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**PREVENTIVE ACTION AND
WASTE MANAGEMENT**

INTEGRATION OF CIRCULAR ECONOMY PRACTICES IN COMPANIES IN THE PLASTICS INDUSTRY - METHODOLOGY

A PRODUCT DEVELOPED WITHIN THE FRAMEWORK OF:



Federal Ministry
for the Environment, Nature Conservation,
Nuclear Safety and Consumer Protection



PROLOGUE

ABOUT THE PROMAR PROJECT

The PROMAR project – Marine Waste Prevention in the Caribbean Sea, is a crucial initiative aimed at mitigating the impact of plastic waste, especially packaging and single-use plastics, in the Caribbean Sea. Funded by the German Federal Ministry for the Environment, Nature Conservation, Nuclear Safety and Consumer Protection (BMUV) and led by the German organization adelphi, PROMAR works closely with the Dominican Republic, Costa Rica and Colombia to implement innovative circular economy solutions.

One of the key tools developed within the framework of this project is the PROMAR BlueBox. This comprehensive collection of tools, guidelines, tutorials and materials is designed to help municipalities implement practical circular economy solutions, thereby effectively reducing marine litter.

In Costa Rica, significant steps have been taken towards the integration of circular economy practices in companies associated with the Asociación Cámara Costarricense de la Industria del Plástico (ACIPLAST). This effort, part of the PROMAR project, focuses on strengthening the skills of ACIPLAST members in concepts such as the circular economy and extended producer responsibility. With the support of CEGESTI, actions are being carried out under three strategic lines: the evaluation of the transition towards the circular economy, the execution of training programs and the provision of technical assistance. These initiatives seek to reduce the amount of plastics that end up in marine environments, especially in the Caribbean region of Costa Rica, thus accelerating the transition towards more sustainable and responsible models.

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1. DESCRIPTION OF THE METHODOLOGY

The methodology aims to support companies to integrate circular economy practices into their business management that strengthen the sustainable use of resources and the prevention of waste reaching the sea.

The methodology guides companies to integrate circular economy practices in four stages, namely:



The methodology is the result of CEGESTI's experience within the framework of the PROMAR project in supporting companies in the Costa Rican plastics industry in the development of Circular Economy strategies and the active participation in the creation of the family of standards of the International Organization for Standardization in circular economy, known as ISO 59000.

3. FIRST STAGE: CONCEPTS AND BASELINE IN CIRCULAR ECONOMY

3.1. Circular Economy and its principles

The starting point for integrating Circular Economy practices at the business level is to understand the concept of Circular Economy and its principles. The following box shows the definition contained in the International Organization for Standardization's 59004 standard.

Circular Economy - Definition according to ISO 59004

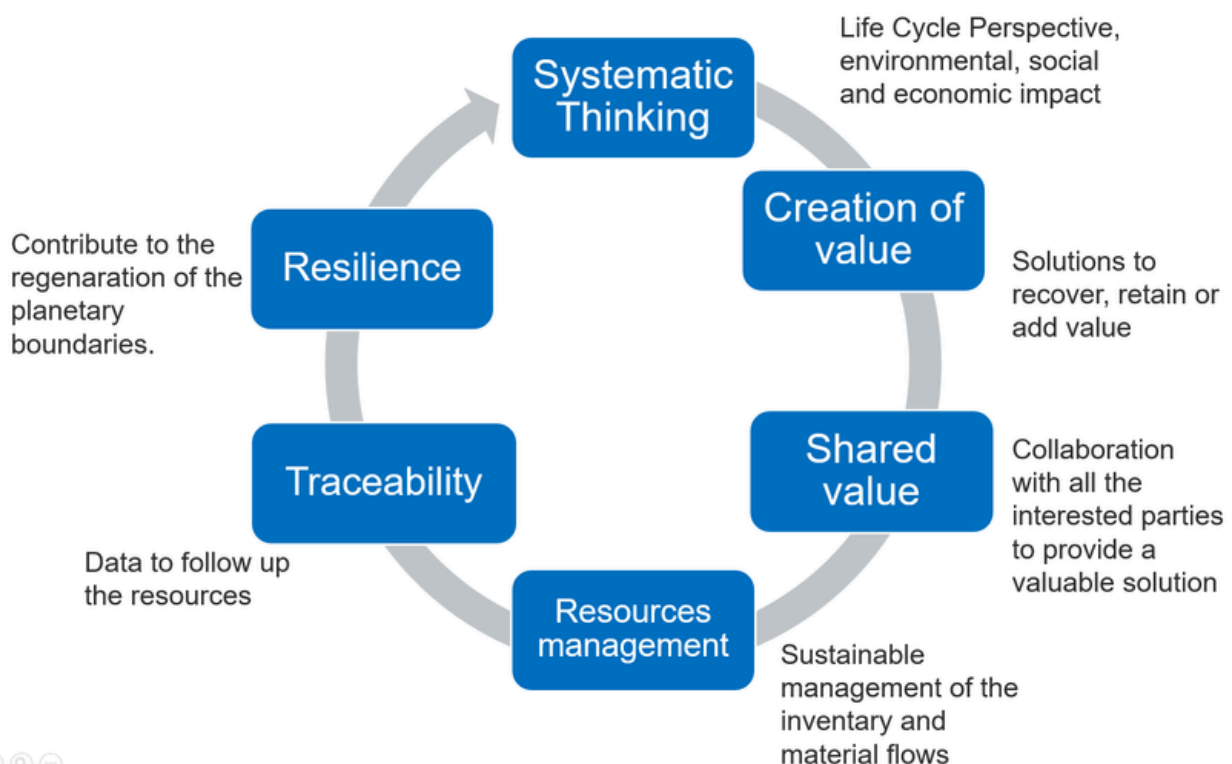
An economic system that uses a systemic approach to maintain a circular flow of resources, recovering, retaining or adding their value, while contributing to sustainable development.

