Biogeosystem Technique methodology for biological reversible carbon sequestration and priority humic substances functioning in soil

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Humic substances functioning in the "environment – soil – soil organic matter – soil mineral matter – technical means and technologies of agronomy, land reclamation, and waste utilization" interfaces is linked to the current conflict "Ecosphere – Technology". Copying the Nature fragmentarily in the current outdated imitative land use technological platform leads to the climate and biosphere uncertainty, soil degradation, water scarcity, and unsafe waste management. These limits the humic substances soil improving and fertilizing function.

To overcome the fundamental shortcomings of current industrial technological platform we propose a new field of science and technology as a platform for the world strategic technological development in the Noosphere – Biogeosystem Technique (BGT*). BGT* transcendental (uncommon for Nature) approach allows to face the large-scale calls: sustainable evolution of healthy soil, water saving, high soil fertility, high quality environment to reduce current "organic matter – mineral – water" interfaces elusiveness and stabilize the Climate system and Biosphere. BGT* provides environmentally and economically sound interdisciplinary institutional innovative integrated solutions. BGT* increases the Earth biogeochemical flux and biogeosystem's stability.

BGT* provides:

Micro-, mezzo-, and macro-aggregate multilevel stable architecture and improved structure of the soil illuvial horizon via intra-soil milling of the 20–50 cm. The high rate long-term development of the rhizosphere and soil biome ensures soil fertility and better plant organogenesis.

For 5–20 times reduced fresh water consumption and higher rate plant growth via intra-soil pulse continuously-discrete watering. The soil solution matrix potential is provided circa –0.2 MPa to –0.4 MPa. The stomatal apparatus of plant operates in a regulation mode. Plant transpiration is reduced. Higher soil solution concentration provides higher rate plant organogenesis and productivity. This decreases off-target transport of nutrients, pesticides, organic matter.

Environmentally safe dispersed municipal, industrial, biological (including agricultural, slaughterhouse, hazardous) waste and gasification byproduct recycling for soil structuring and plant nutrition via intra-soil milling and/or intra-soil pulse continuous-discrete watering (chemigation).

BGT* enhances soil health and high productivity, priority humic substances functioning as an agent of the soil organic matter synthesis, and plant resistance to stress and phytopathogens. The abundant biogeochemical cycle ensures expanded biological

reversible carbon sequestration in the soil and in the additional biological product. Higher biological productivity provides Biosphere and Climate stability.