ZERO BRINE

D10.7 Report on Capacity Building Events

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Author(s)	George Tsalidis, Kees Roest, John Harinck (ISPT), Krzysztof Mitko (SUT) Ahmet Baban (TUBITAK) Andrea Cipollina (UNIPA) Sandra Meca Fàbrega (EURECAT) Maria Kyriazi (NTUA) Danielle Kutka (REVOLVE)
Contact	danielle@revolve.media
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[1] **R**=Document, report; **DEM**=Demonstrator, pilot, prototype; **DEC**=website, patent fillings, videos, etc.; **OTHER**=other

[2] **PU**=Public, **CO**=Confidential, only for members of the consortium (including the Commission Services), **CI**=Classified

Executive Summary

Capacity building was a critical component of ZERO BRINE organised within Task 10.6 to teach the principles of circular economy and ensure the uptake of ZERO BRINE technologies and tools such as the OBP, to the project's key stakeholder groups, ensuring the uptake of the project results.

Written with the contributions from all WP10 partners, this deliverable provides an overview of the capacity building activities – on the work achieved and points for further learning based on the outcomes of these events.

Due to the COVID-19 pandemic, planning for activities that had originally foreseen in person events had to be taken into consideration. For this reason, some capacity building activities were held as digital or online events.

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1. Overview of the project

The ZERO BRINE project aims to facilitate the implementation of the Circular Economy package and the SPIRE roadmap in various process industries by developing necessary concepts, technological solutions and business models to redesign the value and supply chains of minerals and water while dealing with present organic compounds in a way that allows their subsequent recovery.

Minerals and water will be recovered from saline impaired effluents (brines) generated by the process industry while eliminating wastewater discharges and minimising the environmental impacts of industrial operations through brines. ZERO BRINE brings together and integrates several existing and innovative technologies to recover products of high quality and sufficient purity to represent good market value.

A large-scale demonstration plant was tested in the Energy Port and Petrochemical cluster of Rotterdam Port from residual heat from one of the factories in the port. The quality of the recovered products is aimed to meet local market specifications. Additionally, three large-scale pilot plants have been developed in other process industries in Poland, Spain, and Turkey, providing the potential for immediate replication and uptake of the project results.

2. Scope of Deliverable

This deliverable comprises the results of the respective capacity building events organised within Task 10.6 including the site visits to the demonstration sites, training sessions, and social acceptance workshops. This is structured by the objective of the respective capacity building event, its process and organisation, and the outcomes and recommendations for the respective activities.

3. Site Visits

i. Introduction and objectives

Site visits were organised as a subtask to capacity building (Task 10.6.1) to the pilot demonstrations with the aim of disseminating the ZERO BRINE technologies and exploiting circular economy solutions for industrial wastewater to the key stakeholders of the project. The site visits invited industry and end-users of the technologies, but also policymakers and media to help contextualise the issue of industrial brine releases and contribute to knowledge and skills sharing in the field of circular economy. For a comprehensive review on the site visits, please see D10.4 Report on Field Visits to Pilot Projects.

3.1 Demineralised Water Pilot (NL)

ii. Process and organisation

The site visit to the Demineralised Water Plant pilot at Plant One Rotterdam, an innovative test facility in the Botlek industrial area of Rotterdam Port, took place in M24. To target industry stakeholders, the visit was organised within the context of the EU Salt Annual Meeting and General Assembly, organised by the European Salt Producers' Association in Rotterdam. The visit was coordinated by TU Delft with

the support of REVOLVE. The day included presentation of ZERO BRINE at the EU Salt GA, followed by the site visit and additional presentations on the ZERO BRINE technologies.

iii. Outcomes and recommendations

A total of 45 participants took part in the field visit to the Plant One test facility, most participants comprising salt and industry experts, as well as five media outlets with regional and international exposure, focused on technology and water.

While a good level of participation was had from industry stakeholders, as the pilot demonstration was awaiting a final component from a technology partner, the pilot was not in full operation. This was not an ideal circumstance for those in attendance. In this case, a suggestion for future visits would be to reschedule or postpone the visit until the pilot was in operation.

3.2 Coal Mine Pilot (PL)

iv. Process and organisation

The site visit to the Bolesław Śmiały Coal Mine in Łaziska Górne, Poland, took place in M29. To disseminate the ZERO BRINE project to local industry experts within the field of circular economy, the field visit was organised a day before the International Brokerage Event Horizon 2020 for Circular Economy and Transforming Industry in Warsaw. The visit was coordinated by SUT, with the support of REVOLVE. The full day excursion included a presentation of the mine's activities, a visit to its operational site and the ZERO BRINE pilot. This was followed by presentations on ZERO BRINE's ongoing work as well as a presentation on the local context of brine discharge from coalmining, ending with a visit to the Polish Brine Excellence Centre at SUT.

v. Outcomes and recommendations

A total of 40 participants took part in the excursion, including industry experts and four media outlets with regional and international coverage. The pilot visit was a success, and even generated coverage on local Polish television news channels with the attendance of Reuters TV.

3.3 Textile Pilot (TR)

vi. Process and organisation

Due to the outbreak of COVID-19, an in-person site visit to the Zorlu Textile pilot in Lüleburgaz, Turkey, was not possible. Instead, a digital journey was created to allow participants a virtual visit to the site. This was organised within a media briefing during EU Green Week in M48 by REVOLVE with the close support of TUBITAK.

The media briefing included speakers from DG RTD and ZERO BRINE and included the presentation of the digital journey. The event culminated with Q&A from attending European media outlets.

i. Outcomes and recommendations

A total of 44 participants attended the media briefing and presentation of the textile pilot digital journey. The digital journey has received 56 page views and the recorded session has 169 page views on YouTube as of M54.

3.4 Silica Pilot (ES)

ii. Process and organisation

Due to confidentiality reasons, a public field visit was not permitted to the site. Instead, IQE produced an informational video explaining the pilot and the technologies employed. Additionally, REVOLVE worked with IQE and Eurecat to send a dedicated press release in M46 following the final completion of WP4 deliverables and the results of the silica pilot, offering an opportunity for engagement with industry and media stakeholders.

iii. Outcomes and recommendations

To ensure field visits are possible, consortium partners should have clarified confidentiality concerns as they conflicted with the objectives of the capacity building events and the dissemination of the technology and results. However, it should be noted that a small site visit was permitted in M28 for a select few ZERO BRINE advisory board members and project partners.

i. Materials developed

Pilot Factsheets

Invite Polish Site Visit

Press release: Coal mine pilot site

Press release: Demi water pilot site I launch

Press release: Demi water pilot site I visit

Press release: Demi water pilot site II launch

Press release: Silica pilot

Invite Press Briefing/Turkish Digital Journey

4. Training Sessions

ii. Introduction and objectives

According to the European Commission, in a circular economy, waste that can be recycled is injected back into the economy as secondary raw materials where the latter can be processed, traded or

shipped similar to primary raw materials. However, at present, secondary raw materials account for only a small fraction of materials used in the EU (European Commission, 2020). Next to circular economy concept, industrial symbiosis is an adjacent concept. In fact, industrial symbiosis relies on circular economy principles but focuses on businesses collaborating with each other in the form of physical exchange of materials, water and/or energy.

The objectives of Task 10.6.2's training sessions were to increase capacity building among authorities and business enterprises via their introduction to circular economy and industrial symbiosis concepts, promotion of the ZERO BRINE project and presenting in detail the Online Brine Platform (OBP). Based on the Grant Agreement (GA), two training sessions were organised by ISPT, serving as the basis for the additional trainings in the partner countries Italy, Spain, Greece, Poland, and Turkey; however, as physical meetings were cancelled due to the COVID-19 pandemic, trainings were offered online instead. All satellite trainings were held in the respective local languages.

