

Aquasan Position Paper

Strategy of sludge management from a wastewater treatment plant is a priority

The Association for Water and Environmental Protection "Aquasan Network in BiH" advocates the urgent development and adoption of a strategy for sludge management from wastewater treatment plants (WWTP) in BiH to help solve the problem of waste sludge disposal.



Sludge

Sludge is the residual sludge, whether or not treated, generated from a municipal wastewater treatment plant (WWTP). Excess sludge generated by the wastewater treatment process is an increasingly important topic between the local government unit (LGU) and the public water utility / utility company (PUC) because its disposal is a growing problem for PUCs. The reason for this is the lack of a sludge management strategy that would define a WWTP sludge management system. The effect of wastewater treatment is not only measured by the quality of treated wastewater, but also by the efficiency of treating sludge released during this process. The current situation shows that the costs of treatment and final disposal of sludge make up to 50% of the total operating costs of WWTP¹ and therefore the development of solutions for wastewater treatment must include a more comprehensive solution for treatment and disposal of sludge because the costs of treatment and disposal are an integral cost of wastewater treatment.



¹ Council Directive 91/271/EEC of 21 May 1991 concerning urban waste-water treatment

Sludge management in BiH and Southeast Europe

Current practice of preparation and implementation of infrastructure projects in BiH, which include the construction of WWTP, is primarily focused on the effluent and its compliance with the prescribed criteria. Sludge-related issues, such as where it will be disposed of, what characteristics it should have and what the economic balance of its final disposal are mostly left to be addressed at later stages. There are many different reasons for this and the situation is similar in all Southeast European countries, both those that became members of the European Union (Croatia) and those that are still on that path (BiH, Serbia, Northern Macedonia, Albania, Montenegro, etc.).

There are many reasons why the construction of new and the operation of existing WWTPs transforms the **problem of wastewater treatment from liquid to solid**:

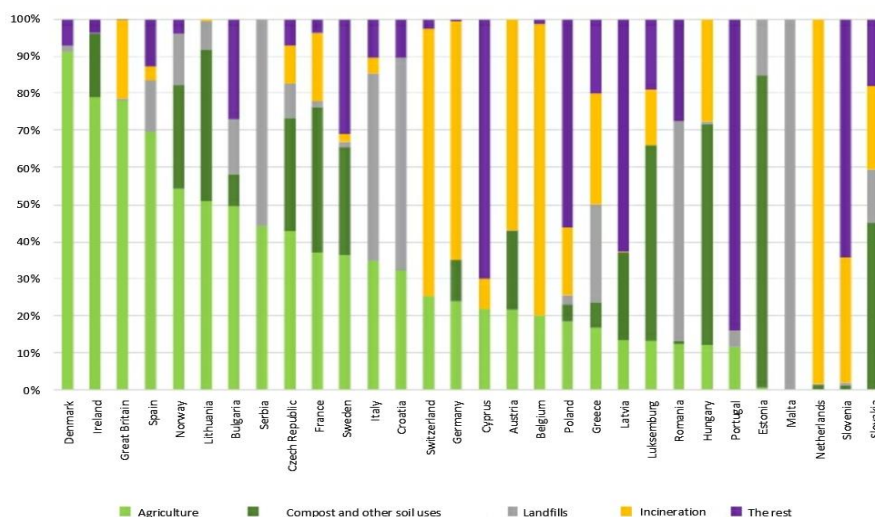
- There are no clear sludge management strategies at the national levels,
- Infrastructure development budgets are limited and sludge management is not one of the priorities and is usually postponed to the next phase of the project, which is almost never implemented,
- The quantities of sludge required for certain technological solutions for its disposal are insufficient (e.g. sludge incineration) as a result of the small number of WWTPs in these countries,
- Restrictions defined by legislation (impossibility of disposal in sanitary landfills, very limited use in agriculture) and natural conditions of the karst area.

Currently, there is no sludge management system and strategy in either the Federation of BiH or the Republic of Srpska.

The existing institutional and legal framework at the level of the Federation of BiH (FBiH) and the Republic of Srpska (RS) dealing with sludge has not clearly and precisely defined sludge management, while at the EU level there are a number of directives that clearly and precisely regulate sludge management. Sludge management with WWTPs in FBiH and RS is partly regulated by regulations related to environmental protection, partly by regulations governing water protection, as well as regulations related to agricultural production.

