



International POPs Elimination Project

*Fostering Active and Efficient Civil Society Participation in
Preparation for Implementation of the Stockholm Convention*

Waste Incineration and Handling in Moldova

**Chisinau Territorial Organisation of the Environmental
Movement of Moldova**

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About the International POPs Elimination Project

On May 1, 2004, the International POPs Elimination Network (IPEN <http://www.ipen.org>) began a global NGO project called the International POPs Elimination Project (IPEP) in partnership with the United Nations Industrial Development Organization (UNIDO) and the United Nations Environment Program (UNEP). The Global Environment Facility (GEF) provided core funding for the project.

IPEP has three principal objectives:

- Encourage and enable NGOs in 40 developing and transitional countries to engage in activities that provide concrete and immediate contributions to country efforts in preparing for the implementation of the Stockholm Convention;
- Enhance the skills and knowledge of NGOs to help build their capacity as effective stakeholders in the Convention implementation process;
- Help establish regional and national NGO coordination and capacity in all regions of the world in support of longer term efforts to achieve chemical safety.

IPEP will support preparation of reports on country situation, hotspots, policy briefs, and regional activities. Three principal types of activities will be supported by IPEP: participation in the National Implementation Plan, training and awareness workshops, and public information and awareness campaigns.

For more information, please see <http://www.ipen.org>

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Waste Incineration and Handling in Moldova

The project "No to Waste Incineration" primarily seeks to reduce adverse health and environmental impacts of waste incineration products.

Main objectives of the project:

- to inform citizens of Moldova on the adverse health and environmental impacts of incineration of different types of waste; to implement an information campaign: roundtables, radio/TV broadcasts, articles in printed media;
- to monitor waste incineration sites in 10 settlements of the country, including waste dumps, greenhouses, limekilns, cement plants, brick production facilities, used tires, plastic and cardboard;
- to strengthen partnerships between citizens and authorities in decision-making on reduction of adverse health and environmental impacts of waste.

In order to ensure successful implementation of the project, an initiative group of representatives of environmental NGOs was formed including "Ecosphere", "Unda Verde", "SalvaEco", and "Pronatura". Vladimir Garaba, the Chairman of Chisinau Territorial Organisation of the Environmental Movement of Moldova, was elected the Leader of the Initiative Group.

The project was presented on June 16, 2005 at the press-conference, specially organised for the purpose. In the course of the project implementation, the following activities were conducted: in August/September, experts of Chisinau Territorial Organisation of the Environmental Movement of Moldova made field visits to study waste incineration at the local level, using a special questionnaire, developed for the purpose. The field visits covered ten settlements in 3 zones: the North (Trinka village of Yedinetskiy district, Rezina and Belts towns); the Centre (Koshnitsa village of Dubossarskiy district, Chioresku village of Chisinau municipality, Aneniy Noy and Streshen towns); and the South (Kahul and Chimishlia towns).

Approximately 1850 waste dumps that burn periodically, should be considered as the main sources of toxic pollutants. Waste dumps operate in almost all towns and villages. Permanently burning waste dumps are even more hazardous - there are few of them, but their adverse environmental impacts are particularly serious. The situation in the south of the country is worse, compared to the north. In 10 settlements, greenhouses and brick-production facilities were studied - they use different types of fuel, including agricultural waste and used tires. In Trinka village (Yedinetskiy district) tens of limekilns operate, while in other settlements there are only a few limekilns.

Open burning of residual crops represent another air pollution source. Within the year in the country, more that 130 cases of burning of agricultural residues within an overall area of about 800 hectares were identified.

In the course of the population survey of summer 2005, we found that the majority of the country's residents consider burning of different types of waste, inc. pesticides, plastics and tires as operations of high risk. 75.7% of respondents believe that waste incineration is not an appropriate option to address the problem of waste, and only 7.3% of respondents assess waste incineration positively.