Note 1: Resources: refers to inventories and flows.

Note 2: From a sustainable development perspective, the input of virgin resources is kept as low as possible and resource flows as closed as possible to minimize emissions and losses.

This same standard has established six principles that guide the development of practices in the circular economy, namely: systemic thinking, value creation, shared value, responsible resource management, traceability and resilience.

The Principles of the Circular Economy - ISO 59004



Exercise no.1 Application of the principles of the Circular Economy.

To facilitate the understanding of the principles in your organization, we invite you to complete the following exercise. The table lists the six principles of the Circular Economy. Please complete the following for each one, explaining how it could be applied in your business.

ISO 59004 Circular Economy Principle

Systematic thinking

Organizations adopt a life cycle perspective and apply a long-term approach when considering their impacts on environmental, social and economic systems.

Creating value

Organizations recover, retain and add value by providing effective solutions that contribute to socio-economic and environmental value, and use resources efficiently.

Shared value

Organizations collaborate with stakeholders along the value chain or value network in an inclusive and equitable manner, for the benefit and well-being of society, sharing the value created by providing a solution.

Responsible management of resources

Organizations manage stocks and flows sustainably, including closing, slowing and reducing resource flows to contribute to resource accessibility and continued availability for present and future generations, and to reduce the risks associated with reliance on virgin resources.

Traceability of resources

Organizations collect and maintain data to enable the tracking of resources across their value chains and are responsible for sharing relevant information with stakeholders.

