



OSAMAT ENV/EE/000227

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Eesti Energia AS

Project: **LIFE+ 09/ENV/000227 OSAMAT** **Dissemination Report**



Tallinn
2016



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EXECUTIVE SUMMARY

OSAMAT project started in the year 2010 and lasted for 6 years until the august 2016. OSAMAT project goals were to demonstrate oils shale ash (OSA) use as a binder material in road construction and disseminate know-how of the pilot sites construction methods, quality control, monitoring, measurements and results. Dissemination strategy and tools were worked out to deliver the project information to the target groups and wider audience in Estonia as well as in Europe. The dissemination actions went along with demonstration activities from the start of the project in 2010 until the end of the project in 2016, including after-LIFE period. The demonstration and dissemination actions were intended to create a significant interest to OSA, deliver the knowledge about OSA as a binder and get acceptance of OSA use as a construction material in civil engineering construction from different target groups and public in general.

The demonstration actions included the pilot roads geotechnical and materials laboratory researches, design of pilot applications with OSA, piloting (construction) and demonstration of OSA use in layer stabilisation and mass-stabilisation in construction of the pilot sections, verification actions to prove OSA technical suitability and control of the possible impacts to the environment.

The variety of different project demonstration actions let us to attract wider audience whom the dissemination actions were directed and spread the information about OSA quality and applications. The different dissemination activities supported us in reaching acceptance of OSA as valuable construction material on the legislative level.

The target audience included:

- the environmental and legislative authorities and the politicians who can remove the obstacles from the effective and extensive use of OSA in civil-engineering purposes;
- the municipalities and road administrations, that need to be aware about the existing alternatives for infrastructure construction involving cost efficiency and environmental benefits;
- the industry that treat the wastes and wish to be encouraged to convert the waste into feasible products;
- the constructors and contractors that need to carry out cost effective and environmentally friendly processes and can do it by applying the ideas and methods of the OSAMAT project;
- the civil-engineering experts or consultants who need to solve different civil-engineering problems and can benefit from the OSAMAT knowledge while planning challenging projects and designing important applications.
- Scientists and educational organizations that combine theoretical and practical results to propose a material development strategy on scientific bases.
- General public to inform about OSA potential and change the perception to OSA from waste to product.



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The dissemination tools used to reach the target audience were the project webpage, notice boards at piloting sites, project activities DVD-presentation, articles in professional magazines, reports, conference papers and oral presentations about the project, a booklet, Layman's report, Dissemination Reports, slides about the project and After-LIFE Communication Plan for After-LIFE communication. The main output of the dissemination action was a production of "Guidelines of OSA use in construction for the European practice", that gives practical recommendations to constructors how to use OSA in road construction. The dissemination activities included also a project presentation at the different conferences, organization of public events with pilot sites visiting and OSAMAT International Conference 2016 with following Workshop.

After -LIFE Commutation Plan envisages the dissemination activities regarding project results presentation at least for two year to promote OSA use in road construction. The dissemination and marketing are going to be part of the normal strategic and marketing business operations in the future.

The Dissemination Report gives an overview of the project dissemination activities, methods, tools and outcomes during the project period 2010-2016. The After - LIFE dissemination actions are presented in After-LIFE Communication Plan (Annex 29) and slides (Annex 27-1, 27-2) attached to the Report.

All the project deliverables, articles, publication, presentation and any other dissemination products overview and detailed information: amount, intended target groups and indicators are presented in [Table 2](#) of the Report.



1 Introduction

1.2 Dissemination strategy, tools and deliverables as quantitative indicator

The dissemination deliverables, methods and tools specified in the following chapters have been targeted to achieve an efficient and challenging spread of new knowledge. The major focus of the dissemination program was to ensure that the project's objectives, piloting activities and demonstration outcomes were widely disseminated to the appropriate target communities, at appropriate times, via appropriate methods, and that those who can contribute to development, evaluation, uptake and exploitation of the outcomes could be identified and encouraged to promote OSA usage.

Dissemination activities started from the first month of the project (in the year 2010) and were updated based on project developments until the end of the project in the year 2016.

OSAMAT project dissemination concept was based on two strategies and the following dissemination tools:

1. creation the project identity and stimulation of the awareness about the project (website, notice boards, slide presentations press releases);
2. dissemination of the project activities and results (DVD presentation, articles in professional magazines and conference papers, booklets, posters, presentations at the conferences, public events, Layman's report, Dissemination Report, Guidelines for European practice, International Conference and Workshop, After-LIFE Communication Plan and slides).

The deliverables of the project presented in the table 1 served as a quantitative indicator for the dissemination actions.

Table 1. Deliverables of OSAMAT project.

Deliverable	Amount, it
Press releases	4
Articles in a professional and national magazines	4
Conference papers and posters submitted for conferences in Europe	4
DVD presentation about the project, methods and results	1
Slide presentation in English and Estonian	2
Layman's Report	1
Dissemination Report	1
Guidelines for European Practice	1
Public event	1
International Conference and Workshop	1



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2 OSAMAT Project dissemination activities and outcomes in the year 2010, 2011 (Inception Report 01/09/2010-28/02/2011, Progress Report nr 1 01/09/2010 – 31/08/2011).

