

LIFE Project Number
LIFE12NAT/LT/000965

FINAL Report
 Covering the project activities from **01/07/2013** to **30/06/2017**

Reporting Date
02/11/2017

LIFE AUKSTUMALA Restoration of Aukstumala Raised Bog in Nemunas Delta Regional Park

Project Data

Project location	Silute distr. Klaipeda county, Lithuania
Project start date:	01/07/2013
Project end date:	30/06/2017 Extension date:
Total Project duration (in months)	<48> months (including Extension of <> months)
Total budget	733 077 €
Total eligible budget	733 077 €
EU contribution:	549 807 €
(%) of total costs	75
(%) of eligible costs	75

Beneficiary Data

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Table of Contents

1. List of key-words and abbreviations	3
2. Executive Summary.	4
3. Introduction	6
4. Administrative part (maximum 3 pages)	7
4.1 Description of the management system	7
4.2 Evaluation of the management system	11
5. Technical part	12
5.1. Technical progress, per task	12
5.1.1. Action A1. Nature management plan and action plan preparation	12
5.1.2. Action A2. Technical preparation of the concrete conservation actions.....	13
5.1.3. Action A3. Environmental impact assessment of the project’s conservation actions.....	14
5.1.4. Action A4. Establishing international high moor expert group.....	15
5.1.5. Action C1. Blocking of small ditches	16
5.1.6. Action C2. Blocking of main ditches.....	17
5.1.7. Action C3. Removal of vegetation	18
5.1.8. Action D1. Monitoring of biodiversity indicators in the project area	19
5.1.9. Action D2. Hydrological monitoring at the targeted sites	21
5.1.10. Action D3. Assessment of the project’s socio-economic effect and impact on ecosystem functions	22
5.2 Dissemination actions	24
5.2.1 Objectives	24
5.2.2 Dissemination: overview per activity	24
5.3 Evaluation of Project Implementation	35
5.4 Analysis of long-term benefits	37
6. Comments on the financial report	40
6.1. Summary of Costs Incurred	40
Comments on categories:	40
6.2. Accounting system	43
6.3. Partnership arrangements.	45
6.4. Auditor's report/declaration	45
7. Annexes	51

1. List of key-words and abbreviations

LFN – Lithuanian Fund for Nature

AC – Amphi Consult

NdRP – Nemunas Delta Regional Park

MoE – Ministry of Environment

SFE – Silute forestry enterprise

SSPA – State service for Protected Areas under the Ministry of Environment

NGOs- Non Governmental Organisations

GA – Grant Agreement

SC – Steering committee

TP- Technical plan

MP- management plan

SSPA – State Service for Protected Areas

SSSF – State Service for State Forests

2. Executive Summary.

The following goals, objectives, tasks and results were foreseen in GA; the main goal was to restore and maintain the favorable conservation status of the "7110 Active Raised bog" habitat within the Aukštumalės Telmological Reserve. This was supposed to be done by damming old drainage ditches within the high moor, thus raising the water table within the project area and increasing sphagnum growth. A large scale removal of invading bushes and trees from overgrown high moor areas had to complement damming action. The foreseen conservation actions had to support other Annex II habitat types ("3160 natural dystrophic lakes") and species (e.g. *Tetrao tetrix*, *Tringa glareola*).

Secondary project objectives were following:

- A) build up an international board of experts dedicated to the protection of Aukstumala
- B) train and educate local nature guides
- C) disseminate the project's experiences and raise awareness about the importance of high moor protection in Lithuania
- D) restore and develop an existing educational path and observation tower.

Main result promised in GA was to ensure favourable conservation status of active raised bog with increase by 10-20% of its area while *Degraded bogs 7120* and *Bog woodlands 91D0* should accordingly decrease. Positive impact was expected on the habitat area of *natural dystrophic lakes and ponds 3160*, neutral impact on *Fennoscandian deciduous swamp woods 9080*, and negative impact on *Peat substrates of the Rhynchosporon 7150*, which established on degraded bogs.

The outputs were based on concrete indicators. It was foreseen to block 70 km small and 10 km main ditches in 1017 ha; clear cutting of forest to be made in 100 ha of overgrown bog; international high moor expert group established and exchange of good practice on bog restoration, 15 nature guides trained, one education trail reconstructed.

The key deliverables: movie about bog restoration produced, publications published: project leaflet, poster, Lithuanian translation of Prof.C.A.Veber produced, a book about the Aukstumala bog published; one exhibition established, monitoring reports produced.

Thus, short review of achievements towards project objectives.

The main goal was achieved since the favourable conservation status of active raised bogs was ensured by project actions within the 600 ha area, which was before the project; uncharacteristic vegetation removed (C3) and water level restored (C1 and C2) creating favourable conditions in 66 ha of former degraded bog to convert into active raised bog, additionally 25 ha of former non-habitat area became capable to regenerate into active raised bog (restore water level and removed vegetation) as shown on the map in Annex 26. Thus ensuring favourable conservation status in of 91 ha of area , which is 15,17 % of area, capable for regeneration and conversion into active raised bog as promised in GA (in GA: from 10 to 20%). In the end of the project 91 ha area showed positive signs of reestablishment of active raised bog since the monitoring plots of vegetation cover (D2) indicates reestablishment of sphagnum mosses, which were absent in these places before the projects' actions.

Damming activities had positive impact on *natural dystrophic lakes and ponds 3160* as well as on *Bog woodlands 91D0* due to significantly increased water table, which is about 10 cm to the surface according to monitoring data (D2). No impact was observed on habitats of *Peat substrates of the Rhynchosporon 7150*. In long term they should convert into active raised bog due to increased water table. However, changes in vegetation cover in raised bogs take more time than projects' duration. Therefore, such changes in bog habitats will be proven by monitoring as foreseen in management plan (A1) and After life conservation plan (F3). No impact was made on deciduous swamp woods because after having mapped the habitats during preparation of management plan (A1),

such habitat was not found (data in application were taken from the database of state).

Despite slow regeneration processes in nature, positive changes were observed not only in habitats but also on threatened species. The biodiversity monitoring (D1) of birds, reptiles, amphibians and invertebrates proved slight increase in populations of typical bog species of birds and invertebrates, e.g. in 2014 Golden Plover (*Pluvialis apricaria*) was represented by 4 breeding pairs and Wood Sandpiper (*Tringa glareola*) by 3 breeding pairs while in 2017 there were 5 and 4 breeding pairs respectively. Two pairs of Great grey shrike (*Lanius excubator*) with breeding behavior were found, compared to one pair in 2014. Black Tailed Godwit (*Limosa limosa*) has also been recorded breeding in the area. Project actions had positive impact on invertebrate species by creation of open water bodies, which appeared close to the dams (due to saturation of water and also due to digging pits to take peat for dam building); red listed dragonflies species like Yellow-spotted whiteface (*Leucorrhinia pectoralis*), (Annex II HD, on SDF of LTSIU0013) have increased. Surveys in 2017 and 2016 have found new breeding sites of *L. pectoralis* colonized in the areas where ground water table has increased due to the project actions. The same areas were also colonized in 2017 by amphibians from Annex IV HD: *Rana arvalis* and *Pelophylax lessonae*. Removal of trees and increase water table ensured favourable habitat for existing population of threatened typical bog diving beetles from Dytiscidae family (*Graphoderus bilineatus*).

Thus, concrete results refer to blocking 85 km of drainage (small) ditches (C1) and 15 km of collective (big) big ditches; this was achieved by instalment of 1185 dams: 1170 dams on drainage ditches (C.1) and 15 dams on collective ditches (C.2). There were 3 types of dams installed according to the technical design (A2): peats dams, plastic pile sheet dams and mixed peat dams with the tube for water outflow. 15 large peat dams were included into long term assets as infrastructure due to higher costs of their instalment.

Wooded vegetation removed in 105 ha (C3): offshoots of birches were cut twice in 70 ha in fire damaged area; dense forest was clear cut in 35 ha of heavily drained eastern parts of the bog. Monitoring reports on biodiversity were produced 3 times in 2014, 2016 and 2017 (D1), hydrological monitoring (D2) was ongoing throughout whole project period, yearly reports produced. Impact on socio-economics (D3) was analysed and a report prepared by staff of LFN.

Public awareness and networking was carried out as promised in GA. Wide range of wetland restoration experts and practitioners were approached and their experience used in different ways, e.g. international group of experts, mainly from Lithuania, Latvia, Estonia, Poland and Germany, was established, that resulted in new LIFE project on climate mitigation LIFE PEAT restore LIFE15 CCM/DE/000138 "Reduction of CO2 Emissions by Restoring Degraded Peatlands in Northern European Lowland" by restoring degraded peatlands as carbon storage. Other contacts were used for organisation of 2 study trips (E3); 3 workshops in Lithuania (E4), 4 international conferences (E3 and F4); website of the project was established and regularly updated (E1); notice boards installed (E2), 2 books published (E5), 2 photo expositions organised (E5), 15 nature guides trained and 4 big excursions (E7) to the project site organised, education path renovated by prolonging it to 1200 meters, new observation platform built (E6), over 100 different articles and messages distributed via mass media (internet portals, newspapers, magazines), facebook. Documentary about Aukstumala bog and its' restoration (E8) was filmed, spotted on national TV and published in youtube. Best practice (E9) and Layman reports (E10) published. Local tourism offices included the bog into the list of objects of tourist interests. Public awareness significantly increased about wetland conservation and their values since the bog of Aukstumala became among most visited bogs.

3 partners managed the project (F1): LFN, NDRP and AC sharing different responsibilities. LFN was responsible for most of actions, while NDRP coordinated reconstruction of the path (E6) and nature guides (E7) but also contributed to other activities, e.g. management plan (A1), permissions and supervisions of works (C1-C3), hydrological monitoring (D2), helped on collecting information for publications (E5), arrangement of events (E4). AC was responsible for international

expert group (A4) and biodiversity monitoring (D1), but also contributed to the study tours (E3), workshops (E4), best practice (E9). The partnership agreements were signed in the beginning of 2014. They were adjusted removing all inconsistencies. Steering committee for the project was set in 2013, meetings took place once a year.

Project audit was carried (F2) after the end of the project within July-September, 2017.

After life plan (F3) was prepared and agreed with stakeholders, e.g. NDRP, who are responsible for supervision and maintenance of the project site, also involvement of other stakeholders like JSC Klasmann-Deilmann was secured.

Totally it was spent 743 560,62 €, which is 10 484 € more than original budget (733 077 € in GA) due to higher demand of costs under certain activities, e.g. education path (E6), unforeseen cost of damming materials purchase (timber purchase under C3.) The exceeding amount was financed by NDRP from the contribution of UAB Klasmann-Deilmann Šilutė. Project was modified in April 2017 due to the increase of consumables cost category by more than 10% and 30,000 € as per Article 15.2 of the Common Provisions. The main reason for the modification was unforeseen cost of the compensation of timber (C3) cut in the forest, which belongs to state forestry. Normally, the manager of the forest would cut the timber and take it, but in this case the owner (State Forest Enterprise) had no possibility to take it from the bog due to complicated conditions of collection of timber and bringing it to the edge of the bog on soft surface (no special equipment owned or available nearby) as well as due to restrictions on permissible cargo weights on local roads (up to 12 tonnes), which makes the carriage of timber almost impossible or very costly. Therefore, logged timber stayed in the bog and served in the project site as filling material for ditches as contribution to damming activities and helping to achieve projects objective. It was not possible to predict in the projects proposal such situation about compensation of timber as there was no such case before in other nature management projects. Although the state forestry had almost no possibility to take away the timber, but on the other hand there is missing legal procedure on either prescription of timber to nature management purposes, or changing land status from so called “forest landuse” to “other landuse” according to Forestry law. This problem was communicated to MoE, discussed during projects events with politicians. So far it was decided that MoE initiates needed changes of legal acts on management of forestry, but rather focusing on forestry management exceptions in Natura 2000 sites, e.g. skipping obligatory requirements to replant the forest in clearcuts.

3. Introduction

This project was prepared to save almost the most famous raised bog in the world since the first scientific work was published about Aukstumala raised bog. In 1902 German botanist C.A. Veber published a monograph about vegetation of Aukstumala raised bog in Nemunas Delta and its' development in comparison to other bogs. Thus, it was the first *locus classicus work* on raised bogs, however the research was ordered by Easter Prussian government, which aimed at extraction of peatlands. Therefore, peat cutting, which is ongoing in Aukstumala bog for more than 130 years, took 2/3 of the former wetland complex, while 1/3 of the area became protected in 1995. Huge impact was made on the bog by drainage, which was established from the beginning of 20th century until 6-7th decade during Soviet regime, when preparing the bog, especially its' eastern parts for peat cutting. Despite establishment of ditches half of century ago, they actively functioned until nowadays by draining water out of the protected parts of the bog, especially heavily draining the eastern part. Drainage caused also secondary threats: oxidisation of the peat, overgrowth by forest, changes in plant communities.

Another threat is active peat cutting by JSC Klasmann-Deilmann, which is bordering the reserve in 5 km long line and has direct impact on telmological reserve. However, impact of peat cutting fields is minimized by instalment of 1,3 km barrier along the reserve; 1 km long plastic membrane was installed in 2006; later 300 meters peat barrier was installed one year later. The rest of contact zones was adjusted by buffer zones, reducing direct outflow of water from the bog to the peatland. Blocking of ditches also stopped water outflow.

Lack of public awareness was another important threat tackled by the project since there is general lack of knowledge about wetlands and their function among general public. Also specialists, e.g. foresters have limited knowledge about bogs, and tend to use wetlands for intensive forestry, which is not in compliance with Bird and Habitat Directives. Even the Forestry law counteracts with the conservation of habitats and species due to specific requirements of forestry.

Therefore, the overall goal of the project was to restore and maintain the favourable conservation status of the "7110 Active Raised bog" habitat within the Aukštumalės Telmological Reserve, and also other habitats and threatened species, which exist in the project site.

Specific objectives are:

- build up an international board of experts dedicated to the protection of Aukstumala
- train and educate local nature guides
- disseminate the project's experiences and raise awareness about the importance of high moor protection in Lithuania
- restore and develop an existing educational path and observation tower.

The main targeted habitat is "7110 Active Raised bog", which is the priority habitat. Then other EU habitats:

- Natural dystrophic lakes (3160)
- Degraded raised-bog (7120)
- Bog woodlands* (91D0)

Targeted species:

- Birds: Black grouse (*Tetrao urogallus*), Common crane (*Grus grus*), Corncrake (*Crex crex*), Golden plover (*Pluvialis apricaria*), Wood sandpiper (*Tringa glareola*).
- Amphibians: Moor frog (*Rana arvalis*), Pool frog (*Pelophylax lessonae*)
- Insects: *Leucorrhinia pectoralis*, *Leucorrhinia albifrons*, *Leucorrhinia caudalis*, *Graphoderus bilineatus*.

Expected longer term result was to ensure favourable conservation status of Active raised bogs 7110 by some 10-20% increase of the habitat after restoration of water level. The initial coverage was 600 ha, thus, at the end of project it was achieved 684 ha (increase by 14%) of active raised bog as promised in the application. Positive impact was made on other EU habitats, threatened species of birds and invertebrates, amphibians and insect species.

Main project activities were focused on implementation of best practice actions: damming ditches and removing vegetation. Although delays were in approving the management plan, all C actions were implemented in time, thus reaching the goal of the project.