4.1 NL Training Sessions (ISPT)

iii. Process and organisation

Two webinars were organised by ISPT in collaboration with REVOLVE that lead the technical support and promotion of the webinars. The first webinar targeting Authorities took place on the 1 December 2020 and the second webinar targeting companies took place on the 3 December 2020. Each webinar lasted three hours and the content was based on the objectives described in the GA. Furthermore, a questions were prepared for participants when registering to the webinar with the aim to identify the background of participants and if they had heard about the Online Brine Platform (OBP). Mailing lists were prepared by ISPT focusing on key prospective participants for Dutch authorities and businesses in the wastewater sector that have declared interest in the topic. Invitations to the webinars were sent one and a half month in advance to ZERO BRINE stakeholders by REVOLVE. Furthermore, because polling was going to be used during the webinars to stimulate interaction with the participants, ZOOM was selected. Two guest speakers were invited to present. At the first and second webinars Dr. ir. Gijsbert Korevaar from Delft University of Technology participated as a guest speaker and expert to present Circular Economy and Industrial Symbiosis, and at the second webinar Jan Willem Mulder from Evides Industriewater participated as a speaker to show drivers and plans of Evides Industriewater with respect to Circular Economy. Lastly, a questionnaire focusing on the OBP was prepared and distributed to the participants after the webinars closure (Annex).

iv. Outcomes and recommendations

The first webinar resulted in 41 participants via ZOOM and the second webinar in 32 participants, which is a participation rate of more than 50% of the registered persons. In both webinars, additional views were possible via LinkedIn website that cannot be quantified. In addition, the presentations and the recordings of both training webinars can be found on the ZERO BRINE website and YouTube and had 101 and 84 views respectively as of M54.

Both webinars had similar objectives, therefore the webinars were structured in three distinct sections:

1. Circular Economy, Industrial Ecology and Industrial Symbiosis (presented by G. Korevaar)
2. ZERO BRINE project (presented by G. Tsalidis)
3. Online Brine Platform tutorial (presented by G. Tsalidis)

The polls focused on the second and third sections. Overall, many participants had heard about the ZERO BRINE project before the webinars. They expected mostly environmental benefits from the Dutch Case study and were somewhat satisfied with the content and opportunities that the OBP offers. In general, it was quite challenging to have sufficient interaction with and between the participants during the webinars. This was especially visible in the third section, which can be seen from the smaller numbers of participants in poll questions after the OBP tutorial section. Nevertheless, some specific questions were addressed, and poll outcomes gave further insights into the experiences and expectations of the participants of the OBP. In general, the polls showed that participants were interested in the OBP, but at the same time, participants were reluctant to register to the OBP and some participants suggested that the OBP should be improved. Participants did not have the authority to make the decision for registering employed minerals in the platform or the OBP should be improved by expanding the list of considered minerals.
Seven participants filled the questionnaire (Annex) after the webinars. Participants were positive about the training and OBP layout and performance. Furthermore, they suggested how the OBP can be improved:

- When more participants will be on board
- When it will be rolled-out across EU
- Based on successful matches, share the results as examples for others

The Dutch webinars were the guide for the next training sessions; therefore a few recommendations are made:

1. Inviting guest speakers from the private sector is an effective way of presenting how the latter is perceiving Circular Economy.
2. Presenting a detailed tutorial about the OBP and its functionalities is essential, but it is especially challenging to keep all participants involved in an online webinar. Thus, it is suggested to optimise that section's duration and/or include a break, while there is probably more engagement possible in a physical meeting.
3. Depending on the dates of the other webinars and the local situations, physical trainings are recommended if possible.

i. Materials developed

Training Invite

Training presentations

Recording: Online Training for Companies (EN): Towards Circularity and Industrial Symbiosis

Recording: Online Training for Authorities (EN): Towards Circularity and Industrial Symbiosis

See annex for additional materials.

4.2 GR Training Sessions (NTUA)

ii. Process and organisation

The Greek training session was held 10 September 2021 to present the ZERO BRINE project, the concept of the circular economy and the presentation of the OBP. Through the online platform, the companies that generate brines as a sub-product during their industrial processes come in contact with companies, which are potential buyers of salts with certain specifications, in order to use them in their advantage. The Online Brine Platform is an important tool serving the environmental protection from brine discharge by linking brine producers with the end-users of salts and water, thus preventing the adverse effects of water and soil contamination from saline inflows. From an economical point of view, the use of the platform offers the possibility to a company, service or municipality to raise their income from the exploitation of a waste stream, which would have no value otherwise.

The NTUA team prior to the workshop sent an email to the relevant stakeholders and companies and informed them regarding the workshop and the ZERO BRINE project. After the first communication an invitation was sent to all the participants, with the schedule of the workshop and the link to the online event. During the workshop, Prof. Maria Loizidou, Head of the Unit of Environmental Science and Technology (UEST) of NTUA, mentioned the importance of the transition from the linear to a circular economy model in the treatment of industrial brine, referred on some European projects associated with brine treatment that the UEST was involved in and described their pilot systems and their main results in terms of resource recovery and circular economy implementation. Dr. Maria Kyriazi, member of UEST team, reported on the results of ZERO BRINE and the pilot plants developed in Netherlands, Spain, Turkey and Poland. Maria Avramidi, member of UEST team, described the structure and the use of the Online Brine Platform through an online tour of the platform. During the presentation the steps that must be followed by a user, regarding his role in the platform (brine producer, technology provider, waste heat provider, salt user and water user) were explained.

iii. Outcomes and recommendations

33 attendees participated to the online workshop. The workshop participants were representatives from the public sector, such as ministries, municipalities, services of water supply & sewerage and the private sector, mostly desalination plants, from Greece and Cyprus.

After the presentations a very fruitful conversation between the stakeholders, companies and NTUA team was held regarding the OBP. The participants found the concept of the OBP up to date and relevant to the existing lack of communication between the brine owners, brine users and energy providers. It was suggested that this type of platform can be implemented also for the desalination technologies that generate large amount of brine. Also, the participants discussed several related issues, like the effects of brine discharge in the environment, the necessity for desalination utilities in islands and areas with limited natural water resources for the recovery of clean water suitable for

agricultural, municipal and industrial use and the latest news on the circular economy model implementation in the treatment of brines generated by desalination plants and process industries. In general, all the participants found the platform user friendly.

iv. Materials developed

Training presentations

4.3 PL Training Sessions (SUT)

v. Process and organisation

The Upper Silesian conurbation is a very interesting area for implementation of circular economy principles, as it is the most urbanised and industrialised part of Poland. The entire metropolitan area, composed of 41 municipalities squeezed inside the area of 2553 km^2, is populated by 2.3 million inhabitants and generates 8% of Poland's GDP. Almost 40% of adult inhabitants are employed in one of the many industries, such as coal mining, automotive, steel production or chemical industry. The region's environment is also heavily influenced by industrial emissions and wastewater discharge. All of that means that cooperation between different branches of industry in utilisation of waste streams and resource recovery is particularly important for the region. With this in mind, an online workshop was organised demonstrating the possibilities for resource recovery using the saline effluents from the coal mines as a case study. The workshop also presented the Online Brine Platform (OBP) in order to facilitate the cooperation between regional companies.

The workshop was organised as a partner event of the EU Green Week and was promoted on the ZERO BRINE website, by the EU Green Week, and in personal communication. Representatives from industry, and academia were invited.

vi. Outcomes and recommendations

The workshop was held on 31 May 2021. The event was attended by representatives from academia (Silesian University of Technology) and industry (chiefly membrane manufacturers, biodiesel industry, and industrial mechanics manufacturers). First, Dr. Krzysztof Mitko (SUT) described the concept of circular economy and presented the general information about the ZERO BRINE project. Next, Prof. Marian Turek (SUT) discussed the environmental issues caused by the saline wastewater discharge and presented the historical perspective of research done in the field of the coal mine waters utilization. Next, Dr. Mitko discussed the results of ZERO BRINE's coal mine case study. Specific questions regarding the pilot plant operation (scaling detection, operating pressures) were answered. After short break, the event continued with the tutorial on the Online Brine Platform – registration, usage, finding industrial partners. The event was finalised with a free discussion session, where mainly the possibility of future cooperation between SUT and industrial partners was discussed.

Both the video recording and the presentations given are available on the ZERO BRINE website and on the REVOLVE YouTube channel. It is recommended that the Upper Silesia should be included as one the industrial clusters available on the Online Brine Clusters, as currently it features only the Dutch clusters.

i. Materials developed

Training event page

Training presentations

Recording: Online Training (PL): Industrial saline wastewaters as a feedstock

See annex for additional materials.

