

# Investing in the Activation of the System of Expanding the Producer's Responsibility in Algeria: "Eco-Jem" An Added Value to the National Economy

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Received: November 12, 2022

Accepted: December 03, 2022

Published: December 07, 2022

## Abstract

In Algeria, the "Expansion of Producer Responsibility" or "Eco-Jem" system is a system for the recycling and reuse of packaging wastes that aims to increase producer responsibility, rationalize state expenditures, upgrade receptacle activities, and save raw materials. By researching foreign experiences, this paper attempts to illustrate the importance of investing in the field activation of the "Eco-Jem" system. As a result, we advocated the establishment of an official entity with legal authority to work on the field operationalization of the "Eco-Jem" system as a crucial factor in the functional structure to operationalize the Eco-Jem system and therefore provide new economic resources to the country.

**Key words:** "Eco-Jem", Algeria, investment, packaging waste.

## INTRODUCTION

Algeria, like all countries, wants policies and resources to boost the country's entire economy. It recently encouraged trash investment as a useful wealth in order to achieve a balance between economic development, environmental preservation, and natural and material resource conservation. Packaging waste is the canning and packaging material that we discard after using or consuming the canned or packaged food. This garbage is discarded in the household, commercial, and industrial sectors (OLEM, 2017). The retail unit is made up of the commodity's first physical cover or container. Its goal is to make the product easier to trade, store, preserve, and use (Devisme, 1996).

In Algeria, the municipality is currently responsible for the handling of this form of garbage, which costs it significant material resources. Waste packaging of plastic, paper and carton, glass, iron and non-ferrous materials, which are present in substantial proportions and quantities, is not recycled and utilized in the absence of sorting and retrieval processes (AND, 2018). It also deteriorates, either becoming irrecoverable, as with paper and cartoons, or necessitating the use of different cleaning procedures and materials, such as plastic, resulting in yet another sort of waste. Many countries, particularly those in the European Union, have pursued packing and packaging waste collection systems, known as "Producer Liability Expansion" systems, since the end of the 1980s, and their effectiveness has been demonstrated by high ratios of refined and reused substances, thereby supporting the local economy.

The "Eco-Jem" system is a garbage and packaging recovery system. It advocates for the "extension of producer responsibility in Algeria," which has been one of the concepts of the National Comprehensive Household Waste Management Programme (PROGDEM) since the 12/12/2001 issuance of Law No. 01-19 on Waste Management, Control, and Removal. This is supported by Executive Decree No. 02-372 (November 11, 2002), which establishes the quantities of waste valuation by the producer and/or holder, as well as Executive Decree 04-199 (July 19, 2004), which establishes the modalities for the establishment, regulation, operation, and financing of the public system for the treatment of packaging wastes.

However, despite its importance in rationalizing State expenditures, the "Eco-Jem" system is currently inaccurate on the ground. How can we work on the field activation of the "Eco-Jem" system and expand producer responsibility in Algeria in order to achieve a domestic economic resource?

Our research intends to develop an effective and authentic field mechanism for the activation of the system in the field to increase the responsibility of the producer "Eco-Jem" in Algeria, in order to manage waste packaging and packaging. This is based on an examination of several international leading experiences in the sector, with the goal of rationalizing material resources and preserving raw materials.

Hypothesis: By establishing an environmental body in the form of an economic institution, investment can work on the field activation of the "Eco-Jem" system and extend producer responsibility in Algeria in order to obtain a local economic resource.

## METHODS AND MATERIALS

We relied on a variety of scientific curricula for the right scientific treatment of our research topic, which we specify in the following points:

- Descriptive approach: Investigating the system of "growing producer responsibility" on a global and local scale. In light of this, we have been striving to propose a field solution, which is to resort to investment by establishing a financial and technological institution.
- Analytical approach: by studying the difficulties of packaging waste management in Algeria in all of its facets.