Resilience of ecosystems

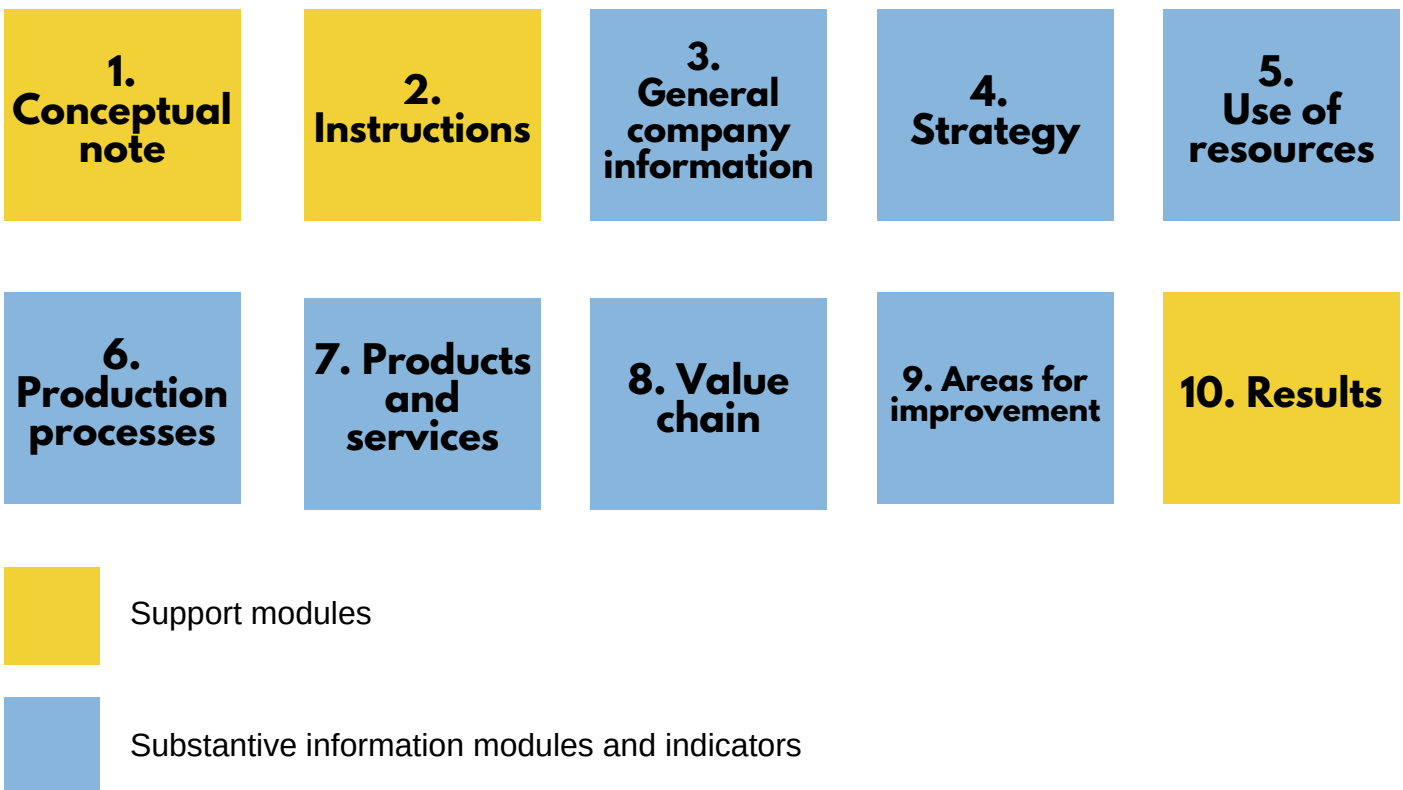
Organizations develop and implement practices and strategies that protect and contribute to the resilience and regeneration of ecosystems and their biodiversity, including preventing losses and harmful releases, and taking into account planetary boundaries.

3.2. Circular economy and its principles

Once the concept of Circular Economy and its principles are understood, it is time to complete the baseline tool which can be found in the Blue Box (<https://promar.org/es/linea-base-de-economia-circular>).

Exercise 2. Baseline Tool-Blue Box.

The baseline tool allows us to know the level of implementation of the Circular Economy through the evaluation of five specific topics, these are: strategy, use of resources, production processes, products and services, and value chain. The tool also allows us to know the prioritization of each company with respect to certain improvement objectives linked to the circular economy.

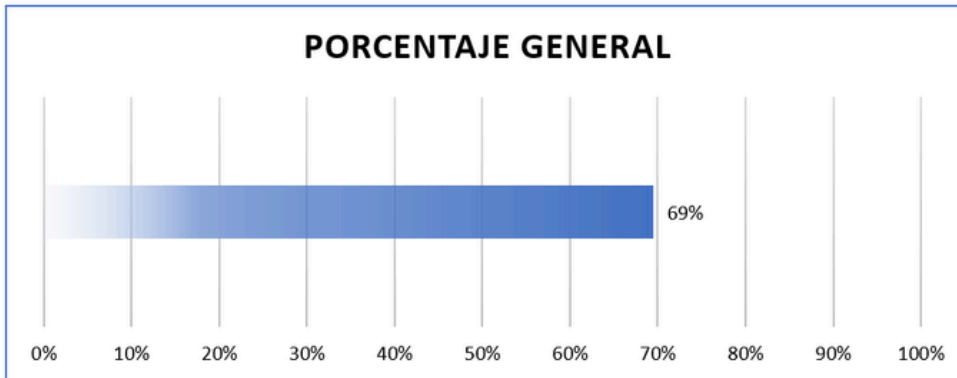


By answering the evaluated questions, the company can visualize the percentage of implementation of the Circular Economy, as can be seen in the following figure.

