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# **Deliverable D8.2**

Communication and dissemination plan

Lead Beneficiary Delivery Date Dissemination Level Version AXIA 28 Feb 2022 PU 1.0









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# Communication and dissemination plan

Deliverable 8.2

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RE = Restricted to a group specified by the consortium (including the Commission Services)

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# **Publishable Executive Summary**

Deliverable D8.2 aims to describe the dissemination and communication plan in the framework of the GREENER project. The goal is to reach the widest dissemination of the results generated by the GREENER project and raise public awareness about bioremediation technologies. Through dissemination activities, technological advancements are communicated to potential investors, customers, and end-users. The dissemination activities are therefore critical for achieving the desired project impact and their success depends on the extent as well as the form of the material. Moreover, a strong communication strategy has been set up in order to inform the relevant stakeholders and have the widest possible impact to facilitate the take-up of the new technologies. Moreover, under these activities a "Social Acceptance Analysis" is included aiming to collect data on the opinion of the wider public, as well as of specific stakeholders, on the selected technologies.

This report provides a detailed Dissemination and Communication Plan to outline the project's audiences, key messages and communication and dissemination channels. The plan "answers" the questions WHO? WHAT? WHEN? HOW? and provides an integrated, accurate and efficient dissemination strategy. To reach these goals, the dissemination and communication plan will fulfill obligations to the European Commission on communication and dissemination and Chinese requirement, where applicable, while it will be updated and agreed by the whole consortium. Overall, a continuous evaluation of the dissemination strategy will ensure that all target audiences are being reached using suitable dissemination and communication routes.



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# 1. Introduction

This document concerns the Deliverable D8.2-Communication and Dissemination Plan of the GREENER project, funded by the Horizon 2020 program of the European Union under Grant Agreement No. 826312. The Deliverable is in the context of WP8: Promotion and Exploitation of Results, concerning Task 8.1: Dissemination and Communication Plan. The intended audience of this deliverable is each individual participant of the project consortium. This document aims to help the partners to perform unified and effective communication and dissemination of the project's results.

This report involves the consortium's strategy and activities to communicate and disseminate the results and knowledge generated by the GREENER project. This initial plan assists the partners to establish an outline of their dissemination actions and prepares them to implement their strategy. Furthermore, information related to the dissemination and communication plan, aiming to raise public awareness of the project results and to demonstrate to the potential end-users the advantages of the new processes, is presented. To this end, the document includes several activities to ensure project awareness and impact on the community defining the objectives and goals for dissemination activities, identifying target groups, defining dissemination and communication channels, tools and media to be used, and defining key messages that will be used to reach identified target groups.

This document has been developed by AXIA Innovation, with the inputs received by the other project partners via a specific database and a dedicated questionnaire, that was distributed to all project partners. The current version is considered as an update of the Dissemination plan in month 24.



# 2. Dissemination and Communication Strategy

# 2.1 Objectives, Strategy and Key messages

## 2.1.1 Objectives

This section addresses the dissemination strategy that AXIA will follow in order to identify and organise effectively the activities that will be held in order to maximize the spread of the project's objectives and promote the exploitation of its results. Following the objective of the dissemination are listed:

- Raising public awareness: via communication means and tools provide information related to the results and the progress of the project's targets
- Disseminating knowledge: share methodologies and technologies developed during the project to pave the way towards further developments in the bio-remediation sector.
- Clustering with similar working groups: exchange experience with other similar projects in the field in order to maximize joined efforts towards technology challenges, regarding development of green, sustainable, efficient, and low-cost solutions for soil/sediment and water bioremediation
- Exploitation: develop channels to achieve better exploitability of the project key exploitable results (KER)

## 2.1.2 Strategy

This section describes the strategy developed towards a successful dissemination in accordance to written EC Guidelines and presentation during related workshops. The dissemination strategic steps are depicted in the figure below.



Figure 1. Dissemination Strategy Steps

Step by step the methodology includes (a) the definition of the subject to be disseminated, (b) the identification of the target audience that will be interested in project results and findings, (c) the definition of the most effective ways (methods and tools) to reach the audience, (d) the appropriate timing to disseminate and (e) the dissemination policy and rules.

In line with the EC Guidelines the dissemination activities will include all the best practices successfully tested by the partners in other projects:

- The results and/or reports are being reviewed and sent to the relevant partners of the project before being published or disseminated
- On three months basis an informative file is presented to the partners the forthcoming events
- All the consortium members contribute to the project activities and are informed about the final outcomes and the implication stemming from project results
- All public results are accessible from the project website and usable from all parties who may benefit from them



#### 2.1.3 Key messages

The key messages that will be communicated to the target audiences are summarised below:

- Green technology, easy to integrate with conventional treatment technology, high efficiency, shorter bioremediation period
- Microalgae are an alternative for remediation to plants, flexible and applicable to a variety of pollutants, quickly growing, resulting in high biomass, not only adsorbent but also pollutant transformation into non-toxic products
- BES is a promising technology applicable either to liquid or solid matrix. It serves to reduce pollutants concentration, either via reductive or oxidative pathways. Compared to traditional bioremediation technologies, it has a low demand for reagents as well as lower or zero energy demand.
- The importance of bacteria and plants in the environment, and how their capability for degradation and conversion of pollutants can be steered and harnessed to improve the quality of life
- Microbial artificial aggregates are one of the key new technologies which can be used in the improvement of quality of life through the biotechnological processes to produce new pharmacological substances or industrial chemicals as well as to clean the polluted environment
- Benefits of bioremediation and BES systems
- Bioremediation of soils/sediments contaminated with hydrocarbons fractions and/or metals (toxic). Same for water purposes (including azo dyes)
- Bioremediation of water and soil/sediment contaminated with emergent pollutants, antibiotics and pesticides
- Flexibility of the technologies to be applied in situ depending on the specific problem and pollutant
- Low-cost and energy-efficient solutions for contamination problems in aquatic and ground environments
- Relevance of the technologies both at EU and China level

# 2.2 Dissemination and Communication Target Audiences

The dissemination activities are closely related to the specific needs of the targeted audience. Based on this, the external dissemination plan will be organized to provide a measurable impact classifying the audience as follows:

|           | •Industry groups (contaminated places, agricultural activities, oil and gas                               |
|-----------|---|
|           | industry, chemical and pharmaceutical industry, environmental sector)                                     |
|           | •Soil remediation specialised organisations   |
|           | •Water treatment and bioremediation   |
|           | •Public and private soil and water sample collection for analysing and determining level of contamination |
|           |   |
| Target    | • Public organisations with interest in the GREENER technologies as well as the                           |
| Andianaaa | soil and water owners for applying our strategies   |
| Audiences | •Event organisations with a broad audience for the private, public and                                    |
|           | domestic sector   |
|           | Academic and Scientific community   |
|           | •General public   |
|           | •R&I or innovation related initiatives within the BIOTEC projects or from                                 |
|           | National funding in order to create impact  |
|           | •Technology providers for bio/remediation   |
|           |   |

# 2.3 Tools and channels

In order to achieve a successful dissemination plan GREENER will engage the above-mentioned target

groups to maximize impact in the specific area of interest related to bioremediation for soil and water.

Summarizing the means of dissemination,

Figure 2 provides a categorization means-tools of dissemination.





Figure 2. Tools and channels of GREENER project

AXIA will keep a record of all project dissemination activities in a database and monitor these to ensure that all target audiences are being reached using suitable dissemination routes and formats. All publications will be recorded, as required by the EC. In addition, all dissemination activities are recorded separately in a spreadsheet to enable summary analyses to be performed, for example, counting the numbers of dissemination activities reaching our intended audiences, etc.

In order to collect planned or finished communication and dissemination activities as well as to investigate the engagement of partners a questionnaire has been set up by AXIA and distributed to partners. This questionnaire aims to seek information on:

- Which communication channels the entities use to communicate their research
- The type of audience they are usually targeting.
- The entities' social networks
- Participation in other relevant projects
- Participation in clustering activities that might be related to the GREENER project
- Participation in relevant associations

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- Suggestion of professional association in relevance with the GREENER Project
- Planned dissemination activities for the upcoming years.
- Planned training activities.
- Intended publications, Accessibility (gold/ green open access or other)



Figure 3. GREENER questionnaire on dissemination and communication activities

Moreover, the impact is measured through quantifiable indicators, often referred as Key Performance Indicators (KPIs). Defined indicators are valuable in measuring the impact of the communication and dissemination activities and should be revisited at important 'check points' to reflect outcomes as GREENER evolves. Coordination of activities is important to achieve this measurement. The Table below summarises the link between dissemination tools and target audiences.



 Table 1. GREENER dissemination tools and target audience.

| Dissemination Tool          |                    | Target Audience                        |               |                           |                   |                         |
|-----------------------------|--------------------|--|---------------|---------------------------|-------------------|-------------------------|
|                             | Industry<br>groups | Research &<br>education<br>communities | Organisations | Similar<br>EU<br>projects | General<br>public | Technology<br>providers |
| Website                     | $\checkmark$       | $\checkmark$                           | $\checkmark$  | $\checkmark$              | $\checkmark$      | $\checkmark$            |
| Social Media                | $\checkmark$       | $\checkmark$                           | $\checkmark$  | $\checkmark$              | $\checkmark$      | $\checkmark$            |
| Press releases              | $\checkmark$       | X                                      | $\checkmark$  | $\checkmark$              | $\checkmark$      | $\checkmark$            |
| Conferences/Congresses      | $\checkmark$       | $\checkmark$                           | ×             | X                         | X                 | $\checkmark$            |
| Workshops                   | $\checkmark$       |  | $\checkmark$  | $\checkmark$              | $\checkmark$      | $\checkmark$            |
| Newsletters                 | $\checkmark$       | $\checkmark$                           | ×             | $\checkmark$              | $\checkmark$      | X                       |
| Brochures/Leaflets          | $\checkmark$       |  | $\checkmark$  | $\checkmark$              | $\checkmark$      | $\checkmark$            |
| Training seminars           | $\checkmark$       | $\checkmark$                           | ×             | X                         | X                 | $\checkmark$            |
| Publications                | $\checkmark$       | $\sim$                                 | X             | $\checkmark$              | X                 | ×                       |
| Videos                      | $\checkmark$       | $\checkmark$                           | ×             | $\checkmark$              | $\checkmark$      | $\checkmark$            |
| Final GREENER<br>Conference | $\checkmark$       | $\checkmark$                           |               | $\checkmark$              | $\checkmark$      | $\checkmark$            |

# 2.4 Key performance indicators

The key dissemination performance indicators will be used to tailor the project dissemination activities, update dissemination plan and strategy, targeting particular geographic regions and/or user groups through additional promotion campaigns and activities throughout the project execution, e.g. news appearances, specialized journal publications etc. The developed dissemination strategy will be continuously updated to ensure the maximum measurable project impact is achieved: i) at least 10,000 website visits over the project execution (from different regions in the world); ii) On average at least 100 views per published article or project document over the project; iii) Attendance of at least 20 relevant representatives of each target audience to the three dedicated events; iv) At least 80% success rates in e-newsletter readings through emailing, social media posts, and website traffic; v) Invitation to GREENER consortium members to participate in other networking events in EU and in China.

|  | Dissemination            |                                 |  |   |  |
|--|--------------------------|---------------------------------|--|---|--|
|  | Tool                     | When                            | Audiences  | Use   | KPI  |
|  | Project website          | M3<br>(continuously<br>updated) | All target audiences                                     | Social, research,<br>commercial/investment,<br>networking | Number of visits; Diffusion of the<br>results; Average duration of visits;<br>Number of downloaded<br>deliverables                     |
|  | Electronic<br>newsletter | Every 6M                        | All target audiences                                     | Project progress, Research,<br>commercial, networking     | Number of contacts to be<br>distributed; Opening rates, visits<br>to Newsletter page; impressions<br>of the newsletter on social media |
|  | Project flyers           | M11, M30, M40                   | Mainly Industry, Academic community, and other projects. | Investment/commercial, research, networking               | Numbers of flyers; Number of<br>events where they are distributed,<br>Number of people reached   |
|  | Press releases,          | M4, as minimum 1<br>per year    | All  | Social  | Number of press releases;<br>Number of people reached.   |
|  | Posters/Roll-ups         | M6 and updates                  | Network of contacts of all partners.                     | Research, commercial                                      | Numbers of flyers; Number of   |

Table 2. Key performance indicators of GREENER dissemination tools

|  |   |  |   | events where they are distributed,  |
|--|---|--|---|---|
| Videos                                     | M20, M48  | All  | Commercial/investment, social, research                               | Number of videos; Number of views; Shares   |
| Scientific<br>publications                 | TBD, at least 15 by<br>scientific partners<br>during the project<br>execution | Academic community   | Research  | Number of publications; Impact<br>on the community; Number of<br>visits for each publication; Impact<br>factor of the journal; Further<br>mention of the publication in<br>other papers |
| Industry-<br>oriented training<br>workshop | 2 workshops starting<br>M36   | Industry groups/Investors, public<br>authorities, policy makers.   | Investment, commercial,<br>training, education, Policy<br>making,     | Number of attendees; Number of<br>workshops; Stakeholders<br>represented; Posterior valorisation<br>of the workshop by means of<br>feedback   |
| training<br>e-modules                      | M30 (updated by<br>M54) (At least 3)  | Public in general. Academics and<br>scientific community. Investors on<br>the platform and manufacturing<br>technologies               | Social, training, education,<br>commercial, investment,<br>networking | Number of attendants in training<br>events; number of new contacts;<br>number of mentions of the event;<br>positive feedback from the<br>training event.                                |
| Creation social<br>networks<br>accounts    | M3  | Mainly Public in general. In<br>professional social networks such as<br>LinkedIn, other projects, industry<br>and potential investors. | Social, commercial,<br>investment, networking.                        | Number of followers; Number of<br>posts; Number of impressions;<br>Number of mentions regarding<br>the GREENER project  |
| Final Conference                           | M54   | Industry, investors, public in general, academic community   | Social, commercial,<br>investment, networking.                        | Number of public attending,<br>feedback from the GREENER<br>exhibition, number of mentions<br>on social networks  |

The following metrics and KPIs have been defined to efficiently observe progress for the major dissemination and communication channels utilised in the project.

| Dissemination Activity          | Indicator |
|---------------------------------|-----------|
| Organisation of a workshop      | 5         |
| Participations to a workshop    | 1         |
| Participations to a conference  | 13        |
| Participation to an event other | 14        |
| than a conference/workshop      |           |
| Training activities             | 13        |
| Publications                    | 28        |
| Social media accounts           | 4         |
| GREENER digital identity        | 1         |
| Newsletters                     | 4         |
| Flyers/Brochures/Banners        | 2         |
| Videos                          | 10        |
| Poster                          | 1         |
| Project Videos                  | 2         |
| Press release                   | 2+5       |
| Press conference/Television     | 5         |
| Roll up                         | 1         |
| Workshop agenda                 | 1         |
| TOTAL                           | 112       |

