



RELiEF Newsletter Issue 2

General Assembly 2023

On the 29th and 30th of June, the RELiEF consortium met in Lisbon, Portugal for the [first RELiEF General Assembly](#). This was the opportunity to meet again with the partners of this exciting project, which aims to recover lithium from potential secondary sources in order to reduce the amount of unrecovered lithium in the waste stream.

The meeting was hosted by **partner NOVA**, whose work is mainly focused on developing a process technology to effectively leach two different secondary solid input streams and consequently develop a new process to recover the lithium from the leachates obtained.

The general meeting started with a warm welcome from Jose Alferes, Director of the NOVA School of Science and Technology, followed by our hosts Alexandra Ribeiro and Joana R. Almeida (NOVA) and our coordinator Gabriel Hildago. After a short update on the progress of the first year, the consortium had the opportunity to **visit the NOVA labs** and get an insight into the daily work of the NOVA team.

After a short icebreaker, the afternoon session focused on several **interactive workshops on stakeholder mapping analysis, exploitation activities, communication and dissemination**. The results of these workshops will be of great help not only for the new business model that will pave the way for the commercialisation of a new cathode material and the up-scaling of the demonstrated processes, but also for the assessment of the social impact of such a new model through a new visibility to the targeted stakeholders and the scientific community.

After a short sightseeing tour in Lisbon, discussions continued over dinner on the beach, offering traditional and modern Portuguese cuisine. On the second day, the meeting focused on (re-)addressing key issues to be discussed with the consortium.

Participants left inspired and motivated and are now looking forward to the next face-to-face meeting in June 2024!



Workshops Stakeholder analysis

Stakeholder analysis and engagement is an essential component of the RELiEF project, as understanding the stakeholder perspectives, needs and requirement is critical to maximise the project impact. RELiEF places the **project partners** in the centre and then sketches the stakeholder landscape that is relevant for the partners as well as the project. The sketching of the stakeholder landscape is not a one-time activity, but a continuous process – [TechConcepts](#) (the project partner who is responsible for the exploitation plan) began the process right from the kick-off meeting. During the General Assembly meeting in Lisbon, TechConcepts led a **stakeholder analysis workshop** to develop an initial stakeholder overview. This is the first designated step – of the three step approach that TechConcepts employs for stakeholder analysis.

Step 1: Stakeholder mapping

Develop an initial stakeholder overview by defining the project "key stakeholders"

Step 2: Stakeholder interests, needs, stakes and challenges (start in this workshop)

The high-level mapping will further be broken down into a more detailed stakeholder mapping to identify stakeholder interests, needs, stakes and challenges.

Step 3: Developing a clear framework and key messages for the key stakeholders

The framework, directions and key messaging will help to begin mobilising key

stakeholders across Europe and across stakeholder types.

One week before the workshop, the project partners were given homework to prepare their frame of mind for the workshop. During the General Assembly meeting, TechConcepts began with a team building activity to get the partner up and moving and then began the workshop.



Stakeholder groups

TG1 – Industrial Li containing waste generators

TG2 – Metal and metallurgical industries, primary processors

TG3 – Recyclers, metal refiners

TG4 – Battery materials producers, manufacturers

TG5 – Academia and research community

TG6 – Governments and regulation & standardization bodies

TG7 – Technology communities

TG8 – Mass media/ NGO's/Others

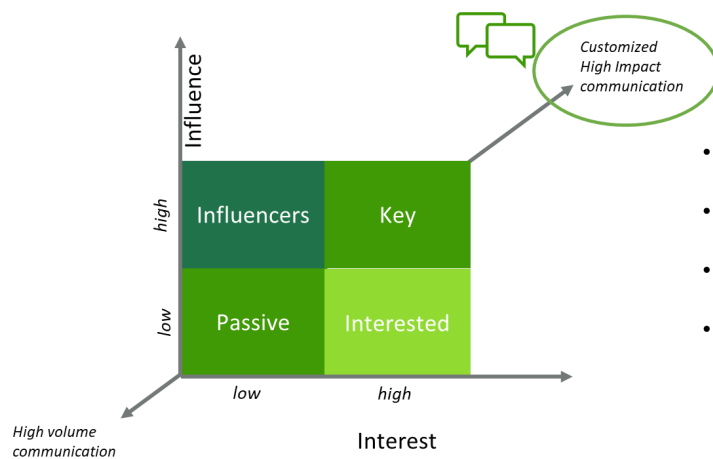
The workshop focused on completing Step 1, while a quick start was made to Step 2. In Lisbon, partners worked interactively to get insights into the stakeholders that are relevant the RELiEF partners. A Stakeholder can be a party that is important to achieve the project impact OR a party that plays an important role for the RELiEF KER to reach the market. Stakeholders could be for example

- A buyer of your end-result;
- party you need inputs from during the exploitation of results;
- party you need to bring your results to the next TRL level;

- party that determines conditions like policies/regulations, or supplier in input streams for Li;
- NGO who carries out lobbying work.

Partners were asked to identify at least 3 stakeholders that are of viable importance to them or their organisation and were asked to post them (with the help of color coded post-its) on the specially designed A0 sheets on the wall. The color coded target groups are represented on the left.

