

The concept of a central system collecting data on the use of the environment

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The article presents the current stage of development of the process of collecting data on the use of the environment by entities using environment and also identifies its weak areas. Setting up a central information system is suggested; its task would be to collect consistent data on emissions and to share the data with all stakeholders. Basic assumptions to be fulfilled by the system are proposed that would improve the task of reporting for operators as well as for those who collect and process data.

Keywords and phrases: central information and IT systems, environment data, emission data, information flows.

Introduction

It is the right of every individual and business entity to use the environment. Using the environment may consist of, for example, emission of gas into the air, water use, emission of sewage, waste generation, etc. The use of the environment is, unfortunately, mostly followed by the deterioration of its quality. The role of the state is to take measures to eliminate the consequences of such actions and to encourage environment users to reduce their negative impact.

The mechanism which serves to achieve this goal is the duty to report a list about the use of the environment and the determination and payment of fees for using the environment into the account of the competent authority of the marshal by entities using the environment. This is an obligation under the Environmental Protection Law. Money obtained in this way is then divided mainly between the National Fund of Environmental Protection and Water Management (NFEPWM) and the Provincial Fund of Environmental Protection and Water Management (PFEPWM). They, in turn, spend the money on investments related to the improvement of the environment.

The whole mechanism, very important from the perspective of pro environment activities, however, contains several weaknesses. One of them is the lack of a coherent system of information flow.

Current state

The current state of information flow, or actually its lack, is among other things the effect of legal changes and division of roles among multiple institutions. This implies that there is not at this moment in the country one place in which information would be collected on the use of the environment by entities and on the fees paid for it. Currently the information is scattered between the marshal's offices and regional environmental inspectorates, which collect the information at their level. Unfortunately, the Ministry of the Environment does not possess the information in a coherent form.

Data on the use of the environment, which must be reported by the user of the environment, are divided into several reports, which is a big obstacle for entrepreneurs. In addition, beside the marshal's offices and the Voivodship Inspectorate for Environmental Protection (VIEP), recipients of such reports are: the National Administrator of the Emissions Trading Scheme (NAETS) and the Statistical Office. In consequence, on the one hand, submitted data are redundant and on the other hand — very inconsistent, especially since every report is created according to slightly different criteria. The result is that there is no possibility to determine the correctness of the data and draw conclusions based on them.

Errors which hinder obtaining consistent and reliable data result not only from the multiplicity of reports, but also from the fact that in the vast majority they are sent on paper by environment users and transcribed into local databases. As an example may serve a situation in which the user of the environment according to Article EPL 286 [5] is obliged to submit the List [6] in the same form to the appropriate authority of the marshal and VIEP. At the same time, electronic forms of reporting are not used by entrepreneurs.

A simplified up-to-date diagram of the environment information flow is illustrated in Fig. 1.

Dispersion of information causes difficulty in consistent and reliable reporting, for example, to units of the European Union. Another problem arising from the scattering of data is the lack of solutions for the analysis and comparison of emission data on the national scale. At this moment, such analysis is possible only at the province level, which precludes, for example, comparing the information about emission submitted by large entities of a similar type located in various provinces which emit specific substances. This, in turn, makes it difficult to detect abnormalities (e.g. different amounts of emissions for entities of similar scale). It should be remembered that some large entities are unique and do not have an equivalent in the region.

Another weakness of the current state is the lack of central inspection of the submission, distribution and collection of fees for using the environment. It has impact on the potentially smaller tightness of the system.

From the IT perspective, we can say that the current systems supporting the use of the environment are built

without a single concept of IT solutions. Each province has its own system, which has different functionalities than systems in other provinces. It results from the lack of recommendations, assumptions, criteria and standards necessary to be fulfilled by the construction of IT systems in the field of environmental protection. The result is lack of data integration between different systems of data for reporting entities, the fees for using the environment (e.g. between VIEP and marshal's offices), the extent of the use of the environment (between entrepreneurs, the Ministry of the Environment, municipalities, marshal's offices, NFEPWM, PFEPWM, etc.) and diffused technical administration of the several systems. As a result, each of the owners is responsible for the technical maintenance and system development themselves. With this approach there is lack of synergy resulting from the technical capabilities of the central administration system.

Thinking about the scale of the problem, it is worth keeping in mind the number of entities who report:

- data about air — annually in the country about 200 thousand entities,
- data about water and sewage — annually in the country about 20 thousand entities,
- data about storage of waste — annually in the country about 2 thousand entities. In the case of waste it is worth noting that there are many other reporting obligations.

Currently, these entities are required to submit lists [6] two times a year for six-month periods — at the end of January for the second half of the previous year and at the end of July for the first half of the current year.