### Table 3. GREENER Dissemination activities KPIs

# 2.5 Internal monitoring

Aiming to the optimum monitoring of the activities undertaken during WP8 AXIA is tracking and planning all activities using a dedicated Gantt chart for dissemination, communication and training.

|             |  |                   | $\square$  |            |            | $\rightarrow$ |       |       |      |     |         |         |     |      | $ \rightarrow $ |     |      |       |      |     |     |    |    |       |            |     |      |      |             |               |     |       |      |     |          |               |     |      |           |          |           |               |          |      |    | -           | -         |         |      |           |     |
|-------------|--|-------------------|------------|------------|------------|---------------|-------|-------|------|-----|---------|---------|-----|------|-----------------|-----|------|-------|------|-----|-----|----|----|-------|------------|-----|------|------|-------------|---------------|-----|-------|------|-----|----------|---------------|-----|------|-----------|----------|-----------|---------------|----------|------|----|-------------|-----------|---------|------|-----------|-----|
|             |  |                   | 5          | 19         | 9 9        | 61            | อ   อ | 6     | 19   | 19  | <u></u> | <u></u> | 5 2 | 20   | 50              | 50  | 8 8  |       | 50   | 50  | 20  | 5  | 12 | 2 5   | 5 5        | 21  | 5    |      | 21          | 12            | 5 5 | 3 5   | 3 3  | 52  | 2        | 2             | 5   |      |           |          | 3 2       | 5             | 5        | 53   | 23 | -23         | 13        | 3 2     | 2    | 53        | 23  |
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|             |  |                   | 5          | H 2        |            |               | 5 5   |       | S    | •   | z       |         | 5 🖂 | Σ    | V               | Σ   | 5 -  | · _ < | 0    | 0   | Z   | 9  | ÷. | ×   2 |            | N   | 5    | ~    | Y           | S C           | 2   |       |      | H   | Σ        | ×             | Σ   | 5    | 2         | A o      | <u> 0</u> | Z             | 9        | ÷.   | H. | Σ           |           | 2 F     | 5    | Y         | Ś   |
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|             | Detailed Dissemination and   |                   |            |            |            |               |       |       |      |     |         |         |     |      |                 |     |      |       |      |     |     |    |    |       |            |     |      |      |             |               |     |       |      |     |          |               |     |      |           |          |           |               |          |      |    |             |           |         |      |           |     |
| GREENER     | Communication Plan   | AXIA              |            |            |            |               |       |       |      |     |         |         | D   |      |                 |     |      |       |      |     |     |    | D  |       |            |     |      |      |             |               |     |       |      | D   |          |               |     |      |           |          |           |               |          |      |    |             | $\square$ |         |      |           |     |
| GREENER     | Website  | AXIA              |            |            |            | D             |       |       |      |     |         |         |     |      |                 |     |      |       |      |     |     |    |    |       |            |     |      |      |             |               |     |       |      |     |          |               |     |      |           |          |           |               |          |      |    |             |           |         |      |           |     |
| GREENER     | Videos   | AXIA              |            |            |            | $\square$     |       |       |      |     |         |         |     |      |                 |     |      |       |      |     |     |    |    |       |            |     |      |      |             |               |     |       |      |     |          |               |     |      |           |          |           |               |          |      |    |             | $\square$ | $\perp$ |      |           |     |
| GREENER     | Project logo   | AXIA              |            |            |            |               |       |       |      |     |         |         |     |      |                 |     |      |       |      |     |     |    |    |       |            |     |      |      |             |               |     |       |      |     |          |               |     |      |           |          |           |               |          |      |    |             |           |         |      |           |     |
| GREENER     | Newsletter (6 months)  | AXIA              |            |            |            |               |       |       |      |     |         |         |     |      |                 |     |      |       |      |     |     |    |    |       |            |     |      |      |             |               |     |       |      |     |          |               |     |      |           |          |           |               |          |      |    |             |           |         |      |           |     |
|             |  |                   |            |            |            |               |       |       |      |     |         |         |     |      |                 |     |      |       |      |     |     |    |    |       |            |     |      |      |             |               |     |       |      |     |          |               |     |      |           |          |           |               |          |      |    | 1 !         | 1         |         |      | 1         |     |
| GREENER     | Templates for presentations and reporting  | AXIA              |            |            |            |               |       |       |      |     |         |         |     |      |                 |     |      |       |      |     |     |    |    |       |            |     |      |      |             |               |     |       |      |     |          | $\rightarrow$ |     |      |           |          |           |               |          |      |    |             | $\square$ | $\perp$ |      |           |     |
| GREENER     | Informational fact sheet   | AXIA              |            |            |            |               |       |       |      |     |         |         |     |      |                 |     |      |       |      |     |     |    |    |       |            |     |      |      |             |               |     |       |      |     |          |               |     |      |           |          |           |               |          |      |    | $\square$   | $\square$ | $\perp$ |      |           |     |
| GREENER     | leaflets (within 12 months)  | AXIA              |            |            |            | $\square$     |       |       |      |     |         |         |     |      | $\square$       |     |      |       |      |     |     |    |    |       |            |     |      |      |             |               |     |       |      |     |          | $\rightarrow$ | _   |      |           |          |           |               |          |      |    | $\square$   | $\square$ |         |      | $\square$ |     |
| GREENER     | posters (within 12 months)   | AXIA              |            |            |            |               |       |       |      |     |         |         |     |      |                 |     |      |       |      |     |     |    |    |       |            |     |      |      |             |               |     |       |      |     |          |               |     |      |           |          |           |               |          |      |    | $\square$   | $\square$ | $\perp$ |      |           |     |
|             | folders and USB memory sticks (within  |                   |            |            |            |               |       |       |      |     |         |         |     |      |                 |     |      |       |      |     |     |    |    |       |            |     |      |      |             |               |     |       |      |     |          |               |     |      |           |          |           |               |          |      |    | 1 /         | ( L       |         |      | 1         |     |
| GREENER     | 12 months)   | AXIA              |            |            |            |               |       |       |      |     |         |         |     |      | $\square$       |     |      |       |      |     |     |    |    |       |            |     |      |      |             |               |     |       |      |     |          | $\rightarrow$ |     |      |           |          |           |               |          |      |    | $\square$   | $\square$ |         |      | $\square$ |     |
| GREENER     | Social Media   | AXIA              |            |            |            | $\square$     |       |       |      |     |         |         |     |      |                 |     |      |       |      |     |     |    |    |       |            |     |      |      |             |               |     |       |      |     |          |               |     |      |           |          |           |               |          |      |    | $\square$   | $\square$ | $\perp$ |      |           |     |
| GREENER     | specific project posters   | academic partners |            |            |            | $\square$     |       |       |      |     |         |         |     |      | $\square$       |     |      |       |      |     |     |    |    |       |            |     |      |      |             |               |     |       |      |     |          | $\rightarrow$ |     |      |           |          |           | $\square$     |          |      |    | $\square$   | $\square$ |         |      | $\square$ |     |
|             | Demonstrations at pilot sites are  |                   |            |            |            |               |       |       |      |     |         |         |     |      |                 |     |      |       |      |     |     |    |    |       |            |     |      |      |             |               |     |       |      |     |          |               |     |      |           |          |           |               |          |      |    | 1 !         | 1         |         |      | 1         |     |
| GREENER     | envisaged for end-users (M30-36)   | AXIA              |            |            |            |               |       |       |      |     |         |         |     |      |                 |     |      |       |      |     |     |    |    |       |            |     |      |      |             |               |     |       |      |     |          |               |     |      |           |          |           |               |          |      |    |             |           |         |      |           |     |
|             | a training workshop for stakeholders   |                   |            |            |            | П             |       |       |      |     |         |         |     |      |                 |     |      |       |      |     |     |    |    |       |            |     |      |      |             |               |     |       |      |     |          |               |     |      |           |          |           |               |          |      |    |             | ſΤ        |         |      |           |     |
| GREENER     | (M36)  | AXIA              |            |            |            |               |       |       |      |     |         |         |     |      |                 |     |      |       |      |     |     |    |    |       |            |     |      |      |             |               |     |       |      |     |          |               |     |      |           |          |           |               |          |      |    |             |           |         |      |           |     |
|             | Conference (including China in one of  |                   |            |            |            |               |       |       |      |     |         |         |     |      |                 |     |      |       |      |     |     |    |    |       |            |     |      |      |             |               |     |       |      |     |          |               |     |      |           |          |           |               |          |      |    |             | 4 L       |         |      |           |     |
| GREENER     | the events) M48  | AXIA              |            |            |            |               |       |       |      |     |         |         |     |      |                 |     |      |       |      |     |     |    |    |       |            |     |      |      |             |               |     |       |      |     |          |               |     |      |           |          |           |               |          |      |    |             | $\square$ |         |      |           |     |
|             |  |                   |            |            |            |               |       |       |      |     |         |         |     |      |                 |     |      |       |      |     |     |    |    |       |            |     |      |      |             |               |     |       |      |     |          |               |     |      |           |          |           |               |          |      |    | 1 /         | ( L       |         |      | 1         |     |
|             | later all a solutions and the state of the s |                   |            |            |            |               |       |       |      |     |         |         |     |      |                 |     |      |       |      |     |     |    |    |       |            |     |      |      |             |               |     |       |      |     |          |               |     |      |           |          |           |               |          |      |    | 1 /         | ( L       |         |      | 1         |     |
|             | interactions with relevant technology and  |                   |            |            |            |               |       |       |      |     |         |         |     |      |                 |     |      |       |      |     |     |    |    |       |            |     |      |      |             |               |     |       |      |     |          |               |     |      |           |          |           |               |          |      |    | 1 !         | 1         |         |      | 1         |     |
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| GREENER     | Social Acceptance Analysis   | AVIA              |            | +          | +          | ++            | +     | +     | +    |     | +       | +       | -   | +    | +               | -+  | +    | +     | +    |     |     | +  | -  | -     | +          | -   | -    | +    |             | $\rightarrow$ | +   | +     | -    | -   |          | +             | -   | +    | +         | +        | +         | +             |          | -    | -  | $\vdash$    | ++        | +       | +    | $\vdash$  | _   |
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Figure 4. Gantt chart for internal monitoring of activities.

# 3. Communication tools

# 3.1 Project corporate identity

Visual and graphic point of view allows an easier identification in-and outside the consortium for the GREENER Project, allowing wide dissemination of the Project results.

# 3.1.1 Logo

The GREENER logo was created by AXIA Innovation at the beginning of the project in order to define a project identity, so clearly to identify any kind of internal or public document (deliverables, reports, internal communications, publications, website, social media etc.). The project logo is available with an acronym in both vertical and horizontal formats.



## 3.1.2 GREENER templates

Many types of templates have been developed such as Power Point Template, Deliverable Template, agenda template, dissemination template in order to serve different purposes and share information relative to the project. All of these follow the same visual logic as the project and logo and include the EU emblem as well as the acknowledgment of European funding: *"This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No. 826312"*.





Figure 6. PowerPoint template with a variety of formats and layouts provided by the Master Slides



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|                            | ITC institute of technology Calibra                    |                 |  |
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Figure 7. Word Documents for the completion of project deliverables

|                  | GREENER   | Schedul    | led time Activity                          | Presenter           |
|------------------|---|------------|--|---------------------|
| "Int<br>F        | egrated Systems for Effect<br>nvironmental Remediation  | ive        | 15 Gathering<br>Discussion between perform | All partners        |
|                  | (Decidates 926242)  | 945-11     | 01 Over discussion                         | Partners            |
|                  | (Project no 626312)   |            | First discussion on                        |                     |
|                  | 6-  | 9:00-18    | 00 WP 1: X000<br>Description<br>1. X007    | Test cases partners |
|                  |   | 10.00-1    | 2 X07<br>8-15 Short Calling break          | All continues       |
|                  | areener   | 10.00 - 1  | Discussion between pertners                | Al partners         |
|                  | greener   | 16-15-1    | 7:15 WP2: X000K                            |                     |
|                  | Kick-off meeting  |            | Description                                |                     |
|                  |   | 17:15-1    | 7:45 WP2: X0000                            | All partners        |
|                  |   |            | Description                                |                     |
| Date             | 01/04/2019  | 20:00      | Dinner                                     |                     |
| Vesce            | ICORAM (ADE building Asianera Campus, University of Bur   | uos. Soain | -  |                     |
| Contect person   |   |            |  |                     |
| Partisiaans List | 1 2007/0 10 2017/0<br>2 400 a 14 2017/0<br>2 400 a 14 2017/0<br>2 400 a 14 2017/0<br>4 55 a 14 2017/0<br>4 55 a 14 2017/0<br>4 55 a 14 2017/0<br>4 56 a 14 2017/0<br>4 56 a 14 2017/0<br>4 56 a 14 2017/0<br>5 400 a 14 2017/0<br>5 400 a 14 2017/0<br>1 2 400 a 14 2000 a 14 2000 a 14 2000 a 14 2000 a 14 20000 |            |  |                     |
|                  |   |            |  |                     |

*Figure 8.* The Agenda template using for the preparation of internal meetings as well as external events organized by the GREENER consortium





*Figure 9.* A dissemination template using by partners in order to present their participation

## 3.1.3 Printed material

### 3.1.3.1 Flyer-Brochure

The flyer represents synthetically and clearly the most important aspects of the GREENER project: the objectives, the workplan, the technologies, the impact and the partners, everything perfectly combined with images and colours. The GREENER brochure is oriented to raise awareness and provide visibility to the project for the large non-specialist community as well as the community of relevant stakeholders.



# Figure 10. GREENER brochure



## 3.1.3.2 Roll up

A general roll-up has been designed with the first information of the project in order to promote the project during the events.



*Figure 11. GREENER roll up* 

#### 3.1.3.3 Poster



A project poster has been designed to be used for dissemination purposes of the project.



Figure 12. GREENER poster

#### 3.1.3.4 Folder

A presentation folder with a pocket that can hold relevant documents has been created. It is a very good promotion material with functional usage.



*Figure 13. GREENER folder* 



## 3.1.3.5 Lanyards

A template of lanyards has been designed for use in Project meetings. They are useful and practical items, containing information about partners (name, logo) and meetings (date, place).



Figure 14. GREENER Lanyard

### 3.1.3.6 e-mail Banner

In order to further attract and engage a higher target audience an email signature was created for official communication of the project, i.e. the distribution of project news, announcements, etc. The email Banner provides an easy to use news invitation along with the social media identifiers, as well as the contact information of the project including an active link to the website and news.



Figure 15. GREENER e-mail banner



## 3.1.4 Newsletters

The project newsletters are being designed by AXIA with the contribution of project partners. It is planned that new versions of the newsletter will be sent to the mailing database every 6 months according to the project progress. Each partner will share the newsletter among their contacts. The newsletter has also to be published on social network profiles and the project website.

#### 1<sup>st</sup> Issue



# Figure 16. GREENER 1st Newsletter



Figure 17. GREENER 2nd Newsletter



#### 3rd Issue



## Figure 18: GREENER 3<sup>rd</sup> Newsletter.

#### 4<sup>th</sup> Issue



Figure 19: GREENER 4<sup>th</sup> Newsletter

#### 3.1.5 Press releases

Minimum one press release per year will be published by project partners. Press release already performed is shown below. The first project press release was published in April 2019 in order to inform about the project kick-off meeting and the second one right after the 12M meeting, which was also followed by an interesting visit to an Irish Sugar site (being one of the contamination sites investigated under GREENER.