The project first year dissemination efforts were directed mostly to the creation of the project identity and the awareness about the project.

At the first Steering Group (SG) meeting organised in October 2010 the fundamental decisions regarding project activities including dissemination were done. Dissemination activities started from the webpage creation and the first press release in national newspaper “Põhjarannik” and in Estonian national broadcasting company in October 2010.

OSAMAT project public website is available at www.osamat.ee and has been intended to be the main communication media, allowing the dissemination of any kind of information to a wide audience in a fast and accessible manner in three languages: Estonian, Russian and English. The website represents an immediate and easy-to-access entry point which is open to all relevant stakeholders, and thus able to create awareness and interest about the project by making the most important information publicly available in a concise but exhaustive manner. The separate sections are for the news, project overview, partners, documents, gallery, media and contacts. It features information on project beneficiaries along with links to their homepages. The project homepage was updated constantly according to the project progress.

Picture 1. OSAMAT website.



In the year 2011 the most preparation actions were done for the pilot construction: choice of the two pilot sites (Narva-Mustajõe and Simuna -Vaiatu), laboratory tests, geological investigation, construction design and permits. OSAMAT Project Coordinator was ready to share the information about the project activities with public. On 27 of May 2011 at the press conference the information



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about OSAMAT project in general, pilot sites, pilot construction technologies and materials was delivered to the wide audience. The media coverage after the press conference was good and articles about OSAMAT project were published in on-line media and also in Estonian national television news.

All together the year 2011 press release was covered by 16 media sources (Annex 1). The links to OSAMAT media broadcasts in web and other media were added to the project webpage.

Before first piloting in 2011 the manuscript for DVD production and other arrangements were prepared to be ready for filming the piloting works. The detailed scenario included besides construction works also OSA formation filming in the power plants, its life-cycle and then OSA application filming at the pilot sites. Professional crew (Alasti kino OÜ) started filming before the pilot construction and then continued to film during and after pilot construction at the both pilot sites.

In 2011 we were ready to present OSAMAT project and piloting activities (laboratory results and Narva-Mustajõe pilot site construction outcomes) at the conferences, so, two professional articles abstracts were presented to the Wascon 2012 and Nordic Geotechnical Meeting 2012 to take part with articles and oral presentations at the conferences.

The project activities and goals were also presented at:

- "20th International Symposium on Mine Planning and Equipment Selection" Almaty, Kazakhstan 12 of October 2011;
- collegium of scientists from Tallinn University of Technology, Estonia, 28 of October 2011.

The notice boards with project identification and LIFE logo were prepared and installed at the Narva-Mustajõe pilot site in 2011 before construction and at Simuna-Vaiatu pilot site in 2013 before construction.

Picture 2. Notice boards with OSAMAT project identification and LIFE logo.





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3 OSAMAT Project dissemination activities and outcomes in the year 2012 (Progress Report nr 3 01/09/2010-15/03/2012, Mid-term Report 01/09/2010 – 31/08/2012).

The second year project dissemination activities focus still remind mostly on the projects idea and activities presentation, but at the same time we started to analyse the laboratory research results and Narva-Mustajõe pilot site construction experience and introduce it to the different target groups in several articles, poster, presentations and oral presentations at the different conferences.

The poster “Oil shale fly ash use opportunities” was created to present OSA as a perspective binder material and Simuna-Vaiatu soil samples mass-stabilisation laboratory test results. The poster (Annex 2) was presented in “Ash Utilisation 2012” conference, Stockholm, Sweden, January 25-27. In Sweden a high percentage of the generated ash is bioash, that doesn't have such good technical properties as OSA. So, it was a good chance to present an alternative binder material for the Swedish market.

OSAMAT project overview was given in Tallinn University of Technology at „Winter Academy 2012“ Tallinn, Estonia, 12 of March 2012 (Annex 3) to the students and scientists. Presentation of the project activities at the University gave an impulse to the scientist to pay more attention to the OSA application researches including road construction.

There was initial plan to take part in Oil Shale Symposium in 2012, but the event didn't take place. OSAMAT project was presented in Jordan Oil Shale Symposium instead by Tõnis Meriste (Jordan International Oil Shale Symposium, Dead Sea, Jordan, 7-9 May, 2012. Presentation is attached as Annex 4).

The professional article "OSAMAT - Utilisation of oil shale ashes in road construction" was presented to the Wascon conference 2012 and issued in Conference Proceedings (Annex 5). Additionally the information about the project and the first piloting results (at Narva-Mustajõe) was presented orally in the Wascon conference held in Gothenburg, Sweden, 30 May–1 June 2012 (the presentation is attached as Annex 6).

