



LIFE Environment and Resource Efficiency project

**“Nutrient recycling circular economy model for large cities –
water treatment sludge and ashes to biomass to bio-energy “**

**Project Acronym: NutriBiomass4LIFE
Project Number: LIFE17 ENV/LT/000310**

After LIFE plan

**Report prepared by
UAB “Pageldynių plantacija”**

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Preface

The purpose of this document is to disclose NutriBiomass4LIFE after LIFE plan – how the project actions will be continued, replicated and transferred after implementation of the project.

For the implementation of the NutriBiomass4LIFE project, a subsidy is awarded from the EU LIFE program, the EU's funding instrument for environment and climate action. The funding of the project also come from the Swedish Energy Agency and Ministry of Environment of the Republic of Lithuania.

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II. About the NutriBiomass4LIFE Project

The NutriBiomass4LIFE project was launched on 1 July 2018 and will be running until the end of September 2023. Within the framework of this project, 6 beneficiaries from Lithuania and Sweden aim to create and demonstrate the first of its kind on the EU level 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 phytoremediation filter. The circular economy model is based upon Vilnius city, the capital of Lithuania (550 thousand population).

The specific objectives of the project included:

- promoting resource efficiency through reuse of nutrients (less usage of mineral fertilizer) and decrease in transportation distances and flows;
- promoting waste management pyramid priorities via changing path from landfilling and incineration of nutrient rich waste towards reuse in biomass growth improvement;
- mitigation of food chain contamination risks via changing path of nutrient rich waste from uncontrolled usage in food crop growing towards 100% legally compliant and monitored non-food biomass yield improvement;
- creating new best practices for dried MWTs digestate usage for non-food biomass;
- developing new business models to make biomass growing / forestry on marginal and less suitable to agriculture soils economically attractive via substantial biomass yield improvement;
- promoting soil organic content improvement via bio-solids applications;
- promoting renewable energy production;
- promoting afforestation of less suitable for agriculture / marginal lands;
- contributing significantly to climate change impact reduction by sequestering significant volume of CO₂ in the whole circular economy model value chain, promoting renewable energy production, soil carbon content improvement;
- promoting of EU and national legislation and policies and contributing to their development by promoting safe and environment friendly reuse of nutrients from wastes.

The Coordinating beneficiary:

1. UAB "Pageldynių plantacija" (Lithuania)

Associated beneficiaries:

2. Forest and Landowners Association of Lithuania (Lithuania)
3. Lithuanian Research Centre for Agriculture and Forestry (Lithuania)
4. UAB "Kirtimu katiline" (Lithuania)
5. UAB "Vilniaus vandenys" (Lithuania)
6. Swedish University of Agricultural Sciences (Sweden)

For more information, please visit the project's website: www.nutriBiomass.eu.

III. List of Abbreviations and Partner Acronyms

NutriBiomass4LIFE	EU LIFE project “Nutrient recycling circular economy model for large cities – water treatment sludge and ashes to biomass to bio-energy “, No. LIFE17 ENV/LT/000310
CE	Circular economy
CO ₂	Carbon dioxide
CRCF	Carbon Removal Certification Framework
dmt	Dry matter ton (t)
DMWTSD	Dried granulated municipal waste-water treatment sludge digestate
EU	European Union
ha	hectare, 1 ha = 1000 square meters
km	kilometre, 1 km = 1000 m
kt	thousand tons, 1 kt = 1000 t
LAND 20-2005	“Rules of waste-water treatment sludge usage in fertilization and land reclamation LAND 20-2005” issued by the Minister of environment of the Republic of Lithuania
M	million
r. or reg.	administrative district
t	metric ton, 1 t = 1000 kg
VV	UAB “Vilniaus vandenys”, Vilnius city municipal water supply and sewage water treatment company

After LIFE activities

After LIFE plan of NutriBiomass4LIFE project consists of the same actions of the project, that could be continued, replicated, transferred after the end of the project. These actions are presented for Lithuanian market, while transfer plans to other markets are presented separately.

