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CAPACITY BUILDING IN DONETSK OBLAST FOR WASTE MANAGEMENT - UKRAINE

Guideline

Closure of Refuse Chutes

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1. Objective

The objective of this paper is to study the existing situation as regards collection and removal of SHW in multi-storied buildings equipped with refuse chutes. The paper will consider the existing situation, provide an assessment and offer possible solutions for improving the system of SHW collection and removal in multi-storied buildings.

2. Current situation

The system of waste collection is used in modern high-storied buildings during the last 30 years. Initially it was considered as an element improving the level of comfort of buildings and was highly appreciated by inhabitants.

Technical description of the system is provided in Annex 1. It should be noted that this system does not presuppose the arrangement of container sites near the buildings (except for recently built multi-apartment buildings). It was supposed that specialized vehicles will be able to reach directly each entrance of waste collecting chambers located at the first floor of residential buildings.

After some decades the system transformed. In order to save time for SHW loading as well as fuel near multi-storied buildings step by step there appeared containers in which yard cleaners reload waste from waste collecting chambers.

As a rule, 2-3 containers are installed for 2-3 waste collecting chambers. The technical state of refuse chute shafts has considerably worsened; the most fragile are trolleys and other devices with the help of which yard cleaners transport SHW to the places of mechanized collection. Refuse chute valves have not been repaired for a long time already. All that has created several different problems, resulting in closure of refuse chutes in most EU countries. The same was done by some of the Ukrainian ZHEKs.

Nowadays there is no clear description of the technical state of refuse chutes in examined cities as such the information is not collected. However, we can say that the general state of refuse chutes and waste collecting chambers is the following:

- In most of the waste-rooms there are no special trolleys used for SHW transfer from waste-rooms to the point where they are loaded into waste collection trucks. They are either not suitable for operation, obsolete or have never been replaced. In most of the cases this has brought to transformation of a SHW system which is based on the use of refuse chutes.
- In the framework of normal operations, the yard-keeper must place a new empty container under the chutes after the working one is full. Without a trolley, this is no more possible. It causes a serious problem of dirtiness in waste-rooms: the garbage falls on the ground and occupies the entire floor.
- Yard-keepers should search themselves for the possibilities to transport SHW from waste collecting chambers to the point where they are loaded into waste collection trucks. Sometimes it is done manually (in boxes, buckets, etc.).
- In some cases, due to absence of containers outside, the way to load garbage consists for the waste truck to bring its own container (loaded on the roof during transportation) and wait for yard-keepers to transfer waste with shovels from the waste-room to the container situated outside. This can take up to one hour, with the truck waiting for end of operations.
- However, most of multi-storied buildings were equipped with isolated SHW containers. Such containers were placed near waste collecting chambers (on the pavement or further in the internal yard). The container is installed arbitrary; it appears that the distance required by sanitary and hygienic norms is not always respected: the containers are often installed few meters away from the building entrance. Before waste truck arrival the yard-keepers transfer waste accumulated in waste collecting chambers in different capacities (as a rule, cupboard boxes are used).
- For this operation the yard-keepers should find their own solutions as they are not equipped with special devices. This can be different cupboard boxes which they transfer on trolleys. This requires additional work which is not paid for.
- Already nowadays the public utilities in charge for residential buildings do not have enough yard-keepers. On the average, 20% of the personnel due are missing. As a result, emptying of waste collecting chambers and transfer of SHW to the loading point sometimes take more time than expected. In the future the situation might get worse.
- Capacities used by yard-keepers for SHW transfer to the point where they are re-loaded into waste collection trucks are in very poor conditions. As a result, they leak, distribute an unpleasant smell, contribute to propagation of insects and rodents – distributors of different diseases.

- It is necessary to replace some parts of the refuse chute shafts or to install clamps in the points of damage. In many residential buildings loading valves are either absent or rotten[1] and should be immediately installed or replaced. Gate valves[2] have worn out, rusted through and are not available for many refuse chutes.

- Waste collecting chambers are sometimes not equipped with hot or cold water supply for washing and disinfection and, in case of necessity, extinguishing waste ignition in refuse chutes. Most of the existing pipes are in unsatisfactory conditions.

- Refuse chutes in the buildings of 60-90-ies are not equipped with special devices for their cleaning, washing and disinfection which worsens sanitary and hygienic situation in residential buildings.

Sanitary and hygienic problems associated with unsatisfactory operation of refuse chutes:

- In fact, sanitary treatment of refuse chutes is much less frequent than it is previewed by sanitary norms and rules. The frequency of treatment does not exceed 1 time per month on the average.

- A great number of waste lying on the floor is a source of unpleasant smell, insects and rats. An insufficient control of sanitary and epidemiological services results in the fact that such conditions might last long creating an unhealthy atmosphere in buildings.

- Sometimes there are fires in waste collecting chambers, which are caused either by unlawful actions or might appear spontaneously. In case there is a big amount of waste remaining in the waste collecting chamber, the consequences can be very serious. The absence of control from the side of fire-bodies makes the situation even worse.

