

DESIGNING DIFFERENTIATED APPROACHES TO COMMUNITY OUTREACH AND SOCIAL ACCEPTANCE: LESSONS FROM THE H2020 SECREETS PROJECT

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Abstract:

The SecREEs project aims at developing a secure and stable European supply of critical rare earth elements based on a sustainable extraction from European apatite sources used in fertiliser production. With pilots and production sites located in three different European countries, the SecREEs project proposes a different approach to rare earth element (REE) extraction, optimising existing apatite manufacturing processes and focusing on unused REE sources. Compared to most raw materials projects, SecREEs has the specificity of not incorporating any new mining processes or any recycling: the SecREEs value chain is extracting and manufacturing REE as a by-product from the fertiliser production.

Although no new mining is involved, SecREEs still has to adapt its approach to comply with EU requirements regarding social acceptance and community outreach in the field of raw material processing and manufacturing. The concept of Social Licence to Operate as defined by Boutilier & Thomson (2011)¹ traditionally applies to mining processes outside the Western world, and it designates the degree of acceptability of industrial processes as perceived by the local community. With some modifications this conceptual framework is still applicable to SecREEs, in a context of non-extractive raw material processing and REE manufacturing. In this presentation, a parallel will be made between the traditional meaning of Social Licence to Operate in an extractive context and the case of SecREEs. The industrial context of SecREEs, whose innovation mostly consists in developing European industrial symbiosis, implies very little technological disruption for local communities. The tailoring of the Social Licence to Operate concept to a European by-product-based supply chain will be detailed.

The multi-level approach to public and stakeholder engagement in SecREEs will be detailed: SecREEs has chosen to engage stakeholders both locally at the industrial sites involved in the value chain, and at a European level with international events and clustering activities with other EU-funded projects. Working with local stakeholders in different locations, SecREEs had to adopt differentiated methodologies, tailored to the different pilot sites and the different local communities, with their own social, cultural and economic context, a process that will be explained in this presentation. In addition, outcomes of the first engagement activities and their impact on SecREEs will be detailed, along with the first lessons learned from the SecREEs approach to social acceptance will be presented along with foreseen mitigation procedures.



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Abbreviations

CQI: Criteria Quota Individual
EIT: European Institute of Innovation & Technology
EU/EEA: European Union/European Economic Area
INERIS: Institute National de l'Environnement Industriel et des Risques
LCM: Less Common Metals Ltd
NPK: Nitrogen, phosphorus, potassium
PI: Prospex Institute vzw
REE: Rare Earth Element
SLO: Social Licence to Operate
UK: United Kingdom

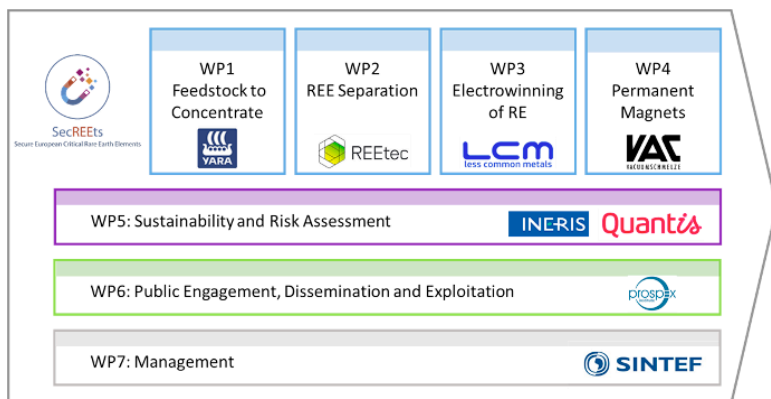
The SecREEs project

The SecREEs project stands for 'Secure European Critical Rare Earth Elements' and receives funding from the European Union's Horizon 2020 Research and Innovation Programme¹. The main objective of the SecREEs project is to develop a stable and secure Europe-based supply of REE based on a sustainable extraction from European apatite sources used in NPK fertiliser production. The project is focusing primarily on Praseodymium, Neodymium and Dysprosium used in permanent magnets for electromobility or offshore wind turbines, though there is a replication potential for other applications involving other REE such as medical equipment, fluid catalytic cracking, consumer products etc. These European areas of applications are currently dependent on import of REE from outside the European Union / European Economic Area (EU/EEA). This dependency can potentially cause shortages, increased costs and a lack of stability to some exposed European industries, as experienced during the 2011 so called "Rare-Earth Crisis". SecREEs will therefore attempt to soften this dependency.