1. Land mobilization plan
2. Environmental permitting plan
3. Biomass plantation establishment plan
4. Reusage of sewage sludge for fertilization plan
5. Reusage of biomass ashes for fertilization plan
6. Biomass for energy plan
7. Soil and water monitoring plan
8. Biomass yield improvement monitoring plan
9. Communication and dissemination plan
10. Transfer to Sweden plan
11. Transfer to Latvia plan
12. Transfer to Ukraine plan

All of the plans have short term (3 year) and long term (up to 10 year) objectives.

1 Land mobilization plan

Land availability is the key to develop all the following planned actions after LIFE.

After national sludge directive (LAND20-2001) was amended in 2021 by decreasing maximum allowed municipal waste-water treatment sludge recycling in biomass plantation rate to 11 t/ha. This means that we still need additional biomass plantations available for nutrient rich waste recycling.

After completion of the project scope in 2022, land mobilization actions were continued as project continuation actions. Post project mobilization of land already was expanded in other regions of Lithuania. We will look for land mobilization all over Lithuania, to involve nutrient rich sewage sludge recycling in different regions.

In addition to that, land mobilization for new biomass plantation establishment and mobilization of existing plantations is needed in other regions of Lithuania to replicate the developed NutriBiomass4LIFE circular economy model.

Table 1-1. After LIFE land mobilization plan

No.	Actions	Targets	Time schedule
1	Land mobilization	Short term (3 years)	
		Mobilize 350 ha for poplar plantation establishment	2023-2024
		Mobilize 550 ha existing plantations for nutrient recycling purposes	2023-2024
		Mobilize 200 ha for poplar plantation establishment	2025
		Mobilize 1000 ha existing plantations for nutrient recycling purposes	2025-2026
		Mobilize 250 ha for poplar plantation establishment	2026
		Long term	
		Mobilize 3500 ha for poplar plantation establishment (average 500 ha per year)	2027-2033

2 Environmental permitting plan

Implementation of the project showed that there are certain areas where regulation regarding nutrient rich waste (sewage sludge and biomass ashes) can be improved. In 2024 we will continue discussions with authorities regarding some changes in regulation with more emphasis on biomass ashes usage as this regulation is very outdated.

Although we hold a number of valid environmental permits for nutrient rich waste recycling and we assume that due unfavourable policies, DMWTSD usage for fertilization will decline, still, we will continue working to receive new environmental permits, in particular for sewage sludge usage in other regions of Lithuania, where small NutriBiomass4LIFE replications can be implemented, and for biomass ashes usage.

Table 2-1. After LIFE environmental permitting plan

No.	Actions	Targets	Time schedule
2	Environmental permitting	Short term (3 years)	
		Initiate discussions with authorities to amend regulation on using nutrient rich waste for fertilization	2024
		Develop fertilization plans to receive permits to use 4000 t of nutrient rich waste for fertilization in Molėtai, Vilnius, Švenčionys, Trakai regions	2024
		Develop fertilization plans to receive permits to use 3000 t of nutrient rich waste for fertilization	2025
		Develop fertilization plans to receive permits to use 3000 t of nutrient rich waste for fertilization	2026
		Long term	
		Develop fertilization plans to receive permits to use 21000 t of nutrient rich waste for fertilization (3000 t/year)	2027-2033

3 Biomass plantation establishment plan

Biomass plantations are the core of NutriBiomass4LIFE CE model, that allows to circulate the flows of nutrient rich waste, energy and carbon within the model. We see good prospects for new biomass plantation establishment, especially if planting of poplars will be eligible for carbon removal revenues. Poplars, as agricultural crop, proved to be one of the most efficient carbon removal tools in agriculture with 250 tCO₂/ha removal capacity.