[1] Refuse chute valve is an attached metallic valve of the refuse chute for loading household waste into refuse chutes.

[2] Gate valve is a valve designed for regular shutoff of a lower part of the shaft during removal of SHW containers that are full.

3. Regulatory documents

Construction and operation of refuse chutes is carried out on the basis of the following regulatory documents:

3.1. SNiP 2.08.01-89 «Residential buildings»

In accordance with this document:

- Refuse chutes are planned to be built in residential buildings in case the floor level of the upper storey is at the level of 11.2 m or more from the planning ground level, in residential buildings for old people and families with invalids this figure is 8 m and more and 3 m and more correspondingly.
- The distance from the door of apartment or hostel room till the next loading valve of the refuse chute should not exceed 25 m.
- The shaft of the refuse chute should be air-tight, noise-insulated from construction structures and should not join living premises.
- The waste collecting chamber should be right under the shaft of the refuse chute and connected to hot and cold water supply. The waste collecting chamber cannot be located right under residential rooms or close to them. The inner height of the chamber should not be less than 1.95 m.
- The waste collecting chamber should have an independent entrance with a door opening outwards, isolated from the entrance to the building by a blank wall (screen) and separated by fire-safety walls and coverings with fire-resistance being not less than REI 60 and fire-risk class equivalent to KO.

It should be noted that this document is effective on the territory of Russia as well, having been developed during the times of the Soviet Union. However, the part referring to construction of refuse chutes in residential buildings was enlarged in order to bring this document in accordance with SanPiN 42-128-4690-88 “Sanitary rules for the maintenance of populated areas”.

The added provisions specify, for example, that “...refuse chute should be equipped with units for regular washing, cleaning and disinfection of shafts in accordance with SanPiN “Sanitary rules for the maintenance of populated areas”.

3.2. SanPiN 42-128-4690-88 «Sanitary rules for the maintenance of populated areas»

In accordance with this document refuse chutes should be operated with consideration of the following:

- In residential buildings equipped with refuse chutes it is necessary to create conditions for ***weekly*** cleaning, disinfection and disinsection of the refuse chute shaft and for this purpose the shafts should be equipped relevantly.
- Refuse chutes and waste collecting chambers should be in good conditions. The lids of loading valves of refuse chutes at staircases should have a strong drive with rubber seals for and air-tightness and sound-suppression.
- The responsibility for the maintenance of the chamber, refuse chute, waste collectors and territory adjacent to the place of waste unloading from the chamber is on the organization in charge for the building.

4. Technical maintenance of refuse chutes

Because of improper operation economic costs of the system grow. On the basis of cities participating in LAP development there has been done an assessment of such costs.

At present multi-storied buildings in pilot cities are equipped with 2014 refuse chutes. For cities it looks as follows:

City	Number of refuse chutes[3]
Artemovsk	127
Drujkovka	59
Kramatorsk	664
Makeyevka	883
Kharsizsk	209
Yasinovataya	72

In some of the cities such as Artemovsk part of refuse chutes has already been closed: from 127 refuse chutes 7 were closed. In other cities such as Makeyevka and Kramatorsk refuse chutes are continued to be serviced, however, some of the ZHEK representatives think about their closure.

System operation costs can be divided into 3 parts:

Operation costs:

- Loading and unloading;
- Daily maintenance and technical services;
- Amortization and capital renovation;
- Other costs.

Disinfestation and disinfection;

Liquidation of fires and their consequences.

[3] Based on the data of the technical passport of municipal buildings as of January 1, 2006. Data about closed refuse chutes or the ones that have been broken are not available.

5. Costs

5.1. Operation costs

The table includes calculation of costs for the maintenance of 1 refuse chute in a 9-storied building provided that all necessary activities are financed. The payment to the yard-keeper for implementation of the relevant works is calculated on the basis of an average salary of 500 UAH, 25 working days and an 8-hour working day. Thus, the payment to the yard-keeper per hour is 2.5 UAH/hour.

Costs	Description of works	Frequency of works	Costs	
			person/hour/ month	UAH/year
Loading/unloading	Transfer of waste from waste collecting chambers to isolated containers	Daily	16,5	495
Current maintenance	Maintenance inspection	Twice per month	1	30
	Cleaning of waste collecting chambers	Daily	12,5	375
	Washing of loading valves	Once per week	1	30
	Washing of waste collectors in the waste collecting chamber	Daily	8,5	255
	Washing of the lower part of a gate valve shaft	Once per month	0,4	12
Other costs	Elimination of clogs in the shaft of the refuse chute	Based on necessity	2	60
Total salary				1 257
Social allocations (37%)				465
Repair and maintenance costs (amortization allocations)	Replacement of waste collectors in the waste collecting chamber (2 items)	Once per 5 years		139
	Replacement of valves (4 items)	Once per 10 years		48
	Replacement of the gate-valve (1 item)	Once per 10 years		120
	Replacement of trolleys (1 item)	Once per 2 years		150
TOTAL:				2 179

5.2. Disinfestation and disinfection costs

The main expenses dealing with the maintenance of refuse chutes cover disinfestation, disinsection and disinfection. The tariffs for this type of services are regulated by the Resolution of the Cabinet of Ministers N° 662 as of 11.05.2006.