Figure 20. 1<sup>st</sup> and 2<sup>nd</sup> GREENER Press Release

## 3.2 Website

The website is the project's showcase and aims to increase public awareness of the project by providing visual and easy to comprehend information about the GREENER concept. The GREENER project website has been created by AXIA Innovation during the early project stage and launched under the <u>www.greener-h2020.eu</u>. Its structure comprises of the following sections: Home, About, GREENER's core, Our team, News, Technology watch, Download Centre, Contact. The site itself is split into two sections: private and public. The public section, which is accessible to everyone, contains general information about the objectives of the project, partners' details, a list of news and events, all public material that will be generated by the project, links to social network profiles, newsletter subscription, contact information.







| 7  | Subscribe to our News  | sletter  |    |   |   |
|--|--|--|----|---|---|
|  |  |  |    |   |   |
|  | Submit<br>Register & Unregister (  |  |    |   |   |
| Contact<br>Project Goordination Items, EVERATV Lod<br>Converty Innovation Villag, Offer IVT, Convert Rd,<br>Converty VIT, TU, United Righton | Project Details<br>Project Tale Insparad existence for effective<br>environmental remediation<br>C-6400TC-0-42018. New biotechnologies for environmental | Funding<br>The GREDIES project has received funding from the<br>European Union's Hoster 2020 research and involution<br>programme union the flower of apprecent lose 120212. | in | f | 0 |
| Email: Info@greenerh-2000.com<br>©2009-GREENER.AD-rojets reserv  | remediation (Ra)   | Design & Development by RDC Informatics  |    |   |   |

## *Figure 21. GREENER homepage*

The website also includes detailed information related to the workplan, objectives and the impact of the project.

Under GREENER's core the GREENER technologies can be found as well as the GREENER contaminated sites.



The different contaminated sites are being selected by consortium (EU) partners to be used during innovation activities. As can be seen on the map below, polluted soli will be collected from Spain, Ireland, Belgium and Shandong (China). Contaminated water will be collected from Spain, the Netherlands and Germany. Overall, Spain will host 3 contaminated sites, Belgium 3, followed by Germany with 2, the Netherlands with 1, Ireland having 1 and China with 1 contaminated sites.



Figure 22. GREENER contaminated sites



The GREENER team can be found under the "our team" tab where the management structure is presented as well as the project partners.



Figure 23. GREENER consortium

A <u>stakeholders' platform</u> was designed by Sustainable Innovations and added in a separate tab of the GREENER website. The platform, will bring together a wide variety of actors leading the way for the upscaling of bioremediation innovations within the industry. An ecosystem for discussing ideas, and connect with potential partners all around Europe. Through this initiative, European and Chinese contaminated systems were identified as well as the best suitable bioremediation technologies for them were pointed out. This interactive map is filled with new opportunities to link your project or technology with potential partners, with the possibility of joining the map and increase your visibility.




| SITE NAME  | LOCATION                    | SAMPLE<br>TYPE | TARGET CONTAMINANT               | BIOREMEDIATION TECHNOLOGY   |
|--|-----------------------------|----------------|----------------------------------|---|
| Soil with TPHs and heavy metals                            | Toledo, Spain               | Soil           | TPH, Heavy metals                | Bioaugmentation/ Bioestumaltion/<br>Bioelectrochemical systems (BES)  |
| Greencore: Former Irish Sugar Site Carlow                  | Carlow, Ireland             | Soil           | ТРН                              | Bioaugmentation/Bioestimulation<br>Hybrid technology<br>(Phytoremediation/Bioestimulation<br>& bioaugmentation - Ecopile) |
| Sediment of River Saale downstream of<br>industrial area   | Saxony-Anhalt,<br>Germany   | Sediment       | Heavy metals, PAH                | Bioelectrochemical systems (BES)  |
| Deventer Hospital  | Sneek, The<br>Netherlands   | Water          | Pharmaceuticals<br>(antibiotics) | Bioelectrochemical systems (BES)  |
| Dyeing facility for 3D-print-parts                         | Munich, Germany             | Water          | Chromium, Dyes                   | Phycoremediation  |
| Major nonferrous melter 1 (Cu, Zn, Sn)                     | Flanders, Belgium           | Soil           | Heavy metals                     | Phycoremediation  |
| Major nonferrous melter 2 (Pb, Sb)                         | Flanders, Belgium           | Soil-Water     | Heavy metals                     | Phycoremediation  |
| Major nonferrous industry (copper and aluminium wireworks) | Hemiksem, Belgium           | Soil-Water     | Heavy metals                     | Bioelectrochemical systems (BES),<br>removal and recovery of<br>nanoparticles   |
| Metal refining industry                                    | Bade-Wüttenberg,<br>Germany | Water          | Metals                           | Bioelectrochemical systems (BES)  |
| Contaminated site with pesticides                          | Spain                       | Soil-Water     | Pesticides                       | Bioelectrochemical systems (BES)  |
|  |                             |                |                                  |   |



*Deliverable D8.2 CE-BIOTEC-04-2018*  

A dedicated section under the <u>announcements tab</u> includes:

- News
- Technology watch
- Youth dissemination
- Past events &
- Upcoming events

The Library (download centre) includes all publicly available material that can be downloaded by visitors:

- Dissemination material (including printed material and training manuals as well as videos)
- Newsletters and press releases
- Public deliverables
- Open access publications
- A photo gallery from the consortium meetings

The second part of the website is a private section that is available to the GREENER partners. The private section can be accessed via log-in credentials. This restricted area will contain deliverables, reports, information about meetings, templates and editable dissemination material.

The project website is the primary information source for the targeted audiences. The purpose of the website is to promote the project and its results to the environmental relevant sectors, the wider public, academia, policy makers and stakeholders, even beyond the project's community.

The GREENER website also has a dedicated private area for users to access using given credentials. The private area is restricted to the partners and possible stakeholders who will approach the project during its implementation, since it will be the repository of all deliverables and confidential documents.





Figure 24. GREENER's website private area

#### Website analytics

**Audience:** As presented below the GREENER website is a world interest website with visitors from 144 countries around the globe (Figure 25), while the main bulk of visitors are from the European continent (nearly 47%), Asian (nearly 37%) and American (nearly 13%) (Figure 26).





Figure 26. Visitors per continent.

From the 6,697 unique visitors that visited the website nearly 10.6% are returning visitors that often check for news and updates in the website.





Figure 27. New vs returning visitors

Visitors stay the most at the homepage of the website (41.81%) and at the Objectives tab (10.59%). Most visitors, nearly 53%, are flowing to the website via a direct link without searching it in a search engine. Visitors that use a search engine to find the website are nearly 37.2% and 6.4% flow to the website via social media.

|    |                                       |   | <b>17,219</b><br>% of Total: 100.00% (17,219) | 244:44:28<br>% of Total: 100.00% (244:44:28) |
|----|---------------------------------------|---|---|--|
| 1. | /en/normal/home                       | æ | 8,059   | 41.88%                                       |
| 2. | /en/static/objectives                 | ළ | 1,515   | 10.59%                                       |
| 3. | /en/static/partners                   | ළ | 971   | 5.80%  |
| 4. | /en/static/greener_technologies       | ළ | 854   | 4.84%  |
| 5. | /en/static/management                 | æ | 577   | 2.96%  |
| 6. | /en/static/workplan                   | æ | 524   | 4.31%  |
| 7. | /en/normal/1/categories               | ළ | 463   | 2.73%  |
| 8. | /en/static/dissemination_material     | ළ | 363   | 2.90%  |
| 9. | /en/static/greener_contaminated_sites | ළ | 344   | 2.11%  |

#### Figure 28. Time spend by visitors per session in each page and visitors flow

The visitors age is mostly between 25-34 years old (28%). The visitor's gender is nearly equal between males and females, which indicates that the project concerns equally each gender.



| Age        | Users 🗸 🗸                                  | Users                                      |                     |
|------------|--|--|---------------------|
|            | <b>2,410</b><br>% of Total: 35.99% (6,697) | <b>2,410</b><br>% of Total: 35.99% (6,697) |                     |
| 1. 🔳 25-34 | 719  | 28.89%                                     |                     |
| 2. 🔳 18-24 | 589  | 23.66%                                     | 49.3% 50.7%         |
| 3. 35-44   | 441  | 17.72%                                     | male                |
| 4. 45-54   | 341  | 13.70%                                     | 1,449 Users (50.7%) |
| 5. 🔳 55-64 | 214  | 8.60%                                      |                     |
| 6. 🔳 65+   | 185  | 7.43%                                      |                     |

Figure 29. Visitors' age and gender

#### 3.3 Social Media

In addition to the webpage, three social media platforms have been developed for the GREENER project, these are Facebook, Twitter, and LinkedIn, as well as a YouTube account. These media have been selected to maximize dissemination/communication of the project results to a wide public audience, such as professionals whose work is related to the environmental and bioremediation sector as well the wider public that may be interested in obtaining information about current technological and scientific projects.



**Greener** 

Figure 30. GREENER Social media pages



Figure 31. GREENER YouTube page



https://www.youtube.com/channel/UCSya33WYKK4m2TP83Or5Kaw/videos

Project partners are encouraged to visit these links and communicate them to their professional and private networks. Access to the social media is also supported on the project webpage.



#### Paid campaigns

Social media (in particular Facebook and LinkedIn provide the opportunity to promote content that is created in different formats and increase the engagement and the views of specific posts. Posts that can be selected for paid campaigns/advertisement could include event organisation, workshop, training activities, project video, printed material etc., all aiming to reach a wider audience. Social media provide options to focus the campaign on a specific target audience, depending on the content of the post one is promoting. When creating a paid campaign interesting data are gained on how the audience reacts to it (see also paragraph below).

Facebook paid campaigns are a good option and are generally an affordable option, especially compared to LinkedIn ads, since one has better control over the budget. A maximum amount spend can be set, while when making use of the analytics the platform provides campaigns can be refined over time based on the outcomes. Moreover, most people are on Facebook, while spending a lot of time on the platform. Facebook stores several data regarding its users and therefore campaigns targeting specific audiences can be set up based on:

- Gender and age
- Geographic location
- Interests and behavioural tendencies
- Previous visits to the project's website etc. [2]

In GREENER a paid campaign was made for promoting the GREENER project video in January 2021. Spectacular results can be seen in the following figures (see also next paragraph regarding analytics).

<sup>[&</sup>lt;sup>2</sup>]https://www.kunocreative.com/blog/why-use-paid-media-on-

facebook#:~:text=Your%20ads%20can%20show%20up,have%20for%20interacting%20with%20it.

#### Audience

This ad reached **17,760** people in your audience.











#### Statistics

Evaluation of the accessibility and efficiency of the project's social media platforms to disseminate information and engage the public will be made based on performance metrics, such as page likes, post impressions, page views, etc. The following Figure presents analytics from all three GREENER social media that are monitored consistently. Regarding Facebook Page Likes have recently reached almost 200, while after promoting a post through a paid campaign in January 2021, post impressions jumped from 10k to 50k within a week and now they are over 60000.

Regarding LinkedIn the followers have reached over 600 and the post impressions are over 70k, with an engagement above 4000. Finally, for Twitter statistics have revealed impressive results related to post impressions which are more than 110k with an engagement of about 2000. It should be noted that these analytics for Twitter do not include a pain campaign.











## 4. Dissemination actions

#### 4.1 Conferences /Congresses

GREENER promotes project presentation at scientific conferences targeting relevant domains for the project. The impact of presentations at this kind of events is very high because of the attendance of scientists and industrial experts. National and international conferences are an excellent opportunity to share the results with experts in the field and, therefore, to achieve an effective dissemination of the project. Workshops, meetings and other large events (exhibitions, trade fairs) represent relevant opportunities for dissemination. The goal of these events will be to disseminate both the technologies applied during the project and the preliminary results of the project to the targeted audiences of GREENER.

*Table 4* summarises the events that the GREENER consortium has attended. In **Figure 34** some representative pictures of partners presenting GREENER in different events are shown.

| NO. | Partner       | Type of activities   | Title   | When                        | Place                 |
|-----|---------------|--|---|-----------------------------|-----------------------|
| 1   | ICCRAM-UBU    | Organisation of<br>workshop  | International Workshop<br>in Environmental<br>Biotechnology: Towards a<br>GREENER world                             | 3/4/2019                    | Burgos,<br>Spain      |
| 2   | AXIA          | Participation to an<br>event other than a<br>conference or<br>workshop | EuroNanoForum 2019  | 12/06/2019 to<br>14/06/2019 | Bucharest,<br>Romania |
| 3   | NTU           | Participation to a conference  | The 10thNational<br>Conference on<br>Environmental Chemistry  | 15/08/2019 -<br>19/08/2019  | Tianjin,<br>China     |
| 4   | QUST          | Participation to an<br>event other than a<br>conference or<br>workshop | China and Korea 2019<br>Environmental<br>Technology Exchange<br>and Cooperation<br>Symposium                        | 21/08/2019 to<br>22/08/2019 | Qingdao,<br>China     |
| 5   | Nanjing Tech  | Participation to an<br>international<br>conference                     | The 2nd International<br>Conference on Non-point<br>Source Pollution Control<br>and Aquatic Ecosystem<br>Protection | 20/09/2019 to<br>23/09/2019 | Wuhan,<br>China       |
| 6   | University of | Participation to an  | Meeting of the Bioenergy  | 9/9/2019                    | Swindon               |