The country's residents consider the following options as the most reliable for addressing problems of obsolete pesticides, plastics, used tires, etc.:

- a) centralised collection and storages for eventual processing – 71.5%;
- b) storage in already operational facilities pending decision-making on their further processing – 15.2%
- c) collection and transportation to another country – 3.1%.

The survey results suggest that residents of villages and towns are not particularly concerned about incineration of household waste. Answering the question "How often do you burn plant and household waste?" 70% of respondents said that they either do not burn such waste or burn waste 1-2 times in a year. Only 17% of respondents admitted that they burn waste every week or even more often. Experts of relevant settlements share other views. They suggest that in 60.8% of cases, households collect wastes and burn them in their backyards. Waste burning practices are more common in the south and in the centre, than in the north.

In connection with the International Day of Actions against Waste Incineration (September 6, 2005), Chisinau Territorial Organisation of the Environmental Movement of Moldova held a national roundtable, with the participation of 35 persons, representing environmental authorities, the Preventive Health Care Centre, the State University, the Technical University, NGOs and mass media outlets.

The roundtable participants agreed that waste incineration is not a viable option for addressing the waste utilisation problem. They approved several recommendations and submitted these recommendations to relevant authorities. In particular, they proposed to tighten sanctions for admission of waste incineration. Local residents should be provided more adequate information on health and environmental impacts of waste incineration. Environmental authorities should permanently inform local residents on changes in environmental quality and provide any relevant information to all interested persons. It is necessary to incorporate study of waste utilisation rules into school curricula and conduct environmental lessons on these matters in all education facilities.

The roundtable participants recommended to avoid incineration of collected obsolete pesticides at the territory of the country, to abandon the practice of burning used tires as fuel (including their burning as fuel at Rezina Cement Plant), to avoid use of incineration for processing of several hundred tons of paraformaldehyde, to design and construct waste-processing plant in Chisinau without a waste incineration technological line.

In October/November 2005, the organisation initiated joint inspections (with involvement of the municipal police, environmental inspectors and journalists) at the territory of Chisinau municipality to identify cases of burning of dry tree leaves, household and other waste. Overall, 15 investigations were made in 5 sectors of the city, 38 administrative protocols were filed on violations of the environmental legislation. Publications in printed media, radio and TV broadcasts were made to inform the city residents on negative effects of burning of dry leaves and other types of waste, on associated legal sanctions.

In the course of implementation of "No to Waste Incineration" project, 3 roundtables were conducted, as well as 2 press-conferences and 30 meetings with citizens of Moldova. Overall, 2500 persons participated in these events. 1000 copies of leaflet "No to Waste Incineration" were published. Copies of the leaflet were distributed among education facilities, local authorities, NGOs, citizens of Moldova. Six articles were published on the problem of waste, 4 TV broadcasts and 10 radio broadcasts were aired on these issues.

The project activities allowed us to prevent burning of used tires at Resina Cement Plant. In the course of test burning of used tires, precise measurements allowed us to identify excessive concentrations of toxic substances - as a result, the plant was prohibited to use old tires as a fuel. Now, negotiations with two business partners are under way - they offer non-incineration tire-processing technologies. Another waste incineration attempt was also terminated - burning of several hundred tons of formaldehyde waste. The Ministry of Environment authorised the owner to burn the waste in Beltsy, in the north of the country.

However, local authorities and residents refused to allow the waste incineration and now the facility is looking for another site. The Ministry of Environment was proposed to review the authorisation order it issued and to ask for another option for utilisation of paraformaldehyde.

In connection with the tender on construction of the waste processing plant in Chisinau, Vladimir Garaba - the Chairman of the organisation - was incorporated into the tender commission. We participate in the campaign in order to avoid contracting a competitor who intends to use waste incineration technology.

