

Marine Debris in Circular Economy

4. Explore The Principles And Strategies Of The Circular Economy: Best Practices And Success Stories

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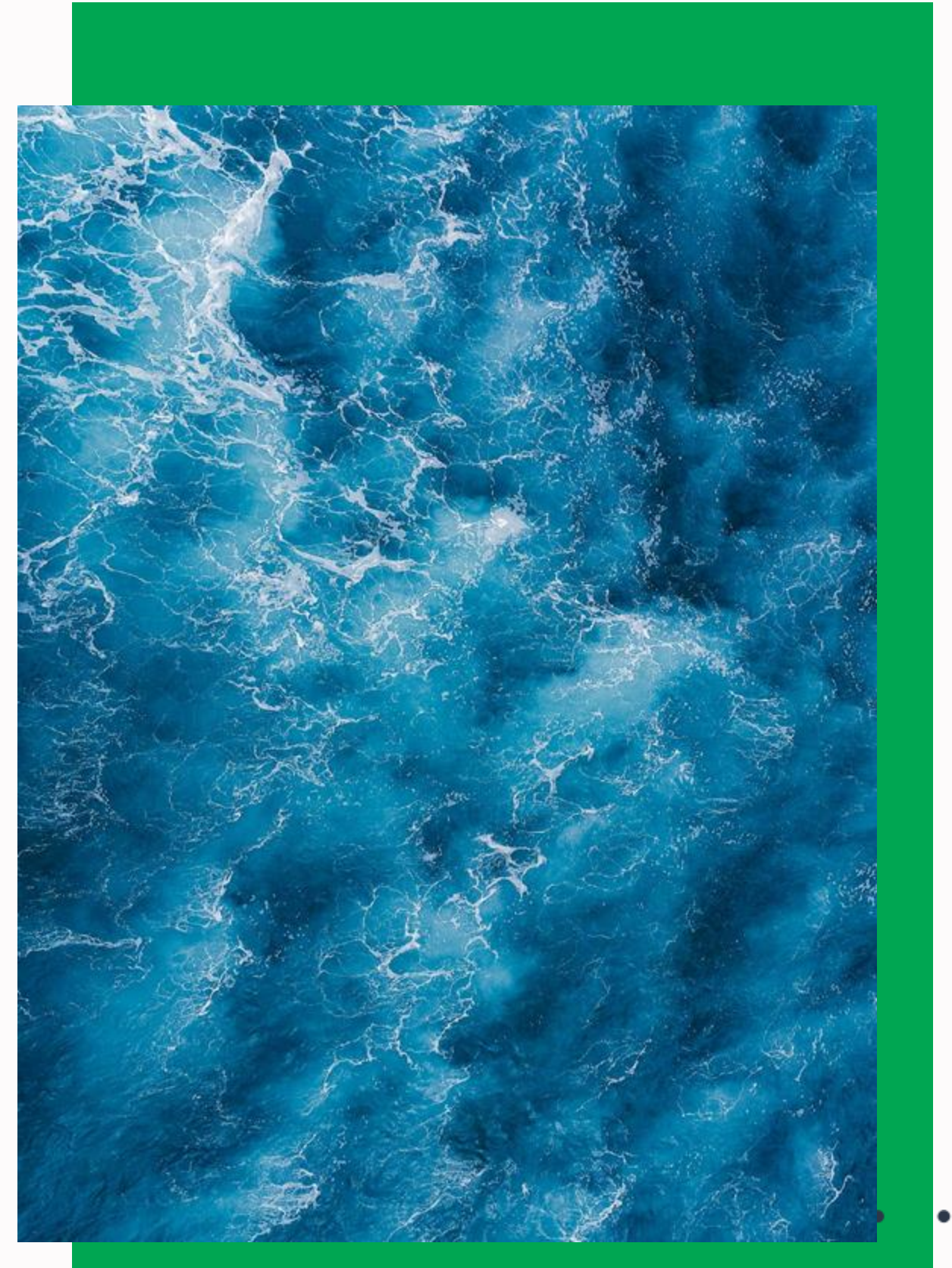
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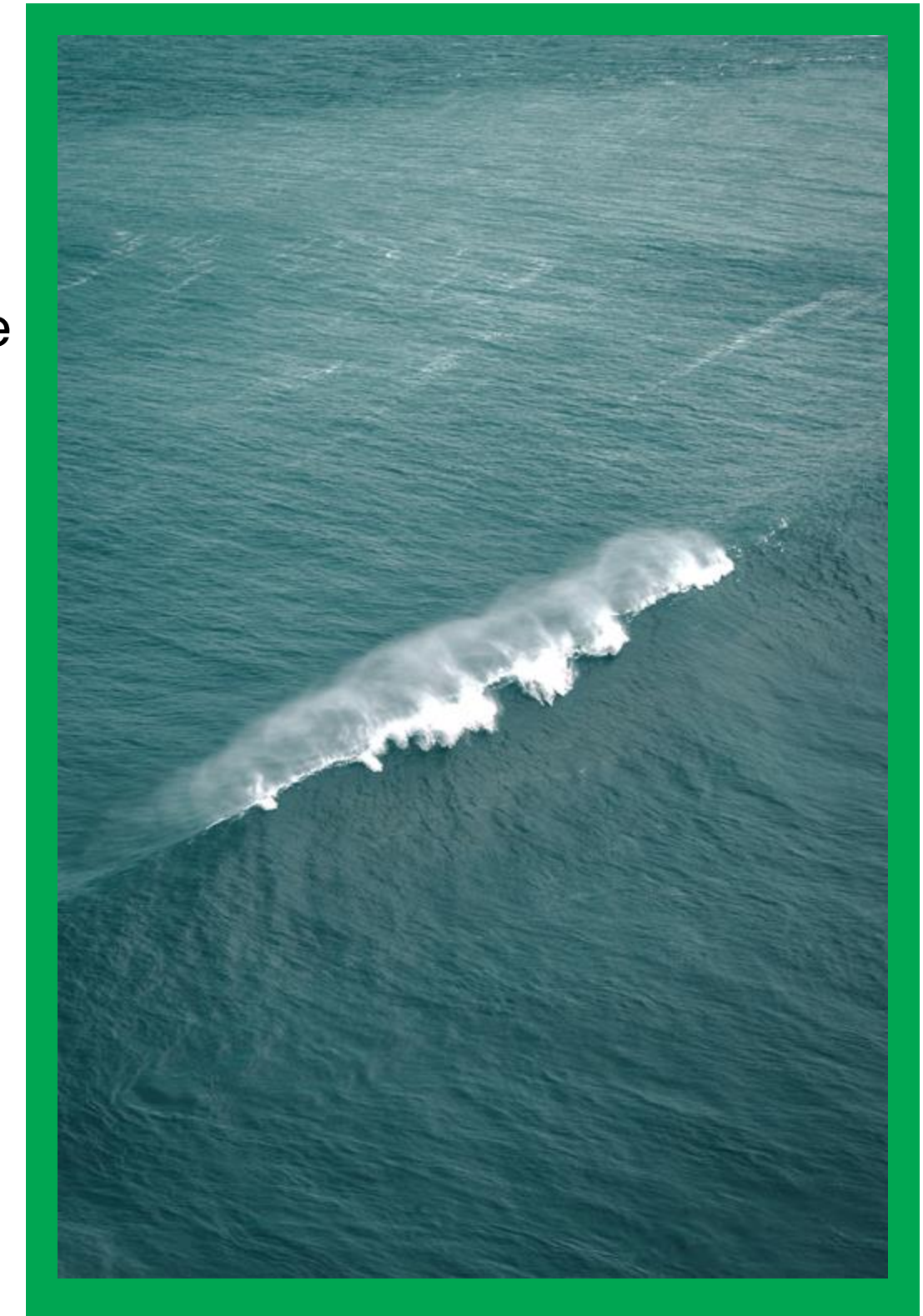
Introduction

