



Scalable full-cycle marine litter remediation in the Mediterranean: Robotic and participatory solutions

SeaClear2.0

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Title: SeaClear2.0 stakeholder workshops

Co-design Activities for Tackling Marine Litter - Stakeholder Workshop in Larnaca, Cyprus

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The SeaClear2.0 stakeholder workshops

Identifying site-specific issues and co-designing realistic, locally applicable solutions are essential steps in effectively tackling marine litter across Europe and the Mediterranean. As part of the SeaClear2.0 project, ISOTECH Ltd is implementing its DeCyDe-4 decision support method in a series of participatory workshops with stakeholders in eleven countries (including non-EU neighbours). These workshops aim to map local sources and drivers of marine litter and develop targeted, site-specific solutions to address this issue.

The fifth workshop: Larnaca, Cyprus

The fifth workshop was held in Larnaca, Cyprus, on 27 November 2025. Organised within the framework of the SeaClear2.0 system pilot in Larnaca, the workshop convened 30 invited stakeholders representing public bodies, academia/research, industry, and civil society.

Local Insights: Marine Litter Challenges in Cyprus

Participants collaboratively identified the main problems driving marine litter on the island. These issues reflect a combination of governance gaps, infrastructure limitations, behaviour patterns and external pressures:

1. Insufficient management from relevant authorities: Stakeholders explained that responsibilities for waste management are spread across multiple authorities, which often leads to unclear roles, overlapping mandates, and gaps in implementation. They also emphasised that coordination between these bodies is limited, resulting in inconsistent or inefficient actions. Furthermore, competent authorities, such as the Department of Fisheries and Marine Research and the Department of Environment, are perceived as lacking the necessary enforcement capacity, both in terms of personnel and operational resources, to adequately monitor activities, prevent violations, and effectively respond to marine litter issues.
2. Lack of emphasis on waste reduction and environmental culture: Participants stressed that Cyprus does not place sufficient emphasis on waste prevention. They noted that waste minimisation is rarely prioritised in policy, education, or community initiatives, leading to continued reliance on single-use products and high levels of waste generation. In addition, the broader lack of environmental culture was identified as a key factor contributing to littering behaviour. Stakeholders explained that many citizens are not fully aware of the consequences of improper waste disposal, nor do they consistently adopt environmentally responsible habits in their daily lives.
3. Waste has no perceived value: Participants highlighted that waste is generally not viewed as a resource that could be reused, repurposed, or economically valued. This

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perception reduces the incentive for individuals and businesses to participate in proper waste separation, recycling or recovery. The absence of systems that create value, such as deposit schemes, reuse markets, or circular business models, reinforces the inappropriate management of waste.

4. Lack of information: Stakeholders identified insufficient information and public understanding about existing waste management systems, recycling options, and the environmental impact of marine litter. Participants noted that many people are unaware of where their waste ends up, how it is treated, or how their behaviour contributes to pollution. This lack of accessible, clear communication undermines efforts to encourage responsible waste practices and environmental stewardship.
5. Lack of infrastructure: Participants noted that Cyprus still lacks adequate and effective infrastructure to support proper waste disposal, recovery, and recycling, especially outside major urban centres. Inadequate or unevenly distributed facilities, such as recycling points, waste collection services, or organic waste systems, make it difficult for citizens to manage their waste correctly and consistently.
6. Lack of sustainable alternatives: There is a shortage of accessible and affordable alternatives to commonly used materials, particularly plastics. The absence of practical substitutes for consumers and businesses limits their ability to shift away from environmentally harmful products and adopt more sustainable habits.
7. Transboundary waste: Participant noted that marine litter arriving from neighbouring non-EU countries continues to pose a challenge for Cyprus. These transboundary inputs are beyond national control and place additional pressure on local authorities, which must clean and manage waste that originates outside the island. This issue underscores the need for regional cooperation and coordinated action across the Eastern Mediterranean.

The workshop participants prioritised two challenges for deeper discussion and solution co-design: (1) insufficient management from relevant authorities; and (2) lack of emphasis on reducing waste / waste has no value.

Addressing Insufficient Mismanagement from Relevant Authorities

To address this challenge, stakeholders stressed the need for stronger institutional coordination, improved enforcement and clearer responsibilities. Proposed solutions included:

- Strengthening inspection and enforcement services: enhancing the capacity of monitoring and inspection units responsible for waste and marine protection.
- Increasing accountability of public services: ensuring transparent, consistent and accountable operations across responsible authorities.
- Strengthening the involvement of local authorities and communities: fostering closer

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collaboration between the municipalities and citizens to co-create effective local actions.

- Improving the design of incentive schemes: current initiatives (e.g. plastic bag charges) often benefit businesses rather than citizens, and require redesign to maximise their impact.

Enhancing Waste Reduction and Increasing the Value of Waste

The second prioritised topic focused on the need to shift from linear consumption patterns to strategies that prevent waste generation and enhance circularity. Proposed solutions included:

- Deposit Refund Systems (DRS): stakeholders strongly supported implementing DRS as a more effective alternative to systems relying solely on penalties and taxation.
- Valorisation of organic waste to ensure it is removed from the waste stream and does not contaminate potentially recyclable waste. This can be achieved through valorising organic resources, such as by using food waste as animal feed, and through promoting composting.
- Waste prevention through material design: emphasising upstream eco-design and material choices to reduce waste generation at source and improve material circularity.

Cross-cutting Reflections

During the discussion, participants emphasised that education, awareness-raising, institutional collaboration, and community engagement are critical for the long-term success of any intervention. Better coordination between authorities, industry, researchers, and citizens was repeatedly highlighted as essential for meaningful and sustained change.

Conclusion

The Cyprus stakeholder workshop provided valuable insights into the governance, behavioural, and infrastructural issues underpinning marine litter on the island. By bringing together key actors to openly discuss challenges and co-design solutions, the process strengthened shared responsibility and helped shape the collective vision for more effective marine litter management. The outcomes of this workshop will contribute directly to the broader SeaClear2.0 policy analysis and the White Paper that will be delivered towards the end of 2026, ensuring that Cyprus's experience informs scalable and impactful strategies across Europe and the Mediterranean.

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