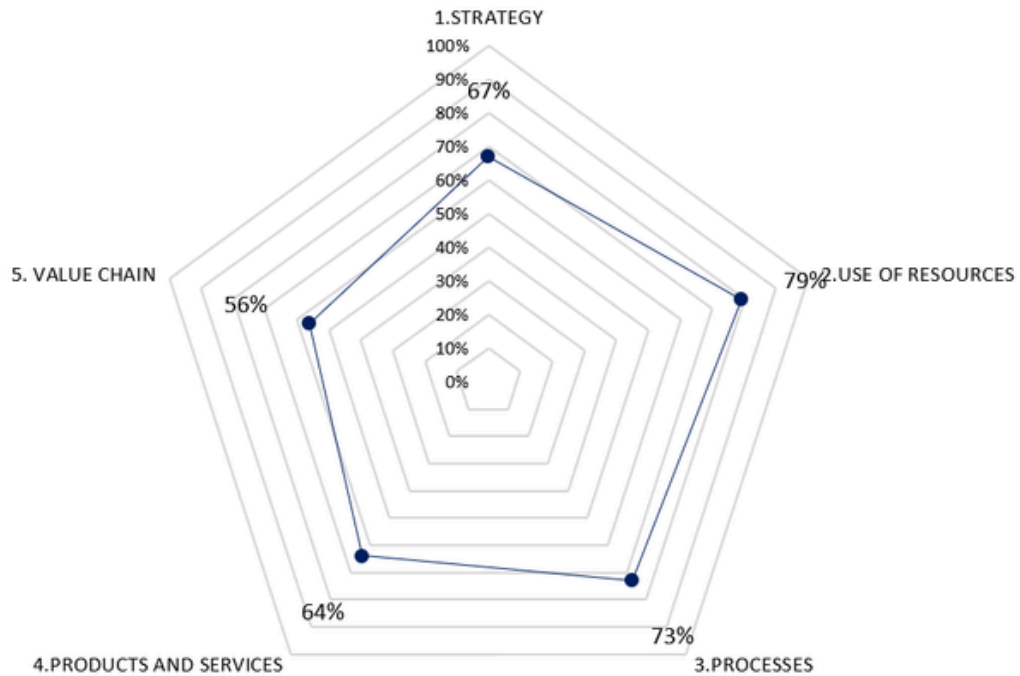
Baseline results in Circular Economy:

1.STRATEGY	67%
2.USE OF RESOURCES	79%
3.PROCESSES	73%
4.PRODUCTS AND SERVICES	64%
5. VALUE CHAIN	56%

	SCORE	PERCENTAGE
SCORED POINTS	41	69%



BASELINE OF A CIRCULAR ECONOMY



4. SECOND STAGE: BUSINESS STRATEGY WITH A CIRCULAR VISION

The second stage consists of identifying opportunities for improvement that the company has in order to establish objectives that strengthen its business strategy with a circular vision.

4.1. Identifying opportunities

Identifying opportunities to integrate the Circular Economy arises from analyzing the business from two perspectives, the context and the actions that lead to circularity. The result of this analysis plus the results of the baseline allow the company to define improvement objectives towards circularity.

Exercise 3. Context analysis.

Using the following table as a guide, perform an analysis of your company's context and determine whether there are any changes that affect the business from a Circular Economy perspective.

Economy	GDP, inflation, interest rates
Clients	Requirements
Suppliers	Price, conditions: delivery times
Technology	Product and/or service technologies
Consumers	Preferences. Lifestyles.
Regulation	New laws, decrees
Other groups	Community expectations, NGOs

Exercise 4. Actions that contribute to the Circular Economy

This exercise is based on the actions that a company should consider in its transition towards the Circular Economy according to the ISO 59004 standard. For each action shown in the following table, identify opportunities to be implemented in your business.

Accions for a Circular Economy ISO 59010		Examples	Opportunity
Create Value	Design for circularity, circular sourcing, circular purchases, optimize processes, circular symbiosis.	Designing products to be recycled or reused, under the principle of maintaining the product in use as long as possible.	
Recover Value	Reverse logistics, resource cascade, recycling, Recover value recover material, recover energy.	Establish a system to recover packaging after their use to then send them for recycling.	
Retain Value	Maintain and repair, reuse, share for intensify the use, restore, remanufacture, focus on performance.	Sharing products through digital platforms. Establishing a business model for the reuse of packaging.	
Regenerate ecosystems	Remove harmful substances, remediate the soil and bodies of water, mitigating climate change.	Composting to reduce the generation of methane gas.	
Support for the transition	Education, research, innovation, networking, digitalization, financial services.	Education and research projects.	

4.2. Definition of the strategic framework

Based on the appropriation of the concepts of the Circular Economy, the results of the baseline in Circular Economy and the identification of opportunities, define the strategic framework of the Circular Economy (mission, vision and objectives).

Exercise 5. Circular Mission and Visi

MISSION How does what we do contribute to the transition towards a **Circular Economy?**

How do we contribute to the circular flow of resources?