Table 4. Database of GREENER dissemination activities

|    | Surrey                  | event other than a<br>conference or<br>workshop  | Strategic Coordination<br>Group (Biotechnology<br>and Biological Sciences<br>Research Council, UKRI) |                            | (UK)               |
|----|-------------------------|--|--|----------------------------|--------------------|
| 7  | University of<br>Surrey | Participation to a conference  | European Biosolids and<br>Organic Resources<br>Conference  | 19 &<br>20/11/2019         | Manchester<br>(UK) |
| 8  | University of<br>Surrey | Participation to a<br>workshop   | Metal bio-recovery and<br>bio-remediation<br>workshop  | 28/11/2019-<br>29/11/2019  | Manchester,<br>UK  |
| 9  | University of<br>Surrey | Participation to an<br>event other than a<br>conference or<br>workshop                   | EBNet Research colloquium 2020   | 22/01/2020 -<br>23/01/2020 | Edinburgh,<br>UK   |
| 10 | Materia Nova            | Participation to an<br>event other than a<br>conference or<br>workshop                   | Scientific meeting at the<br>University of Mons  | 6/3/2020                   | Mons, BE           |
| 11 | University of<br>Surrey | Participation to an<br>event other than a<br>conference or<br>workshop                   | Doctoral College<br>Conference   | June 22-23/<br>6/2020      | Surrey             |
| 12 | TAUW                    | Non-scientific and<br>non-peer reviewed<br>publications<br>(popularised<br>publications) | Short Article  | 16/09/2020                 | online             |
| 13 | UBU-ICCRAM              | Organisation of<br>workshop  | Consortium workshop  | 16/06/2020                 | online             |
| 14 | University of<br>Surrey | Participation to a conference  | 1st Virtual ISMET<br>Meeting   | 7th to 9th<br>October 2020 | online             |
| 15 | UBU-ICCRAM              | Participation to an<br>event other than a<br>conference or<br>workshop                   | 11 Feb event in Spanish<br>¿Es Europa la panacea<br>para las investigadoras?                         | 11-Feb-21                  | online             |
| 16 | UBU-ICCRAM              | Participation to an<br>event other than a<br>conference or<br>workshop                   | H2020 Soil Cluster<br>session of the Soil<br>Coordinators Day  | 13-Jan-21                  | online             |
| 17 | UBU-ICCRAM              | Participation to an<br>event other than a<br>conference or<br>workshop                   | European Researchers'<br>Night   | 27-Nov-20                  | online             |
| 18 | AXIA                    | Participation to an<br>event other than a<br>conference or<br>workshop                   | EU Research and<br>Innovation Days   | 22-24 Sept-20              | online             |
| 10 | UBU                     | Participation to an<br>event other than a<br>conference or                               | Round table: "How to<br>reverse the Matilda<br>effect"   | 11-Feb 21                  |                    |
| 20 | TAWU                    | Non-scientific and<br>non-peer reviewed  | GREENER solutions for contaminated soil and  | 2 October<br>2020          | online             |

|    |            | publications<br>(popularised<br>publications)                          | water   |                           |                    |
|----|------------|--|---|---------------------------|--------------------|
| 21 | BATH       | Participation to a<br>workshop   | EU ISMET  | September<br>2021         | Spain              |
| 22 | BATH       | Participation to a workshop  | AP ISMET  | July 2021                 | China              |
| 23 | BATH       | Participation to a conference  | Conference held by The<br>Korean Society for<br>Biotechnology and<br>Bioengineering.                                      | 6-9 October<br>2021       |                    |
| 24 | UBU-ICCRAM | Organisation of<br>workshop  | Researchers Night 2021  | 24 September<br>2021      | Burgos,<br>Spain   |
| 25 | UBU-ICCRAM | Participation to a conference  | CONDEGRES 2021  | 24-25 May<br>2021         | online             |
| 26 | UBU-ICCRAM | Participation to a conference  | CISDS2021   | 17-18 June<br>2021        | online             |
| 27 | UBU-ICCRAM | Participation to a conference  | EUROSOIL 2021   | 23-27 August<br>2021      | online             |
| 28 | UBU-ICCRAM | Participation to a conference  | AquaConSoil 2021  | June 2021                 |                    |
| 29 | BATH       | Participation to a conference  | EFC21   | 15-17<br>December<br>2021 | Online             |
| 30 | UBU-ICCRAM | Participation to an<br>event other than a<br>conference or<br>workshop | Conference talk by<br>ICCRAM Research<br>Center at Universidad de<br>Burgos   | 2 December<br>2021        | online             |
| 31 | ACCIONA    | Participation to a conference  | Participation in the first<br>national congress on<br>Economía Circular y<br>Comunicación<br>Ambiental, ECCA              | 5-7 October<br>2021       | online             |
| 32 | UBU-ICCRAM | Participation to a conference  | Conference of<br>Researchers of Castilla<br>and León 2021   | 15 April 2021             | online             |
| 33 | UBU-ICCRAM | Organisation of a<br>workshop  | Adaptation of soils and<br>agricultural practices to<br>climate change  | 20 January<br>2022        | Online             |
| 34 | UBU-ICCRAM | Organisation of a workshop   | Pollutant hunters   | 9 February<br>2022        | School             |
| 35 | UBU-ICCRAM | Participation to an<br>event other than a<br>conference or<br>workshop | Presentation of<br>GREENER and other<br>projects in Faculty of<br>Agriculture of the<br>University of Zagreb<br>(Croatia) | 19 January<br>2022        | Zagreb,<br>Croatia |



Figure 34. Partners attending dissemination events

According to the replies collected from partners through the distributed questionnaires the following charts have been graphed in order to present a. which communication channels the partners will use to communicate their research and b. the type of audience they are usually targeting.



a. 7 6 5 4 3 2 1 0 MIB SIE USUR DUT SDAS JIAU NTU QUST EXE TAUW VTG ЦC UNICA MANO ACC AXIA S MEN Ш UAM BATH UBU Civil Society Scientific Community Industry General Public Policy makers Medias Investors Customers other

b.

*Figure 35. a. communication channels used by the partners and b. type of targeted audience* 

#### 4.2 Organisation of project workshops

During the GREENER project at least two workshops are foreseen in the course of the project to ensure optimal visibility and maximise the impact of the project on the community.

Under the GREENER project the International Workshop in Environmental Biotechnology: Towards a GREENER world, was already organized. This workshop was a 1-day meeting that included keynotes, different case studies, and presentations by international experts in the soil and water bioremediation field. The workshop was launched together with the GREENER Kick-off meeting (1-2 April) and was a unique opportunity to learn about the project and to discover successful remediation case studies at European and International Level.



Figure 36. International Workshop in Environmental Biotechnology organized under GREENER project

The International Workshop aimed to provide a comprehensive overview of the current international panorama on the field of environmental biotechnology and bioremediation case studies. This workshop was an opportunity to bring together the most relevant scientific community and leading industries in the field of soil and water remediation. The following Figure includes the Agenda of the workshop.





Figure 37. Leaflet for the International Workshop in Environmental Biotechnology

During the meeting GREENER partners explained the technologies used under the project aiming to develop green, sustainable, efficient, and low-cost solutions for soil/sediment and water bioremediation. Moreover, Dr Rocio Barros Garcia from ICCRAM (UBU) gave an interview on local media explaining the targets of the GREENER project.



*Figure 38.* Dr Rocio Barros from ICCRAM, which organised the International H2020 Workshop in Environmental Biotechnology, promotes GREENER Project to media



One additional internal workshop was organised by the project coordinator UBU, between the Greener Project consortium that was held online on 16 June 2020. Partners discussed their progress, aiming also to connect the different GREENER technologies, define a collaborative working plan between the consortium and agree on any modifications of the planning needed due to the COVID-19 pandemic.



*Figure 39.* Online internal workshop

#### 4.3 Training activities

- Training workshops

Training activities contribute to professional development through advanced training of researchers and other key staff, research managers, industrial executives, and potential users of the knowledge generated by the project. In order to promote the new knowledge generated during the GREENER project, as well as to create new links with the interested audiences in the GREENER market, other related sectors and the environmental sector (e.g. recovery of metals for a circular economy and their repercussions), at least three **e-learning training modules** will be held. These modules will have a strong scientific focus on the current remediation and bioremediation techniques and how to implement BES and GREENER single and hybrid bioremediation solutions, apart from the potential skills acquired for the development of the solutions in the EU and Chinese demo sites. Furthermore, GREENER Project targets to expand the dissemination actions towards younger audiences which can help to achieve higher visibility of the project by organizing workshops in secondary schools, fabricating materials and prototyping practices for teaching the public how to conduct remediation. This could also be an exploitable outcome of the project.

In the following tables the past and planned training activities are summarized as well as some pictures are included showing partners attending training events.

Passed activities:

| Table 5 GREENER passe | d training activities |
|-----------------------|-----------------------|
|-----------------------|-----------------------|

| Type of training<br>activity* | Partners<br>Involved | Brief description  | Date             | Place                      |
|-------------------------------|----------------------|--|------------------|----------------------------|
| Training for students         | ICRAAM-UoB           | basic experiments<br>in primary schools  | 25/11/2019       | Burgos, Spain              |
| Training for students         | Mendel<br>University | Night Open days<br>and presentation at<br>the Czech TV   | 27/09/2019       | Brno, Czech<br>Republic    |
| 5 Trainings for students      | ICRAAM-UoB           | La semana de la<br>Ciencia de Castilla<br>y León: basic<br>experiments and<br>talks in 5 schools | 1-15/2/2020      | Castile and León,<br>Spain |
| 2 Training for students       | ICRAAM-UoB           | 9-11 February<br>training activities   | 9-11/02/2021     | Burgos, Spain              |
| Ask a scientist               | ICRAAM-UoB           | Activities<br>addressed to 7-8<br>years old students,<br>in Burgos.                              | 6 September 2021 | ONLINE                     |
|                               |                      | 0  | 1                |                            |

\*Training activity: PhD/ post doc fellowship, researcher mobility, seminal events, courses, seminars, etc.

During "La semana de la Ciencia de Castilla y León" on 25 of November, 2019 GREENER partner, ICCRAM-UOB has performed lectures about microorganisms and pollution as well as basic experiments in a primary school under the frame of the Project. Students learnt about a special branch of engineering called bioremediation, which is the use of living organisms to aid in the clean-up of polluted sides.





*Figure 40.* ICCRAM, GREENER partner has performed lectures about microorganisms and pollution as well as basic experiments in a primary school.

Moreover, GREENER Project partner, Mendel University in Brno (Department of Chemistry and Biochemistry) has disseminated the GREENER by participating in Researchers' night open days on 27<sup>th</sup> September 2019, organized by Mendel University.



*Figure 41.* GREENER Project was popularized within Czech science in night open days on 27.09.2019, organized by Mendel University.

ICCRAM-UOB participated in the initiative "February 11st 2020", International Day of Women and Girls in Science. ICCRAM scientists performed different lectures, highlighting Greener Project objectives, in several schools, with the aim students can get an easier and funnier approach to Science (see also para. 4.2). Material from this training can be found on the GREENER website related to general information on the events as well as the presentation of the experiments conducted to the young students.



*Figure 42.* ICCRAM organised training activities in primary schools, with the aim students can get an easier and funnier approach to Science.

#### - Future plans

As future plans for 2022, an IP-related workshop hosted by SIE will be organized as part of the industry-related training workshops in the GREENER dissemination plan. The workshop "Protecting your results from collaborative projects in the bio-based industries: an IP approach" will take the form of an informative webinar available to the general public. The webinar will present the good practices carried out in the GREENER project, guaranteeing preservation and continuity of results after-project.

#### - GREENER talks

In the context of the GREENER training activities the GREENER talks have kicked off in 2021 with the aim to be used as training material (available on YouTube). During the talks the GREENER technologies are going to be presented by the consortium experts, leading activities in this project. Moreover, the challenges, the impacts and any drawbacks will also be presented and discussed during those talks. The following Table summarises the already performed talks as well as the planned talks.

#### Table 6 GREENER talks

| Type of training<br>activity* | Partners<br>Involved | <b>Brief</b> description  | Date            | Place  |
|-------------------------------|----------------------|---|-----------------|--------|
| GREENER talk 1                | UBU-ICCRAM           | Introduction, concept,<br>Challenges and UBU<br>involvement and<br>coordination           | 16 June 2021    | Online |
| GREENER Talk 2                | BATH                 | Use of BES technologies for<br>soil bioremediation" by<br>University                      | 5 November 2021 | Online |
| GREENER Talk 3                | MANO                 | Using the bacterial ability to<br>produce metallic particles as<br>a remediation strategy | 3 February 2022 | Online |
| <b>GREENER Talk 4</b>         | TAUW                 | TBD   | TBD             | Online |
| <b>GREENER Talk 5</b>         | SIE                  | TBD   | TBD             | Online |
| <b>GREENER Talk 6</b>         | LEITAT               | TBD   | TBD             | Online |
| • • •                         |                      |   |                 |        |



#### **GREENER** talk with University of Burgos

The first GREENER talk was organised by AXIA Innovation along with University of Burgos, where Dr Rocio Barros, Prof Carlos Rad and Dr Blanca Velasco have explained the GREENER concept as well as the involvement of UBU in the project implementation.

Link: <u>https://www.youtube.com/watch?v=MtTy4KjZE6Y</u>

### GREENER talk on the "Use of BES technologies for soil bioremediation" by University of Bath

AXIA Innovation has organised the second talk in the framework of the H2020 GREENER project. Dr Mirella Di Lorenzo from University of Bath was our presenter, where she explained the involvement of University of Bath in the project and the progress made so far.

Link: https://www.youtube.com/watch?v=F\_BuL3UgduM&t=78s

# GREENER talk on Using the bacterial ability to produce metallic particles as a remediation strategy

Materia Nova is participating in the third GREENER talk, in the framework of the H2020 GREENER project, focusing on exploring the bacterial ability to produce metallic particles as an efficient remediation strategy. Dr Stephanie Roosa, Project Manager at Materia Nova, has offered an interesting talk explaining the involvement of Materia Nova in the project and the possibilities the GREENER project implementation is offering.

Link YouTube: <a href="https://www.youtube.com/watch?v=VuVvHZPnyKE&t=1s">https://www.youtube.com/watch?v=VuVvHZPnyKE&t=1s</a>

#### 4.4 International Day of Women and Girls in Science

The February 11<sup>th</sup> initiative was born as a response to the imperative need of "Making women's work more visible and try to persuade female students to choose scientific and technological careers". February 11<sup>th</sup>, "the International Day of Women and Girls in Science", aims to ease the access to science

for girls and women and pursues equality and parity for those females who are already part of the scientific community.

#### 4.4.1 11 February 2020

The February 11<sup>th</sup> initiative was born as a response to the imperative need of "Making women's work more visible and try to persuade female students to choose scientific and technological careers". February 11<sup>th</sup>, the International Day of Women and Girls in Science, aims to ease the access to science for girls and women and pursues equality and parity for those females who are already part of the scientific community. People engaged in research, teaching and scientific outreach, from different institutions and agencies, took part in several activities to promote the teachings related to Science, Technology, Engineering and Mathematics, draw the youngsters' attention and interest and encouraged genre equality.

From February 1<sup>st</sup> to February 15<sup>th</sup>, scientists from different fields of expertise, working in ICCRAM, UBU, participated in the initiative, carrying out several activities - mainly talks, lectures and workshops – that took place in many schools in Burgos. Among the activities, workshops turned out to be very appealing for young people as they included uncomplicated experiments while they were adequately interactive and fun. The common thread for these scientific actions was the "GREENER" project. In a very simple way, microbiological and electrochemical experiments were carried out so students could get to know some of the techniques, developed within the project, employed for soil remediation and environmental protection. All the activities were designed for different educational levels, from 5-years-old kids to 16-years-old teens. In every activity, there was always a short time slot dedicated to introducing the "GREENER" project to students and raise awareness of the importance of taking care of the environment.

#### 4.4.1.1 Talks

During the first fortnight of February, several workshops were held in different schools and high schools in Burgos. All of them took place during school hours except one, which was open to the public and was held in the afternoon at "La Estación".



Every workshop was split into two parts. The first part was theoretical and tried to present prominent female personalities throughout history; and the second one, more of a practical kind, that allowed students to witness and collaborate on some experiments.

