

NEW DESULFURIZATION TECHNOLOGY FOR SO_x REDUCTION WITH POSITIVE NET ENVIRONMENTAL IMPACT BASED ON MgO REAGENTS

Acronym: LIFEPOSITIVEMgOFGD



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CO	Confidential, only for members of the consortium (including the Commission Services)	<input type="checkbox"/>

ABBREVIATIONS LIST

BAT	Best Available Technique
BREF	Best Reference
CLM	Cement-Lime-Magnesia
DCM	Dissemination and Communication Manager
EIP	European Innovation Partnership
EIPPCB	European Integration Pollution Prevention Control Bureau
ELV	Emission Limit Value
EU	European Union
EUROMINES	European Association of Mining Industries, Metal Ores & Industrial Minerals
FGD	Flue Gas Desulfurization
GM	Grecian Magnesite
GMEA	Greek Mining Enterprise Association
IED	Industrial Emissions Directive
PMC	Project Management Committee
SEV	Hellenic Federation of Enterprises

Molecular formulas:

MgO	magnesium oxide aka magnesia
SO _x	sulfur oxides



EXECUTIVE SUMMARY

The present report was prepared in the framework of the co-financed European LIFE-Environment "New desulfurization technology for SOx reduction with positive net environmental impact based on MgO reagents" project (LIFEPOSITIVEMgOFGD - LIFE15 ENV/GR/000338). The project aims to demonstrate an innovative dry desulfurization technology, based on magnesium oxide (MgO) reagents, that provides a Positive Net Environmental Impact Solution for magnesium industries, especially in areas where water scarcity renders wet technologies inapplicable.

The present report (Deliverable D1.1.1) is part of D1 Action of the project "Public awareness and dissemination of results" and it is devoted to the development of the project's Communication Plan in order to effectively disseminate and communicate the project to all relevant stakeholders and target audience.

The development of the communication and dissemination strategy is based on the main objectives of the project implementation, but also on the requirements set by the EU funded, LIFEPOSITIVEMgOFGD project (i.e. grant agreement). The development of the plan conducted by the project team aims at: (a) raising awareness and informing stakeholders and target audience about the new dry desulfurization technology and (b) maximizing the impact of the project by making the results and deliverables of the project available to the stakeholders and to the wider audience. Therefore, the implementation of the plan is crucial for the success of the project and for the sustainability of outputs in the long term.

To achieve this, the strategy and plan for delivery will ensure that GM communicate a focused, coordinated message about the project and the LIFEPOSITIVEMgOFGD communication and dissemination activities being developed.

The communication and dissemination plan of the LIFEPOSITIVEMgOFGD project was developed taking into account the different recipients of the dissemination and communication activities by identifying the target groups:

- ✓ General public of the local community (students, families)



- ✓ Collective bodies (e.g. associations, federations, organizations) and Media of local level
- ✓ Companies and industries on the limestone mining
- ✓ Local and regional authorities and national bodies (e.g. Ministry of environment, Central Macedonia Region, Chalkidiki's Regional unit, Polygyros municipality)
- ✓ Scientific community (universities, research centers)
- ✓ Policy and decision makers at EU, national, regional and local level (e.g. EC, central government, , EIPPCB)

For the optimal organization of the activities, the strategic plan is divided into two phases of implementation, following the respective stages of the LIFEPOSITIVEMgOFGD project, which includes:

1. Communication and dissemination activities of project results and outputs
2. Monitoring activities in order to measure the impact of the project communication and dissemination plan

More specifically, the first phase includes an overview of all dissemination opportunities identified through communication tools such as event attendance (e.g. conferences, workshops, etc.), project publications (e.g. notice boards, brochures, news releases as well as conference papers, articles in professional journals etc.) and project presentations (e.g. to local stakeholders, etc.) is presented, complemented also by online activities based around the project website, and through the main social platforms (e.g. LinkedIn, Facebook, etc.). The communication and dissemination activities have been designed and are addressed to target the key audiences and stakeholders and to maximize awareness of LIFEPOSITIVEMgOFGD objectives, means and results.

Different means for communicating and disseminating the project are foreseen that include traditional methods, such as printed and electronic promotional material, news releases, website, scientific journals and more innovative and interactive approaches such as demonstration films, communication platforms, which will be



supplemented by events directly related to the project (e.g. workshops, site visits) and events of wider scope (participation to conferences, etc.).

The second phase involves the monitoring of the project's communication plan and strategy. All communication and dissemination actions shall be monitored by the Dissemination and Communication Manager (DCM) (Mr Michael Tsoukatos) against specific key progress indicators at frequent intervals. DCM shall valorize the progress of the project's communication strategy and provide relevant feedback to the Project Management Committee (PMC) with respect to the effectiveness and the impact of dissemination and communication activities.



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Coordinator Beneficiary



ΕΛΛΗΝΙΚΗ ΛΕΥΚΟΛΙΘΟΙ ΑΝΩΝΥΜΟΣ
ΜΕΤΑΛΛΕΥΤΙΚΗ ΒΙΟΜΗΧΑΝΙΚΗ ΝΑΥΤΙΛΙΑΚΗ ΚΑΙ
ΕΜΠΟΡΙΚΗ ΕΤΑΙΡΕΙΑ (Grecian Magnesite Mining
Industrial Shipping and Commercial Company
Society Anonyme)

1. INTRODUCTION

Before going on with the development of the Communication Plan it is essential to clarify the meaning of the most important terms used in this report such as “communication”, “plan” and “communication plan”.

As "communication" defined all the actions on conveying meanings from one group to another, in other words, communication is the process of transmitting ideas and information from one entity to another. As “plan” defined “the way to organize actions that will lead to fulfillment of a goal”.

As “communication plan” defined the “*science of reaching target audiences using communication tools and methods deciding who to target, when, which, what message and how*”. This can easily be explained on who you need to communicate with, about what, how you’re going to do it, and how often. In more detail, a communication plan sets out how to communicate the right message to the right people at the right time. Moreover, it lists the key communication activities, along with timelines and the resources such as skills, experiences and budget, which required to implement the plan (Joubert, 2014).

This document contains the detailed Communication Plan for the LIFEPOSITIVEMgOFGD project. The Communication Plan (Deliverable 10.1) constitutes one of the key outputs of Action D1 of the project “*Public awareness and dissemination of results*”. The present deliverable is prepared at an early project stage, in order for LIFEPOSITIVEMgOFGD to commence on a clear dissemination strategy from the onset in accordance to the main objectives of the project and to the grant agreement requirements.

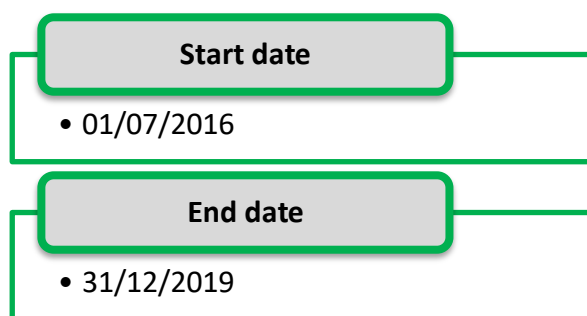
The aim of LIFEPOSITIVEMgOFGD communication and dissemination activities is to maximize the impact of the project by effectively disseminating the activities of the project and communicating its outcomes to relevant target groups and wider audience.