Once all the stakeholders were identified, partners were asked to explain their nominations, and a short plenary discussion ensued to ensure that the entire consortium understood why a particular stakeholder was selected. Following that partners were asked to take their own post-its and map them on the following 4 quadrants. The aim here is to differentiate between stakeholders.



- **Key stakeholders** (have high influence and high interest);
- **Influencers** (have high influence but low interest);
- **Interested stakeholders** (have low influence but high interest); and
- **Passive stakeholders** (have low influence and low interest).



These sheets were used for further discussion as well as **ranking of the Key stakeholders** (top right quadrant on the graphic above). This was done with the use of vote-its, where each partner received 3 votes to nominate the most important key stakeholder as per themselves. The workshop delivered a **rich database of around 100 stakeholders**, including the motivation of the consortium about why a particular stakeholder is interesting to RELIEF innovations. The next step is to **identify stakeholder interests, needs, stakes and challenges** and develop clear framework and key messages for the key stakeholders.



MEET JOANA

"Electro-based technologies can add value to secondary lithium resources and provide an innovative strategy to recover critical raw materials."



Joana Almeida
RELiEF Team Member NOVA

www.lithium-relief.eu

Meet the partners: NOVA, Portugal

In a nutshell, could you briefly describe what RELiEF is all about?

The RELiEF project aims to assess the **recovery of lithium (Li)** from potential liquid and solid secondary resources, to **reduce global Li waste generation**, in a circular economy perspective.

What is the impact of RELiEF? Who will benefit the most?

This project aims to contribute to **decrease EU dependency** on imported battery chemicals and raw materials and improve EU competitiveness in the value chain of battery storage. Also, it will **strengthen the bridge between companies and academia**, once small/medium-sized enterprises, non-profit real-time operating systems, universities and associated industrial partners are working together to achieve these goals, promoting **knowledge transfer between entities**.

Could you briefly describe your institutional and personal role within the RELiEF project?

NOVA wants to be part of the green energy transition, contributing for the development of new sustainable strategies. I have been a researcher on electro-dialytic technologies for critical raw materials recovery, from several environmental matrices. The electro-dialytic process consists in the **application of a low current density** (mA), between pairs of electrodes, to promote the separation/removal of substances. In this sense, I am applying this process to recover lithium from secondary liquid and solid resources, such as secondary lepidolite mining resources, effluent from lithium batteries recycling, and pharmaceutical effluent with lithium content.

Which results have already been achieved on your end and what will be the next milestones?

Deep eutectic solvents, and inorganic/organic acids and bases were tested for **lithium leaching**, with low Li extraction (below 20%) from mine tailings. On the other hand, electro-based technologies demonstrated favourable results for the recovery of lithium from the effluent of batteries recycling (maximum Li recovery achieved = 88%) and low potential for Li recovery from lepidolite secondary resources (maximum Li recovery achieved = 30%). The **next steps** will be to **deep the study on lithium recovery from effluents**, that have shown promising results.

For you personally, what has been the most exciting/most challenging part of the project so far?

Apart from all the interesting scientific research on critical raw materials recovery from different samples with lithium, the opportunity to collaborate with external partners, and learn from different know-hows and areas of expertise is being very inspiring.

Which are the most significant challenges and opportunities related to the recycling of raw materials in your opinion?

The challenges are related to the complexity of methods, and its optimization. However, the development of new strategies is highly empowered by the EU commission and may promote to **add value to secondary resources** and create new markets for approaches that provide a safe and efficient manner to recover critical raw materials.

How will RELiEF concretely contribute to the reduction of lithium waste in the future?

Lithium is now considered a **critical raw material due to the high risk of scarcity and economic value**, and a strategic element due to its role towards clean energy transition. Moreover, the lithium demand is expected to quadruplicate in 8 years. In a circular perspective, if lithium could be recovered in medium-high grades from resources that are considered waste, such as mining residues and effluents from related industries, this could contribute not only to reduce the lithium waste generation, but also the primary exploitation of lithium.

Cluster Hub Annual Meeting

RELIEF is part of the [Cluster Hub](#) “Production of raw materials for batteries from European resources”. The cluster hub sees itself as a knowledge exchange ecosystem where partners involved in different European projects (private companies, support organisations, experts, universities and research institutes) can identify and discuss common topics related to their projects, and to the production of materials for batteries, as well as synergies that can foster innovations in this field. The partners are driven with the same goals – to foster the knowledge necessary to drive a more sustainable and circular production of raw materials for the European battery industry. In order to celebrate the first anniversary of this initiative, the members of the Cluster Hub will organize an annual meeting during the [EU Raw Materials Week](#) in Brussels; the hybrid meeting will be the opportunity for all cluster members to meet and discuss the latest developments regarding the new batteries regulation as well as the exploitation of the results achieved within each project through a dedicated workshop, destined to external key stakeholders coming from industry, academia or regulatory bodies. Through their partners [TechConcepts](#) and [Eurice](#) RELiEF takes on the managerial role of organising the meeting in collaboration with three other projects.

More information will come – stay tuned!



CLUSTER HUB
PRODUCTION OF RAW MATERIALS FOR
BATTERIES FROM EUROPEAN RESOURCES

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