Information on waste incineration situation in towns and villages of the Republic of Moldova

In August/September, experts of Chisinau Territorial Organisation of the Environmental Movement of Moldova studied situation in the sphere of waste incineration in 10 settlements in 3 zones of the country: the north (Trinka village of Yedinetskiy district, Rezina, Soroka and Belts towns); the centre (Koshnitsa village of Dubossarskiy district, Chioresku village of Chisinau municipality, Aneniy Noy and Streshen towns); and the south (Kahul and Chimishlia towns).

The survey results suggest that, now, there are no numerous lime slaking pits and brick production ovens in the above settlements. There are no waste-processing plants in the above settlement as well.

Village and town landfills belong to the most common waste burning sites. Usually they burn in 2-3 places.

It is pleasant to note, that efforts of environmental and sanitary services resulted in a reduction of cases of burning of household waste by residents and municipal workers. In almost all settlements under survey, cases of burning of agricultural residues were registered, relevant administrative protocols were filed and violators paid damages.

In some settlements (Belts, Streshen), individual business facilities were established to collect plastic waste and used tires. Municipal utilities do not pay any attention to these matters.

Obsolete pesticides are packed and stored in specialised storage facilities.

Unfortunately enough, there are no well developed NGO networks in towns and villages surveyed. In cases when NGOs exist, they do not address waste utilisation and processing issues. Local businesses also pay inadequate attention to these issues.

In the course of discussions, we found that residents of these villages and towns were not adequately informed on adverse health and environmental effects of incineration of household and industrial waste. In the previous period of time, in these settlements, waste incineration issues were only covered in 5 TV broadcasts, 6 radio broadcasts, 4 articles in local printed media outlets and 2 roundtables. No leaflets, booklets or other printed information sources were published in 10 settlements surveyed.

Belts

There are no brick production ovens or limekilns in the town, however, in 2004, "Ringostar" Company produced bricks for 3 months (now the facility lacks raw materials - white clay - and stays idle). Besides that, there are no major greenhouses in the town. There is some positive experience of application of sunflower waste for heating ("Florya Soarelyi" Co.)

The municipal landfill (24 hectares) is located at a distance of 7 km from the town. On the day of inspection, we observed 3 garbage fires there. "Autosalubritate" facility operates there in the sphere of waste separation (metal, glass, polyethylene paper).

In Belts, 3 private waste-processing facilities operate. Annually they process from 8 to 20 tons of polyethylene and produce PE films and bags.

Local municipal authorities pay due attention to elimination of illegal waste dumps: 8 such dumps had been already liquidated there. With finance support of the National Environmental Fund, local authorities cleaned the valley of the Reuțel River. Two hectares of waste dump nearby gas-filling station, and the entrance road from Felesht town.

Approximately 13,102 kg of obsolete pesticides were transferred to the specialised storage facility in Aleksandreny village.

Stockpiles of fluorescent lamps at the town's facilities reached 70,000 units.

In 2005, the Environmental Service of the town filed 18 administrative protocols on private residents who burnt household waste.

Soroka

No waste incineration sources were found in the town. On the day of inspection, no garbage ignition points were identified at the municipal landfill.

Waste ignition points were identified at the waste dump of "Alfa Nistru" Co. (the latter waste dump is located at a distance of 200 m from the municipal landfill).

An official of the local Environmental Service filed two administrative protocols on burning of agricultural residues to compensate damages (Lei 3400 and Lei 600).

Nobody operates in the sphere of waste utilisation in the town. There were some attempts to organise collection of waste PE, but they failed.

In two recent decades, pesticides were not used in Soroka. As a result, there are no pesticide storage facilities in the town. Officials of the Environmental Service maintain good working relations with TO Soroka EDM. They jointly implement different public awareness raising campaigns. Two articles on waste incineration issues were published in a local newspaper.

Trinka village of Yedinetskiy district

The village is located at the banks of small Dragishte River. There are 108 lime slacking pits in the village and 25 operational limekilns, fuelled by firewood, coal and used tires. Residents of Fetest village collected more than 500 signatures complaining about air pollution generated by the limekilns in the village of Trinka. Used tires generate soot that covers the river water and tree leaves.