#### • Theoretical Part: Female Scientists throughout History

The theoretical part included:

- <u>Merit Ptah:</u> The first renowned woman in the History of Medicine and, possibly, in all Science History.,
- Tapputi (Tapputi-Belatelallin): She is considered as the first chemist in the world.,
- Maria la Judia: She was the first known female alchemist.
- Nicole-Reine Lepaute: She was a French astronomer and mathematician,
- <u>Wang Zhenyi</u>: A famous Chinese scientist who struggled to overcome many feudal traditions that hinder women growth and development,
- <u>Jeanne Villepreux-Power</u>: A pioneer in marine biology and the first woman in making an aquarium to observe, study and experiment with aquatic beings.
- <u>Mileva Maric</u>: She was the first wife of Albert Einstein. There is no little controversy about her participation in the calculations and findings ascribed to Einstein.
- Maria Salomea Skłodowska-Curie (Marie Curie): Pioneer on the radioactivity field, Marie was the first person in history to receive two different Nobel prizes in Physics and Chemistry and the first woman to occupy a position in the University of Paris.
- <u>Rosalind Fraklind</u>: She was a British chemist and crystallographer who played a fundamental role on discovering the functioning of the double DNA helix.
- *Margaret Hamilton:* Computational scientist, mathematician and systems engineer.
- Practical Part: Experiments

The experimental part included:

- <u>Volcano</u>: Sodium bicarbonate and vinegar erupt due to an acidic-basal reaction. The acetic acid, which is a weak acid, reacts and neutralizes the sodium bicarbonate (basal). The expelled carbon dioxide is a gas and is responsible for the sparkling during the "eruption".
- <u>Potato:</u> The part of Chemistry that studies transformations from chemical energy into electrical energy, and vice versa, is called "Electrochemistry". In this experiment the electrical current produced out of the "potatoes battery" comes out of a chemical reaction that takes place between the anode (negative electrode, zinc) and the cathode (positive electrode, copper).
- <u>Slime</u>: White glue contains a polymer called PVA (Polyvinyl Acetate). Borax in water is ionized allowing the cross-linking of the different PVA molecules.

#### 4.4.1.2 Locations

The locations where the training took place were Padre Manjón, Magea, Círculo, Freetime Urbano and La Estación. Some pictures of the events are shown below.



Figure 43. Indicative pictures from the event in Padre Manjón





Figure 44. Indicative pictures from the event in Magea









Figure 45. Indicative pictures from the event in Círculo







Figure 46. Indicative pictures from the event in FreeTime







Figure 47. Indicative pictures from the event in La Estación

#### 4.4.1.3 Television

On Tuesday 11<sup>th</sup> of February, representatives from UBU Brixhilda Domi, Cristina Cancho and Lara Lubián participated in the TV space "Magazine" in La8 Burgos CyLTV. In the programme, they explained what ICCRAM is and the job developed in the research center's projects. During the programme, the researchers had the opportunity to talk about the relevance of infusing passion for science from an early age, and how we can reduce the alarming figures about the gender gap regarding the STEM careers, while they also spoke about the research lines of the GREENER project (https://www.youtube.com/watch?v=\_85KFKTBOA4).



Figure 48. During the television show in La8 Burgos CyLTV

#### 4.4.1.4 Printed Press

During the week of activities, mass media become aware of workshops performed by ICCRAM team. This disclosure is important to a wide public, because in addition to technical dissemination, is very important to communicate and raise awareness of the research developed in the center, and its projects. These mass media have centered their attention in 11F days, promoting the GREENER project and ICCRAM.

## **Greener**



Thanks to the communication work in collaboration with the initiative 11 de Febrero, UCC+i of the University of Burgos, CENIEH and local mass media, ICCRAM research center and GREENER project has had a positive impact, reaching between all of them more than **250.000** people.

#### 4.4.2 11 February 2021

From February 9<sup>th</sup> to February 11<sup>th</sup>, 2021, scientists from different fields of research working at UBU-ICCRAM carried out several activities –mainly practical workshops and talks, as part of the "X<sup>th</sup> Women and Science Week in Burgos" initiative. Workshops were specifically devoted to girls ranging from 4- to 10- years-old, turning very appealing since they included uncomplicated experiments and were adequately interactive and fun. The common thread for these scientific disclosure actions was the "GREENER" project. In a quite simple way, plant physiology and soil sciences experiments, along with microscopy and electrochemical assays were carried out so children could get to know some of

<sup>&</sup>lt;sup>3</sup> https://www.ubu.es/agenda/el-iccram-participa-en-el-dia-internacional-de-la-mujer-y-la-nina-en-la-ciencia

<sup>&</sup>lt;sup>4</sup> <u>https://www.burgosconecta.es/burgos/universidad/iccram-universidad-burgos-20200131114238-nt.html</u>



the techniques developed within the project, employed for soil and water remediation thus leading to environmental protection. Behind each activity somehow referred to with the objective was to increase somehow the visibility of the "GREENER" project targets, thus raising awareness of these little girls concerning the importance of taking care of the environment regarding the planet's and human health. In addition, GREENER's coordinator Dr. Rocío Barros was part of an interesting round table on which important women linked to the scientific world discussed the Matilda effect.

#### Practical Workshops at "La Estación":

During the 10<sup>th</sup> of February 2021, two practical workshops of 1.30h duration each (one devoted to youngest girls from 4-6- years-old, and the second group including girls from 7-10 years-old), were held at the facilities of "La Estación", the innovative community-building space for co-creation activities mainly relying on STEM (Science, Technology, Engineering and Mathematics) disciplines.



*Figure 52.* February 11, 2021 activities performed by UBU.

This building, created between the University of Burgos and the City Council, embraces numerous hands-on activities and a multitude of divulgation events of very divergent disciplines. All the activities were organized and promoted by the Universidad de Burgos Scientific and Innovation Culture Unit -UCC+i.

3 women scientists (Blanca Velasco, Lara Lubián, and Sandra Curiel) belonging to the Environment and Sustainability Research Group from UBU-ICCRAM, organized the talks and practical activities shared during that day. The workshop was entitled "Descubriendo lo que no vemos" ("Discovering what we are not able to see").

Briefly, each workshop consisted of the next structure:

- During the initial presentation between the 3 scientists and the girls, a guessing game named "What's the name of this woman scientist?" was developed to attract children's attention and exhibit the work of prominent female personalities throughout history, like Merit Ptah Tapputi, María la Judía, Marie Curie, Rosalind Franklin, or Margaret Hamilton, among others.
- During the second part of the workshops, the girls participated in several educational and fun experiments, always taking into consideration the COVID-19 limitations (related to this, girls were asked to wear gloves to perform the activities):
  - A) <u>Bioenergy</u>: girls were amazed when they were explained and showed how a simple circuit of potatoes turned on a LED light. The conclusion launched to the girls was that potatoes or other natural products will not be the miraculous solution to energetic problems. Nonetheless, this experiment showed the importance of researching and understanding Nature and natural resources for a more sustainable future.
  - B) <u>Microscopy observations</u>: girls were invited to observe several samples through a simple microscope. The samples included roots and leaves from plants, algae species cultivated at Soil Sciences laboratory at UBU, water from a puddle after the rain, onion's skin, the cork of a bottle or a Kefir. This wide diversity of samples raised the awareness of the young scientists concerning the "hidden" secrets of Nature and how some "things" thought to be inanimate are alive and present a tiny, organized structure, even bringing it closer the concept of DNA easily and comprehensively. Since it was not possible to let the girls using the microscope directly due to COVID-19 limitations, an adapter for the mobile phone to

directly look on it without any contact, connected to a PC and a searchlight, were extremely useful and helpful tools for this purpose.

- C) Experiments to show phytoremediation potential of polluted water: Daisies were assigned to each girl, immersed on a falcon tube in which added blue food dye was incorporated, with the aim to make emphasis on the great potential of plants to clean up polluted water as a consequence of human uncontrolled activities. The tubes were carefully sealed with parafilm, so the children took the samples home in order to observe how the white petals turned on light blue after several days. This experiment was especially useful to explain why it is so important to reduce the pollution of soils/and water, intimately interconnected, since the absorption of the blue dye by the flowers not only shows how plants are a sustainable alternative for depolluting but they can also accumulate toxic substances that can be ingested by humans, in the case of crops. The take-home message launched in this regard was that "Everything comes back when not taking care of pollution, thus causing harmful effects to the environment and humans as well".
- D) Soil properties: different experiments routinely developed at Soil Sciences laboratories were shared and performed with the girls. ICCRAM scientists brought real soil samples subjected to different uses (uncultivated, cultivated, naked soil, organic soil, etc.), so the differences in the results were real. The experiments with soils delighted the girls, since they directly manipulated the samples, played with them, and felt as reals soil scientists for a while, determining different properties to compare the different soil types: texture, structure, presence of organic matter (simply by adding H<sub>2</sub>O<sub>2</sub>), presence of air inside a compacted mud ball, or the content of carbonates (by adding vinegar and observing bubbles). These experiments were included in the framework of the explanations of the importance of soils for multiple purposes and its relation with waters and the need to remediate already degraded/damaged soils. Regarding this last, different poster hanging on the room were used to explain the presence of beneficial microorganisms in the soils, in line with the bioremediation studies performed within the GREENER's project. Finally, the girls were offered to take home some colouring sheets with the presented microorganisms.



#### Round table: "How to reverse the Matilda effect":

The X<sup>th</sup> Women and Girls in Science edition included numerous activities on "How to reverse the Matilda effect", a phenomenon that owes its name to Matilda Joslyn Gage, who describes the lack of recognition of the achievements of women scientists in front of their male colleagues and the absence of female references in research. On the 11<sup>th</sup> of February, GREENER's coordinator Dr. Rocío Barros García opened the round table "Is Europe the panacea for female researchers?", in the framework of these activities, in which a fruitful discussion was held among prestigious women researchers of different disciplines. The video of the discussion is available in Spanish on <u>YouTube</u>.

**IMPACT:** Thanks to communication actions developed from ICCRAM, the activities promoted by the research center have had a positive impact, with the support of the press and social media. In all the activities photos and videos were taken, which are posted on social networks, increasing the impact of 11F action, thus the outreach of the GREENER project actions.

- Press:
- <u>https://www.burgosnoticias.com/ciencia/033514/la-x-semana-mujer-y-ciencia-de-burgos-</u> <u>trata-de-luchar-contra-el-efecto-matilda</u>
- <u>https://www.burgosconecta.es/burgos/universidad/semana-mujer-ciencia-20210205140813-</u> <u>nt.html</u>
- <u>https://elcorreodeburgos.elmundo.es/articulo/burgos/cientificas-burgalesas-romper-barreras/20210221933374142.html</u>
  - UBU news/updates:
  - <u>https://ubumaker.ubu.es/x-</u> semana-mujer-y-ciencia/
  - <u>https://ubuinvestiga.es/la-gran-oportunidad-para-la-mujer-investigadora-en-europa/</u>
  - <u>https://www.ubu.es/agenda/x</u> <u>-semana-mujer-y-ciencia-</u> <u>como-revertir-el-efecto-</u> <u>matilda</u>
  - <u>https://www.cenieh.es/actuali</u> <u>dad/eventos/x-semana-</u> <u>mujer-y-ciencia-del-9-al-11-</u> <u>de-febrero</u>



Varias investigadoras coincidieron en la labor positiva que está realizando la Comisión Europea

Bajo el título "¿Es Europa la panacea para las investigadoras?", varias investigadoras relataron sus vivencias e impresiones acerca de cômo se está actuando a nivel europeo sobre la presencia de las mujeres en este ámbito, en una mesa redonda realizada el pasado jueves 11 de febrero. La charia, incluida dentro de la X Semana de Mujer y Ciencia de Burgos y coordinada por María Martinón-Torres, directora del Centro Nacional de Investigación sobre la Evolución Humana (CENIEH), quiso mostrar las ventajas y dificultades con las que se encontraron, ofreciendo datos reales, posibles soluciones y meoras.



Figure 53. UBU news and updates.



- Social Media:
- https://www.facebook.com/ubuinvestiga/
- <u>https://www.linkedin.com/posts/iccram\_iccram-semanadelamujerylaciencia-laralubian-activity-6765562821515198465-HQXD</u>
- <u>https://www.linkedin.com/posts/iccram\_mesaredonda-es-europa-la-panacea-para-las-activity-6764810139301101568-Qn8B</u>



Figure 54: Social media announcements

**FINAL CONCLUSIONS:** Thanks to the communication work in collaboration with the initiative 11<sup>Th</sup> February, UCC+i of Universidad de Burgos, CENIEH and the local mass media, ICCRAM research center and specifically the GREENER project has had a positive impact, outreaching more than **250.000 people.** Events like this help scientists to reach out to a wide public, so they should take

*Deliverable D8.2 CE-BIOTEC-04-2018* 



advantage of such opportunities to spread their work, communicate science aimed to the public and to reinforce the role of women in Science.

#### Announcement from the consortium

In 11 February 2021 the women scientists of the consortium took the initiative to make a dedicated post for the day, to give credits to the women leading and participating in the activities developed under the GREENER project.



Figure 55: GREENER Social media announcement on Feb 11 2021.


### 4.4.3 11 February 2022

On February 11, 2022 the GREENER consortium made a social media announcement dedicated to the IDWGS 2022 day. This year inspirational quotes from the women involved in the GREENER consortium where also shared.



Figure 56: GREENER Social media announcement on Feb 11 2022.

#### UBU activities for 11 Feb 20222

On the occasion of February 11, 2022 ICCRAM researchers from University of Burgos organised 2 rounds of activities targeting to young students. The aim was to familiarise the kids with the technologies ICCRAM is developing and the activities they are involved in different research projects. The events are summarised below:

1. ICCRAM's women gave a great workshop, where children became researchers and could learn how to discover and remove pollution from soil, water and air!

2. Part of ICCRAM team gave a school talk and workshop in Burgos. Many of the children said they could be scientists when they grow up and they really enjoyed science!



*Figure 57:* ICCRAM activities on Feb 11 2022.