## RESULTS AND DISCUSSION

### Pilot Experiences on Systems to Expand Producer Responsibility and Recover Packing Waste and Packaging Around the World

These systems are both an ecological instrument that helps to protect the environment from the dangers of various wastes on the one hand, and an important economic resource that emerged by the end of the 1980s and was implemented in the majority of European Union countries:

#### *The Environment Authority is a Major Actor for the Operationalization of the System of Expanding Producer Responsibility in the Countries of the European Union*

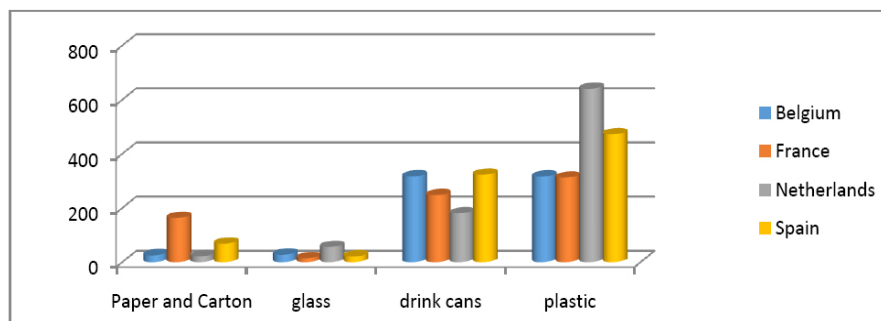
The ways of functioning of these systems differ from country to country, based on the capabilities and characteristics of each. It does, however, contribute to the existence of an environmental body that represents this system and establishes the duties and obligations of all participants. We can divide the environment into two types based on its nature:

- The Environmental Authority is a public institution: a non-profit organization whose job is to collect producer engagement rights and fines and to deliver them directly to municipalities as waste management authorities.

The Environmental Commission is a private organization with a commercial motive. A number of competing private firms are responsible for expanding producer liability, and each producer is required by the producer's extended liability system to engage into a contract with an environmental organization of its choice to manage its waste for packaging and packaging. There are nine rival environmental bodies in both Germany and Austria.

#### *The Cost of Contributing to the System of Expanding Producer Responsibility in Some European Union States*

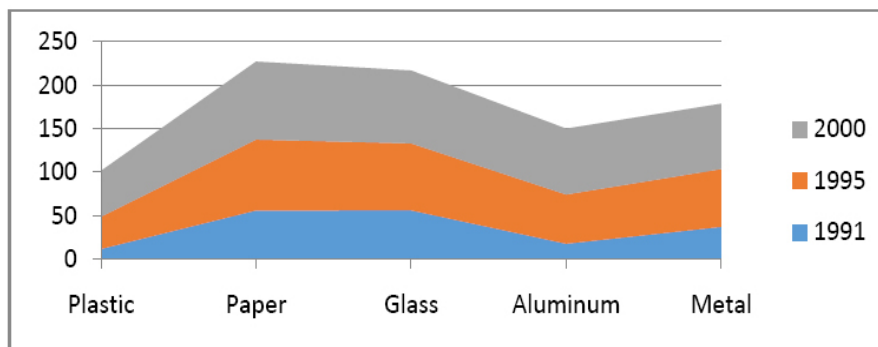
The expenses of participating in the system of "increasing producer responsibility" are related with, among other things, collection and screening methods, waste composition and resilience, contractual agreements, and municipal payments. They differ from one country to the next. Figure 01 also shows that all nations agree that plastic and cans of beverages in waste are the most expensive to participate in the system of extending producer responsibility, reaching 640 euros in the Netherlands, although varying from body to body in Germany. Where to negotiate with contributing enterprises individually (the environmental contributions of plastic garbage are anticipated to be 520 euros per ton and 450 euros per ton for beverage cans).