SecREEs brings together a consortium of complementary industrial partners led by SINTEF. Using concentrate extracted through a side stream from Yara's fertiliser production, the Norwegian company REEtec will develop a pilot chromatographic process to produce REE oxides. These are electrochemically turned into alloy by the British company Less Common Metals, which sends the material to Germany for the production of permanent magnets at Vacuumschmelze.

1. ¹ Grant Agreement No: 776559.

SecREEs also assesses the social, environmental and economic sustainability of the value-chain. A full Life Cycle Costing and Life Cycle Assessment is conducted by Quantis to assess the economic and environmental impact of the SecREEs value chain. The French Institut National de l'Environnement Industriel et des Risques (INERIS) conducts an independent control of safety compliance at the industrial pilot sites. In parallel, Prospex Institute (PI) is in charge of engaging stakeholders in the local areas of the pilot sites, as well as European-level stakeholders, in view of assessing the social sustainability of the process and ensure the transparency necessary to build a relationship based on trust with all relevant actors.



SLO definition and approach

Boutilier & Thomson explain that the SLO concept was originally developed “... to help our clients and ourselves make sense of the confusing array of challenges raised by stakeholders”. In the SecREEs project, PI is also responsible for managing stakeholder relations on behalf of the consortium partners and ‘making sense’ of this engagement. Part of PI’s work is to engage stakeholders in identifying problems and challenges and how these might be overcome. Developing an approach to social acceptance was also a condition under the European Union Horizon 2020 programme.

The definition used by Boutilier & Thomson for an SLO is:

“... a social license to operate is a community’s perceptions of the acceptability of a company and its local operations.”

The Boutilier & Thomson study and the SecREEs project operate in different environments and this could make it difficult to transfer the definition of an SLO. For example, Boutilier & Thomson are working with local communities living near mining operations. This is not the case in SecREEs and mining activities² are not included in the scope of the project. The Boutilier & Thomson study is also primarily focused on Bolivia where the economic, social and regulatory environments are different from Europe.

Despite the different context of the Boutilier & Thomson study, the SLO definition remains relevant and pertinent to SecREEs. The project has maintained a focus on the ‘... *community’s perceptions of the acceptability of a company ...*’ and many of the SLO activities provide stakeholders with the opportunity to define what is ‘acceptable’ and monitor the behaviour of SecREEs. The project has also designed SLO activities around the “... *local operations*” of the industrial partners in SecREEs, primarily at the sites in Ellesmere Port in the U.K. and Porsgrunn in Norway, and later on in Hanau, Germany.

Stakeholder Networks

For their work in Bolivia, Boutilier & Thomson identified stakeholders using the concept developed by Freeman in 1984³. This defines a stakeholder as any group or individual who can affect or is affected by the actions of a company.

Based on this stakeholder definition, PI uses an internally developed methodology for stakeholder mapping known as Prospex-CQI, which is described as part of the Stakeholder Integrated Research approach (Gramberger & co, 2014)⁴. CQI stands for:

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- ² Yara does extract apatite from its mine in Finland in the context of fertilizer production, so there might be a case to expand the remit of stakeholder engagement to include these communities. However, Yara supplies SecREEs with an REE concentrate from the fertilizer manufacturing process and not apatite coming directly from the mines. Therefore, this option is currently not foreseen within the scope of work covered by SecREEs.
 - ³ Freeman, R. E. (1984). Strategic management: A stakeholder approach. Boston: Pitman.
 - ⁴ Marc Gramberger, Katharina Zellmer, Kasper Kok & Marc J. Metzger, 2014: Stakeholder integrated research (STIR): a new approach tested in climate change adaptation research. Climatic Change 128(3) 201-214.