## 4.4 Targeted Events

GREENER promotes project presentation at scientific conferences targeting relevant domains for the project. The impact of presentations at this kind of events is remarkably high because of the attendance of scientists and industrial experts. National and international conferences are an excellent opportunity to share the results with experts in the field and, therefore, to achieve an effective dissemination of the project. Workshops, meetings, and other large events (exhibitions, trade fairs, showcases) represent relevant opportunities for dissemination. The goal of these events will be to disseminate both the techniques developed during the project and the preliminary results of the project to the targeted beneficiaries of the GREENER project. The following events are especially relevant for the dissemination strategy of the project. These events are collected from partners when asked to indicate their willingness in participating in events, through the D&C questionnaire that was distributed to them.

| Conference  | Acro            | Date                                | Location            | Website   |
|---|-----------------|-------------------------------------|---------------------|---|
| European Bioremediation<br>Conference   | EBC-VIII        | 2022<br>12-17 June                  | Chania<br>Greece    | <u>https://www.ebc-</u><br><u>viii.tuc.gr/en/home</u>   |
| American Society for<br>Microbiology 2022   | ASM 2022        | 9-13 June<br>2022                   | Washingto<br>n      | https://asm.org/Events/ASM-<br>Microbe/Exhibit  |
| Federation of European<br>Microbiological Societies<br>Conference 2022                                  | FEMS 2022       | 30 June<br>2022 till 2<br>July 2022 | Belgrade,<br>Serbia | <u>https://www.femsbelgrade2022.o</u><br><u>rg/</u>   |
| International Conference:<br>Sustainable Use and<br>Management of Soil, Sediment<br>and Water Resources | AquaCon<br>Soil | 2023                                |                     | <u>https://aquaconsoil.com/articles/n</u><br>ews/aquaconsoil-2023-bid-open/   |
| 2022 7th International<br>Conference on Environmental<br>Engineering and Sustainable<br>Development     | CEESD<br>2022   | 28-30<br>October<br>2022            | Nanjing,<br>China   | https://www.ceesd.net/  |
| China International<br>Environmental Protection<br>Exhibition & Conference                              | CIEPEC<br>2022  | 15-17 June<br>2022                  | Beijing,<br>China   | https://www.jetro.go.jp/en/databa<br>se/j-<br>messe/tradefair/detail/122278? pr<br>eviewDate =null&revision=0&vie<br>wForce=1 |
| International Society of<br>Microbial Electrochemistry and<br>Technology - GLOBAL<br>CONFERENCE         | ISMET8          | 19-23<br>September<br>2022          | Chania,<br>Crete    | https://www.ismet8.org/en/home  |
| Remediation Technologies  | REMTECH         | September                           | Ferrara,            | https://www.clocate.com/remtech   |

### Table 7. GREENER targeted events

| -  |     |     |   |
|----|-----|-----|---|
| C- | are | ene | r |
|    | 3   |     |   |

## 4.5 Networking in relevant activities

Within the priorities of GREENER is to ensure networking activities with other National and intercontinental and H2020 projects that address similar objectives. An official request of collaboration will be made to the leading partners of the relevant projects at the start of the GREENER project and the organisations that will respond will be given access to the project networking facilities. The working experience and knowledge gained by similar projects will be a valuable tool for guidance of the project actions and will enhance the expertise of the project teams.

| Networking<br>activity* | Reference<br>partner | Brief description     | Location/<br>Date | Website                   | Planned cooperation<br>activities |
|-------------------------|----------------------|-----------------------|-------------------|---------------------------|-----------------------------------|
| suNetwork               | Università           | Cluster for           | TBD               | https://www.crui.it/crui- |                                   |
|                         | degli                | suNetwork for         |                   | <u>english.html</u>       |                                   |
|                         | Studi di             | Sustainability of the |                   |                           |                                   |
|                         | Cagliari             | Conference of Italian |                   |                           |                                   |
|                         |                      | University Rectors    |                   |                           |                                   |
|                         |                      | (CRUI)                |                   |                           |                                   |

#### Table 8. GREENER Networking Activities

\*Policy makers (at EU, National, local level), Associations, European Clusters (Technology Platforms or EU projects), Industry, Research Communities, Scientific Communities, Working Groups, SMEs and large companies, Wider Audience

Moreover, GREENER will continuously approach existing stakeholders, networks, and initiatives in a collaborative manner. More than 150 associations, public bodies and relevant stakeholders have already been identified. Table below summarises some of them. The list will be continuously updated.

#### Table 9. GREENER related associations

| Association                   | Focus                                      | Website                    |
|-------------------------------|--|----------------------------|
| SPAQUE                        | Management and reconversion of degraded    | https://spaque.be/         |
|                               | land, Support for environmental and        |                            |
|                               | territorial activities                     |                            |
| Iberimet                      | Biological treatment and of liquid and     | http://www.genocov.com/    |
|                               | gaseous effluents, nutrient removal, and   |                            |
|                               | odors and Volatile Organic Compounds       |                            |
| <b>ISMET Society</b>          | Complex interactions of microorganisms     | https://www.is-met.org/    |
|                               | and electrodes, finding novel ways to use  |                            |
|                               | them for sustainability applications       |                            |
| Nanotechnology                | Supports innovation and commercialisation  | http://www.nanotechia.org/ |
| <b>Industries Association</b> | of next generation of nanotechnologies and |                            |
| (NIA)                         | promotes their safe and reliable           |                            |

## **Greener**

| advancement.  |  |                                     |  |  |  |  |  |
|---|--|-------------------------------------|--|--|--|--|--|
| International Society<br>for Environmental<br>Biotechnology | Interdisciplinary federation of scientists,<br>engineers, and other individuals who are<br>interested in various aspects of<br>environmental biotechnology   | www.environbiotech-iseb.org         |  |  |  |  |  |
| Sociedad Española de<br>la Ciencia del Suelo<br>(SECS)      | <ul> <li>Promote study, research, and soil protection.</li> <li>Disseminate, the role that soil plays in production of food and raw materials</li> <li>Protection of ecosystems and archaeological heritage</li> </ul> | http://www.secs.com.es/             |  |  |  |  |  |
| Prometia  | Promoting innovation in mineral processing<br>and extractive metallurgy for mining and<br>recycling of raw materials.  | http://prometia.eu/                 |  |  |  |  |  |
| FEMS  | Representation of the global microbiology community  | https://fems-microbiology.org/      |  |  |  |  |  |
| EWP   | Unites and mobilizes people and<br>stakeholders around a common water<br>vision for Europe, developing policies,<br>standards and sharing best practices   | http://www.ewp.eu/                  |  |  |  |  |  |
| EUWMA   | Represents public, local, and regional water<br>management organizations from nine EU<br>member states   | https://www.euwma.org/              |  |  |  |  |  |
| ISRIC   | Serves with information about the world's soils and thus resolving major global issues.  | https://www.isric.org/              |  |  |  |  |  |
| BAW   | Federal Agency for Water Management  | https://www.baw.at/                 |  |  |  |  |  |
| ECETOC AISBL  | European Chemical Industry, Ecology and<br>Toxicology Centre   | https://www.ecetoc.org/             |  |  |  |  |  |
| ExEA  | Executive Environment Agency   | http://eea.government.bg/en         |  |  |  |  |  |
| Bavarian Environment<br>Agency (Bavaria)                    | Focuses on waste, Contaminated sites,<br>Analytics / substances, soil, energy, climate,<br>nature, and water   | https://www.lfu.bayern.de/index.htm |  |  |  |  |  |

Moreover, GREENER objectives are going to be communicated to other relevant projects, either running under the same EU topic, as well as the results will be disseminated to other relevant projects that the partners are already running. The GREENER consortium has been in contact with several relevant activities and exchanged information with them. The most relevant initiatives will also be invited to participate in the GREENER events and share their experience with our target audience. The already selected projects are summarised in **Table 10**.

Table 10. GREENER related projects for networking activities

# **G** greener

| Research project  | Focus   | Website   |
|-------------------|---|---|
| ELECTRA           | ElectricitydrivenLowEnergyandChemicalinputTechnologyfoRAcceleratedbioremediation </th <th>https://www.electra.site/</th>  | https://www.electra.site/                             |
| EiCLaR            | Enhanced In Situ Bioremediation for<br>Contaminated Land Remediation  | https://cordis.europa.eu/project/id/965945            |
| BIOCONCO2         | BIOtechnological processes based on microbial<br>platforms for the CONversion of CO2 from the<br>iron and steel industry into commodities for<br>chemicals and plastics | https://biocon-co2.eu/                                |
| Project Ô (H2020) | Demonstration of planning and technology<br>tools for a circular, integrated, and symbiotic<br>use of water   | http://eu-project-o.eu/                               |
| CO2MPRISE         | CO2 absorbing Materials Project- RISE   | http://www.co2mprise.eu/                              |
| Microbots4Enviro  | Versatile Micromotors for Photocatalytic<br>Environmental Remediation   | https://cordis.europa.eu/project/id/890741            |
| POSIDON           | POlluted SIte DecontaminatiON - PCP   | https://www.posidonproject.eu/                        |
| SMS               | Soil Mission Support: Towards a European<br>research and innovation roadmap on soils and<br>land management   | https://cordis.europa.eu/project/id/101000258         |
| SULTAN            | European Training Network for the remediation and reprocessing of sulfidic mining waste sites   | https://etn-sultan.eu/sultan-project/                 |
| REPARES           | Research platform on antibiotic resistance spread through wastewater treatment plants   | https://repares.vscht.cz/                             |
| SPRING            | Strategic planning for water resources and<br>implementation of novel biotechnical treatment<br>solutions and good practices  | https://www.inesctec.pt/en/projects/<br>spring#people |

## 4.6 Social acceptance analysis

Social acceptance analysis covers is addressing the specific subtask 8.1.2: "Social Acceptance Analysis" with the aim to capture relevant data from the early stages of the design and definition of the technologies. Under GREENER, social acceptance surveys have been developed by AXIA in order to



involve the relevant stakeholders (target audiences) in the design and definition of the technologies to be applied aiming to environmental bioremediation. The overall goal is through interactions with different stakeholders and the wider public, during the project's life, and taking into consideration the sustainability assessment results, a strategy to improve Stakeholders' acceptance and to engage a relevant number of stakeholders. Personal information, including Gender, age, educational level, etc will be asked and will be considered in case it seems that these factors affect the acceptance of the technologies. All personal data will be treated according to GDPR good practices.

To this end 2 types of surveys have been developed by AXIA:

- One <u>focusing to the wider public</u> and
- One <u>aiming to specific stakeholders</u>

Both documents will be used throughout the project duration, and updated whenever necessary, to collect the relevant information. Figure 58 and 59 present the surveys as they stand by now.



Figure 58. Survey developed in google forms dedicated to the mapping of the opinion of the wider public.

# **G**greener

|  | 2. 2. How old are you? *   | 7. 7. What is your highest education level? *  | 10 10 10 10 10 10 10 10 10 10 10 10 10 1  |
|--|--|--|---|
|  | Mark only one avail  | Mark only one coal.  | <ol> <li>to, with which of the following bioremediation technologies investigated in the<br/>GREENED replact for WATER treatment are your familiar with? *</li> </ol> |
| greener integrated systems for effective   | - di yean  | This are considered with school  | emanded is done as no use or example, the loss results with   |
| environmental seneovolion  | 23-30 years  | Hish school  | Mark only one oval.   |
| Survey   | 21-60 pears  | Dachelor's degree  | Decommendation  |
|  | > SD (rear   | Nazieris degree  |   |
|  |  | me   | Proventedation  |
| GREENER stakeholders survey  | 3. 3. Where do you come from? "  |  | <ul> <li>Bio-electrochemical system (BES) applied for water pollution</li> </ul>  |
| OKLENER Stakeholders Survey  |  |  | <ul> <li>Hybrid system combining BES and phytoremediation</li> </ul>  |
| The preparation of this survey is one of the activities foreseen by the GREENER EU project.  |  | <ol> <li>B. Which is your working field?*</li> </ol>   |   |
| GREENER proposes the development of green, sustainable, efficient, and low-cost solutions  |  | Mark only one ceal.  |   |
| tor sourcement and water overemodiation, by integrating several termidiation strategies<br>with innovative bio-electrochemical technologies. Modern industrial processes have caused   | <ul> <li>K. HITKUTS (OR LAND) OF HEADING?</li> </ul>   | - University   | 11. 11. Which of the following bioremediation technologies investigated in GREENER  |
| widespread pollution of sol and water across the globe that can seriously affect   |  | - Induitry   | project for SOIL treatment do you know? *   |
| ecosystems and human health. Efforts to decontaminate or remediate these sites are costly,   |  | Government   |   |
| complex and energy-concurring. Bioremediation, which uses microbes like bacteria and   | <ol> <li>5. 5. Number of habitants in your place of residence? *</li> </ol>  | Nan-government organization  | Mark only one oval.   |
| sustainable than other remediation alternatives. The GREENER initiative is developing a low-   | Mark only one oval.  | Other  | Biostimulation / bioaugmentation  |
| cost hybrid solution that integrates bioremediation with microbial fuel cell technology.   | <ul> <li>Big shy (&gt;100.000 Habitane))</li> </ul>  |  | Combination of phytocemediation with biostimulation/bioauamentation (Econile  |
| These electrically active microbes will not only clean up but also produce electricity.  | Small city (<20.000 Habrants)  |  | process)  |
| The objective of this survey is to gain insights into the opinions and attitudes of European   | - Ranil area   | <ol> <li>V. Are you ramate with bioremediation technologies used for the sol weater<br/>treatment as alternative to conventional technologies e.o. excevation. landfilling and</li> </ol>  | Bio-electrochemical system (BES) applied for soil remediation   |
| experts and stakeholders regarding their knowledge, perception, and views of the innovative  |  | sol weating or activated carbon treatment and ion exchange resins? *   |   |
| GREENER technologies as well as on their conception regarding its public acceptability.  |  | Mark only one coal.  |   |
| This survey will take 5 minutes. Your data will be treated anonymously and confidentially.   | 6. 6. How long have you been active in the environmental remediation field? *  |  |   |
|  | Mark only one oval.  |  |   |
|  | -lwa   | mate   |   |
|  | 3-30 years   |  |   |
|  |  |  |   |
|  | Constant Con |  |   |
|  | C response   |  |   |
|  | rep paus   |  |   |
| 12. 12. Please indicate how far you agree with the following statements: The   | <ol> <li>No. If your arrewer to question above was yee, do you know which remediation</li> </ol>   | 17. Vs. How do you think a higher racial acceptance of the GREINER technologies  |   |
| 12. 13, Please indicate how far you agree with the following statements. The<br>biomenciation technologies investigated in the GARDER project have the   | <ul> <li>ma pasa</li> <li>16. 16. If your nearwer to-specifion above was yet, do you know which remediation<br/>sectorality (). Currently applied? *</li> </ul>  | 12. No How do you have a higher nodel acceptance of the GREINE technologies<br>countre extended *  |   |
| <ol> <li>D. Peake indicate how far you agree with the following statements: The<br/>licenseduation technologies in investigated as the GRIMBUR arrays takes the<br/>robuing devokation contents with the technologies of the content of the technologies."</li> </ol>  |  | <ol> <li>No. Bees as providence of higher modul acceptances of the GREINEE societologies<br/>constitute interest.<sup>11</sup></li> <li>March and your ease.<sup>11</sup></li> </ol>   |   |
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Figure 59. Survey developed in google forms dedicated to the mapping of the opinion of stakeholders.

Firstly, the **survey focusing on stakeholders** aims to gain insights into the opinions and attitudes of European experts and stakeholders regarding their knowledge, perception, and views of the innovative GREENER technologies as well as on their conception regarding its public acceptability. Participants will be asked to identify their gender, age range, country of origin, and country of residence. Then their highest education level will be asked and their familiarity with the GREENER related technologies bot for soil and water treatment and decontamination. Then, questions related to the benefits of the GREENER technologies in contrast with the traditional treating technologies will be included, followed by questions related to the understanding of similar challenges and solutions provided nowadays. Finally, questions related to the stakeholder's understanding of how these new technologies can be adopted effectively and how social acceptance could be maximised.

