/u/0/viewer?mid=1zMZg6O-QDK2m6jYs8ufhpUjo\\_Q&hl=uk&ll=49.57820898853305%2C34.53248275000002&z=13](https://www.google.com/maps/d/u/0/viewer?mid=1zMZg6O-QDK2m6jYs8ufhpUjo_Q&hl=uk&ll=49.57820898853305%2C34.53248275000002&z=13)

## MYRHOROD

The enterprise «Spetskomuntrans» provides waste management services to the city. In Myrhorod, since 2006, the waste has been collected separately. Generally, there are 36 sorting sites with separate containers for glass, waste paper, and plastic [and personal protective equipment for the lockdown period, but this topic is elaborated further in the text] in Myrhorod. The municipal enterprise is responsible for waste removal, sorting, and transportation for further recycling.

At the enterprise, the waste is sorted into different subtypes, and after that, they are delivered for recycling to Cherkasy, Obukhiv, and the Dnipro. This recycling system allows for paying ecological tax, save funds of the city budget. Most of the garbage buried in the landfill is organic waste. Its percent is ~60 % from all the waste produced by the citizens.

According to the expert evaluation studies, at the moment, the citizens of Myrhorod sort and recycle ~15 % of all the waste. It is planned to purchase [using grant funds] a mobile sorting line that will increase this percentage to 60%.

There is only one registered collection point for recyclables [there are at least four unregistered points] in the city that worked during the lockdown period and collected PET bottles, waste paper, colored broken glass, plastic bags, polymers.

## TRUSKAVETS

Since August 1, 2017, only one waste carrier removes the waste in Truskavets. It's SC «Komunalnyk Plus» of LLC «Komunalnyk 1» with the office in the city of Stryi [it also provides services to Stryi and Morshyn]. In 2018, the company won the tender for waste removal in Truskavets for a period of 5 more years. The company has its own sorting line and complies with the burial waste disposal regulations.

Generally, the city takes steps towards the implementation of a separate collection of municipal solid waste. Though, at the moment, there are only containers for separate collection of PET bottles installed in Truskavets. All the waste container sites in the city were purchased and maintained by the city.

There are no officially registered entities for recyclables collection. There is no data on their operation [neither do the representatives of Truskavets City Council nor the representatives of the waste carrier know about their operation]. The representative of the waste carrier company stated that there are illegal or occasional recyclables collection points in the city, but there is no «professional» cooperation with them. A proof for this statement is the popularity of several advertisements on the Internet [as of September 2020] published by private individuals collecting scrap metal, radio equipment, circuit boards, broken glass, waste paper were the evidence.

In terms of bulky waste, it is necessary to state that the private enterprise *Spets tehnika* operates in the city. It removes construction waste to specially designated areas and thus prevents the pollution of the environment. And the SC «Komunalnyk Plus» of LLC «Komunalnyk 1» are also removing «green» waste [branches, leaves, cut grass].

## WORK IN LOCKDOWN CONTEXT

The **removal of municipal solid waste** during strict anti-epidemic measures in the case cities was carried out in normal mode. There were no delays in MSW removal in the case cities during the researched period. At the same time, a representative of the waste carrier stated that the intensity of MSW removal increased due to the increase in volumes of mixed waste.

Neither national nor local authorities regulated the work of waste management services. There was only one recommendation to the transport companies that obliged them to disinfect container sites. Though, this recommendation was ineffective. Furthermore, the correlation between the cost of disinfection and the effectiveness of this practice was inadequate; thus the disinfection of MSW sites was stopped.



«Of course, the city pays attention to sanitation. We control whether the collection [of waste] is carried out in accordance with the approved schedule, as well as the conditions of the container sites, the city, and all that, in its turn, influences the overall ecology. At the moment, all that is generally ensured. There were no extraordinary cases that would require any special reaction or implementation of any measures. Waste carriers additionally disinfect the containers and container sites with proper dissolutions they procured. The employees that perform these measures wear special equipment. They do it while collecting waste in the morning or evening. Not always do we see it, but the schedules are in place, and the measures are performed. There are no registered cases of infection with COVID-19 among the employees», – an official [Lviv].



«First of all, when a person was coming to work, we measured their temperature. There was always a healthcare worker that was performing these exams and registered everything in a special record book. Also, every time we provided the employee with a new respirator and provided the possibility to treat their hands with special disinfection dissolutions. Also, we additionally provided them with medical gloves; usually, they work in fabric rubber-coated gloves. During this period, we obliged our employees to wear clothes covering most of their body. Meaning that we tried to control our employees because we understood – if any of our employees was infected, it would stop the work of the whole enterprise. During this period, our office shifted to remote work, and we supported the employees who constantly work in such a non-stop mode... Every crew was provided with sanitizers. We also contacted the logistics manager every few hours and delivered new disposable protective equipment every two hours, i.e., changed the masks. After that, we handed these masks over for recycling to big supermarkets, with which we cooperate in terms of waste, i.e., with which we had a direct contract. We handed them these PPE for recycling, and then compensated the expenses with our waste services,»- mentioned a representative of a waste removal, sorting, and disposal company [Lviv].

**Recyclables collection points** were not included in the list of business entities. Their operation was not regulated; for this reason, they were closed for the whole period of the strict national lockdown [except for cases when they work without contact with citizens, only with waste management companies, or was partially of illegal nature]. The work of these business entities during lockdown is still not regulated by a separate procedure.



«We weren't allowed to work. As far as I remember, we reopened only on 28th of April. Poltava was drowning in garbage. The garbage containers couldn't fit all the waste paper, and the collection points [of recyclables] were closed. Food stores used cardboard boxes and stretch wraps. People could visit stores, while no one provided any services in terms of recyclables removal. It was just thrown away», – recyclables collection point [Poltava].

It seems that the closure of the recyclables collection points negatively impacted the informal sector of waste management [i.e. the consumers and/or citizens that used to bring for refund some recyclables from mainly picked from condominium containers with mixed municipal waste].

## THE DECREASE IN RECYCLABLES PURCHASE PRICES

At the end of 2019 – beginning of 2020, the purchase price of recyclables substantially decreased, and it impacted the waste management sphere. There were some fluctuations of price even before that [10–20 %; rather seasonal nature], but this time it decreased almost by half [30–50 %]. According to expert evaluations, the possible reasons include the war with Russia [market cut-off], change of legislation on waste management in Europe, Chinese moratorium on the importation of raw materials, and strict lockdown in the county due to the spread of COVID-19, the dollar's fall.

Europe introduced a system of extended producer responsibility under which they are responsible for the recycling of their product packing. Though, the producers can decide whether to do it in the EU or to transport the packaging abroad. Recently, China accepted this type of secondary raw materials. A few years ago, after the introduction of restrictions, the European countries started delivering their secondary raw materials to Ukraine. The work with these materials is more economically beneficial than producing them in Ukraine. However, the closure of the borders due to the introduction of anti-epidemic measures limited the delivery of cheap raw materials.

The work of the «Ecobuses» [which collect hazardous waste] was halted as well, even though they are directly subordinated to the municipal services [in Lviv and Poltava], and they restarted their work only after loosening the lockdown that was introduced on the 12th of May, 2020 [in Lviv – in June, in Poltava – in May].



*The work of the «Ecobuse» stopped for almost a month. The very first phase [of the lockdown] was the most challenging. We halted the work of the «Ecobuse» when it was necessary to limit the gathering of people. Later, after loosening, the «Ecobus» resumed its work» – says an official [Poltava].*

No substantial changes due to the lockdown were introduced to the procedures for waste management services – the list of typical equipment [gloves and sleeve covers] was supplemented with masks and disinfection agents, and if possible – a requirement to work outside. At the same time, not all the employees of the services observed the recommendations.



*«I will be honest with you: nobody followed these recommendations. And we still don't follow them. Because I see no point in doing so. None of my employees was infected. I don't know anyone infected. For the whole time I have been working, nobody of my colleagues, family or friends was infected. I don't understand what it is all about. And masks don't protect. We wash our hands with soap – that's it. We wash, take showers. And we wipe our hands with alcohol and disinfect our internals with alcohol as well. We do everything like normal people would do. Everything's fine» – owner of recyclables collection point [Myrhorod].*

## RECOMMENDATIONS ON PERSONAL PROTECTIVE EQUIPMENT MANAGEMENT

The attention to the waste management sphere during the pandemic and disposal of personal protective equipment [PPE] was minimal. The Ministry for Communities and Territories Development of Ukraine published a «Recommendation on municipal waste management during the lockdown»<sup>9</sup>, which [mostly] stipulated that households should take part in the elimination and minimization of waste production.

The Recommendations of the Ministry of Health [MoH] on personal protective equipment management included the creation of additional arrangements for their disposal at the container sites and in the establishments providing services to the population. If there were no such arrangements, the following procedure was suggested: to soak PPE in disinfecting agent for three days; after that, to put it into a plastic bag, tightly close it; and dispose of it in the mixed waste container. Waste carriers rarely noticed this type of garbage in their mixed waste.

Lviv, Poltava, and Truskavets rejected the idea of installing additional arrangements for the separate disposal of PPE. Only Myrhorod put it into action [among the studied cities]. The refusal to install separate containers was explained with doubts about the compliance with the sorting requirements among the citizens, which means that other [mixed] waste is thrown into these containers. According to the healthcare workers, it didn't cause any danger.