VISION FOR CIRCULARITY How do we see our future in relation to the **Circular Economy?**

What is our contribution to minimizing the entry of virgin resources?

What is our contribution to closing the loop in the flow of resources?

Exercise 6. Develop objectives regarding the Circular Economy

	Objective	Indicator	Goal
Creating Value	Reduce resource demand: avoid, reject, virtualize		
Recover Value	Increase consumption of recycled material		
Retaining Value	Increase the use life of a product		
Regenerate ecosystems	Use raw materials from renewable sources. Regenerate		
Support for the transition	<ul style="list-style-type: none"> Partnerships for education in circular economy Partnerships for research 		

Examples of objectives and goals

- Reduce 3% of virgin raw material consumption through eco-design of key products.
- Increase 10% of recycled material consumption by introducing new technology.
- Launch a product line that facilitates the reuse of containers or refilling their contents.
- Introduce a new line of products with biobased material.
- Establish an alliance with clients for the recovery of post-consumer packaging and facilitate its recycling.
- Strengthen the innovation process by integrating eco-design and life cycle analysis.

5. THIRD STAGE: STRATEGY RISK MANAGEMENT

Risk management of the Circular Economy strategy refers to the systematic approach to:

- identify events that could affect the achievement of Circular Economy objectives,
- design and implement measures to prevent and mitigate the impact on the strategy if the event materializes,
- Evaluate and improve risk management itself

Exercise 7. Identify the risks

Based on the strategy defined by your company, proceed to identify risks for its implementation. In the following figure you will find examples that could be useful.

Risk Identification. Examples

Economic and political environment

- Political stability
- Commodity price volatility
- Variation in the cost of material recovery
- Variation in international freight transport rates
- New business models in the circular economy

Social and environmental aspects

- Consumption patterns: preference for reuse
- Consumer demands on environmental requirements
- Concerns about marine pollution
- Environmental disasters (droughts, floods)
- Availability of raw materials

National and international legal regulations

- Laws, regulations on plastics, waste management and circular economy
- Extended producer responsibility
- Consumer rights
- Advertising and privacy rules
- Intellectual property

Technology

- Availability of more efficient machinery
- Requirement for laboratory tests
- Digital Technology for Traceability
- Availability of recycling technology
- Offer of new materials

Next, analyze the risks with respect to their likelihood and level of impact to determine your risk level.

Probability of occurrence		Magnitude of impact		Risk level		
1 to 40	Low	1 to 2	Low	1 to 80	Low	
41 to 60	Medium	3	Medium	121 to 180	Medium	
61 to 80	High	4	High	244 to 320	High	
81 to 100	Very High	5	Very high	401 to 500	Very high	

For each risk, define the control indicator, the person responsible for control, as well as prevention and/or mitigation actions.

Risk Description	Probability	Magnitude	Risk Level	Control Indicator	Responsible for control	Prevention/ mitigation actions

Example of a risk matrix

Risk	Description	Risk Level	Indicator	Resp.	Prevention/mitigation actions
Technology	Appropriate technology has not been identified to reduce virgin raw material while maintaining customer expectations regarding product quality	Yellow	Technological surveillance	R&D Management	Research agreements are established with technological centres to identify the technology
Technology	Technological innovation in plastic recycling could make current practices obsolete	Orange	Technological surveillance	General Management	Participation in fairs and dialogue with international research centers
Clients	Customer resistance to working collaboratively on product eco-design for value creation	Orange	Monitoring customer relationships	Commercial Management	Customer awareness and training activities are carried out on the circular economy
Expectations of consumption	Consumers are demanding reusable packaging, which could lead to a decrease in sales	Yellow	Monitoring consumer preferences	Commercial Management	Eco-design is strengthened to increase the use of recycled material in products
Voluntary regulations and eco-labeling	Rapid progress is being made in the creation of seals and labels in the Circular Economy, which could become barriers to competitiveness	Red	Technological surveillance	General Management	Research voluntary standards and labeling to implement in the company
Staff training	There is a lack of personnel trained in life cycle analysis and eco-design, which delays innovation projects in the Circular Economy	Green	Training plan	Human Resources Management	Partnerships with organizations to strengthen staff skills

6. FOURTH STAGE: MONITORING AND FOLLOW-UP

The Circular Economy strategy requires disciplined monitoring of the proposed objectives, as well as risk management. It is recommended that progress be reviewed at least quarterly and actions adjusted.

BLUE BOX

UN PRODUCTO DESARROLLADO EN EL MARCO DE:



Federal Ministry
for the Environment, Nature Conservation,
Nuclear Safety and Consumer Protection