Service description	Tariff, UAH/m^2
Disinfestation	1,29
Disinsection	1,48
Disinfection	0,63
TOTAL	3,4

On the average, the surface of the refuse chute in a 9-storied building which should be treated is 9 m^2. In face, disinfection treatment is carried out not more than twice a year or even less frequent[4].

Annual costs of disinfection treatment of refuse chutes in examined cities are the following:

[4] The poll of inhabitants of 9-storied buildings of Donetsk has shown that these works have not been carried out during the last 3-5 years.

City	Total surface of refuse chutes, m^2	Number of sanitary treatments in accordance with norms, times/year	Cost of one treatment, UAH/m^2	Costs, UAH/year	
				Planned	Factual
Artemovsk	1 080	48	3,4	176 256	7 344
Drujkovka	531	48	3,4	86 659	3 610
Kramatorsk	5 976	48	3,4	975 283	40 636
Makeyevka	7 947	48	3,4	1 296 950	54 040
Kharsizsk	1 881	48	3,4	306 979	12 791
Yasinovataya	648	48	3,4	105 753	4 406

5.3. Costs of liquidation of fires and their consequences

It should be noted that, as a rule, refuse chutes in the buildings of 60-ies-90-ies are not equipped with fire-extinguishing devices.

It is difficult to assess material costs of these activities as the degree of the damage is different for different cases. There is no information about the number of ignitions in refuse chutes of the Donetsk oblast (official site of the Central Department of the Ministry of Emergency Situations of the Donetsk Oblast www.mns.donbass.com). At the same time according to the data of the Central Department of the Ministry of Emergency Situations of Russia each year about 2000 refuse chutes burn.

In order to assess total costs for liquidation of fires in refuse chutes for the examined cities we have made an optimistic assumption that on the average it is 1 fire per year for each 100 refuse chutes. The material damage was calculated considering the average material damage per one fire in the oblast and was assumed to be UAH 4100.

City	Number of refuse chutes in operation, units	Calculated number of fires per year (1 fire per 100 refuse chutes)	Calculated amount of damage from one fire, UAH	Total
Artemovsk	120	1	4 100	4 100
Drujkovka	59	0,5	4 100	2 050
Kramatorsk	664	6	4 100	24 600
Makeyevka	883	8	4 100	32 800
Kharsizsk	209	2	4 100	8 200
Yasinovataya	72	1	4 100	4 100

At present in order to prevent fires in refuse chutes of modern buildings there are used special systems of fire-extinguishing. The cost of such a system (without installation costs) is from 10 to 12 thous. UAH per one refuse chute depending on the height of the residential building.

Summarizing all mentioned above, let's compare operation costs per 1 refuse chute, provided that that everything which is necessary is financed, with factual operation costs.

Operation costs	Waste collecting chamber, maintenance included, UAH/year	Waste collecting chamber, without maintenance, UAH/year
Loading/unloading	495	495
Current maintenance	702	375
Additional costs (cleaning of clogs)	60	60
Social charges (37%)	465	344
Repair and maintenance costs (amortization deduction)	457	X
TOTAL per year	**2 179**	**1 274**

For the cities that participate in LAP development the total costs will be the following:

City	System operation costs in accordance with SanPiN 42-128-4690-88 and SNiP 2.08.01-89			Total, UAH	Factual costs for system operation			Total, UAH
	Operation costs, UAH	Disinfestation and disinfection, UAH	Liquidation of fires and their consequences , UAH		Operation costs, UAH	Disinfestation and disinfection, UAH	Liquidation of fires and their consequences, UAH	
Artemovsk	261 480	176 256	4 100	441 836	152 880	7 344	4 100	164 324
Drujkovka	128 561	86 659	2 050	217 270	75 166	3 610	2 050	80 826
Kramatorsk	1 446 856	975 283	24 600	2 446 739	845 936	40 636	24 600	911 172
Makeyevka	1 924 057	1 296950	32 800	3 253 807	1 124 942	54 040	32 800	1 211 782
Kharsizsk	455 411	306 979	8 200	770 590	266 266	12 791	8 200	287 257
Yasinovataya	156 888	105 753	4 100	266 741	91 728	4 406	4 100	100 234

6. Optimisation solutions

Proper operation of refuse chutes in accordance with sanitary and hygienic rules is possible, however, the costs will be higher than the ones of today; this concerns the part of the tariff that refers to the refuse chute.