Objective:

- To highlight circular economy solutions that prevent waste generation, promote sustainable design, and keep materials continuously in use, reducing pollution and preserving natural resources.
- To examine successful circular economy initiatives and partnerships that have effectively reduced marine debris.
- To analyze the role of policy interventions and market-based incentives in promoting recycling and waste reduction.

Learning Outcomes:

- Describe the sources and impacts of marine debris on the Blue economy.
- Construct the principles and strategy of the circular economy as applied to the management of marine litter.
- Present the role of blue economy industries in plastic pollution generation and potential solutions and waste reduction and recycling.



Principle of Circular Economy

The circular economy model:
less raw material, less waste, fewer emissions



Source: European Parliament Research Service



(Tan et al., 2024)

What is the circular economy?

- Circular economy is a regenerative model that designs out waste and keeps materials in continuous use, creating sustainable value throughout product life cycles (European Parliament, 2023).

Why do we need to switch to a circular economy?

- Protecting the environment
- Reducing raw material dependence
- Creating jobs and saving consumers money

How does the Circular economy address the marine debris and plastic pollution issue?

- **Designing Out Waste:** Circular economy strategies eliminate waste at the source by promoting reuse, repair, and sustainable product design.
- **Reducing Plastic Leakage:** Keeping plastics in circulation through recycling and recovery helps prevent them from polluting marine environments (Barrie et al., 2023).
- **Innovating Materials and Processes:** Eco-friendly materials and advanced recycling technologies transform marine plastic waste into valuable resources (Tan et al., 2024).
- **Strengthening Policy Tools:** Circular economy frameworks empower solutions like Extended Producer Responsibility and Deposit-Refund Systems to manage plastic throughout its lifecycle (Ministry of Investment, Trade and Industry, 2024)



Principle of Circular Economy

Examples of Circular Economy Principles in Practice:

1. Deposit Return Schemes (DRS)

- Deposit return schemes encourage consumers to return empty drink containers, such as plastic bottles and cans, by offering a small refund, which helps reduce litter and significantly increases recycling rates.
- In Germany, this system achieved a 94% return rate for PET bottles, helping keep plastic out of the environment. (Hardman & Harris, 2025)

2. Industrial Symbiosis Programs (ISP)

- ISP connects companies to exchange waste materials, like wood, fabric, or sand, which can be reused by other businesses, reducing landfill waste and saving resources.
- In South Africa, WISP diverted over 143,000 tonnes of waste and created 400 jobs by linking companies in a circular economy network (Ellen MacArthur Foundation, 2021).

3. Anti-Waste Laws (France)

- France's Anti-Waste Law bans the destruction of unsold goods, promotes reusable products, and introduces repairability labels for electronics, all aimed at encouraging reuse over waste (Ellen MacArthur Foundation, 2022).
- This law not only protects the environment but also supports social causes by requiring companies to donate unused items.

4. Converting Waste Biomass into Biochar

- Agricultural waste like leaves and straw can be converted into biochar, a stable carbon-rich substance that stores carbon in the soil and improves soil health.
- The "Reverse Coal" project in the UK uses this method to reduce carbon emissions while restoring degraded land (Department for Environment, Food & Rural Affairs, 2023).



Success Stories in Circular Economy

Marine-Based Circular Economy Success Stories (SMART CIRCUIT Project, 2023)

1. Fitico Sportswear & ECONYL® Regeneration System (Austria / Global)

- Fitico is an Austrian sportswear brand that uses ECONYL®, a regenerated nylon yarn made from ocean plastic waste such as ghost fishing nets and textile scraps.
- The ECONYL® system collects marine and landfill waste and transforms it into high-performance yarn, while Fitico turns this material into durable, eco-conscious activewear together closing the loop on plastic pollution and promoting sustainable fashion. Link to website: <https://econyl.aquafil.com/brands/fitico-sportswear/>

2. NiceShops (Austria)

- NiceShops created reusable shipping packaging made from **compostable shipping materials** used in over **98%** of packages and redesigned their logistics to minimize packaging waste and carbon emissions. Link to website: <https://www.ecco-verde.com/info/our-environment-and-us>
- This innovation gives marine plastic a second life, reduces reliance on virgin materials, and proves that sustainable e-commerce packaging is both possible and practical.