The second professional article "Utilisation of oil shale ashes in road construction" was issued in Nordic Geotechnical Meeting 2012 Conference Proceedings for the Nordic Geotechnical Meeting, NGM 2012, 9-12 May, 2012. The article is attached as Annex 7.

The laboratory result for the peat stabilisation tested with the samples taken from Simuna-Vaiatu pilot site were introduced in the third professional article “Use of Oil Shale Fly Ash as a Binder Material in Stabilization of Soft Soils" (Annex 8) and discussed at 12th International Symposium "Topical Problems in the Field of Electrical and Power Engineering", Doctoral School of Energy and Geotechnology, Kuressaare, Estonia, 11-16.06.2012.

The year 2012 was quite fruitful in sense of project information dissemination in different countries. OSAMAT was presented in Estonia, Sweden, Jordan and Denmark.



4 OSAMAT Project dissemination activities and outcomes in the year 2013

(Progress Report nr 3 01/09/2010-28/02/2013, Progress Report nr 4 01/09/2010-31/08/2013).

By the end of the year 2013 both pilot sites (Narva-Mustajõe and Simuna-Vaiatu) were constructed. The OSA was tested in cement mixtures (different recipes) in different technologies: in layer stabilisation in Narva-Mustajõe pilot site and in mass-stabilisation of peat in Simuna-Vaiatu pilot site. We got the experience of OSA chemical behaviour in the mixture, OSA logistics and transportation, OSA use (spreading, water demand, curing speed) in the construction of the pilot sites. The quality control activities let us gather the quantitative information about the OSA use in the construction (structure strength, settlement, road load bearing capacity etc.).

As the project development stage reached the point of having the first results, the dissemination activities focused mostly on the presentation of these first results in the articles, in the booklet, in DVD film, in local public events and in conferences in Estonia and Europe.

OSAMAT project and Narva-Mustajõe pilot section the first technical and environmental monitoring results were presented at “Oil shale Symposium 2013” held in Tallinn in oral presentation “Oil shale ash use in road construction: field application analysis within OSAMAT project”(Annex 9). The abstract “Oil shale ash use in road construction: field application analysis within OSAMAT project” was issued in Conference Proceedings (Annex 10). The symposium was very important event and place for the project information and results dissemination, as around 300 participants from different countries having oil shale as a resource could get the information about energy production by-product/waste utilisation and plan their production in more sustainable way.

The symposium was followed by the XXVIII International Baltic Road Conference, Vilnius, Lithuania, 26.-28. August 2013. The conference attracted around 500 participants from road construction sector (incl authorities, contractors, constructors, civil-engineering expert, scientists). There was a great opportunity to present OSAMAT project and OSA as an alternative road construction material for European roads construction. OSAMAT project and the first monitoring results were presented in the professional article “OSAMAT – utilisation of oil shale ash in road construction” and issued in Conference Proceedings (Annex 11). The result were also orally presented at the conference (slides in Annex 12).

In August 2013 the mass-stabilisation works started at Simuna-Vaiatu pilot site. This was a good moment to disseminate the information about the project and to present the pilot activities to the local authorities (Road Administration, Estonian Asphalt Pavement Association), constructors, civil- engineering experts directly at the pilot sites. The first public event was organised at Simuna-Vaiatu pilot site (Picture 3). Three presentations at the beginning of the day gave the information to the event participants about OSAMAT project goal and activities, about quality control measurements and follow-up activities at the pilot sites and about mass-stabilisation technology (Eesti Energia AS presentation in Annex 13). After that the participant could see the construction process by their eyes and ask practical questions.



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Picture 3. Public event at Simuna-Vaiatu pilot site.



With the mass-stabilisation works start we continued the filming and video production about OSAMAT project. As there was a second public event planned in September 2013 we decided to make separately (from the main video in the end of the project) a short video about mass-stabilisation works and present it at the second public event. So, ~4 min video in three languages (Estonian, English, Russian) was prepared and showed at the event.

The movie shows the way how mass-stabilisation of peat was done at Simuna-Vaiatu pilot site. The movie is accompanied by the voice that explains the nuances of mass-stabilisation technology, quality control measures at the site and gives a short overview about the project. The video is attached to the Report in DVD.

The second event went at the Balti power plant in Narva city on 4 of September 2013. In the frames of “Eesti Energia Environmental day” the presentation “Oil shale ash use in road construction” (Annex 14) with video material about mass-stabilisation works at Simuna-Vaiatu pilot site were showed. There was also demonstration of ashes organised at the event: the glass boxes was filled with the ashes and provided the information about the ashes, so that everybody could “touch” the material.

To foster the project information dissemination EE worked out a booklet that was issued in three languages: Estonian, English and Russian (Annexes 15-1, 15-2, and 15-3). The first 60 booklets were disseminated at the public event in Narva. The booklet was a good dissemination tool also at further others conferences and different meetings.

The second public event outcomes including OSAMAT project activities, goals and the project importance were discussed widely in Estonian newspapers and radio (media list in Annex 16).



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Picture 4. OSAMAT project and first results presentation at the second public event in Narva city.