It should be noted that despite of the fact that the refuse chute is an important structural part of the residential building in the structure of tariff for the maintenance of residential buildings and adjacent territories the costs for refuse chute maintenance are not singled out. This kind of costs refer to "Other costs" (Annex 2).

At present the existing tariff covers only 80% of factual costs for the maintenance of residential buildings. In order to fully finance the costs for operation and maintenance the tariff should be increased.

Closure of refuse chutes is a solution which has already started to be employed in Ukraine and which is widely used in EC. In accordance with Tacis experts' observations, nowadays in new buildings the representatives of ZHEKs close refuse chutes before people start to move to new apartments.

In richest buildings, closed chutes are replaced by human services: the yard keeper collects everyday at each floor waste bags left by dwellers close to chute places. This is of course a solution that is not promoted by the authorities and the project team.

6.1. Closure of refuse chutes

Considering a general increase of tariffs as well as difficulties in receiving agreement from inhabitants, it is easier to provide a service of a lower quality and to close refuse chutes. This will allow to avoid additional costs and risks. Besides, such a solution contributes to development of selective collection.

As it was already mentioned, it happens, as it was in Artemovsk, for example, that inhabitants themselves come out with the proposal to close the refuse chute in their building in order to improve its sanitary and hygienic conditions. In such a case they prepare a letter on behalf of the building (building section) inhabitants which is afterwards transferred to the public utility.

At present the official structures have not yet developed a standard procedure for that. There are no normative documents regulating the process of refuse chute closure. It might happen that in the future they will be developed and approved by authorities.

Following the experience of several buildings in Kiev that have decided to weld off refuse chutes, the problem with cockroaches and rodents has been solved two months after that. The most difficult in receiving a final positive decision concerning liquidation of refuse chutes was to agree with Gosstroy (Ministry of Construction) of Ukraine that has been positive toward the idea of refuse chute closure, but considered it realistic in 10 years as the projects of all high-storied buildings under construction have a refuse-chute previewed[5].

We should note here that if a decision about closure of the refuse chute is taken by the Association of Multi-apartment Building Owners (AMBO), in such a case it is enough to have an agreement of ***the majority*** of inhabitants. If such a decision is taken in a usual multi-storied building it is necessary to have an agreement of ***all*** inhabitants.

It should be underlined that if a decision is taken about the closure of a refuse chute, it is necessary to think thoroughly about the relevant public awareness policy. Such a policy should guarantee that the inhabitants are seriously trained and will not react negatively: for instance, in Kharkiv, some of the inhabitants got so angry that they started to throw away the garbage through windows.

The arguments about difficulties with throwing away waste when the elevator is not working do not appear convincing. Of course, the elevator should work. However, the weight of the waste thrown by one inhabitant is 1 kg - it is much less than the weight of food and drinks brought home by the inhabitants each day.

[5] Based on the materials of the national weekly newspaper "Delovaya Stolitsa"
http://www.dsnews.com.ua/archive/print_ver.php?r_id=17&article_id=749

6.2. Conclusions based on analysis results

- Refuse chutes have become obsolete both physically and morally. Their current technical state is not satisfactory. It does not appear to be possible to assess the needs in capital costs for their restoration prior to making an inventory of all the facilities.
- The interval of disinfection does not meet any sanitary norms and rules. As most of the refuse chutes do not have equipment required for these works, the activities implemented cannot be considered efficient. On the whole, as a result of that sanitary and hygienic conditions of residential buildings worsen (propagation of insects, rodents).
- Use of refuse chutes in accordance with necessary sanitary norms and rules is quite a costly technique of SHW collection and removal.
- Some experience has been gained as regards refuse chute closure. Thanks to that some of the inhabitants are already ready nowadays to refuse from this system of SHW collection and removal.
- There have been created the necessary prerequisites for refusal from refuse chutes as, in fact, next to each multi-storied building there are container sites. Thus, a yard-keeper plays only a role of a “courier” by transporting SHW of the inhabitants from waste collecting chamber to containers.
- In future, the refusal from refuse chutes should foster introduction of SHW selective collection.

7. Economic assessment of variants

3 variants are considered:

B1 – Basic scenario: no changes

B2 – Upgrading the system so that it is in normal working conditions and system operation with consideration of all norms and requirements

B3 – Closure of refuse chutes.

7.1. Investments

For variants 2 and 3 the following investments are required:

Capital repair. It does not appear to be possible to make an exact assessment of all funds required for capital repair unless there is an inventory of all assets. An approximate assessment was prepared based on the assumption that each 4th loading valve of the refuse chute and each 10th gate valve should be replaced. Other costs were calculated considering that they will comprise 10% of this amount. The calculation by cities is provided in the Table.