2. PROJECT DESCRIPTION

The LIFEPOSITIVEMgOFGD project will demonstrate an innovative dry technology based on magnesium oxide reagents which can be an effective desulphurization solution for magnesite processing, especially for facilities located in areas with limited water resources. Analytically, the project involves the demonstration a full-scale pilot of an innovative hybrid flexible and versatile dry Flue Gas Desulfurization (FGD) technique that will combine the main dry and semidry elements using MgO as adsorbent. This pilot plant will treat the combustion gases that are generated in a magnesite calcination rotary kiln located in Grecian Magnesite facilities at Yerakini (Greece) with a volume of 46.000 Nm³/h in an area with a water scarcity problems. There, in the demonstrative pilot plant this technique will be tested for the first time. The technique will generate waste in the form of a mixture of magnesium sulfate and magnesium oxide powders, which will be used to produce fertilizers and construction materials.

The project is implemented at the Grecian Magnesite (GM) (Coordinator beneficiary) plant which is located at Yerakini in Chalkidiki peninsula, Northern Greece.



2.1 MAIN OBJECTIVE OF THE PROJECT

The main objective of the LIFEPOSITIVEMgOFGD project is to demonstrate an innovative dry desulfurization technology utilizing magnesium oxide (MgO) as a sulfur oxide (SOx) pollutant sorbent. This is a Positive Net Environmental Impact Solution for magnesia industries, especially in those areas where limited water availability renders wet technologies inapplicable. The scope of the project is to prove that the SO₂ Emission Limit Value (ELV) of 1.500 mg/Nm³ with an overall SO₂ reduction efficiency of at least 60% can be accomplished with a dry technology based on MgO and to update the Cement Lime and Magnesia Best Reference Document (CLM BREF), accordingly.

The specific objectives of the project are:

- Reducing at least 60% SOx emissions, based on sulfur balance by tests and demonstrative actions and an ELV of 1.500 mg/Nm³.
- Using Magnesium Oxide (MgO), which is a sub-product for the GM plant, as a sorbent, instead of sodium or calcium absorbers which are characterized as hazardous substances.
- Utilizing and/or upgrading at least 90% of the generated waste (a dry powder consisting of magnesium oxide, magnesium sulfite and magnesium sulfate, i.e. MgO/MgSO₃/MgSO₄) in order to be used as fertilizer and/or construction material.
- Reducing the energy and water consumption at least 40% and 80% respectively, compared to wet desulfurization technologies.
- Testing, monitoring and evaluating the performance, the limits and the applicability of the innovative technology
- Updating the Cement, Lime and Magnesium Oxide (CLM) Best Available Techniques Reference Document (BREF) providing a net positive balance process at EU level.
- Replicating the results to Magnesia industry sector and transfer them to other relevant European energy-intensive combustion industries.



2.2 EXPECTED RESULTS OF THE PROJECT

One of the significant results which will be achieved by the application of this innovative technology is the reduction of SO_x emissions at least 60% and the Emission Limit Value (ELV) of 1.500mg/Nm³ of SO_x.

Furthermore the expected results of the projects are:

- The development of an innovative dry FGD technology using as reagent a sub-product of the Magnesium industry.
- The reduction of SO_x emission in the range of 1.000 to 3.500 mg/Nm³, (depending on input SO_x levels) in order to reach a SO_x level below 1.500mg/Nm³ (Initial SO_x levels will be between 2.500 and 5.000 mg/Nm³).
- The recovery of at least 75% of MgO sub-product from old mining waste.
- The recovery of at least 90% of the solid waste
- The use of the waste materials as by-products in agriculture as fertilizers and as construction material for cement production.
- The reduction of at least 40% energy consumption compared with conventional wet technologies.
- The reduction of at least 80% water use compared with conventional wet technologies.
- The analysis of the environmental and socio-economic benefits of the new technology.



3. COMMUNICATION AND DISSEMINATION STRATEGY

3.1 DESCRIPTION & OBJECTIVE OF THE COMMUNICATION & DISSEMINATION PLAN

As it is mentioned above, a communication and dissemination plan is primarily a public relations plan, including media relations, though it may include some wider communication and dissemination tools such as advertising and direct marketing (Spark, 2014). According to Joubert, 2014, an integrated plan has to be flexible and dynamic due to the communication need and priorities that will change throughout the lifecycle of a project (Joubert, 2014).

A dissemination and communication plan is an ongoing activity for any purpose that serves, depends upon, or is in any way connected with the community. During its implementation, the purpose, the audience, the message and tools may change, but the need to maintain relationship with key people and group of people will remain.

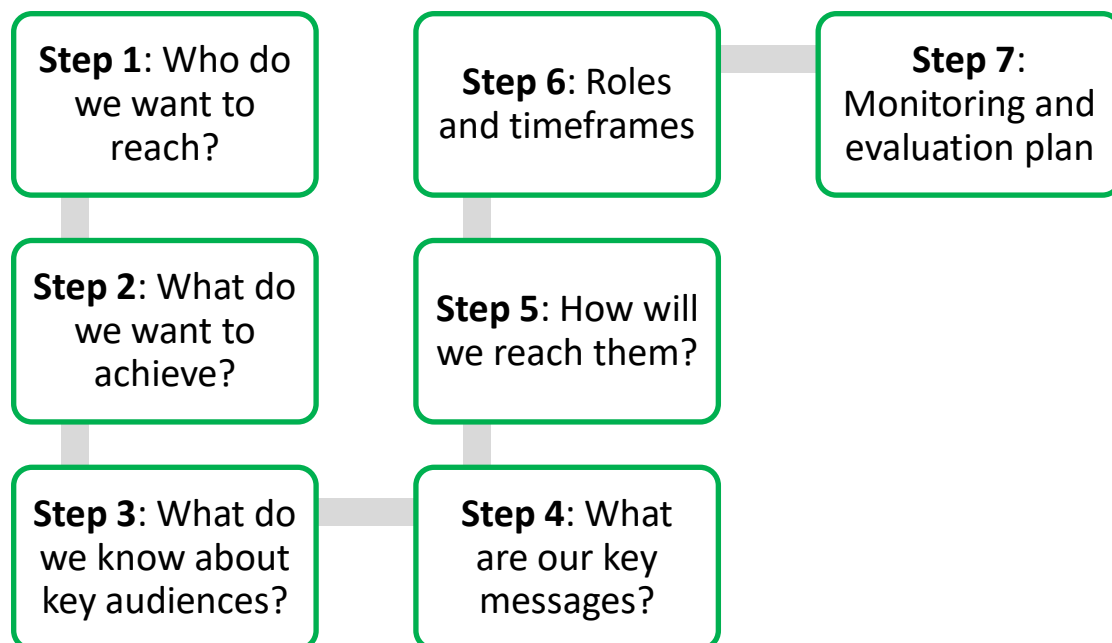
The Communication Plan is important for a project because:

- ✓ It provides to the project team a planned, structured approach to the project communications actions and ensures that all the key stakeholders are included where appropriate;
- ✓ It will make the communication efforts more effective and lasting.