In the year 2013 the OSAMAT project was presented also in Poland at XX Jubilee International conference “Ashes from the Power Plants”, 23-25 of November 2013, Warsaw. We demonstrated mass-stabilisation works with OSA as a main binder material showing the OSAMAT video and disseminated the OSAMAT booklet (25 booklets). The conference discussions went around oil shale ash and coal ash comparison and use opportunities.

Picture 5. Presentation of OSAMAT project at XX Jubilee International conference “Ashes from the Power Plants”, Warsaw, Poland, 2013.





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5 OSAMAT Project dissemination activities and outcomes in the year 2014-2015 (Progress Report nr 5 01/09/2010-31/08/2014, Progress Report nr 6 01/09/2010-31/08/2015).

In August 2014, the last construction works at Simuna-Vaiatu pilot site were finished. So, the 2014-2015 years period main dissemination efforts were directed to the dissemination of the piloting results (incl general information and laboratory testing).

OSAMAT booklet (100 booklet) and video were presented at the South Baltic Conference on Dredge Materials in Dike Construction, 10-11 of April 2014, Rostock, Germany. Despite we didn't have a chance to make a speech at the conference, we had an opportunity to show the video and disseminate the booklets at the conference advertisement area. In collaboration with ALLU (the producer of the mass-stabilisation equipment) we presented the mass-stabilization technology and its application on an example of OSAMAT project. The video helped to present the project to the participants and demonstrate the practical experience of Simuna-Vaiatu pilot site construction. The booklets supported the video information with facts and numbers about the OSAMAT project, technology and OSA as a binder.

In May 2014 the OSAMAT video and booklets were disseminated at the International Conference Ash Trade Europe 2014, 22-23 of May 2014, Dusseldorf, Germany. At the conference, we made a presentation about OSA composition and properties and as an example of OSA use gave the overview of the OSAMAT project and presented the video. Around 30 booklets were disseminated at the conference.

The participation in the LIFE Green Week 2014, 3-5 of June 2014, Brussels, Belgium let us to discuss about the project value with the conference participants and get the experience of other countries in the waste recycling field. 50 booklets were disseminated at the Green Week.

During the project implementation we collaborated with Finnish experts managing LIFE+ project ABSOILS (ABSOILS - LIFE09 ENV/FI/000575). The colleagues researched the treatment of abandoned soils by the same mass-stabilization technology. With the OSAMAT project experience we were able to propose an alternative binder material for the abandoned soils treatment. This situation created quite strong collaboration and further developments between two LIFE program projects experts. The OSAMAT project and piloting results were presented orally (slides "OSA use in road construction" are attached as Annex 17) and by showing the OSAMAT video at LIFE project ABSOILS conference, 11-12 September 2014, Helsinki, Finland.

During the period (15.09.2013-15.09.2014) the final version of the OSAMAT video was created (longer version ~8 min). The final version gives the general information about the project and piloting idea, inform about the environmental problems connected to the oil shale ash and the possibility of using it in environmentally sound way. It includes also the short video fragments of Narva-Mustajõe and Simuna-Vaiatu pilot site construction and describes the way quality control and follow-up activities were done. The video is available on two languages: English and Estonian and could be seen on the project website. DVD with the video is attached to the report.



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In the year 2015 the OSAMAT project should be presented at Oil Shale Symposium 2015 in Estonia. Unfortunately, the event did not take place. Instead, the OSAMAT was presented at International Conference Ash Trade Europe 2015, 22-23 of April 2015, Frankfurt, Germany. The pilot activities and monitoring results were presented orally to the audience (slides “OSA use in road construction” are attached as Annex 18) and by showing the OSAMAT video (final version).

Picture 6. Presentation of OSAMAT project at the International Conference Ash Trade Europe 2015, 22-23 of April 2015, Frankfurt, Germany.



In 2015 the OSAMAT project and first results were discussed with the local Estonian business newspaper Äripäev and presented in the article ““Oil shale ash could be used as valuable construction material” (Annex 19).



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6 OSAMAT Project dissemination activities and outcomes in the year 2016.

By the end of the year 2015 the Narva-Mustajõe and Simuna-Vaiatu pilot sites technical and environmental monitoring was done and final reports submitted. These two important documents underlined the efforts of the five years hard and interesting work within the OSAMAT project frames. According to the results of the monitoring and experience got during laboratory testing and construction of the pilot sites, the OSAMAT can be announced as a successful project: OSA as a tested material used in pilot construction and tested layer and mass-stabilisation technologies gave better results comparing to design road parameters and traditional construction methods. OSA use don't have impacts on the surrounding nature.

The outcomes of the OSAMAT project were widely shared to Estonian public in March 2016 through the different 15 media channels: radio and newspapers (the list is attached as Annex 20).