*«We received many letters asking: «What should we do with it [personal protective equipment]? We don't know who's healthy/infected. So what should we do?» And we started monitoring what was going on in the media and on the Internet. Back then, there was a huge outbreak and increase in infections in Italy, later – in Spain. We were trying to study Europe to see what other countries were doing in a similar situation. It turned out that on such objects as masks and gloves, it [the virus] can survive at most for six hours. The Ministry of Health recommends collecting masks in plastic bags, letting them rest like that for 6-7 hours, and after that disposing of in the mixed waste containers. At first, we wanted to install separate containers. But, taking into account the mentality [of people], we gave up on this idea. The masks could have been taken out [from the separate containers intended for their collection] and sold for the second time in this agiotage period. In any case, it would have resulted in even the highest infection rates, i.e., it would have caused additional danger. That is why we rejected it [this idea]. The whole world rejected it. You have no mask? You can easily get one from such a container and no more worries. Not everyone is responsible enough. There are such instances. And we have to take them while performing our work» – an official [Lviv].*

<sup>9</sup>Recommendation of the Ministry of Regional Development on municipal waste management during lockdown

<https://www.minregion.gov.ua/napryamki-diyalnosti/zkhk/teritory/rekomendaciyi-minregionu-shhodo-povodzhennya-z-pobutovymy-vidhodamy-pid-chas-karantynu-2/>

However, in Myrhorod, all container sites were equipped with separate containers for collecting personal protective equipment. The City Commission on TESE took such a decision pursuant to the recommendations of the Chief State Sanitary Doctor of Ukraine. The containers will stay in place until the very end of the lockdown. All the PPE used by the citizens are collected on a centralized basis, treated with disinfecting agents, and buried. There is no registration of the removed waste. No substantial systematic breaches of sorting procedures were recorded.



*«I'd say that there may be different situations. Sometimes, there is other garbage [in containers for collecting used personal protective equipment], but its amount isn't too excessive. Not all the citizens are responsible enough to throw only the intended garbage into the containers with respective indications. There are indication titles, but other types of waste get into these containers» – an official [Myrhorod].*

The containers for collecting used personal protective equipment were installed in shopping centers, supermarkets [Auchan, Silpo, ATB], and in some entities where their presence is monitored by the SSUFSCP [State Service of Ukraine on Food Safety and Consumer Protection]. Waste carriers rarely noticed PPE in the structure of mixed waste. At the same time, there were numerous complaints about huge amounts of PPE out on the streets.



## **ABSTRACT FROM THE EUROPEAN COMMISSION RECOMMENDATIONS ON WASTE MANAGEMENT**

In the context of the coronavirus crisis, it is even more important that citizens separate well their waste and ensure the flow of clean streams of recyclables towards the waste treatment facilities. Citizens should be informed about any temporary changes to the waste collection practices that affect the way they deliver waste for collection and further treatment. Where necessary, citizens should be reminded of the requirement not to discard WEEE, batteries or household chemicals in residual waste.

EU Member States should ensure proper planning of temporary storage capacities for waste collected for recovery in anticipation of any disruptions in sorting and other treatment processes.

Waste carriers should take measures to protect the health and safety of workers and providing them assurance about how employers are addressing the risks related to the coronavirus crisis. These measures are essential for increasing workers' confidence and ensuring continuity of waste management services.

Practices communicated by stakeholders in the waste management sector.

- Adapting the organisation of staff to avoid passing on infection among teams. For example, respecting distancing between individuals, reducing to the minimum the number of workers present in the same area.
- Ensuring the availability and appropriate use of adequate PPE as well as of suitable disinfecting agents.
- Ensuring strict adherence to enhanced hygiene standards, including frequent change and cleaning of PPE and professional clothing; replacing damaged gloves in any incident of potential contamination; regularly sanitizing facilities, vehicle cabins and clothes.
- Ensuring that where masks are usually worn, strict protocols on how to put and take off PPE are followed, thus avoiding incidental contact and contamination.
- Where appropriate, encouraging specific working conditions for vulnerable people, such as elderly workers and persons with specific chronic health problems.

# MUNICIPAL SOLID WASTE IN CONTEXT OF PANDEMICS

The introduction of anti-epidemic measures, in particular, the limitation of some specified business entity's changed the structure of waste in the cities.

**There was an increase in terms of waste volumes** [in April 2020, there was a decrease in the volumes of waste removed by ~13% both in Lviv and Poltava]. In the course of in-depth interviews, the representatives of waste carrier companies told us that it happened due to the increase in bulky packings such as polymers [plastic containers, wraps, bags] and paper that are not heavy, but rather bulky instead, in mixed waste and recyclables. It led to more frequent removal of waste from garbage containers.

## TONNES OF MSW REMOVED FROM THE CITIES [TOTAL]

	березень	квітень	травень	червень
Львів	20 213,5	17 377,3	17 641,4	18 817,3
Полтава	6 809,6	5 947,9	6 185,4	6 099,4

Sources of data: Department for waste management of Lviv City Council; Poltava KATP-1628

## TONNES OF MSW REMOVED FROM THE CITIES [AVERAGE PER DAY]

	березень	квітень	травень	червень
Львів	652,0	579,2	569,1	627,2
Полтава	219,7	198,3	199,5	203,3

Sources of data: Department for waste management of Lviv City Council; Poltava KATP-1628

**Despite the flow of tourists stopped, restaurants, and shopping centers closed, there was no substantial decrease in waste amounts in the cities.** According to the waste carrier, the volume of waste in the center of Lviv decreased by 60%, but it increased by 30% in residential districts of the city. In Poltava, the situation was similar. Even in Truskavets, where tourists significantly outnumber the local population, the total volume of waste remained unchanged. Despite the absence of tourists, the difference in waste was compensated by the garbage from the citizens, in particular, by construction and bulky waste. And only in Myrhorod, due to the closure of sanatoriums, the volume of waste reduced by 40% [according to the evaluations by the participant of the study].



*«During the lockdown, the amount of waste from these establishments [catering, retail] decreased, because a large part of the waste is produced by the sanatorium establishments, which were closed during this period. For this reason, the [waste management] companies suffered some losses. The frequency of [waste] removal, vehicle operation was reduced, but the infrastructure was still functioning. True, loss in income is a problem, but it's not that critical» – an official [Myrhorod].*

The consumer behavior of the citizens changed as well. **During the period of strict lockdown restriction, the average sum spent in stores increased.** The participants of the study suggested that customers started planning their visits to stores or supermarkets because they were conscious that there was a need to minimize their contact with strangers. That is why shopping became less frequent, and the shopping carts became fuller. [At the time of the study, the average sum in the receipts was back to the pre-lockdown level].



*«The visiting frequency decreased. i.e., the number of receipts decreased, while the average sum in receipt increased. It means that people were shopping less frequently but started buying more to minimize their contact with other people and avoid any danger. At first, there was an increase in [popularity of] so-called «foods of social importance» [i.e., first priority products], including sugar, salt, flour, oil, cereals, etc. Then there was the second wave – personal protective equipment including sanitizers, masks, antibacterial soap. After that, when people started complying with lockdown, there was an increase in the sale of prefabricated products [dumplings, varenyky, frozen foods, pasta, breakfast cereals, corn flakes, and sweets]. There was a significant decrease in alcohol sales. The downfall was substantial» – the head of marketing department of a supermarket chain.*

Due to the **overall decrease in purchasing power** [in April-May 2020, when the strict lockdown affected the financial wellbeing], the population started buying prefabricated and ready [most often packed] products. This was reported by representatives of the retail sector, referring to the statistics of trade turnover of retail chains. Prefabricated products are often cheaper than untreated food because they don't depend on seasons and the volumes of their production are bigger. The introduction of lockdown in the middle of March also caused an agiotage demand for some food products – cereals [buckwheat], vegetables with long shelf life [potato], etc. A price increase for the latter ones could have been caused by the decrease in offer in big cities due to transport restrictions and closure of wholesale markets. So more and more plastic packing was discarded.

## THE IMPACT OF COVID-19 ON THE WASTE MANAGEMENT SPHERE.

1. Since the establishments working in tourism and hospitality industries were closed, the waste they produce decreased.
2. The amount of organic waste from the population increased because people started cooking at home more.
3. The amount of plastic packing increased due to the MoH's requirement for supermarkets to pack bakery products, cereals, vegetables, and fruits in plastic bags or food wrap.
4. The number of materials used for packaging [plastic and cardboard] raised due to the increase in popularity of delivery services.
5. The reduction in recyclables, in particular, PET bottles, glass, aluminum cans that are associated with the decrease in purchasing power of the population.
6. The amount of bulky and construction waste increased because people spent more time at home and started investing in renovation and cleaning. This tendency existed even before that – in spring and fall periods. Did the strict lockdown contribute to this tendency in absolute values? Unfortunately, it is impossible to confirm it.
7. There was an increase in hazardous waste accumulations in the population, such as lamps, used batteries, and mercury thermometers, because the work of the «Ecobuses» in Lviv and Poltava was halted.
8. The emergence of a new category in the waste structure – personal protective equipment [masks, gloves, sanitizers, detergents, detergent bottles].

## IMPEDIMENT TO ZERO WASTE

In recent years, the «zero waste» trend has been actively spreading throughout Ukraine, as well as the understanding of the need to minimize the amount of waste. Catering establishments started moving towards zero waste cooking. The population was more often turning to reusable containers and bags for shopping. Even though almost everyone realized that it was important to reduce the amount of waste production, not everyone was ready to do so because the financial and organizational components were rather demanding. But there were such cases, and their number was increasing, in particular, due to the appealing reputation of Zero Waste.

The progress in this sphere was substantially halted by the anti-epidemic measures and lockdown restrictions concerning the work of catering establishments, in particular, the use of separate plastic packing, disposable containers for serving. All that significantly increased the amount of waste.