We will continue planting 200-250 ha/ha of new poplar plantations in Lithuania in the next years. Poplar, adapted to Lithuanian climate, seedling availability is still a limiting factor to increase biomass plantation establishment expansion, therefore we will consider taking additional measures to increase seedling availability to expand poplar plantation establishment to 500 ha/year from 2027.

Table 3-1. After LIFE poplar plantation establishment plan

No.	Actions	Targets	Time schedule
3	Poplar plantation establishment	Short term (3 years)	
		Establish 350 ha of poplar plantations	2023-2024
		Establish 200 ha of poplar plantations	2025

		Securing poplar seedling supply for biomass plantation expansion	2025
		Establish 250 ha of poplar plantations	2026
		Long term	
		Establish 3500 ha of poplar plantations (average 500 ha per year)	2027-2033

4 Reusage of sewage sludge for fertilization

Nutrient rich sewage sludge is powerful tool to improve biomass yield on marginal lands. It would be wise to use sewage sludge for fertilization of non-food crops, but current policies fully redirected from circular economy of nutrient reusage towards incineration.

Today in Lithuania all DMWTSD (about 20 thousand t per year) is transported to Akmenė cement plant for incineration, because cement producer receive huge profit from incineration from climate policies and fertilization has no chances to be competitive under current policies. We do not expect that policy changes will take place in 2024—2025, therefore we fertilization will not be competitive to incineration of DMWTSD. We expect that in 2025 EU Commission will adopt obligatory targets for member states for nutrient (nitrogen and phosphorus) recovery as defined in the new Urban Waste-Water Treatment directive and that will be start for shift in national policies.

NutriBiomass4LIFE CE model has good prospect to become very competitive over incineration of DMWTSD (1) when EU Commission will set obligatory targets for member states for nutrient (nitrogen and phosphorus) recovery as defined in the new Urban Waste-Water Treatment directive adopted by the Council in October, 2023 and (2) when policies, direct and indirect subsidies will be weight against climate impact results, i.e. direct and indirect subsidies for more pollutive sewage sludge incineration without nutrient recovery will be stop and solid carbon removal through NutriBiomass4LIFE CE model will rewarded (such possibility may emerge with the implementation of Carbon removal certification framework implementation).

In Lithuania all DMWTSD is incinerated at cement production plant, which today about 50% of total sewage sludge produced in Lithuania. Some wet (33% dry matter content) sewage sludge or wet sewage sludge digestate is being incinerated waste incineration plants. Still there is enough wet (33% dry matter content) sewage sludge or wet sewage sludge digestate, especially produced at municipal waste water treatment plants of smaller cities, which may be used for fertilization of biomass plantations. In 2024—2025 we will try to transfer NutriBiomass4LIFE CCE model to smaller towns in Lithuania to set a few demonstration models. In this case we will have to establish new poplar plantations at much wider distances between planted trees and to test new sewage sludge spreading and insertion into soil technologies between lines of growing poplars.

Table 4-1. After LIFE reusage of sewage sludge for fertilization plan

No.	Actions	Targets	Time schedule
4	reusage of sewage sludge for fertilization	Short term (3 years)	
		Agreement with environmental authorities and municipalities to establish several small scale NutriBiomass4LIFE CE demonstrations	2024
		Establishment of several small scale NutriBiomass4LIFE CE demonstrations	2024-2025

	Reuse of sewage sludge in small NutriBiomass4LIFE CE demonstrations - 500 t	2024-2025
	Reuse of sewage sludge and DMWTSD in biomass plantations - 500 t	2026
	Long term	
	Reuse of sewage sludge and DMWTSD in biomass plantations - 20000 t/year, after changing of policies	2027-2033

5 Reusage of biomass ashes for fertilization

In 2021 in Lithuania municipal and industrial boilers produced 29,7 thousand t of biomass ashes (Lithuanian environmental protection agency data) - 22,3 thousand t of which were produced in central heating sector (Lithuanian heating association data). From 2024 this volume of biomass ashes will be increased by 30% (9 thousand t) which will be supplied by new Vilnius biomass co-generation power plant.

