



B-TEAM project

“Brownfield Days”

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## Topic 2.2 Ecological applications and solutions



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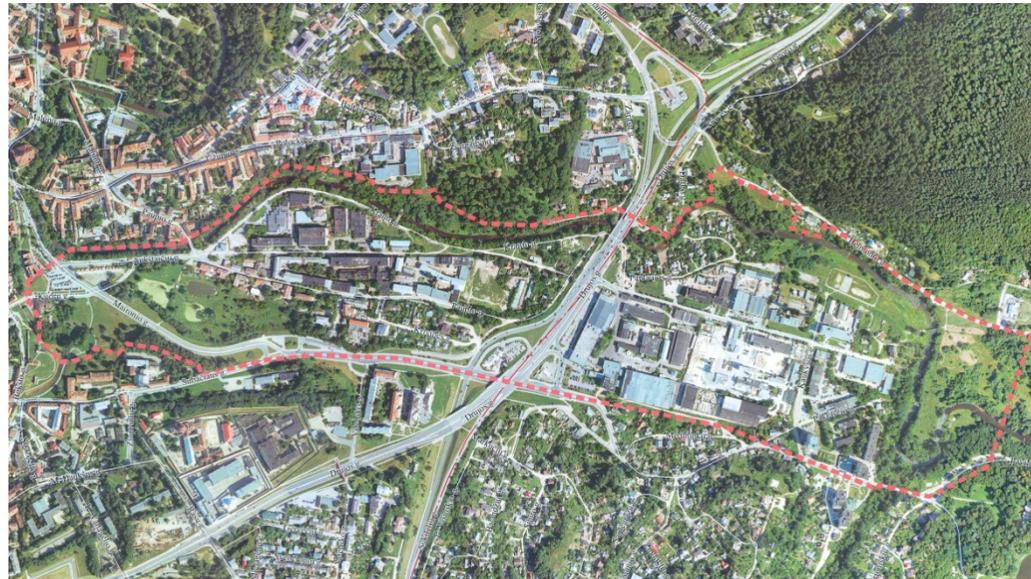
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Vilnius case study area - Park of Architecture, a Brownfield area with 78 ha.

At this moment in the area few factories are still in operation (JSC „Markučiai“, SC „Vilniaus kailiai“) and some are closed (SC „Skaiteks“, JSC „Audėjas“)



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We can't change the past, so only one solution is to find in each specific case of contaminated territory best cost effective options for it's rehabilitation.

We have to understand that brownfield is a property on which expansion, redevelopment or reuse may be complicated because of the presence of different levels and types of contamination.

For restoration of contaminated sites we can use a big variety of techniques (physical, chemical, biological) but all of them have limitations in use and depends on various factors (levels of contamination, area, geological parameters, physical conditions of pollutants, requirements for remediation levels, financial issues)



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Vilnius “Park of Architecture” is a complex territory and more than for a hundred years was used for various types of industry, so it means that there will be no single technique for remediation of the whole site.

It is crucial to gather as much historical data about past activities in each part of the site.

Knowing the time of construction, a type of activity and technology of each factory, we can preliminary guess about potential pollutants.



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In this site special attention should be given to the previous factory of electronics (pollutants: heavy metals, oil products), furs and leather processing and textile companies (solvents, acids, salts and heavy metals), one of city heating company (use of liquid fuels, underground storage tanks).

Specifics of the territory - it is a part of protected area of drinking water pumping stations of the city, where are special requirements for levels of chemical pollution.

As this territory after rehabilitation will be a multifunctional with living houses and it will be considered as “sensitive”, there will be more stricter requirements for levels of pollution left in the site.



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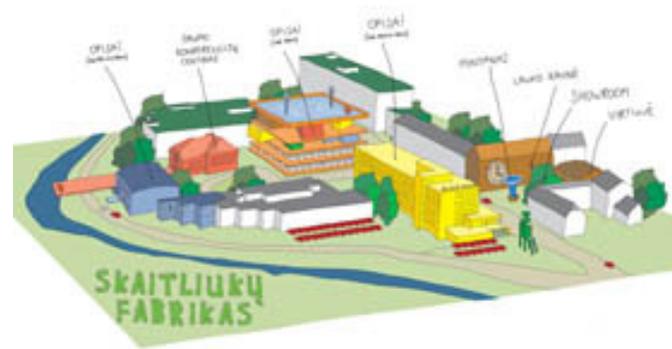
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After a preliminary ecogeological investigation of contaminated territory, it will be crucial to select correctly smaller sites for specific and detailed investigations.

Additionally it would be useful to have data about surrounding territories ecogeological situation: samples from drinking water wells in the area, more detailed data about river water quality in the upstream/downstream, to identify historical and still existing sewage pipes.

During the historical times, there is data showing that this territory had a channel system, some parts are covered with artificial filling (possibly building material from destroyed houses).



It is important to have a harmonised sampling from different layers and depths of soil, groundwater and even deeper parts.

Big attention should be given for Risk assessment, using it for identification of pollutants concentration places - sources, pathways and directions of pollution, potential receptors of pollution.

Risk assessment data should be used as one of cornerstones for future planning and activities.



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After identification of pollutants sources it will be important to plan carefully rehabilitation works to avoid secondary contamination.

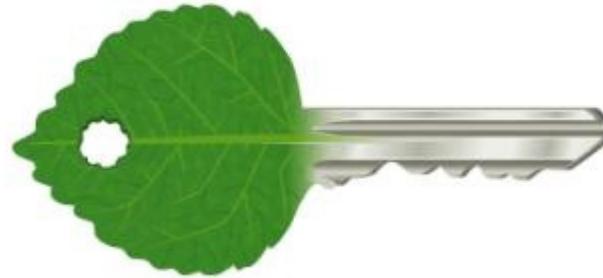
This territory is big enough to try different options for in-situ remediation and during warm periods (spring-autumn) it would be useful try safe and cheap biological remediation technologies.

This territory is not much different from other sites previously used for industrial purposes and the type of the pollutants in such territories are well known, maybe it will be harder to clean this site because of big quantity of contaminated material and soil with heavy metals and oil products, also the specific issues (PCB/PCT, asbestos, etc.). This is because there are not so much companies and special sites in this region for such kind of activity.



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Sustainable steps to reach optimal goals:

Protection of citizens and ecosystems

Cost effective

Better (careful) planning



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Thank You



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