Nutrient recycling circular economy model for large cities – water treatment sludge and ashes to biomass to bio-energy (LIFE17 ENV/LT/000310 NutriBiomass4LIFE)



PROJECT LOCATION: Vilnius, Lithuania

BUDGET INFO: Total amount: 4,031,237 Euro

EC Co-funding (60%): 2,418,140 Euro

DURATION: Start: 01/07/2018 - End: 31/03/2022

PROJECT'S IMPLEMENTORS:

Coordinating Beneficiary: UAB Pageldynių plantacija

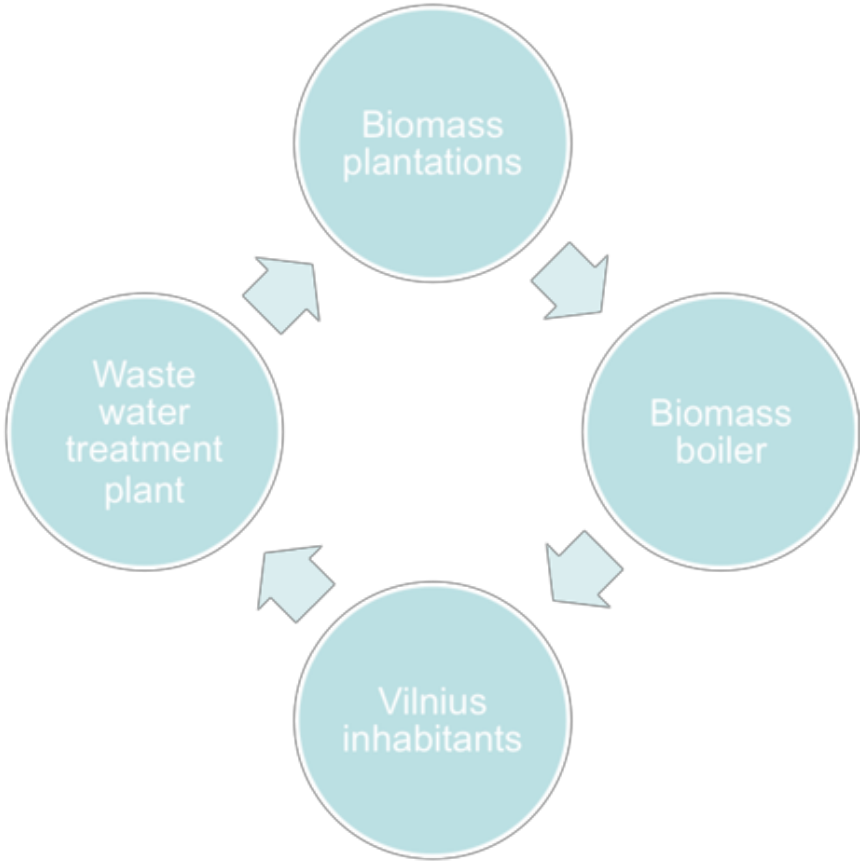
Associated Beneficiaryies: UAB Vilniaus vandenys, UAB Pramonės energija, Forest owners association of Lithuania, Lithuanian Research Centre for Agriculture and Forestry, Swedish University of Agricultural Sciences

OBJECTIVES & SCOPE

Objective - to create and demonstrate full scale self-sustainable closed loop circular economy model for large cities' nutrient rich waste - municipal wastewater treatment sludge and biomass ashes – recycling into renewable energy for city's needs via environment friendly biomass plantation filter

Key Actions:

- **Mobilization and establishment of biomass plantation**
- **Nutrient rich waste recycling**
- **Biomass conversion into energy**
- **Full scale monitoring**



EXPECTED IMPACTS

42 thousand t CO_2



1800 ha biomass plantations / 900 ha existing and 900 ha newly established

39.4 GWh biomass chips

1,500 t biomass ashes



Biomass boiler, 20 MW

39.4 GWh heat energy



Vilnius population - 550 thousand

115 million m^3 effluent water



Vilnius Wastewater Treatment Plant

27,000 t dried municipal wasterwater treatment sludge

POLICY IMPLICATIONS

***Key policy targeted** – resource efficiency via circular economy (Roadmap to Resource Efficient Europe)*

***On the EU level** - provisions of recommendations on policy and legislation implementation (Sludge Directive (86/278/EEC), Water Framework Directive (2000/60/IEC), Waste Framework Directive (2008/98/EC), Landfill Directive (1999/31/EC))*

***On national level** – recommendations for policy and legislation to change practices towards complete reuse of nutrient rich wastes in non-food crops*

CONTINUATION (REPLICATION, TRANSFER, MARKET UPTAKE)

Model at smaller scale to be replicated: in Western Lithuania, in Latvia and in Sweden

Market uptake - the model to be fully sustainable and operational after implementation of the project:

- ***Total municipal water treatment sludge market in Lithuania 38 thousand DMT/year – target for recycling in biomass plantations – over 60%***
- ***Potential for transfer where large scale biomass plantations already established - Poland, Slovakia, Latvia, Sweden***
- ***Biomass demand from plantations - unlimited***