City	Quantity of refuse chutes	Quantity of valves to be replaced	Unit cost of valve replacement (installation included)	Valve replacement	Quantity of gate valves to be replaced	Unit cost of gate valve replacement (installation included)	Replacement of gate valves	Total	Other costs	Grand total
	items	items	UAH	UAH	items	UAH	UAH	UAH	UAH	UAH
Artemovsk	120	12	200	2400	12	1450	17400	19800	1980	21780
Drujkovka	59	6	200	1200	1	1450	1450	2650	265	2915
Kramatorsk	664	664	200	132800	66	1450	95700	228500	22850	251350
Makeyevka	883	883	200	176600	88	1450	127600	304200	30420	334620
Kharsizsk	209	209	200	41800	21	1450	30450	72250	7225	79475
Yasinovataya	72	72	200	14400	7	1450	10150	24550	2455	27005

System of fire extinguishing. As it was mentioned above, each refuse chute should be equipped with the system of fire extinguishing. The cost of such equipment is 10 to 12 thous. UAH depending on the height of the building. Our calculations use a lower price border of UAH 10000.

Closure of refuse chutes. It is necessary to have money for public awareness campaigns. The amount required will be added as soon as a real assessment in additional containers and platforms is made.

The comparison of variants is provided in the following table:

	B1	B2	B3
Artemovsk			
Investments:			
Capital repair	x	21 780	x
Installation of fire-extinguishing system	x	1 200 000	x
Closure of refuse chutes	x	x	12 000
Public awareness activities	x	x	1 000
Operation costs	152 880	261 480	x
Disinfestation and disinfection	7 344	176 256	x
Liquidation of fires and their consequences	4 100	x	x
Total per year	**164 320**	**437 736**	**x**
Total costs for 20 years: investments and annual costs	**3 286 400**	**9 976 500**	**13 000**
Drujkovka			

Investments:			
Capital repair	x	2 915	x
Installation of fire extinguishing system	x	590 000	x
Closure of refuse chutes	x	x	5 900
Public awareness activities	x	x	1 000
Operation costs	75 166	128 561	x
Disinfestation and disinfection	3 610	86 659	x
Liquidation of fires and their consequences	2 050	x	x
Total per year	**80826**	**187 785**	**x**
Total costs for 20 years: investments and annual costs	**1 616 520**	**4 897 315**	**6 900**
Kramatorsk			
Investments:			
Capital repair	x	251 350	x
Installation of fire extinguishing system	x	6 640 000	x
Closure of refuse chutes	x	x	66 400
Public awareness activities	x	x	1 500
Operation costs	845 936	1 446 856	x
Disinfestation and disinfection	40 636	975 283	x
Liquidation of fires and their consequences	24 600	x	x
Total per year	**911 172**	**2 422 139**	**x**
Total costs for 20 years: investments and annual costs	**18 223 440**	**55 334 130**	**67 900**
Makeevka			
Investments:			
Capital repair	x	334 620	x
Installation of fire extinguishing system	x	8 830 000	x
Closure of refuse chutes	x	x	88 300
Public awareness activities	x	x	2 000
Operation costs	1 124 942	1 924 057	x
Disinfestation and disinfection	54 040	1 296 950	x
Liquidation of fires and their consequences	32 800	x	x
Total per year	**1 211 782**	**3 221 007**	**x**
Total costs for 20 years: investments and annual costs	**24 235 640**	**73 584 760**	**90 300**
Kharsizsk			
Investments:			
Capital repair	x	79 475	x
Installation of fire extinguishing system	x	2 090 000	x
Closure of refuse chutes	x	x	20 900
Public awareness activities	x	x	1 000
Operation costs	266 266	455 411	x
Disinfestation and disinfection	12 791	306 979	x
Liquidation of fires and their consequences	8 200	x	
Total per year	**287 257**	**762 390**	**x**
Total costs for 20 years: investments and annual costs	**5 745 140**	**17 417 275**	**21 900**
Yasinovataya			
Investments:			
Capital repair	x	27 005	x
Installation of fire extinguishing system	x	720 000	x
Closure of refuse chutes	x	x	7 200
Public awareness activities	x	x	1 000
Operation costs	91 728	156 888	x
Disinfestation and disinfection	4 406	105 753	x
Liquidation of fires and their consequences	4 100	x	x
Total per year	**100 234**	**262 641**	**x**
Total costs for 20 years: investments and annual costs	**2 004 680**	**5 999 825**	**8 200**

7.2. Switch to a container system

The scheme proposed by the project does not preview the use of refuse chutes and presupposes a transition to a SHW container system.

The scheme in question can be introduced in 2 stages. During the first stage there will be an experiment at the selected territory. In future, provided that the results are positive, the scheme can be introduced at all buildings equipped with a refuse chute. The main actions to be taken in order to switch to this system are considered below.