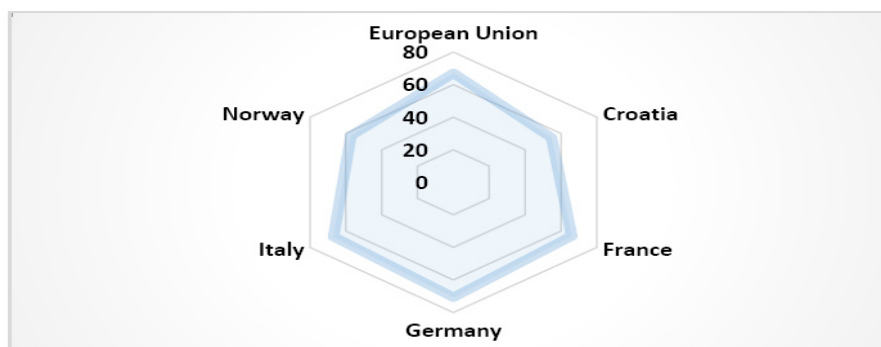
**Figure 1.** Cost of contribution to the Producer Liability Expansion System (euro/ton) (Authors based on Cecloss and al., 2018)

### ***The Increase in Recovery and Recovery Ratios on the Ground Thanks to the "Producer Responsibility Expansion" Regulations in the Countries of the European Union***

The European Union's "Expanded Producer Liability" systems allowed for an increase in the proportion of recoveries and sediments of packaging and packaging wastes, for example, in Germany, which increased rapidly in the ten years following the introduction of a law on packaging and packaging materials and the establishment of the Environmental Authority in 1990/91, as illustrated in figure 02, and increased by significant rates of up to 67% in the total EU countries for 2016.



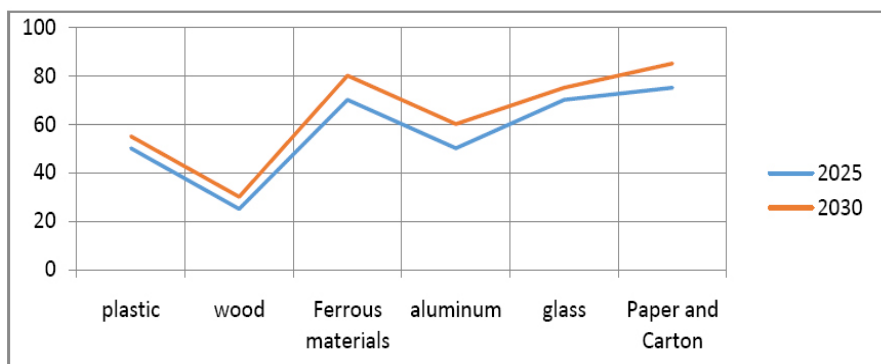
**Figure 2.** Increased recovery and recovery ratios for packaging materials in Germany between 1991 and 2000 (Authors based on Cecloss and al., op.cit)



**Figure 3.** Return Rates for Packaging Materials in EU Countries 2016 (Authors based on Cecloss and al., op.cit)

### ***Objectives and Prospects of the European Union in the Field of Recovery and Recycling of Packaging Materials***

European Union countries have adopted mandatory objectives in the field of recycling, recovery of packing waste, packaging and increasing efficiency "Producer Liability Expansion Regulations", where in May 2018 other than the European Union, its packaging, packaging and canning waste directive requested Member States to increase their reception rate to 70% in 2030, as illustrated in Figure 04.



**Figure 4.** EU's prospects in the field of Recycling and recovery of packaging materials between 2025-2030 (Authors based on Cecloss and al., op.cit)

## **The System for Expanding Producer Responsibility and Recovering Packaging Waste in Algeria "Eco-Jem"**

It represents a system for managing waste for packing and packaging in Algeria. According to Executive Decree No. 02-372 of 11 November 2002, was designed to expand the producer's responsibility for the cost of managing its packaging and packaging waste used in the marketing of products and consumables.

### **Activation and Commissioning of the Producer Liability Expansion System (Eco-Jem)**

Algerian Law has developed three ways to activate the Eco-Jem System. The commissioning varies in the field of collection; sorting and valuation of packing waste and packaging according to each method (see Table 01).