*«Behavior [of the clients] was aimed at increasing their safety. It means that if a person notices that there is a product in individual packing, in most cases, this person will opt for this product. So, if two-three years ago, we could observe the trend to use your own reusable cup for buying coffee or your own bags or containers for shopping, now this pattern is hardly noticeable. And still, it seems that now the focus shifted to the safety factors. Thus as I understand that people could have touched a product three hundred times before I bought it, I would rather buy something vacuum-packed» – the head of the PR-department in a catering chain [Lviv].*



*«If we consider the impact on the environment – the amount of used masks, gloves, disinfecting agents... For example, earlier, we used natural straws, and now they should be packed individually, and they are only available in plastic packing. Everything that we sell should be covered, and covers are made of plastic. A cup is covered with a layer of plastic. Our principal position is to serve coffee without any straws, but we provide straws with cold drinks, which are also sold in plastic containers. Recently, we at least tried to cut on the amount [of plastic containers], but now it's impossible. Right now, more waste is generated» – a coffee shop owner [Poltava].*

Given that the implementation of the «zero waste» concept started in Lviv in 2017, the initiative was nothing new for the local government and business. The team of NGO «Zero Waste Lviv» succeeded in attempting to change the decree of the local government, and as a result, it was allowed to provide services to the customers at summer terraces using reusable tableware. However, MoH recommended using only disposable tableware. Only in Lviv did we notice this type of tableware.

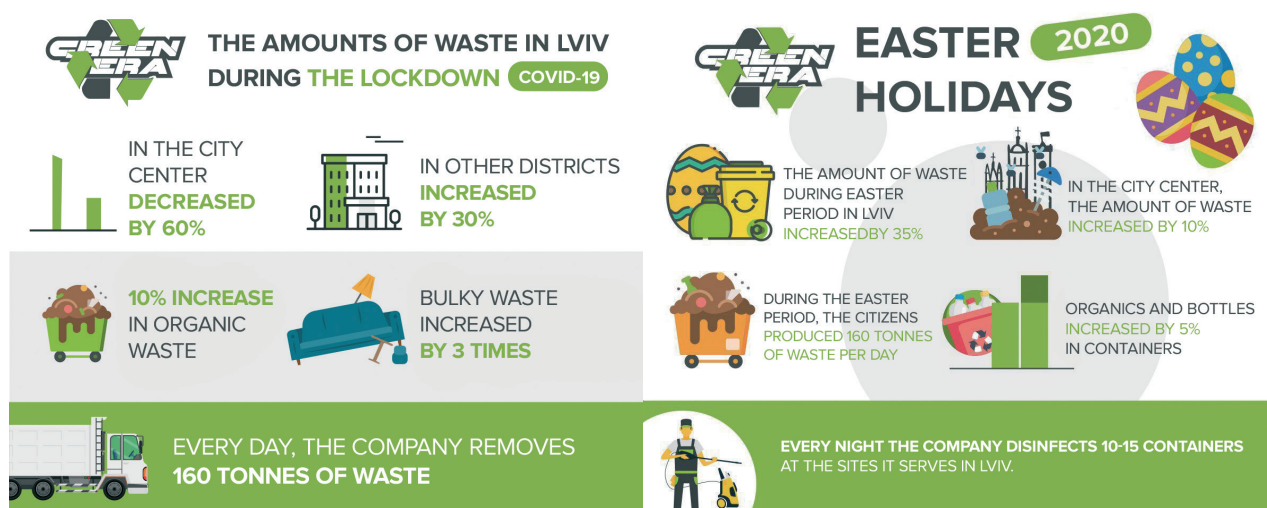


*«In Lviv, TES [the Commission on TESE] did not oblige us to do that [pack cereals, vegetables, and groceries in plastic packing]. We communicate with the City Council and Oblast State Administration. And I have to admit that they worked with understanding, so to say. They considered European standards. As we see, Western Europe never took such decisions, which anyway wouldn't result in an increase in customer's safety. And I want to say that the more we pack everything, the more plastic bags we have to throw away. In this way, we contribute more to harm to the environment than to the protection of our clients. I think it was a wrong decision. In the case of sugar – you can apply it, but you will still have to cook buckwheat, and you will for sure wash other cereals as well. I want to say that, here, in Lviv, we had a different vision. It helped us « – a director of a hypermarket [Lviv].*

## WASTE ASSESSMENT

The morphological composition of waste seems to be the most important set of data providing the foundation for all the core decisions concerning waste management. The changes in the morphological composition of waste reflect the changes in the behavior of citizens and businesses. Anti-epidemic measures, in particular, lockdown restrictions, substantially changed the behavior of citizens and businesses. They also impacted the amount and structure of the municipal solid waste. For example, LLC «GreenEra Ukraine» that provides services on waste removal and disposal in Lviv published on its webpage information about some changes in the structure of municipal waste. In particular, it registered the qualitative changes in districts and in some waste categories. The decrease in waste volumes in the central district of Lviv is associated with the closure of catering establishments, hotels and hostels, and the absence of tourists. The rise in waste volumes in residential districts, in particular, in organic and bulky waste, was probably caused by the fact that citizens stayed at home and thus cooked more, used delivery services with additional packing, cleaned their homes, and conducted minor renovations. Unfortunately, the waste assessment study during strict lockdown measures and resident survey on behavior change and waste production was not carried out.

The waste assessment study that captures changes in waste production rates by the population when the strict lockdown restrictions in Lviv was performed by the Company «GreenEra Ukraine»<sup>10</sup>.



Text in the first picture: The amounts of waste in Lviv during the lockdown COVID-19; In the city center decreased by 60%; in other districts increased by 30%; 10% increase in organic waste; bulky waste increased by 3 times; Every day, the company removes 160 tonnes of waste.

Text in the second picture: Easter holidays 2020; the amount of waste during Easter period in Lviv increased by 35%; In the city center, the amount of waste increased by 10%; During the Easter period, the citizens produced 160 tonnes of waste per day; Organics and bottles increased by 5% in containers.

Within the framework of our project, we conducted a waste assessment study in two condominiums in Lviv [17-21 August] and in Poltava [11-17 September]. We selected the ABCOA with daily waste removal to study their accumulation per day. The number of officially registered residents in Lviv ABCOA is 350 people, in Poltava – 747 people. The study of both ABCOA was conducted at the territory of container sites on Monday, Wednesday, and Friday, right before they were removed by a garbage truck.

<sup>10</sup><https://www.facebook.com/GreenEraLviv/photos/a.240809083047683/909249076203677/>

<https://www.facebook.com/GreenEraLviv/photos/a.240809083047683/920063805122204/>

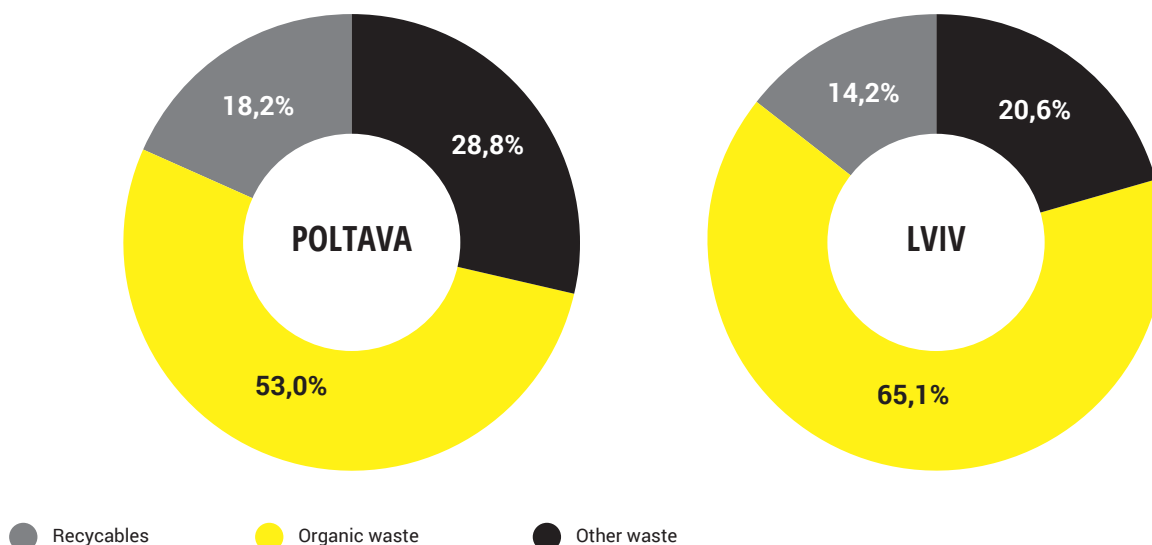
At the same time, the study showed that the situations in Lviv and Poltava are similar. By weight, organic\food waste constituted the largest part. That is why the local authorities should pay attention to and focus their efforts on ensuring the arrangements for separate collection and composting or anaerobic fermentation of food and gardening waste. 14–18 % of recyclables in mixed containers indicate that it is necessary to ensure the arrangements for sorting waste in some specified container sites. Other types of waste include such categories as street sieving, sanitary and hygienic aids, textiles, ceramics, and also dirty and polymeric packing, which is not valuable in terms of resources.

The amount of produced waste per one resident of the studied ABCOA was not significantly different and was 510 grams per person/day [Lviv] and 470 grams per person/day [Poltava]. If we assume that all the citizens of Lviv produce this amount of waste per day and compare this amount with the average municipal solid waste produced in the city, we will see that the population produces 57% of MSW in the city. The rest 43% are produced by the commercial and state entities.