4. Administrative part (maximum 3 pages)

4.1 Description of the management system

The project was carried out employing adaptive management principles what allowed effective response to different challenges. The project had preparatory and implementation phases:

- preparatory:
 - Preparation of project action plan
 - Preparation and approval of Natura 2000 management plan and hydrological technical design
 - Environmental impact assessment and other documentation, necessary for the implementation of the actions.
- Implementation and monitoring:
 - Construction of dams:
 - Tender organisation for purchase of dam materials and works
 - Supervision of dam construction
- Forest clearing:
 - Incorporation of forest clearing measure into Forestry management plan
 - Permission for forest clearing
 - Purchase of wood
 - Tender for forest clearing
 - Supervision of forest clearing
- Monitoring of impact:
 - Biodiversity inventory and monitoring
 - Hydrological monitoring
- Educational and public awareness activities.
 - Web site
 - Notice boards
 - Study tours
 - Seminars
 - Publications, best practice, Laymans' report
 - Educational path
 - Nature guides
 - Documentary

CB and ABs share the responsibilities for implementation of actions. The CB, Lithuanian Fund for Nature (LFN) was responsible for most of actions; AB Administration of Nemunas Delta Regional Park (NDRP) coordinated reconstruction of the path (E6) and training of nature guides (E7) but also contributed to other activities; AB AmphiConsult (AC) was responsible for the establishment and coordination of international expert group (A4), biodiversity monitoring (D1), contribution to awareness raising activities, e.g. organisation of seminars (E4), input to Best practice (E9).

Project management scheme is presented in the picture No.4.1. The project manager, Nerijus Zableckis nominated by LFN, had the main position in the management system. The manager delivered information and communicated to EC and was primary contact to the Steering committee. The manager collected all the information from ABs, and also from senior ecologists of AC, analysed it and gave the instructions and tasks for local managers of ABs. Accordingly, local managers instructed local specialists (ecologists or senior ecologists). Beside to this the Project manager was responsible for project administration, which included: sound project implementation, accountancy and compilation of project reports and coordination of actions in Lithuania. The tasks of manager included: communication with EU and Monitoring team, issuing partnership agreements, communication with project partners, adjustment of partnership agreements, communication with

project experts and external institutions and subcontractors, giving instruction to technical assistants, follow the timeline of actions implementation, making necessary arrangements for carrying out actions, monitoring of actions implementation and quality, tender organisation, preparing the contracts with subcontractors, organizing the project's promotion in the media, preparation of project reports.

Project manager used to work 80-90% of his work time in this LIFE project.

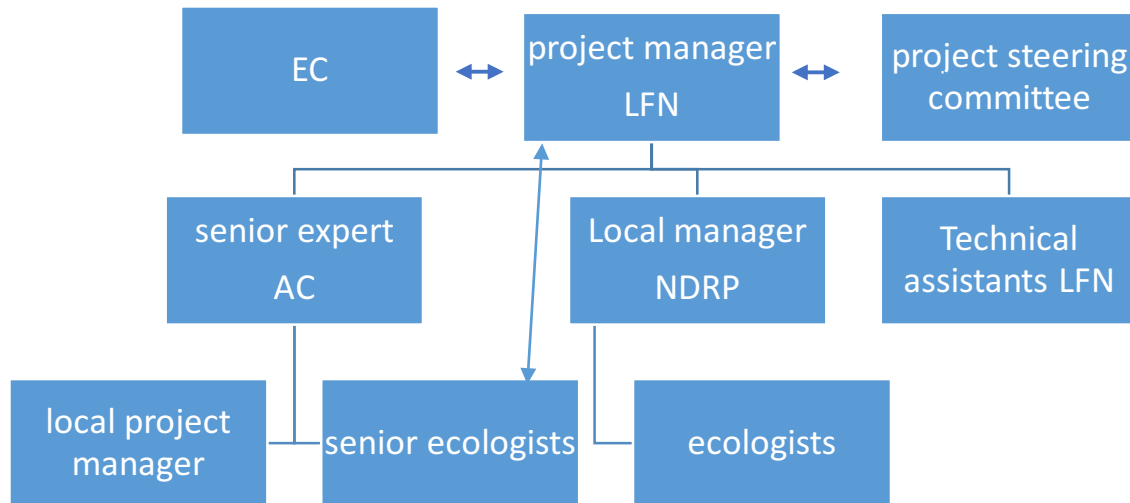


Fig.4.1. Organigram of Project management.

The project manager was assisted with 4 project employees: dr.Jurate Sendzikaite, dr.Leonas Jarasius, Žydrūnas Sinkevičius, and Lina Meskauskiene, all employed part time in this Life project. Jurate also worked at Nature Research Centre, where they specialize in wetland research, that's why they have been employed in the project. Also, J. Sendzikaite used to work in Baltic Environmental Forum on LIFE09 NAT/LT/000233 Baltic Aquatic Warbler - Securing Sustainable Farming to Ensure Conservation of Globally Threatened Bird Species in Agrarian Landscape, therefore she is experienced in LIFE projects. The tasks of dr.Jurate Sendzikaite included professional scientific advices on wetland issues and performance of project actions where high level scientific assistance was needed: monitoring performance, advices in preparatory actions, contribution to the educational activities. Leonas Jarasius was technical assistant employed for daily assistance to project manager to help in daily performance of project actions. Žydrūnas was employed from the end of June 2015 temporarily to help on supervision of concrete conservation actions: dam instalment and forest clearing. He used to work in previous LIFE projects, therefor he is experienced in nature management and can supervise and make advices in the place. He actually was part of AC team, but in order to avoid complicated employment procedures LFN and AC agreed, that LFN will employ him.

The project accountant Lina Meskauskiene left the job in March 2015, from this month accountant of LFN Romas Garbaravicius supports project manager with financial accountancy.

NDRP team experienced many changes during the project implementation as indicated in the table No.4.1.

Table No.4.1. NDRP project employees.

Position	Period from – to	Name
Local manager	04/2014-02/2015	Aurelija Jakstaite
Local manager	07/2015-06/2017	Zilvinas Cesna
Ecologist	04/2014-03/2015	Robertas Kubilius
Ecologist	03/2015-06/2017	Kristina Keteriene
Financist	04/2017-09/2016	Grazina Silinskiene
Financist	In 06/2017	Asta Augustiniene

Local manager was changed twice. Aurelija Jakstaite was the first manager, but she left the job in February 2015; afterwards Žilvinas Čėsna took the role over until the end of the project. His task is to communicate to Project manager about project progress, organise implementation of tasks according to the partnership agreement, assist project manager in getting permissions for C actions etc. Local project manager is assisted by local specialists-ecologists.

Ecologists also changed twice; Robertas Kubilius was employed from 04/2014 until 03/2015, but he cancelled his job due to overload in main job, afterwards another ecologist of NDRP Kristina Keteriene took that position. Ecologists task was to perform monitoring of hydrology (D1), assist local manager in other actions (A1, A2, C1, C2, C3 and E6).

Project accountancy was performed by Gražina Šilinskienė (the accountant of NDRP) until 09/2016 when she left the job. By that time most work was finished, no transactions were performed by the NDRP, therefore only in June 2017 extra person was hired to help on preparation of the Final Report.

AC has set up the team of management in different way since they do not have any project sites in Denmark. The senior project manager was nominated Lars Briggs, he was responsible for coordination of project from Danish site, finding experts, ensuring schedules for monitoring, agreeing contracts, contributing to the implementation of other project actions: A1, A2, C1-C3, D-D2, E3, E4, E5, E9. His team consisted of temporarily hired experts for fulfilment of concrete tasks: senior project manager –administration (in the office) Marzenna Rasmussen, she was responsible for financial accountancy and reporting, and assistance to senior project manager, Florian Bibelriether as senior ecologist for expert coordination, and expertise on bog restoration plans, and activities; Jørgen Peter Kjeldsen performed bird monitoring; Richard Podloucky – reptile monitoring ; Niels Riis – expertise on hydrology and dam types; Alix Aliaga – biologist, joint at the very end of the project as to present the results of the monitoring during the final seminar (E4).; Wouter der Vries – monitoring of amphibians and invertebrates; project financial accountancy (internal) was performed by Margrethe Voigt (the accountant of AmphiConsult).

Steering committee was supervising the management of the project and fulfilment of project objectives. Members of the committee were selected and nominated in October 2013; later on the list of members was corrected twice due to different personnel issues, e.g. change of jobs, cancelling the wish to be within SC and similar reasons. The SC consisted of representatives form the stakeholders: NDRP, State Service for Protected Areas (SSPA), Silute Forestry Enterprise (SFE), JSC Klasmann-Deilmann Silute, experts from other protected areas, like Strict Nature Reserve of Kamanos.

The Partnership agreements were submitted to the Commission with the inception report on 1st of April 2014 as Annex 4. They were corrected as requested in EU letter of 24/03/2014. The agreements with NDRP and AC were adjusted by including the request for more frequent reporting, i.e. every quarter.

The co-financing agreement was signed with the Environmental Project Management Agency, which represents the MoE, on 13/05/2014 No.LIFE12NAT/LT//000965/11. The agreement

foresees co-financing of 497550 LTL (144100 €) as indicated in A8 form in GA. Already 2 payments of 95% (136 894 €) of the co-financing were transferred to LFN.

The modification of the project was submitted in 2017. Additional clause was caused by increasing the budget category “Consumables” by more than 10% and € 30 000 according to the paragraph 15.2 of the Common provisions for projects, financed in 2012. The cost category “consumables” was increased by 71168 €, i.e. 100 % from 0 € to 71168 € due to unforeseen compensation of timber (C1) and reclassification of materials as consumables, e.g. plastic pile sheets, which were supposed to be classified under long term infrastructure as foreseen in GA (Grant agreement). EC accepted the modification and signed it on June 14th, 2017.

4.2 Evaluation of the management system

The management system set up the structure, which ensured smooth organisation of project tasks to achieve its’ objectives. Every AB had appointed responsibilities in the project, where ABs used their capacities and best knowledge, e.g. NDRP managed instalment of educational path, AC as consultancy on biodiversity sent their experts to perform monitoring. Number of employees and personnel resources were chosen in a way to fulfil assigned tasks. It helped in overcoming obstacles and achieving the project objectives. Good communication among the project beneficiaries was very important and having officially assigned representatives from each AB served the purpose very well. There was set of institutions, indirectly involved into the project via decision making processes, e.g. forest clearing (C3) permission. For that reason, there was communication with MoE, SSSF, Directorate General of State Forests, local Forestry Enterprise of Silute, which later did express a wish to become official beneficiary of the project. However, the solution was found without inclusion of new beneficiary. Even if the Forestry Enterprise of Silute would become official beneficiary, the solution on forest clearing would be taking the same time. There was rather good communication and information exchange with local institutions, however main stakeholders were taking solutions in Vilnius, e.g. MoE. Therefore, decision on permission to clear forest as nature management activity took more than one year.

The project had to apply for amendment to the Grant agreement due to included additional cost – compensation of timber – and reclassification of materials, indicated as long term infrastructure.

The partnership agreements with ABs were signed in February 2014, they were adjusted with financial reporting every quarter, including submission of time sheets and other corresponding documentation of expenditures. The duration of agreements was extended 5 years from the payment of the balance. The Lithuanian version of agreement with NDRP was corrected to make it the same as English version as instructed in EC letter. The ABs have followed the terms set up in the Partnership agreements.

LFN and NDRP took active role in dissemination of information about the project. There were dozens of mass media articles, representing project events, activities and publications. Reconstruction of educational path attracted high attention of public, as a result, the path became one of the most visited places in NDRP. There was good communication with local residents, living by the bog. As a result, when the educational path was burned up in May, 2017, local people immediately called the alarm, thus, preventing the development of fire in time. Local peat cutting company JSC Klasmann-Deilmann was involved into communication process the project, providing partly financial contribution to the reconstruction of the path as well as ensuring supervision of dam functioning in the After life plan (F3). Involvement of project partners and local stakeholders was great value for continuation of the project and elimination of the remaining threats indicated in the After-LIFE conservation plan.

5. Technical part

5.1. Technical progress, per task

5.1.1. Action A1. Nature management plan and action plan preparation

Start 01/07/2013; end 30/09/2014, revised deadline 30/11/2014, implementation date 01/09/2015

Deliverable/milestone	Original deadline	Revised deadline with the IncR	Actual/expected implementation	Implementation status
Deliverable				
Management and action plan	30/09/2014	30/09/2014	30/01/2015	Completed
Milestone				
Management and action plan * completed and approved by ministry	30/09/2014	30/11/2014	01/09/2015	completed

*action plan cannot be approved by MoE as it is internal project document.

The result: MP was completed by 30/01/2015 and approved by 01/09/2015.

The preparation of the management plan started in spring, 2014; it was ready in autumn 2014, since its preparation started in May 2014 after selection of subcontractor, which was the Nature Heritage Fund. The preparation started in time for the season of 2014, and the plan was ready in January 2015, then it was submitted to the MoE for approval. However, it took 9 months until Minister of Environment signed the plan on the 1st of September 2015.

The reason for delayed approval was the negligence by the State Foresters, mainly the Directorate General of State Forests, to approve forest clearing in the project site. According to foresters, entire project site is appointed as so called “forest land”, which has the primary purpose – management of forestry. Therefore, forest would disappear if clearing, which is one of main actions in the management plan, would be implemented. Such land shall be transformed into “other type of land use” and compensation for the loss of forest land shall be paid to the Forestry Enterprise. MoE was consulted to solve the problem. As a result MoE issued a letter confirming, that project has to reimburse the value of the timber, which will be used as material to reinforce the dams; also MoE stated that forest clearing had to be incorporated into the Management plan for the Forestry of Silute. Fulfilment of both conditions was in line with existing legislation, therefore MP was finally approved. Letter of MoE is annexed as Annex 1 (with translation).

During the preparation of the plan assessment of flora and fauna and habitats was done by experts of Nature Heritage Fund with AB AC with support of experts of LFN in order to plan the restoration activities. LFN asked Environmental Protection Agency for permits for investigation of rear species within the telmological reserve of Aukstumala. Permits were granted every year (except in 2017 when NDRP was informed about regular monitoring D1 of projects species). The assessments were also used as baseline for biodiversity monitoring carried out in action D1. Simultaneously Nature Heritage Fund was preparing Technical dam construction project (A2) by localizing ditches, assessing hydrological situation; these data were incorporated into the MP and respected when planning restoration measures. The consultations on selection of best restoration measures (damming types, forest clearing) were provided by AB AC.

Project Action plan was completed in 2014 by LFN, but it was regularly updated. A plan of recovery has been adjusted to this action plan and submitted with last PR. Since then the plan is not updated as the targets of the project were reached.

Delayed approval of the Nature Management Plan caused a delay for other project tasks, e.g. damming (C1 and C2) and forest clearing (C3). However, project objectives were reached by achieving planned targets, even with the delay.

The action costs: personnel (exceeded by 6838 €) due to extended approval procedure, caused by external institutions; travel spent as planned, external spent on preparation of the plan and external experts hired by Amphi for first study of the site (the activities reported under D1). More information on AC external expenditure provided in Annex 28 on explanations to EC questions.

5.1.2. Action A2. Technical preparation of the concrete conservation actions

Start 01/0/2013; end 30/09/2014, revised deadline - 30/11/2014, implementation date 15/01/2015

Deliverables/milestone	Original deadline	Revised deadline	Actual/expected implementation	Implementation status
	Deliverable			
Technical dam construction project	30/06/2014	30/09/2014	15/01/2015	completed
	Milestone			
Technical preparation completed	30/09/2014	30/11/2014	15/01/2015	completed

The result: *Technical dam construction project (further on referred as Technical Plan or TP) was prepared and approved by 15/01/2015 with slight delay from revised deadlines.*

The TP deadlines were revised with the Inception report and set in a way: Deliverables from 30/06/2014 to 30/09/2014 and milestone from 30/09/2014 to 30/11/2014. TP attached as Annex 2 as requested in the letter of EC on 21/12/2015.

The subcontractor VSI Nature Heritage Fund was selected through open tender procedure; the contract was signed in February 2014. Technical project was made according to Lithuanian legislation on simplified constructions. It includes inventory of draining ditches, evaluation of current hydrological situation and feasibility to change it, proposals for dam construction, detailed costs, technical specifications and letters from stakeholders on permissions. All stakeholders: Silute municipality, Klaipeda Regional Environment Department, Silute Road Authority, and NDRP agreed that dam construction is needed. The only Road authority did a special request not to flood the surrounding road, which will not be the case because dams are built in the inner ditches avoiding any entrance into so called "road ditches". All letters are attached to the hydrological regime restoration plan.