Biomass plantations established and mobilized during and after NutriBiomass4LIFE project have a potential to use up to 2-3 thousand t of biomass ashes each year. In case national regulation would be adjusted and biomass ashes would be allowed to use each year – biomass ashes application potential may increase 3 times -- to 6-9 thousand t/year.

We will continue biomass ashes recycling activities to provide these services to PE and other boilers in Lithuania to recycle up to 1 thousand to biomass ashes in NutriBiomass4LIFE plantations annually. We discussed possibility to recycle biomass ashes from the new Vilnius biomass co-generation power plant, but quality of ashes and logistics have to be considered after cogeneration plant will be operational.

Table 5-1. After LIFE reusage of biomass ashes for fertilization plan

No.	Actions	Targets	Time schedule
5	reusage of biomass ashes for fertilization	Short term (3 years)	
		Reuse of biomass ashes in NutriBiomass4LIFE plantations from PE and related to PE boilers - 500 t	2024
		Reuse of biomass ashes in NutriBiomass4LIFE plantations from PE and related to PE boilers - 800 t	2025
		Reuse of biomass ashes in NutriBiomass4LIFE plantations from PE and related to PE boilers - 800 t	2026
		Reuse of biomass ashes in NutriBiomass4LIFE plantations from Vilnius CHP and other plants - 900 t	2026
		Long term	
		Reuse of biomass ashes in biomass plantations - 14000 t/year, after changing of policies	2027-2033

6 Biomass to renewable energy

In the next three years after project implementation, we will need to thin the remaining 600 ha of older biomass plantations, which will provide estimated 36GWh of renewable energy or on average 12GWh/year.

To implement thinning and deliver biomass for renewable energy production for Vilnius city we consider investing into harvesting, forwarding and chipping services to sell biomass chips directly to biomass boilers as external services are not reliable or are unavailable when are needed.

In longer term at age 8 to 10 years we will start thinnings of NutriBiomass4LIFE established plantations.

Table 6-1. After LIFE biomass to renewable energy plan

No.	Actions	Targets	Time schedule
6	Biomass to renewable energy	Short term (3 years)	
		Preparation of feasibility study for entering into biomass energy market – investment into harvesting, forwarding and chipping equipment	2024
		Thinning of older poplar plantations and energy biomass supply – 4GWh	2024
		Investment into harvesting, forwarding and chipping equipment	2025
		Thinning of older poplar plantations and energy biomass supply – 12GWh	2025
		Thinning of older poplar plantations and energy biomass supply – 20GWh	2026
		Long term	
		Thinning of NutriBiomass4LIFE established poplar plantations (900 ha) and energy biomass supply – 100GWh (56 thousand cub m of energy chips solid)	2027-2033

7 Soil and water monitoring plan

After LIFE soil and water monitoring actions will be related to two objectives:

- Soil and water monitoring will be needed for environmental permitting and monitoring of fertilization with nutrient rich waste.
- During NutriBiomass4LIFE soil organic carbon analysis before establishment of new biomass plantations was performed. We considering repeating SOC analysis in 10 years to get SOC increment data due to land use change. This SOC increment is important for national GHG balance calculations and for CO₂ removal by biomass plantations calculations as today such reliable reference data is not available.

Table 7-1. After LIFE soil and water monitoring plan

No.	Actions	Targets	Time schedule
7	Soil and water monitoring	Short term (3 years)	
		Soil and water sampling and analysis – 50 samples	2024
		Soil and water sampling and analysis – 60 samples	2025
		Soil and water sampling and analysis – 60 samples	2026
		Long term	
		Soil and water sampling and analysis – 700 samples	
		Replication of NutriBiomass4LIFE soil organic carbon sampling and analysis – 400 samples	2027-2033

8 Biomass yield improvement monitoring plan

During NutriBiomass4LIFE project hybrid aspen and poplar biomass allometric models (biomass accumulation dependencies on biomass dbh and height) were developed based on destructive and non-destructive measurements on selected biomass fields. Over long project implementation period, dbh and height of monitored trees at special biomass monitoring sites for monitoring of biomass yield improvement due to fertilization increased and exceeded analysed tree data at biomass allometric model development sites. To get more accurate data for biomass yield of older trees we need periodic adjustments of biomass allometric models to involve older and larger trees.