8. Analysis of strengths and weaknesses of the solution

8.1. Description of the issue (SWOT analysis)

Strengths	Weaknesses	Opportunities	Threats
▪ Improvement of sanitary and hygienic conditions in the building ▪ Simplification of yard-keepers' work ▪ Preconditions created such as container platforms near multi-storied buildings ▪ Reduction of public utility costs	▪ The inhabitants will have to bring waste outside. This cannot be very convenient for some of them, especially for old people ▪ Possible expenses due to construction of additional container sites and purchase of containers	▪ Reduction of operation costs for the maintenance of residential buildings ▪ Reduction of costs for waste collection ▪ Potential introduction of SHW selective collection	▪ Inhabitants unwilling to bring waste outside and to put it to containers. There were cases when inhabitants of buildings with refuse chutes closed threw their waste through windows

8.2. Strategy Description

Strategic objectives (with indicators)	Action plan
Long-term	
To contribute to implementation of SHW selective collection	
Short-term	
To improve sanitary and hygienic conditions in residential buildings	To take a decision to stop using refuse chutes
To change public mentality preparing it for SHW selective collection	Information activities among inhabitants
To build additional container sites and to equip the existing ones with a required amount of containers	Definition of the source of financing and organization of tender for container supply

8.3. Public activities

Target groups	Key idea	Action plan (tools)	Budget	Responsibility
Population	To stop using refuse chutes in favour of containers	Distribution of information materials, mass-media	To be determined	

8.4. Monitoring of implementation

- Number of buildings that have switched fully to the use of a SHW container system
- Assessment of sanitary and hygienic conditions in buildings that have refused for using refuse chutes

8.5. General list of activities for implementation of the scheme

1. To study the existing experience as regards implementation of similar schemes

2. To organise a meeting with participation of high-ranking officials of the city administration and take a decision on implementation of the scheme

3. To prepare the schedule of actions to be taken. To define people in charge of the actions.
4. To choose a pilot zone for implementation of the scheme.
5. To organize a meeting with managers of public utilities working in the pilot zone
6. To organize a public opinion poll as regards the transfer to a new scheme
7. To organize an information campaign for the pilot zone inhabitants
8. To calculate the demand for additional containers
9. To organize a tender for container procurement.

Annex 1 Technical description of refuse chutes

The main part of the waste collection system in modern multi-storied residential buildings is represented by a refuse chute. The structure of the modern refuse chute is the following.

A modern refuse chute consists of the following constructive elements:

- a shaft designed for a regular gravitational batch transportation of SHW to the container installed in a waste collecting chamber;
- a loading valve for a batch receipt, calibration and transfer of SHW to the shaft of the refuse shaft;
- a gate valve for a regular shut-off of the lower part of the shaft during transportation of full SHW containers, safe preventive, sanitary and repair works in the waste collecting chamber;
- ventilation system for exhaust ventilation of the waste collecting chamber and shaft;
- cleaning detergent and disinfector for regular cleaning, washing and disinfection of the internal surface of the shaft as well as for automatic extinguishing of SHW possible ignition inside the shaft.

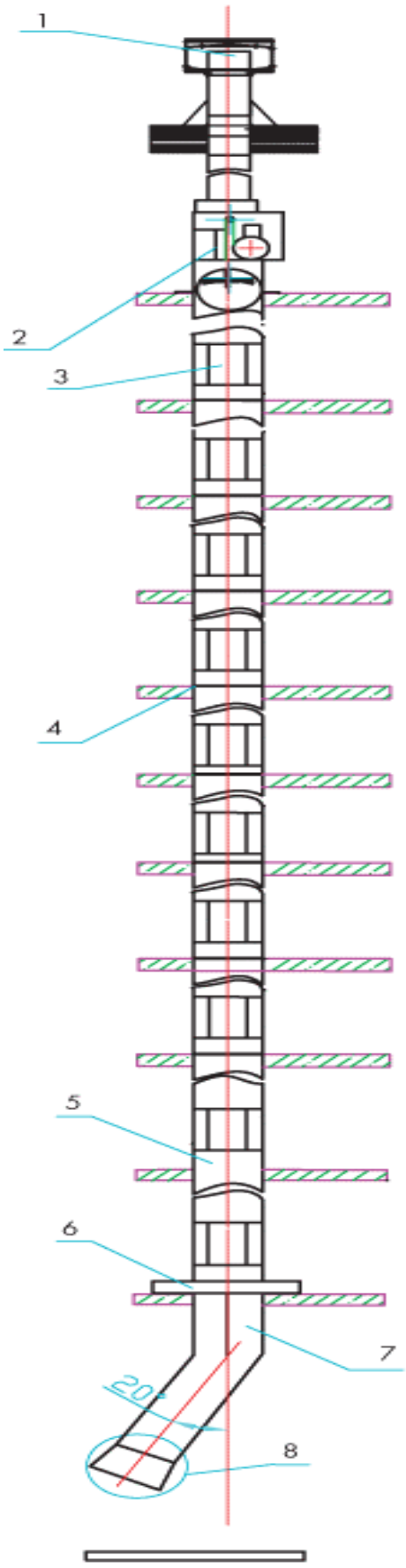

Fig. 1 Scheme of the refuse chute: 1) ventilation system; 2) cleaning disinfection unit; 3) loading valve; 4) support-loading clamp; 5) shaft; 6) shaft support; 7) branch pipe of the gate valve; 8) gate valve.