According to the planned damming measures, the total cost for the implementation measures has increased above the foreseen budget, therefore the TP was divided into 2 phases, prioritizing the I phase, which was most important for implementation of hydrology restoration in case tender subcontractors would propose to high price. II phase focused on second priority areas, which hydrology are not of utmost importance for the vitality of the bog.

After completion of tender procedures (C1+C2) the lowest price was below planned thresholds, therefore both phases were implemented; additionally, the plan was adjusted in October 2016 due to changed forest clearing scheme (based on the final agreement with foresters, C3) since damming activities were planned in coherence with foreseen removal of vegetation. Also, TP was

adjusted due to inspection of already done work (in period from October 2015 to March 2016 including forest clearing). This inspection helped to assess the impacts of actions and revealed missing solutions, e.g. missing dams in some places, need to widen the dams after saturation of water. The adjustment act was compiled by the technical supervisor Gediminas Lietuvninkas together with adjustment to the TP (Annex 3). Additionally, it was decided to reinforce 4 dams, built before LIFE project, by adding 136 m² of plastic pile sheets; change part of peat dams (57 pcs) into plastic dams in places where forest clearing was cancelled, therefore excavator could hardly enter the site; install new 22 dams, reinforce the plastic dams by adding 2 meters long metal line on top for 270 dams, reinforce built dams by adding extra longer pile sheets in the middle and add new sheets at the sites and other works.

Thus, all together, the updated TP had foreseen to dam and impact 952 ha of the bog by installment of 1185 dams. Details on dams are given in C1 and C2. Total length of ditches dammed: 85 km of small ditches (C.1) and more than 15 km of collective ditches (C.2). All together 1185 dams were implemented: 1170 on small (C.1) and 15 dams installed on big ditches (C.2). In GA the amount of dams was slightly different along with materials. In GA it was planned to install about 250-500 wooden dams and 250-5—plastic pile sheets for C.1 and 20 dams on big ditches C.2. However, after study tours and seminars (E.3, and E4) it was decided to focus on using peat as main substrate for dam building and plastic in cases where heavy machinery would damage the surface. The comparison of dams numbers and types between GA and the TP is provided in the Annex 4.

The consultations on damming measures were provided by AB AC; Danish expert Niels Riis has helped in evaluation of the damming activities during implementation of the task. The AB NDRP participated and contributed on obtainment of agreements with stakeholders, e.g. local road department, foresters, Local Environmental Agency.

5.1.3. Action A3. Environmental impact assessment of the project's conservation actions

Start 01/07/2013; end 31/10/2014, revised 31/10/2014, implementation date **30/09/2014**

Deliverable/milestone	Original deadline	Revised deadline	Actual/expected implementation	Implementation status
	Delivarable			
EIA screening document	30/09/2014	30/09/2014	30/09/2014	Completed
	Milestone			
Permission issued by responsible EIA authorities	31/10/2014	31/10/2014		Not needed

The result: Initial assessment was done, but full EIA neither screening was not proceeded as it was not needed.

LFN was responsible for this action. Project team (CB) did analyse existing Environmental impact assessment legislation and procedures; the team consulted responsible for Natura 2000 site management institutions: MoE and State Service for Protected Areas.

Outcome of the assessment: no EIA is legally requested if management plan is in place. It explains, that MP foresees actions and measures, which will improve the situation in protected area, therefore no other procedures, e.g. EIA is needed to prove if foreseen measures won't cause any damage. This was already explained in MtR and PR.

Since this action required small amount – 233 €, savings of 2256 € were reallocated to Action A1 personnel and travel, which required more resources (personnel and travel to meetings) due to prolonged agreement procedures.

5.1.4. Action A4. Establishing international high moor expert group

Start 01/07/2013; end 31/12/2016, revised 30/06/2014, implementation date 30/06/2017

Milestone	Original deadline	Revised deadline	Actual/expected implementation	Implementation status
Initial Expert group meeting held	10/09/2013	30/06/2014	30/06/2017	Completed

The result : International expert group established; new International LIFE project on peatlands conservation prepared. The final deadline of this actions was the end of this Life project – 30/06/2017 since the experts had non stop dialog throughout entire project life time.

Although AC was the main responsible partner for this action, LFN later did a lot within this action (also in F4 networking), to keep the contacts with experts. As a result, application of new Life project LIFE PEAT restore LIFE15 CCM/DE/000138 “Reduction of CO2 Emissions by Restoring Degraded Peatlands in Northern European Lowland” was developed in cooperation with NABU (German organisation for nature conservation) and financing granted by EC.

AC has searched and established contacts with experts in Denmark and Germany. They contacted experts from LIFE+ projects: LIFE08 NAT/DK/000466 Rerabog “Inovative methods of wetland restoration in Denmark” and ongoing project LIFE10NAT/DK/000102 “Restoration of Lille Vildmose” in Denmark and arranged visits to their project sites during the 1st and 2nd study tours under this project; also they organised visits of experts to 1st and 2nd workshops held on 11-13th June 2014 and 20-22nd September, 2016 and final seminar held on 31st May – 2nd June, 2017 in Lithuania, also experts visited several times to meet with LFN to discuss management of the bog (forest manager Kristian Graubaek visited the bog on 27th November, 2015, hydrologist Niels Riis visited on 31st May 2016; the reports of visits submitted with PR; monitoring of biodiversity was done by another group of experts (more under D1).

LFN established 2 expert groups. The first group was established in 2014 June as yahoo group. It includes experts from the 1st workshop. There was communication on management plan of Aukstumale, best methods to manage forest and its’ regrowth, specifics of instalment of educational trail and similar topics. However, the communication was not very intensive as the experts are busy and not fast responding. Therefore, LFN gathered 2nd group of experts in cooperation with NABU – German nature conservation NGO. Several group meetings took place to discuss wetland conservation in Baltics: in Vilnius November, 2014; Tartu May 2015; Berlin, August 2015.

As requested With the CL of 31/01/2017: the CB was requested to explain in the Final report how the unforeseen visits to Germany, Sweden and Estonia have contributed to the implementation of the project, including the cost efficiency aspect of this unforeseen expenditure.

The unforeseen visits to other bog management projects in other countries were attended to learn from their experiences. Description of events (depending upon the content, the events are declared under different actions) :

As networking activity F4: The project manager went to **Sweden on 2-6th November** to the final conference “Restoring drained and overgrowing wetlands” of the LIFE + project LIFE08 NAT/S/000268 Life to ad(d)mire to learn techniques from finished restoration activities; visit good examples in restored bogs to learn damming activities using mainly peat and damming on the edge of the bog; learn about effectiveness of forest clearing, also to meet other experts.

The cost efficiency: the car and ferry transfer were used as transport mean instead of much more expensive flight ticket (flight cost+luggage) to get from Vilnius to Varnamo, located more than 260 km from big cities like Copenhagen or Stockholm, also avoiding extra days of travel when finding

the best arrival/departure time. Totally 1044,88 € spent: travel costs gasoline -124,59 €, ferry 256 €, per diem 265 € (5 days), accommodation 359,29 € (used recommended hotel by the organisers).

Estonia was visited twice by entire project team as **A4 action**:

5/7 May, 2015 visit to wetlands in Southern Estonia to see planned measures on restoration of bogs in Sooma National Park; also meet other experts for next days to discuss the project; 2 persons: project manager N.Zableckis and his assistant L.Jaradius went to visit, totally 362,03 € spent since the car as cheapest transport mean was used, room booked via AirB&B saving on accommodation costs.

On the 30 January / 02 February, 2016 visit to international conference “From the usage till reconstruction of wetlands” organised within the LIFE + project LIFE14 NAT/EE/000126 “Mires Conservation and Restoration of Mire Habitats” in Tartu, Estonia. 4 persons (N.Zableckis, L.Jaradius, J.Senzikaite, Z.Sinkevicius) travelled by one car. Totally 1115,71 € spent, accommodation 510, per diem for 4 persons 528€, gasoline 77,71 €.

Visit to Germany in July 9-12, 2015 (it was a mistake in the report declaring the 9-11 of June) 2015 was taken away from this report, although it was learning and experience exchange on bog management in the context of climate change.

The trip to **Penrith, UK** on 4-6th October, 2016 is reported **under E3** as it was partly foreseen as the 2nd presentation of the project results. The milestones table mentions the 2nd presentation while in the description of action E.3 only one trip is mentioned. Project results were shared in international conference “Restoring peatlands developing best practice techniques” organized by Cumbria Bog LIFE LIFE13 NAT/UK/000443 “Restoration of degraded lowland raised bogs on three Cumbrian SCI/SACs” Nerijus Zableckis presented the LIFE Aukstumala and other LIFE projects by giving presentation “*LIFE AUKSTUMALA and other LIFE+ projects for restoring raised bogs in Lithuania*”. The presentation covered implementation of Lithuanian LIFE projects related to bog management, including restoration of Aukstumala raised bog and restoration techniques. In the poster session the participants were also introduced with the upcoming LIFE project “Reduction of CO2 Emissions by Restoring Degraded Peatlands in Northern European Lowland” (LIFE PEAT RESTORE LIFE15 CCM/DE/000138).

The trip costs was shared between the new life project (Peat restore) since N.Zableckis costs were covered by Life Aukstumala (1868,58 € spent: flight tickets 340 €; accommodation 790,65€; car rent, insurance and reservation 297,67€, per diem 366€, fuel for the car 44,26€) and the costs of L.Jaradius declared under peat restore (706 €: per diem 366€, flight cost 340€).

Detailed report on the trips with agendas is attached as annex 5.

5.1.5. Action C1. Blocking of small ditches

Start 01/01/2014; end 30/09/2016, revised 30/09/2016, implementation date **31/01/2017**

Milestone	Original deadline	Revised deadline	Actual/expected implementation	Implementation status
250 dams installed	01/01/2015	28/02/2015	28/02/2016	Completed, 1045 dams
500 dams installed	30/09/2016	30/09/2016	31/01/2017	Completed, 1170 dams totally

The result: 1170 dams installed on small ditches, 85 km of ditches blocked. In GA it was promised to install 500 dams and block 70 km of ditches: 200-250 dams were supposed to be made

from wood or using wooden materials. The milestone was achieved by installing double amount of dams using the same resources and blocking more ditches. No wooden dams were used after having learnt experiences from other projects on short term duration of wooden materials. Instead mainly peat was used, and plastic pile sheets. After successful restoration activities water level was raised up to -15- -10 cm to the bog surface in comparison to water level -40 cm or even -100 cm before the project.

The first part of the action – instalment of 50 % of dams (250 dams) - was delayed due to prolonged approval of the management plan, but later on dam activities were intensive; altogether the final instalment of dams ended by 28/02/2017, 4 months later than planned. However, it does not have effect on project objectives since the work was completed before spring when the bog becomes flooded, thus, the water was saturated by dams already in 2017.

LFN was responsible for implementation of this action. Dam building on small ditches was ongoing 2 seasons: from October 2015 until February 2016 and from October 2016 until end of January 2017. Breeding season of birds was taken into account when planning dam construction time and sites. UAB Alytaus melioracija won the tender (against 2 companies) as they proposed lowest price. UAB Alytaus melioracija is experienced in building dams in raised bogs in southern Lithuania. They use 2 light mass excavators equipped with wide caterpillar.

The places of damming and removal of vegetation is presented in the management actions map (Annex 6). Historical photographing was done on all C activities from certain points as shown on the map of photographing points (Annex 7); pictures of C1 (before and after damming) are attached in paper (Annex 8) and digital formats (Digital annex).

2 types of dams were built on drainage ditches: plastic pile sheets, totally 663 pcs built; and peat dams, totally 507 dams built. 2 types of plastic pile sheets: G 200 and EP 17, the G 200 was used in smaller ditches of 1 meter wide, and up to 2 meters deep; the EPZ 17 was used in bigger draining ditches. Totally 1808 m² of plastics was used (890 m² of G 200 and 918 m² of EPZ 17) to install the dams, the plastic pile sheets are declared under consumables. The plastics were bought via open tender. 955 m³ of peat used for peat dams. Dam construction methods are described in detail in Best practice (BP) (E9).

The technical supervision of dam construction was subcontracted to VSI Nature Heritage Fund according to the requirements of National Construction Reglment. The work sheet (Annex 9) on observations was filled in by G.Lietuvninkas, an employee of the Nature Heritage Fund, by pointing problems, insufficiencies and other remarks according to approved TP The observations were adjusted by Z.Sinkevicius, an employee of LFN, who was regularly visiting and checking the damming works and also forest clearing.

5.1.6. Action C2. Blocking of main ditches

Start 01/01/2014; end 30/09/2016, revised 30/09/2016, implementation date **31/01/2017**

Milestone	Original deadline	Revised deadline	Actual/ expected implementation	Implementation status
10 dams installed	01/01/2015	30/12/2015	30/12/2016	Completed, 5 dams
20 dams installed	30/09/2016	30/09/2016	31/01/2017	Completed, 15 dams totally

The result: 15 dams installed on collective ditches, 15 km of ditches blocked. In GA it was promised to install 20 dams and block 10 km of ditches, thus, the milestone was achieved by

installing lees dams reaching the same objective using the same resources and blocking more ditches. Amount of dams (15 instead of 20) was foreseen in TP to ensure water saturation in main ditches. After successful restoration activities water level was raised up to -15- -10 cm to the bog surface in comparison to water level -40 cm or even -100 cm before the project.

LFN was responsible for implementation of this action. UAB Alytaus melioracija was a subcontractor, since the damming actions C1 and C2 were performed simultaneously. Deadlines for this action were planned incorrectly since blocking main ditches would cause obstacles in building dams on draining ditches as it would be raising water level, thus, some parts of the bog would become hard to enter. Therefore, all bigger dams were installed at the end of the project. 10 dams were built within the entire project site by 31/12/2016, and the last 5 dams, installed on the border zone of the peat cutting fields (3 pcs in eastern part) and educational path (2 pcs), see the management map (Annex 6). Pictures of all C2 dams are in Annex 10 together with documentation of works before and after instalment (also pictures attached in separate Digital annex).

For C2 325 m² of plastic pile sheets of type EPZ/17 were used; and 195 m³ of peat to build massive dams on the ends of big ditches, reaching from 7 to 10 meters wide, and 4-5 meters deep; water tubes were installed on 4 dams to let the surplus of water, otherwise the dam might be damaged due to high water pressure. Instalment of all dams (C1 and C2) was based on TP (A2) which contained detail topography measurements; dams were installed by 15-20 cm inclination to stop and spread water on the entire surface by blocked ditches.

As in C1 the technical supervision of dam construction was subcontracted to VSI Nature Heritage Fund (VšĮ Gamtos paveldo fondas) according to the requirements of Construction Reglament (STR). However, personnel of LFN was regularly visiting and supervising performance of damming (also removal of vegetation) to follow the progress and react if any problems arise.

5.1.7. Action C3. Removal of vegetation

Start 01/01/2014; end 31/03/2016, revised 29/02/2016, implementation date 28/02/2017

Milestone	Original deadline	Revised deadline	Actual/expected implementation	Implementation status
50 ha of vegetation cleared	31/03/2015	28/02/2015	28/02/2016	Completed
100 ha of vegetation cleared	31/03/2016	29/02/2016	28/02/2017	Completed

The result: 105 of area covered by wooded vegetation removed. Repeated clearing performed in 67 ha to remove the regrowth. The costs stay within foreseen limits.

The action was implemented by the CB.

Agreement of forest removal was very complicated due to strict regulations of forestry.

Therefore, the whole procedure looked this way:

- Preparation of Forestry management plan and submission to the MoE in 2014 for approval, additional questions and discussion on forest removal started;
- Meetings in MoE, as a result MoE's issued a protocol on how to proceed with obtainment of permission of forest removal;
- NDRP submitted foreseen forest clearing measures to the the institute of Forestry, which performed the update of Silute Forestry Management plan;
- Forestry management plan was updated and meeting on Final decision of forest removal in the project site took place in December of 2015 in Silute Forestry Enterprise.