3. P.Ri.S.Ma. MED (Mediterranean Region)

- P.Ri.S.Ma. MED enhances waste management in Mediterranean ports by improving the collection, sorting, and recycling of waste from ships and harbor operations.
- The project helps prevent marine litter and supports circular systems in port cities, turning port-generated waste into a resource through regional collaboration and sustainable infrastructure. Link to website: <https://keep.eu/projects/22569/Waste-and-Waste-Plan-in-the-EN/>



Policy Interventions and Market-Based

Policy Interventions Practices

Section	Practice Example	Type of Policy Intervention	Explanation
1.	Deposit Return Schemes (DRS)	Policies that incentivise or nudge consumers to change their behaviour (Hardman & Harris, 2025)	Encourages consumers to return drink containers by offering a deposit refund, boosting recycling rates, and reducing plastic litter.
2.	Industrial Symbiosis Programmes (ISP)	Government establishment and facilitation of circular economy programmes in industry	Supports companies to exchange underused materials and waste, reducing landfill use and enhancing industrial resource efficiency.
3.	Anti-Waste Laws (France)	Legislation requiring businesses to adopt circular economy principles	Enforces measures such as banning the destruction of unsold goods and introducing repairability labels to promote reuse and reduce waste.
4.	Converting Waste Biomass into Biochar	Government support and advice for trial schemes implementing a circular economy	Provides support for projects that turn agricultural waste into biochar, storing carbon and improving soil health as a climate-friendly solution.

Policy Interventions and Market-Based Incentives

Market-Based Incentives

1. Tax Incentives and VAT Reductions

- Lowering taxes on repair services or recycled goods makes circular options more affordable for consumers and businesses.
- For example, Sweden has reduced the VAT on repair services to encourage the reuse of products and extend their lifespans, making repairing a more attractive alternative to replacement. (Enriquez et al., 2021)

2. Subsidies for Circular Innovation

- Financial support is provided for research, development, and implementation of circular economy solutions such as eco-design, recycling technologies, and circular business models.
- Governments often offer grants or subsidies to startups and companies that innovate in areas like waste reduction and resource efficiency, helping scale up circular practices.

3. Tradable Recycling Credits

- A market-based system where companies can earn and trade credits based on their recycling performance, similar to carbon credit trading schemes.
- This approach incentivizes businesses to invest in recycling infrastructure and technologies while rewarding strong recyclers, creating a competitive environment for circular innovation. (European Commission, 2021).

The positive impact of Plastic Credits



Policy Interventions and Market-Based Incentives

Market Based incentives

4. Material Taxation

- Taxes placed on virgin raw materials reflect their environmental costs and shift demand toward recycled alternatives.
- For instance, by imposing higher taxes on newly produced plastics, governments can encourage the use of recycled plastic, reducing pressure on natural resources.

5. Green Financing Mechanisms

- Banks, development agencies, and governments offer favorable financial products such as low-interest loans, green bonds, or grants for circular economy initiatives.
- An example is Malaysia's Low Carbon Transition incentive, which supports businesses that implement sustainable practices aligned with circular economy goals (Malaysian Green Technology and Climate Change Corporation, 2024)



Community-Driven Campaigns

1. Building Foundations for Broad Engagement

- Effective public participation starts with accessibility, clarity, and motivation. For citizens to engage meaningfully in waste reduction efforts, programs must address practical barriers (e.g. infrastructure), informational gaps (e.g. lack of clear guidelines), and motivational deficits (e.g. unclear benefits). (Sustainability Directory, 2025)
- A multi-pronged approach that integrates education, outreach, and inclusive planning is essential to ensure long-term behavioral change.
- Why It Matters: Involving the public increases program success and promotes environmental responsibility.

2. Simplifying Recycling Processes

- Complex and inconsistent recycling systems often discourage participation. Ambiguous sorting rules and confusing collection methods create frustration and apathy (Mariz, 2024).
- Streamlined systems—like single-stream recycling—reduce the need for households to separate materials, making recycling more intuitive.
- Educational tools such as infographics, digital guides, and community workshops help demystify the process and build recycling confidence.
- Goal: Make recycling easy, habitual, and seamlessly integrated into daily routines.