A second survey is as well developed and distributed **targeting to the wider public**/ **citizens** and aims to acquire information on citizens' perception and opinion about the challenges and opportunities of the GREENER technologies. All personal data will again be treated according to GDPR good practices. Participants in the survey will indicate again their gender, age, country of origin and residence, educational level, and employment status. Then their involvement, as well as their position towards environment-related aspects in general. Then a more focused part related to the GREENER concept will be addressed to them and their opinion on the GREENER goals and benefits will be investigated, as well as their perspective on circularity approaches GREENER is dealing with.



Based on the results of these surveys the aim is to find ways to engage the public as well as to improve Stakeholders' acceptance and to engage a relevant number of stakeholders in the implementation of the project solutions. In all surveys it was ensured that personal data collection was limited to the data relevant to the research (i.e. age, education level, etc). The surveys were distributed to the following channels:

- To the consortium
- To the consortium's network
- On social media
- On the project website
- The newsletter and the newsletter subscribers

The surveys are aimed to be also distributed in several upcoming events engaging the wider public and the relevant stakeholders.



#### Survey addressed to the wider public

According to the results of the survey 50.9% of those that took the survey were female varying over a range of ages from 20-59 y.o.



The countries of residence of the participants Country of residence of this survey are from all over Europe, including Greece, Germany, Portugal, New Zealand, Spain and Pakistan among others. Most of the participants live in a big city (71.9%) and over 90% own a University degree.





Their employment status in mainly employees (52.6%), students (28.1%) or self-employed (12.3%). Most of the participants (33.3%) have more than 10 years experience in the bioremediation field, while 28.1% have no experience.

#### Number of habitants in your place of residence



 Big city (>100.000 Habitants) Small city (>20.000 Habitants) Rural area Do not know

#### **Educational level**



- Did not complete high school
- High school
- Technical school or professional training University degree (Bachelor, Master
- PhD)



environment with harmful chemicals from agricultural, industrial and urban activities, 78.9% agreed. Most of the participants 47.4% were aware of the remediation term, with 31.6% working on the environmental remediation field and 15.8% being an expert in this scientific area. The following graphs have depicted the audience's opinion on the impact the GREENER technologies can have in the following terms:

natural resources and contaminate the



In terms of governmental initiatives and awareness, the participants rated the following statements.





#### I believe that the Government will:

The final 4 figures summarise the potential consumers' opinion on the final products developed applying the GREENER technologies, the willingness to afford an extra cost for them, as well as the importance and effectiveness of the applied technologies.

Would you be a final consumer of contaminatedWould you be asurface water or groundwater treated with avegetables/fruits cultibioremediationtechnologydevelopedGREENER project?technology?

Would you be a final consumer of vegetables/fruits cultivated in contaminated soil after the treatment with a bioremediation technology?





#### Survey addressed to stakeholders

According to the results of the survey 60% of those that took the stakeholders' survey were male, being mainly in the age group of 31-50 y.o with a percentage of 50%.





**Country of origin** 

Female
Male
Prefer not to answer



The countries of origin of the participants varied from Europe, including Spain, The Netherlands, Germany, Slovenia Greece and France, as well as Argentina and India. Most of the participants live in a big city (75%) and 55% have more than 10 years experience in the environmental remediation.

## Habitants in place of residence



Big city (>100.000 Habitants)
 Small city (>20.000 Habitants)
 Rural area
 Do not know



Active in the environmental remediation

Their educational background includes mainly a PhD (60%) and their employment status in mainly in a University (55%), followed by industry (15%) and NGOs (10%).





The participants were familiar with phytoremediation technologies for water treatment (60%) and biostimulation and bioaugmentation for soil treatment (60%).



Most of them are aware of several contaminated sites in their area (75%), while the currently applied technologies for their remediation include: excavation 20%, landfilling 20% water treatment with activated C, 20%, among others.





When the participants were asked on how far they agree on the statement "Do you think that soil/water bioremediation technologies can substitute traditional technologies in the near future? 85% agreed, while on the statement: "How do you think a higher social acceptance of the GREENER technologies could be achieved?", most of the audience (40%) suggested that efficient communication of the benefits these technologies provide is essential.



Do you think that soil/water bioremediationHow do you think a higher social acceptance of thetechnologiescansubstitutetraditionaltechnologies in the near future?GREENER technologies could be achieved?



## 4.7 Publications

The Industrial and academic partners will individually and in collaboration publish and present scientific advances in technical papers as well as in journals (peer reviewed or not) and magazines. Scientific publications are an effective way to disseminate high level project information and to attract the interest of representatives of the various target groups. Publications in specialised magazines, papers sent to related events will attract the attention of technicians and researchers as well as to allow collaborationa within the purposes of GREENER. To support this activity, whenever possible, project publications will be archived or linked on the GREENER website. Moreover, publications are going to be shared through the ZENODO repository (see para. 4.6). Under GREENER a common publication procedure was also shared and agreed amongst the partners, established by the Innovation & Dissemination Committee (I&DC). Table 11 summarizes all the actions related to publications. All open access publications can be found on the project website. The following table also summarises the links with other open repositories.

## Table 11. Greener publications already submitted

| Ν | Partne | Title   | Journal  | Year of         | Permanent  | Zenodo Link  | Researchgate Link  |
|---|--------|---|--|-----------------|--|--|--|
| 0 | r      |   | title  | publica<br>tion | identifiers  |  |  |
| 1 | UAM    | Metagenomic Insights into the Bacterial<br>Functions of a Diesel-Degrading Consortium for<br>the Rhizoremediation of Diesel-Polluted Soil                                   | Genes  | 2019            | https://www.mdpi.co<br>m/2073-4425/10/6/456          | https://zenodo.org/record/3<br>676368#.YBgRAegzY2w               | https://www.researchgate.net/publication<br>/333792426 Metagenomic Insights into t<br>he Bacterial Functions of a Diesel-<br>Degrading Consortium for the Rhizore<br>mediation of Diesel-Polluted Soil         |
| 2 | JiaU   | Novel tetrahedral Ag3PO4@N-rGO for<br>photocatalytic detoxification of<br>sulfamethoxazole: Process optimization,<br>transformation pathways and biotoxicity<br>assessment  | Chemical<br>Engineering<br>Journal   | 2019            | <u>10.1016/j.cej.2019.1220</u><br><u>35</u>          | not open access  | not open access  |
| 3 | JiaU   | Size-controlled biosynthesis of FeS nanoparticles<br>for efficient removal of aqueous Cr(VI)  | Chemical<br>Engineering<br>Journal   | 2020            | <u>https://doi.org/10.1016</u><br>/j.cej.2019.122404 | not open access  | not open access  |
| 4 | QUST   | Effects of Aged Oil Sludge on Soil<br>Physicochemical Properties and Fungal Diversity<br>Revealed by High-Throughput Sequencing   | Archaea in<br>Wastewater<br>Treatment:<br>Current<br>Research and<br>Emerging<br>Technology<br>Frontiers | 2018            | <u>https://doi.org/10.1155</u><br>/2018/9264259      | <u>https://zenodo.org/record/3</u><br><u>698014#.YBgR_egzY2w</u> |  |
| 5 | JSI    | Thickness of polyelectrolyte layers of separately<br>confined bacteria alters key physiological<br>parameters on a single cell level  | in<br>Bioengineerin<br>g<br>and<br>Biotechnology   | 2019            | <u>https://doi.org/10.3389</u><br>/fbioe.2019.00378  | https://zenodo.org/record/3<br>734324#.YBgTGOgzY2w               |  |
| 6 | JSI    | Natural Microbial Communities Can Be<br>Manipulated by Artificially Constructed Biofilms  | Advanced<br>Science  | 2019            | https://doi.org/10.1002<br>/advs.201901408           | https://zenodo.org/record/3<br>734343#.YBgZlegzY2x               |  |
| 7 | JSI    | Microbial competition reduces interaction<br>distances to the low μm-range  | The ISME<br>Journal  | 2020            | https://doi.org/10.1038<br>/s41396-020-00806-9       | https://zenodo.org/record/3<br>746438#.YBgaH-gzY2w               | https://www.researchgate.net/publication<br>/345546382 Microbial competition reduc<br>es metabolic interaction distances to th<br><u>e low m-range</u>   |
| 8 | UAM    | Analysis of the biodegradative and adaptive<br>potential of the novel polychlorinated biphenyl<br>degrader Rhodococcus sp. WAY2 revealed by its<br>complete genome sequence | MICROBIAL<br>GENOMICS  | 2020            | <u>https://doi.org/10.1099</u><br>/mgen.0.000363     | https://zenodo.org/record/3<br>741819#.YBgatugzY2w               | https://www.researchgate.net/publication<br>/340408723 Analysis of the biodegradati<br>ve and adaptive potential of the novel<br>_polychlorinated biphenyl degrader Rh<br>odococcus sp WAY2 revealed by its co |

**G** greener

|    |                           |   |  |      |  |  | mplete genome sequence   |
|----|---------------------------|---|--|------|--|--|--|
| 9  | Jiangsu<br>Universi<br>ty | Self-assembling of Shewanella@rGO@Pd<br>bionanohybrid for synergistic bio-abiotic<br>removal of Cr(VI)  | Chemical<br>technology<br>and<br>Biotechnology | 2020 | <u>https://doi.org/10.1002</u><br>/jctb.6409   | not open access                                    | not open access  |
| 10 | NTU                       | Effects of copper salts on performance, antibiotic<br>resistance genes, and microbial community<br>during thermophilic anaerobic digestion of<br>swine manure | Bioresource<br>Technology                      | 2020 | <u>https://doi.org/10.1016</u><br>/j.biortech.2019.122728  | not open access                                    | not open access  |
| 11 | NTU                       | Positive effects of concomitant heavy metals and<br>their redusates on hexavalent chromium removal<br>in microbial fuel cells                                 | RSC Advances                                   | 2020 | <u>https://doi.org/10.1039</u><br>/D0RA01471K  | https://zenodo.org/record/4<br>492687#.YBka9ugzY2w | https://www.researchgate.net/publication<br>/340696012 Positive effects of concomita<br>nt heavy_metals_and their reduzates_o<br>n hexavalent chromium removal in mi<br>crobial_fuel_cells |
| 12 | UAM                       | Comparative Genomics of the Rhodococcus<br>Genus Shows Wide Distribution of<br>Biodegradation Traits  | Microorganis<br>ms                             | 2020 | https://doi.org/10.3390<br>/microorganisms80507<br>74  | https://zenodo.org/record/3<br>837694#.YBkb7ugzY2w | https://www.researchgate.net/publication<br>/341560454 Comparative Genomics of t<br>he Rhodococcus Genus Shows Wide D<br>istribution of Biodegradation Traits                              |
| 13 | UAM                       | Metagenomics of bacterial consortia for the bioremediation of organic pollutants  | Thesis   |      | <u>https://dialnet.unirioja</u><br>.es/servlet/tesis?codig<br><u>o=283002&amp;orden=0&amp;i</u><br><u>nfo=link</u> |  |  |
| 14 | ITC,<br>Microge<br>n, UAM | Soil Microbiome Structure and Function in<br>Ecopiles Used to Remediate Petroleum<br>Contaminated Soil  | Frontiers                                      | 2021 | https://doi.org/10.3389<br>/fenvs.2021.624070  | https://zenodo.org/record/4<br>675274#.YHBRN68zY2w | https://www.researchgate.net/publication<br>/350063178_Soil_Microbiome_Structure_a<br>nd_Function_in_Ecopiles_Used_to_Reme<br>diate Petroleum-Contaminated Soil                            |
| 15 | Jiangsu<br>Universi<br>ty | A Whole-Cell Inorganic-Biohybrid System<br>Integrated by Reduced Graphene Oxide for<br>Boosting Solar Hydrogen Production                                     | ACS Catal                                      | 2020 | https://pubs.acs.org/d<br>oi/10.1021/acscatal.0c0<br><u>3594.</u>  | not open access                                    | not open access  |
| 16 | BATH<br>and<br>UNICA      | Modelling the influence of soil properties on<br>performance and bioremediation ability of a pile<br>of soil microbial fuel cells                             | Electrochimica<br>Acta                         | 2021 | <u>https://doi.org/10.1016</u><br>/ <u>j.electacta.2020.13756</u><br><u>8</u>                                      | not open access                                    | not open access  |
| 17 | UNICA<br>and<br>LEIATA    | 3D modelling of bio electrochemical systems<br>with brush anodes under fed-batch and flow<br>conditions   | Journal of<br>Power Sources                    | 2020 | <u>https://doi.org/10.1016</u><br>/j.jpowsour.2020.22943<br><u>2</u>   | not open access                                    | not open access  |
| 18 | UBU                       | Ornamental plants for the phytoremediation of<br>heavy metals: Present knowledge and future<br>perspectives   | Environmenta<br>l Research                     | 2021 | <u>https://www.sciencedi</u><br><u>rect.com/science/articl</u><br><u>e/abs/pii/S0013935121</u><br><u>000748</u>    | not open access                                    | not open access  |
| 19 | LEITAT                    | How to balance the voltage in serially stacked<br>bio electrochemical systems   | Journal of<br>Power Sources                    | 2021 | https://www.sciencedi<br>rect.com/science/articl<br>e/pii/S03787753210012<br>21                                    | https://zenodo.org/record/4<br>562480#.YDfKsWgzY2w | https://www.researchgate.net/publication<br>/349055497 How to balance the voltage<br>in serially stacked bioelectrochemical<br>systems   |
| 20 | UNISA                     | Tertiary treatment of real abattoir wastewater<br>using combined acoustic cavitation and  | <u>Ultrasonics</u><br>Sonochemistr             | 2020 | <u>https://doi.org/10.1016</u><br>/j.ultsonch.2020.10498   | https://zenodo.org/record/4<br>562492#.YDfNuWgzY2w | https://www.researchgate.net/publication<br>/338772429_Tertiary_Treatment_of_Real_   |

Contract No: 826312

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|    |             | ozonation   | У   |      | <u>6</u>  |  | Abattoir Wastewater using Combined  |
|----|-------------|---|---|------|---|--|---|
| 21 | BATH        | ASSESSING THE EFFECT OF ELECTRODE<br>ORIENTATION ON THE PERFORMANCE OF<br>SOIL MICROBIAL FUEL CELLS   | EFC21   | 2021 | Conference<br>proceedings   | not open access                                    | not open access   |
| 22 | BATH        | TOWARDS COST-EFFECTIVE SOIL<br>MICROBIAL FUEL CELL DESIGNS  | EFC21   | 2021 | Conference<br>proceedings   | not open access                                    | not open access   |
| 23 | BATH        | Minimalistic soil microbial fuel cells for<br>bioremediation of recalcitrant pollutants   | EFC21   | 2021 | Conference<br>proceedings   | not open access                                    | not open access   |
| 24 | JSI         | In vivo capture of bacterial cells by remote guiding  | BioRXiv   | 2021 | https://doi.org/10.1101<br>/2021.08.06.455395                               | https://zenodo.org/record/6<br>140886#.Yg-h0-hBy5c | https://www.researchgate.net/publication<br>/353753637 In vivo capture of bacterial<br>_cells_by_remote_guiding   |
| 25 | ACCIO<br>NA | "Innovative circular applications in civil works<br>infrastructures: ACCIONA success stories"   | Congress on<br>Economía<br>Circular y<br>Comunicación<br>Ambiental,<br>ECCA | 2021 | Conference<br>proceedings   | not open access                                    | not open access   |
| 26 | JSI         | Dissolution-based uptake of CeO2 nanoparticles<br>by freshwater shrimp – a dual-radiolabelling<br>study of the fate of anthropogenic cerium in<br>water organisms | Environmenta<br>l Science:<br>Nano  | 2021 | <u>https://doi.org/10.1039</u><br>/D1EN00264C                               | not open access                                    | not open access   |
| 27 | JSI         | When Beneficial Biofilm on Materials Is Needed:<br>Electrostatic Attachment of Living Bacterial Cells<br>Induces Biofilm Formation                                | Frontiers   | 2021 | https://www.frontiersi<br>n.org/articles/10.3389/f<br>mats.2021.624631/full | https://zenodo.org/record/6<br>140920#.Yg-i7ehBy5c | https://www.researchgate.net/publication<br>/351392265 When Beneficial Biofilm on<br>Materials Is Needed Electrostatic Atta<br>chment of Living Bacterial_Cells_Induc<br>es Biofilm Formation               |
| 28 | JSI         | Isolation, Identification, and Selection of Bacteria<br>With Proof-of-Concept for Bioaugmentation of<br>Whitewater From Wood-Free Paper Mills                     | Frontiers   | 2021 | https://www.frontiersi<br>n.org/articles/10.3389/f<br>micb.2021.758702/full | https://zenodo.org/record/6<br>140984#.Yg-kWuhBy5c | https://www.researchgate.net/publication<br>/347263042 Isolation identification and<br>selection of bacteria with the proof-of-<br>_concept_for_bioaugmentation_of_white<br>water_from_woodfree_paper_mills |



#### Publications procedure

In collaboration with the I&DC a common publication procedure was established and agreed amongst the partners, established by the Innovation & Dissemination Committee (I&DC).