**Table 1.** Methods of activation and commissioning of the "Eco-Jem" system according to Algerian law

Commissioning	Method
Individual/personal adaptation	A waste packaging holder must self-value its packaging waste.
Multiple contracting organizations	Work with a recognized organization to make sure you meet this obligation. The activity of the second group must be approved by the Minister of Environment. It is also keeping track of its activities in terms of how to collect and get information. and valuation, as well as to give the specialized authority a report on the activities that includes the contractor's list of the amount of packaging waste that was taken apart and divided according to the material chain, the coverage area, the geographical coverage rate, the treatment methods that could be used for each type of packaging waste, and the financial indicators.
The National Waste Agency is in charge of organizing, recovering, and processing waste packaging. It does this by signing contracts for waste collection, sorting, and valuation services, with recovery and valuation networks for each type of waste. This is based on a clerical book that has been approved by a joint decision of the Minister of Environment and the Minister of Finance. The public system of Eco-Jem is paid for by Producers' rights to engage in trade.	In this regard, Algeria promulgated Executive Decree No. 04-199 of 19 July 2004, which establishes the establishment, organization, operation and financing of the public system for the treatment of packaging wastes in accordance with article 13 of Executive Decree No. 02-372 of 11 November 2002.

**Source:** Authors based on Executive Decree No. 02-372 of 11 November 2002 and Executive Decree No. 199-04 of 19 July 2004

## **Waste Packaging in Algeria**

### **Characteristics of Packaging Waste in Algeria**

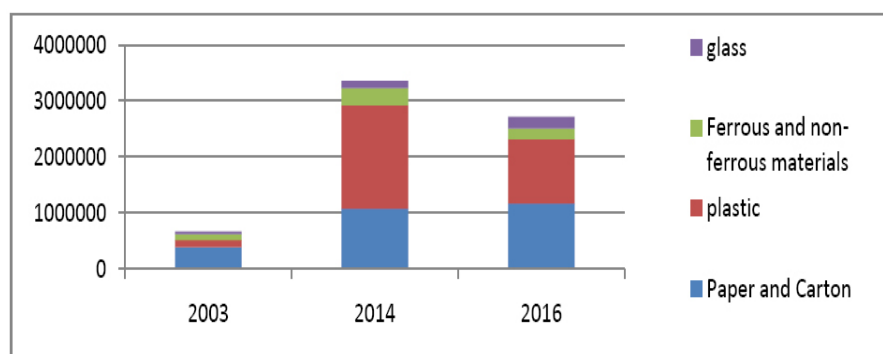
Packaging waste management is similar to residential trash management in terms of processes and expenses. This is demonstrated by Diagram No. 6. The amount of trash packaging and packaging was noted as a substantial quantum spike between 2003 and 2014, doubling five times in ten years:

**Paper and Carton:** In 2014, the amount of paper and cartoon trash accounted for over 1 million tons, of which only 120 thousand tons were recovered and recycled, with the remainder representing an 88% proportion directed for discharge (AND, 2014).

**Plastic:** Algerians consumed the most plastic in 2014, amounting to nearly 1.8 million tons. It declined to around 1.14 million tons in 2016, and it reached 15.31% between 2018 and 2019. Algeria has seven institutes specializing in the recycling of all types of plastics, with a total capacity of 70000 tons, or around 6% of all plastics consumed in Algeria in 2016. Algeria also exports plastic to China as well as Europe (AND, 2018).

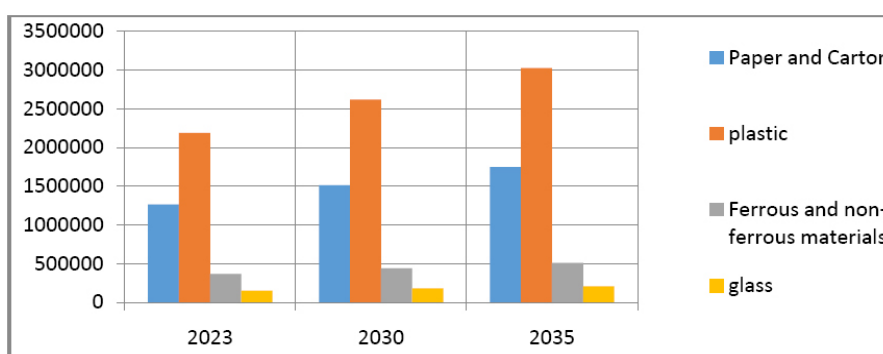
**Glass:** The output of glass waste in 2014 was estimated at 130 thousand tons, however, in 2016, it topped 1.04% thousand tons, and Algeria has two glass recycling factories in Oran and Tebessa between 2018 and 2019.