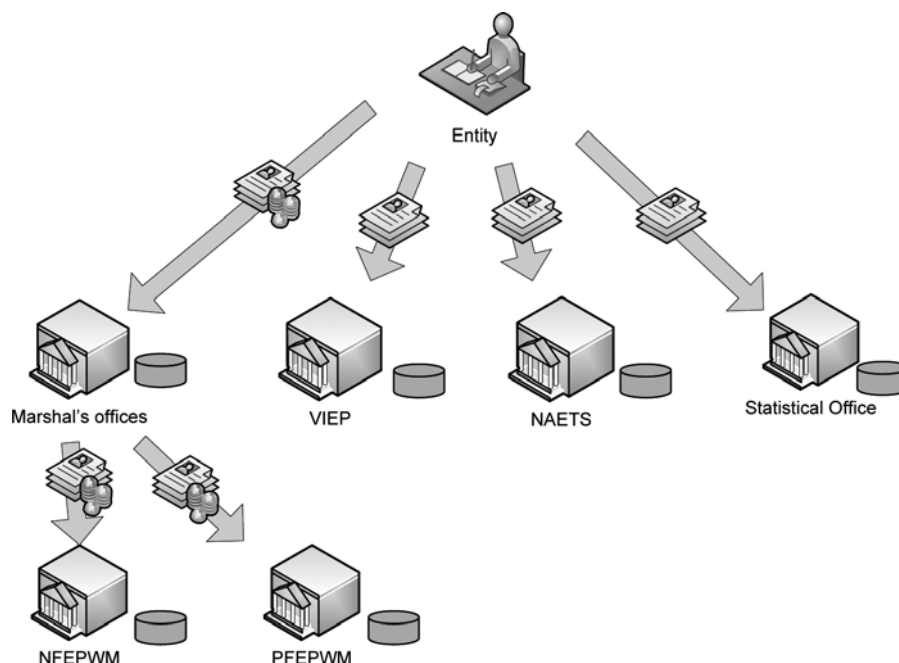


Fig. 1. Up-to-date diagram of the environment information flow.

Proposed changes

The above negative state should be changed. These changes should cause improvement for all parties involved in this process, so both for public operators (the Ministry of the Environment, NFEPWM, marshal's offices, etc.), as well as for reporting entities. The main purpose of the changes should be improvement of the quality and consistency of data collected about the use of the environment and the fees payable for the entire country.

For reporting entities, process optimization should be conducted in mandatory reporting by entities that use the environment, by i.a.: the use of the electronic form of submission and delivery of reports and reduction of reporting obligations (particularly for the air).

Advantages of using the electronic form of reporting would be huge for public entities. This would reduce the workload connected with the collection and processing of these data, and reduce the number of errors arising at the time of entering data from paper reports into electronic systems.

Undoubtedly, the whole process of information exchange between the entities using the environment and offices, especially those that are obliged to take actions related to environmental protection, requires a reform. In order to make it possible, proposals should be developed concerning the operation of billing processes, the scope of entities and substances obliged to report and the scope and method of reporting data.

On this subject, many of the proposals for air can be found in the work of the NAETS — for example in [1, 4], while in the case of water — for example, in [2, 3].

It also seems essential to create a central information system for collecting and processing information about the use of the environment and associated charges. Such a system should use modern electronic ways of communication, helping the public administration to use the processes of collecting data on emissions, charges and their redistribution.

It is probable that the creation of a central accounting system of the entities using the environment and collecting data about the emissions created by them will seal the current system of collecting fees. This will mean increased revenue from fees for economic use of the environment also by improving the quality of the data and raising the standard of efficiency of the verification process.

Very helpful for the entities using the environment would be elimination of printed reporting. Ultimately, the proposed system should allow the replacement of submitting traditional, printed reports using the electronic form. Currently, regulation of the Minister of the Environment of 18 June 2009 on the model lists containing information and data about the use of the environment and the amount of fees due allows to submit lists concerning the fees for using the environment, to the marshal's offices and regional environmental inspectorates, in the electronic form,

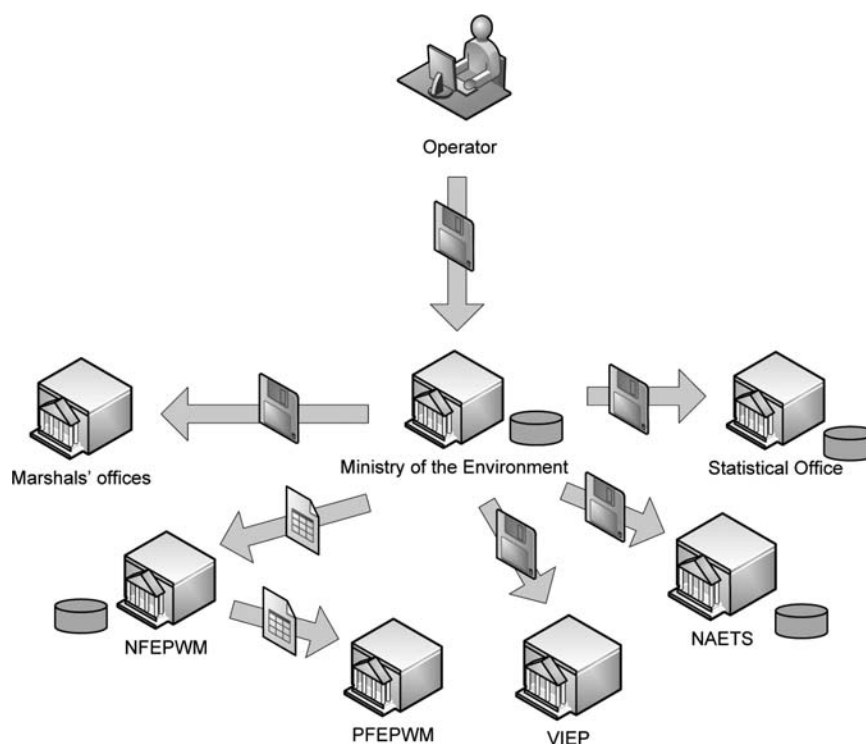


Fig. 2. Proposal of the environment information flow.

but it is not widely used, and current technological solutions do not make it easy and do not promote this form of communication.