During NutriBiomass4LIFE project Biomass yield improvement due to fertilization with DMWTSD was estimated on 24 monitoring sites. For poplars measurements were performed three consecutive years and for hybrid aspen -- four consecutive years after fertilization with DMWTSD. Monitoring data revealed the trend that biomass yield due to fertilization decreases over time, therefore we need longer annual biomass yield monitoring to have long term reliable models for longer rotations of poplar and hybrid aspen yield changes.

After LIFE biomass yield improvement monitoring actions will be related to two objectives:

- To adjust coefficients of hybrid aspen and poplar biomass allometric models (biomass accumulation dependencies on biomass dbh and height) – destructive and non-destructive measurements will be performed on the same and other biomass growing sites to adjust models to higher biomass dbh and height data.
- To get valuable long-term data on biomass yield improvement due to fertilization with DMWTSD – digital technologies will be engaged to perform annual biomass yield measurements on 24 sites established during NutriBiomass4LIFE project.

Table 8-1. After LIFE biomass yield improvement monitoring plan

No.	Actions	Targets	Time schedule
8	Biomass yield improvement monitoring	Short term (3 years)	
		Continuation of biomass yield improvement due to fertilization with DMWTSD annual monitoring – 24 sites	2024
		Continuation of biomass yield improvement due to fertilization with DMWTSD annual monitoring – 24 sites	2025
		Adjustment of hybrid aspen and poplar biomass allometric models (biomass accumulation dependencies on biomass dbh and height) – to perform destructive and non-destructive biomass measurements	2025
		Continuation of biomass yield improvement due to fertilization with DMWTSD annual monitoring – 24 sites	2026
		Long term	
		Continuation of biomass yield improvement due to fertilization with DMWTSD annual monitoring – each year to perform biomass measurements on 24 sites	2027-2033
		Adjustment of hybrid aspen and poplar biomass allometric models (biomass accumulation dependencies on biomass dbh and height) – to perform destructive and non-destructive biomass measurements	2030

9 Communication and dissemination plan

Besides policy issues, land availability will be one of the keystones for replication and transfer of the project results, therefore after LIFE communication and dissemination actions will be strongly targeted at landowners, farmers and investors. One of strongest messages which will be the key for communication and dissemination program will be superior carbon removal capabilities of poplar plantations, which can be improved by reusage of nutrients from nutrient rich waste. The major tools of communication and dissemination plan will include:

- Field visits and seminars – this proved to be the most efficient communication and dissemination tool for target audiences, as participants can touch and see results in real life. At least 2 field visits/seminars are project per year.
- Web page and social media engagement – web page and social media will be maintained and constantly updated.
- Participation in the conferences – we will be engaged in conferences to disseminate information in the targeted markets.
- We will continue and will look for networking opportunities with other international project and experts – e.g. we will follow special fertilization trials jointly established with AlgaeService for LIFE project on NutriBiomass4LIFE plantations.

Table 9-1. After LIFE communication and dissemination plan

No.	Actions	Targets	Time schedule
9	Communication and dissemination	Short term (3 years)	
		Participation in IFRO conference, Sweden	2024
		Scientific publications (2)	2024-2025
		Field trips and seminars (9)	2024-2026
		Networking with AlgaeService for LIFE – evaluation of fertilization results	2024-2026
		Web page and social media engagement	2024-2026
		Long term	
		Field trips and seminars (20)	2027-2033
		Web page and social media engagement	2027-2033

10 Transfer to Sweden plan

We target entering Swedish market with poplar plantation establishment in 2025. We anticipate that initially the major business model will be - taking over initial risk of poplar plantation establishment and management. We will target to reach 100 ha of newly established plantations in 2026 in Sweden.