Loading valves of the refuse chute are located at each floor of the multi-storied building. In the waste collecting chamber under the gate valve there are installed containers which can be moved afterwards by the yard-keeper to the loading point for the waste collection truck.

Fig. 2 Container under the gate valve of the refuse chute.

Annex 2 Tariff for the maintenance of buildings and adjacent territories

DONETSK CITY COUNCIL

DECISION

as of 10.11.06 N° 6/27

On approval of tariffs for

the maintenance of buildings,

structures and the adjacent territory

In order to bring tariffs for the maintenance of buildings, structures and the adjacent territory in conformity with economically justified costs of the delivery of such services and to increase the quality of the latter, based on the Resolution of the Cabinet of Ministers of Ukraine as of 12.07.2005 N° 560 "On approval of the Regulations for setting the tariffs for the maintenance of buildings, structures and the adjacent territory as well as of the typical contract of service delivery on the maintenance of buildings, structures and the adjacent territory", being guided by Articles 19, 145 of the Constitution of Ukraine, item 2 of Article 4 of the European Charter of local self-government bodies, articles 10, 16, 25, 59, 71, 73 of the Law of Ukraine "On Local Self-Government Bodies in Ukraine", articles 7, 14, 30, 31 of the Law of Ukraine "On Housing and Public Utility Bodies" the city council

HAS DECIDED THE FOLLOWING:

1. Since 01.12.2006 for public utilities and other companies which provide services for residential buildings of the territorial community of Donetsk city there will approved the following:

1.1. Tariffs for the services on maintenance of buildings, structures and the adjacent territory in accordance with Annex 1.

1.2. Procedure of payments for elevator maintenance in case of temporary dysfunction of elevators in high-comfort buildings in accordance with Annex 2.

1.3. List of tariff components (structure) the services on maintenance of buildings, structures and the adjacent territory in accordance with Annex 3.

1.4. Frequency and deadlines for implementation of works referring to the maintenance of buildings, structures and the adjacent territory in accordance with Annex 4.

2. The amount of payment for the services on maintenance of buildings, structures and the adjacent territory should be calculated in accordance with the list of buildings by the types of their comfort (Annex 5).

3. The fee for collection, transportation and disposal of solid household waste of the inhabitants is not included into tariffs for the services on maintenance of buildings, structures and the adjacent territory.

4. Calculation of the fee for collection and disposal of solid household waste refer to incomes and expenses of housing maintenance companies.

5. The financial department of the city council (Mr. Moiseenkov) should compensate housing maintenance companies the difference between the approved amount of tariffs for the services on maintenance of buildings, structures and the adjacent territory and economically justified costs.

6. The department of labour and social protection of the city council (Ms. Skobeleva) should give more explanations to inhabitants as regards subsidies for housing and public utility services. Mr. Skobeleva should personally control the delivery of subsidies to low-income categories of people.

7. To consider no more valid items 1, 7, 8, annexes N° 3, 5 of the city council decision as of 24.06.05 N° 20/1 "On bringing the tariffs for housing and public utility services in line with the requirements of the "Gas of Ukraine" subsidiary NAK "Naftogas of Ukraine" as of 31.05.05".

8. To publish this decision in the "Nash dom +" newspaper.

9. The implementation of this decision should be controlled by the Commission of Housing and Public Utility Services, Ecology, Transport and Communications (Mr. Zakharov).

Annex N° 1

to the decision of the City Council

as of 10.11.2006 N° 6/27

TARIFFS

for the services on the maintenance of buildings, structures and adjacent territory of the inhabitants that live in residential buildings of the territorial community of the city of Donetsk

Types of dwelling	Tariff for 1 m^2 of the general surface, UAH (VAT included)	
	Norm	Adopted tariff
1. Low-comfort buildings	0.87	0.58
2. Buildings with some of the modern conveniences		
a)	1.13	0.72
b)	1.36	0.81
3. Buildings with modern conveniences	1.40	1.03
4. High-comfort buildings -1st floor	1.38	1.13
-2nd floor and higher	1.69	1.38

Notes:

1. Low-comfort buildings: no heating, no hot and cold water supply, no sewerage, no gas supply (electric stoves).

2. Buildings with some of the modern conveniences:

a) availability of cold water supply and sewerage;

b) in addition to cold water supply and sewerage there is also heating and gas supply.

3. Buildings with modern conveniences: beside cold water supply and sewerage there is district heating, hot water supply, gas supply (electric stoves) or some of the mentioned services.

4. High-comfort buildings: these are buildings with modern conveniences with an elevator (for the 1st floor the services on elevator maintenance are not included).

5. The tariffs for the maintenance of buildings, structures and adjacent territory do not include the fee for solid household waste collection and disposal.