In order to develop a communication plan it is essential to follow seven steps.

According to Joubert, 2014 the steps are:





During the 1st step it is necessary to identify all the key persons, or groups that are related to the project and/or affected or can influence or may have interest in the project. At the 2nd step it vital to understand “how can we get to know and understand them better?” (Joubert, 2014) and to create the methodology which will be followed, this means that different message is needed for different audience (groups: public and stakeholders), whereas different tools and methods are needed to reach each group (Community Tool Box, 2017). At the 3rd step, it is important to understand and get know better the key audience (Joubert, 2014). At the 4th step, it has to be clarified the message that you want to disseminate with the communication plan (Joubert, 2014). At this point the most important is the language that will be used according to each different audience. Then during the 5th step all the necessary activities, tools and materials that will be used should be selected in order to achieve the communication goals (Joubert, 2014). The most common tools and material which are used frequently for information diffusion are posters, brochures, newsletters, events, etc. (Community Tool Box, 2017). At 6th and 7th step, it has to be identified who will do what and when and what is needed to implement this plan in terms of skills, expertise, respectively (Joubert, 2014).

According to Comfort (1999), it is also noted that the participation of a well-informed public enhances the skills of the local communities into current issues in each level which is necessary. Furthermore, the transferability facilitates collective activities of the selected group of people, which results to the ability of the local community to understand easier and better the prevailing issues in order to give a fair and sustainable solutions (Comfort, 1999).

The communication plan that will be developed during the “LIFEPOSITIVEMgOFGD” project, aims at an integrated dissemination and informative action that ensures the diffusion of the project at a local, regional, national and EU level. Simultaneously, the communication plan, aims to raise the awareness of the general public on air pollution abatement process and its environmental impacts as well as the consecutive effects on public health. In order to achieve the best available results from the implementation of the communication plan the project team has identified the target groups of stakeholders that may have a significant role on the project’s implementation actions. Specifically, it is foreseeable to follow tailor made communication actions, which includes, specialized communication material (such as posters, brochures etc.), organization of targeted workshops and site visits.

The implementation of the communication plan for the “LIFEPOSITIVEMgOFGD” project aims to the development a social cohesion and build an independent community with less environmental impact and healthier communities.



3.2 STAKEHOLDERS ENGAGEMENT

As “Engagement” is defined the active involvement and participation of relevant with the project stakeholders in one or more parts throughout the projects’ implementation. According to the different type of stakeholder group, as well as, on their level of influence and interest, can be identified different levels of engagement.

An integrated communication plan includes an extensive and circumstantial stakeholder engagement strategy. According to literature, an integrated engagement strategy have four levels of engagement. The 1st level, “inform” includes communication with more passive stakeholders typically in the form of one-way flow of information, in order to simply share information about the project or deliver the outcomes to those that will be affected. The 2nd level “consult level” includes communication actions in order to exchange opinions, experiences and information. The 3rd level, “involve level” stakeholders apart from providing data or resources, they are more actively involved in the project course. The 4th “collaboration level” includes fully active engagement take place, as stakeholders are effectively collaborating with the project team, driving the project direction, and/or contributing resource (Durham et al., 2014).

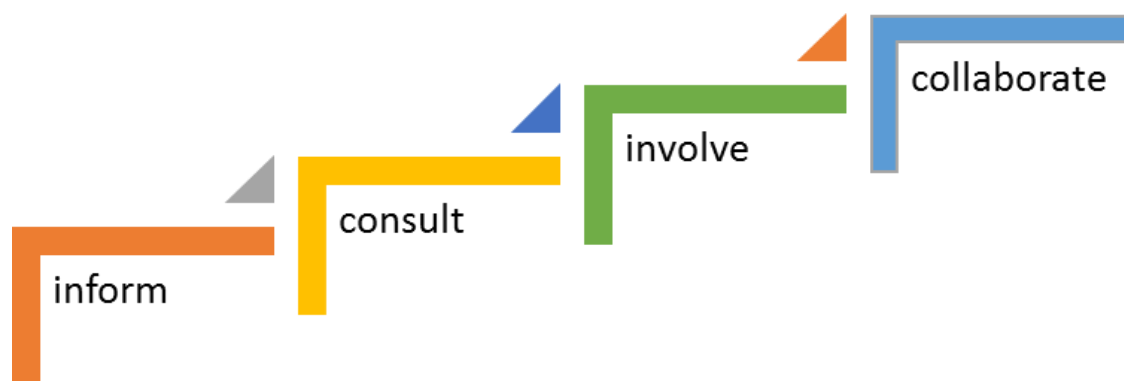


FIGURE 1: Levels of stakeholder engagement (ADAPT2CLIMA, 2014)

The main criteria for the selection of the appropriate approach, include inter alia the following:

- the aims and objectives of the engagement
- the stakeholder expectations with respect to the engagement outcomes
- the available resources and in particular the available time and money.

3.3 TARGET GROUP

In the framework of an effective communication plan it is vital to identify the target group (audience) which addressed the plan. For that reason, and in order to maximize the impact of the project the project working team has already identified and categorized the target group of population to disseminate the project results. The main recipients of the communication actions of the “LIFEPOSITIVEMgOFGD” are the general public and the stakeholders which will be engaged throughout the project implementation.

In LIFEPOSITIVEMgOFGD project the involved parties have been categorized into European, national, regional and local level of stakeholders.

Specifically, the categorization made as following:

European level:

- EUROMINES (European Association of Mining Industries, Metal Ores & Industrial Minerals)
- European integrated pollution and control (IPPC) Bureau (EIPPCB)
- European Commission and central governments
- EIP Raw Materials
- Scientific community

National and regional level:

- Greek Ministry of Development
- Greek Ministry of Environment and Climate Change
- Environmental Department of the Region of Central Macedonia



- Municipality of Polygyros
- Hellenic Federation of Enterprises (SEV)
- Greek Mining Enterprise Association (GMEA)
- Technology suppliers
- Environmental Organizations

Local

- Local community and general public

Public

- Industries end-users of LIFEPOSITIVEMgOFGD
- Industries end-users from other sectors of LIFE
- Industries end-users of the sub-products

In more detail, the stakeholders involved and the reason of each party participation are presented in **Table 1**.