In January 2016 the preparations for the International OSAMAT Conference 2016 organisation started. The main three goals of the coming event were 1) to introduce the results and outcomes of the OSAMAT project, 2) to present the experience of ashes use in road construction in different EU countries 3) to discuss business opportunities and possible cooperation regarding OSA use in Estonia and EU countries. The introduction of OSAMAT project was done by OSAMAT project beneficiaries. To share the experience of ashes use in road construction the speakers from Greece, Germany and Finland were invited. To discuss the business opportunities the representatives of construction companies, road authorities and unions, civil-engineering experts and scientists were invited to the Workshop held on the second day of the event.

The International OSAMAT Conference 2016 and Workshop were organised on 2 and 3 of June 2016 (Conference on 2 of June and Workshop on 3 of June). Around 200 invitations were send personally to people from different target groups: politicians, scientists, contractors, country authorities (Estonian Road Administration, Ministry of Environment, Ministry of Economic Affairs and Communication), partners.

The press release about coming event was posted all together to 6 different media channels (the list in Annex 21) including LIFE program website.

The Conference was held in Tallinn, Estonia in KUMU museum.

The objectives of the events were to deliver the OSAMAT project results and in particularly:

- to present the oil shale ash in a new perspective: as material for road construction (based on the project results),
- to provide technical information about road construction with OSA on a example of the pilot sites construction (Narva-Mustajõe and Simuna-Vaiatu pilot sites), quality control and monitoring,



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- to present pilot sites environmental monitoring results and discuss on environmental issues,
- to open discussion about OSA further standardisation and conformation as a product
- to foster international networking and present experiences from Finland, Germany and Greek.

The first day of the conference was targeted to the wide auditorium: politician, transport authorities, road managers, contactors and scientists. For better information delivery the conference was conducted in such a way that firstly the general information about the OSAMAT project and project activities and results were presented. Then the floor was given to Estonian Road Administration and Ministry of Environment to get an assessment of the project actions and support in further steps to legalise OSA use in road construction. Finally, the experience of Finish, Germany and Greek experts in utilisation of by-products in road construction were presented and discussed. The conference program is attached as Annex 22.

Picture 7. OSAMAT International Conference 2016 in Tallinn.



The conference ended with the panel discussion. It was emphasized the value of the experience and data got during the OSAMAT project, as the need for “carbon free” materials is growing with the growing demand of binder material in general. The expert from Finland brought an example of Helsinki city: every year million tons of sub-soil is generated. Instead of landfilling it might be stabilised with environmentally friendly materials as OSA and give environmental and economic savings for all the parties.



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All together 104 persons took part in the conference (Annex 23). 100 OSAMAT booklets were disseminated. The conference presentation (13 presentations incl Workshop) and pictures can be found at the OSAMAT webpage (www.osamat.ee, documents folder, "aasta 2016 dokumendid" and Gallery) and in DVD attached to the Report.

The conference ended with a common dinner with potential partners (transport authorities, road managers, contractors).

The aim of the second day of the conference was to foster the communication between interested parties: Eesti Energia as a producer of oil shale ash and authorities, contractors and scientists as a consumers of the material. The program included (Annex 24) the visiting of the pilot site and discussions at the place and a Workshop where the practical issues as OSA production volumes, storage and loading capacities, transportation, legal status of OSA and new developments were discussed.

Picture 8. OSAMAT conference second day program and discussion process.



"Management of Environmentally Sound Recycling of Oil Shale Ashes into Road Construction Demonstration in Estonia"

OSAMAT International Conference 2016, Day 2

PLACE: Narva, Estonian Power Plants, 3 of June 2016, Estonia
LANGUAGE: English

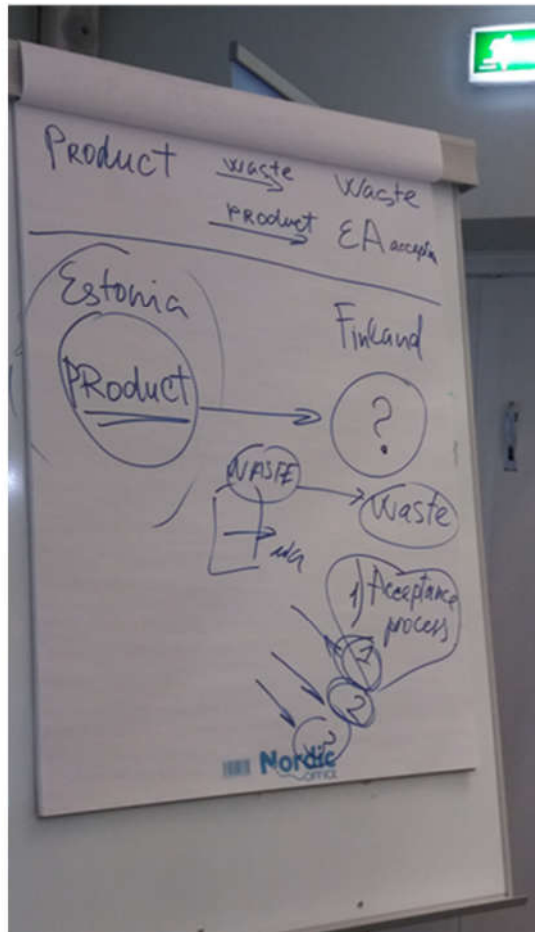
THE OBJECTIVE OF THE EVENT

The event is supposed to foster the international networking through demonstrating OSAMAT project results (pilot site visits, oil shale ash production cycle and through working out joint projects with potential clients.

