

Restoration and Re-use of Former Military Areas – Good and Bad Practices in Tartu (Raadi Airfield)

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Introduction

Context: The 500-hectare territory of the former Raadi military airfield is actively developing under the initiative of the municipal government into a modern industrial park (*Raadi Tööstuspark*) featuring commercial, sports, and cultural zones.

Challenge: Since the large-scale development of such a vast area happens gradually, a key priority is the efficient management of temporarily vacant lands and the creation of a resilient ecological infrastructure for future business residents.

Results

Hydrological risks: 10% impermeable surfaces and closed depressions create runoff pressure during extreme weather. Seasonal imbalance: moisture surplus in August–October overloads drainage systems due to lower evaporation. Synchronization: peak summer precipitation (June–September) matches peak willow growth and leaf area. Bio-drainage efficiency: willow plantations transpire ~5500 m³/ha annually, absorbing 75–80% of yearly precipitation. Comprehensive solution: interim energy crops transform vacant plots into renewable assets, natural buffers, and economic sources

MATERIALS & METHODS

Object of study: 500-hectare former Raadi military airfield in Tartu undergoing industrial transformation. **Spatial analysis:** assessment of 156 units (31% active, 35% under development, 35% brownfields). **Environmental factors:** examination of topography, soil types, and climate data (727 mm annual precipitation, 6.4 °C temperature). **Plant selection:** frost-resistant *Salix* spp. and *Populus* spp. chosen for phytoextraction and buffers. **Calculation:** application of annual water balance formulas per 1 hectare.

CONCLUSIONS & RECOMMENDATIONS

Storm water Management: Integrating **energy crops** with a high transpiration rate along the perimeter of industrial zones to create natural bio-drainage buffers and reduce the load on engineering networks.

Interim Land Use: Utilizing plots awaiting commercial development for the temporary cultivation of **energy crops**. This transforms passive areas into a source of biomass and an active element of landscape management until final investors arrive.



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