4.4 IT Training Sessions (UNIPA)

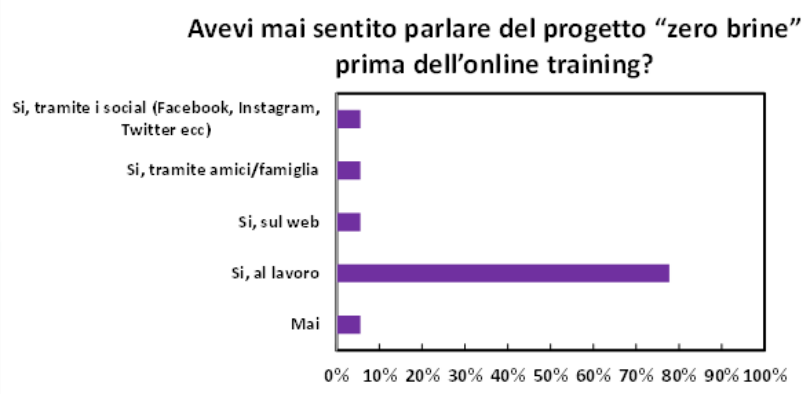
ii. Process and organisation

This training was organised by UNIPA in collaboration with REVOLVE on 22 July 2021 and lasted two hours. The ZOOM software was selected for the webinar as it was also suitable for employing polls. A mailing list was prepared by UNIPA focusing on key prospective participants for Italian business, universities and public company dealing with water supply sector that has declared interest in the topic earlier.

Polling was active for the session. The first question focused on the sustainability benefits of the Zero Brine project:

Q1A: Avevi mai sentito parlare del progetto “zero brine” prima dell’online training?

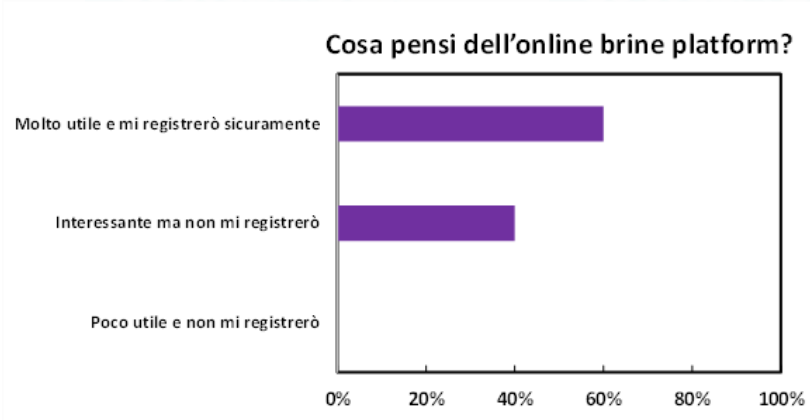
As reported in Figure 1, the 6% had never heard about it or knows it by social media, friends, whereas the 78% has heard about it at work.



The second question focused on the usefulness of the OBP:

Q2A: Cosa pensi dell'online brine platform ?

As reported in figure below, no one thinks that the OBP is not useful, the 40% thinks that it is useful, however they don't want to register, whereas the 60% thinks that the OBP is very useful and they will register.



iii. Outcomes and recommendations

The webinar resulted in 42 participants via ZOOM, which is a participation rate of 100% of the registered persons. The webinar was divided in in four distinct sections:

1. Introduction to the ZERO BRINE project (presented by Prof. G. Micale)
2. Presentation of the results within the Netherlands case study (presented by Dr. F. Vassallo)
3. Virtual tour of the Brine Excellence Center (conducted by C. Morgante)
4. Online Brine Platform tutorial (presented by Dr. S. Randazzo)

Two polls were also launched on the first and last sections. Overall, participants had heard about the ZERO BRINE project before the webinar. Regarding the OBP, the polling showed that participants were interested in the OBP, but at the same time, participants didn't think to register at the OBP.

The poll questions and their answers can be found in the Annex.

Recommendations based on this training include:

1. Physical trainings allow for a better interaction with the attendees.

2. Before the webinar, it would be important to check the performance of the OBP referring to the local country as the Maps address could not work well and the industrial clusters of interest could not be specified.

i. Materials developed

Training event page

Training presentations

Recording: Online Training (IT): Recovery of minerals from spent brines

See annex for additional materials.

4.5 ES Training Sessions (EURECAT)

ii. Process and organisation

Europe is trying to move towards a circular economy, and circular business models where high-quality resources are recovered and reused from process water, offer a solution. As an emerging market, reclaimed minerals are interesting for industries that want to reduce their costs and work more sustainably. For this purpose, an online training session was organised by EURECAT, FACSA, IQE and TYPSA on 30 June 2021 in Spanish. This training was held for company personnel looking to build symbiotic brine relationships and circular business opportunities through the OBP.

The event was coordinated by the four Spanish partners of the project: EURECAT, FACSA, IQE and TYPSA. The platform used was ZOOM and REVOLVE managed the event registration and attendance. The dissemination material was prepared in Spanish to increase the audience and focus on Spanish networking and transference.

Several meetings took place during the two months prior to 30 June 2021, when the training session was scheduled. The meetings focused on the training session content, structure, and target audience. The length of the training session was established to be no longer than 2 hours without a short break in between sections. However, dynamic questions and polls were considered to increase communication within the audience.

Dissemination from each communication department of each partner and the contact of each project team were used to send the invitations to the event. Also, it was published in advanced to the project website in both languages to increase the audience. Social networks were also used as dissemination channels for maximising number of registered individuals.

The content of the poll is described below with the main questions and multi-response alternatives provided to the audience:

1. **Type of organization**
    a. Brine producer
    b. End user of recovered raw materials
    c. Technology provider
    d. Residual energy producer
    e. Public administration

2. **Do you find it interesting to enrol in the Online Brine Platform?**
    a. Yes
    b. No

3. **Would you recommend OBP to other people?**
    a. Yes
    b. No

4. **What kind of benefits do you expect the ZERO BRINE project to promote at the European level?**
    a. Environmental
    b. Social
    c. Economical
    d. None

iii. Outcomes and recommendations

The training session resulted in 47 registrations but only 24 participants joined the session. This is equivalent to a 49% participation rate.

Regarding the outcomes collected during the poll section, launched at the end of the session:

- 100% of the participants were interested in registering into the Online Brine Platform.
- Organization type distribution audience is shown in Figure 1, with an equivalent presence of both brine generators and technology providers (38%) and remaining audience from authority and public administration sector in Spain (25%).
- The main benefits promoted by Zero Brine project at the European level among the different options were 100% environmental for the audience.

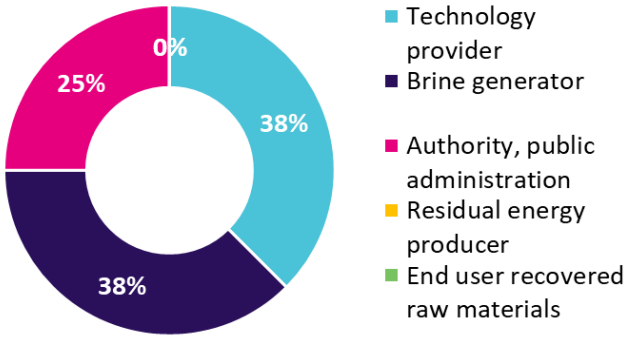


Figure 1 Audience type distribution in Spanish training session

At the end of the training session a round table coordinated by the project members motivated the audience participation in the event. Most of the questions focused on replicability and potential for industrial full implementation of the treatment chain according to IQE experience. The main results about viability and economic benefits were briefly explained by the partners. Besides this, the challenges or other type of brines different to inorganic as produced in the silica industry were discussed with the audience. In this context, EURECAT's experience with different brine treatment and in comparison, with those process evaluated during the project were shared. FACSA and TYPSA perspectives from the industry and brine generator and technology provider roles.

i. Materials developed

Training event page

Training presentations

Recording: Online Training (ES): Brine recovery and circular economy

See annex for additional materials.