The waste assessment study concentrates on personal protective equipment, in particular, on medical masks and gloves. In three days, 35 masks per 350 residents were found in Lviv, and in Poltava, this number was 60 masks per 747 residents. Usually, people just discarded the masks and gloves into containers. We registered only a few cases when PPE was packed in a separate plastic bag.

It is worth mentioning that it is necessary to be careful while summarizing and applying the findings of these studies for developing recommendations, because, on the one hand, the study involved a low number of container sites, and on the other hand – in other seasons and when the lockdown restrictions were loosened. But in combination with other research methods applied in the course of the project, the morphological analysis of waste contributes to the formation of a comprehensive picture. It also indicates the need to conduct further studies and significant improvement in data collection and open data access.

## THE FINDINGS OF THE MORPHOLOGICAL ANALYSIS OF THE MUNICIPAL SOLID WASTE IN LVIV AND POLTAVA



# WORK IN THE CONTEXT OF LOCKDOWN AND RECOMMENDATIONS

The hazard caused by the spread of COVID-19 infection was easy to predict with regular reports on epidemics course in other countries. In some cases, the participants in the study say that they expected the introduction of anti-epidemic measures in Ukraine too. At the same time, the duration and the scale of these measures were barely overestimated.



*«Actually, we realized what the situation in the whole world was. Already in February, we started an active awareness raising campaign on personal hygiene, washing hands... We started with educational establishments – primarily with kindergartens, schools. We started a mass procurement of hand hygiene stations in educational establishments, healthcare facilities, and after that, we provided municipal enterprises – we procured everything for washing the roads, residential buildings. So, we started doing all that in February. In March, we realized that it was necessary to establish a headquarter that will include people representing different sectors and organizations» – an official [Lviv].*



*«For us [for the city] it was very painful because the tourists are the only source of income. I mean the sanatoriums and restaurants. They suffer the most from the lockdown restrictions. At some point, all people just left the sanatoriums. Sanatoriums closed, restaurants closed, and the income to the budget rapidly dropped. What challenges did we face? At first, we had to realize that the times of strict economy started. The first steps taken concerned the economy of budget funds. We had to reduce and revise the expenses planned at the beginning of the year. I mean the major repairs of streets, salaries/ intensives/ bonuses. We had to prioritize. And, unfortunately, we had to give up on what we were planning at the beginning of the year» – an official [Truskavets].*

Specialized authorities developed national recommendations for some business entities on their economic activity in the context of anti-epidemic measures, and after that, they were provided to the local authorities. At the beginning of the national lockdown, local self-government bodies were entirely dependent on the Decisions of the Cabinet of Ministers, Ministry of Health, State Commission of technogenic and ecological safety and emergencies and fully implemented them. Later, the local government started working ahead of such decisions.



*«From time to time, we could see that the decisions of the central government were late. Sometimes, our decisions were taken much earlier than the Ministry of Health published its orders. For example, even as simple things as testing. We realized that we need testing at once, without any delays. I mean that there were orders which regulated the actions of healthcare workers and clearly specified what to test and how. We saw that they were imperfect. We recommended doing these or other things in a slightly different manner. And usually, in three-four-five days, the Ministry would send us the recommendations, which we started implementing three-four days before that. But this issue is due to bureaucracy because, I think, doctors and healthcare workers in Kyiv, Poltava, or Kharkiv are of the same qualification level. And they see these processes basically in the same way. But there is the bureaucracy that impedes timely reaction... The same concerns the requirement to disinfect streets and sidewalks – during the primary period, our municipal enterprise was treating the roads, pavements, and trash bins. When the state government demanded and strictly controlled, we treated even parks and public gardens with disinfecting dissolutions. Only later did we realized that all these measures were ineffective and rather costly. And later we received, as I would call it, a scribble from Kyiv stating that we didn't need to disinfect, watering was enough» – an official [Poltava].*





*«We, on the contrary, tried to minimize these or other restrictions and enable the function and development of the business. So we had no specific restrictions. It seems that we had specific relieving measures. For example, when the Oblast Commission on TESE banned some steps, but we had to reopen the hotels, sanatoriums, mineral water pump rooms» – an official [Truskavets].*

At the local level, the *Oblast and Local Commissions on the technogenic and environmental safety and emergencies [TESE]* were responsible for the implementation of anti-epidemic measures [additional COVID-response headquarters was created in Lviv]. The frequency of the meeting of the City Commissions on TESE and their members were changing depending on the duration period of lockdown restrictions and challenges faced by the cities. All the Commission's decisions were published on official online-platforms of LSGB and communicated by the officials on their official pages in social media and traditional media outlets [TV, radio, press]. Generally, most of the cities established online or off-line communication with different sectors varying from common chats in Telegram, WhatsApp, and conferences in Zoom and Skype to consultative organs under executive committees. In Lviv, for example, the representatives of different sectors took an active part in the formation of the list of restrictive measures.



*Generally, most of them [recommendations for business during the lockdown] were not really approved; they [business representatives] invented these rules themselves. We have realized that our task was to minimize social contacts. So let's make up a plan on how to achieve it together. We consulted. And it was actually the most effective tool» – an official [Lviv].*



*In fact, we created these procedures jointly [together with the government]. We provided some recommendations, comments on some norms or things stipulated in the procedures. Because, as I have mentioned before, we already had some established practices in making specific decisions on sanitation and safety. So it could be a good idea to share them with the catering establishments. So, the decisions are always available. There are some WHO and Ministry [of Health of Ukraine] recommendations, some decisions that are made locally, and if you study how this process from the operational point of view, you can question all that. So, we were actually involved in these processes... We provided our recommendations, our vision. And sometimes they were somehow reflected in these procedures» – the head of the PR-department in a catering chain [Lviv].*

In other case cities, similar cooperation was in most of the cases initiated by the business.



*«I created an algorithm for working under lockdown restrictions and suggested this algorithm to the City Council. After that, the City Council invited a few more owners of coffee shops and me to discuss it. I explained that there are many people who work illegally, and the control is selective. It's the first issue. The second one is that you make the business work illegal... The algorithms I suggested were very logical. Everything I suggested is stipulated in these documents almost like I wrote it» – coffee shop owner [Poltava].*

For business, the official HOMEPages of the Cabinet of Ministers of Ukraine, Ministry of Health, Chief State Sanitary Doctor, and City Councils were the main sources of information on peculiarities of the work process. Due to information overflow and lack of unified information resources, the private entrepreneurs had to resort to third-party experts for explanations, in particular, concerning legal aspects.

The interviews also provided information that city officials [if necessary] had been providing individual consultations about work during the lockdown via telephone.



*«Personally, I can say that I communicated with the City Council a lot. The City and Oblast Councils created group chats in messengers, constantly organized meeting in Zoom and Skype before introducing the guidelines to conduct briefings and discussion of critical points. They even shared some contact information of sellers when there was an issue with the provision of disinfecting agents and masks. All the new rules were sent by email, in group chats. They also provided us with general print-outs, videos to inform the customers about the appropriate behavior and actions. Personally, for me, the amount of information provided by the local government was enough to communicate with the clients» – the head of marketing department of a supermarket chain.*



The topics that were communicated most actively include the danger posed by the virus, recommendations on infection prevention, advice to stay at home.

## PRACTICES AND DECISIONS IN THE MEMBER STATES OF THE EUROPEAN UNION

On April 14, European Union published the Guideline on Waste management in the context of the coronavirus crisis<sup>11</sup>. This document provides guidance with a view to ensuring a high level of protection of human health and the environment, while preventing and reducing disruptions in the provision of proper waste management services. It is based on consultations of Member States experts on waste and key stakeholders in the area of waste management and the recommendation of the European Centre for Diseases prevention and Control [ECDC]. The recommendation will be updated as appropriate. A separate recommendation on waste shipments in the context of the coronavirus outbreak has been issued too.

This document declares that proper waste management is a part of essential services to our society. Each person produces nearly half a tonne of municipal waste per year in the EU on average. It means that every week more than 20 kg of municipal waste is generated per household. Preventing distortions in waste management, including separate collection and recycling of waste, is crucial for the health and safety of our citizens, for the environment and for the economy.

Preventing disruptions of separate waste collection is important for ensuring that the infrastructure for residual waste collection and treatment is not overburdened, potentially creating additional health risks, that the effort sharing in waste collection is respected and the taxpayers do not bear disproportionate share of the costs of waste management, and that citizens can keep their environmentally friendly habits. Separate collection is also essential for safeguarding the trajectory towards a circular economy and the jobs and businesses that depend on secondary raw materials supply.

According to the Article 13 of Directive 2008/98/EC «On waste», waste collection practices can be adapted in the context of the coronavirus crisis with the objective of protecting public health. Any such changes should comply with the EU law on waste. They should be necessary and proportionate to protect human health in particular by limiting them to areas and time periods strictly necessary to respond to the risk identified based on latest scientific advice. They should also strive to maintain the overall objective of separate collection and recycling in line with the waste hierarchy.

For the 2014-2020 period, Member States have allocated €4.9 billion of cohesion policy funding to waste management. This includes support to waste prevention and awareness-raising, separate collection systems [incl. equipment and vehicles], treatment infrastructure, administrative capacity-building and other investments linked to local priorities<sup>12</sup>. By the end of 2019, 31% of this amount has not yet been allocated to specific projects. Managing authorities in regions and Member States can give more information about existing funding opportunities. Funds may be available also under other priorities of EU policy development, such as disaster risk management or healthcare.

