Clean Air Action Group

Rough translation
from the Hungarian text
“Égetés eredetű légszennyezés és megszüntetésének lehetőségei”

https://www.levego.hu/sites/default/files/egetes_eredetu_legszennyezes_program_v_1.5.pdf

Proposals for measures to reduce of air pollution from burning household waste, green waste and wood

(January 2016)

Legislative framework in force:
Subsection (4) of Section 48 of Act LIII. of 1995 Belongs to the competence of the body of representatives of the local authorities
b) establishment of ***provisions applicable to air pollution caused by household activity and leaf-litter and garden waste burning with regulation***

A law or government decree interdicting all kinds of leaf-litter burning is needed
Executives: Parliament, Government, Ministry of Agriculture, NGOs as advisors
Resource estimates: -

Significant raise of penalties in Government Decree 306/2010
Executives: Government, Ministry of Agriculture, NGOs as advisors
Resource estimates: -
Open Burning Smoke Control Regulation of British Columbia, Canada includes:

„A person who contravenes the Open Burning Smoke Control Regulation is liable on conviction to a fine of up to $200,000.” HYPERLINK "http://www.bcairquality.ca/reports/agttobsc.html" (Thus, upon those who burn leaf-litter in a way that is not in compliance with the regulation a financial penalty of up to 45.000.000 HUF can be imposed.)

If a fire brigade has to turn out because of a fire caused by leaf-litter burning, the burner bears all charges, and pays the fine in the central budget.
Executives: Government, Ministry of Interior, legislative amendments, NGOs as advisors
Resource estimates: -

Population advisory to promote composting and raising awareness of the adverse effects of leaf-litter burning.
Executives: NGOs (Clean Air Action Group and Hungarian Network of Eco-counselling Offices prominently)
Resource estimates: 200 million HUF every year
The Clean Air Action Group (CAAG) had previously applied to the EEA Grants NGO Programme with a programme, in which we would have propagated composting in catalogs of DIY stores, presenting the adverse effects of leaf-litter burning as well. Simultaneously, we would have promoted the campaign by providing advice to citizens. All of the multinational companies were opened to the programme, because they could have sold more products related to composting, and they would have been given important CSR opportunities. Tender evaluators did not relish the idea of common action with multinational companies, therefore they didn't promote it. The Hungarian Network of Eco-counselling Offices has been running a civil environmental advisory network that is also listed on an international level for 15 years, which is made professional by its own quality improvement system. In our campaign we have increased the eco-consciousness of a wide range of sections of the society. The founder of the Hungarian Network of Eco-counselling Offices is the Clean Air Action Group.

Shaping population attitude in the cause of the dissemination of composting, and presentation of the adverse effects of leaf-litter burning

Executives: MTI (a Hungarian news agency), public media, market media services, schools in the educational system, NGOs (Clean Air Action Group and Hungarian Network of Eco-counselling Offices prominently)
Resource estimates: 500 million HUF every year

HYPERLINK "http://www.bcairquality.ca/reports/agttobsc.html"

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Increasing the role of mulching in backyard farming

Executives: Ministry of Agriculture, MTI (a Hungarian news agency), public media, agricultural journals, schools in the educational system, NGOs (Clean Air Action Group and Hungarian Network of Eco-counselling Offices prominently)
Resource estimates: 10 million HUF every year
Tools: primarily publications, programmes discussing horticulture, and websites

Researches into composting. Research on compost furnace as a possible heating system.

Executives: Ministry of Agriculture, MTI (a Hungarian news agency), public media, agricultural journals, schools in the educational system, NGOs (Clean Air Action Group and Hungarian Network of Eco-counselling Offices prominently)
Resource estimates: 10 million HUF every year
Note: compost furnace is primarily constructed for replacing plastic tunnels, the heating of which is often carried out illegally with waste. It might be suitable for basic heating of flats.

Reduction of air pollution of household solid combustion plants

Banning the sale of wet firewood in regulation (no more than 25% moisture content).
Executives: Government, Ministry of Agriculture, NGOs as advisors
Resource estimates: -

Sanction against salesman, imposing a penalty of at least 100.000 HUF. Wet firewood provides half the heat while burning, therefore it is extremely wasteful. On the other hand, its air pollution is an order of magnitude higher than that of the dry firewood [3] HYPERLINK "http://www.mert.hu/10-000-mazsa-lignit-a-raszoruloknak". Uneducated, disadvantaged residents are not aware of this problem, thats's why they are gullible for buying wet firewood.