3 JUNE 2016

- 07:00 Bus leaves from Tallinn, Here got 5 to Eesti Power Plant
- 10:00 - 10:30 Narva-Mustajõe pilot site visit
- 10:45 - 12:00 Excursion at the Eesti Power Plant
- 12:00 - 12:45 Lunch
- 13:00 - 14:45 WORKSHOP "Common projects"
Timo Kark, Ministry of the Environment, LIFE 2014-2020
(the Financial Instrument for the Environment and Climate Action)
OO-res
- 15:00 - 18:00 Back to Tallinn

RSVP: 31 of May, arina.korotkova@energie.ee





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Picture 9. Visiting Narva-Mustajõe pilot site.



Additionally LIFE program opportunities were presented by the representative of Ministry of Environment.

Picture10. LIFE program possibilities discussion at the workshop.





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As an output of the Workshop (and conference in general) EE:

- continues collaboration with the biggest construction company who has an experience in mass-stabilisation in other countries and who gives us a great help in promoting OSA and mass-stabilisation in Estonia,
- continues collaboration with Finnish company who research the binder production in an alternative way (ash goes to combustion together with the fuel). The OSA is going to be research (samples will be sent in September 2016),
- takes part in international project RECIPE (HORIZON 2020 program), where
 - o the new approach in transportation of OSA will be tested,
 - o OSA will be tested in stabilisation of port contaminated sediments
 - o OSA will be tested for conformation to European standards

Following the conference, the OSAMAT project was presented at LIFE program Information Day held on 16 of June 2016 in Tallinn. The goal of the oral presentation (Annex 25) was to deliver to the potential LIFE program applicants OSAMAT project management details such as project planning, partnership agreements conclusion, reports compilation, project amendments and communication with Commission.

The OSAMAT project officially ended August 2016. The project outputs was compiled and issued in different reports: Layman's Report (Annex 26-1 (in Estonian) and 26-2 (in English)), slide presentations in Estonian and in English for After-LIFE presentations (Annex 27-1 and Annex 27-2), Dissemination Report. Based on the project activities results the most important documents "Guidelines for European practice" was compiled. The Guidelines is a practical instruction how to use OSA in road construction. The Guidelines serve as a source of data and information for the authorities for the legalisation of mass-stabilisation methods using OSA. The guidelines is attached as Annex 28.

The project information is planned to be disseminated also after the OSAMAT project completion. After –LIFE Commutation Plan (Annex 29) envisages the dissemination activities regarding project results presentation at least for two year to promote OSA use in road construction. The dissemination and marketing are going to be part of the normal strategic and marketing business operations in the future.

The overview of the project dissemination action is given in Table 2.



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Table 2. OSAMAT project dissemination activities and outputs.

Grant Agreement LIFE09 ENV/EE/000227 OSAMAT deliverables	Planned amount, it	OSAMAT project amount, it
Outputs of the dissemination action		
Press releases	4	38
Articles in a professional and national magazines	4	4
Conference posters and papers	4	17
Slides-presentations After-LIFE	2	2
After-LIFE Communication Plan	1	1
Layman's report	1	1
Dissemination report	1	1
Guidelines for European Practice	1	1
DVD presentation about the project, its methods and results	1	2
International Conference and Workshop	1	1
Webpage	1	1
Notice boards	2	2
Total	23	71
OSAMAT outputs		Audience
Press releases	38	
Press release about the project and piloting (the year 2011)	16	All target groups in Estonia
Article "Oil shale ash could be used as valuable construction material" in the local newspaper <i>Äripäev</i> , 11 of March 2015, Tallinn, Estonia.	1	All target groups in Estonia
Press release about the project results (the year 2016)	17	All target groups in Estonia
Press release about the International Conference and Workshop	4	All target groups in Estonia and EU
Articles in a professional and national magazines	4	
Koroljova, A.; Pototski, A. (2012). " <i>Use of Oil Shale Fly Ash as a Binder Material in Stabilization of Soft Soils</i> ", Lahtmets, R. (Toim.). 12th International Symposium "Topical Problems in the Field of Electrical and Power Engineering", Doctoral Scholl of Energy and Geotechnology, Kuressaare, Estonia, 11-16.06.2012 (173 - 175). Tallinn: Elektriajam.	1	All target groups in Estonia and EU
Marjo Ronkainen, Aleksander Pototski, Hendrik Puhkim, Pentti Lahtinen, Tarja Niemelin. " <i>OSAMAT – utilisation of oil shale ash in road construction</i> ", The XXVIII International Baltic Road Conference, Vilnius, Lithuania, 26.-28. August 2013. Article in Conference Proceedings.	1	All target groups in Estonia and EU
Ronkainen, M.; Koroljova, A.; Pototski, A.; Puhkim, H.; Lahtinen, P.; Kiviniemi, O. (2012). " <i>OSAMAT - Utilisation of oil shale ashes in road construction</i> ". In: WASCON 2012. Towards effective, durable and sustainable production and use of alternative materials in construction. 30 May–1 June 2012. Gothenburg, Sweden: (Toim.) Arm, M.; Vandecasteele, C.; Heynen, J.; Suer, P.; Lind, B.. The Swedish Geotechnical Institute, 2012, 1 - 10.	1	All target groups in Estonia and EU