6. The tariffs adopted should be fully used by all housing and operation companies not depending on the chosen system of taxation as well as persons exempt from VAT.

Annex 3

to the decision of the City Council

від 10.11.2006 N° 6/27

LIST

of tariff components (structure) for the services on the maintenance of buildings, structures and the adjacent territory

1. The calculation of the tariff for the maintenance of buildings, structures and the adjacent territory, provided there is a factual service delivery is done on the basis of the list of costs adopted:

Structure of costs	Costs by types of buildings, per 1 m^2, kopecks	
	Group IV (2nd floor and higher)	
	Norm	Adopted tariff
Cleaning of staircases	11.9	9.7
Maintenance and repair of elevators	26.0	21.4
Electricity supply to elevators	5.0	4.5
Electricity supply to public spaces	5.8	4.8
Cleaning of the territory adjacent to the building	17.9	14.8
Emergency service supply	4.0	3.2
Costs for the maintenance and repair of internal building networks of water- and heat supply, sewerage and electricity supply	27.0	22.2
Disinfestation and disinsection	1.6	1.3
Maintenance of chimney ventilation channels	2.9	2.3
Dispatcher's services	6.4	5.2
Current repair of the building	46.4	37.9
Maintenance of fire-safety automatic system and smoke-deflection	2.9	2.3
Maintenance of electric stoves	3.7	3.0
Repair of playgrounds	0.1	0.1
Preparation of the building for operation during winter time	1.6	1.3
Provision of payment books	0.1	0.1
Other costs	5.7	4.8
Total costs	169.0	138.0

Annex 4

to the decision of the City Council

as of 10.11.2006 N° 6/27

Frequency and terms for implementation of works for the maintenance of buildings, structures and adjacent territories

N°	Types of works (description of works)	Frequency and terms
1	Cleaning of staircases:	
	1.1. Wet sweeping of entrance halls, staircases and flight of stairs of the first 3 floors, places in front of loading chambers of refuse chutes	In a day
	1.2. Wet sweeping of staircases and flights of stairs higher than the 3d floor	Twice per week
	1 3. Washing of hall entrances, staircases and flights of stairs	Twice per month (in accordance with the schedule)
	1.4. Washing of windows at staircases and in entrance halls, doors	Once per year
	1.5. Sweeping off the dust, cobweb and dirt from walls, doors, windows, window-sills, radiators	Once per year
	1.6. Wet cleaning of window-sills, post boxes	Once per month
2	Maintenance and repair of elevators	On a monthly basis in accordance with contracts made with specialized elevator maintenance organizations
3	Cleaning of the territory adjacent to the building	On a daily basis in accordance with the schedule. The frequency of works in accordance with "Typical norms of time and norms of maintenance for employees and operating personnel involved in maintenance of residential buildings", approved by the Order of the State Committee on Housing and Public Utility Services of Ukraine as of 04.08.1997 N° 59
4	Maintenance and repair of internal building networks of water- and heat supply, sewerage and electricity supply (from external wall of the building to internal wall of the apartment):	The frequency of works in accordance with the Order of the State Committee on Housing and Public Utility Services of Ukraine as of 17.05.05 N° 76 "On approval of maintenance of residential buildings and adjacent territories"
	4.1.Regular inspection:	
	- systems of water supply, sewerage, district heating and hot water supply;	Twice per year
	- sanitary and technical equipment	Once per quarter
	4.2. Liquidation of failures of internal apartment networks (from external wall of the apartment to sanitary and technical equipment):	
	- failures inside pipe-lines and their connection points by fittings and reinforcement as well as of water supply, sewerage, hot water supply, district heating equipment;	Immediately
	- emergency failures in electric equipment (short circuit, switch off of the current inside the apartment)	Immediately
5	Disinfestation and disinsection	In accordance with contracts made with specialized organisations
6	Maintenance of chimney ventilation channels: 6.1. Regular technical inspection of duct furnaces and ventilation channels:	

	- ducts;	Twice per year
	- ventilation channels.	Once per year
	6.2. Thorough cleansing and regular check-ups	In accordance with "Typical norms of time and norms of maintenance for employees and operating personnel involved in maintenance of residential buildings", approved by the Order of the State Committee on Housing and Public Utility Services as of 04.08.1997 N° 59
7	Current repair of the building	The frequency of works in accordance with the Order of the State Committee on Housing and Public Utility Services of Ukraine as of 17.05.05 N° 76 "On approval of maintenance of residential buildings and adjacent territories"
8	Maintenance of fire-safety automatic system and smoke-deflection	In accordance with contracts made with specialized organisations
9	Maintenance of electric stoves	In accordance with contracts made with specialized organisations
10	Preparation of the building to its operation during winter	The frequency of works in accordance with the Order of the State Committee on Housing and Public Utility Services of Ukraine as of 17.05.05 N° 76 "On approval of maintenance of residential buildings and adjacent territories"

Annex 3 Decision-taking scheme for refuse chute closure