



NPO KINEMATIKA, LLC

Kazan, Republic of Tatarstan, RUSSIA

**Disruptive Biotechnology for
Waste Water Treatment**

Method of Targeted Selection of Microorganisms

METHOD OF TARGETED SELECTION OF MICROORGANISMS

- ❖ The Method of Targeted Selection of Microorganisms (TSM), developed by NPO Kinematika, LLC, is our know-how, which is based on the molecular level of identification and selection of a healthy cell. The Method of Targeted Selection significantly **increases reproductive ability** and **efficiency of microorganisms**.
- ❖ The Method of Targeted Selection of Microorganisms helps microorganisms to adapt to negative environmental influences and withstand them successfully.



CURRENT SITUATION IN WASTE WATER TREATMENT

All over the world water companies **currently recycle maximum 20%** of waste water and **only plan to recycle 30% by year 2030.**

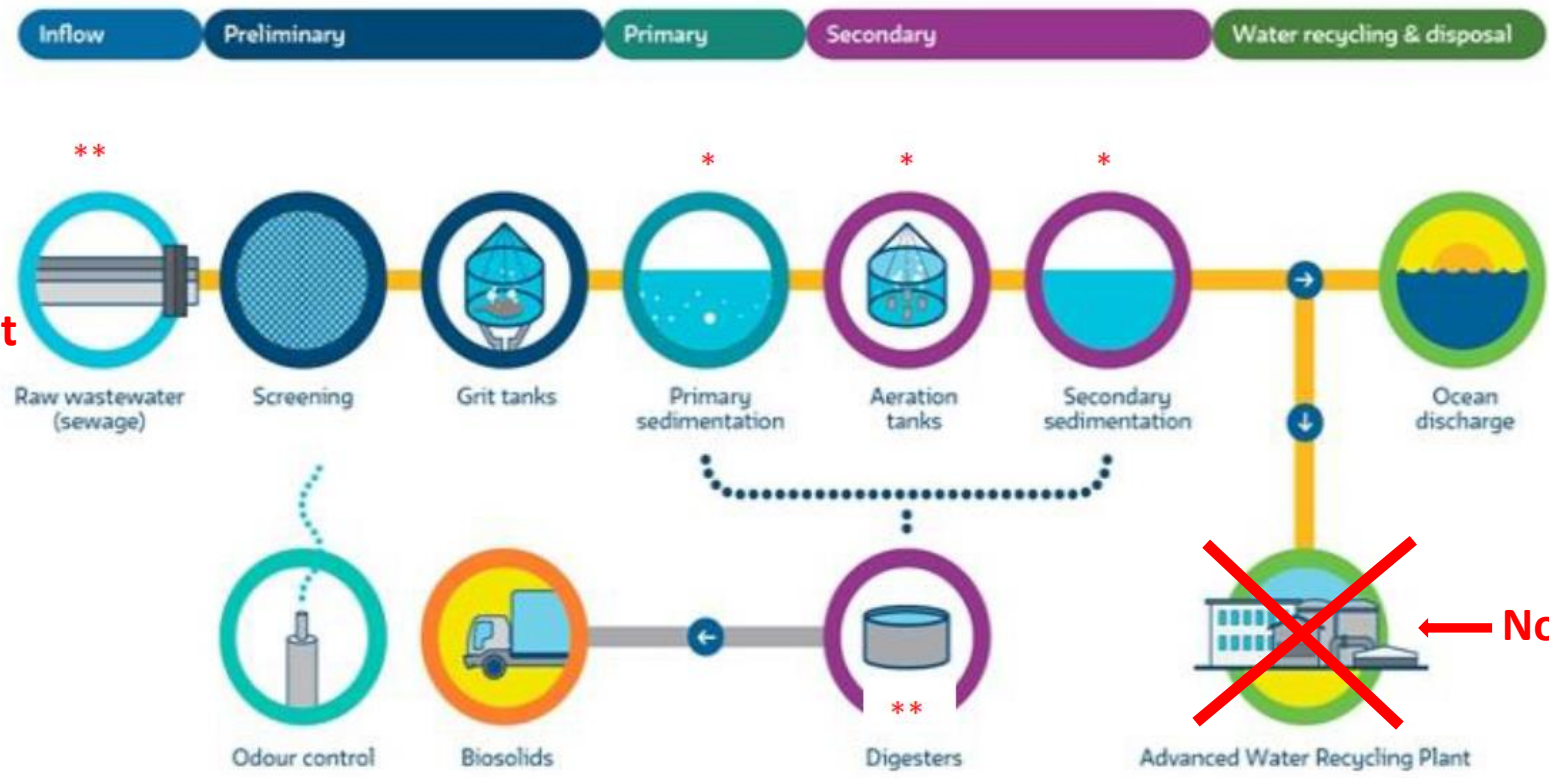
Today, water companies rely either on physical or chemical solutions, or on a combination of both. Neither way is truly efficient and cost-effective.