Proper sludge management in European Union countries

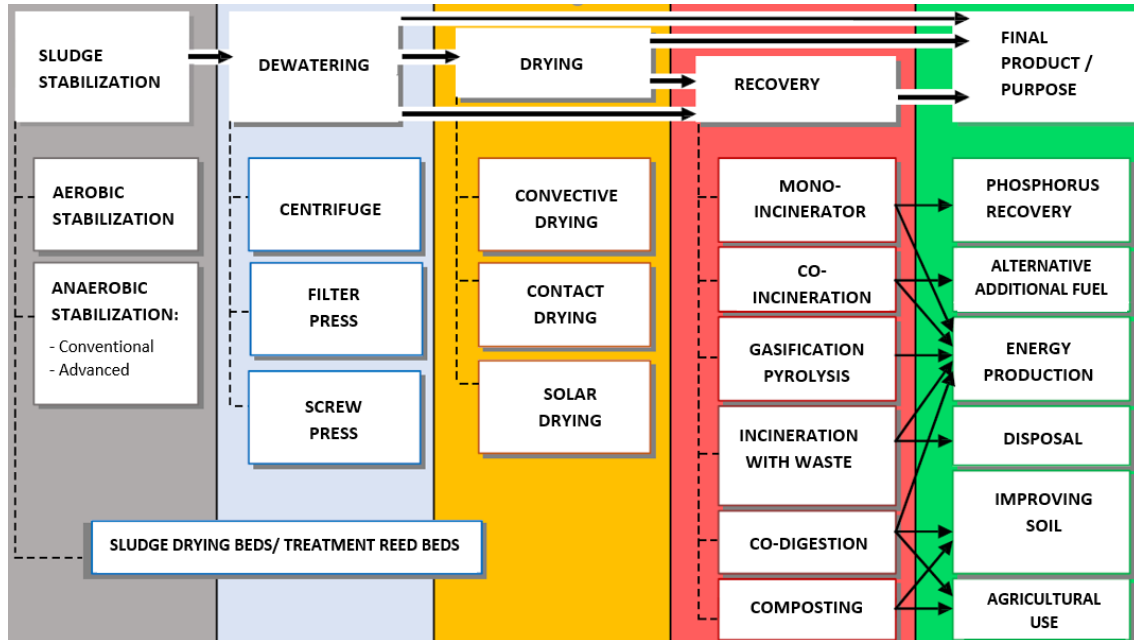
Different solutions for WWTP sludge disposal exist in Europe. In the Netherlands, sludge incineration is generally the most common option, while most other countries combine different methods of sludge disposal: disposal of sludge on non-agricultural land or landfills, incineration, use of sludge in agriculture and other methods. Denmark, Ireland and the United Kingdom mainly use sludge in agriculture.



Sludge management in European countries in 2017 (Source: Eurostat, 2019)

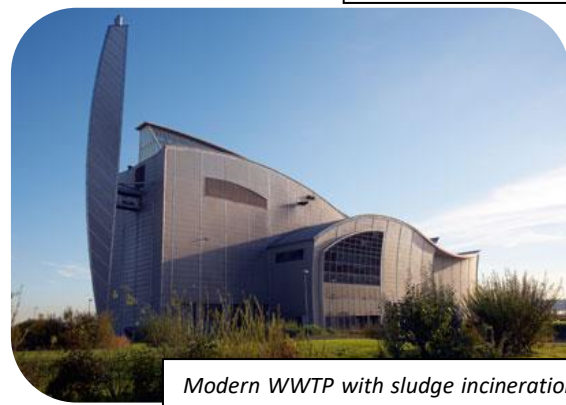
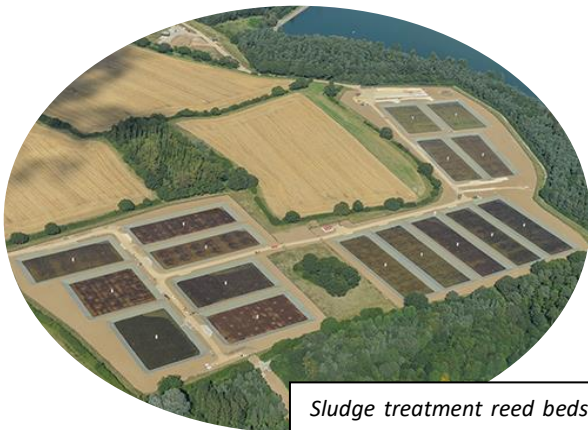
Potential processes for treatment, reuse and disposal of sludge

The sludge generated by the wastewater treatment process goes through various treatment processes at the WWTP or at isolated locations, as shown in the diagram below. The aim of these processes is to reduce the water content and to remove harmful substances in the sludge so that it can be reused or disposed of safely by the conversion process.