Definition of household fuels in regulation, prohibition and fining of burning materials different from these in the supplement of Government Decree 306/2010
Executives: Government, Ministry of Agriculture, NGOs as advisors
Resource estimates: -

HYPERLINK "http://www.mert.hu/10-000-mazsa-lignit-a-raszoruloknak"

http://www.env.gov.bc.ca/epd/industrial/pulp_paper_lumber/pdf/emissions_report_08.pdf

3 http://www.mert.hu/10-000-mazsa-lignit-a-raszoruloknak

Materials that can be burnt: natural gas, LPG, bio gas, fuel oil, petroleum, coke, black coal, brown coal (lignite), coal briquette, firewood (the most important regulation needed is the one regarding the maximum admissible moisture content), wood pellet, wood briquette, wood-chips, charcoal. The Mátrai Erőmű Zrt. (Hungarian power plant) sold 63.004 tonnes of lignite as household fuel in 2008.[3] This was already 325.000 tonnes in 2012. According to an accredited examination we have taken possession of, its sulphur content is 7,48%, while power plant data show a 1,4–2,2%[4] content. The International Agency for Research on Cancer (IARC) of WHO (World Health Organization) carried out a study[1] on the effects of residential burning of Chinese and Indian coal types, including lignite. According to the study, the residential burning of coal is demonstrated to cause lung cancer. Among others, the deadly disease is caused by polyaromatic hydrocarbons (PAH), which is released during burning, and poisonous metals bound the surface of the particles, such as arsenic, fluorine, lead and mercury. Particle pollution can also cause cardiovascular diseases (infarction, stroke). During power plant incineration, lignite burns in furnaces at a high temperature with high efficiency under well-regulated circumstances. A large part of the solid particles is eliminated from exhaust gases with filters, while acidic gases are removed with exhaust gas scrubbers. Thus, 4087 tonnes of sulphur-dioxide emission per 8 million tonnes of lignite consumption is recorded in the power plant annually HYPERLINK "http://putnoki-szen.hupont.hu/". The exhaust gases of the 0,325 million tonnes of lignite that is burnt by the residents are released in the air unfiltered. Calculated with a modest 1,4% sulphur content, it means 9100 tonnes of emission every year, which is at least twice as much than the power plant emission. According to an American-Chinese study, residential furnaces release in the order of a hundred times as much coal particulate matter than power plants. It means that contrary to the 154 tonnes annual emission of the Mátrai Erőmű, residents emit a four times many – approximately 625 tonnes of – carcinogenic particles by burning only a small fraction of lignite. According to air pollution database of the United States Environmental Protection Agency (US-EPA) and calculating with an ash content of 10-16%, 975-1556 tonnes of PM2,5 particles fly out from the furnaces through lignite burning every year. According to the methodology worked out by the Directorate-General for Environment, such an extensive emission of these pollutants causes 131-176 people to die early every year (55 death due to SO_2 and 76-121 death because of PM2.5), causing a 45-76 billion HUF expense for the national economy.[2] Residential combustion plants do not have such desulphurization equip-

1 http://www.mert.hu/10-000-mazsa-lignit-a-raszoruloknak

HYPERLINK "http://putnoki-szen.hupont.hu/"

http://putnoki-szen.hupont.hu/

2 http://monographs.iarc.fr/ENG/Monographs/vol100E/mono100E-13.pdf

ment like a power plant do, in this way the sale of coals with such a high sulphur content must be prohibited, similarly to the regulation regarding the sulphur content of fuel gases HYPERLINK "http://ec.europa.eu/environment/enveco/air/pdf/betaec02a.pdf".

Charging a tax for fuels different from the regulation

Executives: Government, Ministry of Agriculture, NGOs as advisors

Resource estimates: - (it may present a significant income in government finance)

It should be considered that the government charges a tax for coals, oils, woods, gases etc. adjusted by regulation with higher water, sulphur and ash content different from the standards. Those power plants that have a proper separating and filtering equipment can claim this tax in the proportion of their usage and the capture efficiency. For example, unlike the real consumption of the power plant, lignite or coals containing water that are different from the standards and sold for residents are not exempted from the tax. The tax rate has to be determined so that it encourages people to buy and use fuels with lower environmental pressure[10].

Qualification of the heating system (energy label as sample: A+++ – G).

Executives: Government, Ministry of Agriculture, Ministry of Interior, NGOs, research centers, manufacturers

Resource estimates: 200 milion HUF, once

The qualification depends on the heat storage opportunities and efficiency: good efficiency and large heat storage capacity are advantages. The development of the qualification system is a common task for the above mentioned organizations.