- Cutting of regrown birch offshoots was started in 67 ha in former fire damaged area in January 2016 without official approval of Forestry management plan since offshoots are not treated as “trees”, therefore such cutting did not need extra permission.
- Updated Forestry management plan was approved in May 2016, however, timber compensation question was not solved. The SFE did not want nor had capacities to clear cut 35 ha and take timber. However, SFE insisted on compensation of timber, present in that place;
- LFN applied to MoE to clarify the situation, therefore a letter (Annex 1), confirming that LFN has to reimburse costs of this timber (compensate the value of timber), which will be used as damming material to fill in the ditches.
- Therefore, afterwards LFN asked EC whether such payment is possible. After having received confirmation of acceptance of such payment, LFN in August 2016 hired independent forester to estimate real volumes of timber in areas, foreseen for cutting. Based on the results of assessment (totally 1261 m³ of timber volume), the SFE confirmed final price of timber (23 178 €) (price was negotiated several times, therefore independent measurement was performed).
- In August 2016 SFE organised an auction, whereas LFN bought part of the timber (1167 m³). Part of the timber (74 m³) was bought by local person for firewood.
- Repeated clearing of offshoots in 67 ha was performed in August- September 2016;
- From September 2016 until January 2017 the local forest company of E.Rauktys, who won the tender for removal of wooded vegetation, was clear cutting forest in 35 ha site, located on the south eastern part and some smaller plots on the eastern part.
- In February – March 2017 cut timber was put into ditches.

Cut wood and offshoots were laid down into ditches, that created conditions for *sphagnum* to colonize them faster, and create wood logs for insects, snakes and stopping water flow. Pictures from clearing vegetation in fire damaged zone and forest zone are attached in Annex 11. In 2017 clear results of timber cut are seen in places where birches were cut in January, 2016, as a result it created open bog, more water is saturated within the ditches, sphagnum started to colonize on the timber, laid down into ditches (as shown in the pictures C3); also biodiversity responded to these changes as some bird populations slightly increased (see D.1).

Timber is declared as consumables.

5.1.8. Action D1. Monitoring of biodiversity indicators in the project area

GA Start 01/04/2015; end 30/09/2016; revised deadline 30/09/2016, implementation date 31/05/2017 31/05/2017 (as approved with the CL of 21/12/2015)

Deliverable/milestone	Original deadline	Revised deadline	Actual/expected implementation	Implementation status
Deliverable				
First monitoring report prepared	30/09/2015	30/09/2015	31/09/2014	completed
second monitoring report prepared	30/09/2016	30/09/2016	30/10/2016	completed
<i>Third monitoring report prepared</i>	--	--	31/05/2017	completed
Milestones				
First monitoring schedule completed	01/09/2015	01/09/2015	31/09/2014	completed
Second monitoring schedule completed	30/09/2016	30/09/2016	31/05/2015	completed

<i>Third monitoring schedule completed</i>	--	--	31/05/2017	completed
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The result: 3 monitoring reports prepared: in 2014; 2016 and 2017.

The AC was responsible for this action; AC organised monitoring of biodiversity. Experts were hired to monitor birds, reptiles, amphibians and invertebrates. Abundance and distribution of species was monitored towards the influence of nature management activities. Report from 2014 was submitted with IR; report from 2016 submitted with PR, the last report of 2017 is submitted in annex 13. Reporting was focused on restoration of open habitats and establishment of water pools by peat dam instalment in most damaged eastern and south-eastern parts of the bog.

Birds

The last report shows impacts of project actions as it was supposed in the GA: The foreseen conservation actions had to support other Annex II habitat types ("3160 natural dystrophic lakes") and species (e.g. Tetrao tetrix, Tringa glareola). Although the period to observe any changes in the bog is far to short, just 1-2 years after damming and forest removal, some species reacted to changed habitats. For example, in the beginning of the project (2014) 3 pairs of wood sandpiper (*Tringa glareola*) and 4 pairs of golden plover (*Pluvialis apricaria*) were observed in the bog while in 2017 population of golden plover increased to 5 breeding pairs; also black tailed godwit (*Limosa limosa*) appeared, common crane (*Grus grus*) was observed in eastern part, also other species, e.g. common snipe, great grey shrike were observed for the first time within the eastern parts of the bog, which were restored. In the literature is mentioned presence of ten to fifteen breeding pairs of Black Grouse (*Lyrurus/Tetrao tetrix*) in the Aukstumala project site. During preliminary investigation in 2014 Hansen did not found any evidence of the species. Also in 2016 and 2017 there were no direct observations of the Black Grouse, but feces were found in 2016 (not in 2017). Although visits were conducted from up to half an hour before sunrise no displaying grouse were heard. It seems that the number of *L. tetrix* reported for the area in literature is too high.

Invertebrates

Positive impact was observed also on invertebrates, since more larvae of dragonflies were found in water pools, which appeared after digging peat used for dams. Rather rare species in Lithuania *Graphoderus bilineatus*, Annex II/V species was found in eastern part as well. Thanks to the project the area and the quality of the habitats of *Leucorhinia pectoralis*, Annex II species protected in Natura 2000 Nemunas Delta has increased. Surveys in 2017 and 2016 have found new breeding sites of *L. pectoralis* colonized in the areas where ground water table has increased due to the project actions.

Reptiles & amphibians

Survey in 2017 has found also new breeding sites of *Rana arvalis*, *Pelophylax lessonae* and *Pelophylax kl. esculentus* in the areas where ground water table levels has increased due to the project nature management actions. The reptiles population consist of Common lizard (*Zootoca vivipara*), the Grass snake (*Natrix natrix*) and the Adder (*Vipera berus*); they are present in the bog, especially in the woodland/bog edge transition zone; *Natrix natrix* also in the meadow area south of the bog. The results in 2016 were nearly the same, but a fourth reptile species, the Eastern slow worm (*Anguis colchica incerta*) was also found. So far no impacts on reptile population were observed by project actions, but it is expected that after a while in dammed places typical bog structure will appear on higher places (higher Calluna, small Birch bushes, Molinia tussocks, brushwood), which will be perfect habitat for adders and grass snakes. Also other structures like habitat along the educational trail with dammed ditches and sun exposed edge will be suitable place for lizards, adders and snakes.

In addition to this project management team regularly reported observed snakes and adders along the trail. The entire report on reptiles is attached as Annex 12.

Impact on vegetation and habitats is described under action D.2.

5.1.9. Action D2. Hydrological monitoring at the targeted sites

Start 01/07/2013; end 30/09/2016, revised 30/09/2016, implementation date 30/06/2017 (as approved with the CL of 21/12/2015)

Deliverable/milestone	Original deadline	Revised deadline	Actual/expected implementation	Implementation status
Deliverable				
Hydrological monitoring report prepared	30/09/2016	30/09/2016	30/06/2017	Completed
Milestones				
Hydrological monitoring performed	30/09/2016	30/09/2016	30/06/2017	Completed

The result: 4 monitoring reports produced: 3 yearly reports in 2014, 2015, 2016 and the fourth (final) report in 2017.

The action was implemented by the CB in cooperation with NDRP. Monitoring methodology together with the first monitoring report for 2013 was submitted with the IncR, the second report with the MtR and the third – with the PR. The last report is attached as Annex 13.

Hydrological monitoring consists of 2 types of monitoring: water level in water wells and vegetation cover. Both observations support each other, e.g. vegetation cover correlates with water level.

Water level monitoring

LFN and NDRP conducted water level monitoring. For that LFN installed 114 water level measurement wells in 12 linear transects located in 6 monitoring plots; 4 plots (from 2 to 5 as indicated on the map, Annex 13) are located in most degraded and impacted Eastern and Northern parts of the bog (heavily damaged by dense draining ditches net) while one plot (No.1) was installed in drained area, but without project actions. NDRP performed monitoring in 9 water levels, located in 1 monitoring site, which covers less impacted entire central and Western part of the bog. Data were collected from spring 2014 until Jun 2017. Monitoring was done manually using measuring tape to indicate water level in the well; measurements were taken every month from April to October.

Vegetation monitoring

To estimate vegetation changes in the project site three linear transects were established most degraded and impacted Eastern and Northern parts of the bog. In each transect vegetation monitoring was performed in 10-20 study plots (1.0×1.0 m), where percentage cover of vascular plants and mosses was inventoried. The LFN did monitoring from 2014 to 2017 twice a year by counting all the plant species within the plots. The aim of monitoring is to observe changes in vegetation communities expecting an increase of typical raised bog plant species. For the current study only the data of vital *Calluna vulgaris* coverage was presented, as the changes of this species vitality dynamics represent the habitat shifts from degraded to active raised bog habitats. In addition, data about the appearance of sphagnum mosses in some study plots was given.

The result

Hydrological monitoring proved positive impact of implemented nature management actions, as in majority of treated sites water level increased significantly. In the southern part of the bog, where dam building and tree cutting actions were performed, average water level increased by 20–35 cm. In the northern part of the bog, where clearing of birch offshoots and damming actions were implemented, average water level increased by 5–20 cm. Almost in all treated sites water level did not fall lower than 30 cm beneath the peat surface, which is considered to be minimal limit for the maintenance of typical raised bog habitats. Whereas in the drained sites, where project actions were not implemented (plot No.1), recorded average water level is 50 cm beneath peat surface and reaches 1 m during the driest seasons.

Vegetation cover also shows slight positive changes indicating slight shifts towards species, typical for raised bogs. Average coverage of vital *Calluna vulgaris* individuals decreased by 20–25 % in 2014–2017. However, it is only 2 years after management actions, therefore, changes are still minor. Visible impact was observed in colonization of *Sphagnum* within the ditches, where cut timber and branches were laid down.

Establishment of sphagnum fragments within restored habitats on bare peat with small cover of vascular plants (*Ledum palustre*, *Vaccinium vitis-idaea*, *Vaccinium uliginosum*, *Lycopodium annotinum*, etc.), especially in heavily damaged areas in southeastern and north eastern parts, is already significant achievement since sphagnum was not present in these places for decades due to intensive drainage. Further on these fragments supported by increased water level, will develop into complete cover of *sphagnum*.

5.1.10. Action D3. Assessment of the project's socio-economic effect and impact on ecosystem functions

Start 01/01/2016; end 31/08/2016, revised 30/04/2017 approved with the CL of 31/01/2017, implementation date 30/05/2017.

Deliverable/milestone	Original deadline	Revised deadline	Actual/expected implementation	Implementation status
Deliverables				
Report "Evaluation of the project's socio-economic and ecological effects" completed	31/08/2016	31/08/2016	30/05/2017	Completed
Milestones				
Evaluation of the project's socio-economic and ecological effects	31/08/2016	31/08/2016	30/05/2017	Completed

The result: the report was prepared at the end of the project summarising all project effects on socio-economic impacts.

The start of the action was delayed from 01/08/2015 to 01/08/2016 due to difficulties in finding the required external expert. Therefore, it was decided to engage internal CB resources.

The report (Annex 14) covers various aspects of project impact on local economy in relation to ecosystem services. For that reason other experts from LFN were consulted, e.g. Remigijus Karpuska, as he has more experiences in assessment of ecosystem services. However, no unforeseen costs were declared for the project (only personnel of LFN). As promised in GA LFN prepared questionnaire, which was filled by various respondents, connected to the project (project participants, local residents, experts). Therefore, the report presents:

- analyses of projects' impact on local economy by external services. It was found out, that project created up to 20 job places for 6-7 months during restoration works in 2015 and 2016/2017.

Also, project employed 3 permanent (part time) persons by LFN, 3 persons (part time) by NDRP and 2-3 persons (part time) by AC; and additionally 2-3 experts for 1 - 2 months.

- local synergies of regional stakeholders and public bodies, induced by project activities, e.g. JSC Klasmann-Deilmann contributed to the project by supporting the reconstruction of the educational path (E6); company is involved into After LIFE conservation plan (F3), thus establishing effective cooperation with NDRP.

- Public perception towards conservation of Aukstumala bog. It was found out that public became more aware about Aukstumala bog and conservation of bogs; for that the reconstruction of educational path, excursions and lots of articles helped to attract public attention. Trained local nature guides (E7) contribute to attraction of tourists to the bog.

- Assessment of ecoservices, provided by restored bog. Various effects were analysed, e.g. value of habitats and species, carbon storage, tourism service etc. It was found out, that investment of 733 € /ha (total project value/ restored area 1000 ha), generated much bigger feedback, resulting in at least 5000 €/ha.

The report was completed by the end of the project, 10 months later than planned due to the later start, but also seeking to cover effects of project activities, e.g. C actions, which were ongoing in 2017, events organised in 2017 (book publication, final seminar).

5.2 Dissemination actions

5.2.1 Objectives

Secondary project objectives in GA are aiming at dissemination and public awareness:

- build up an international board of experts dedicated to the protection of Aukstumala;
- train and educate local nature guides;
- disseminate project's experiences and raise awareness about the importance of high moor protection in Lithuania;
- restore and develop existing educational path and observation tower.

It was promised to establish international high moor expert group and exchange of good practice on bog restoration; train 15 nature guides trained, reconstruct one education trail.

The key deliverables: project website, movie about bog restoration produced, publications published: projects' leaflet, poster, Lithuanian translation of Prof.C.A.Veber produced, Book "Aukstumala: past, present and dreams" printed, best practice guidelines, Layman's report .

Thus, 2 target audiences were approached; wetland restoration experts and practitioners and public of common interest, e.g. local residents, tourists. As a result, both audiences were approached either directly or indirectly; experts were involved into workshops and meetings (E4), study tours for experts organised (E3), visits to the bog organised, specialised publication - Monograph of DR.C.A.Weber translated, presented and distributed among the Lithuanian experts (E5), Best practice publication printed and distributed (E9). General public was approached by renovating the path (E6), organisation of excursions (E7), lots of articles, website of the project (E1), notice boards (E2), documentary on restoration of the bog (E8), printing and distributing Layman's report (E10).

Multiple articles in web portals, news papers and magazines have been published during implementation of the project. 59 articles appeared in web portals, mostly about the education trail (E6), celebration of wetlands day and excursions (E7), few focused particularly on restoration activities (C1-C3). Magazines and newspapers printed

5.2.2 Dissemination: overview per activity

5.2.2.1. Action E1. Project website

Start 01/01/2016; end 31/08/2016, revised 28/02/2014, implementation date 28/02/2014

Deliverable/milestone	Original deadline	Revised deadline	Actual/expected implementation	Implementation status
Deliverables				
Project webpage	31/07/2014	28/02/2014	28/02/2014	Completed
Milestones				
Project webpage online	31/07/2014	28/02/2014	28/02/2014 (30/06/2017)	Completed

The result: webpage created and put online, regular updates completed.

Webpage has been created by web programmer in February 2014. Its address is www.aukstumala.lt. It was constantly updated with information and news throughout entire project period until the end of the project.

The website contains project deliverables, reports, and other information about the project. LFN is responsible for the website and its updates. The programmer was consulted for corrections and update of the webpage design, that fits better to organise increasing amount of information. NDRP has a link to the project in main page www.nemunodelta.lt where project logo can be found and redirected to main website, and also here <http://www.nemunodelta.lt/27805/projektai/life-ukstumala.html>. The project website has served to promote public awareness on the wetland habitat and information about contribution of the project. Since the launch there were 20 886 visitors as shown in the extraction from google analytics, attached in Annex 15.

5.2.2.2. Action E2. Notice boards

Start 01/07/2013; end 31/12/2013, revised 31/03/2014, implementation date 15/10/2015

Deliverable/milestone	Original deadline	Revised deadline	Actual/expected implementation	Implementation status
Notice board installed	31/12/2013	31/03/2014	15/10/2015	completed

The result: 3 notice boards installed.