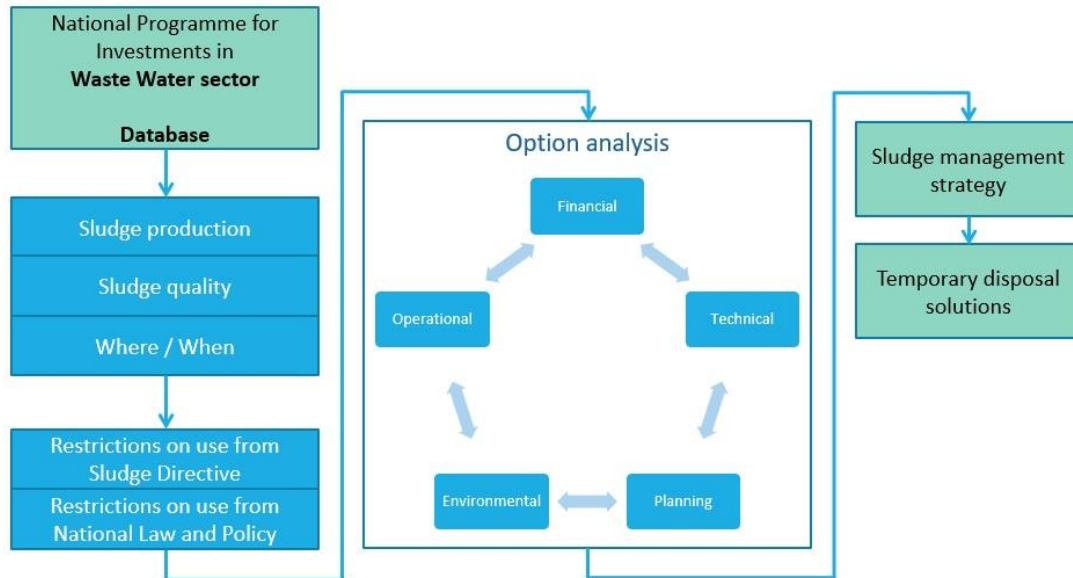


Schematic representation of sludge treatment processes and procedures

Ways of using and disposing of surplus sludge with WWTP in the surrounding countries are use in agriculture, electricity production and as a raw material in the construction industry and for disposal in solid waste landfills, sludge treatment reed beds and non-agricultural land (forests, mines, loams, etc.), as well as in landfills within the WWTP and lagoons.



How to establish a sludge management process in both BiH entities?



Sludge management (86/278/ECC)

KEY STEPS FOR ESTABLISHING A SLUDGE MANAGEMENT SYSTEM

- Review and update of entity wastewater collection and treatment programs to set up an updated database of existing WWTPs;
- Determining the situation regarding sludge production in entities: quantity, quality, location and time of sludge formation;
- Analysis of the legal framework at the entity level in BiH as well as the EU Sewage Sludge Directive, in particular restrictions on the use of sludge;
- Analysis of sludge management options: financial, technical, planning, environmental, operational - feasibility study;
- Development of a sludge management strategy which, in addition to the system for permanent solution, will also provide solutions for temporary disposal - transitional period;
- Adoption of the strategy and implementation of the adopted system.

An active role of all actors in improving the situation is necessary. The leading role in BiH, according to its competencies, is played by the FBiH Ministry of Environment and Tourism and the RS Ministry of Physical Planning, Construction and Ecology, together with the FBiH Ministry of Agriculture, Water Management and Forestry and the RS Ministry of Agriculture, Forestry and Water Management. In the FBiH, competencies and roles are shared with cantonal ministries. Associations of municipalities and cities should also play an important role in the strategy-making process and use their political influence to address this issue. Also, the entity PUCs' associations should give full support to their members who demand that the problems of sludge disposal are not left to them but solved systematically and in a planned way. The role of the WWTP and PUCs operators is to report on the amount of sludge produced, its quality, current sludge disposal, while LGUs report on investment plans and current project status, including work to raise public awareness of the benefits of improving drainage and wastewater treatment.

Aquasan Network in BiH advocates urgent development of a sludge management strategy in BiH which will define the establishment of a sludge management system. In addition, we advocate that decision makers, domestic and international financial institutions begin to apply the principles according to which projects and capital investments for wastewater collection and treatment will not be considered complete or feasible if a solution for final disposal of WWTP sludge is not provided in the investment planning phase.

Accordingly, the Aquasan Network in BiH, in addition to advocating for the development and implementation of a sludge management strategy, also implements capacity development programs within which the topic of WWTP sludge management is represented and conducts public awareness campaigns on the importance of, among others, this topics.