Establishment and operation of a national (online) database containing combustion plants and systems based on the qualification system (energy label as sample: A+++ – G).

Executives: The operator of the database due to Government decision

Resource estimates: 10 million HUF every year

HYPERLINK "http://ec.europa.eu/environment/enveco/air/pdf/betaec02a.pdf"

http://okir.kvvm.hu/area/detail.php?s=MTAwMzI3NTM4fDA=

7 http://people.gucas.ac.cn/upload/UserFiles/File/201109191427404424.pdf

8 http://www.epa.gov/ttnchie1/ap42/ch01/index.html

9 http://ec.europa.eu/environment/enveco/air/pdf/betaec02a.pdf

According to the qualification system, the qualification of the combustion plants operating at present can be done by everyone by filling in the type, the photographic database and the form on the website. Thus, the user knows how good the efficiency and the heat storage capacity of the equipment is. The qualification of equipments sold on the market freshly would be done this way, so they would be included in the database (it can be a legal obligation).

Acquiring professional low-emission heating by raising public awareness.

Executives: MTI, public service media, market media service providers, schools in the education system, NGOs (particularly the Clean Air Action Group and KÖTHÁLÓ).
Resource requirement: HUF 500 million annually

The main campaign tools would be the following: TV and radio programs, websites, publications and billboards. The campaign is needed because natural gas-based heating has spread in the country over the past 40 years. A whole generation grew up without ever heating with wood, only using gas. Because of an increase of the gas prices many people have returned to wood and coal heating, but they do not know how to use it to get a good fuel efficiency without polluting the environment. US EPA's Burn Wise[3] website or the Canada Mortgage and Housing Corporation's wood heating guide[4] could be a good example for us. It should be mentioned that in the case of a 20% increase of the moisture content of wood, carbon monoxide emission becomes ten times bigger, while solid emission five times bigger. Wood gets fungal infection when it is stored in a wet environment for a long time, which means that 500 to 800 ppm (1000 to 1600 mg / Nm3) of NOx will be released while burning.

Post thermal insulation of buildings, introduction of stricter construction standards, energetic feature-based differentiated aid.

Executives: Government, Ministry for National Development
Resource requirement: HUF 100 billion annually

Buildings' thermal insulation reduces heating demand. It is well known that one square meter of an average Austrian building requires three times less energy than an average Hungarian edifice. Therefore, Austrian buildings pollute at least three times less when heating. It is priority to insulate those buildings that have a particularly poor thermal insulation. Thus, it is necessary to specify in the tenders what minimum target value must be achieved after the intervention of the building. In the case of new buildings, the investment will be supported if it's energetic rate is similar to a passive house or its approximate value. Better results can also be achieved by introducing stricter construction standards.

3 https://www.epa.gov/burnwise

4 https://www.cmhc-schl.gc.ca/en/co/maho/enefcosa/enefcosa_001.cfm

Subsidies for purchasing and replacing low-emission combustion plants and heating systems.
Executives: Government, Ministry for National Development
Resource requirement: HUF 50 billion annually
According to the regulation − yet to be drawn up − related to heating systems categorisation, only the best A++ + certified combustion plants will receive the highest support rate, worse than those will receive less, and B-rated will no longer receive support.

Reducing air pollution from illegal waste incineration

Implementation of the legislative amendments required by the JNO resolution and the AJB examination shall be carried out in accordance with the Civil Code. 281 / A, KVTV 48 § and the Code of Administrative Offences and other legislations.
Executives: Government, Ministry of Agriculture, Ministry of Interior, NGOs as advisors, AJB
Resource requirement: none

Government Decree No 306/2010. on air quality protection: raising air pollution fines.
Executive: Government, Ministry of Agriculture, NGOs as advisors
Resource requirement: none
In order to compensate social damages, it is necessary to significantly increase incineration fines.

Advances of expert's report costs in all cases, legislative amendment when the fact of incineration is unclear.
Executive: Government, Ministry of Agriculture, NGOs as reviewers
Resource requirement: none
In unclear cases it is possible to demonstrate the evidence of incineration with the assistance of an expert by doing a laboratory analysis of a sample from the chimney or combustion plant. According to the current legislation the authority will only advance the expert examination's cost if that is an ex officio inquiry. Thus, in most cases the examination fails because the procedure is not ex officio but based on public complaint and the expert report's costs (hundreds of thousands of forints) must be paid by the notifier. It is therefore suggested that due to the risk posed to society of incineration the procedure has to be ex officio in all cases. In unclear cases the authority should advance the expert examination's cost that needs to be covered by the increased fines.