- C- Criteria: Defining a set of criteria and categories for stakeholder groups that are or could either be affecting the topic, be affected by it, or both;
- Q- Quota: Setting specific minimum quotas for all categories;
- I- Individuals: Identifying individuals that fit the categories, with the overall selection fitting the quotas set.

By following the three steps of the Prospex-CQI method, PI starts by identifying societal groups that are potentially affected by, or could affect the SecREEs process, in accordance with Freeman's definition of stakeholder (Freeman 1984), through in-depth desk research and consultation with consortium partners. Once these groups are identified, PI defines quotas for the above identified categories, to ensure a balanced mapping. Only then does PI identify individual stakeholders based on criteria such as hierarchy, position within an organisation, expertise, personal interest... This three-step procedure ensures that the discussion engages relevant groups of stakeholders.

Boutilier & Thomson explain that through using Freeman's definition, it is possible to identify relevant stakeholders that are located beyond the immediate geographic location of the mine such as investment fund operators, human rights activists, national governments etc. SecREEs has therefore used the CQI approach to identify stakeholders in the local areas of Ellesmere Port, Porsgrunn and Hanau and stakeholder networks at the regional, national and European levels. Given the strategic nature of REEs to so many industries, the project have also begun to engage with international stakeholder networks such as the Rare Earth Industry Association (REIA) or the EIT Raw Materials.

As a result, PI has developed different databases of stakeholders for SecREEs, at the local and European level. At a European level, an analysis of the value chain and policy landscape was conducted together with the SecREEs project leader SINTEF, based on feedback gathered from discussions with consortium partners and the SecREEs Advisory Board. This database currently covers more than 180 stakeholder organisations, divided into groups such as types of organisations (academia, business, policymaker etc...), industrial and policy areas of expertise, or position in the value chain. This database, which is updated throughout the projects, is the C of CQI which is then used to help SecREEs set quotas and identify individuals for high-level engagement activities and bilateral discussions.

At a local level, PI has developed dedicated databases together with the relevant local industrial partners. As an example, more than 50 stakeholders were mapped around Porsgrunn (Norway) where Yara and REEtec are based. In Ellesmere Port (UK), where Less Common Metals has its premises, almost 90 stakeholders were mapped. In general, the databases cover all aspects of the local way of life, from local

political representatives to neighbouring businesses, but also media, education and civil society. Each database is tailor-made to the local area, and depends on the demography, social fabric and economic context of the area. For instance, in Porsgrunn, the database categories revolve mainly around the industrial history of the area, with businesses, trade unions, research institutions etc., whereas in Ellesmere Port, civil society is much more developed, which implies the mapping of categories such as community-based associations.

Measuring SLO

The approach taken by Boutilier & Thomson was to develop a pool of statements that measure the different levels of SLO amongst stakeholders. Stakeholders are asked to value the statements (agree/disagree rating using a five-point scale) and their answers are ranked within a model. Boutilier & Thomson initially created the 'pyramid' model and then further refined this to develop the 'arrowhead' model that better captures the continuity of the SLO process.

Through engaging the stakeholder networks, Boutilier & Thomson noticed that there is no automatic consensus on the level of SLO being accorded. To explain this, Boutilier & Thomson point out that stakeholders represent different interests and have diverse experiences and perspectives on the mining activities in Bolivia. Activists that come from anti-capitalism / globalisation movements have different motivations from village leaders who may *"... try to negotiate a better micro-social contract with the mining company than the one they currently have with their national government."*

SecREEs is following a similar approach. Stakeholder engagement is organised through two formal structures called the Citizen Labs and the Policy Council. The Citizen Labs take place at Ellesmere Port, Porsgrunn and Hanau and engage local and regional stakeholders in a workshop setting. The Policy Council can take place anywhere in Europe and engages national and pan-European stakeholders also in a workshop setting. To date SecREEs has held two Citizen Labs and one Policy Council, and these will be repeated every year for the duration of the project.