Table 10-1. After LIFE transfer to Sweden plan

No.	Actions	Targets	Time schedule
10	transfer to Sweden	Short term (3 years)	
		Setting-up NutriBiomass4LIFE web page for Swedish market	2024
		Land owner engagement and land mobilization for poplar plantation establishment – 20 ha	2024

	Establishment of the first poplar plantations under NutriBiomass4LIFE CE model in Sweden (testing different business models for poplar plantation establishment) – 20 ha	2025
	Land owner engagement and land mobilization for poplar plantation establishment – 80 ha	2025
	Establishment of the poplar plantations under NutriBiomass4LIFE CE model in Sweden – 80 ha	2026
	Engaging Swedish poplar plantations in nutrient rich waste recycling – 20 ha – recycling of 150 dmt of REVAK certified sewage sludge digestate	2026
	Long term	
	Land mobilization and biomass plantation establishment – total 1400 ha (200 ha/year)	2027-2033
	Organizing field trips for Swedish land-owners – 7 trips (one trip each year) – engaging 70 land-owners	2027-2033
	Engaging Swedish poplar plantations in nutrient rich waste recycling – 500 ha – recycling of 3500 dmt of REVAK certified sewage sludge digestate and 3500 t of biomass ashes	2027-2033

11 Transfer to Latvia plan

Latvian market, which is close to Lithuania, has similar possibilities for poplar establishment as in Lithuania. We will engage large forest and landowners and, similar to Sweden business model - taking over initial risk - will be appropriate for start of operations in Latvian market. We will target to reach 100 ha of newly established plantations in 2026 in Latvia.

Table 11-1. After LIFE transfer to Latvia plan

No.	Actions	Targets	Time schedule
11	transfer to Latvia	Short term (3 years)	
		Land owner engagement and land mobilization for poplar plantation establishment – 100 ha	2025
		Establishment of the poplar plantations under NutriBiomass4LIFE CE model in Latvia – 100 ha	2026
		Engaging Latvian poplar plantations in nutrient rich waste recycling – 10 ha – recycling of 80 dmt of sewage sludge	2026
		Long term	
		Land mobilization and biomass plantation establishment – total 2100 ha (300 ha/year)	2027-2033
		Organizing field trips for Latvian land-owners – 7 trips (one trip each year) – engaging 70 land-owners	2027-2033
		Engaging Latvian poplar plantations in nutrient rich waste recycling – 1000 ha – recycling of 6000 dmt of sewage sludge digestate and 3500 t of biomass ashes	2027-2033

12 Transfer to Ukraine plan

We see very good prospects for large and full scale NutriBiomass4LIFE CE model transfer to Ukraine. Ukraine has abundant land for poplar plantation establishment and old wastewater treatment sector which needs extensive modernization and movement into circular economy path. In 2024-2025 we

expect to develop legal/business/scientific framework for transfer of NutriBiomass4LIFE CE model to start establishment of poplar plantations in 2026.

Table 12-1. After LIFE transfer to Ukraine plan

No.	Actions	Targets	Time schedule
11	transfer to Ukraine	Short term (3 years)	
		Setting-up the stage for NutriBiomass4LIFE CE transfer to Ukrainian market – meetings and discussions with Ukrainian authorities, municipalities, industries, landowners, scientists	2024-2025
		Establishment of poplar clonal trials in several regions of Ukraine	2025
		Securing poplar seedling supply for biomass plantation expansion	2025
		Signing long term contracts with municipalities for land lease – 100 ha	2025
		Establishment of poplar plantations under NutriBiomass4LIFE CE model in Ukraine – 100 ha	2026
		Long term	
		Land mobilization and biomass plantation establishment (long term rent contracts with municipalities) – total 14000 ha (2000 ha/year)	2027-2033
		Engaging Ukrainian poplar plantations in nutrient rich waste recycling – 4900 ha – recycling of 35000 dmt of sewage sludge digestate	2027-2033

13 After LIFE plan objectives

After LIFE plan objectives are divided into short term (3 years after project end) and long term objectives which are listed below.