Adaptation of EMPA ash analysis in townhall offices

Executive: Ministry of Agriculture, BM, Clean Air Action Group
Resource requirement: HUF 20 million
Townhall offices, as the first-degree authorities of air quality protection often cannot act in cases of illegal waste incineration because it is difficult to prove the fact of incineration. However, this can be cost-effectively solved using the Swiss EMPA Research Center's ash analysis, which costs 2500 forints and is easy to learn how to run the test. The test method is used by several EU Member States to demonstrate the evidence. Only a few-hour course held by the townhall offices and purchasing the test package is needed. The Clean Air Action Group is willing to take part in the training process and putting the method into practice in Hungary.

Firewood for Work program for people living in extreme poverty

Executive: Ministry of the Interior, Ministry of Agriculture, Public and Private Forestry, Charity Organizations, Local Authorities
Resource requirement: none

People living in extreme poverty regularly use waste to heat. This is clearly indicated by the unreasonably high air pollution rates measured by the Putnok automatic monitoring station. There is a Hungarian village where the entire community heats with waste. When these people are employed they should receive firewood instead or in addition to their wages. Its cost is significantly lower than the market price, the work done covers the wood's price. The program also reduces the number of tree theft which on the other hand, needs to be punished more strictly. As a donation only dry (moisture level below 20%) firewood can be provided for those in need, which may also help to reduce air pollution. The same fine applies to giving out and selling damp firewood. To prevent selling the donation, the distribution of firewood should be done on various occasions during the heating season. In the case of illegal waste incineration, an exclusion is recommended from public work scheme for 3 years.

Clearing floodplains from bushes and briquette production using public service workforce

Executive body: Ministry of Interior
Resource estimates: 1 billion HUF
Invasive bushes are growing in the Tisza river's floodplain in large quantities, and their clearance is inevitable in order to reduce flood risks. Currently the clearance is done by public service workers, and the removed material is being burnt on the site, even though it would be perfect raw material for briquette production. Therefore, the establishment of briquette producing units is needed on 10 sites by the Tisza River. After the establishment costs the operation would be self-sufficient, and it could significantly reduce the costs of the social firewood program. The following equipment is needed: a tractor with a mobile shredder, a trailer to

transport the shredded material, a lightweight panel building to store the raw material and the equipment, a dryer, a hammer mill, a briquette machine, and 100 kW electricity. The machinery with a capacity of 500 kg/h costs approximately 40-60 million HUF, and it is profitable only if it is not transported further than 30 kms, therefore the units should be established at such distance from each other on the riverbank. The units can be operated by the water management authority and by the local governments.

Program for rocket stove and mass heater building, education, and establishment of workshops across Hungary

Executive body: Ministry of Interior, Ministry of Agriculture**,** NGOs, charity organizations, churches, university research labs
Resource estimates: 200 million HUF in 1st year, 100 million HUF/year in additional years
Those living in poverty or in extreme poverty need the development of rocket stoves the most. These combustion units can be built with the help of some handcraft or by attending a short training, using recycled materials or waste; they cause minimal air pollution, and they operate with a high efficiency. The first steps are the design, testing and assessment of the stoves, then the preparation of the training material for the production and building of stoves, and the training of instructors (National Qualifications Register course) are needed. Parallelly to the training of instructors, charity organizations and NGOs need to be equipped by the necessary tools (a few thousands of HUF per organization) and materials, using grants. The stoves will be built by members of the general public, who will be assisted and supervised by the instructors.

Creation of informative material and a website to reduce household waste burning; media campaign

Executive body: MTI Hungarian News Agency, Hungarian national media, Hungarian commercial media providers, Ministry of Interior, Ministry of Agriculture**,** NGOs (especially Clean Air Action Group)
Resource estimates: 200 million HUF in 1st year, 20 million HUF/year in additional years
For a successful action against illegal waste burning, the general public should be aware of the health deteriorating impacts as well as the available legal tools to step up against such events. Therefore, an information campaign is needed, including the creation of a website, information sheets and booklets, articles and programs in the media. Clean Air Action Group's booklet "Do not burn it!" can be a good basis for the project.