4.6 TR Training Sessions (TUBITAK)

ii. Process and organisation

The two webinars were organised by TUBITAK in collaboration with REVOLVE. Prior to the webinars, several meetings were organised with Revolve to discuss the dates, organisation and content of the webinars, prepare the invitations for the webinars and, discuss and select the software to be used. It was decided that the first webinar targeting Authorities would take place on the 21 April 2021 and the second webinar targeting companies would take place on the 22 April 2021. Each webinar lasted three

hours. Mailing lists were prepared by TUBITAK focusing on key prospective participants for Turkish authorities and Turkish enterprises in the wastewater sector that have declared interest in the topic earlier. Invitations were sent to TUBITAK's network and ZERO BRINE contact lists. In addition, the webinars were promoted on social media platforms. Furthermore, the training objectives and expectations of the number of participants and interaction, the ZOOM software was selected. In addition, two guest speakers were invited to present. At the first and second webinars Dr. Hale Ay from TUBITAK EU Framework Programmes Department as a guest speaker and expert to H2020 and Horizon Europe calls, and Ecem Yilmaz from Zorluteks textile company as a guest speaker to show Zorluteks sustainability targets.

iii. Outcomes and recommendations

The first webinar resulted in 120 participants via ZOOM and the second webinar in 80 participants, which is a participation rate of more than 60% of the registered persons. In both webinars views were also possible via LinkedIn website, but it is not possible to identify the number of people that attended via LinkedIn. In addition, the presentations and the recordings of both training webinars can be found in the Zero Brine website and Revolve YouTube channel, respectively.

Both webinars had similar objectives, therefore the webinars were classified in distinct sections:

1. Resource efficiency and resource efficiency tools: Cleaner Production, Industrial Symbiosis and Circular Economy (presented by Recep Partal)
2. Horizon 2020 and Horizon Europe calls information (presented Dr. Hale Ay, TUBITAK EU Framework Programmes Department)
3. ZERO BRINE project and pilot plants (presented by Ahmet Baban)
4. Zorluteks Textile environmental sustainability works (presented by Ecem Yilmaz)
5. Textile pilot plant in Turkey (presented by Irfan Basturk)
6. Online Brine Platform tutorial (presented by Selda Murat Hocaoglu)

Participants expected mostly environmental benefits from the Turkish Case study and were somewhat satisfied with the content and opportunities that the OBP offers. In general it was quite challenging to have sufficient interaction with and between the participants during the webinars. Participants did not have the authority to make the decision for registering employed minerals in the platform or the OBP should be improved expanding the list of considered minerals. Questions from the participants during the meeting are given in the Annex.

i. Materials developed

Training event page

Training presentations

Recording: Online Training for Companies (TR): Water and valuable materials recovery in industries

Recording: Online Training for Institutions (TR): Water & valuable materials recovery in industry

See annex for additional materials.

5. Social Acceptance Workshops

5.1 Creating Acceptance for Circularity

ii. Introduction and objectives

Transitioning towards a circular economy is a priority for industry to meet the goals set forth in the European Green Deal; however, doing so is a complexity that requires the alignment of many different voices, interests and priorities to drive society down the path towards circularity and for it to be fully embraced. The aim of the social acceptance workshops as part of Task 10.6.2 is to address the three key drivers of social acceptance for circular economy initiatives: namely the technological infrastructure leading to circularity, its sustainability impact, and the supporting business model.

The two workshops, held on 22 September and 29 September 2021 respectively, involved experts from TU Delft on design and circular economy, leading a discussion on how to accelerate social acceptance for circularity based on the results of ZERO BRINE, which has sought to improve the circularity of industrial production through the recovery of resources from industrial wastewater. The workshops also addressed challenges in communicating circular solutions, and their impact on the three key drivers of social acceptance.

iii. Process and organisation

The workshop content and programme were developed by TU Delft, with the promotion and technical assistance provided by REVOLVE and moderation by ISPT. The agenda first covered a general presentation of ZERO BRINE, two videos on the ZERO BRINE pilot technology in Poland and Spain, which contextualised the issue of brine discharges and the resulting environmental and economic benefits of implementing the ZERO BRINE technology. The programme then included a discussion led by Prof. Patricia Osseweijer, with a presentation on the business model perspective by Dr. Giulia Calabretta and inputs of the integrated sustainability assessment by Dr. Gijsbert Korevaar of TU Delft.

The ZOOM events also included a series of statements that were shared with the participants as polling questions to gauge their perception of circular economy and what hinders or supports circular business innovation.

Polling questions:

- *The main technology owner should take the lead in facilitating the business model discussion for a circular project.*

  Most agree
- *Who should take the lead in facilitating the acceptance of circular technologies?*

  Mainly policymakers
- *Circular business models should also be examples of responsible and sustainable innovation and take societal acceptance into account from the start together with the environmental and socio-economic impacts.*

  Most agree
- *There is often a tension between the economic benefits and environmental impacts in a circular project.*

  Most agree
- *The lack of a clear and shared business model leads to the failure of circular economy collaborations.*

  Most agree
- *The economic benefits in a circular project are more effective than legislation in steering acceptance for circularity.*

  Most agree
- *To increase acceptance of circular solutions, the business model should be prototyped from the beginning and developed collaboratively throughout a circular project.*

  Many agree

iv. Outcomes and recommendations

Based on the discussions of the sessions, there was a clear perspective that policymakers and legislation must drive circular innovation and business modelling. Examples were given in developing regions like India, where this can only be driven politically but is not being done. The question was also raised that for the public, more needs to be done by industry experts to teach the circular economy – what it is, to help strengthen public perspectives and encourage greater acceptance of transitioning from a linear to a circular economy. Also, businesses need to improve communicating the benefits of

what they are doing on sustainability. Participants also mentioned that there is growing societal pressure for companies to become for sustainable and implement circularity.

While polling was employed to stimulate conversation, participants were hesitant to speak or to share many opinions. For this reason, an in-person workshop could have led to a more interactive environmentl.

v. Materials developed

Workshop event page

Circularity Invite

Recording: Workshop on Creating Acceptance for Circularity

See annex for additional materials.

6. Conclusion

The ZERO BRINE capacity building events helped in the knowledge exchange of stakeholders and the uptake of circular economy principles that ZERO BRINE's technologies and successes depend on.

The site visits, trainings and social acceptance workshops met the objectives set out in the grant agreement, involving stakeholders and encouraging critical discussions on the topics of circularity, industrial symbiosis and resource recovery. While many events have had digital components during the COVID-19 pandemic, it was often felt by the partners organising these events that in-person capacity building events would have led to more productive or interactive discussions.

7. References

NA

8. Annex of Materials

NETHERLANDS TRAININGS POLLING RESPONSES

In this section the poll questions are presented and the replies to those questions per webinar training. All questions could be answered with a "Yes/No", except from the first question that focused on the sustainability benefits of the Zero Brine project.

Q1A and Q1B: What kind of benefits do you expect the most in the Dutch ZERO BRINE case study?

Q2A and Q2B : Had you heard about the ZERO BRINE project before this session?

Q3A and Q3B: Are you interested in minerals that are not yet covered by the Online Brine Platform?

Q4A and Q4B: Do you have any considerations or reservations about registering your own brine stream(s) or mineral(s) input data on the Online Brine Platform?

Q5A and Q5B: Are you satisfied with the current matchmaking capabilities of the Online Brine Platform?

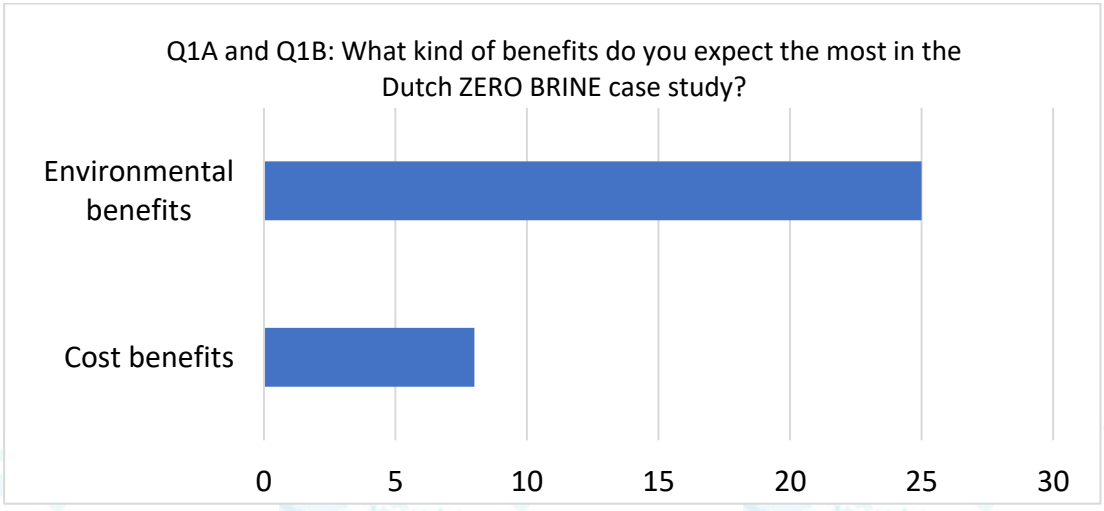
Q6A and Q6B: Do you think the Online Brine Platform can be improved? (e.g. any functions you think can be added?)