In addition, under EU rules on state aid, support in the form of direct grants or tax advantages can be granted by Member States [national funding] to undertakings in all sectors, thus including waste management, that find themselves facing a sudden shortage or unavailability of liquidity. To address the current crisis, on 19 March 2020 the Commission adopted a new temporary State Aid Framework, under which Member States can grant different forms of aid including grants of up to €800 000, public guarantees for loans or measures to enable loans with subsidised interest rates. Member States can use all of these possibilities to ensure that economic operators that are involved in waste management have access to the necessary funding. In this way, they will be able to cope with the coronavirus crisis.

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<sup>11</sup>Waste management in the context of the coronavirus crisis

[https://zerowastelviv.org.ua/wp-content/uploads/2020/11/waste\\_management\\_guidance\\_dg-env\\_UKR.pdf](https://zerowastelviv.org.ua/wp-content/uploads/2020/11/waste_management_guidance_dg-env_UKR.pdf)

<sup>12</sup>In profile: EU support to waste management

<https://cohesiondata.ec.europa.eu/stories/s/xqec-t5kv>

## SALE OF FOOD AND NON-FOOD PRODUCTS

The work of **supermarkets, food and non-food consumer goods shops** was regulated with the Resolutions of the MoH №17 as of 09.05.2020<sup>13</sup> and №21 as of 16.05.2020<sup>14</sup>. At the beginning of the lockdown, the work of food markets was forbidden, though after loosening the lockdown measures in May 2020, their activity was as well regulated with upper mentioned resolutions [and a special guideline<sup>15</sup> was approved in June].

These resolutions included, in particular, the recording and control of employees' health, customer number limitation in selling areas, the introduction of additional measures on disinfecting sale equipment, provision of personal protective equipment to employees, shifting to remote office work, etc.



*«All that started in March. At first, no one took it seriously. And when everything cleared out a bit, when it was announced about the lockdown introduction, that most of the people wouldn't be able to work, that the city transportation will be restricted – it was shocking, stressful to everyone and led to chaos. Not everyone was ready for that. Should I say, no one was ready. Depending on the situation, we tried to adjust our business, all business processes, and foremost, introduce remote work. Our business is food products and essentials. We had to ensure continuous work to all the people and supply of goods to all stores. So we had to change everything rapidly – negotiate with all suppliers, delivery logistic companies to ensure that there are no disruptions of these chains and lack of any goods. And a large part [of work] was to be done by the human resources department, because the personnel was scared; many people refused to come to work, resigned, went on sick leave» – the head of marketing department in a supermarket chain.*

We identified a number of doubtful official recommendations in terms of waste production. Based on the recommendations by foreign specialized organizations and institutions, and findings of credible studies, we developed suggestions about what should be canceled and/or amended.

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<sup>13</sup>On approval of Temporary Recommendations on the organization of anti-epidemic measures regarding trade in food [except markets] and non-food products during the period of lockdown due to the spread of coronavirus disease [COVID-19].

<https://moz.gov.ua/uploads/ckeditor/документи/Головний%20Санітарний%20лікар/Постанова%2017.pdf>

<sup>14</sup>On amending the Resolution of the Chief State Sanitary Doctor of Ukraine №14 as of March 27, 2020 «On combating the spread of the coronavirus disease [COVID-19] in the places of trade in food products in agro-food markets».

<https://moz.gov.ua/uploads/ckeditor/документи/Головний%20Санітарний%20лікар/Постанова%2021.pdf>

<sup>15</sup>On approval of Temporary Recommendations on the organization of anti-epidemic measures regarding market trade in respect to the spread of coronavirus disease [COVID-19].

[https://moz.gov.ua/uploads/ckeditor/документи/Головний%20Санітарний%20лікар/Постанова%2034\\_1.pdf](https://moz.gov.ua/uploads/ckeditor/документи/Головний%20Санітарний%20лікар/Постанова%2034_1.pdf)

OFFICIAL RECOMMENDATIONS	PROJECT SUGGESTIONS
Use only liquid soap.	Bar soap can be used as well.
Avoid reusable towels.	<p>Allow the personnel to use reusable towels. Each employee shall have their personal towel, which shall be washed at least once in two days.</p> <p>Allow cloth towels for the clients. The client shall put the used towel into the laundry basket and for washing, and the administration shall ensure that towels are washed after every use.</p>
Perform temperature screening before starting a shift.	Perform temperature screening more often [every 2-3 hours during the shift].
Centralized collection of used PPE and paper napkins and packing in plastic bags for further disposal.	Provide the staff with sets of reusable masks.
[For clothes markets] Use disposal gloves when trying clothes on [ it is also recommended to wear gloves when choosing clothes or footwear].	<p>Provide clients with arrangements for disinfecting hands before and after trying the clothes and footwear on.</p> <p>It is necessary for salespeople and clients to wear masks.</p> <p>Encourage visitors to use reusable bags.</p> <p>Encourage visitors to use reusable containers for deli products, meat, fish, groceries.</p> <p>Encourage employees to bring food in their own containers.</p>
Install protective screens made of film or plastic between shopping assistants and customers [1.5 m of distance, when there is a screen, 3 m if there is no screen].	Ensure that the sanitary cleaning of all surfaces in contact with food products every 2-3 hours.
Pack cereals, vegetables and groceries in plastic.	<p>Ensure that the sanitary cleaning of all surfaces in contact with food products is as frequent as possible [every 2-3 hours].</p> <p>Ensure that disinfectants are available to clients at the entrance and exit from the sales area. Provide disinfectants at self-checkouts and devices for weighting fruits, vegetables, and groceries. Remind clients that it is necessary to use them. Provide disinfectants near shopping baskets and product carts, tongs, disposers, scoops for cereals, sweets.</p> <p>Bakery products should not be placed on open stands. Protective screens can be used. Tongs and paper bags should be provided near the bakery products. Smaller fraction products [cookies] should be placed in cases made of acrylic glass. Tongs and paper bags should be provided for them.</p>

Currently, no available evidence confirms that food is connected with coronavirus transmission. Instead, the employees may be provided with individual protective screens. Clients and personnel should strictly observe the appropriate hygiene rules when they are near open showcases with fruits and vegetables.

It is necessary to recommend the clients wash the fruits and vegetables with drinking water before eating them.

**RECOMMENDATION TO ALL OF THE ABOVE-MENTIONED ESTABLISHMENTS: ARRANGE THE SORTING OF RECYCLABLES AND SEPARATE COLLECTION OF ORGANIC WASTE.**

## **PUBLIC CATERING ESTABLISHMENTS AND DELIVERY SERVICES**

Not all public catering establishments ceased operations because of the threat of a pandemic. However, some managed to adapt and reorient their work [to food or drink delivery]. With the easing of the lockdown, the summer terraces first opened, later [with considerable restrictions] the indoor establishments as well. At the same time, all establishments incurred high costs due to reduced customer traffic, the payment of salaries, and other payments under the strict lockdown.



*«Honestly, I understand that the country was not ready, and no one was ready. And in other countries it started earlier. But there was no support. We had to get into big debts, on which we now have to pay interest. I need to be personally responsible for this so that people do not lose their jobs, and the business that I created for five years continued to work», – a café owner [Poltava].*

Public catering establishments and delivery services operated in accordance with Ministry of Health regulations No. 18 dated 09.05.2020<sup>16</sup> and No. 32 dated 02.06.2020<sup>17</sup>.

Restrictions in the activities of public catering establishments after the resumption of their work were partially met by clients with incomprehension or disagreement.



*«[Customers] are offended, they don't want to rest with discomfort, they don't understand why they have to finish their meal faster, why they can't sit as a family at one table. All of this is morally difficult to explain, even today. We focus our work on our guests, and the most important thing for us is that the guest should be satisfied. And what kind of pleasure can we talk about, if such working conditions are created... I don't understand how strangers can sit next to each other in a public minibuss taxi, but relatives can't do it at a table in a restaurant», – the administrator of the restaurant [Truskavets].*



*«In fact, there were cases, particularly in the first days when the summer terraces opened, people came and, to tell you the truth, not everyone understood the importance of distance. For example, they came and sat five people at one table. In this case, the manager personally came and explained: «Look, if you want to still sit here tomorrow and drink beer, then today you must sit down at two tables, otherwise tomorrow we just can not continue to work, because it's not respecting the protocols» ... That is, either we adhere to certain norms and work, or we do not work, and all sit at home», – the head of the PR-department in a catering chain [Lviv].*

<sup>16</sup>On approval of the Temporary recommendations for the organization of anti-epidemic measures in public catering establishments for the period of lockdown in connection with the spread of coronavirus disease [COVID-19].

<https://moz.gov.ua/uploads/ckeditor/документи/Головний%20Санітарний%20лікар/Постанова%2018.pdf>

<sup>17</sup>On amendments to the Temporary recommendations on the organization of anti-epidemic measures in public catering establishments for the period of lockdown in connection with the spread of coronavirus disease [COVID-19].

<https://moz.gov.ua/uploads/ckeditor/документи/Головний%20Санітарний%20лікар/Постанова%2032.pdf>

We highlight a number of controversial recommendations for public catering establishments that are related to waste generation and provide suggestions accordingly.