One central database will be a huge help in reporting the data in the field of environmental protection by public authorities including the European Union.

Key assumptions

The development of new solutions requires embracing certain assumptions. It is proposed that in order to effectively collect and process data about entities and the use of the environment, a single, central application should be created, managed by the Ministry of the Environment (or any other central authority), which would collect information about the entities using the environment for all environmental components. Indeed, at the moment, there exists such a register (Regional Environmental Information Database, run by the General Inspectorate of Environmental Protection (GIEP) and made available to VIEP), but it is used only by VIEP and GIEP, and in addition, it does not include information on all types of entities using the environment. The information flow in such a proposed system is shown in Fig. 2.

The central register of entities should be combined with the register of data on the use of the environment and the fees paid by entities. In addition, the system should be able to divide those fees among different entities (like NFEPWM, PFEPWM, etc.) and the possibility to transfer to the entities information necessary in their work.

A very important assumption for the concept of the new system should be wider use of electronic platforms to submit documents and encourage entities obliged to report to use this form of communication. Currently, for such tasks ePUAP platform (Electronic Platform of Public Administration Services) is widely promoted by the Ministry of Interior and Administration.

Electronic Platform of Public Administration Services is an IT system whereby citizens can do official business via the Internet, while public administration makes their services available in the electronic form free of charge. It is worth noting that the use of the ePUAP system is free.

Many public administrations have already used it, and thanks to the introduction of the trusted profile, the number will probably increase significantly.

The electronic ePUAP platform can be used either for registration of entities using the environment or the composition and distribution of reports. With the trusted profile or a qualified certificate, the ePUAP system, will make it possible to offer entities using the environment two basic functions:

- electronic inbox with the official acknowledgment of receipt,
- central repository of documents.

It is anticipated that in the first year after implementing the system, the electronic reporting form will be used by 5 thousand to 10 thousand entities using the environment. This is not many in view of the fact that the entire system currently collects data about at least 200 thousand entities, but we can quite definitely predict that with the increase in popularity of electronic forms of communication (mainly through the introduction of the trusted profile) the number of users of the new system in future will significantly increase.

The new system should be able to replace the systems currently used in the marshal's offices and VIEP. Since 2011 in the collection of data on "large" entities the National Administrator has also been included. It collects emission data on air emissions through its portal. Ultimately, it is also necessary to integrate the portal with a central platform that collects data on emissions. Of course, such a central platform after gathering data should give access to all stakeholder entities including NAETS, by offering direct access (e.g. through a browser) or by possibility of exporting the data to the systems of these entities.

Subsequently, it would be appropriate to gather in the central system, also detailed more comprehensive data on waste collected currently by the marshal's offices in the Regional Waste Systems and then transferred to the Integrated Waste System maintained and supported by the Ministry of the Environment.

It is important in this situation to increase the role of the Ministry of the Environment (or any entity designated by it) to use and manage such a system. The role of this entity should be primarily to maintain the system from the technical side (among other things: opening accounts for users, assigning permissions and access, system development associated with changes in the law, etc.). This entity would provide data from the system to all interested parties, so that they can perform their duties at least in so far as they are carrying them out currently.

An aspect which imposes certain restrictions on the proposed solution is here the Environmental Protection Law. In implementing the above proposed changes the possibility and even necessity of changes in the Environmental Protection Act in the section on fees for use of the environment must be taken into account. On 1 January 2013 the new wording of Art. 285 and 286 of the above Act will come into force, concerning fees for releasing gases and dust into the air. The above charges will be determined on the basis of actual annual emissions, set out in the report introduced by the entities

to the National database on emissions of greenhouse gases and other substances (Article 7 item 1 of the Act of 17 July 2009 on the management of greenhouse gas and other substances — Journal of Acts 2009, no. 130, pos. 1070). In addition to this change, we should also not exclude further changes in the regulations concerning the fees for using the environment, so that the process of collecting data on the use of the environment as well as the fees payable for this is facilitated and improved as much as possible.

Conclusions

The creation of the proposed information system and the implementation of the suggested changes should be now quite an important goal of actions related with the improvement of the quality of environmental data. Such a system would not only reduce the cost of currently existing solutions (each of the marshal's offices pays for the currently used application) but also could contribute significantly to the improvement of the quality of the submitted data and charges collected on this basis which by supplying the budgets of

environmental funds would cause the increase of the amount spent on improvement of the quality of the environment.

References

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