**Ferrous and Non-Ferrous Materials:** has the lowest percentage because it is sourced (AND, 2018), reaching 1.72% between 2018 and 2019.



**Figure 5.** Waste packaging in Algeria between 2003 and 2016. (Authors based on AND (2014), GIZ (2016) & MATE (2003))

Packaging and packaging materials are predicted to increase in the near, medium, and long term. Plastic and paper rank first in 2023, with 2.19 million tons and 1.26 million tons, respectively, according to chart No. 7. In 2035, the value of plastics exceeded 3 million tons, with a limit of 1.75 million tons for paper. While ferrous, nonferrous, and glass materials are known to be constantly expanding, they continue to be scarce.



**Figure 6.** Increased quantity of packaging and packaging waste for 2023, 2030, 2035 (authors based on AND, 2016)

### The cost of managing packaging waste in Algeria

The need for packaging and packaging materials is expected to rise in the short, medium, and long term. According to figure No. 6, plastic and paper will be the most abundant in 2023, with 2.19 million tons and 1.26 million tons, respectively. In 2035, the value of plastics hit 3 million tons, with paper having a limit of 1.75 million tons. While ferrous, nonferrous, and glass resources are known to be in constant demand, they remain limited.

- 1149.29 DZD per resident per year

-3670.83 DZD per ton per year

Moreover, from we conclude that the Cost of running waste packaging in Algeria for 2016= Amount of waste for 2016 (ton) x annual cost per ton (DZD) Then: Cost of running waste packaging in Algeria (2016) = 11565000 x 3670.83

Cost (2016) = 42453148950 DZD or simply 42.5 billion Algerian dinars.

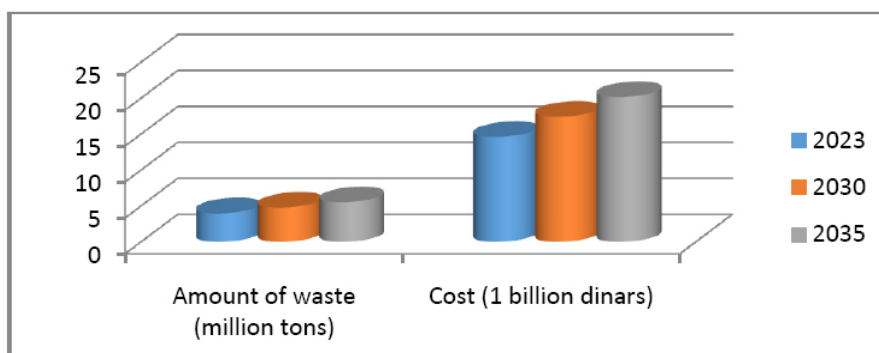
**Table 2.** Cost of Running Waste Packaging for 2016

Cost (Billion Dinars)	Tons/Year By 2016	Ingredients
4.29	1168253	paper and cardboard
4.21	1145933	plastic
0.714	194554	iron materials
0.755	205758	glass
9.96	2714498	the total

Source: authors based on GIZ (2016)& AND (2018)



Table 02 estimates the cost of collecting and discharging packing debris at 9.96 billion Algerian dinars. This expense is rising in tandem with the rise in the number of diabetics in the near, medium, and distant future. Figure 07 shows an increase in the cost of collecting and disposing of packaging and packaging waste. The year 2023 is predicted to be valued at 14.6 billion Algerian dinars, a 31.78% growth, and is expected to exceed 20 billion Algerian dinars by 2035.



**Figure 7.** Increased cost of running waste packaging and packaging in the near, medium and long term (Authors based on the National Waste Agency, 2016)

In a study financed by (In a study done by the National Waste Agency (GIZ) in both 2016 and 2017 to estimate the quantity of packaging trash in Algeria. According to studies, there is a significant market in Algeria for the valuation of packaging trash, which is valued at 38 billion dinars (Ouamane, 2017). As a result, we can determine how much the value of valued packaging waste adds to the national economy.

