One of the most conducive to the development of microorganisms are saunas, swimming pools and other public buildings, where there is increased temperature and increased humidity. Another factor contributing to their development is the fact that such facilities are used by people differing in health and personal hygiene. Bad habits of people using swimming pools, jacuzzi, saunas and public showers, contribute to the microorganisms propagation. It is necessary to wash the body before and after using e.g. public swimming pool, so as not to use common towels, flip-flops, or sit on the benches with naked body, since they are the ideal environment for the growing of pathogenic microorganisms. The group of most common diseases that can be purchased at public bathing includes fungal and bacterial diseases.

The project is to develop the composition and the technology for production of nanocomposites in the form of suspension with biocidal properties for use in the neutralization and removal of dead biological material. The product is dedicated to be used in objects in which there is increased temperature and humidity such as recreational facilities (swimming pools, saunas) or sanitary-hygienic objects. It may be also applied on surfaces in another utility objects.

In particular, it is assumed to obtain nanocomposites based on poly(vinyl alcohol). Biocidal properties of these materials will be achieved through enrichment of their structure with previously obtained metal and metal oxide nanoparticles. The assumption of the project is to investigate the possibility of applying the product in the suspension form on the surface that is infected microbiologically, and, after the solidification that can be removed along with the dead biological material.

Assumed goals will be achieved through the implementation of five research tasks. Firstly, the composition of materials will be developed. Then, their physicochemical properties will be characterized. Dependences between observed and independent parameters will be also defined. Further, the biocidal activity of materials will be tested. In order to confirm the durability of the obtained compositions, the release of nanomaterials from received products will be studied. The affinity of possibly released nanoparticles to accumulate in the model human body fluids will also be checked.