Table 13-1. After LIFE plan objectives

No.	Objectives	Short term (2024-2026)	Long term (2027-2033)
1.	Establishment of biomass plantations	in Lithuania – 800 ha	in Lithuania – 3500 ha
		in Sweden – 100 ha	in Sweden – 1400 ha
		in Latvia – 100 ha	in Latvia – 2100 ha
		In Ukraine – 100 ha	In Ukraine – 14000 ha
		Total: 1100 ha	Total: 21000 ha
2.	Reusage of sewage sludge in fertilization of biomass plantations	in Lithuania – 1000 dmt	in Lithuania – 20000 dmt
		in Sweden – 150 dmt	in Sweden – 3500 dmt
		in Latvia – 80 dmt	in Latvia – 6000 dmt
		In Ukraine -	In Ukraine – 35000 dmt
		Total: 1230 dmt	Total: 64500 dmt
3.	Reusage of biomass ashes in fertilization of biomass plantations	in Lithuania – 3000 t	in Lithuania – 14000 t
		in Sweden -	in Sweden -3500 t
		in Latvia -	in Latvia – 3500 t
		In Ukraine -	In Ukraine -
		Total: 3000 t	Total: 21000 t
4.	Biomass supply for renewable energy production	in Lithuania – 36 GWh	in Lithuania – 100 GWh
		in Sweden -	in Sweden -
		in Latvia -	in Latvia -
		In Ukraine -	In Ukraine -
		Total: 36 GWh	Total: 100 GWh
5.	Biomass plantation inclusion under sustainable forest management	in Lithuania – 800 ha	in Lithuania – 3500 ha
		in Sweden –	in Sweden –
		in Latvia –	in Latvia –

		In Ukraine –	In Ukraine – 14000 ha
		Total: 800 ha	Total: 17500 ha
6.	Soil organic matter improvement	in Lithuania – 800 ha	in Lithuania – 3500 ha
		in Sweden – 100 ha	in Sweden – 1400 ha
		in Latvia – 100 ha	in Latvia – 2100 ha
		In Ukraine – 100 ha	In Ukraine – 14000 ha
		Total: 1100 ha	Total: 21000 ha
7.	Carbon removal	in Lithuania – 186 kt CO2	in Lithuania – 563 kt CO2
		in Sweden -	in Sweden – 145 kt CO2
		in Latvia -	in Latvia – 218 kt CO2
		In Ukraine -	In Ukraine – 1453 ktCO2
		Total: 186 kt CO2	Total: 2379 ktCO2
8.	Persons who may have been influenced via dissemination or awareness raising after LIFE -actions (reaching)	in Lithuania - 8843	in Lithuania - 25000
		in Sweden -50	in Sweden - 5000
		in Latvia - 50	in Latvia - 5000
		In Ukraine - 150	In Ukraine - 30000
		Total: 9093	Total: 65000
9.	Persons who changed their behaviour or practices due to after LIFE actions	in Lithuania - 63	in Lithuania - 160
		in Sweden - 5	in Sweden - 70
		in Latvia - 5	in Latvia - 70
		In Ukraine -	In Ukraine - 200
		Total: 73	Total: 500
10.	Jobs created	in Lithuania - 2	in Lithuania - 4
		in Sweden - 1	in Sweden - 1
		in Latvia - 1	in Latvia -2
		In Ukraine - 5	In Ukraine - 60
		Total: 9	Total: 67
11.	Costs	in Lithuania – € 3M	in Lithuania – € 11.2M
		in Sweden – € 0.4M	in Sweden -€ 4.3M
		in Latvia – € 0.4 M	in Latvia -€ 6.5M
		In Ukraine – € 0.8M	In Ukraine -€ 43M
		Total: € 4.6M	Total: € 65M