In the first round of events, the project essentially identified the issues or topics of priority importance to its stakeholders that will form the basis of SecREEs' SLO approach. What was noticed is that the issues identified by Boutilier & Thomson in the 15 statements, differ from those identified in SecREEs. Given the different settings this is not totally surprising, indeed Boutilier & Thomson point out:

“In the developed world, there is a tendency for stakeholders to want mining companies to be active global citizens by taking responsibility for global problems like, for example, carbon emissions and climate change.”

Given this tendency to focus on global issues, SecREEs makes a concerted effort to look at the broader context of REEs covering their strategic role in developing ‘green’ technologies, the geopolitical dimensions of REEs, trade flows, working conditions, environmental impact, recycling etc. The consortium feels it is important that stakeholders have the opportunity to contextualise the industrial activities taking place in SecREEs together with the broader political, social and economic realities of REEs. By creating this space, SecREEs can also identify underlying issues such as ideological positions (anti-globalisation etc.) that Boutilier & Thomson point to above.

Citizen Labs & Policy Councils

The Citizen Labs take place in the three industrial settings of Ellesmere Port, Porsgrunn and Hanau. These locations have a long history of industrial activity and the local economy is heavily dependent on manufacturing. In all three settings, there is an established dialogue between the industrial parks and the local community looking at issues such as air quality, noise levels, water pollution etc.

Using the CQI mapping method outlined above, PI and the local SecREEs partner invite stakeholders to participate in a two to three-hour workshop. The time and location of the workshops are decided by the local SecREEs partner to ensure suitability with the local culture. The first round of Citizen Labs uses a workshop format that is divided into three sessions.

Session 1: introduction to REEs

This is an interactive and participatory session where stakeholders are asked to pool their knowledge of REEs with inputs from the SecREEs partners when required. The main topics discussed include:

- What are REEs and what are they used for?
- Where are REEs found (mined) and where are they manufactured?
- What types of products need REEs and who consumes them?
- What is the strategic value of REEs for Europe?

Through this co-learning session, the stakeholders and SecREEs partners develop a shared understanding of REEs and their strategic importance for Europe. This is an important foundation for the following discussions, as stakeholders make the link between their own consumer habits (particularly for 'green' technologies) and the industrial processes behind manufacturing these products.

Session 2: Introduction to SecREEs

Stakeholders are introduced to the industrial process of taking a side stream from fertilizer production and turning this into a permanent magnet for electrical vehicles, wind turbines and other products. The main topics discussed include:

- What is SecREEs doing: step-by-step explanation of the process and the different partners involved.
- What is the science behind SecREEs: insight into the chemical and engineering processes.
- What is happening in your locality: detailed look at the operations in Porsgrunn or Ellesmere Port or Hanau.
- Questions or concerns about the science of SecREEs and the activities happening in Porsgrunn or Ellesmere Port or Hanau.

Although the scientific explanations of the SecREEs process can be a bit difficult to follow, the project needs to establish a degree of trust and transparency with the stakeholders. If SecREEs is too vague about the chemical and engineering processes, then misunderstandings can occur, and stakeholders might feel the project is hiding pollution problems. For this reason, it was important to include some experts in the stakeholder group, that have a strong chemistry background, who can question the SecREEs partners at this scientific level. This allows the stakeholder group as a whole, to engage with SecREEs on an equal footing.

Session 3: Developing SLO Measures

In this final session, the stakeholders reflect on what they have learnt and identify concerns, issues or topics for further review. The stakeholders form small groups and have time to discuss issues and develop their own thoughts independently of the SecREEs partners. In addition, each group was given a form with three questions that they are asked to discuss:

1. What activities would you like to see from SecREEs in Porsgrunn / Ellesmere Port/Hanau over the next years?
2. How can we best update you on developments in SecREEs?
3. Who else should we engage in Porsgrunn / Ellesmere Port / Hanau?