TABLE 1. Categorization the of interested parties

Level	Stakeholder	Involvement	Engagement level
European	EUROMINES (European Association of Mining Industries, Metal Ores & Industrial Minerals).	Assist to dissemination activities among European Mining industries that could benefit for LIFEPOSITIVEMgOFGD project.	Inform
	European integrated pollution and control (IPPC) Bureau (EIPPCB).	Update of the CLM BREF	Involve
	European Commission and central governments.	Influence other environmental policies	Inform
	EIP Raw Materials.	Synergies within the expert network	Inform
European	Industries end-users of LIFEPOSITIVEMgOFGD.	Transfer of results	Collaborate
	Industries end-users from other sectors of LIFE	Replicate of results in other sectors	Inform
	Industries end-users of the sub-products.	Cross-sectorial approach-industrial symbiosis continuation of the project be selling sub-product	Collaborate
	Scientific community.	Advances of the new desulfurization proceedings	Inform



Level	Stakeholder	Involvement	Engagement level
National	Hellenic Federation of Enterprises (SEV)	Transfer and replicate results	Inform
	Greek Mining Enterprise Association (GMEA).	Replicate results to other mineral sectors	Inform
	Greek Ministry of Environment and Climate Change	Environmental permit	Involve
Regional	Environmental Department of the Region of central Macedonia	Protect of the Chalkidiki regions' air quality	Inform
National/European	Technology suppliers.	Transfer and replicate results	Inform
	Environmental Organizations.	Create awareness related to air pollution (SO _x emission)	Inform
Local	Local community and general public	Create awareness related air quality (SO _x emission)	Inform
	Local communication Media and environmental Journalist	Create awareness related air quality (SO _x emission)	Inform



4. COMMUNICATION AND DISSEMINATION ACTIVITIES

LIFEPOSITIVEMgOFGD will implement a series of communication and dissemination activities in order to maximize the impact of the project. These activities will demonstrate the FGD innovative technology to various target groups providing make results and deliverables of the project available to a wider audience which is vital for the successful uptake of the project and for the sustainability of the outputs in the long term.

Communication activities aim to disclosing information to multiple audience by appropriate means, whereas dissemination activities aim to promote the project and its results, by providing targeted information to specific target groups and stakeholders in a strategic and effective manner. The list of Communication and Dissemination Activities foreseen to be implemented during LIFEPOSITIVEMgOFGD project are given in **Table 2**.

TABLE 2. Dissemination and Communication activities foreseen in the LIFEPOSITIVEMgOFGD project.

Dissemination activities	Communication activities
<ul style="list-style-type: none"> • Notice Boards • Informative Material (Brochures, Posters) • Short demonstration film • Workshops • Meetings • Site Visits • Publications in scientific journals • Presentations in scientific Conferences 	<ul style="list-style-type: none"> • Project logo • Project slogan • Project website • Social media & Platforms • News Releases (press, radio, TV) • Layman's report

4.1 COMMUNICATION ACTIVITIES

Concrete communication activities are specified in this section. A wide variety of communication activities will take place in order to diffuse the LIFEPOSITIVEMgOFGD



objectives and findings to the public and to the scientific community. These are described in the following sections.

4.1.1 LIFEPOSITIVEMGOFGD LOGO

The LIFEPOSITIVEMgOFGD project logo (**Figure 2**) was developed and was launched and it will be included in all the documents produced during the lifetime and afterlife of the project, in the website and in other electronic material.



FIGURE 2: The LIFEPOSITIVEMgOFGD logo

4.1.2 LIFEPOSITIVEMGOFGD SLOGAN

An important step for the preliminary communication activities is the definition of a project slogan, as an additional element to increase the awareness of the project and to make it more recognizable. The LIFEPOSITIVEMgOFGD slogan which has been selected is the following:

Better LIFE with MgO

4.1.3 PROJECT WEBSITE

In order to have an integrated communication plan, the project website constitutes a key communication activity which has a significant impact on project's continuous dissemination, since internet is a peerless source of information and has become a very important communication tool.

Moreover, a well-designed project website is a key management tool, capable to raise the awareness on the LIFE project and improve the projects' dissemination activities to a various target groups including experts, potential users of the innovative technology being developed, policy decision makers, likewise, the general public and local community. At the same time a project website consists a best information resource due to 24/7 access to everyone (Spark, 2014).

The project's website has already been developed, attempting to raise awareness on environmental sustainability, in particular on air pollution abatement process and to disseminate the general project information. The website includes the following information categories:

- HOME: overview of project information
- THE PROJECT: Background information about the project and its importance
- OBJECTIVES: Presentation of the aim and objectives of the project
- ACTIONS: Description of the project's actions that will be implemented for the materialization of the project
- NEWS & EVENTS: Presentation of the project's news and events related to the project implementation
- GRECIAN MAGNESITE: GM Company profile (coordinator of the project)
- USEFUL LINKS: Useful links related to the project area activity.

The layout of the website developed is presented in **Figure 3**. The project website is available in English so that it can be read by International web-users and the LIFE+ logo is illustrated along with project's logo.



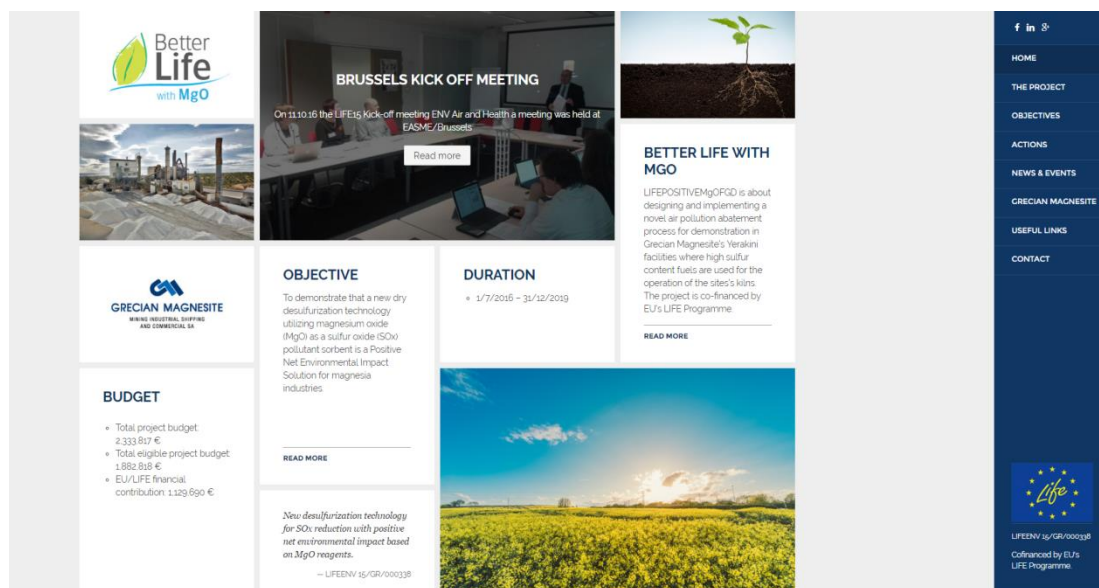


FIGURE 3: Layout of LIFEPOSITIVEMgOFGD project website

The website will be updated by the DCM to feature the continuous updates on project's progress and events, including, for example, news on the participation of project partners in conferences, or links and information about the innovative technology applied in GM. The project website will be accessible for 5 years after the project's termination. Therefore, the website will be a mean to effectively diffuse the project's findings long after the project's termination (maintained in the web server of GM). This action will ensure the continuous efforts for raising awareness of interested and involved parties in magnesia industry.