Following the EC guidelines included in the GA above guidelines the consortium has formed an internal document regarding the publication procedure has been formed with the following tasks: 1. Monitor project results and promotes the dissemination, 2. Establish contacts with other relevant results, 3. Manage the dissemination strategy, organize workshops, conferences, training sessions for the promotion of the project, 4. Promote solutions developed during the project, 5. Management of knowledge and IPR and 6. Define the Publication Procedure

Some of the point underlined in the publication procedure are included below:

1. Advance notice among partners before disseminating project results (at least 45 days) together with sufficient information on the results that will be disseminated. Objections are considered valid within 30 days of receiving notification.

2. Data should be shared, wherever applicable, in open research data repositories or through scientific publications

3. Each beneficiary must ensure open access (free of charge online access for any user) to all peerreviewed scientific publications relating to its results.

4. acknowledge the project including the following text: "This project has received funding from the European Union's Horizon 2020 research and innovation programme under grant agreement No 826312", including the EU logo wherever appropriate.

Aiming to further optimise the monitoring of the publication procedure the GREENER consortium has updated the procedure as follows:

#### A. Journal publications

1) The publication abstract is sent to AXIA, at the early stage of manuscript preparation in order to give time to the consortium to evaluate.

2) AXIA sends the publication to all the partners with a questionnaire (google forms are suggested).

**3)** The answers can be:

a. If you have no objections for this abstract being published, then please select –Accept publication

**b.** If you approve of this publication but wish to send some minor comments to the author, please select **Accept Publication (with comments)** 

**c. Deny Publication if** you believe that your legitimate interests in relation to the dissemination activity's foreground or background may suffer disproportionately great harm. In this case, please provide a clear explanation of the reasons which led you to the rejection of this abstract. The project management team will contact you to resolve the issue.

4) No answer is considered as ACCEPTED

For conferences and events, the procedure followed is as described in the GA.

#### 4.8 Zenodo

Zenodo is a platform that was created in 2013 under the OpenAire<sup>5</sup> repository, aiming to aid researchers in any subject area to comply with any open science deposit requirement absent an institutional repository.

OpenAIRE is a socio-technical infrastructure for scholarly communication and Open Science. Its role is to support Open Science at national levels via its network of experts (National Open Access Desks – NOADs) who support policy development for Open Science within the research world.

Moreover, OpenAIRE – CONNECT<sup>6</sup> is an EU funded project that introduced and implemented the concept of Open Science as a Service (OSaaS) on top of the existing OpenAIRE infrastructure, delivering different tools and options, such as making the results open or semi-open etc. It was relaunched as Zenodo in 2015 to provide a place for researchers to deposit datasets. In **Figure 60** a preview of the Zenodo page is shown, where publicly available documents deriving from the

<sup>&</sup>lt;sup>5</sup> https://www.openaire.eu/

<sup>&</sup>lt;sup>6</sup> <u>https://cordis.europa.eu/project/id/731011</u>

GREENER project are included. Currently more than 10 publications are shared openly through Zenodo and OpenAire, including newsletters, presentation and open access publications.



Figure 60. Public documents already uploaded at Zenodo

### 4.9 Videos

One of the key methods for the effective project communication was agreed to be the creation and publication of project promo videos. The main aim of the videos will be to introduce the GREENER project to scientific and public audience.

Two professional videos related to the GREENER project and its progress will be published during the project. GREENER project has now released its first official video which can be found in the project's <u>YouTube channel</u>.



#### Figure 61. GREENER video scene

Moreover, as the project progresses videos received from partners will be announced on the project's YouTube channel and social media. The first one to be shared was from ITC, the partner leading the ecopiles site.



Figure 62. ITC ecopiles video

GREENER Project has moreover released 2 videos concerning the project kick-off meeting that took place on 1-2 April 2019 in Burgos as well as the International Workshop in Environmental Biotechnology: Towards a GREENER world, a 1-day meeting that was held together with Kick-off meeting. These videos were created by ICCRAM-UOB and uploaded into YouTube channel



(<u>https://www.youtube.com/channel/UCSya33WYKK4m2TP83Or5Kaw</u>) as well as shared with partners and on social network profiles.

Moreover, videos deriving from the training activities UBU has performed to young students are also included.



Figure 63. GREENER YouTube channel

## 4.10 CORDIS Wire announcement

The GREENER Project H2020 video was announced on CORDIS WIRE EC platform. In order to reach a wider audience, the GREENER Video has been disseminated through the help of the page of <u>CORDIS Wire</u> that is accessible after registration for free where in the user profile the Wire contributor function needs to be checked to enable publishing articles or events to the CORDIS News and Events pages. These articles are moderated by the editors at CORDIS.



*Target message:* Find out more about the #GREENER's goals and technologies applied O, aiming to remediate N a range of organic and inorganic pollutants of high concern, while producing useful end-products O, such as bioelectricity and harmless metabolites.



*Figure 64.* Cordis wire dissemination of GREENER video

### 4.11 Press releases by partners

Apart from press releases made by the dissemination manager, press releases by partners are also of significant importance for the promotion of the project. Partner's social media, partner's website, other relevant websites, as well as the press are excellent media to promote a project. For GREENER different online platforms, websites and newspaper announced the advances of GREENER, or

disseminated the project on several occasions, such as the International Day of Women and Girls in Science \*(see also papa. 4.2).



*Figure 65. Press releases related to GREENER* 

### 4.12 Job announcements

In the social media accounts four (4) job openings were announced.

- The first position was announced from University of Burgos regarding a postdoc researcher to be involved in the development and application of novel biological and physico-chemical technologies to decontaminate water and soil sites.
- The second one was from University of Surrey for a Postdoctoral researcher to work on microbial electrochemical systems for water treatment, in a collaborative project with National Research Center of Egypt.
- During the last period until month 24 two more new Job offers have been communicated and published through the Social media channels of the project, one from University of Burgos "Senior position in Life Cycle Analysis applied in Materials and Processes Engineering Universal recycling symbol" in February 2021 and one from University of Surrey for a PhD position "PhD Studentship in Coherent electron transport in energy generation processes by electrogenic microorganisms" expression of interest is until Wednesday, March 31, 2021.
- Then an opening for a Senior position in Life Cycle Sustainability Assessment and Project Management was announced by UBU, seaking for an expert in LCA, social-LCA and LCC of the production of different types of materials and processes, as well as study of the integration of Sustainability by Design concept into Safe by Design strategies.
- Moreover, University of Surrey has announced a PhD Studentship in Microbial Electrochemical Technology, as part of the Doctoral Training Programme FoodBioSystems, a multi-disciplinary program involving the participation of 6 universities in the UK.

## **Greener**

#### Greener Project

Published by Ioanna Katsavou [?] - 5 February at 17:38 · 🔇

Greener Project partner lccram has announced a call for application for a post-doc position for a period of two years. The candidate will be involved in fundamental research performed at lab-scale, as well as in pilot-tests, used to proof the scaling-up feasibility for field applications of newly developed technologies. The aim is to develop and apply novel biological and physico-chemical technologies to decontaminate water and soil sites. More info inthe link of the scale of the scale scale scale scale scale scale and physico-chemical technologies to decontaminate water and soil sites. More info inthe link of the scale s



### GREENER project

✓ For more information follow the link below:

https://euraxess.ec.europa.eu/jobs/509380

#H2020 #job #jobopening #GREENER #ICCRAM



EURAXESS.EC.EUROPA.EU

Senior position in Life Cycle Analysis applied in Materials and Processes Engineering

✓ New job opening at Universidad de Burgos!!! ✓

**#UBU** has an opening for a Senior position in Life Cycle 🚳 Sustainability Assessment and Project Management.

For the period of one year the candidate will be involved in the evaluation of LCA, social-LCA and LCC of the production of different types of materials and processes, as well as study the integration of Sustainability by Design concept into Safe by Design strategies.

Follow the link  $\mathscr{O}$ : https://lnkd.in/dx3-rzD  $\bigcirc$ 

#### #GREENER #UBU #Job #LCA #LCC #H2020



#### Greener Project

...

Published by Ioanna Katsavou [?] - 3 February at 17:19 - 🔇

University of Surrey <sup>™</sup>, partner of the Greener Project, is recruiting a Postdoctoral researcher to work on microbial electrochemical systems for water treatment <sup>●</sup> ● ●, in a collaborative project between the Systems Microbiology Group here at Surrey and the Department of Water Pollution (National Research Center, Egypt), funded by the British Council through the Newton-Mosharafa Fund (UK - Egypt science and innovation partnership). Full details can be found in <sup>●</sup> ● <sup>●</sup> http://jobs.surrey.ac.uk/008320. Deadline for applications <sup>↓</sup> ↓ ↓ is on February 14th. #recruitment #watertreatment #universityofsurrey



GREENER project posted a job. Published by Ioanna Katsavou [?] · 2 February · O

GREENER project partner University of Surrey is hiring!!!

...

PhD Studentship: Coherent electron transport in energy generation processes by electrogenic microorganisms

#UNISA is looking for a graduate with a background in #microbial #biochemistry, #material #sciences or #physicalchemistry, but we will also consider applications from graduates in material sciences or #electronic #engineering. A background in (bio)#electrochemistry) or #enzymology would be advantageous.

Information and application links: Application deadline: March 31, 2021

#GREENER #H2020 #UNISA #job #jobannouncement #phdstudentship



• S University of Surrey has announced a PhD Studentship in Microbial Electrochemical Technology

This is part of the Doctoral Training Programme FoodBioSystems 📃 , a multidisciplinary program involving the participation 🤝 of 6 universities 🛄 in the UK. For more information 🗐 , you can visit 🌚 👉 : https://lnkd.in/dTFe2JJB 🥑

Please note 🌛 that the application deadline is on Jan 27th 📰.

#EU\_H2020 #H2020 #Greener #Surrey #PhD #training

MicroGen Biotech AXIA Innovation Jozef Stefan Institute Institute of Technology, Carlow Tauw Nederland Materia Nova Mendel University in Brno Universidad Autónoma de Madrid University of Bath Universidad de Burgos Università degli Studi di Cagliari University of Surrey ACCIONA Sustainable Innovations (SIE) Leitat Technological Center Dalian University of Technology #SDAS Jiangsu University Nanjing Tech University #QUST



Figure 66. Job announcements at Social Media.

### 4.13 Patent dissemination

Patent is an exclusive right granted for an invention, which is a product or a process that provides, in general, a new way of doing something, or offers a new technical solution to a problem. Currently our GREENER project partner JSI has applied for 1 patent related to GREENER in Slovakia and Russia National IP Offices, being under the phase of examination prior protection period, and there is an upcoming patent that is already submitted.

Dissemination of sensitive information related to patents are addressed with the most of attention. Therefore, it should be highlighted that:

- a) prior to the dissemination of any GREENER related patent(s), <u>the compliance with the patent</u> <u>information dissemination policies stipulated in the IP offices of filing and issuance</u> (i.e., Slovenian and Russian)<sup>7</sup> <u>is guaranteed.</u> The policy specified by the IP national offices will be examined carefully before posting or disseminating any kind of information on social media, newsletters and relevant material and tools, aiming to comply with their regulation and avoid the loss of control any inappropriate disclosure could cause.
- b) The main partners associated to the patent filed and published will be contacted, to review carefully the dissemination information (post/newsletter etc). According to the patent grant process described by WIPO<sup>8</sup>, the GREENER partner(s) will be contacted between the Publication and Granting phase, to come to a common agreement on the patent information and the keywords that can be published.

Overall, it is important to assure that IP assets are protected while promoting the innovation generated in the project.

Concerning the IP-related workshop to be held in 2022, no descriptive and concrete IP case studies are planned to be showcased during the session, in an intent to protect partners' IP strategies. The content of the workshop will be jointly shared and discussed with the GREENER consortia prior its display to the participants.

<sup>&</sup>lt;sup>7</sup> <u>https://www.wipo.int/edocs/mdocs/scp/en/scp\_13/scp\_13\_5.pdf</u> - VI. Patent Information Dissemination Policy (subsection 71)

<sup>&</sup>lt;sup>8</sup> WIPO Guide to Using PATENT INFORMATION (<u>https://patentscope.wipo.int</u>)

## 4.14 Final project conference

A final conference will be held towards the end of the project (M54), presenting the project outcomes, main results, the future steps towards the exploitation and the lessons learnt to the general public. The venue of the conference will be agreed among all partners.

## **greener**

## 4 Conclusions

The Deliverable 8.2 Communication and Dissemination Plan elaborates on the key aspects of communication and dissemination planning of the GREENER Project, providing essential guidance for consortium partners during the first year of the project. The deliverable describes the main communication and dissemination activities, as well as the main contributions of the partners, either individually or jointly. The tools and channels which the project has premeditated for its use offer a comprehensive target audience as well as a concrete roadmap to achieve the GREENER project objectives and, particularly, all related activities. The deliverable describes how to achieve communications impacts and how to further develop and enhance the initial communication goals and includes all the already performed dissemination and communication activities.