3 notice boards were installed during the inception phase as planned in the GA, but their quality was not accepted by the EC as explained in the letter of 13/08/2015 3 new information boards around the project site were erected in October 2015. They contain maps, pictures, description about the project and its' activities. One of the boards is located at the entrance into the education path, where the number of visitors continues increasing. Therefore, it does contribute to increasing local awareness and understanding challenges of nature conservation in Aukstumala.

The action was implemented by the LNF.

5.2.2.3. Action E3. Study tours

Start 01/07/2013; end 15/08/2016, revised 15/08/2016, implementation date 06/10/2016

Deliverable/milestone	Original deadline	Revised deadline	Actual/expected implementation	Implementation status
Deliverable				
1st Presentation of preliminary results	15/07/2015	15/07/2015	10/08/2014	Completed
2nd Presentation of first results	15/08/2016	15/08/2016	06/10/2016	Completed
Milestones				
1st study tour realized	31/12/2013	30/06/2014	30/05/2014	Completed
2nd study tour realized	31/12/2014	30/06/2015	30/06/2015	Completed

The result: 2 study tours were organised, 4 presentations of the results performed.

LFN was responsible for organisation of study tours. AC contributed to the organisation by finding and contacting the contact experts, agreeing agendas, site visits and other logistics for the 2nd study tour.

1st tour took place on 12-17th of May, 2015, in UK with the group of 13 persons visiting bog restoration projects financed by LIFE (programme, list of participants and report of the tour submitted with MtR). Implemented and ongoing LIFE projects were visited: Restoration of Scottish raised bogs (LIFE00 NAT/UK/007078) and Border Mires (Kielder Butterburn) (LIFE98 NAT/UK/005432).

2nd tour took place on 7-12th of June, 2016, with the group of 10 persons in Denmark and Germany (programme, list of participants and report of the tour submitted with MtR).

The participants of the tours were invited from CB, ABs and stakeholders: State Service for Protected Areas, other protected site administrations (where bog restoration was ongoing, e.g. Kamanos Strict Nature Reserve, Zuvintas Biosphere Reserve), Forestry Enterprise of Silute.

Participation in the study tours provided valuable input to the planning and implementing restoration activities in the project site choosing and applying the best available practices on dam types, installment specifics, as well as specifics on clearance of wooded vegetation. Also, project and LIFE support was presented by posters and/or oral presentations each time visiting any external event. In addition to that, the participants were involved later into revision of the Aukstumala projects' actions in the bog either by being members of SC, trips to the project site and consulting project staff on management actions in the project site.

The events were described ad annexes submitted in MtR.

Project team members presented results in in participated in Project was presented in the 9th Conference on ecological restoration organised by SERA (International society for ecological restoration), in Finland, Oulu, on 3-8th August, 2014. The poster on the project was presented and printed in the abstracts, submitted with MtR.

The second presentation of project results was done in International conference "Restoring peatlands: development of best practice techniques" organised by Cumbria Bog LIFE , on 4-6th October, 2016 in UK. Report from the conference along with the pictures, and programme presented in the report on trips (Annex 5), presentation about Life Aukstumala presented in the conference attached in Annex 16. The event was partly foreseen as the 2nd presentation of the project results since the milestones table mentions the 2nd presentation while in the description of action E.3 only one trip is mentioned. The costs of participation were split between projects: costs of Nerijus Zableckis declared for Life Aukstumala (1869 €) , while costs of Leonas Jarasisu costs declared for Life Peat Restore.

In PR it was mentioned that project outcomes will be presented in conference on ecological restoration "SERA" in 2016 in Germany, however due to high fees of the conference it was decided to go to UK, Cumbria in October, which had particular focus on wetland restoration techniques.

Other 2 presentations of project results: 3rd in the final conference of the project LIFE08 NAT/S/000268 Life to ad(d)mire "Restoring drained and overgrowing wetlands"; 4th presentation made in international conference "From the usage till reconstruction of wetlands" LIFE + project LIFE14 NAT/EE/000126 "Mires Conservation and Restoration of Mire Habitats". The events are described in details under A4 action.

5.2.2.4. Action E4. Kick-off meeting, workshops and final seminar

Start 01/07/2013; end 31/11/2016, revised 31/11/2016, implementation date 02/06/2017

Deliverable/milestone	Original deadline	Revised deadline	Actual/expected implementation	Implementation status
Kick off meeting held	30/09/2013	30/10/2013	30/10/2013	Completed
1st workshop held	31/12/2014	31/12/2014	13/06/2014	Completed
2nd workshop held	31/12/2015	31/12/2015	30/09/2016	Completed
Final seminar held	31/05/2016	31/11/2016	02/06/2017	Completed

The result: 4 events organised: kick-off meeting 1st workshop and 2nd workshop, final seminar.

LFN was responsible for implementation of this action.

Kick off meeting was organised in Silute in premises of Klasmann-Deilmann followed by excursion to the project site on 18th October 2013. It gathered more than 30 participants. The programme and list of participants submitted with MtR.

1st workshop was organised in Kintai, Silute district, on 11-13th June 2014 together with initial expert meeting. More than 60 experts and professionals of wetland restoration from Baltic states, Finland, Denmark, Germany, Poland took part and gave valuable lectures on raised bog restoration techniques. The programme and list of participants submitted with MtR.

The events were described in details in IR and MtR.

2nd workshop was organised on 21-23rd September, 2016 in cooperation with MoE as indicated in PR. However, the workshop was postponed to autumn, instead of spring because more dams were built and forest removed by that time, therefore participants had opportunity to see the results of actions. The workshop focused on forest management in wetlands and impacts of forestry on habitats and emissions. Therefore 65 participants represented Lithuanian institutions (MoE, SSSF, Forestry institute, forest specialists and practitioners), Peat companies, other protected site directorates and foreign experiences in forestry and wetland management from Germany, UK, Denmark, Belorussia. 11 presentations were given during the workshop; discussion was organised at the end; excursion to the site was organised. The programme and list of participants attached as Annex 17. Costs of the seminar were shared with MoE, LFN partly paid for accommodation and catering.

Final seminar was organised on 31-2nd June, 2017 at the very end of the project when all management actions were implemented. The seminar was organised in cooperation with Lithuanian Ornithological Society, which runs *Life project Tyruliai-Life LIFE12 NAT/LT/001186 Demonstrative restoration of the Tyruliai bog as a part of the initiative of the re-wetting of Lithuanian peatlands*". Therefore 59 participants were invited to see the results and discuss about peatlands restoration and their role in CO₂ emissions; the guests were from MoE, other protected site directorates, peat companies and foreign guests from Latvia, Estonia, Germany, Belorussia, Denmark. 9 Presentations were given during the workshop followed by discussion and 2 excursions and poster session in the building of NDRP. One excursion was organised to the project site Aukstumala, another trip took place to the Tyruliai-Life site Tyruliai mire within the extracted peatland. was organised at the end; excursion to the site was organised, poster session organised. Also, LIFE 25 year anniversary was celebrated during the seminar, therefore representative from MoE department of EU funding Sigita Alciauskiene gave presentation about LIFE. Results of the project were presented. The report with lists of participants and agenda is attached as Annex 18. The seminar was organised as part of LIFE PEAT restore project since the seminar focused on CO₂ emissions beside habitat management.

The costs were shared by both projects: LIFE Aukstumala covered translation and rent of the bus for excursions (1437 €), the LIFE Peat Restore covered other costs (accommodation, catering).

5.2.2.5. Action E5. Informational material & exhibition

Start 01/07/2013; end 31/05/2016, revised 31/10/2016, implementation date 15/03/2017

Deliverable/milestone	Original deadline	Revised deadline	Actual/expected implementation	Implementation status
Deliverable				
Leaflet Aukstumala	02/12/2014	30/04/2014	30/04/2014	Completed
Poster Aukstumala	02/12/2014	02/12/2014	30/06/2014	Completed
Lithuanian translation of WEBER (1902): „Über die Vegetation .."	30/10/2015	30/11/2015	15/03/2016	Completed

Book about Aukstumala	31/05/2016	31/10/2016	15/03/2017	Completed
	Milestones			
Leaflet and poster printed	02/12/2014	02/12/2014	30/06/2014	Completed
WEBER translated and published	30/10/2015	30/11/2015	15/03/2016	Completed
Exhibition installed	01/07/2015	01/10/2015	01/10/2015	Completed
Aukstumala Book published	31/05/2016	31/10/2016	15/03/2017	Completed

The result: leaflet, poster, Weber monograph and book about Aukstumala printed, 2 mobile photo exhibitions organised.

LFN was responsible for production of publications; NDRP was responsible for photo exhibition.

The leaflet about Aukstumala highmoor, its' habitats and project has been published in Lithuanian. It was produced for the kick-off meeting in October 2013. Updated version of the leaflet was printed in 1500 copies, and English version in 500 copies. Submitted with MtR.

The poster bearing the drawing of sundew with tears and a sentence saying "Heal the wounds of the bog by raising water level" was printed in June, 2014 in 500 copies. Submitted with MtR. The first scientific monograph, issued by Dr.C.A.Weber, was translated into Lithuanian and printed in 1000 copies by 15/03/2016. Submitted with PR.

The book about the Aukstumala bog "Aukstumala: the past, present and dreams" was produced in period from 1st July, 2015, until March, 2017. Thus, the deadline was postponed from 31/05/2016 to 15/03/2017. The preparation of texts started in July, 2015, and they were supposed to be ready in Oct, 2016. However, in PR it was asked to extend the deadline for the book until December, 2016 to include information of different types of dams, e.g. from C1 and C2. But since the building of dams was delayed, the final layout was ready in February, 2017, and printing was done in March, 2017. The book was presented during the celebration of International Earth day on the 20th of March as it coincides with the presentation of publications every year for the same date, e.g. the Monograph of Dr.C.A.Weber was presented in March, 2016. On 5th April the book was presented in Kintai town, premises of local community, located in the NDRP territory. It helped to attract media attention (over 10 articles in mass media, annex 27) and also contributed to project goals (public awareness). Dr.Romas Pakalnis, who has best knowledge about the bog as he used to research it and started restoration from 2005, prepared texts for the book. The book was printed in 1000 copies (by the VSI Saulasare). The book presents the site with all its' values, history, restoration activities; it contains many pictures. The book was presented on 20th March, 2017, in the building of SSPA similarly as Monograph presentation. The book was distributed during presentation events, final seminar, at least one copy given to the directorates of protected areas (40 directorates), brought to the conferences, visited by project staff, other personal meetings; 100 copies given to NDRP for distribution in Nemunas Delta. The book attached in annex D-1. Still some copies of monograph and book about the bog are available in LFN office. The book was distributed via the different events where LFN took part (final seminar, meetings with other projects).

NDRP organised the photo exhibition. The tender was won by UAB Balti namai; they photographed the bog, printed 25 pictures on the canvas (60cmx40cm). The exhibition was opened on 18th September 2015 in the premises of new building of NDRP; later on it was moved around 7 local libraries and towns in Silute district. In addition to this it was decided to prepare the 2nd exhibition in Vilnius to spread the message more widely about Aukstumala project. Therefore, 26 pictures were made in the same way (printed on canvas), extra 7 pictures were purchased by professional photographers/experts like Latvian expert Mara Pakalne, to have more diverse and attracting exhibition in Vilnius. Mobile exhibition was put to 8 different locations in Vilnius and also

Kaunas (1 place). All together 16 places, and still continues to be moved around. It is estimated that exhibition in Silute was visited by over 1000 students and 3000 inhabitants and over 2000 students and 12 000 inhabitants (based on interview the local administrators of libraries and managers of premises). List of both exhibitions places attached as annex 19, pictures of exhibitions have been attached in MtR.

Project activities were regularly communicated to mass media, therefore, over 100 different articles and messages distributed via mass media (internet portals, newspapers, magazines), facebook. As feedback numerous articles appeared in the press (attached as Annex 27).

Both publications and exhibitions contributed to awareness raising about bog habitats conservation and protection measures, spreading message on importance of bogs, and especially world wide importance of Lithuanian bog. As a result feedbacks were received through comments on the webpage and facebook, requests on both books from across all country, significantly increased number of visitors in the educational trail.

The costs for this action included printing, text preparation, text proofreading and translation into English. The cost of action increased due to much more intensive work and demand for external service than planned, e.g. complicated translation and adaptation of Weber Monograph from old German language into Lithuanian demanded much more time and resources (see comments under financial part).

5.2.2.6. Action E6. Restoration and renovation of educational trail

Start 01/04/2014; end 30/06/2016, revised 30/06/2016, implementation date 07/07/2016

Deliverable/milestone	Original deadline	Revised deadline	Actual/expected implementation	Implementation status
Educational trail ready	01/11/2015	30/06/2016	07/07/2016	In progress

The result: the path reconstructed, prolonged, total length 1200 meters (extra 350 meters added after reconstruction), new observation platform installed.

NDRP organised reconstruction of the trail. First, the technical plan of renovation of the path with new platform was prepared in February, 2015, submitted with MtR. The implementation was performed in August-January, 2016. The work consisted of installing of 1200 m of path: 800 meters renovation of former path adding new 400 meters. 300 meters of out of 1100 meters lays on mineral ground surface; 900 meters consist of wooden impregnated path with plastic tubes underneath; plastic used to prolong the durability of material, which has direct contact to the bog surface.

Such construction was learnt from other experts and places during study tours (E3) and workshops (E4). The work was performed by UAB Silutes polderiai, which won the tender for building the 1100 meters. Additional 100 meters were added and price quoting repeated since 1100 meters did not reach the place, where the observation platform was planned. Therefore, total length of the path is 1200 meters.

The trail guides the visitors to the centre of the bog to observe the habitat “Natural dystrophic lakes”. It has 6 information boards installed which inform visitors about the bog specific, habitats, species, bog formation, project and projects’ activities. NDRP and LFN staff prepared information for the boards

After reconstruction of the path and tendering procedures for damming and tree clearing was finished, it became obvious that savings were made under C1, C2, C3. The EC was informed about increased costs of the action and asked whether AB can continue building planned infrastructure with higher cost. The costs under Infrastructure for the action was increased from 31 889 € to 52 385 € as it was approved in modification request. The new observation platform was paid by NDRP from the contribution of UAB Klasmann-Deilmann Šilutė. Old observation tower still functions, but it was decided to install new platform in better location for observations and capable to bear more people;

no spending on renovation of old tower was incurred. The path became very popular among residents and visitors. According to NDRP the path is visited yearly by at least 5000 people. Pictures of the path are attached in Annex 20.

In May, 2017 a fire in the path destroyed 150 meters of the path. The fire was either accidental or specially fired. The wooden part and almost all plastic tubes were destroyed, the damage of about 6200 € incurred (pictures attached in Annex 20). After considerations it was decided that NDRP initiates local action to collect money and materials to rebuild the path. The bank account was opened for collection of donations, all together 1700 € have been donated; UAB Silutes polderiai agreed to contribute with workers, local entrepreneurs donated wooden materials. The reparation works shall start in November since due to heavy rainfall in October, the path was not enterable (burnt part).

5.2.2.7. Action E7. Training of Nature guides

Start 01/01/2014; end 31/05/2016, revised 28/02/2017 approved with the CL of 31/01/2017, implementation date 28/02/2017

Deliverable/milestone	Original deadline	Revised deadline	Actual/expected implementation	Implementation status
15 nature guides trained	01/12/2014	01/12/2014	01/11/2014	Completed
4 excursions carried out	31/05/2016	28/02/2017	28/02/2017	Completed

The result: 15 nature guides trained, 4 excursions organised.

NDRP was responsible for this action and organised training of 15 nature guides in period from September to October 2014. UAB “Eura” was selected to conduct the training. Several guides are professionals, performing daily business in guided tours, the rest are amateurs, organising trips accidentally. The contacts of guides were presented on the website of NDRP and aukstumala.lt.