Deliverable D1.1.2: LIFEPOSITIVEMgOFGD website

Deadline: 31/12/2016

4.1.4 SOCIAL MEDIA & PLATFORMS

In order to raise the environmental awareness and to disseminate the project's objectives, the expected results and environmental benefits, the project working team will participate in existing platforms, which are related to the project topic and objectives. The aim of this communication tool shall be the development of synergies and the maximization of the project impact. An indicative list of existing

platforms which will be used are the following:

- *Orycta.gr* (<http://www.orycta.gr/>): a platform for minerals, which is developed by the Greek Mining Enterprises Association (GMEA), and the coordinator beneficiary, GM, have access to the platform as a member of the GMEA.
- *European Innovative Partnership (EIP) on Raw Materials*: a stakeholders platform on raw materials that brings together representatives from industry, public services, academia and NGOs
- *LIFE COMMUNITY* (<http://www.lifecommunity.eu/>): a platform specifically designed for communication actions of each projects' results, including amongst other communication activities such as: news, organized and upcoming events, photos and videos. Participating on this platform will enhance the project's networking activities.
- *EU Research & Innovation shaping a greener future Network*. The EC has recently activated a platform in order to discuss and share the ideas on eco-innovation, climate change, biodiversity and nature based solutions in Yammer platform.

Social media now complements many parts of our lives. Facebook, LinkedIn and many other social networking sites allow users to share and interact with online content and to connect with like-minded people. The participation of GM in social media shall provide the means for rapid dissemination and amplification of the project content and the ability to lead informal conversations while also providing the means to use it for professional purposes. The list of social networks which will be used are the following:

- *LinkedIn*¹: is connecting people in the world of business. Sharing updates of the project on the company page of the partners can be useful to spread contents through the relationship web of each company. GM already has an active LinkedIn profile with 288 followers. The existing profile will be updated with the project's goals and all the necessary information. The layout of the LIFEPOSITIVEMgOFGD LinkedIn account is presented in **Figure 4**.

¹ LinkedIn link:

<https://www.linkedin.com/company/2604497?trk=tyah&trkInfo=clickedVertical%3Acompany%2CclickedEntityId%3A2604497%2Cidx%3A1-1%2CtarId%3A1484392417661%2Ctas%3AGrecian%20Magnesite%20>



- Facebook²: Facebook is the social site that counts the greatest number of users and gives very good potential of diffusion the research results. GM has recently created a Facebook account, dedicated to the project, including and sharing news, images and videos related to GM's activities. The layout of the LIFEPOSITIVEMgOFGD Facebook page is presented in **Figure 5**.

Both LinkedIn and Facebook utilities shall be exploited to increasing public awareness and stimulate discussion with the public in order to provide all necessary information related to GM and the LIFE+ project. These activities would give the opportunity to inform general audience as well as specific professional groups about the objectives, benefits and outcomes resulting from the project implementation. In addition, a blog has been opened from the GM communication team....

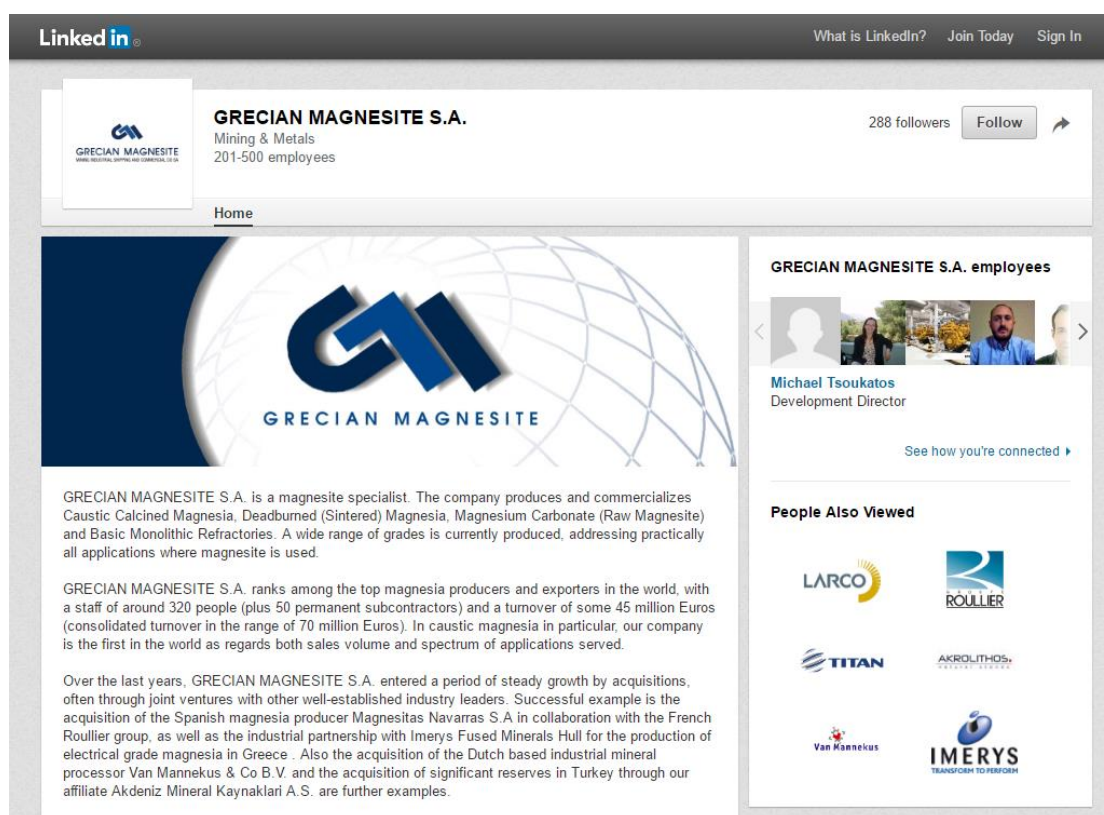
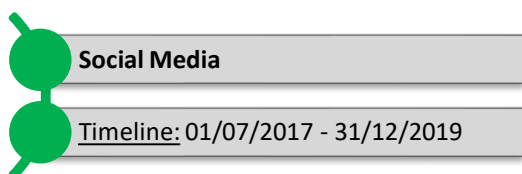


FIGURE 4: The LinkedIn profile of GM

² Facebook link: <https://www.facebook.com/Grecian-Magnesite-SA-294088047270596/>