OFFICIAL RECOMMENDATIONS	PROJECT SUGGESTIONS
Use only liquid soap.	Bar soap can be used as well.
Avoid use reusable towels.	<p>Allow the personnel to use reusable towels. Every employee shall have their personal towel, which shall be washed at least once in two days.</p> <p>Allow customers to use reusable towels. The client shall put the used towel into the laundry basket and for washing, and the administration shall ensure that towels are washed after every use.</p>
Perform a temperature screening prior to the start of the shift.	Perform temperature screening more often [every 2-3 hours during the work shift].
<p>Staff [employees of catering establishments, delivery services] must use disposable protective masks and gloves.</p> <p>Change protective disposable masks every 3 hours.</p> <p>Collect used personal protective equipment and paper wipes centrally and place them in bags for further disposal.</p>	<p>Provide sets of reusable masks.</p> <p>Gloves must be worn only when in contact with cooked food that is handed out and served to customers.</p> <p>Gloves should preferably be worn during non-food related activities. For example, to open/close doors and empty garbage cans. After use, they should be removed and thrown in the general waste and hands washed well with soap and water.</p>
To order reusable dishes only if there is a dishwasher that meets a number of technical specifications.	Allow reusable dishes to be used without a dishwasher in the establishment, providing clear instructions to the staff in advance regarding the proper washing of reusable dishes.
Disposable utensils made of cardboard or paper are allowed.	Give preference to reusable dishes. Give out orders only in disposable dishes if requested by the customer.
Drinking utensils and condiments [sugar, stirrers, tubes, etc.] must be individually wrapped.	<p>Replace disposable stirrers with regular metal spoons.</p> <p>The waiter or barista should ask customers in advance if they need sugar/stirrers/straws.</p>
<p>Place menus at entrances or on tables for non-contact viewing.</p> <p>Menus should be made of a material that allows treatment with disinfectant agents.</p> <p>Disposable paper menus are allowed, under the condition of their further disposal.</p>	Paper menus after use should be sorted as waste paper.

There were separate additional requirements for public catering establishments and delivery services in Lviv. Consider some of them.

OFFICIAL RECOMMENDATIONS	PROJECT SUGGESTIONS
Use utensils in disposable packaging.	Serve utensils without additional packaging or in reusable [textile]. Encourage the development of a reusable container system.
[For outdoor summer terrasses] It is recommended to add individually packaged wet wipes and disinfectants to each order.	Provide staff with sets of reusable masks. Use disinfectors, not gloves.

## GENERAL RECOMMENDATIONS FOR FOOD DELIVERY SERVICES

- Promote the development of a reusable container system for regular customers [offer sauces in reusable containers].
- Always ask in advance if wipes and utensils, sugar, or other condiments are needed.

RECOMMENDATION TO ALL OF THE ABOVE-MENTIONED ESTABLISHMENTS: ARRANGE THE SORTING OF RECYCLABLES AND SEPARATE COLLECTION OF ORGANIC WASTE.

## OTHER BUSINESS ENTITIES

In addition, we have analyzed recommendations on the functioning of accommodation facilities and beauty salons **Hotels** were working as per the MoH Resolution No. 22 as of May 21, 2020<sup>18</sup>.

OFFICIAL RECOMMENDATIONS	PROJECT SUGGESTIONS
Use liquid soap.	Bar soap may be used as well.
Install a protective screen at the hotel reception, which separates the staff and the visitors.	Keep the distance between the clients and the staff. The staff shall wear masks and disinfect the stand surface each 2–3 hours.
Do not use reusable towels.	Allow the staff to use reusable towels. Every employee shall have their personal towel, which shall be washed at least once in two days. Allow the clients to use reusable towels. The client shall put the used towel into the laundry basket, and the hotel managers shall make sure that the towels are washed after each use.
Centralized collection of used PPE and paper napkins and packing in plastic bags for further disposal... Provide additional containers/bins for PPE, paper napkins in the public circulations [halls, corridors, etc.].	Provide the staff with sets of reusable masks. Encourage the clients to use reusable masks. The used disposable masks may be thrown into the general bins. In case the client has no symptoms of the virus, put PPE into a package for a 72-hour lockdown and afterward discard it into the general bin. Install disinfectants for the staff in the places where they most commonly contact the clients.

<sup>18</sup>On approval of Temporary recommendations on the implementation of anti-epidemic measures in hotels during the quarantine period in the light of the coronavirus disease [COVID-19] spreading.

<https://moz.gov.ua/uploads/ckeditor/документи/Головний%20Санітарний%20лікар/Постанова%2022.pdf>

Hairdressing and beauty salons were working as per the MoH Resolution No. 20 as of May 09, 2020<sup>19</sup>.

OFFICIAL RECOMMENDATIONS	PROJECT SUGGESTIONS
Use liquid soap.	Bar soap may be used as well.
Do not use reusable towels.	Allow the personnel to use reusable towels. Each employee shall have his/her personal towel, which shall be washed at least once in two days. Allow the clients to use reusable towels. The client shall put the used towel into the laundry basket, and the hotel managers shall make sure that the towels are washed after each use.
Conduct temperature screening before the shift starts.	Perform temperature screening more often [each 2–3 hours during the shift].

There were some additional requirements for catering establishments and delivery services in Lviv. Some of those are to be presented.

OFFICIAL RECOMMENDATIONS	PROJECT SUGGESTIONS
Catering tools shall undergo 4 steps of disinfection and sterilization. If possible, replace regular use tools with disposable ones.	Use reusable tools without packing, which shall be disinfected after each client.

<sup>19</sup>On approval of Temporary recommendations on the implementation of anti-epidemic measures in hairdressing and beauty salons during the lockdown period in the light of the coronavirus disease [COVID-19] spreading.

<https://moz.gov.ua/uploads/ckeditor/документи/Головний%20Санітарний%20лікар/Постанова%2020.pdf>



## GENERAL WHO RECOMMENDATIONS TO CATERING PERSONNEL

### WHO RECOMMENDATIONS TO CATERING PERSONNEL:

- keep to the hand hygiene norms – wash hands with soap and water for at least 20 seconds;
- use of alcohol-based hand sanitizers does not substitute washing hands with soap; those are used only when there is no access to water and soap for some reasons;
- keep to the respiratory hygiene norms [cover mouth and nose when coughing or sneezing; wear a mask and/or a respirator];
- frequently clean/disinfect working areas and touchpoints such as door handles [every 2–3 hours or after each client];
- avoid close contact with people having symptoms of respiratory conditions such as coughing and sneezing

### RECOMMENDATIONS ON THE USE OF REUSABLE MASKS:

- the staff shall be provided with information concerning the correct use, taking off, and washing of cloth masks;
- cloth masks are aimed at protecting other people in case their users have no symptoms; those are not medical masks, respirators or personal protective equipment, but in case of the absence of symptoms, they sufficiently protect other people from infection;
- reusable masks can be used safely in case the staff has no symptoms of the virus; if there are any symptoms, the employee shall be instantly put under lockdown, and all the disposable equipment used by this person shall be disposed according to the recommendations of the Ministry of Ecology and Natural Resources.

Gloves may be used, but they are necessary only when handing the food to the client and/or performing some non-food activities [opening/closing the door, emptying waste bins].

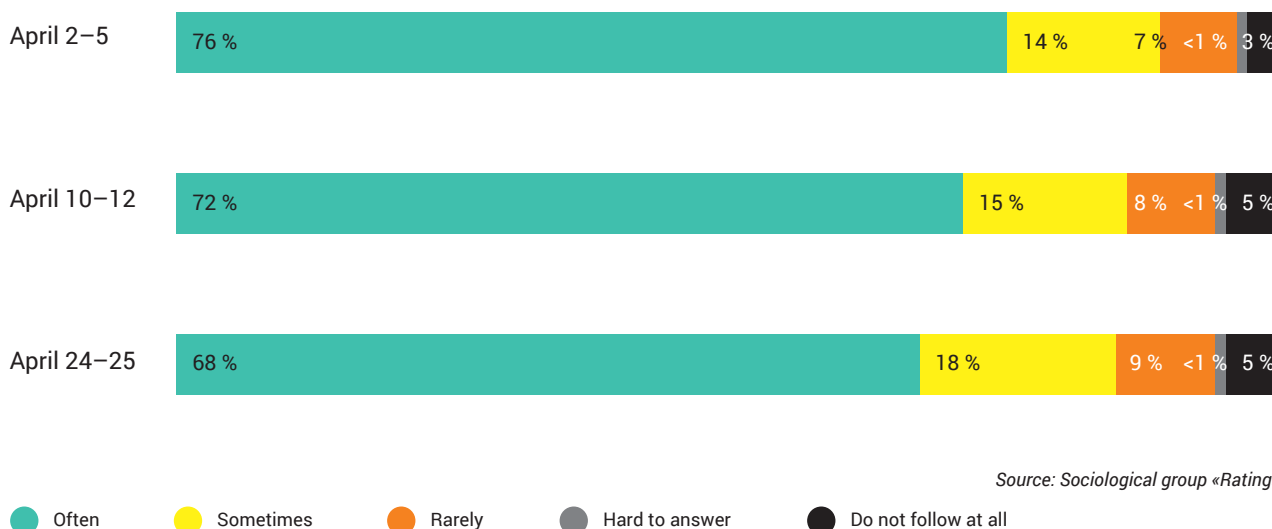
### RECOMMENDATIONS ON THE USE OF GLOVES:

- after taking the gloves off, one shall wash hands with soap;
- the staff shall avoid touching mouth and eye areas with gloves on their hands;
- disposable gloves shall not be used as an alternative to washing hands [coronavirus can land on disposable gloves just as it lands on the employees' hands];
- use of disposable gloves may give a false sense of security and lead to the issue when the staff does not wash hands as frequently as it is necessary;
- the washing hand provides better protection from the infection than wearing disposable gloves;
- establishment administration shall secure proper sanitary and hygienic conditions on the premises and encourage the staff of food facilities to wash hands thoroughly and frequently;
- plain soap and warm running water are enough for washing hands;
- hand sanitizers may be used additionally, but they shall not substitute the process of washing hands.

# INFORMATION ABOUT CORONAVIRUS AND MORE

According to the Sociological group «Rating»<sup>20</sup>, Ukrainians were actively following the news on coronavirus in April 2020.