Excursions were organised every year from 2014 to 2017 on the occasion of International Wetland day, which is celebrated on 2nd February. In 2016 and 2017 excursions gathered about 200 people due to intensive communication via social media (facebook) and contribution of nature guides. Such events were highlighted in media (newspapers, web portals) and helped to increase positive public perception of wetlands. The pictures of the third and the 4th excursion are attached as annex 21 as requested in the CL of 31/01/2017.

The guides helped to raise awareness of local people, there were 4 big excursions with about 500 people, then individual excursions led by Regional Park (employee of the park Jovita Stanioniene) yearly 3-4 excursions are ordered by tourists, both local and foreign.

5.2.2.8. Action E8. Preparation of educational film about Aukštumala raised-bog, its restoration and conservation

Start 01/07/2013; end 31/08/2016, revised 28/02/2017, implementation date 07/04/2017

Deliverable/milestone	Original deadline	Revised deadline	Actual/expected implementation	Implementation status
deliverable				
DVD documentary movie Aukstumala	31/08/2016	31/08/2016	28/02/2017	Completed
Milestone				
1st showing of Aukstumala documentary	31/08/2016	28/02/2017	07/04/2017	Completed

The result: Documentary movie “Aukstumal comes back to life” was produced by 28/02/2017; 1st showing on national TV performed.

LFN was responsible for the action.

The deadline for the production of the documentary was postponed with the Mid-term report from 31/08/2016 to 31/12/2016 due to the delay in conservation actions, therefore it would not be possible to document all actions.

Professional filmmaker Eugenijus Ostasenkovas was subcontracted in II 2014. The documentary was filmed within whole project period from June 2014 until the end of 2016. Final montage performed in Jan-Feb, 2017. Documentary is 25 min long, spoken language Lithuanian with English subtitles. documentary can be watched on <http://www.aukstumala.lt/galerijos/> , or youtube <https://www.youtube.com/watch?v=xg4qf1IU8-Y> , it is attached as annex D-2 in DVD. Documentary covers almost all project activities, e.g. management in the bog, nature values, some historical moments of first conservation works, events for public.. Also, 7 short reportage shots were produced in this period presenting different actions: damming, C1, forest clearing C3 and others. They are available at the same <http://www.aukstumala.lt/galerijos/> .

Movie was demonstrated on the LRT (Lithuanian National Radio and Television) channel “Culture” on 7th April, 2017, but it is not known how many people watched it. But personnel feedback was received by project team via facebook. Documentary is available online in mediateka , where already 427 people watched it online <http://www.lrt.lt/mediateka/irasas/1013667322> . The movie is used in other events as well, e.g. it was presented during presentation of the book about Aukstumala in Vilnius and Nemunas Delta, during Final seminar, used in presentations in other conferences.

5.2.2.9. Action E9. Best practice guidelines

Start 01/07/2016; end 31/12/2016, revised 31/03/2017 approved with the CL of 31/01/2017), implementation date 31/05/2017

Deliverable/milestone	Original deadline	Revised deadline	Actual/expected implementation	Implementation status
Deliverable				
Best practice guidelines about protection of raised peat bogs	31/12/2016	31/03/2017	31/05/2017	Completed
Milestone				
Publishment of best practices guidelines	28/02/2017	31/12/2016	31/05/2017	Completed

The result: Best practice produced by the end of the project and printed in 100 copies.

LFN was responsible for this action.

The deadline was postponed with the Inception report and later with the Progress report. Best practice was produced at the very end of the project before the final seminar. The publication presents C actions, damming techniques, forest clearing, monitoring of hydrology and biodiversity, and effects on the project site, therefore it was produced so lately. The last monitoring on biodiversity was done in May, therefore delayed production of publication presented more findings, than it would do if produced by foreseen deadline.

Brochure has 24 pages, it was produced in 100 copies and distributed during the final seminar, the rest of copies serve in further communication in ongoing LIFE Peat restore project. The brochure attached as annex D-3. The pdf version is placed on the website www.aukstumala.lt

5.2.2.10. Action E10. Layman's report

Start 01/07/2016; end 31/12/2016, revised 31/03/2017 approved with the CL of 31/01/2017), implementation date 31/05/2017

Deliverable/milestone	Original deadline	Revised deadline	Actual/expected implementation	Implementation status
deliverable				
Project's Layman's report published	31/12/2016	31/12/2016	31/05/2017	Completed
Milestone				
Publishment of Layman's report	31/12/2016	31/12/2016	31/05/2017	Completed

The result: Layman's report produced by the end of the project and printed in 100 copies.

Layman's report was produced at the very end of the project before the final seminar. The publication presents C actions, damming techniques, forest clearing, monitoring of hydrology and biodiversity, and effects on the project site, in very simple way as it is targeted at general public. Many pictures and schemes help to understand the idea of restoration of the bog.

Brochure has 12 pages, it was printed in 100 copies and distributed during the final seminar, the rest of copies serve in further communication in ongoing LIFE Peat restore project. The report attached as annex D-4. Also all publications are available on www.aukstumala.lt downloadable materials.

5.2.2.11. Action F1. Project management

Start 01/07/2013; end 30/06/2017, revised 30/06/2017, implementation date 30/06/2017

Milestone/ deliverable	Original deadline	Revised deadline	Actual/expected implementation	Implementation status
project management team set up	30/09/2013	30/09/2013	30/09/2013	completed
Steering committee set up	30/09/2013	30/09/2013	30/09/2013	completed

The result: project management team set up by all ABs, steering committee set up. Management carried until the end of the project.

Project management was organised as foreseen in GA with updates due to different reasons, e.g. leaving persons. Project management structure was set in a way, to ensure smooth communication and delegation of responsibilities of tasks. All personnel was foreseen in the project and needed to fulfil outstanding tasks to reach the projects' objective. The only AC had unforeseen personnel of temporary hired hydrologist Nils Riis, and forest manager K.Graubaek, who were needed to advise and consult on best practice management actions in the site.

The reports were submitted according to the schedule: the actual submission (as foreseen in GA):

Inception report: 31/03/2014 (31/03/2014)

Midterm Report – 12/11/2015 (01/08/2016)

Progress Report 17/10/2016 (30/09/2016)

Members of Steering committee were selected and nominated in October 2013; later on the list of members was corrected twice due to different personnel issues, e.g. change of jobs, cancelling the wish to be within SC and similar reasons. The SC consisted of representatives from the stakeholders, related directly to supervision and responsible management of the site like NDRP, State Service for Protected Areas, other stakeholders like forest manager Silute Forestry Enterprise (SFE),

JSC Klasmann-Deilmann Silute, experts from other protected areas. Members of Steering committee meet once a year, the protocols of the meetings were attached with PR.

Costs of personnel increased by 19 852 € due to higher load of work, which was not possible to predict in GA due to external reasons, e.g. prolonged processes in management plan approval A1, timber purchase issues C3, which resulted in modification of the project, more efforts in public awareness, e.g. construction of educational trail E6, preparation of publications e5, especially translation of the Monograph of dr.C.A.Weber.

5.2.2.12. Action F2. Audit

Start 01/10/2014; end 31/12/2016, revised 31/10/2016, implementation date 30/09/2017

Milestone	Original deadline	Revised deadline	Actual/expected implementation	Implementation status
Project midterm audit performed	31/01/2015	31/01/2015	31/01/2015	completed
Final audit performed	31/10/2016	31/10/2016	30/09/2017	completed

The result: the audit procedures performed, audit report ready.

Audit company UAB Audito laikas has been nominated as the winner of the tender. The contract No.LGF-A-1 was signed on 02/03/2015. Audit procedures were completed after the end of the project within Jul-Sept, 2017. Therefore, the implementation date is Sept, 2017, but in Oct, 2016 as planned in GA. The report in both languages Lithuanian and English is attached as Annex 24.

Mid term audit was performed by UAB Audito laikas in 2015 as it was needed to declare part of the costs to the co-financier (Environmental Projects Management Agency), but is not direct costs, therefore they are not declared in the report.

5.2.2.13. Action F3. After life strategy

Start 01/04/2016; end 31/12/2016, revised **31/12/2016**, implementation date 02/10/2017

Deliverable	Original deadline	Revised deadline	Actual/expected implementation	Implementation status
After Life strategy	31/12/2016	31/12/2016	02/10/2017	Completed

The process of development of the plan started in spring, 2016. It was finished by 2nd Oct, 2017 after the final agreement was signed with stakeholders.

The plan has been discussed with stakeholders and Steering committee, especially escalating further ownership and maintenance of dams. The main responsible body for the supervision of the project site is the NDRP as it is according to their status. Therefore, they will be responsible for monitoring actions (water level and vegetation monitoring), as well as supervision of dams, especially large dams (C2) since they belong to the park as long term asset. Other bodies bearing responsibilities include Silute State Forestry, which will take care about cutting the regrowth.

The agreement was signed with UAB Klasmann-Deilmann Silute, which agreed to contribute to the maintenance of dams, especially 15 large dams, built on main collective ditches, adjacent to peat mining fields. Other financial sources include The plan is valid for at least 10 years.

5.2.2.14. Action F4. Networking with other projects

Start 01/01/2014; end 30/06/2016, revised --, implemented 02/06/2017

Milestone/	Original deadline	Revised deadline	Actual/expected implementation	Implementation status
No milestones	30/06/2016	30/06/2016	02/06/2017	Completed

The result: networking was done by making contacts with other bog restoration projects.

LFN was responsible for implementation of this action.

Networking with other projects as well as institutions was ongoing in entire project duration. Networking in fact is divided between actions A4, E3, E4 and F4 since implementation of these actions was closely connected to experience learning and communication with experts or project managers, e.g. inviting as speakers to the workshops E4., visiting E3, asking advices and consultations A4 or networking F4 for further projects. Staff of LFN, NDRP and AC attended most of networking events, mainly LFN and AC did most of networking.

The following Life projects were in contact and cooperation for certain actions:

A4+E3:

- Denmark: LIFE08 NAT/DK/000466 Rerabog “Inovative methods of wetland restoration in Denmark”; LIFE10NAT/DK/000102 “Restoration of Lille Vildmose”.
- Estonia: LIFE14 NAT/EE/000126 “Mires Conservation and Restoration of Mire Habitats”.
- UK: Cumbria Bog LIFE LIFE13 NAT/UK/000443 “Restoration of degraded lowland raised bogs on three Cumbrian SCI/SACs”; NAT/UK/007078, Border Mires LIFE98 NAT/UK/005432.

E4

final seminar organised in cooperation with Life project Tyruliai-Life LIFE12 NAT/LT/001186 Demonstrative restoration of the Tyruliai bog as a part of the initiative of the re-wetting of Lithuanian peatlands”.

F4 (also A4 and E3 as poster was presented)

Sweden: “Restoring drained and overgrowing wetlands” of the LIFE + project LIFE08 NAT/S/000268 Life to ad(d)mire ,

List of deliverables

D-1 E5 Aukstumala book “Aukstumala: Past, Present and Dreams”, 1 pcs

D-2 E8 Documentary of the project “Aukstumala is back to Life”

D-3 E9 Best Practice, 1 pcs

D-4 E10 Laymans’ report

D-5 The pictures in digital format (jpg) for all actions (divided by subfolders).

5.3 Evaluation of Project Implementation

All planned project activities were implemented and project objectives have been reached. However, deadlines for most of actions were reached later than planned, because implementation of the activities were shifted to the “buffer time”, which was foreseen during revision phase of application. Originally the end of the project was foreseen by 31/12/2016, but later “buffer” of half year added until 30/06/2017. This was very positive for the project because delay of the approval of MP caused serious delay in implementation of C actions, therefore building of big dams C2 and loading cleared timber into ditches C3 was completed in Jan, 2017. Accordingly, all other activities, related to C actions, e.g. D and E were shifted to spring, 2017. Monitoring (D1 and D2) were repeated in spring, 2017 to assess the impact of project actions. Also, publications of best practice and Layman’s report (E9 and E10) were published in the end of the project after all C actions were completed.

The potential conflict between forestry and nature conservation has not been identified and mentioned among the risks related to project implementation in GA. Although the local Forestry, which is the actual owner of the forest, was contacted from the very beginning of the project in forest clearing issues, it does not help to agree the MP in time since the conflict between nature conservation and forestry management had to be solved on higher political level. Therefore, politicians from MoE and forestry institutions were addressed by involvement into discussion followed by project workshops and meetings (E4). As a result, the approval of the MP was delayed almost by one year, but without active communication the MP could be delayed even more.

Gathering of experts and visits to other Life projects provided sufficient knowledge on dam building techniques. Chosen method by clearing the forest and raising water table was the best available method to restore the bog. Water table was successfully raised by instalment of peat and plastic dams, also mixed dams on collective ditches. Therefore, such practice was proofed as successful. However, supervision of project site will show if any problems will arise. For that reason, reparation of dams (if needed) was secured by After Life conservation plan, where local stakeholders, e.g. JSC Klasmann-Deilmann is involved.

Monitoring methods were satisfactory. In such a short time it was possible to estimate positive impacts of project actions on the bog: significant increase of water table, changes in vegetation cover in favour for raised bog species, increased number of bird species and invertebrates, typical for raised bogs. However, long term processes, e.g. conversion of degraded habitats into active raised bogs will take much longer, that will be followed by monitoring according to MP and After Life plan.

Public awareness and educational activities supported the project. Many institutions and decision makers, especially in forestry sector, had a lack of knowledge and understanding of bog conservation benefits. Therefore, workshops, study tours and publications helped to distribute gained knowledge to experts and specialists. General public was approached by renovation of education path, publications, excursions to the bog, wide range of articles in mass media.

The project partners are chosen correctly. NDRP is a local administration of Nemunas delta regional Park, located close to the project site. Therefore, it is easier to coordinate project actions and solve the problems. Moreover, the park administration will be responsible for continuing monitoring according to the Management Plan and After Life Plan. AC has specific knowledge on nature restoration project. They gathered experts, experienced in nature management, therefore, their knowledge was used to monitor and evaluate the site and design the management actions.

Actions were implemented by choosing most cost-efficient methods, e.g. organizing tenders to collect best offers, combining multiple purposes into one trip, chossing phone calls or skype meetings instead of travel, purchasing goods and service before hand.

The tasks and achieved results are presented in table No. 5.3.1.

Table No.5.3.1. Tasks and achievements.