## **Algerian Efforts to Operationalize the System of Expansion of Eco-Jem**

### ***Switch Med***

Switch Med is a multifaceted regional initiative that includes representatives from the European Union, the United Nations Industrial Development Organization (UNIDO), the UNEP Mediterranean Action Plan (UNEP/MAP), the Technology, Industry, and Economics Section (UNEP/DTIE), and the Regional Activity Centre for Sustainable Consumption and Production (AND, 2018). The program's goal is to modify the production and consumption patterns of goods and services so that serving the requirements of communities does not harm the environment, which will assist industry and the growth of green contracting. WFP was established in 2014, and its activities are currently being carried out in beneficiary countries. In this respect, Algeria produced a National Action Plan for Sustainable Consumption and Production Methods 2016-2035 (NAP MCPD). The latter, which includes 42 actions in three priority categories, is the waste axis of priority axis 3, headed "To progress towards zero wastes and reduce emissions and polluting waste," with the goal of reducing the environmental impacts of human activities. Action No. 32 requests that the system for the recovery of packaging wastes (Eco-Jem) be activated and implemented.

### ***Cooperation with Tunisia***

A partnership agreement was signed on May 11, 2018 in Tunisia as part of the deepening of cooperation between our National Waste Agency and Tunisia's National Waste Disposal Agency. In order for the two parties to exchange experiences, particularly those connected to trash exchange and ecosystems (Eco-Jem system) for the Algerian party and (eco-leaf) for the Tunisian party (AND, 2018).

## **Investing in the Activation of the "Eco-Jem System in Algeria": Defining and Integrating Roles and Activating Technologies for the Effective Role of the System**

The actual and practical activation of Algeria's Eco-Jem system lacks a comprehensive and effective framework, adaptable and decentralized, that takes into consideration all of the circumstances and features of each region. It is founded on fundamental and operational values, while displaying a solid legal position that supports its economic presence and the preservation of rights and roles. Investing in the field activation of Algeria's Producer Liability Expansion System (Eco-Jem) is the State's withdrawal and allows investors with diverse material and technical capabilities to participate. Which will assure the financing and operation of the system as specified in the contract, and which will continue to be monitored and followed up on by the State.

### **The Establishment of a Mixed Economic Company that Invests in the Field Activation of the "Eco-Jem" System and the Expansion of Producer Responsibility**

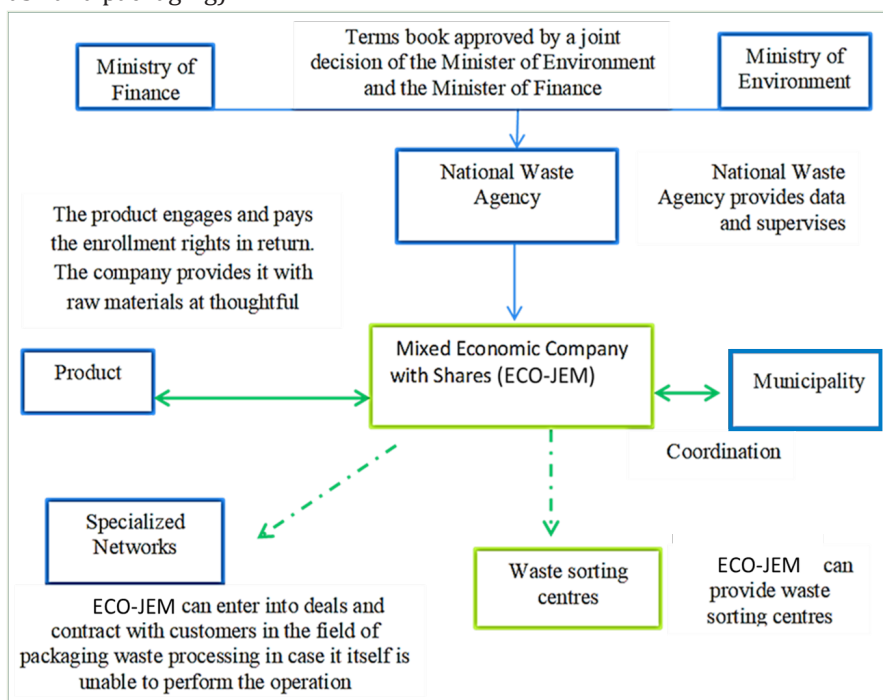
It was critical to establish an Eco-Jem company and grant it the status of "A joint stock economic corporation" situated in the capital with regional offices. The interaction between them is governed by a study and a passbook under the supervision of the Ministries of Environment and Finance, and it has the job of implementing the system on the ground and dealing with diverse producers.