International biotechnological companies offer ready-made mixes of microorganisms, which, however, are alien and hostile for local microorganisms. Microorganisms from such mixes have to wage war on two fronts: against the pollutants and against local microorganisms. As a result, they quite quickly lose their efficiency, which means that water companies have to buy new batches of ready-made mixes on regular basis. This is good for producers of ready-made mixes, but quite expensive for water companies.



WHERE OUR BIOTECHNOLOGY MATTERS

NPOK Microbial Treatment Applications
Primary applications*
Additional secondary applications**



Involve municipal sewerage system into waste water treatment

Instead of ocean discharge, sell some 100% of recycled water for irrigation of food crops, apart from conventional uses

← No need in this stage



WHAT OUR BIOTECHNOLOGY OFFERS

The microorganisms selected by TSM Method:

- ❖ Suppress **pathogenic bacteria**, as well as neutralise and oxidise **organic matters**, such as **food preservatives, micropollutants, pharmaceuticals, chemicals, antibiotics, hormones**
- ❖ **Do not kill or evict other “good” bacteria of other species** and let live microorganisms of their own species that were not selected by TSM Method.
- ❖ **Have their life cycle and remain part of the food chain** being eaten by protozoans, e.g. ciliates and rotifers
- ❖ Fit in excellently into **any known waste water treatment process**, whether old or modern



HOW OUR BIOTECHNOLOGY WORKS

We:

- ❖ Take samples of waste water from the Customer's facilities,
- ❖ Analyse and select "good" microorganisms (usually 5-7 species),
- ❖ After application of TSM Method, come back to Customer's facilities to continue work on the site.

Customer (under our supervision):

- ❖ Cultivates sufficient numbers of microorganisms
- ❖ Introduces cultivated microorganisms into waste water treatment system and controls the process



WHAT OUR BIOTECHNOLOGY GUARANTEES

INFLUENT WATER



High quality of waste water treatment is confirmed by presence of a sufficiently large and growing number of ciliates and rotifers.

EFFLUENT WATER



OUR COMPETITIVE ADVANTAGES

Our biotechnology:

- Ensures **full compliance** with regulatory standards for waste water primary purification
- Helps water companies **stop paying burdensome environmental fines.**
- Gives water companies **up to 100% of recycled process water** to bring it back to the market to be used not just for urban and industrial needs, but also for irrigation of agricultural food crops
- Shows the result quickly: **within ONE YEAR.**
- Saves **significant amounts of money** intended for construction of additional or new waste water treatment plants in view of inefficiency of the existing ones.



OTHER APPLICATIONS OF OUR BIOTECHNOLOGY

The **Method of Targeted Selection of Microorganisms** also improves drastically efficiency of indigenous microorganisms used:

- in **Extraction of Metals from Mining Waste**, almost excluding the extremely expensive and hazardous stage of cyanidation
- in **Agriculture**, restoring the natural fertility of poor agricultural lands or lands contaminated by mining companies
- in **Animal Breeding**, significantly improving the immunity of animals, and
- in the other lines of business that rely on the use of microorganisms.



Company:

NPO Kinematika, LLC

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