3. Enhancing Public Awareness and Education

- Lack of knowledge about the environmental and economic impacts of waste can weaken public motivation.
- Awareness campaigns should explain how personal choices relate to issues like pollution, climate change, and resource depletion. (Mariz, 2024).
- Using various platforms—social media, schools, local media, and events—can broaden outreach and impact.
- Sharing local success stories and data strengthens trust and shows visible impact.
- Outcome: An informed public is more empowered and likely to act sustainably

Community-Driven Campaigns

4. Creating Convenient Infrastructure

- Without accessible infrastructure, even motivated individuals may struggle to participate.
- Widespread access to public recycling bins, curbside collection, and electronic waste drop-off points increases convenience.
- Improving collection frequency, offering larger bins, and covering more material types (e.g. textiles, hazardous waste) expands reach (Sustainability Directory, 2025).
- Accessible infrastructure removes friction and increases participation across diverse communities.

5. Leveraging Community Engagement

- Recycling and waste reduction thrive when people feel ownership and connection.
- Community-led initiatives—like school programs, neighborhood cleanups, and recycling competitions—build shared responsibility and local pride.
- Engaging local leaders, NGOs, and residents in program design makes systems more responsive and trusted (David, 2023).
- Peer-to-peer influence and volunteer networks amplify sustainable behaviors.
- Result: A strong sense of community ownership drives deeper and more lasting engagement.



Partnerships in Blue Economy

1. Government Support

- Governments play a key role by creating platforms, providing policy frameworks, and supporting infrastructure that allow stakeholders—businesses, NGOs, and citizens—to collaborate effectively (WBCSD, 2021)
- Public sector involvement provides legitimacy, strategic direction, and access to funding, helping circular initiatives move from concept to implementation.
- Example: **The Green Deals platform in the Netherlands** fosters collaboration across sectors to initiate and scale circular projects, backed by government coordination (van Langen & Passaro, 2021).

2. Digital Solutions

- Digital platforms enable remote collaboration, knowledge sharing, and interactive community engagement in circular economy efforts.
- They overcome geographic and logistical barriers, encourage inclusive participation, and accelerate the spread of best practices and innovations.
- Example: **The European Circular Economy Stakeholder Platform** serves as a centralized online hub for case studies, policy updates, and stakeholder networking (<https://circularcitiesdeclaration.eu/related-initiatives-1/european-circular-economy-stakeholder-platform-ecesp>).



Partnerships in Blue Economy

3. Joint Commitment

- Establishing shared goals and responsibilities through formal or informal agreements ensures long-term collaboration and aligned interests.
- Transparent commitments foster mutual trust, clarify expectations, and enhance accountability in circular partnerships.
- Example: **The Green Deal** agreements publicly outline the roles and objectives of each partner involved, supporting coordination and long-term success(<https://ym.fi/en/circular-economy-green-deal>).

4. Transparency & Clarity

- Open communication of intentions, objectives, and progress builds stakeholder confidence and invites constructive feedback.
- Transparency ensures that everyone remains aligned, informed, and engaged, key to maintaining momentum and support over time.
- Example: **The European Commission's** Circular Economy Package publishes regular progress reports to keep stakeholders updated on goals and outcomes (European Commission, 2019).