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Ronkainen, M.; Lahtinen, P.; Kiviniemi, O. ; Susanna, O.; Puhkim, H.; Koroljova, A.; Pototski, A. (2012). " <i>Utilisation of oil shale ashes in road construction</i> ". In: Dansk Geoteknisk Forening, DGF Bulletin 27 / Nordic Geotechnical Meeting, NGM 2012, 9-12 May, 2012. Article in Conference Proceedings, vol. 2: NGM 2012 - 16th Nordic Geotechnical Meeting . Dansk Geoteknisk Forening, DGF Bulletin 27 , 2012, (2), 811 - 820.	1	All target groups in Estonia and EU
Conference papers, posters, presentations	17	
Presentation: A. Pototski " <i>OSAMAT project activities</i> ", 20th International Symposium on Mine Planning and Equipment Selection" Almaty, Kazakhstan 12 of October 2011.	1	Authorities, contractors, constructors, civil-engineering expert and consultants, scientists and educational institutions outside EU.
Presentation: A. Pototski " <i>OSAMAT project activities</i> ", collegium of scientists from Tallinn University of Technology, Estonia, 28 of October 2011.	1	Scientists. Attracted 12 participants.
Poster: A. Koroljova.; A. Pototski (2012). <i>Oil shale fly ash use opportunities</i> . In: Ash Utilisation 2012 - Ashes in a Sustainable Society: Ash Utilisation 2012, Stockholm, Sweden, January 25-27, 2012. Stockholm., 2012, Poster no.3.	1	Authorities, contractors, constructors, civil-engineering expert and consultants, scientists and educational institutions in EU. Attracted around 70 participants.
Presentation: A. Pototski, "OSAMAT project overview", „Winter Academy 2012“organised by Tallinn University of Technology, Estonia on 12 of March 2012.	1	Scientists, students, civil-engineering expert in Estonia. Attracted around 30 participants.
Presentation: T. Meriste. <i>Overview of the OSAMAT project activities</i> at "Jordan International Oil Shale Symposium 2012, 7-9 May 2012, Dead Sea, Jordan.	1	Authorities, contractors, constructors, civil-engineering expert and consultants, scientists and educational institutions outside EU. Attracted around 200 participants.
Presentation: M. Ronkainen, A. Koroljova. "OSAMAT – utilisation of oil shale ash in road construction", WASCON 2012,Gothenburg, Sweden, 30 May–1 June 2012.	1	Authorities, contractors, constructors, civil-engineering expert and consultants, scientists and educational institutions in EU. Attracted 159 participants from 24 countries
Abstarct, slides and oral presentation: A. Koroljova. " <i>Oil shale ash use in road construction: field application analysis within OSAMAT project</i> ", Oil shale Symposium 2013, Tallinn, Estonia, June 10-13, 2013.	1	Authorities, contractors, constructors, civil-engineering expert and consultants, scientists and educational institutions in EU. Attracted 300 participants.
Presentation: A Koroljova ""Põlevkivituha rakendamise võimaluste demonstreerimine teede ehituses", the first public event, 6 of August 2013, Simuna-Vaiatu, Estonia	1	Authorities, contractors, non-governmental organisations, constructors, civil-engineering expert and consultants in Estonia. Attracted 33 participants.
Presentation: M. Ronkainen, A. Koroljova. "OSAMAT – utilisation of oil shale ash in road construction", The XXVIII International Baltic Road Conference, Vilnius, Lithuania, 26.-28. August 2013.	1	Authorities, contractors, constructors, civil-engineering expert and consultants, scientists and educational institutions in EU. Attracted 500 participants.
Presentation: A. Pototski "Põlevkivituha rakendamise võimaluste demonstreerimine teede ehituses", the second public event, 4 of September 2013, Narva Power Plants, Estonia	1	Authorities, contractors, non-governmental organisations, constructors, civil-engineering expert and consultants in Estonia. Attracted 140 participants. Disseminated booklets number - 60.