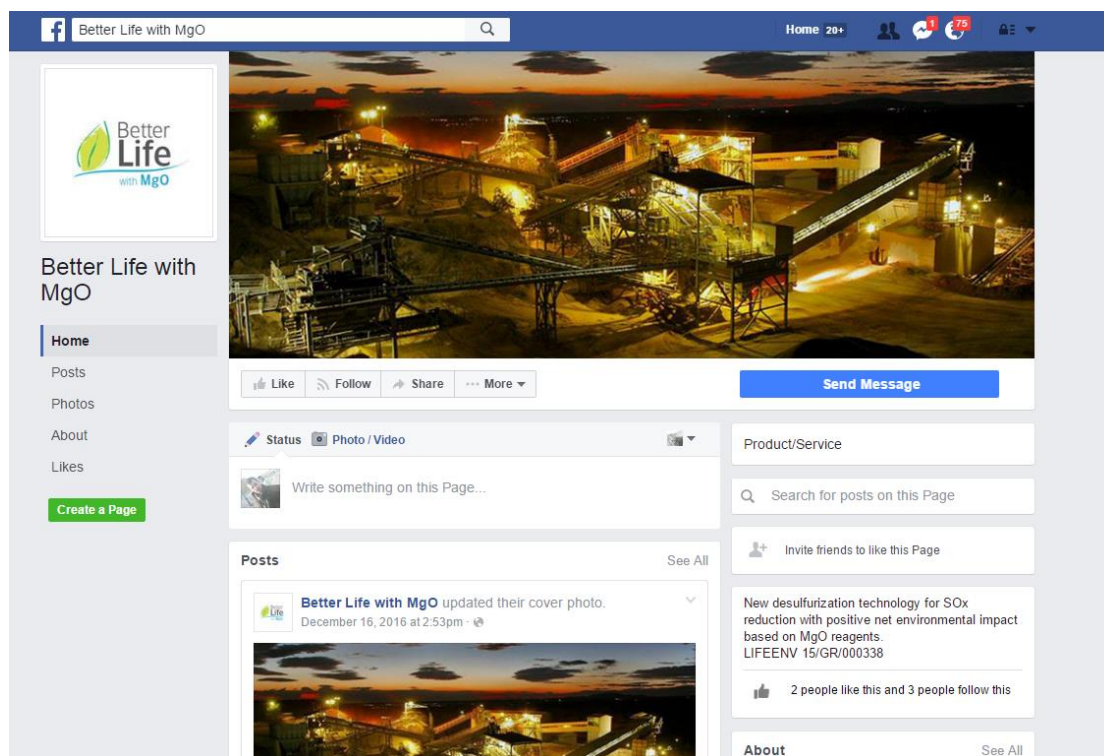


FIGURE 5: The FACEBOOK profile of POSITIVEMgOFGD project

4.1.5 NEWS RELEASES

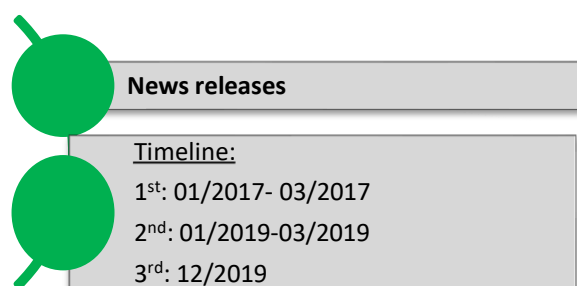
In the framework of the communication action of the “LIFEPOSITIVEMgOFGD” project a set of media-related dissemination activities are also foreseen in order to increase the publicity and raise community awareness on sustainability issues related to magnesia industrial processes and inform local and regional stakeholders and societies about the outcomes of the project concerning their area.

The foreseen news releases of the project include the preparation of (a) articles published at the press (national or international level) and (b) announcements/interviews at the media (radio and TV broadcasts).

It is believed that the directly engagement of the public is a highly challenging action, contrariwise it would be reached indirectly through the popular media. Media participation is nowadays fairly simple and easily done through radio, TV shows and interviews, press releases, press conferences, Web-TV channels and YouTube

advertisements etc. and also by inviting media reporters and journalists to the project's various events (e.g workshops). In particular throughout the project duration the project working team will prepare 3 news releases (in newspaper, local or national radio, TV) at the initial, middle and final stage of the project implementation. This type of communication is important as it involves the media for the diffusion and dissemination of the project.

The first news release is planned to be an article for the regional press and will take place in the first trimester of 2017 (01/2017 to 03/2017). It is important to have a press release at the initial stage of the project so that its targets are addressed to the public early. The press release shall be of regional character as the project shall be published in newspapers that are distributed regionally. The second news release, will be carried out during the first trimester of 2019 (01/2019-03/2019) and will include announcements or interviews to local or national radio channels, describing the project and its objectives and results achieved up to that date. The third news release will be held on the last month of the project implementation (12/2019) and will include a TV release about the overall benefits of the project that will be gained from the successful elaboration of the project's actions



4.1.6 LAYMAN'S REPORT

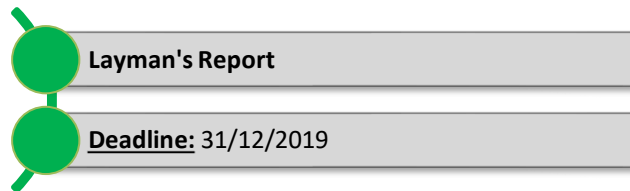
The layman's report constitutes one of the main communication tool for disseminating information about the overall content of the project at and after the end of the project. In particular, it will constitute a key tool that will help to diffuse the achievements of the project and constitutes the main source of information to a



wide audience who wants to know about the project

To this end, the layman's report would be a short informative document explaining in a simplified language the objectives and the results achieved during the project implementation to non-technical audience, to policy makers, and to the public in general.

At the end of the project a layman's report will be produced in electronic version, accessible by the website or email. However, a small number of hard copies will be printed to allow some target audience without access to computers to know about the project. A DVD, pen drive or agenda could be used for those hard copies. The report will be 5-10 pages long and will be presented in English and Greek and it will be disseminated to interested parties.



4.2 DISSEMINATION

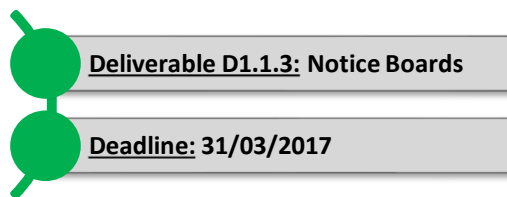
4.2.1 NOTICE BOARDS

The notice boards are an ordinary information material used for communicating and disseminating key factors of the project with a simple and direct way. The main objective of the current communication action is to inform the general public and GM visitors about the project's objectives, actions, expected results and benefits from its implementation.

It is noted that the notice boards will be established in a strategic place at GM facilities in order to be visible to the public. In total, two notice boards will be established, one at the entrance of the GM industrial site and one at the entrance of the GM's R&D center.

The notice boards will provide at least the followings:

- the project title, objectives expected results and benefits
- the implementation area
- the beneficiaries involved
- project's duration
- the project budget and the EC funding
- the LIFE logo



4.2.2 INFORMATIVE MATERIAL

Informative material, such as brochures and posters will be published throughout the project duration. All informative material will be simply written and structured targeting the selected in each case target group and providing all relevant information. All informative material will use the LIFE+ logo.



4.2.2.1 BROCHURES

During the implementation of the project, the working team of the project will develop printed promotional material comprised of three sets of brochures. The aim of the brochures is to keep relevant stakeholders and target audience informed about the project and its progress. These printed materials will be handed out at key events, such as workshops, and they will be displayed in key locations including relevant offices. In addition, they can be disseminated in electronic format via the project's website and social media.

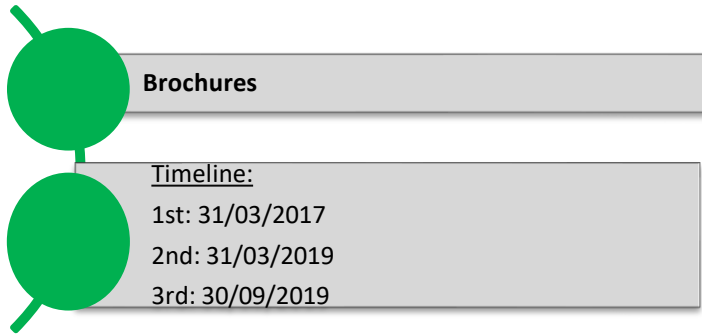
In more detail, the first set of brochures will be developed during April 2017 and after the completion of the design of the FGD installation as foreseen in Action Action B1.1 of the project. The first brochure will include the followings:

- GM Company profile
- Company's environmental actions and how the idea of the project "LIFEPOSITIVEMgOFGD" derived
- Description of the LIFE+ project
- The project's aim, objectives and expected results
- The design of the pilot plant

The second set of brochures will be distributed by the completion of the FGD technology demonstration (Action B1.2) until 31/03/2019. This brochure will include the results from the implementation of the system demonstration including the methodology applied, the operating conditions and optimization configurations (Action B2.1).