The answers received from the groups become the SLO measures (statements) that PI and local partners will apply to the model and use in SecREEs to define actions and engagements with stakeholders.

Finally, as a matter of good practice, the stakeholders are given an evaluation form which they complete individually and confidentially. The six evaluation questions use a 'agree/disagree' rating on a five-point scale.

1. How do you rate the Citizen Lab in general?
2. Did this lab help you understand challenges related to Rare Earth Elements?
3. Did this lab help you understand what the SecREEs project will do/does in Porsgrunn / Ellesmere Port / Hanau?
4. How much were you enabled to contribute to the discussion?
5. Would you sign up again for a similar event?
6. Do you have any other comments or remarks (open field – no ranking)?

The Policy Council workshop is organised differently but has the same emphasis, taking stakeholders through an introduction to REEs, what SecREEs will do and the identification of SLO measures. In addition, the Policy Council has the opportunity for breakout sessions on specific topics: for instance, the first Policy Council focussed on Life Cycle Assessment for REEs and SLO.

Initial SLO Results in SecREEs

SecREEs three sets of data from the Citizen Labs and Policy Council that relate to (i) questions about SecREEs, (ii) inputs from group discussions and (iii) feedback from the evaluation forms.

In the first data set, most questions being raised by stakeholders about SecREEs relate to the actual science being applied and the manufacturing process. Stakeholders are interested in issues such as the functioning of the hydrogen furnace of LCM and the concentration of REE found in apatite. There is also considerable interest in the results expected from SecREEs such as the likely yields and capacity. Stakeholders are also asking about the possible environmental, social and economic impacts from SecREEs and what emergency planning and health & safety measures have been put in place. Finally, stakeholders identified issues that relate to specific local concerns such as road traffic loads in Ellesmere port and water pollution of the fjord in Porsgrunn.

For the second data set, stakeholders were asked three questions (see above) about the activities SecREEs should undertake, how we should communicate and who else SecREEs should engage. For the first question, stakeholders want SecREEs to play an active role in sharing knowledge and engaging with local education

establishments such as universities, school science programmes, regional science networks etc. Stakeholders want SecREEs to engage with regional initiatives around jobs, growth, competitiveness etc. The Policy Council stakeholders also emphasised the need for SecREEs to engage with environmental impact assessments, recycling and life cycle assessments. Finally, all stakeholders were keen to visit the industrial sites and have opportunities to engage with SecREEs through talks, events etc. These issues are also reflected in the answers stakeholders gave to the questions on communications and other organisations we should engage.

Finally, the third data sets from the evaluations, showed a general support for the engagement process with SecREEs and continued interest in the project.

Following the Citizen Labs and Policy Council, PI collected all the questions and sent these to the relevant SecREEs partners who developed written answers. The answers were included in the public report that was sent to all stakeholders attending the events. PI also reviewed the requested activities and communications preferences and has been visiting the stakeholders to define how these can be best carried out. The activities are then discussed together with the SecREEs partners to see how these can be implemented and how the budgets can be secured.

In Ellesmere Port, where the first SecREEs Citizen Lab took place, SecREEs has already been able to follow up on stakeholders' suggestions for bilateral engagement and activities: for instance, the local partner Less Common Metals was invited to give presentations at the local university, science bar etc. Some discussions with the local council and the Catalyst Museum (Widnes) have led to the planning of activities around rare earth and magnetism with pupils in local primary schools. In Porsgrunn, similar discussions have been going on with local museums.

However, the COVID19 pandemic has disrupted the Citizen Labs, putting on hold bilateral engagement activities and yearly workshops at the local demo sites. The second meeting of the Citizen Lab in Ellesmere Port, planned in spring 2020 together with a demo site visit, was cancelled and stakeholders received a written update on the project to be kept informed. The organisation of the first Citizen Lab in Hanau is also on hold at the moment. However, the second meeting of the Porsgrunn Citizen Lab will be moved online as local cultural and social circumstances allow for this arrangement. The second Policy Council, which was planned for spring 2020 as part of the EIT Raw Materials summit, is postponed to autumn 2020 and will take place online.