## HOW OFTEN DO YOU FOLLOW THE NEWS ON CORONAVIRUS?



## INFORMATION IN MEDIA SPACE

There were significantly more publications in the media space related to personal protective equipment than to waste from April 1 to April 30, 2020. At the same time, publications with «waste group» marks are more evenly presented in the media space during the study period, and the PPE topic boom decreases rapidly at the beginning of the month.

<sup>20</sup>Sociological group «Rating». Ukrainians on quarantine: monitoring of public attitudes

<http://ratinggroup.ua/research/ukraine/1f899becb5cbe23739dc1f91bc61a97d.html>

# TOTAL NUMBER OF SEARCH KEYWORD MENTIONED [INCLUDING REPRINTS]

	«сміття» [«waste»]	«сміттєзвалище» [«landfill»]	«контейнери» [«containers»]	«упаковка» [«packaging»]	«засоби індивідуального захисту» [«PPE»]	«маски» [«masks»]	«рукавиці» [«gloves»]
Apr.01	42	3	12	10	155	284	72
Apr.02	31	1	8	14	147	130	63
Apr.03	42	4	13	6	172	29	61
Apr.04	20	1	10	2	77	24	27
Apr.05	14	1	5	3	43	23	22
Apr.06	22	3	5	6	14	22	29
Apr.07	31	3	13	5	15	13	37
Apr.08	38	3	6	5	16	12	40
Apr.09	46	3	13	8	13	24	41
Apr.10	46	0	5	2	6	25	18
Apr.11	17	1	5	3	1	9	13
Apr.12	9	3	2	2	1	10	8
Apr.13	25	3	8	6	4	17	23
Apr.14	28	7	7	5	14	16	32
Apr.15	26	1	3	2	14	26	26
Apr.16	28	1	0	3	10	16	31
Apr.17	26	6	0	4	5	14	34
Apr.18	12	3	1	3	4	8	13
Apr.19	12	0	2	0	0	4	8
Apr.20	16	0	2	5	5	5	13
Apr.21	12	1	2	2	31	5	17
Apr.22	17	0	2	0	11	16	26
Apr.23	20	2	1	2	12	10	20
Apr.24	14	0	4	3	13	22	19
Apr.25	3	1	3	0	1	7	6
Apr.26	6	0	1	0	1	12	9
Apr.27	20	3	5	2	10	14	13
Apr.28	25	2	8	3	9	12	8
Apr.29	20	3	7	2	8	9	23

## NUMBER OF ORIGINAL PUBLICATIONS WITH SEARCH KEYWORDS MENTIONED

	«сміття» [«waste»]	«сміттєзвалище» [«landfill»]	«контейнери» [«containers»]	«упаковка» [«packaging»]	«засоби індивідуального захисту» [«PPE»]	«маски» [«masks»]	«рукавиці» [«gloves»]
Apr.01	29	1	6	5	66	131	36
Apr.02	14	1	1	6	55	53	33
Apr.03	24	2	7	3	73	8	20
Apr.04	11	0	4	2	31	7	12
Apr.05	6	0	2	1	16	3	7
Apr.06	13	3	3	1	5	11	12
Apr.07	21	0	7	2	7	1	23
Apr.08	14	0	3	1	8	3	17
Apr.09	36	2	6	5	1	9	20
Apr.10	29	0	2	0	2	7	6
	6	0	1	0	0	1	4
Apr.12	3	3	2	0	1	4	4
Apr.13	15	2	3	4	2	5	7
Apr.14	20	5	3	2	10	3	15
Apr.15	13	0	1	2	8	4	11
Apr.16	12	0	0	2	3	6	11
Apr.17	13	0	0	3	4	1	16
Apr.18	4	0	0	1	1	2	6
Apr.19	4	0	1	0	0	1	2
Apr.20	6	0	0	1	2	2	6
Apr.21	4	0	1	1	13	2	9
Apr.22	8	0	2	0	5	1	7
Apr.23	7	2	0	2	4	4	11
Apr.24	7	0	2	2	3	2	3
Apr.25	1	0	2	0	0	3	2
Apr.26	4	0	0	0	0	3	0
Apr.27	9	1	2	1	3	3	6
Apr.28	13	1	6	1	3	7	5
Apr.29	6	0	0	1	4	3	13

## TOTAL NUMBER OF PUBLICATIONS IN VARIOUS SOURCES

	Internet	Social media	Press	TV	Informational agencies	Radio
«СМІТТЯ» [«waste»]	49 %	48 %	1 %	1 %	1 %	0 %
«СМІТТЕЗВАЛИЩА» [«landfill»]	45 %	53 %	1 %	1 %	0 %	—
«контейнери» [«containers»]	65 %	31 %	2 %	1 %	1 %	—
«упаковка» [«packaging»]	40 %	56 %	2 %	1 %	1 %	—
«ЗІЗ» [«PPE»]	70 %	26 %	1 %	1 %	2 %	0 %
«маски» [«masks»]	47 %	32 %	5 %	9 %	7 %	0 %
«рукавиці» [«gloves»]	59 %	31 %	3 %	4 %	2 %	0 %

At the same time, search keywords are in the focus of publications/play a major role rarely.

## ROLE OF SEARCH KEYWORDS IN PUBLICATIONS

	Main	secondary	episodic
«СМІТТЯ» [«waste»]	8 %	23 %	70 %
«СМІТТЕЗВАЛИЩА» [«landfill»]	24 %	7 %	68 %
«контейнери» [«containers»]	4 %	11 %	85 %
«упаковка» [«packaging»]	5 %	4 %	91 %
«ЗІЗ» [«PPE»]	14 %	13 %	73 %
«маски» [«masks»]	5 %	8 %	87 %
«рукавиці» [«gloves»]	9 %	6 %	85 %

The majority of «Most» of the aggregative materials passed on the message concerning the additional anti-epidemic measures.

The word «сміття» [waste] is mentioned in many publications on different topics: anti-epidemic measures [~18 %], waste management [~16 %], waste and pandemics [~10 %], emergencies [~8 %], medical waste [~7 %], etc. The word «сміттєзвалища» [landfill] is mentioned less commonly. It is mostly used in publications on waste management [~27 %], emergencies [~14 %], environmental issues [~13 %], waste and pandemics [~9 %], medical waste [~7 %] and municipal solid waste [~7 %]. The word «контейнери» [containers] is mostly used in publications on anti-epidemic measures [~27 %], waste and pandemics [~15 %], waste management [~11 %], medical waste [~11 %] and MSW [~8 %]. Nearly half of publications containing the word «упаковка» [packaging] are related to the anti-epidemic measures [~47 %].

## EXAMPLES OF PUBLICATIONS:

- Coronavirus and challenges for waste collection companies  
[https://zaxid.net/koronavirus\\_ta\\_zbir\\_vidhodiv\\_vikliki\\_dlya\\_kompaniy\\_zi\\_zboru\\_smittya\\_n1501450](https://zaxid.net/koronavirus_ta_zbir_vidhodiv_vikliki_dlya_kompaniy_zi_zboru_smittya_n1501450)
- A new problem of the pandemic: plastic pollution  
<https://www.dw.com/uk/нова-проблема-пандемії-пластикове-забруднення/a-53229740>
- The Ministry of Regional Development called on Ukrainians to produce less garbage during the lockdown  
<https://portal.lviv.ua/news/2020/04/02/minrehion-zaklykav-ukraintsiv-produkovaty-menshe-smittia-pid-chas-karantynu>
- Containers for used masks were shown in Kyiv  
<https://www.pravda.com.ua/rus/news/2020/04/29/7249872/>
- Coronavirus. What to do with clothes, food, packaging and phone?  
<https://www.radiosvoboda.org/a/koronavirus-sho-robyty-z-odyagom-produktamy-upakovkoju-telefonom/30523579.html>
- Coronavirus and medical waste: Ukraine and the world  
<http://epl.org.ua/announces/koronavirus-ta-medychni-vidhody-ukrayina-ta-svit/>
- Medical waste management  
<https://www.dei.gov.ua/posts/828>
- Piles of garbage near houses: why in Chernivtsi household waste is not taken out and who will be fined for it  
<https://shpalta.media/2020/04/28/kupi-smittya-bilya-budinkiv-chomu-u-chernivcyax-ne-vivozyat-pobutovi-vidxodi-ta-kogo-za-ce-budut-shtrafuvati/>
- Nonlegal landfills are a problem of today  
<https://ns-plus.com.ua/2020/04/13/23286/>
- During the past 24hrs, there have been 42 fires in Kyiv: grass and rubbish was burning  
<https://www.pravda.com.ua/news/2020/04/5/7246600/>
- In the Lviv region, a landfill has been burning for the second day  
[https://zik.ua/news/lviv/u\\_lvivskii\\_oblasti\\_druhu\\_dobu\\_horyt\\_smittiezvalyshche\\_964740](https://zik.ua/news/lviv/u_lvivskii_oblasti_druhu_dobu_horyt_smittiezvalyshche_964740)

The phrase «засоби індивідуального захисту» [personal protective equipment, PPE] is mostly mentioned in publications on implementation of anti-epidemic measures [~36 % publications during the study period], provision of population and/or medical staff with this equipment [~29 %] and charitable support [~12 %]. The word «маски» [masks] is mostly mentioned in publications on implementation of anti-epidemic measures [~49 %] and provision [rarely]. The word «рукавиці» [gloves] is mentioned in publications on implementation of anti-epidemic measures [~36 %] and provision [~21 %].