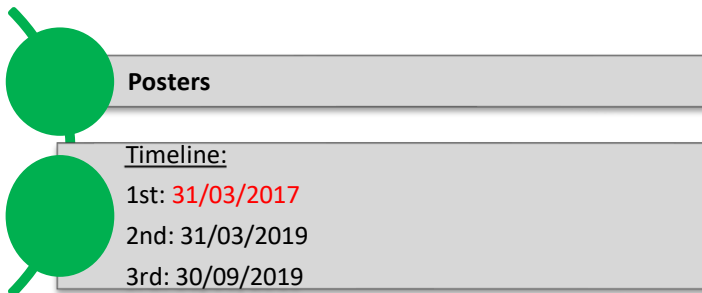
The third set of brochures would be developed until 30/09/2019, and will include all the project's results and lessons learned during the implementation of the project and will be distributed during the final workshop which will be released during the last four months of 2019.





4.2.2.2 POSTERS

Three sets of posters will be developed and distributed during the project implementation, to announce the organization of the workshops of the project. The posters will contain information about the events (title, time, venue etc) and on the project (title, beneficiaries, objectives and expected results). These will be placed to strategic places to inform stakeholders and target audience about the upcoming events. In addition posters will be disseminated in electronic format via the project's website, social media and GM's stakeholders email list.



4.2.3 WORKSHOPS



Workshops constitute an effective communication method for raising the profile of the work produced in the framework of the project, as well as engaging the key stakeholders throughout the duration of the project's implementation. They provide the opportunity, to present the results of the project, to attract public attention to the project, to share and exchange information with target groups and other stakeholders.

In order to achieve the best communication actions and to make the project visible to different stakeholders and target groups, the project team has foreseen to organize 3 workshops during the project implementation, at the early, middle and late stage of the project duration. The main goal of the events is (a) to inform both the GM's employees and local community about the project and (b) to engage the stakeholders who have an influencing role into the projects implementation actions (policy-makers).

The first workshop entitled "*Breakfast for the air quality*" is addressed to the local community of the project's implementation area and more specifically to the general public of Yerakini area (in Polygyros municipality) and to the regional journalists. The workshop will be released at GM's facilities at Yerakini area in Chalkidiki regional unit, between 01/07/2017 and 31/12/2017.



The participants will have the opportunity to get familiar with the LIFE+ project and receive information about its objectives, expected results and foreseen actions aiming to raise public awareness about the environmental, social and economic benefits that will be gained from the successful implementation of the project.

The informative material which will be developed for the event include the following:

-  1st Brochure: shall provide general information about the project
-  1st Poster: announcement of the organization of the event



The second workshop "**Green Week Satellite Event**" will be held in Athens.

The informative material which will be developed for the the event include the following :

-  2nd Brochure: shall provide information about the project and the initial findings from the demonstration of the pilot plant
-  2nd Poster: announcement of the organization of the event

The third workshop, entitled "LIFEPOSITIVEMgOFGD Final Workshop" will be held at GM's facilities located at Yerakini area, during the last month of the project implementation (12/2019). The event is addressed to relevant stakeholders and the general media which are involved or related to the project topic. The aim of the event will be to transfer information and experience to other groups that are related to magnesia industry and SOx emissions management.

The participants will be informed about the findings of the project throughout its implementation stages and be informed about the lessons learned from the full scale implementation and its replicability and transferability potential in magnesia and other industries facing similar problems. The informative material which will be developed for the the event include the following:

-  3rd Brochure: shall provide concrete results from the overall project implementation
-  3rd Poster: announcement of the organization of the event

4.2.4 REPLICABILITY AND TRANSFERABILITY MEETINGS

In the framework of the replicability and transferability activity of the project (Action B.3.3) three (3) workshops/meeting at the start, midterm and final stage of the project are foreseen to be organized between representatives of the European Integrated Pollution Prevention and Control (IPPC) Bureau (EIPPCB) and the project's



Advisory Board (Action E.1). EIPPCB organises and co-ordinates the exchange of information between Member States and the industries concerned on Best Available Techniques (BAT), as required by Article 13 of the Industrial Emissions Directive (IED) (2010/75/EU), whereas the project's Advisory Board composed of key actors of magnesia industry in EU shall provide the means to transfer and replicate the project's results. During these meetings the project scope, midterm and final results shall be presented in detail aiming to include the proposed technology in the update version of the CLM BREF which are being produced and amended by EIPPCB. The inclusion of the new technology to the revised CLM BREF shall facilitate and foster the replication of the FGD technology at EU level and shall achieve a major impact in transferring knowhow and expertise not only to magnesia producers in other geographical areas but also in other industrial sectors that face similar problems.

4.2.5 SITE VISITS TO THE FGD PLANT

Apart from the above mentioned workshops, site visits to the demonstration plant will be organized (greenhouse days) for groups that want to get familiar with the new technology that will be designed, constructed and operated in the framework of the project. Therefore, at least 3 site visits shall be made to the plant for the general public (e.g. representatives of the local community, journalists, students etc) and key stakeholders that can promote the replication and transferability of the developed system (e.g. representatives of related industries, decision and policy makers etc).

4.2.6 TECHNICAL ARTICLE PUBLICATIONS IN SCIENTIFIC JOURNALS


Publishing findings in research journals is the standard communication format for researchers, and one that other researchers and scientists commonly use to get more scientific, up-to-date knowledge on any topic. To this end, the project results will also be disseminated through publications in relevant peer reviewed international scientific journals as well as through presentations in international conferences which are related to the topic of the project. Technical articles shall be




produced when sufficient data is available from the operation of the demonstration unit. A list of potentially relevant publications for LIFEPOSITIVEMgOFGD research outputs is presented in **Table 3**.

TABLE 3. High impact journals to be targeted

Journal	Impact factor	SJR
Environmental Science and Technology	5.330	2.46
Science of the Total Environment	4.099	1.437
Chemosphere	3.340	1.409
Chemical Engineering Journal	4.321	1.585
Journal of Hazardous Materials	4.529	1.644
Environmental Pollution	4.839	2.045
Air Quality, Atmosphere & Health	2.324	0.706



Technical article



Timeline: 01/07/2019-31/12/2019

4.2.7 TECHNICAL ARTICLE PUBLICATIONS IN CONFERENCES

In order to exchange experiences, to develop networks with other projects and to disseminate the projects' results to relevant research communities and industries, the working team of the project will attend and participate in at least two national and/or international conferences during 2019 in order to present concrete and complete results from the operation of the innovative FGD system.