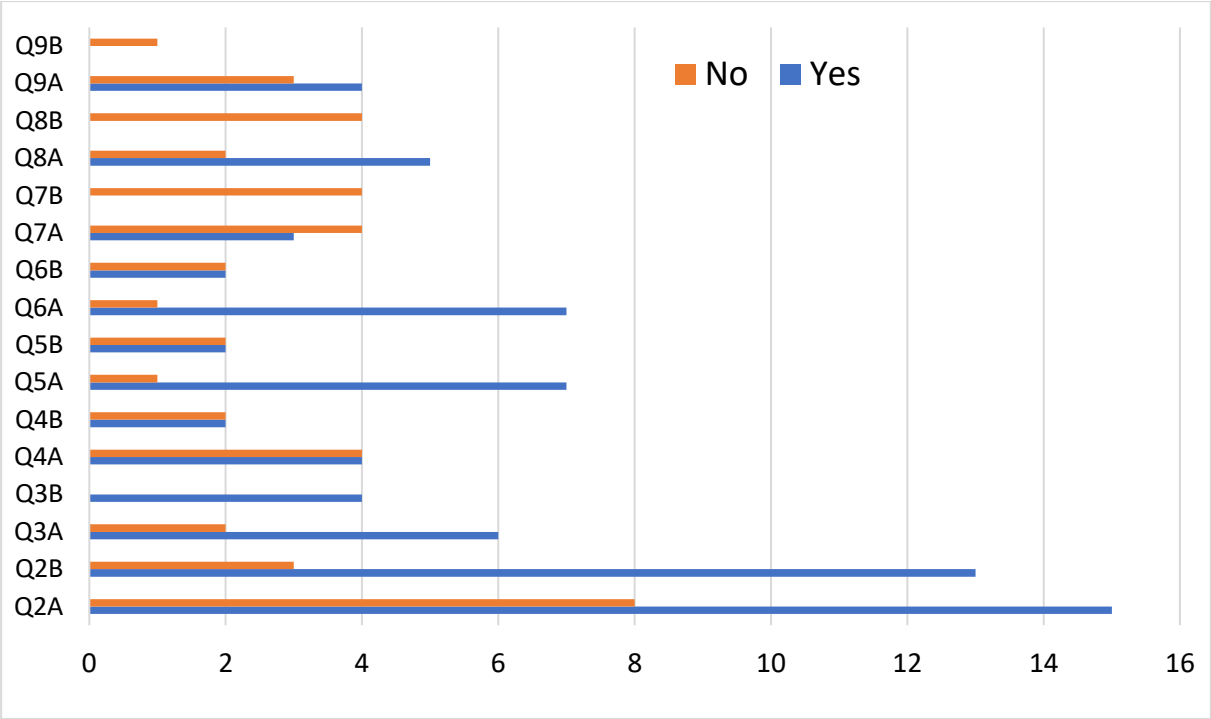
Q7A and Q7B: Are you interested in registering quantities of minerals employed in your facilities on the Online Brine Platform?

Q8A and Q8B: Are you interested in registering the characteristics of your own brine streams on the Online Brine Platform?

Q9A : Are you interested in registering quality characteristics of minerals employed in your facilities on the Online Brine Platform?

Q9B : Do you think the Online Brine Platform can be improved? (e.g. any functions you think can be added?)





Questionnaire for the Online Brine Platform

This questionnaire has been sent to the participants of the training sessions after the webinars.

Questionnaire - Online Brine Platform

The ZERO BRINE project focuses on recovery of minerals and clean water from brines. This will be facilitated via the Online Brine Platform where producers of brines and potential mineral(s) and water end-users can match in a symbiotic brine relation with technology and waste heat providers. The platform is currently online. Feedback on the system performance is very helpful to us to improve it. We would be very grateful if you can provide us your input on the Online Brine Platform via this questionnaire. It should take about 5 minutes to complete. Thank you!

Organization					
Type	**Brine owner**	**End-user**	**Technology provider**	**Waste heat provider**	**Authority**

Please complete the following questionnaire with specific regard to the above enquiry, by copying and placing ☑ in the appropriate box

	strongly agree	agree	uncertain/ not applicable	disagree	strongly disagree
1. The concept of the Online Brine Platform is useful.					

2.	The overall system performance of the Online Brine Platform is sufficient?	☐	☐	☐	☐	☐
3.	The layout/design of the Online Brine Platform is appealing.	☐	☐	☐	☐	☐
4.	The layout/design of the Online Brine Platform makes it easy to use.	☐	☐	☐	☐	☐
5.	I am satisfied with the overall layout/design of the Online Brine Platform.	☐	☐	☐	☐	☐
6.	Registering to the Online Brine Platform is easy/fast.	☐	☐	☐	☐	☐
7.	I am satisfied with the overall registration process of the Online Brine Platform.	☐	☐	☐	☐	☐
		☐	☐	☐	☐	☐

8. Did you encounter system problems while registering to the Online Brine Platform and if so could you elaborate?

		strongly agree	agree	uncertain/ not applicable	disagree	strongly disagree
9.	I am satisfied with the current matchmaking capabilities of the Online Brine Platform.	☐	☐	☐	☐	☐
10.	I am interested in registering the characteristics of my/our own brine streams on the Online Brine Platform	☐	☐	☐	☐	☐
11.	I am interested in registering quality characteristics of minerals employed in my facilities on the Online Brine Platform	☐	☐	☐	☐	☐
12	I am interested in registering quantities of minerals employed in my facilities on the Online Brine Platform	☐	☐	☐	☐	☐
13.	I am interested in minerals which are not covered by the Online Brine Platform yet	☐	☐	☐	☐	☐
		☐	☐	☐	☐	☐

14. If you have any considerations or reservations about registering your own brine streams or minerals input data on the Online Brine Platform, please elaborate.

15. What do you consider the strong points of the Online Brine Platform?

16. How do you think the Online Brine Platform can be improved? (e.g. any functions you think can be add

TURKEY TRAINING QUESTIONS

DAY 1:

İstanbul Chamber of Industry: After the project is completed, what kind of studies are planned to bring the pilot studies to the market? Is there a business development plan that can be expanded only in the textile sector or in other fields in Turkey?

İstanbul Chamber of Industry: Are there any differences between the technical specifications of the fabric produced by dyeing with the salt solution coming from the pilot system and the technical specifications of the fabric produced by dyeing with the conventional method? Is the fabric produced by dyeing with salt solution at the quality level that can be sold commercially to the customer?

Kipaş textile: I'm wonder about your ideas on forward osmosis. Can it be used especially for textile wastewater recovery and desalination? There are suggestions from companies in this regard. Are there adequate field practices around the world?

Guest: In case of full/demo scale cases, is the technology companies in Turkey will be able to deal with it? Are they adapted to the project?

Guest: I think that such projects scope can be determined within the framework of wastewater characterization, should wastewater treatability studies be carried out before the pilot scale?

Head of Textıle Recycling Commıttee: I would like to make a contribution. In addition to the recovery of valuable materials from wastewater, textile scrap waste is also an important issue for the circular economy. Carrying out studies on this subject will help reduce the water footprint caused by growing cotton.

Professor: Performing such studies at the source instead of end-of-pipe techniques can both reduce the amount of salt to be formed and reduce treatment costs. Furthermore, it may be necessary to review in detail whether the final product stream is suitable for dyeing in terms of water quality. High COD and high alkanity values can affect the dyeing quality.

Professor: Textile companies do not have enough idea about which water quality parameters are effective in dyeing process. Considering conventional methods, softened water is preferred to stay in the safe zone. But even in concentrated nanofiltration make dyeing work in Turkey they have very good results in the field of textile enterprises. Therefore, the quality of water that is suitable for painting can only be determined by detailed tests on fabrics.

DAY 2:

Sun Grup: Considering the industrial symbiosis, we actually see that Goal 17 is also indirectly related to the circular economy.

Guest: You said there are 4 pilots. It was said that one of them is Zorlu Textile. Could you give information about the other 3 pilot plant?