Action program against illegal cable-burning; legislative amendments

Executive body: Ministry of Interior, Ministry of Agriculture, competent authorities
Resource estimates: -
A frequent case of illegal waste burning is when people in extreme poverty collect or steal cables, and burn the insulation material off in order to obtain metals (aluminum, copper) that they can sell to traders of scrap metals. The insulation of cables is usually PVC; therefore they cause an extremely harmful pollution with this activity. This practice could be prevented if waste management laws would prohibit the acquisition of metals obtained by insulation-burning, placing severe sanctions against the companies who acquire such metals. The metal content of cables can be obtained by alternative methods, i.e. by the physical removal of plastic insulation.

Decreasing air pollution when burning agricultural waste

Closing legal loopholes

Executive body: Ministry of Interior, Ministry of Agriculture, NGOs as advisors
Resource estimates: -
It is necessary to close the loopholes listed in Appendix 2, in order to prohibit sedge-burning, stubble-burning, and the burning of logging-waste, which are highly polluting activities and carry a high hazard for spreading fire. In exceptional cases and under strict conditions the burning could be permitted: in case of crop rotation (stubble-burning against fungi), mulching, burning woodchips (when burning logging-waste). Burning woodchips could be an alternative for burning logging-waste in the open air because burning the same piece of timber under controlled circumstances results in just a fraction of the air pollutant emissions compared to the open air burning.

Withdrawal of area-related subsidies

Executive body: Ministry of Agriculture, NGOs as advisors
Resource estimates: -
Legislation, or the amendment of existing law is needed, based on which the area-related subsidies can be withdrawn from farmers who have burnt plant residues.

Increased air protection fine

Executive body: Government, Ministry of Agriculture, NGOs as advisors
Resource estimates: -

As agricultural burning causes severe air pollution, the amount of air protection fine should be significantly increased.

Modification of fire fighters' tasks, and the collection of call-out charges

Executive body: Ministry of Interior, Ministry of Agriculture**,** NGOs as advisors

Resource estimates: -

In the case of any agricultural fire, fire-fighters should be deployed, and if the fire is illegal, the fire extension costs should be paid either by the farmer, by the owner of the land, or by the person who started the fire. The payment should be transferred into the central budget.

Creation of informative material and a website to reduce agricultural burning; media campaign

Executive body: MTI Hungarian News Agency, Hungarian national media, Hungarian commercial media providers, Ministry of Interior**,** Ministry of Agriculture, NGOs (especially Clean Air Action Group)

Resource estimates: 200 million HUF in 1st year, 20 million HUF/year in additional years

For a successful action against illegal agricultural burning, the general public should be aware of its adverse effects on human health and the environment as well as the legal tools available to step up against such events. Therefore, an information campaign is needed, including the creation of a website, information sheets and booklets, articles and programs in the media. The primary focus of the campaign should be on regions where agricultural burning is done in a large extent (e.g. Borsod-Abaúj-Zemplén County).

General measures to mitigate air pollution

Opinion polls

Executive body: Pollster company, Ministry of Agriculture, Clean Air Action Group

Resource estimates: 2 million HUF/occasion

Public polls are needed to assess the program's efficiency and to explore public awareness and attitudes. Clean Air Action Group and the Ministry will collaborate on the questionnaire design.

Anti-soot campaign

Executive body: Clean Air Action Group

Resource estimates: 10 million HUF

Clean Air Action Group is coordinating and collaborating in the framework of its anti-soot campaign extended by the above subjects, with the aim of executing the above program**.**

Creation and maintenance of a risk-map

Executive body: Ministry of Agriculture, Ministry of Interior, fire departments, police departments, district authorities (regional notary), The Hungarian Network of Eco-Counselling Offices ("Köthálló"), environmental inspectorates

Resource estimates: database creation - 15 million HUF, yearly update - 3 million HUF/year

The map should be color-coded based on four risk factors and their level of severity, in order to focus the scarce resources on the following areas:

1) Mapping the centers of household burning sites where poor-quality fuels are being burnt
2) Mapping operational sites where poor-quality fuels are being burnt (e.g. heating of polytunnels, technologies using firewood, etc.)
3) Burning sites operated by criminal organizations
4) Mapping the sites of frequent open-air fires

Data source: fire departments, police departments, district authorities (regional notary), public complaints reported to the Hungarian Network of Eco-Counselling Offices ("Köthálló"), environmental inspectorates

Operation of Mobile Labs

Executive body: Ministry of Agriculture, environmental inspectorates, district authorities

Resource estimates: 100 million HUF on implementation, 30 million HUF/year on yearly maintenance and calibration

The settlements located in the most endangered districts based on the risk-map should be regularly assessed in the autumn, winter and spring seasons in order to precisely assess the risk factors.