Through the conference presentations and publications the benefits and effectiveness of the developed pilot system will be disseminated at an International level to the readers of the conference proceedings and conference participants. In addition scientific presentations in conferences are an opportunity to interact with academic and industrial stakeholders and to receive feedback on results. Selected

international conferences are included in **Table 4**.

TABLE 4. Conference and Trade Shows to be targeted by LIFEPOSITIVEMgOFGD

Name of conferences/trade shows	Information about conferences/trade shows	Place
ABWASSER.PRAXIS, EXPO & CONGRESS	Congress with trade fair dedicated exclusively to the topic of wastewater	Offenburg (Germany)
ECOMONDO	International Fair for Matter and Energy Recovery and Sustainable Development – Rimini	Italy
SIBAQUA	International exhibition of advanced products and technologies in water and wastewater treatment industry	Novosibirsk (Russia)
ECWATECH	Water Technology Exhibition	Moscow (Russia)
WATERWORLD MIDDLE EAST	Water & Wastewater Expo & Conference	Abu Dhabi (UAE - United Arab Emirates)
IFAT	International Trade Fair for Environment , Waste Water and Waste Disposal	Munich (Germany)
RESOURCE & RECOVER -WATER WASTE & ENVIRONMENT SHOW	Forum for Environmental Solutions -Water Waste & Environment Show - Water Waste & Environment Show	Dublin (Ireland)



Participation in conferences

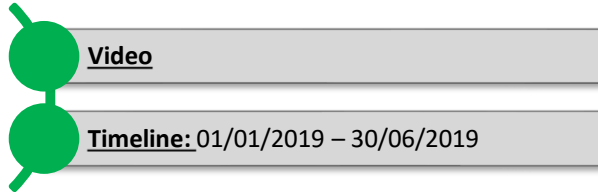


Timeline: 01/01/2019 - 31/12/2019

4.2.8 DEMONSTRATION VIDEO

Video constitutes a common digitized information material that is used to communicate the content of the project with a simple and direct way. The main objective of the aforementioned dissemination tool is to provide recipients a short

film that describes and illustrates the objective of the project, the means involved for the implementation of the project, the operation and demonstration of the prototype system, the results and benefits in terms of sustainability that arise from the pilot plant development and operation. The short film will be available on the project website and social media including youtube channel during the first semester of 2019 (01/01/2019 – 30/06/2019), whereas hardcopies (e.g. DVDs) will also be distributed in selected target groups.



5. NETWORKING WITH OTHER LIFE AND/OR NON-LIFE PROJECTS

The networking actions include all the appropriate activities in order to exchange information and experiences with other ongoing or completed LIFE and/or non-LIFE projects, relevant to the content of the “LIFEPOSITIVEMgOFGD” project. It is noted that the networking activities aim to ensure an effective transfer of knowhow, experience and lessons learned in order to enhance the projects’ replication activity in similar industries into national and international level. To this end, such actions may include a variety of activities, commonly utilized site visits, meetings, participation in conferences and in online podcasts on social media. At the same time, the networking activities will pave the way to develop robust connections and/or synergies for exchanging information and experiences by organizing conferences and workshops in order to share the best available practices and to optimize the available techniques for SO_x emissions reduction in mining and related industries.



Deliverable D.1.2.2 Networking report

Deadline: 31/12/2019

6. MONITORING OF COMMUNICATION PLAN

6.1 MONITORING MANAGEMENT

The second phase involves the monitoring of the project's communication plan and strategy. The management structure of the project foresees a Dissemination & Communication Manager (DCM) at the managerial chart of LIFEPOSITIVEMgOFGD who will be responsible for developing the Dissemination & Communication Plan and for coordinating the communication and dissemination activities of the project.

All communication and dissemination activities shall be monitored by the DCM against specific progress indicators at frequent intervals. DCM shall valorize the progress of the project's communication strategy and provide relevant feedback to the Project Management Committee (PMC) of the project with respect to the effectiveness and the impact of the plan and the related activities.

6.2 INDICATORS OF PROGRESS

The introduction of progress indicators has a two-fold purpose, i.e. to ensure the efficient coordination and the monitoring of all dissemination and communication actions. The monitoring results are utilized to steer, improve and adapt activities. Although sufficient flexibility is required to allow activities to adapt to project developments, potential problems will be detected as early as possible in order to create effective adaptation measures. Success or failure of communication actions will be measured through quantified indicators, which allow monitoring and evaluation. A list with the Progress Indicators used to evaluate the success of LIFEPOSITIVEMgOFGD through periodic measurement is presented in **Table 5**. The Progress Indicators will be measured periodically (indicatively every six months) and the results will be presented in the monitoring reports (see next section).



TABLE 5. Progress indicators of the communication plan

	ACTIVITY	PROGRESS INDICATORS	TARGET VALUE
Communication	Website	Number of average monthly hits in the website	20
		Number of visits	1.000
		Number of download of project documents	500
		Number of countries	50
		Number of contacts established by the website	25
	Social Media & Platforms	Number of social networks used	2
		Number of LinkedIn followers	350
		Number of Facebook likes	300
	Informative material	Number of Notice Boards (on-site panels) (Greek and English)	3
		Set of Brochures	1
		Recipients of Brochures	1000
		Set of Posters	3
		Recipients of Posters	300 per set
Number of radio news release		1	
Number of TV news release		1	
	Number of press news release	1	
Dissemination	Workshops	Workshops organization(2 +1 Final Workshop)	3
		Participants in all events	100 (50 in the WS)
	Replicability and transferability meetings	Number of meetings	3
		Participants in each event	10
	Site visits	Site visits to the FGD plant	3
		Visitors to FGD Plant	50
	Technical articles	Number of technical articles published in peer reviewed journals	1
Participation in scientific conferences		3	
Video	Number of short films developed	1	
Laymans' Report	Downloads from project web site	300	
	Total Recipients Number of printed Layman's report (Greek and English)	1000	
Networking	Number of contacted projects	6	
	Networking activities	3	
	Number of companies interested in results	8	

6.3 MONITORING REPORT

Reporting on the progress and impact of communication and dissemination plan is critical for the efficient monitoring of dissemination and communication activities. Reporting information will comprise the name and the location of the event, the date of activity, the type of the presentation (oral presentation, poster, organization of workshop, videos, films, media, etc.), the type of audience (academic or industrial community, European community, potential end-user and supporters, decision-policy makers or the public) the number of the attending audience and will be potentially accompanied by photos, a participant list and an agenda. In addition, reporting information on the publications will have to contain the title of the publication, its authors, the title of the periodical or series to be published, the publisher, the place of publication, the relevant pages and date. Its activity will be evaluated against the corresponding target value set in the progress indicator table (Table 5).

Reporting on the dissemination and communication activities will be performed by CDM. Overall three dossiers will be performed according to the stage of project development:

- 1st Dossier of the communication activities and impact achieved 1st progress report (12 months after the initiation of the project - 06/2017)
- 2nd Dossier of the communication activities and impact achieved 2nd progress report (33 months after the initiation of the project - 03/2018)
- 3rd Dossier of the communication activities and impact achieved - Final report (42 months after the initiation of the project - 12/2019)



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