In the town of Yedintsy, 2 small brick production facilities operate irregularly (depending on small scale production contracts). These facilities use coal as a fuel.

There are private greenhouses in 2 villages of Yedinetskiy district (owners use firewood and animal chips for heating).

The town landfill is filled above its capacity and burns permanently. The owners of private houses burn household waste. In spring and autumn seasons, municipal workers burn garbage and dry leaves. Officials of the Yedinets Environmental Service identified 11 cases of burning of agricultural residues and straw. Three environmental NGOs operate in the district, but they do not pay adequate attention to problems of waste burning.

Rezina

There are no brick-production facilities and limekilns in Rezina district. In local greenhouses, waste sunflower and corn are used for heating.

The town landfill operates legally, but its quality is inadequate. Many cases of burning of agricultural residues were identified, but no administrative protocols were filed as no violators were found, except in one case (farmer Sergey Ursu was fined for burning agricultural residues at the area of 17 hectares.)

The local cement plant conducted pilot burning of used tires as a fuel. Measurements revealed that air emissions exceed applicable standards. As a result, the Environmental Service of Rezina town recommended termination of the temporary permit granted by the Ministry of Environment and Natural Resources.

Waste collection businesses are non-existent in Rezina district.

Environmental NGOs and local administrations do not pay adequate attention to problems of waste burning.

Chioresku village of Chisinau Municipality

On the day of inspection, no waste burning points and cases of burning of agricultural residues were found in Chioresku village. Local authorities pay attention to waste burning issues. They conducted meetings with local residents to inform them on harmful effects of waste burning. In summer, at the site of "Drumur" Co., in Goien village, "Katniravit" Co. conducted pilot burning of tar paper. However, due to numerous complains of local residents on soot pollution, the tests were cancelled and "Chentry" Environmental Agency terminated operations of the company.

Streshen

In Streshen, the local landfill is the key source of air pollution. The landfill site is always covered by smoke from burning waste.

As a positive example we may consider proactive measures that were taken to inform local residents and prevent burning of household waste. These measures already generated some tangible effects. In 2 recent years, no cases of waste burning were identified in the town. However, 67 administrative protocols on illegal waste disposal were filed.

In Streshen, private facility "Georgiy Paladi" collects waste paper and polyethylene.

In July, in Streshen, a seminar was held for district officials on prevention of burning of dry grass and agricultural residues.

Koshnitsa village, Dubossarskiy district.

In the village, local residents often burn their household waste, the local waste dump also burns permanently. Agricultural residues were burnt at the area of 123 hectares and administrative protocols were filed on 3 violators. The local TV channel "Bashtina" aired two topical broadcasts, featuring the village Mayor, who discussed the problem of household waste.

Gura Bykuluy village, Aneniy Noy district.

The village residents mainly cultivate vegetables. As a result, there are no limekilns and brick production facilities there. In greenhouses, natural gas, firewood, waste sunflower and corn are used for heating.

In Sobolevka and Ketrotsy villages, cases of open burning of agricultural residues were identified (associated damages reached Lei 10,000). Nobody collects and recycle waste there.

There are no municipal services in Gura Bykulyi village. The local newspaper published 1 article on burning of agricultural residues.

"Valul Nistruluy" NGO actively operates in the village.

Kahul.

There are operational greenhouses in almost all villages of the district, particularly in villages at banks of the Prut river. Owners of greenhouses use natural gas, firewood, coal and agricultural waste for heating.

Numerous waste ignition points were identified at the local landfill. Municipal workers burn garbage and dry leaves in the town. Owners of private houses apply the same practices.

Eight protocols on open burning of agricultural residues were filed. The Fire Department officers identified 17 cases of waste burning by physical persons and legal entities.

Mr. Valeriy Kolin, a local resident, collects fluorescent lamps.