TSKB: Could you give information about the re-usability of the salts or chemicals obtained as raw materials? Do these need to be further processed for use?

Istanbul Technical University: Could you tell us about the latest technological progress in Eutectic Freezing Crystallization? For example; dewatering.

Istanbul Technical University: What is the advantage of returning your concentrate stream to the feed tank? In this way, does the total performance of the system decrease by increasing the contaminant concentration of the feed stream?

Guest: Could you give information about the energy consumption of the pilot plant?

TURKEY TRAINING PARTICIPANT LIST

SPAIN TRAINING POLLING RESPONSES

SOCIAL ACCEPTANCE WORKSHOPS PARTICIPANT LIST

SOCIAL ACCEPTANCE POLLING RESPONSES

Name (Original Name)
REVOLVE
Bedrettin UZUN Erzincan YDO(Lokman ALTUNBİLEK a.)
Muslum Arici
Selda Hocaoglu
Merve SOYER
Selda Hocaoglu (TÜBİTAK) (Selda Hocaoglu)
GEPOSB PINAR HÜLÜR TUNÇ
İrfan Baştürk
İrfan Baştürk
Selda Hocaoglu
Recep Partal
Recep Partal
Selda Hocaoglu
busra.sezgin
ecemy
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Selda Hocaoglu - TÜBİTAK MAM
fatih kemal dinçer
Muslum Arici
Selda Hocaoglu
SEZIN DERECI
Özlem Öztekin Okan
Selda Hocaoglu
Derya Soysal-Ömer Güler-İskenderun OSB
Alper
g.sayhan
Hale AY - TÜBİTAK
Numan Katıksız - Aydın Ydo
Selda Hocaoglu - TÜBİTAK MAM
Selda Hocaoglu - TÜBİTAK MAM
Hale AY - TÜBİTAK
ARİF ÖZTAN
Meryem PİR
Adem Aslan
kdemir
Mehmet TAŞAN-KTAE
Gülsüm Sağol
Bedrettin UZUN Erzincan YDO(Lokman ALTUNBİLEK a.)
Recep Partal
Adem Aslan
g.sayhan
Bengisu Ergenç İTKİB
Ahmet Baban

Fatma Oğuz Erdoğan
Mustafa Ünsal
Kübra Birhan-BAKKA
Arzu B. Yalabık
Ahmet Baban
Yunus DOĞAN
Nuray Ates
Mustafa Ünsal
gülfem Bakan
Sedef ERTURUN YÖRÜK
Mehmet GÜÇLÜ
Nevzat Ozgu Yigit
Ömer İnan
REVOLVE
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Mert Kasan
Melis
Sedef ERTURUN YÖRÜK
berra
Türkiye Kimya Sanayicileri Derneği
Ece Meteris
Elif Genceli Güner
Özlem Öztekin Okan
turgay karagomlek
Alper BAFALİ | Aydın ASTİM OSB
Melis
irfan sezgin
Gizem Akturk
Samet Demir Viking Kağıt
Arzu B. Yalabık
Neşe Eriş
Doç Dr Tuğçe DEMİRDELEN
Meryem ARSLAN (ÇŞB)
Pınar BAHÇECİ ALSAN
Fatma Oğuz Erdoğan
Merve Uzun - Boğaziçi Üniversitesi
Eser KARLIK
Senem Bayar
Lerzan Öztürk
Ebru AKKAYA
Özlem Öztekin Okan
Pınar BAHÇECİ ALSAN
Öznur ÇAPRAZ-BAKKA
Gizem Özçelik
Bahadir Sucu
tuba
Demet YILDIRIM -KTAE

Mustafa Ünsal
Nalan Tepe-Şençayır
Sema
Gizem Akturk
Sule Kucukcoskun
DOSAB-Ebru YAVUZ
Cemre Avşar
Ferda Ulutaş İşevi
MuraT TUNÇ GEPOSB
Yuled Aydın
Gülçin Akturan Güner
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GEPOSB PINAR HÜLÜR TUNÇ
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Mehmet GÜÇLÜ
Mert Kasan
Nevzat Ozgu Yigit
Gülçin Akturan Güner
Doç Dr Tuğçe DEMİRDELEN
Lerzan Öztürk
gülfem Bakan
TAGEM-Sule Kucukcoskun (Sule Kucukcoskun)
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Senem Bayar
Fatma Oğuz Erdoğan
Pınar BAHÇECİ ALSAN
ARİF ÖZTAN
Neşe Eriş
Derya Soysal (Derya Soysal-Ömer Güler-İskenderun OSB)
Merve Uzun - Boğaziçi Üniversitesi
Yuled Aydın
MERVE BÜYÜKÇERÇİ (Eser KARLIK)
didem bay
GEPOSB PINAR HÜLÜR TUNÇ
Mustafa Ünsal
Nalan Tepe-Şençayır (Nalan Tepe-Şençayır)
tuba
Elif Genceli Güner
Ferda Ulutaş İşevi
Cemre Avşar
Samet Demir Viking Kağıt
fatih kemal dinçer
turgay
Sema Aras Sulu (Sema)

Ebru AKKAYA
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Arzu B. Yalabık
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Özlem Öztekin Okan
Ali Şenol GÜNDOĞAN (Türkiye Kimya Sanayicileri Derneği)
Yunus DOĞAN
Bedrettin UZUN Erzincan YDO (Bedrettin UZUN Erzincan YDO(Lokman ALTUNBİLEK a.))
Gizem Özçelik
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Mehmet TAŞAN-KTAE
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Bengisu Ergenç İTKİB
irfan sezgin
Demet YILDIRIM -KTAE
kdemir
Nuray Ates
Gülsüm Sağol
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Ömer İNAN (Ömer İnan)
Meryem ARSLAN (ÇŞB)
Bahadir Sucu
Alper BAFALİ | Aydın ASTİM OSB
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Esin Özarslan - TOBB
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yıldız doğan
Gizem Akturk
Güray Çakmakçı
Arif Köseoğlu
yıldız doğan
mevka nurten elvan köksoy
Melis
Güray Çakmakçı
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Arif Köseoğlu
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Yüksel Ardalı
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Gulsum Akarsu
Yüksel Ardalı
Gulsum Akarsu
Serhad ALBAYRAK
Melike Benan ALTAY
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DOSAB-Ebru YAVUZ
MuraT TUNÇ GEPOSB
DOSAB-Ebru YAVUZ
SEZIN DERECI
Bulent ŞİŞMAN GAZİANTEP SANAYİ ODASI
Sezin Dereci-İSO (SEZIN DERECI)

Bulent ŞİŞMAN GAZİANTEP SANAYİ ODASI
Taşdemirİbrahim
kdemir
Taşdemirİbrahim
kdemir
Ece Akın
Sinem K.
Ece Akın
Sinem K.
Yıldır YEYGEL Viking Kağıt
Yıldır YEYGEL Viking Kağıt
Berkant Yurduseven
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YALÇIN NACAROĞLU
gsagol
bülent keskinler
Ramazan Mutlu DOĞANER
bülent keskinler
Ramazan Mutlu DOĞANER
iPhone
iPhone
yıldız doğan
yıldız doğan
Zeynep Erva Harman
Zeynep Erva Harman
KEMAL GÜNEŞ - TÜBİTAK
KEMAL GÜNEŞ - TÜBİTAK
Mehmet Kitis
FATİH
Mehmet Kitis
FATİH
pinar yalcin
Sule Bekaroglu
Adem Aslan
Sule Bekaroglu
Adem Aslan
Meral ARSLAN
Meral ARSLAN
Beliz Hacı-Erver Kimya
Beliz Hacı-Erver Kimya
Serdar İNCE GSO