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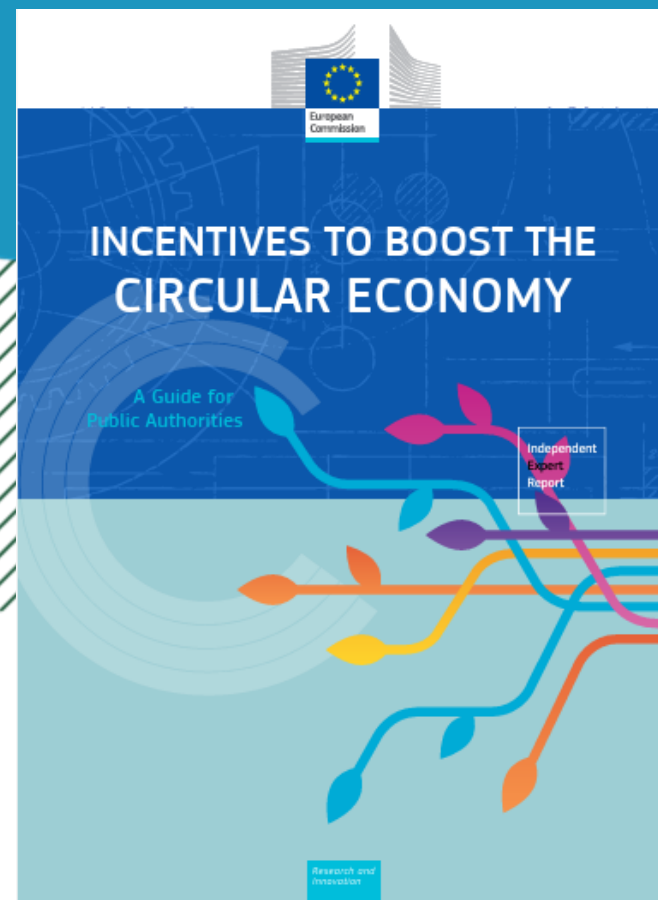


Conclusion

- The circular economy is **a sustainable alternative** to the traditional linear model, aiming to **minimize waste, extend product life cycles, and regenerate natural systems**.
- Successful circular initiatives—especially those targeting marine debris, collaboration, and design thinking **can reduce environmental impact and recover valuable resources**.
- Policies and regulations play a crucial role in enabling the circular transition by **creating supportive frameworks**, mandating sustainable practices, and encouraging investment in circular systems.
- Economic tools such as tax incentives, subsidies, and recycling credits help shift market behavior towards more resource-efficient and circular business models.
- Community-driven campaigns enhance public participation by raising awareness, fostering behavior change, and building local ownership of waste reduction and recycling efforts.
- Achieving a circular economy requires a multi-level approach that integrates government support, private sector innovation, and citizen engagement.
- With continued coordination and commitment, the circular economy can drive environmental sustainability, economic resilience, and social well-being.



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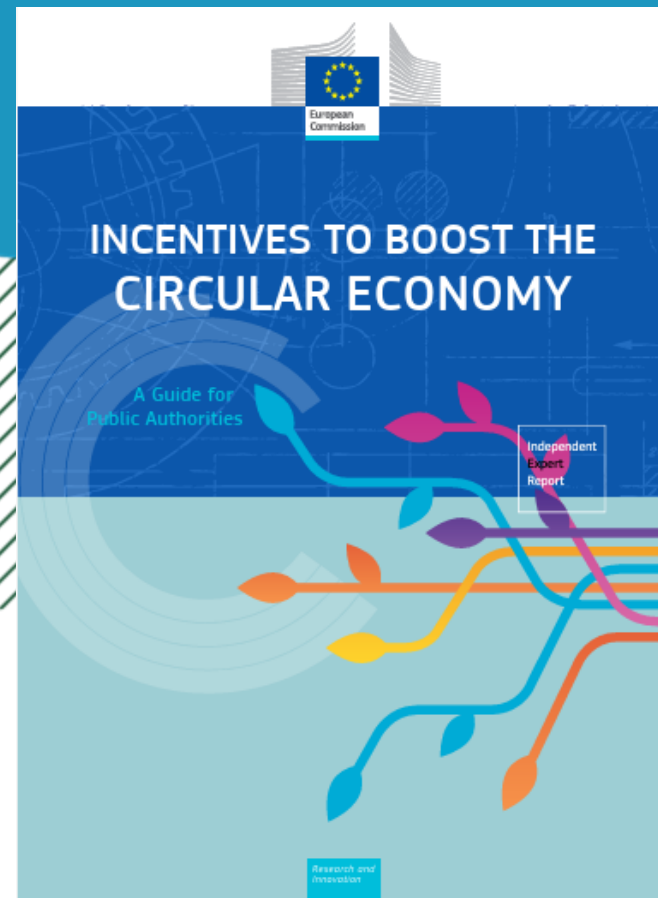


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