Small amounts of obsolete pesticides are stored in Manta, Moskovy, Lebedenko, Tartaul and Taraklia villages, these storage facilities are easily accessible, however, no arson attempts were identified.

Chimishlia.

On the day of inspection, the local landfill did not burn. However, local residents commented that garbage burning occurs periodically.

In this year, tens of cases of open burning of agricultural residues and straw by farming facilities were identified. In some cases, administrative prosecution measures were taken against violators to compensate associated damages.

Open burning of agricultural residues and straw caused a forest fire. As a result, the fire destroyed about 100 walnut trees.

Approximately 149.2 tons of obsolete pesticides (including 18 tons of liquid preparations) were packaged and are stored in a centralised facility.

The local public administration takes measures to prevent waste burning, including roundtables with involvement of interested specialists; topical TV and radio broadcasts, articles in printed media outlets.

Public attitudes on waste incineration problems

Information on public views on solid waste incineration is based on results of the study, conducted by a group of experts of the Environmental Movement of Moldova in connection with development of the World Bank project ("Sustainable Management of POPs Elimination in the Republic of Moldova" - Spring 2005). The survey covered 600 owners of small holdings and 120 experts from 19 settlements of the Republic of Moldova (five towns and 14 villages).

Periodically burning waste dumps are considered as main sources of toxic emissions. Such waste dumps exist in almost all towns and villages (results of the survey of 10 settlements confirm the above

conclusion). Permanently burning waste dumps are even more hazardous, they are less common, but pose much higher environmental risks. At the South of the country, situation is worse comparatively to the North.

Sources of toxic pollution (%)

Sources	Total	Zones			Experts
		North	Centre	South	
Duly equipped chemicals storage facilities	27.7	10.5	28.8	37.8	75.0
Abandoned and dilapidated chemicals storage facilities	27.7	53.5	31.8	11.4	25.0
Sites of former chemicals storage facilities	12.4	18.5	13.6	8.4	33.6
Permanently burning waste dumps	5.7	4.0	3.0	7.2	5.2
Periodically burning waste dumps	64.6	48.0	63.6	74.8	71.6
Transformer installations	58.1	28.5	13.6	84.7	67.2
Specialised facilities for sale of agricultural chemicals	16.4	8.0	-	24.6	20.7
Limekilns, brick ovens	0.5	1.5	-	-	-
Other	5.7	11.5	16.7	-	0.9

Besides risks of agricultural chemicals, respondents who were owners of small holdings consider incineration of different types of waste (including pesticides, plastics, and used tires) as a substantial risk factor. Approximately 75.5% of respondents consider waste incineration as an inappropriate option and only 7.3% of respondents assess waste incineration positively.

Arguments against waste incineration (%)

Arguments	Total		Zones					
			North		Centre		South	
Adverse environmental impacts	37.7		39.1		40.7		59.7	
Adverse health impacts	36.3		59.0		59.3		37.8	
Substantial visual impacts on settlements	1.5		1.9		-		2.6	
Arguments	Age						Gender	
	18-24	25-30	31-40	41-50	51-60	>60	Men	Women
Adverse environmental impacts	58.8	52.6	53.4	47.5	53.5	41.6	52.0	47.8
Adverse health impacts	41.2	47.4	42.5	50.0	45.5	56.2	45.2	50.9
Substantial visual impacts on settlements			4.1	2.5	1.0	2.2	2.7	1.3

A minority of respondents argued that incineration of chemical waste is a cheaper option (45.5%) that takes less time (40.9%), and provides additional cheap energy (11.4%).

Respondents, who were against waste incineration, referred to the following arguments:

- a) Adverse health impacts - 49.9%;
- b) Adverse environmental impacts - 48.1%;
- c) Substantial visual impacts on settlements - 2.0%.