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OSAMAT film presentation (incl oral presentation), booklet dissemination: A. Koroljova. XX Jubilee International conference “Ashes from the Power Plants”, 23-25 of November 2013, Warsaw, Poland.	1	Authorities, ash producers, constructors, contractors, civil-engineering expert and consultants in EU. Attracted 50 participants. Disseminated booklets number - 25.
OSAMAT film presentation (incl oral presentation), booklet dissemination: A. Koroljova. South Baltic Conference on Dredge Materials in Dike Construction, 10-11 of April 2014, Rostock, Germany.	1	Authorities, contractors, constructors, civil-engineering expert and consultants, scientists and educational institutions in EU. Attracted around 100 participants. Disseminated booklets number - 100.
OSAMAT film presentation (incl oral presentation), booklet dissemination: A. Koroljova. International Conference Ash Trade Europe 2014, 22-23 of May 2014, Dusseldorf, Germany.	1	Ash and cement producers, constructors, contractors, civil-engineering expert and consultants in EU. Attracted 50 participants. Disseminated booklets number-30.
OSAMAT booklet dissemination at the LIFE Green Week 2014, 3-5 of June 2014, Brussels, Belgium.	1	LIFE program participants from different countries connected to the waste recycling. Disseminated booklets number - 50.
Slides and oral presentation “ <i>OSA use in road construction</i> ”, OSAMAT film demonstration: A.Koroljova. LIFE project ABSOILS conference, 11-12 September 2014, Helsinki, Finland.	1	Authorities, contractors, constructors, civil-engineering expert and consultants, scientists and educational institutions in EU (mostly Finish). Attracted around 50 participants.
Slides and oral presentation “ <i>OSA use in road construction</i> ” OSAMAT film demonstration: A.Koroljova. International Conference Ash Trade Europe 2015, 22-23 of April 2015, Frankfurt, Germany.	1	Ash and cement producers, constructors, contractors, civil-engineering expert and consultants in EU. Attracted 50 participants
Slides and oral presentation “ <i>OSAMAT Põlevkivi kaevandamisest tekkinud jäätmete taaskasutus teede ehitusmaterjalina</i> ”, A.Koroljova. LIFE program Information Day 2016, 16 of June 2016, Tallinn, Estonia.	1	LIFE program potential applicants, public in Estonia
Two completed slide presentations in Estonian and in English for After-LIFE presentations	2	All target groups in Estonia and EU.
OSAMAT booklet	1	Issued and disseminated in three languages. Total disseminated booklets number is 365.
Layman's report	1	All target groups in Estonia and EU.
Dissemination report	1	All target groups in Estonia and EU.
Guidelines for European Practice	1	All target groups in Estonia and EU.
DVD presentation about the project, its methods and results	2	All target groups in Estonia and EU.
Webpage	1	All target groups in Estonia and EU.
Notice boards (1 notice board at N-M and 1 notice board at S-V pilot sites)	2	Public in Estonia
International Conference and Workshop	1	Authorities, contractors, constructors, civil-engineering expert and consultants, scientists and educational institutions in Estonia and EU. Attracted 104 participants. Disseminated booklets number - 100.
After-LIFE communication plan	1	All target groups in Estonia and EU



All together during the project period the information about OSAMAT project and results was disseminated at 17 different conferences in Estonia, Kazakhstan, Jordan, Sweden, Denmark, Belgium, Germany, Poland, Finland, and Lithuania.

The OSAMAT booklet was disseminated at different conferences and meetings in total amount of 365 items.

The OSAMAT is presented in 2 video films and After-LIFE slides.

The project results are presented in different reports including Guidelines for European Practice that gives a practical instruction to the constructors about OSA use in road construction.

Effective dissemination helped to change the perception of public to OSA as to waste and made important decisions at the country level. The visible results included:

- On authorities level:
 1. OSA standardization in Estonia (EVS 927:2015 ““Burnt shale for building materials. Specification, performance and conformity”. Available at www.evs.ee.
 2. Estonian Road Administration decided to design Tallinn-Tartu highway swamp area by mass-stabilization technology with OSA.
 3. OSA testing in Lithuania at Road Administration laboratory.
 4. OSA testing and results presentation to the local authorities in Finland and Sweden. There have been several meeting with Finnish and Swedish authorities to present OSA.
- Contractors, constructors, civil-engineering experts, consultants, industries:
 1. Start of collaboration with Estonia Rail Baltic OÜ (RB). Rail Baltic railway construction is one of the biggest construction in Baltic States in the nearest future. Together with RB the OSA testing with RB railway soils will be started in 2017.
 2. Start of collaboration with Ramboll Finland. OSA has been tested and considered as valuable construction material for stabilisation of contaminated sea sediments and soft clays.
 3. Start of collaboration with Cowi AB. OSA is been testing in stabilization of the contaminated sediments in Sweden.
 4. Start of collaboration with the companies (Renotech Oy, Fatec Oy) that researched the treatment of OSA to give the specific properties to the final material based on OSA.
 5. Start of collaboration with ECOBA and OSA (and brown coals ashes) promotion at European level.
 6. Start of collaboration with other companies with whom the potential of OSA is under discussion at the moment.
- Scientists and educational organizations:
 1. Continued the collaboration with Tallinn University of Technology, National Institute of Chemical Physics and Biophysics, Tartu University. As a result several scientific articles have been issued during the project time and some are planned to be written in the future based on project results.