Task	Foreseen in the revised proposal	Achieved	Evaluation
Restore and ensure favourable conservation status of active raised bogs			
Damming of small and main ditches	10 km of main ditches blocked	Completed, 15 km	Dam building is the most important measure to restore the bog. Dam construction using peat dams, plastic pile sheets and timber helped to stop water outflow from the bog. Water level was raised from 5 to 35 cm higher in comparison to the situation before the project; untypical species: heather (<i>Calluna vulgaris</i>) coverage in monitoring plots decreased by 20 -25 % in 2014-2017.
	70 km of small ditches blocked	Completed, 85 km	
Clear forest in overgrowing high moor	100 ha of forest cleared	Completed 105ha	Forest clearing is the second important measure to restore the bog. Trees evaporate huge amount of water; therefore trees must be removed from the area, also, they disturb construction of dams, because they are hardly accessible. Cut timber was put into ditches, supporting constructed dams. Such management was done in many projects (Life to admire, Lille Vildmose etc.) .
Coherent and comprehensive monitoring	2 biodiversity monitoring reports, hydrological monitoring ongoing	Completed, 3 biodiversity reports, 4 hydrological reports	Monitoring methods are the most appropriate to measure the effects of actions in a short period.
Raise expert and public awareness about wetland ecosystems			
Various experience exchange meetings, workshops	1 expert group established, 2 study tours, 2 workshops	The expert group established, active exchange ongoing, 2 study tours organised, 2 workshops and final seminar organised.	Chosen methods to raise awareness of public and specialists from state institutions, are correct and promising. However more efforts must be made to change attitude towards benefits of wetland conservation. Active cooperation with experts from Baltic states, Poland and Germany and Denmark was organised, other managed sites visited.
Training the nature guides	15 guides trained, 4 excursions organised	15 local guides trained, 4 excursions organised	Local guides are trained, and official certificates obtained. 4 excursions organised, the last 2 excursions in 2016 and 2017 attracted more than 200 people each.
Dissemination actions to raise the awareness of locals	1 Website, 3 notice (information) boards, 1 exhibition, 4 publications, 1 educational trail	1 Website created, 3 boards erected, 1 exhibition installed, 6 publications printed (leaflet, poster, Monograph, book about Aukstumala, Best practice and Layman's report, 1 education trail renovated	Translation of Veber Monography as the first in the world scientific book about bogs was huge event for the scientific audience and students. Totally, 6 publications provided information and knowledge about peatland conservation and restoration for experts as well as to general public. Printed materials and online staff is available to wide audience, that increased public awareness. After reconstruction of educational trail better access to the bog was provided for tourists,

			therefore, visiting of the bog on guided path was increased.
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5.4 Analysis of long-term benefits

1. Environmental benefits

a. *Direct / quantitative environmental benefits*

The project contributed to better conservation status of the telmological reserve in 1017 ha area by installing dams around whole perimeter of the bog. Then, project managed to improve conditions for regeneration of active raised bog in 66 ha of former degraded bog, additionally 25 ha of former non-habitat area became capable to regenerate into active raised bog (restored water level and removed vegetation).

b. *Relevance for environmentally significant issues or policy areas (e.g. industries/sectors with significant environmental impact, consistency with 6th or 7th (as applicable) EU Environment Action Programme and/or important environmental principles, relevance to the EU legislative framework (directives, policy development, etc.)*

The project has a relevance to implementation of Habitat directive and securing favourable conservation status of Natura 2000 sites. The project initiated discussion on *Natura 2000* site management in regard to contradictory laws on Forestry and Conservation of habitats and species. This is long term conflict since majority of wetlands are managed by foresters as a woodland, therefore all wetlands are managed according to Forestry management plans. The measures foreseen in *Natura 2000* site Management plan have to be incorporated into Forestry management plan, but the problem is that Forestry management aims at intensive forestry, therefore all cleared sites have to replanted, unless the forest (site) is unfavorable for forestry, e.g too wet. That's the only exception to avoid afforestation and leave open habitats within the bog, which according to foresters is a "woodland". Considerations of Habitats directive are not respected when planning forestry. Therefore, discussion is ongoing, which has to result in changing the Law of Forestry.

New LIFE PEAT Restore project also has a task to improve legal situation towards management of afforested land in peatlands. For that reason, the update of Lithuanian wetland database is ongoing, which will provide insight view of wetlands management countrywide, for example how much of protected bogs are used for forestry. That will serve as a background for further evaluation of proposals on improvement of legislation.

2. Long-term benefits and sustainability

a. Long-term / qualitative environmental benefits

NDRP and SFE will be the main bodies, which will ensure sustainability of the project. They are legally responsible for the management and supervision of protected sites and maintenance of site, e.g. implementation of MP: repeated cutting and monitoring. Additionally, JSC Klasmann-Deilmann is included into After Life conservation plan to contribute on maintenance of dams. Proper maintenance of dams and repeated cutting will contribute to restoring and maintaining the favourable conservation status of the '7110 Active Raised bog' habitat, '3160 natural dystrophic lakes' habitat and the following species:

birds: Black grouse (*Tetrao urogallus*), Common crane (*Grus grus*), Corncrake (*Crex crex*), Golden plover (*Pluvialis apricaria*), Wood sandpiper (*Tringa glareola*); Amphibians: Moor frog (*Rana*

arvalis), Pool frog (*Pelophylax lessonae*); Insects: *Leucorrhinia pectoralis*, *Leucorrhinia albifrons*, *Leucorrhinia caudalis*, *Graphoderus bilineatus*.

b. Long-term / qualitative economic benefits (e.g. long-term cost savings and/or business opportunities with new technology etc., regional development, cost reductions or revenues in other sectors)

We hope that Nemunas delta region will develop in environmentally friendly way. Tourism is a sector, which has enormous potential due to geographic location of delta, its history and nature. Therefore, nature guides were trained for giving excursions for tourists, who come to visit delta. Reconstructed educational path and notice boards will increase public awareness and attract more tourists from Lithuania and abroad. The region largely depends on industry like peat mining, but local people shall understand that pristine huge raised bog shall contribute to region's economy as well.

c. Long-term / qualitative social benefits (e.g. positive effects on employment, health, ethnic integration, equality and other socio-economic impact etc.)

Local companies, e.g. UAB Silutes polderiai, E.Rauktys forest clearing company, UAB Simno melioracija (another region of Lithuania, but still it comes from countryside), were employed in performance of project activities, e.g. renovation of educational trail, dam instalment, forest clearing, thus, the project contributed to local economy. Workshops were organised in local tourism facilities, including meals, services etc. It was found out when performing socio-economic assessment, that investment of 733 € /ha (total project value/ restored area 1000 ha), generated much bigger feedback of eco-system services, resulting in at least 5000 €/ha.

d. Continuation of the project actions by the beneficiary or by other stakeholders.

NDRP, SFE (after the Forestry reform it will be new body called "State Forestry") and JSC Klasmann-Deilmann Silute will continue maintenance of infrastructure, built during the project. NDRP and SFE are responsible for maintenance according to the management plan while Klasmann-Deilmann Silute signed the trilateral agreement on management in the bog, which is part of After Life conservation plan.

3. Replicability of the project.

Such project serves as a good example for other sites, therefore we expect that other protected site administrations will be interested to visit the project site and learn restoration techniques, particularly the concept of dam construction and construction techniques. Other engineering companies, melioration specialists visited the bog (in autumn 2016) to see the results. Also, the sellers of plastic materials visited the bog to prove that plastic pile sheets are functioning. Construction of educational trail might be of some interest because to our knowledge it is first trail, which is combined of plastic and wood.

4. Best Practice

Best practice is used in building the dams. The best material to be used in bogs is peat, but peat dams must be built in correct way . Project team was learning the experiences from other projects and own mistakes. However technical plans for dam instalment are made by engineers, who not always have

the same knowledge in bog restoration as project team or restoration experts own. Therefore, bringing best practice to the head of engineers is also a challenge.

Beside peat dams, plastic pile sheets were used for installment. They are specific for Lithuania tested in several locations, thus, proving as reliable solution, especially in bigger ditches with high water debit. Other countries (Latvia, Estonia) use only wood, and peat, also geotextile. But in high water time, they are destroyed. In our opinion, plastic pile sheets dams are better not only in reliability but also in cost efficiency. Such dams are built faster than huge rather complicate construction of peat, wood and geotextile. Of course, plastic is artificial material, it should be substituted at least with recycled materials, but it is question of available budgets.

5. Innovation and demonstration value.

C actions were based on best practice and demonstration. Methods of installment of dams, forest clearing were used in other Life projects. Construction of educational path is innovative as plastic and wood are used together to avoid fast decay of wood. Also, management of wood in the bog is some sort of new approach. Timber was left in the bog by filling in ditches, helping sphagnum to colonize the ditches and remove the fragmentation of micro relief.

6. Long term indicators of the project success

The long term indicator is the 10-20% increase of area of raised bogs according to the habitat indicators (vegetation type, cover, hydrology). Thus, monitoring in 2017 on biodiversity and hydrology provided data on the success of restoration: water level increase, sphagnum growth, increase in breeding bog bird species. Further monitoring on water level and vegetation changes should prove stable increased water level not lower than 20 cm to the surface of the bog, and disappearance of untypical plant species like *Caluna vulgaris*.

6. Comments on the financial report

6.1. Summary of Costs Incurred

PROJECT COSTS INCURRED			
Cost category	Budget according to the amendment No.1. , €	Costs incurred within the project duration, €	%
1. Personnel	201 355	221 207,65	109,86 %
2. Travel	82419	72 745,83	88,26 %
3. External assistance	234 046	255 293,02	109,08 %
4. Durables: total <u>non-depreciated</u> cost			
- <i>Infrastructure sub-tot.</i>	89 082	84 081,83	94,39%
- <i>Equipment sub-tot.</i>	2300	2136,69	92,87%
- <i>Prototypes sub-tot.</i>		0	
5. Consumables	71 168	72 807,57	102,3%
6. Other costs	4750	6 120,81	128,84 %
7. Overheads	47 957	29168,22	60,82%
TOTAL	733 077	743 560,62	101,42 %

Comments on categories:

Totally **743 560,62 €** spent, which is 101,42 % of the total budget foreseen in GA. The total amount was exceeded by 10483,62€. The budget was modified by modification request, agreed by EC on 14th June, 2017.

The budget has been changed between ABs by adjustments to partner agreements. The table below represents the comparison between planned budget in GA and actual expenditure.

Original budget

PARTNER	Personnel (Budget)	Travel and subsistence (Budget)	External assistance (Budget)	Infrastructure (Budget)	Equip-ment (Budget)	Consumables (Budget)	Other costs (Budget)	Overhead (Budget)	TOTAL (BUDGET)
LFN	66 830	49 085	228 046	31 697	2 300	71 168	4 750	31 771	485 647

AC	121 895	24 804	0					10 268	156 967
NDRP	12 630	8 530	6 000	57 385	0	0	0	5 918	90 463
TOTAL	201 355	82 419	234 046	89 082	2 300	71 168	4 750	47 957	733 077

Changed budget

PARTNER	Personnel (Executed)	Travel and subsistence (Executed)	External assistance (Executed)	Infrastructure (Executed)	Equipment (Executed)	Consumables (Executed)	Other costs (Executed)	Overhead (Executed)	TOTAL (EXECUTED)
LFN	110 747,30	52 027,19	239 015,27	31 697,00	1 152,69	72 656,84	4 689,21	15 000,00	526 986
AC	103 035,80	17 656,40	6 810,87					8 925,22	136 428
NDRP	7 424,85	3 062,24	9 466,88	52 384,83	983,00	150,73	1 431,60	5 243,00	80 147
TOTAL	221 207,95	72 745,83	255 293,02	84 081,83	2 135,69	72 807,57	6 120,81	29 168,22	743 560,92

The budgets have been changed for both beneficiaries, AC has decreased budget by 20539 €, mainly due to reallocated personnel from AC budget to LFN, e.g. Zydrunas Sinkevicius as technical assistant was supposed be part of AC (as local expert planned under C actions), but ABs decided to employ it as staff of LFN due to easier employment procedures and work place located in Lithuania, planned expenses were 21600 €. Budget of NDRP decreased by 10316 € eur due to higher costs of educational trail reconstruction E6 under infrastructure: increase from 31 889 € to 52 385 € as it was indicated in modification request.

Personnel – 109 % consumed, planned in GA 201 355 €, spent 221 207,65, exceeded by 19 852 € used more than planned due to higher work load since most of actions extended into the I and II quarter of 2017 instead of planned deadlines in the end of 2016. The extension was caused by external institutions, e.g. one year delayed approval of management action A1, which required extra meetings, letters and personnel time, more dams built than planned in C1 and C2 therefore more time was taken to supervision of the works, more time needed for manual measuring of water level in D2.

More personnel used by LFN as the total cost in GA was 66 830 €, spent 110 747,25 €, exceeded by 43 917,25 € due to fulfillment of more tasks than planned according to distribution of tasks in GA. Therefore, the reallocation of personnel between AB has been made, e.g. translocation of personnel between AC and LFN. Also, NDRP spent less on personnel: total cost in GA was 12 630 €, spent 7424, 55 €, decreased by 5 205,45 € since some actions did not cost so much as planned, e.g. 1000 € planned for hydrological monitoring D2 while only 229,73 € was paid as the NDRP managed to do the task with less resources.

The daily rates foreseen in GA and actually incurred in most cases were bellow foreseen rates and did not increase by more than 10% of majority of employees except the case for Lina Meskauskiene, project financial manager of LFN, in 2015 she left the job getting payment of accumulated vacation for last year. That's why daily rate has been increased. The daily rate for the accountant of Asta Augustiniene from NDRP was higher than planned (91,76 € vs.45 €) but she was hired in Jun, 2017, after the former accountant Grazina Silinskiene left, and new rates for new employed at NDRP has been applied.

Clarification on personnel for LFN and NDRP: the column E2 indicates annual obligatory charges 30,98% paid by the employer. This amount includes social security, health insurance and pension

payment together, that's why column E3 annual pension contribution is empty as it is impossible to distinguish these amounts.

Travel: 88,26 % used. Total cost in GA was 82 419 €, spent 72 745,83 €, spent less by 9 673.17 € due to less money since most of trips to project sites foreseen under different actions, have been combined when travelling. Several purposes have included into trips, thus, saving time and resources.

Clarification on Reimbursement of travel costs:

Actual travel costs are reimbursed from LFN and NDRP according to national regulations. In Lithuania travel rules are set by Lithuanian Government act No. 99 of 28-01-2003, which regulate compensation for travel expenses. These rules set the following procedure to be completed by employer:

- Order of appointment before travel.
- Travel sheet to be filled in after the travel, corresponding fuel invoices must be attached;
- Other invoices, documenting incurred costs: accommodation, car rent, bus ticket etc. including proofs of payment;
- Per diem;
- Accountancy sheet, where all expenditures are summed up;
- Other related documentation, e.g. car rent contract.

Thus, in Lithuania only actual incurred costs are reimbursed. In Denmark all travel costs (gasoline, car rent, food, accommodation etc.) are reimbursed for employees while per diem is not paid. However if travelled by private car, reimbursement is calculated on the basis of driving book and the km-rate (fixed by national tax authority).

External: 109,08 % used. Total cost in GA was 234 046€, spent 255 293,02€, spent more by 21 247.02 € due to slightly exceeded costs for E5 publications, forest clearing C3.

Tender procedures

External services were purchased throughout tender procedures, which are represented by Purchasing bodies and Non purchasing bodies. It means that state budget institution NDRP is purchasing bodies, therefore their tenders are organised according to the Law on public procurement. LFN and AC are non purchasing bodies, which have their own approved public tender rules.

NDRP has tender rules approved on 12/02/2015 by order of No.V1-11. The rules say that:

- Up to 3000 € the tender might be carried questioning orally
- Up to 5800 € the tender has to be carried in written form asking at least one subcontractor
- Up to 43500 € the tender has to be carried in written form asking at least three subcontractors
- Above the 43500 open tender must be organised.

The rules have been submitted with MTR.

LFN has approved in 2005 the simplified rules of commercial practice, meaning that it follows negotiated procedure when choosing subcontractor. Under this procedure LFN as the contracting authority selects potential contractors either by oral (up to 20 000 Lt (5792 €) for service and goods and up to 30 000 Lt (8688 €) for works) or written procedure (more than 20 000 Lt (5792 €) for service and goods and more than 30 000 Lt (8688 €) for works). The selection form is filled in,

where winner is indicated. Since 2012 LFN follows the order of minister of MoE for non purchasing organisations, e.g. open tender is required by announcing it in newspaper for goods and services for more than 50 000 Lt (14 481 €) and for works more than 500 000 Lt (144 810 €). The rules have been submitted with MtR.

All tender procedures were organized as required by the tender rules, except one case: Film preparation purchase by LFN. The direct treaty was made with the film maker Eugenijus Ostasenkovas, who did filming in Aukstumala for more than 10 years, and has video materials about the bog. He also has good knowledge about the area. That's why negotiation was carried out with him. The price based on previous LFN experiences on film making and did not exceed the amount planned in GA (spent 16 281.99 € vs. 20 000 € planned).

Infrastructure: 94,39 % used. Total cost in GA was 89 082 €, spent 84 081,83€, spent less by 5 000,17 €.

Infrastructure was registered in long term assets of the ABs, e.g. education path of 52 384.83 € under the assets of NDRP, 15 large dams of 31 697.00 € under the assets of LFN (in 2017 handed over to NDRP), which consist of plastic pile sheets and works, used for installment of dams.

Equipment: 92,87 % used. Total cost in GA was 2300 €, spent 2136,69 €, spent less by 164.31 €. 2 laptops have purchased (1 for NDRP, 1 for LFN) for hydrological monitoring D2, project management F1 and other activities.