In 2004, in Grednitsa village of Keushen district and Ratush village of Telenesht district, some arsonists attempted to burn centralised pesticide storage facilities. Local residents and residents of nearby settlements were seriously concerned about these cases and strongly opposed incineration of toxic waste.

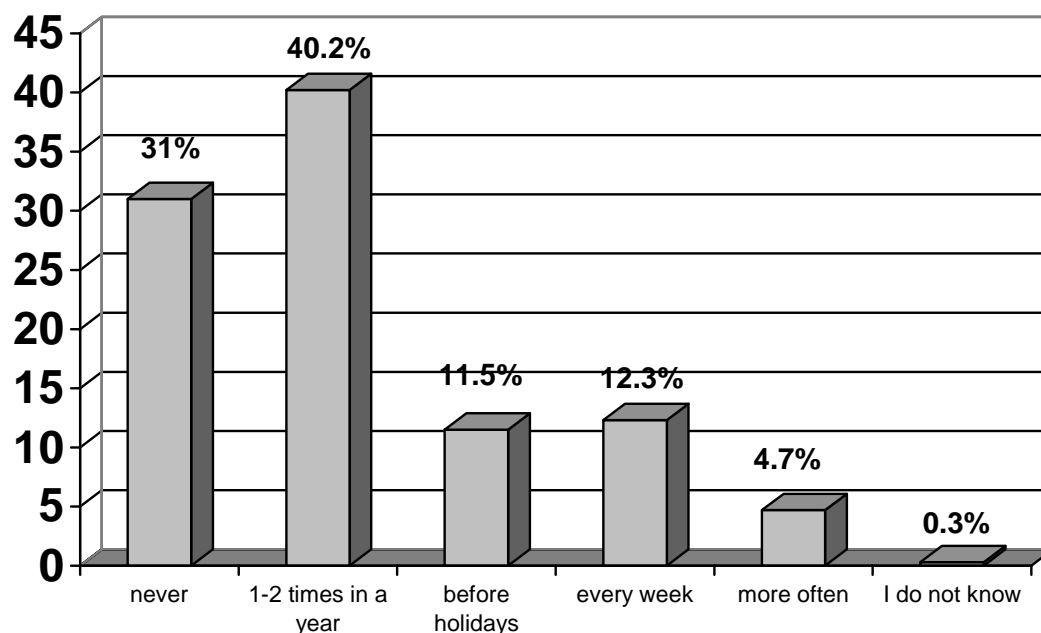
Owners of small holdings consider the following options as the most reliable ones for addressing problems of obsolete pesticides, plastics, used tires, etc.:

- a) centralised collection and storage for eventual processing - 71.5%;
- b) storage in already operational facilities pending decision-making on their further processing - 15.2%;
- c) collection and transportation to another country - 3.1%.

Experts are less inclined to support the first option. Approximately 49.2% of experts argued for centralised collection and storage of pesticides, 18.3% of experts preferred storage in already operational facilities, and 31.7% of experts argued for their transportation to another country. The above results suggest that half of the experts do not agree with the current option (centralised storage of pesticides in districts).

Now there are some risks that an influential group of governmental officials may promote the option of elimination of pesticides by their incineration in mobile installations on-site - i.e. in places of centralised storage of these hazardous chemicals, in close proximity to villages and towns. They advocate these measures despite recent negative examples including a well-known one two years ago at the site of a military unit in Denchen which involved components of liquid missile fuel were incinerated.

The results of a survey of owners of small holdings suggest that residents of villages and towns are not particularly concerned about burning of household waste. Answering the question, "How often do you burn plant and household waste?" 70% of respondents said that they either do not burn such waste or burn waste 1-2 times in a year. Only 17% of respondents admitted that they burn waste every week or even more often. Experts from relevant settlements share other views. They suggest that in 60.8% of cases, households collect wastes and burn them in their backyards. Waste burning practices are more common in the south and in the centre part of the country than in the north.