These circumstances have contributed to a shift in some of the underlying assumptions within SecREEs about the SLO approach. SLO activities focus on a

Comment [CB1]: Virtual Citizen Lab

specific geographic location and engage the stakeholders around a mine or industrial complex. This links to the definition used by Boutilier & Thomson that:

“... a social license to operate is a community’s perceptions of the acceptability of a company and its local operations.”

In SecREEs, the understanding of ‘community’ encompasses firstly local stakeholders at the industrial pilot sites. However, it is legitimate to question whether SLO should be defined solely by local stakeholders given that the production of REE is a Europe-wide undertaking. Perhaps the ‘community’ in this instance should include a larger European perspective.

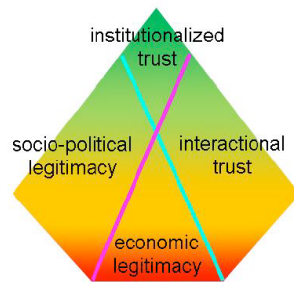
To run an SLO approach with a broader European stakeholder community requires an alternative approach towards an online or virtual engagement, in parallel to face-to-face Citizen Labs in the three localities. By preventing SecREEs to run physical Citizen Labs, the COVID19 provided another incentive to look at creating a virtual Citizen Lab.

Ensuring that a virtual Citizen Lab is professional and provides an equivalent level of engagement to a physical workshop, comes with many challenges. Multiple issues arise around the choice of language for a virtual Citizen Lab, how to identify stakeholders to participate, selecting a date and time for the Citizen Lab, the amount of time stakeholders can give to a virtual meeting etc.

In response to these challenges, SecREEs is developing a new virtual Citizen Lab experience. The virtual Citizen Lab is being developed with the objective to meet the requirements that enable SecREEs to fully engage stakeholders on SLO topics. The virtual Citizen Lab is expected to be a more or less 20-minute online experience where stakeholders are led through a number of exercises by a virtual host. Stakeholders will be able to access the virtual Citizen Lab online whenever they want and will not be restricted to a specific time slot. Ideally, stakeholders will change the language so that the questions and exercises appear in their native tongue, as well as the subtitles that translate what the virtual host is saying. Another key element is that a stakeholder can see the answers and opinions given by participants in the Citizen Lab and interact with these. Finally, opportunities to pose questions and raise issues or concerns will feature throughout the Citizen Lab and be taken up by the SecREEs project. The expected launch of the first pilot of the virtual Citizen Labs is expected late 2020 or early 2021.

Arrowhead Model

Boutilier & Thomson developed the arrowhead model to measure the overall level of SLO granted by the stakeholders. This contains four principle fields that Boutilier & Thomson used to assess stakeholder responses to the 15 statements.



Levels of SLO with the Four Factors that Determine the Proportions of Stakeholders at Each Level.

To use this model in SecREEs, it will be necessary to quantify the inputs from stakeholders in the Citizen Labs and Policy Council. This is a task that needs to be undertaken in the future to obtain a consistent measurement of the SLO. However, at this stage, SecREEs can already make some preliminary assessments on the four fields.

1. Economic Legitimacy	The perception that the project / company offers a benefit to the perceiver.	If lacking, most stakeholders will withhold or withdraw the SLO. If present, many will grant an acceptance level of SLO.
<p>SecREEs preliminary assessment:</p> <p>There is relatively little or no direct economic benefit from SecREEs to the stakeholders. However, the potential economic benefit for the region in terms of jobs and increased business activities is understood by stakeholders. In the Policy Council the stakeholders clearly identified the business opportunity for the European economy that SecREEs represents and the potential benefit for a European REE value chain.</p>		