## SEVERAL EXAMPLES OF PUBLICATIONS [IN UKRAINIAN OR RUSSIAN]:

- COVID-19 17 government bans until April 24  
[https://zib.com.ua/ua/142119-covid-19\\_17\\_uryadovih\\_zaboron\\_do\\_24\\_kvitnya\\_tekst\\_postanovi\\_.html](https://zib.com.ua/ua/142119-covid-19_17_uryadovih_zaboron_do_24_kvitnya_tekst_postanovi_.html)
- COVID-19 Hotline: Mask Effectiveness  
<http://oblzdrav.mk.gov.ua/index.php/golovna/novini/8830-garyacha-liniya-z-pitan-covid-19-efektivnist-masok>
- How to wear a medical mask and gloves  
<https://phc.org.ua/new/yak-pravilno-nositi-medichnu-masku-ta-rukavichki>
- Defenseless defenders: how many masks and suits will be enough for doctors in the regions?  
<https://www.pravda.com.ua/columns/2020/04/30/7249909/>
- Masks and gloves: how protected doctors who take patients with COVID-19  
<https://www.slidstvo.info/articles/masky-j-rukavychky-yak-zahyshheni-likari-yaki-pryjmayut-hvoryh-na-covid-19/>
- Medical ammunition against coronavirus: what Ukraine imports and what it produces itself  
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# METHODOLOGICAL REFERENCES

Implemented with the project

- Waste assessment in Lviv and Poltava
- Qualitative sociological study
- Media content analysis

## WASTE ASSESSMENT IN LVIV AND POLTAVA

Waste assessment of the municipal waste was performed by NGO «Zero Waste Lviv» and NGO «Ekoltava» in August – September 2020 in Lviv and Poltava accordingly.

The waste assessment was conducted in two ABCOAs in Lviv [August 17–21] and Poltava [September 11–17]. The ABCOAs where the waste is daily removed were selected for the study. The daily accumulation of waste was taken into account. 350 people belong to the Lviv ABCOA and 747 people to the Poltava one. The study in both ABCOAs was conducted on Monday, Wednesday, and Friday on the territory of container sites just before a garbage truck arrived to remove the waste.

Municipal waste assessment is a methodological and sustainable process of residual waste collection and analysis. It helps cities and communities to determine both amount and type of waste produced by the households on the territory of the community. Municipal waste assessment makes it possible to elaborate effective policies aimed at the increase in the level of waste recycling and reduction of the amount of produced waste. This procedure may be performed in municipalities that have implemented the separate waste collection and those that have not implemented it yet. This procedure may also be performed in schools, hospitals and facilities of your municipality to get a comprehensive understanding of what waste is produced by the community.

Waste assessment provides an opportunity to collect important data on both the amount and types of waste produced by your community. The obtained data has empirical use in:

- determining both size and design of local waste treatment or recovery facilities;
- selection of best practices for organic waste management and promotion of composting;
- creation of optimal schedules of MSW, various types of recyclables, and organic waste collection;
- determining best practices in the organization of a separate collection of recyclables and organic waste for your community.

Moreover, the conduction of a waste assessment provides an opportunity to involve the community and raise awareness of its residents concerning the produced waste; to make the issue more evident and encourage people to make more efforts to reduce and prevent waste production.

**When conducting a waste assessment, it is important to understand** that waste shall be divided into primary and secondary categories. In general, there are 5 main types of waste that shall be separated from the residual [mixed] waste and recorded.

- **Biodegradable waste [food scraps after cooking, food products, gardening waste].** It may be delivered to composting stations immediately. This waste category audit will also help to determine the necessary size and methods of the stations, which will perform composting in your municipality.
- **Waste that can be recycled [recyclables].** Determining its number may help to estimate the revenue the municipality will receive after selling those materials to the companies, which deal with waste collection and recycling.
- **Residual [mixed] waste.** It remains due to the lack of technical capacity of your municipality to recycle it. The audit will help to get information concerning the stations, which perform waste recycling. One may invest in those stations in order to reduce the amount of residual waste discarded in the landfills and find opportunities to elaborate new approaches and solutions for the reuse of many products.



- **Residual waste with a special management regime.** It means disposable hygiene products, in particular, diapers and sanitary pads. This waste overloads landfills; therefore, one shall encourage the communities to opt for reusable hygiene products or to create a system of special residual waste collection and disposal within the waste management plan.
- **Toxic and hazardous waste.** It has the smallest percentage of total waste produced within a community, but it is the most difficult and dangerous to process. Evaluation of both components and quantity of these materials is critical for gathering information for future recycling and disposal options:<sup>21</sup>

## QUALITATIVE SOCIOLOGICAL STUDY

### Focus of the study:

- retrospective study of imposing lockdown restrictions in cities and peculiarities of keeping to the restrictions by the target audience [TA];
- obtaining an expert analysis of the waste management sphere in case cities, dynamics of volumes and changes in the structure of municipal waste;
- exploration of difficulties, problems, and challenges the TA faces during the lockdown, in particular, those related to waste management;
- study of the TA during the lockdown.

**Geographical area under study:** Lviv, Truskavets [Lviv region]; Poltava, Myrhorod [Poltava region].

### Target audiences of the study:

- representatives of local self-government bodies [LSGB] in each case city;
- representatives of waste management services [waste management services are the companies that provide waste removal services: collection, storage and transportation of municipal waste in the settlement according to the rules of public services and amenities approved by the local self-government body; these may be municipal enterprises, waste carriers, sorting stations and recyclables collection points];
- retail representatives [chains of retail and grocery stores, grocery markets], catering establishments and delivery services working in different periods of the national lockdown.

### Objectives of each TA involvement

- Local self-government bodies:
  - to study the practical interaction of government bodies with waste management services [municipal enterprises, waste carriers, sorting stations] and representatives of retail business during the lockdown;
  - to carry out a retrospective of imposing lockdown in cities: to study the peculiarities of lockdown restrictions and their observance;
  - to explore difficulties, problems, challenges LSGB has faced during the lockdown period, in particular those related to waste, municipal waste disposal, and used personal protective equipment management;
  - to provide expert assessment of waste management in the city, dynamics, and structure of changes in municipal waste.
- Waste management services:
  - to analyze changes in the structure of municipal waste in cities;
  - to provide expert assessment of changes in both dynamics and structure of municipal waste in cities, in particular during the national lockdown;
  - to study the market of recyclables in each city: functioning during the lockdown, dynamics of recyclables collection volume, and changes in the market.
- Retail and catering establishments:
  - to analyze both interaction and communication with LSGB during the national lockdown: difficulties and

<sup>21</sup>[https://zerowastelviv.org.ua/wp-content/uploads/2020/11/zero-waste-europe\\_waste-assessment-guide\\_UKR.pdf](https://zerowastelviv.org.ua/wp-content/uploads/2020/11/zero-waste-europe_waste-assessment-guide_UKR.pdf)

mistakes in making management decisions;

- to explore if regulations and lockdown norms are met: history, peculiarities, difficulties, problems, challenges business has faced during the lockdown;
- to study the mechanisms of personal protective equipment provision to employees/staff: volumes, procurement, and disposal.

#### Criteria of TA selection

- Local self-government bodies:
  - representatives of the studied cities LSGBs operating units that are in command of municipal institutions/departments/units dealing with waste management;
  - civil servants imposing lockdown restrictions in each city or responsible for monitoring if the restrictions are met.
- Waste management services:
  - waste management services in the selected city or its part [municipal and private enterprises];
  - representatives of sorting stations in the cities;
  - owners or coordinators of recyclables collection points.
- Retail and catering establishments:
  - representatives of retail business [chains of retail, grocery stores, and grocery markets];
  - representatives of catering establishments [restaurants, cafes, cocktail bars], which functioned during different periods of the national lockdown in different formats [regular working mode during the respective period and shift to food delivery].

Data collection technique: in-depth semi-structured interviews. The schemes of the interview were elaborated for each TA individually. The average duration of an interview is 30 minutes. The scope of the project contains 34 profound interviews with TA representatives in four cities.

Quotations of the participants of this study are highlighted in the report as illustrative materials.

## MEDIA CONTENT ANALYSIS

LOOQME software was used to aggregate and process the publications<sup>22</sup>. All the publications from April 1 to April 30, 2020 containing the keywords were downloaded. Search keywords: «сміття» [waste], «сміттєзвалища» [landfills], «контейнери» [containers], «упаковка»/«пакування» [packaging], «засоби індивідуального захисту» [personal protective equipment], «маски» [masks] and «рукавиці» [gloves]. Languages of search: Russian and Ukrainian. The search was carried out on websites with the Ukrainian localization [including online periodicals, social networks, blogs, TV channels, and radio stations uploaded to websites or video hosting services].

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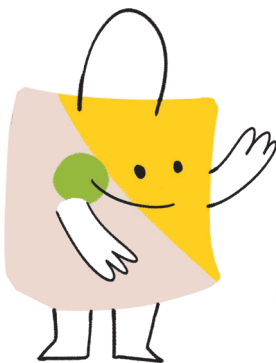
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# Zero Waste Lviv



is a non-governmental organization that promotes and implements waste prevention and responsible consumption practices.



**The mission of the NGO «Zero Waste Lviv»** is to promote the implementation of «zero waste» principles in Ukraine by creating an exemplary municipality – Lviv, which will set an example for other cities.

## Our fields of work

- Implementation of the Zero Waste Cities programme.
- Spreading the practice of giving up disposable items and shifting to reusables.
- Waste prevention and composting organic waste.
- Support of zero waste entrepreneurship.



Zero Waste Lviv



@zerowastelviv



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<https://zerowastelviv.org.ua/>



[zerowastelviv@gmail.com](mailto:zerowastelviv@gmail.com)

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