Serdar İNCE GSO
MERVE BÜYÜKÇERÇİ
E.Ceren ÇANAKCI
E.Ceren ÇANAKCI
Yeşil Çevre
Yeşil Çevre
Hülya Gül Demir
Hülya Gül Demir
Gülsevin GÖKÇE
Gülsevin GÖKÇE
Kıvanç Demir
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Cihan Usta
Cihan Usta
İbrahim SAYGILI
Zeynep Erva Harman
Zeynep Erva Harman
Sabri Mutlu
Sabri Mutlu
Gonca KARACA BİLGEN
Ayşe ÖZYER
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Ayşe ÖZYER
Bilgehan İlker Harman
İbrahim SAYGILI
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Ece Akın
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Melis
cerencanakci
GAOSB Ceren ÇANAKCI (cerencanakci)
Melis
Samet Demir Viking Kağıt
Samet Demir Viking Kağıt
Taşdemirİbrahim
Zeynep ATLAS
Zeynep ATLAS
Nesim Karakurt (Taşdemirİbrahim)
Vedat Sönmez- Kars YDO
Hülya Gül Demir
Hülya Gül Demir
Vedat Sönmez- Kars YDO
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İbrahim SAYGILI
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Şeyma Demirci- Konya Toprak Su ve Çölleşme
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Eser KARLIK
MERVE BÜYÜKÇERÇİ (Eser KARLIK)
Emrah ŞIK
Emre OCAK
gülşah öselmiş
Emrah ŞIK
gülşah öselmiş
Emre OCAK
Caner SÖZTANACI

Caner SÖZTANACI
Melis
Melis
Sema Aras Sulu
Sema Aras Sulu
Dr.Barış GÜZEL
Aydın ÖZŞAHİN
Dr.Barış GÜZEL
Aydın ÖZŞAHİN
Emre Kemik
Emre Kemik
Elif Yıkılmaz
Elif Yıkılmaz
Cihan USTA
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Konca Çalkıvik
Melis Cengizhan (Konca Çalkıvik)
Burcu Tümtürk
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Mehmet GÜÇLÜ
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Demet Uygan
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Demet UYGAN-GKTAEM-ESKİŞEHİR
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Ahmet Karagunduz
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Demet UYGAN-GKTAEM-ESKİŞEHİR
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Gonca KARACA BİLGEN
Doç Dr Tuğçe DEMİRDELEN
Demet UYGAN-GKTAEM-ESKİŞEHİR
Mehmet GÜÇLÜ

Topic	Start Time
ONLINE TRAINING FOR PUBLIC INSTITUTIONS AND INDUSTRIAL CLUSTERS	04/21/2021 12:14:50 PM

Poll Report
Report Generated:
Topic
ZERO BRINE. Recuperación de salmueras y economía circular

1. ¿Ve interesante inscribirse en la Online Brine Platform?
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1. ¿Qué tipo de beneficios esperas promueva el proyecto ZERO BRINE a nivel europeo?
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Jul 01, 2021 10:46 AM

Webinar ID	Actual Start Time
889 9186 6008	Jun 30, 2021 8:45 AM

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Administración pública	1
Proveedor de tecnología	2
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Productor de salmuera	3

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Residual energy producer	0
End user recovered raw m	0
Authority, public administ	2
Brine generator	3
Technology provider	3
	8

Q1 – 50% technology provider; 25% brine generat
Q2 & Q3 – 100% yes

Actual Duration (minutes)
158

0%
0%
25%
38%
38%
1

tor; 25% public administration

Q1 – 50% technology provider; 25% brine generator; 25% public administration
Q2 & Q3 – 100% yes

Attendee Report

Report Ger	Nov 17, 2021 9:08 AM

Topic	Webinar ID	Actual Start Tim	Actual Duration (minut	# Cancelle
Creating A	842 9171 7884	Sep 22, 2021 12	120	1

Host Details

Attended	User Name (Original Name)	Email	Join Time
Yes	REVOLVE	info@revolve.m	Sep 22, 2021 14:35:28

Panelist Details

Attended	User Name (Original Name)	Email
Yes	Patricia Osseweijer	p.osseweijer@tudelft.nl
Yes	Patricia Osseweijer	p.osseweijer@tudelft.nl
Yes	Patricia Osseweijer	p.osseweijer@tudelft.nl
Yes	Kees Roest	kees.roest@ispt.eu
Yes	Dr Giulia Calabretta	g.calabretta@tudelft.nl
Yes	Danielle	danielle@revolve.media
Yes	Dr Gijsbert Korevaar	g.korevaar@tudelft.nl

User Name (Original Name)	First Name	Last Name	Country/Re
Amol Palve	Amol	Palve	NL
Jorge Garcia	Jorge	Garcia	ES
Nicola Testa	Nicola	Testa	IT
Burak	Burak	Eral	NL
Despina Sapoutzi	Despina	Sapoutzi	NL
Jannis Ruoff	Jannis	Ruoff	BE
Eveline	Eveline	van der Sanden	US
Francisco	Francisco	Galnares	MX
pelin	pelin	polat	TR
Ana	Ana	Popovic	RS
Stefan	Stefan	Buergmayr	AU
Luuk	Luuk	Rietveld	US
Nikhil Pawar	Nikhil	Pawar	DE
Sue Fein	Sue	Fein	US
dias mandala nurhutama	dias mandala	nurhutama	ID
Serena	Serena	Randazzo	IT
RECEP	RECEP	PARTAL	TR
Sigrid Scherrenberg	Sigrid	Scherrenberg	NL
Heleen Goorissen	Heleen	Goorissen	NL
Kallirroi Panteleaki	Kallirroi	Panteleaki	NL
Dionysia	Dionysia	Diamantidou	NL
W.H.R. Gerwen	W.H.R.	Gerwen	NL
Arjen van Nieuwenhuijzen	Arjen	van Nieuwenhuijzen	NL
Shima	Shima	Farahani	NL
Wilbert van den Broek	Wilbert	van den Broek	NL
Miguel Cano	Miguel	Cano	ES
Nimrod Golan	Nimrod	Golan	GB
Ana Alves	Ana	Alves	NL

Unique Viewers	Total Users
17	28

egion	Organization	Country/Region Name
	Klaren International BV	Netherlands
	Ainia	Spain
	Politecnico di Torino	Italy
	TU Delft	Netherlands
	SEALEAU	Netherlands
	Water Europe	Belgium
	TU Delft	United States
	Mars	Mexico
	dcube	Turkey
	The Academy of Applied Technical Studies Belgrade	Serbia
	Monash University / Visy Industries	Australia
	TU Delft	United States
	DLR	Germany
	FSW Enterprises	United States
	Royal HaskoningDHV	Indonesia
	Università degli studi di Palermo	Italy
	TUBITAK MRC	Turkey
	Royal HaskoningDHV	Netherlands
	Avantium	Netherlands
	SEALEAU	Netherlands
	Lenntech	Netherlands
	Bilfinger Tebodin Netherlands BV	Netherlands
	Witteveen+Bos	Netherlands
	IHE-Delft	Netherlands
	Evides Industriewater	Netherlands
	IQE	Spain
	University of Brighton	United Kingdom
	TU Delft	Netherlands

Poll Report

Report Ger	Nov 17, 2021 9:17 AM

Topic	Webinar ID	Actual Star	Actual Duration (minutes)
Creating A	824 6055 5	Sep 29, 202	109

Poll Details

#	User Name	Submitted	1.To increase acceptance of circular solutions, the business model s
1	Nimrod Golan	Sep 29, 202	Agree
1	Muhammad Arvianda	Sep 29, 202	Agree
1	Sovanmonica Ek	Sep 29, 202	Agree
1	Alejandra Celis Vargas	Sep 29, 202	Agree
1	Eveline van der Sande	Sep 29, 202	Disagree
1	Arjen Lettinga	Sep 29, 202	Agree
1	Harrold van Eijk	Sep 29, 202	Disagree
1	Serena Randazzo	Sep 29, 202	Agree
1	Henry Varga	Sep 29, 202	Agree

#	User Name	Submitted	1.Circular business models should also be examples of responsible a
2	George Tsalidis	Sep 29, 202	Agree
2	Sovanmonica Ek	Sep 29, 202	Agree
2	Alejandra Celis Vargas	Sep 29, 202	Agree
2	Seerp Gratama van Ar	Sep 29, 202	Agree
2	Henry Varga	Sep 29, 202	Agree

#	User Name	Submitted	1.The mair	2.Who should take the lead in facilitating the acceptance
3	George Tsalidis	Sep 29, 202	Disagree	A technology owner
3	Nimrod Golan	Sep 29, 202	Disagree	A policy-maker
3	Sovanmonica Ek	Sep 29, 202	Agree	A policy-maker
3	Alejandra Celis Vargas	Sep 29, 202	Disagree	An external partner
3	Eveline van der Sande	Sep 29, 202	Disagree	A policy-maker
3	Seerp Gratama van Ar	Sep 29, 202	Disagree	A business developer
3	Henry Varga	Sep 29, 202	Disagree	A policy-maker

#	User Name	Submitted	1.The economic benefits in a circular project are more effective tha
4	George Tsalidis	Sep 29, 202	Disagree
4	Nimrod Golan	Sep 29, 202	Agree
4	Sovanmonica Ek	Sep 29, 202	Agree
4	Alejandra Celis Vargas	Sep 29, 202	Agree
4	Eveline van der Sande	Sep 29, 202	Agree
4	Arjen Lettinga	Sep 29, 202	Agree
4	Seerp Gratama van Ar	Sep 29, 202	Agree
4	Mariah Giacchetta	Sep 29, 202	Disagree
4	MARIA NIKOLOPOULC	Sep 29, 202	Agree
4	Harrold van Eijk	Sep 29, 202	Disagree
4	Henry Varga	Sep 29, 202	Disagree
4	Peter T	Sep 29, 202	Agree

hould be prototyped from the beginning and developed collaboratively throughout a circular project.

and sustainable innovation and take societal acceptance into account from the start together with the environme

e of circular technologies?

n legislation in steering acceptance for circularity.

ntal and socio-economic impacts.