2a. Socio-Political Legitimacy	The perception that the project / company contributes to the well-being of the region, respects the local way of life, meets expectations about its role in society, and acts according to stakeholders' views of fairness.	If lacking, approval level of SLO is less likely. If both this and interactional trust (2a & 2b) are lacking, approval level is rarely granted by any stakeholder.
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SecREEs preliminary assessment:

Ellesmere Port and Porsgrunn are both industrial regions, which means that the industrial activity of SecREEs does not pose an immediate threat to the local way of life. In fact, most stakeholders think that SecREEs can make a positive contribution by keeping jobs in the region and contributing to industrial output. In both locations, the regional authorities are engaged to the extent that in Porsgrunn the Vekst i Grenland regional development offices co-hosted the Citizen Lab. It is not clear how stakeholders view the issue of fairness and SecREEs will need to monitor this closely over the coming years. However, in both locations there are established laws that regulate and monitor companies behaviour, which SecREEs partners must comply with.

2b. Interactional Trust	The perception that the company and its management listens, responds, keeps promises, engages in mutual dialogue, and exhibits reciprocity in its interactions.	If lacking, approval level of SLO is less likely. If both this and socio-political legitimacy (2a & 2b) are lacking, approval level is rarely granted.
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SecREEs preliminary assessment:

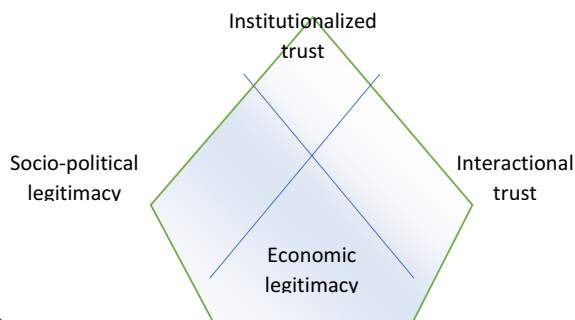
During the first Citizen Labs and Policy Council the SecREEs project has made several commitments and promises that now need to be realised. A big part of this process will be following up with stakeholders to answer their questions and implement the activities they requested. PI is working with the SecREEs partners to collect answers to questions and review the activities. Some follow-up activities have already taken place, and others are being planned (to the extent the COVID19 allows it). This will be the litmus test for SecREEs' SLO engagement.

3. Institutionalised Trust	The perception that relations between the stakeholders' institutions (e.g., the community's representative organisations) and the project / company are based on an enduring regard for each other's interests.	If lacking, psychological identification is unlikely. If lacking but both socio-political legitimacy and interactional trust are present (2a & 2b), most stakeholders will grant approval level of SLO.
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SecREEs preliminary assessment:

This is a difficult area for SecREEs. The SLO strategy and stakeholder engagement is primarily carried out by PI on behalf of the consortium partners. The activities are also bound within the framework of a four-year project and it is uncertain how and whether these will continue after the project ends. Developing an 'enduring regard' might be difficult within these parameters. However, it is the intention of SecREEs partners to build on their existing relationships with local stakeholders and expand these through the project to have a basis on which to work.

Based on this preliminary assessment of qualitative inputs, the SecREEs arrowhead model seems relatively strong on economic legitimacy and socio-political legitimacy, but many questions remain regarding SecREEs' ability to create interactional trust and institutionalised trust. The model below reflects this assessment:



Conclusion

Whilst there are many differences between the study on mining in Bolivia and the SecREEs project in Europe, the conceptual framework developed by Boutilier & Thomson for measuring SLO is applicable and can be transferred. This can be seen in the definition of SLO, the stakeholder mapping approach and the arrowhead model. The four factors contained in the arrowhead model are relevant to the SecREEs project and its initial SLO activities correspond to these fields. Some challenges will be faced in developing specific 'statements' and this might not be the correct approach for the stakeholders in SecREEs. The project will also need to think carefully about how to quantify the qualitative statements being generated by stakeholders. However, there is little doubt that Boutilier & Thomson have outlined a roadmap for developing an SLO that the SecREEs project can follow, even in a European, non-extractive context.

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