It shall be a moral person charged with the responsibility of decision-making, management, and linking various stages and actors, and shall be organized, financed, self-managed, supervised, and followed up on by the National Waste Agency and the Municipality, which have to execute the following tasks:

- Count and register all producers who must participate in the system and pay dues.
- Create a receivables collection and administration system (58 state branches) for all producers involved in the producer responsibility expansion scheme.
- Tender disclosure and resort to local dealers if necessary.
- Documentation and justification of its activity to the authorities in charge.
- Create a system for collecting and sorting packaging waste (the flexible technique for Eco-Jem on the ground) and recovering the greatest proportion of packaging waste that can provide selected waste screening centers).
- Oversight of all services provided in the field of waste packaging and packaging collection, sorting, and processing.

### **The company's economic position within the proposed functional structure to activate the Eco-Jem system**

We can see in Figure 8 the proposed functional organizational structure for Eco-Jem system's operationalization, which is a major actor and a mixed economic firm with shares that aspires to field activation of the Eco-Jem system. This latter, which is considered as a moral institution comprised of several investors, employs user frames to occupy various interests. The "Producer Liability Expansion" system can be operationalized by using the approach stated in figure 8, which forces producers to pay dues for the management of their waste products. This gives them priority for recovering raw materials for reuse or calculating an annual profit. In exchange, the company obtains financial resources from the engaged producers in addition to the value of selling the collected materials (payment of engagement value + cost of operating packing trash and packaging).



**Figure 8.** Proposed functional structure for activating the ECO - JEM(Authors)

## **Advantages of the Proposed Functional Organizational Structure for the Activation of the Eco-Jem System**

The proposed organizational structure for the Eco-Jem System's operationalization has several advantages, including:

- An investment that generates an economic resource and maintains raw materials
- Exempt municipalities and states from the cost of garbage packing.
- Creating green jobs by establishing a number of screening centers –
- Improving the aspects of the life framework and environmental protection
- Lessen the amount of waste wave used for backfill.

## **CONCLUSION**

The effectiveness of mechanisms for increasing producer responsibility has been demonstrated internationally by positive results on the ground, particularly in European Union countries. Algeria, like the rest of the globe, has recognized the need of this system, particularly given that packaging waste and packaging costs the country a lot of money to run. "Eco-Jem," the latter, which has not realized on the ground due to a number of hurdles Algeria has attempted to overcome, but its efforts remain limited and far from the field reflection of the system of growing producer responsibility.

Our study indicated that investment should be resorted by developing a mixed economic institution with a significant contribution by introducing various parts of the "Eco-Jem" system, field results of foreign experience, and field specificities of packaging trash in Algeria. Eco-Jem, the central actor entrusted with the task of managing waste packaging and dealing with all actors under the State's guardianship, works to reflect the system of expanding producer responsibility, which closes the cycle of resources and guides expenditures, and creates a benefit for the national economy.

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*Citation: Dr. Benazzouz Aisha, Dr. Bouaadam Rokia. Investing in the Activation of the System of Expanding the Producer's Responsibility in Algeria: "Eco-Jem" An Added Value to the National Economy. Int J Innov Stud Sociol Humanities. 2022;7(12): 38-45. DOI: <https://doi.org/10.20431/2456-4931.071204>.*

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