Poll Report

Report Ger	Nov 17, 2021 9:17 AM		
Topic	Webinar ID	Actual Star	Actual Duration (minutes)
Creating A	842 9171 7	Sep 22, 202	120

Poll Details

#	User Name	1.The mair	2.Who should take the lead in facilitating the acceptance
1	Amol Palve	Agree	A technology owner
1	Jannis Ruoff	Agree	A technology owner
1	Nikhil Pawar	Disagree	A policy-maker
1	dias mandala nurhutama	Disagree	A policy-maker
1	W.H.R. Gerwen	Agree	A technology owner
1	Wilbert van den Broek	Agree	A policy-maker
1	Miguel Cano	Agree	A policy-maker
1	Nimrod Golan	Disagree	A policy-maker

#	User Name	1.Circular business models should also be examples of responsible a
2	Nikhil Pawar	Agree
2	Sue Fein	Agree
2	dias mandala nurhutama	Agree
2	Heleen Goorissen	Agree
2	W.H.R. Gerwen	Agree
2	Arjen van Nieuwenhuijzen	Agree
2	Miguel Cano	Agree
2	Nimrod Golan	Disagree

#	User Name	1.There is often a tension between the economic benefits and envir
3	Amol Palve	Agree
3	Nicola Testa	Agree
3	Despina Sapoutzi	Agree
3	Jannis Ruoff	Agree
3	Nikhil Pawar	Agree
3	dias mandala nurhutama	Agree
3	Sigrid Scherrenberg	Agree
3	Heleen Goorissen	Agree
3	Kallirroi Panteleaki	Agree
3	W.H.R. Gerwen	Agree
3	Arjen van Nieuwenhuijzen	Agree
3	Wilbert van den Broek	Agree
3	Nimrod Golan	Agree
3	Ana Alves	Agree

#	User Name	1.The lack of a clear and shared business model leads to the failure
4	Amol Palve	Agree
4	Nicola Testa	Agree
4	Despina Sapoutzi	Disagree
4	Jannis Ruoff	Agree
4	Nikhil Pawar	Agree
4	dias mandala nurhutama	Agree
4	Heleen Goorissen	Agree
4	Kallirroi Panteleaki	Agree

4	W.H.R. Gerwen	Agree
4	Arjen van Nieuwenhuijzen	Agree
4	Wilbert van den Broek	Agree
4	Miguel Cano	Agree
4	Nimrod Golan	Agree

e of circular technologies?

and sustainable innovation and take societal acceptance into account from the start together with the environme

onmental impacts in a circular project.

of circular economy collaborations.

ntal and socio-economic impacts.

Attendee Report

Report Ger	Nov 17, 2021 9:17 AM		
Topic	Webinar ID	Actual Start Time	Actual Dur
Creating A	824 6055 5570	Sep 29, 2021 12:38 PM	109

Host Details

Attended	User Name (Original Name	Email
Yes	REVOLVE	info@revolve.media

User Name (Original Name	Email
Kees Roest	kees.roest@ispt.eu
Dr Giulia Calabretta	g.calabretta@tudelft.nl
Patricia Osseweijer	p.osseweijer@tudelft.nl
Dr Gijsbert Korevaar	g.korevaar@tudelft.nl

User Name (Original Name	First Name	Last Name
Kobe	Kobe	Thys
George Tsalidis	George	Tsalidis
Muhammad Ali	Muhammad	Ali
Stefan	Stefan	Buergmayr
jessica	jessica	krejci
Nahjan Amer Nordin	Nahjan	Amer Nord
Chiara	Chiara	Marradi
Ellen	Ellen	Loots
K M Mostafa	K M Mostafa	ANWAR
Fabi	Fabi	Van Berkel
RECEP PARTAL	RECEP	PARTAL
Shima Frahani	Shima	Frahani
Nimrod Golan	Nimrod	Golan
Gualdino	Gualdino	Póvoa
Muhammad Arvianda Vinc	Muhammad Arvianda Vinci	Kurnia
Noura	Noura	Shehab
Gizem	Gizem	Özbek Çam
İrfan	İrfan	Baştürk
Sovanmonica Ek	Sovanmonica	Ek
Vasiliki	Vasiliki	Batziaka
Pepyn	Pepyn	Fluks
Alejandra Celis Vargas	Alejandra	Celis Varga
Katie	Katie	Carter
Eric	Eric	Mackey
Nicole	Nicole	Heine
Dheebak Odayakulam Bala	Dheebak	Odayakula
Eveline van der Sanden	Eveline	van der San
Johann	Johann	van Aartse
Yara	Yara	Dobra
Arjen Lettinga	Arjen	Lettinga
giampaolo	giampaolo	bonaldi
Seerp Gratama van Andel	Seerp	Gratama va

Luuk	Luuk	Rietveld
Jannis	Jannis	Ruoff
Mariah Giacchetta	Mariah	Giacchetta
Nof	Nof	Afghani
MARIA NIKOLOPOULOU	MARIA	NIKOLOPO
Harrold van Eijk	Harrold	van Eijk
Serena Randazzo	Serena	Randazzo
Serena Randazzo	Serena	Randazzo
Henry Varga	Henry	Varga
Peter T	Peter	T
Laura	Laura	Ferrando C
Heleen	Heleen	Goorissen
Jelle	Jelle	Tjebbes

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44	0	19	26

	Country/R	Industry	Organizatic
	GB	Energy, Chemical, Utilities	SUEZ WTS
	NL	Education	Delft Unive
	SA	Education	KAUST
	AU	Manufacturing	Monash Ur
	DE	Other	German De
lin	NL	Energy, Chemical, Utilities	Shell
	BE	Consulting	IBM
	NL	Education	Erasmus Ur
	PT	Education	NOVA Infor
	NL	Government - State & Local	KWR Wate
	TR	Government - State & Local	TUBITAK M
	NL	Energy, Chemical, Utilities	IHE-Delft
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	PT	Consulting	Independe
	ID	Education	University
	SA	Energy, Chemical, Utilities	Neom
ı	TR	Manufacturing	Zorluteks T
	TR	Other	Research C
	NL	Other	Tu delft
	GR	Government - State & Local	EYATH SA
	NL	Manufacturing	REDstack B
s	NL	Consulting	TU Delft
	DE	Energy, Chemical, Utilities	DECHEMA
	US	Consulting	Na
	DE	Other	DECHEMA
m Balasubramaniam	NL	Consulting	Freelance
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n	NL	Consulting	Ramboll
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	NL	Education	Lentiz Lear
	IT	Consulting	liminal ZON
an Andel	NL	Consulting	Horizontee

	NL	Education	TU Delft
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	IT	Other	Polimi
	DE	Education	KWR
ULOU	GR	Government - State & Local	EYDAP S.A.
	NL	Manufacturing	Lamb West
	IT	Other	Università
	US	Consulting	iCircle Cons
	NL	Consumer Products	#|#
liment	NO	Other	Institute fo
	NL	Other	avantium
	NL	Manufacturing	Hyundai De

Max Concu	Enable Registration
0	Yes

on	Country/Region Name
	United Kingdom
ersity of Technology	Netherlands
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	Netherlands
	Belgium
niversity	Netherlands
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