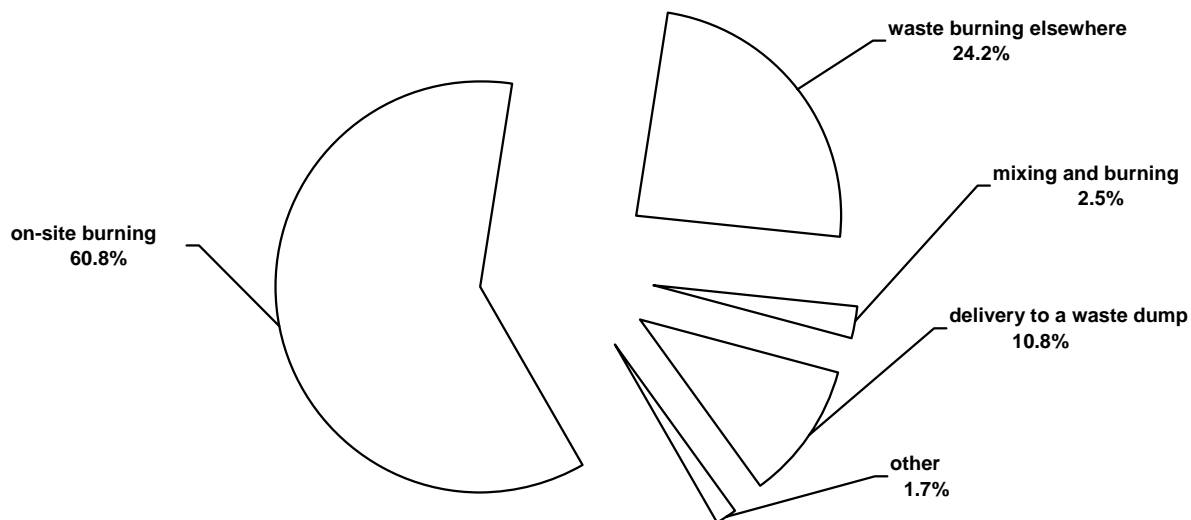


How often do you burn plant and household waste?

Surveyed experts (including local mayors, advisors, managers of agricultural facilities, public health workers, teachers, etc.) share more sceptical views on waste burning practices of owners of small holdings. They believe that only in 11% of cases, owners regularly deliver waste to authorised landfills. Others mainly burn their waste on-site (60.8%) or elsewhere (24.2%).

Predominant practices of plant waste management of rural residents.

It is worth noting that safer types of fuel are mainly used. In this respect, the situation in the southern districts is better. Approximately 45.6% of households use natural gas there compared to the national average of 40.7% and 33.5% in the northern districts. In the latter case, the situation is less favourable, but the system of gas supply is being extended there. In some villages (e.g. Temeluets, Tudora, Ratush), local residents have to use firewood and coal for heating.



Types of fuel, used by local residents for heating (%)

Types of fuel	Total	Zones		
		North	Centre	South
Electric power	0.8	2.0	1.5	-
Natural gas	40.7	33.5	37.3	45.6
Coal	0.7	1.5	-	0.3
Firewood/coal	27.5	20.5	23.9	32.4
Firewood	30.0	42.5	37.3	21.0
Agricultural waste	0.2	-	-	0.3
Other	0.2	-	-	0.3

Conclusions

1. Residents of the country believe that authorised and illegal waste dumps, that burn periodically or permanently, pose the highest threat of air pollution.
2. In the course of the survey, the majority of respondents and experts were found to oppose waste incineration as a waste elimination option. They believe that such practices would generate equally adverse effects for human health and the environment.
3. The problem of domestic waste burning does not belong to the most important problems of the country's residents. Owners of small holdings burn almost all their plant waste either on-site, or elsewhere.
4. Households gradually switch to safer types of fuel. Only in some settlements without access to gas supply, there are some risks of indoor air pollution by toxic products of incomplete combustion of low-quality fuel or plant waste.