Consumable: 102,3 % used. Total cost in GA was 71 168 €, spent 72 807,57 €, spent more by 1 639.57 €. The modification of budget was based on changes within this category due to unforeseen compensation of timber (C3) and reallocation of materials, e.g. plastic pile sheets, from Infrastructure to Consumables according to their nature (most of plastic as used for small dams, which were not included into long term assets). In GA initially it was no costs foreseen for consumables.

Other: 128,84 % used. Total cost in GA was 4750 €, spent 6 120,81€, spent 1 370,81 € more due to NDRP expenses (1 431.60 €) on catering costs for events (E4): celebration of Earth day, presentation of project publications, opening of the path .

OH: flat rate applied. Direct costs of the project spent 714 392.29 €, in GA planned 685 120,00 € , which is 29 272.29 € above planned direct costs. Therefore 29168 € of OH declared (4.05 % of direct costs).

6.2. Accounting system

– Brief presentation of the accounting system(s) employed and the code(s) identifying the project costs in the analytical accounting system,

The accounting system in LFN is based on special project account number 342241 used in internal book keeping. All costs related to this project are registered under this account. LFN has separate bank account for this project. However some costs, e.g. salaries are paid from main account, and later divided in internal book keeping system into different projects.

NDRP uses similar system, when all costs of the project have a special account number in internal book keeping. The name “Projektai” in 2014 was used to dedicate costs to the project. In 2015 the name was changed into “Life projektas”.

AC has cost center no.965, where all costs are prescribed to this project.

– **Brief presentation of the procedure of approving costs**

LFN: project manager checks and approves all expenditures after consultation with projects financial manager. Approved costs are delivered to the executive director of LFN for final approval. Approved costs are submitted to the accountant who assigns the right account number and performs payment. Director controls and confirms the payment.

NDRP: local project specialist collects the invoices/or they are delivered by local specialists. Director approves and delivers them to the accountant, who assigns them to the right programme in the accounting software and performs payment.

AC: All invoices related to the project are checked by desk officers responsible for an order. They are confirming payment of invoices as well as assigning invoices to the right project cost-centre.

– **the type of time recording system used, i.e. electronic or manually completed timesheets**

Time worked on the LIFE Aukstumala project was identified and noted on the project time sheets, prepared specifically for the recording working time on the aukstumala project. The excel sheets were filled in by staff member in excel sheet digitally every day, then printed and signed. The instruction on time sheet filling and validations were sent to projects ABs as advised in the EC letter of 24/03/2014.

From the Sept, 2016, LFN started to use electronic time registration system, employed by another Life project Life Peat Restore. In any case the employees who filled the paper format continued to do it simultaneously with new system. But employees who started to fill in the timesheets, e.g. Zydrunas Sinkevicius use only new system of time registry by filling in and signing it electronically (before Life Peat restore Zydrunas used to work only for Life Aukstumala).

– **Brief presentation of the registration, submission and approval procedure/routines of the time registration system**

Daily devotion of the time on tasks related to the different projects was registered on daily basis by a worker. In case of absence, i.e. travel, sickness etc. staff member next working day filled in the time sheet. The working hours were typed into the LIFE aukstumala project time sheet every day. Since 2012 LFN and AC registered working time in one LIFE projects time sheet, where all LIFE projects are listed. At the end of the month the time sheet was printed and signed by staff member and submitted to the local project manager/the director of organisation for approval. The approval was made the same or next working day in case of absence. The same procedure of time registration is performed by NDRP: all employees fill in the time sheet every day, and signed at the end of the month or beginning of next month. At the beginning of the project local manager Aurelija Jakstaite signed the time sheets only by herself, but it was improved and all time sheets are validated by at least two persons.

– **Brief explanation how it is ensured that invoices contain a clear reference to the LIFE+ project showing how invoices are marked in order to show the link to the LIFE+ project.**

All beneficiaries assure proper allocation of expenses to different projects co-financed by EU following procedures were put in place:

- reference to the life Aukstumala project is written on bills/invoices, the stamp indicating Life aukstumala LIFE12NAT/LT/000965. It was wrongly used in the beginning when only number of the project was used. Now entire acronyms are used.
- expenses are book- kept on accounts (LFN) or cost- centre (AC, NDRP) assigned to the respective project.
- control and approval of invoices and financial reports by responsible staff members to confirm proper allocation of costs;

6.3. Partnership arrangements.

Partnership agreements were submitted with Inception report. The agreements with NDRP and AC were corrected as requested in EU letter of 24/03/2014 adding more frequent reporting at least every quarter, also mistakes were removed from the text of the agreement with NDRP. Partner agreements were adjusted within project duration changing the reallocation of budgets. Transactions of financial support to partners are usually made according to the time table set in the agreement, e.g. twice in the whole period. Project manager evaluates the report and confirms/ asks for additional information.

6.4. Auditor's report/declaration

UAB Audito laikas was nominated for the audit. the report was prepared at the end of the project. The report in both languages Lithuanian and English is attached as Annex 24.

6.5 Summary of costs per action.

The table below presents an allocation of the costs incurred per action

Table. Division of costs according to actions.

Acti on no.	Short name of action	1. Personnel	2. Travel and subsistence	3. External assistance	4.a Infra-structure	4.b Equip-ment	6. Consumables	7. Other costs	TOTAL
A1	management plan	13 762,77	587,81	24 188,07					38 538,66
A2	Technical preparation	6 018,21	134,88	28 410,19					34 563,28
A3	EIA procedure	293,39							293,39
A4	expert group	4 990,91	3 213,63						8 204,54
C1	Blocking of small ditches	7004,43	3 526,39	56 680,03			71 051,72		138262,57
C2	Blocking of main ditches	5723,53	359,69	1 939,35	31 697,00		0,00		39719,57
C3	Removal of vegetation	5 554,44	1 108,85	80 818,34			0,00		87 481,63

D1	Monitoring of biodiversity	31 767,55	6 785,57						38 553,12
D2	Hydrological monitoring	2 882,40	1 339,31			2 135,69	116,19		6 473,59
D3	socio-economic	464,56							464,56
E1	Project website	7 723,42		1 710,93					9 434,35
E2	notice boards	688,88		990,24					1 679,12
E3	Study tours	10 406,95	26 362,95	90,00				829,11	37 689,00
E4	workshops	8 769,92	16 159,42	2 067,88			1 488,93	4 052,18	32 538,33
E5	Informational material	7876,93	437,91	27 692,31				917,00	36924,15
E6	educational trail	6448,76	980,06	2 377,65	52 384,83				62191,30
E7	Nature guides	2 038,42	373,58	4 359,73	0,00		51,04		6 822,78
E8	educational film	2 739,18	44,10	16 281,99			99,69		19 164,96
E9	Best practice	2 509,84	488,47	383,00					3 381,31
E10	Layman's report	1 618,69	0,00	294,30					1 912,99
F1	Project management	86 604,03	8 861,46					322,53	95 788,01
F2	Audit	1 512,41	0,00	7 009,00					8 521,41
F3	After life	0							0
F4	Networking	3 807,92	1 981,75						5 789,67
Over-heads									29168,22
TOTAL		221 207,54	72 745,83	255 293,02	84 081,83	2 135,69	72 807,57	6 120,81	743 560,51

Comments on discrepancies between actions

action	Name of action	Planned in GA	Spent	Difference (+/-)
A1	management plan	25 095,00	38 538,66	+13 443,66

The increase caused by allocation of more personnel by LFN due to prolonged procedures of plan approval;

action	Name of action	Planned in GA	Spent	Difference (+/-)
A2	Technical preparation	35 580,00	34 563,28	-1 016,72

Used as planned.

action	Name of action	Planned in GA	Spent	Difference (+/-)
A3	EIA procedure	2 201,00	293,39	1 907,61

The EIA procedure was not needed, therefore almost whole budget saved.

action	Name of action	Planned in GA	Spent	Difference (+/-)
A4	expert group	5 592,00	8 204,54	+2 612,54

More travel than planned has been used by AC and LFN on meetings with experts since more intensive communication was done in this action.

action	Name of action	Planned in GA	Spent	Difference (+/-)
C1	Blocking of small ditches	135 087,00	138262,57	+3 175,57

More external used by 6680 €, but less personnel by 3127 € (part of personnel reported under F1. As management if management team went for different purposes to the project site).

action	Name of action	Planned in GA	Spent	Difference (+/-)
C2	Blocking of main ditches	58 526,00	39719,57	-18 806,43

less personnel used for this action by 13376 € (part of personnel reported under F1. As management if management team went for different purposes to the project site, e.g. checking C1-C3+awareness raising).

action	Name of action	Planned in GA	Spent	Difference (+/-)
C3	Removal of vegetation	84 292,00	87 753,55	+3 461,55

Spent as planned in the modified budget: personnel, travel, only external for timber cutting paid by 3461 € more than planned.

action	Name of action	Planned in GA	Spent	Difference (+/-)
D1	Monitoring of biodiversity	22 444,00	38 553,12	+16 109,12

Spent on personnel of AC by more 19 777 € since extra report was produced in 2017.

action	Name of action	Planned in GA	Spent	Difference (+/-)
D2	Hydrological monitoring	11 990,00	6 473,59	-5 516,41

Less travel has been used for this action since trips to project site usually were planned in line with other activities, e.g. on supervision of timber cutting or damming actions. Generally, in this way expenses were saved of local trips by combining them.

action	Name of action	Planned in GA	Spent	Difference (+/-)
D3	socio-economic	5 650,00	464,56	-5 185,44

Main saving incurred in personnel since the report was made by project employee Leonas Jarasius in quit short time.

action	Name of action	Planned in GA	Spent	Difference (+/-)
E1	Project website	3 450,00	9 434,35	+5 984,35

More expenses in personnel due to regular update of the website adding news and information; also more external spent on establishment of website platform (1710 € paid vs. 300 € foreseen).

action	Name of action	Planned in GA	Spent	Difference (+/-)
E2	notice boards	2 390,00	1 679,12	-710,88

Notice boards were installed by lower than planned payment for their production.

action	Name of action	Planned in GA	Spent	Difference (+/-)
E3	Study tours	32 439,00	37 689,00	+5 250,00

More travel has been incurred for travel abroad.

action	Name of action	Planned in GA	Spent	Difference (+/-)
E4	workshops	45 831,00	32 538,33	-13 292,67

Less personnel used by 4480 € and travel less by 13 421 €, more spent on consumables as different staff needed for organizational purposes.

action	Name of action	Planned in GA	Spent	Difference (+/-)
E5	Informational material	24 992,00	36924,15	+11 932,15

More external by 12 292€ has been spent due to bigger work load of preparation of publications, especially C.A.Weber (translation, , proof reading, printing) as well as preparation of other publications but also due to increasing personnel work costs in Lithuania.

action	Name of action	Planned in GA	Spent	Difference (+/-)
E6	educational trail	57 295,00	62191,3	+4 896,30

More personnel by 3959 € used for managing the reconstruction of the trail, preparing the information for the boards, inside the trail.

action	Name of action	Planned in GA	Spent	Difference (+/-)
E7	Nature guides	8 145,00	6 822,78	-1 322,22

Spent as planned in the budget ; less external by 1640 € after tendering the subcontractor for training the guides.

action	Name of action	Planned in GA	Spent	Difference (+/-)
E8	educational film	24 420,00	19 164,96	-5 255,04

External cost less by 3718 € after negotiation procedures with the potential subcontractor.

action	Name of action	Planned in GA	Spent	Difference (+/-)
E9	Best practice	6 524,00	3 381,31	-3 142,69

Less personnel paid for production of the material for the publication, less by 3310 €.

action	Name of action	Planned in GA	Spent	Difference (+/-)
E10	Layman's report	3 392,00	1 912,99	-1 479,01

Less personnel paid for production of the material for the publication, less by 1361€.

action	Name of action	Planned in GA	Spent	Difference (+/-)
F1	Project management	69 922,00	95 788,01	+25 866,01

More personnel spent by 21 954 €, due to higher costs of CA on management (planned 38800 €, spent 53349,59 €), also part of personnel reported under F1. includes other activities, when management team of Ac and LFN went for different purposes to the project site, e.g. checking C1-C3, awareness raising, since it was wise use of time and resources. That's why not all travel has been used by the project.

action	Name of action	Planned in GA	Spent	Difference (+/-)
F2	Audit	14 015,00	8 521,41	-5 493,59

Audit cost less due to lower payment for hiring the audit , less by 4991 € paid than planned.

action	Name of action	Planned in GA	Spent	Difference (+/-)
F3	After life		0	0

After Life plan was prepared as planned in the GA , without no cost charged to the project.

action	Name of action	Planned in GA	Spent	Difference (+/-)
F4	Networking	5 848,00	5 789,67	-58,33

Spent as planned.

Other comments:

The co-financing agreement was signed with the Environmental Project Management Agency, which represents the MoE, on 13/05/2014 No.LIFE12NAT/LT//000965/11. The agreement foresees co-financing of 144100 €; beneficiaries contributed totally 49653,62€: LFN contributed 20 121,27€, AC

– 11 248,30 €, NDRP – 18284,05 €. NDRP in fact contributed more than planned (planned 13 000 €).

VAT

LFN is a VAT payer, but LFN cannot recover VAT in LIFE projects. LFN send an enquiry for the TAX Inspectorate whether VAT can be recovered in Life projects by Lithuanian juridical bodies, which do implement Life projects. The enquiry asked about all LIFE projects, run by LFN and its' partners. Tax inspectorate of Lithuania issued a certificate on VAT on 22 05 2014 No.(32.39-PVM)-RM7966, which confirms that LFN as well as other Lithuanian juridical bodies cannot recover VAT because LIFE projects (LIFE Aukstumala, ECONAT) are not used for their commercial activities. It means they are not a subject of VAT according to the paragraph 58.1. of the VAT law. Therefore, LFN is not able to recover VAT in LIFE projects.

NDRP is not VAT payer, the certificate issued by Tax inspectorate Klaipeda department on 02/05/2015 No.(24.24)-U2-13 confirms, that NDRP is not a VAT payer.

AC is a VAT payer, all costs are declared without VAT.

7. Annexes

7.1 Administrative annexes

no annexes.

7.2 Technical annexes

1. C3 Letter on timber purchase issued by MoE C3
2. A2. Technical plan
3. A2. Adjustment to Technical plan A2
4. A2. The comparison of dams between GA and designed
5. A4. Report on unforeseen travels , A4 and E3.
6. C1-C3, E6 Map of management actions
7. C1-C3 Map of photographing points
8. C1. Pictures of damming before and after
9. C1+C2 Work sheet of supervision
10. C2. Pictures of all big dams+ documentation before and after works
11. C3. Timber cutting pictures
12. D1. Biodiversity report on reptiles, and other
13. D2. Hydrology report D2
14. D3. Socio-economic report D3
15. E1 Google analytics e1
16. E3 Presentation from the UK penrith
17. Agenda, List of participants of the 2nd workshop
18. Agenda, List of participants of the final workshop
19. E5 schedule of photo exposition
20. E6 photos of the trail including burnt part
21. E7 guide excursion photos of the 2016 and 2017 (3rd and 4th excursion)
22. After life plan
23. the Final outcome indicators table
24. Audit report
25. Gant chart
26. Habitat map
27. Publications
28. Responses to issues pending from previous EC letters must be added.

7.3 Dissemination annexes

- D-1 E5 Aukstumala book “Aukstumala: Past, Present and Dreams”, 1 pcs
- D-2 E8 Documentary of the project “Aukstumala is back to Life”
- D-3 E9 Best Practice, 1 pcs
- D-4 E10 Laymans’ report
- D-5 The pictures (all pictures in digital format (jpg) for all actions (divided by subfolders).

8. Financial report and annexes

Annex F - Financial report

Financial annexes (explanation on personnel costs) as part of annex 28 on responses to EC letters.

FIN-1

Fin-2

Fin-3

Fin- 4