

Extended Producer Responsibility (EPR) for Sustainable Management of Plastic Waste

- Circular Economy Business Model

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Research Statement

In 2018, the Central Pollution Control Board (CPCB) introduced registration of PROs (Producer Responsibility Organization), who on the producer's behalf will manage the waste (collection and reuse/disposal) and give them a credit note in the form of the certificate stating their waste has been collected and reused/disposed.

PRO recognition is given by the CPCB, to an organization that has worked for 5 years in the field of Solid Waste Management. As per the data from CPCB 2018, in total 21 PROs were recognized by CPCB. The waste is collected by these PROs from the waste pickers or bulk factory waste and it is then transferred further to the scrap dealers but in some cases these PRO were scrap dealers themselves. Thereby, the producers who have hired them for EPR get certificates from these PRO's to show the compliance with the EPR policy. Which is not exactly what the rule intended.

With the 2018 waste management amendment rule, CPCB has deregistered all the PRO's and also discontinued with the scheme of recognition of PRO with CPCB citing that sufficient time has lapsed since the guidelines for managing plastic waste have been in public domain and adequate awareness of fundamental principles of EPR including collection, processing/disposal of waste has been created amongst the various stakeholders. As per the CPCB notification though the recognition of the PRO (with CPCB) is discontinued but it clearly states that the manufacturers can still engage these agencies (earlier PROs) at their discretion.

As part of my final year thesis project in Masters in Urban Management, CEPT University (2020), I researched on EPR practice in India for plastic waste management. From my findings, I strongly believe there is a need of an efficient business model to implement plastic waste management effectively in UBLs.

Scope of a Business Model

Reverse logistic scheme is a disappointment in India in light of many significant reasons. The principles express that the organizations need to meet the assortment procedure in an arranged manner, which will be 30% of the assessed measure of waste during first years of execution of rules followed by 40% during the third and fourth year and half during fifth year, in any case they do not have a system to cross verify the ground reality of these organizations.

The major challenge in recycling of plastic waste is that, the collection expense and recycling expense together is always greater than the value obtained through recycling of all types of plastic grades, which demotivates recyclers to continue for a longer term efficiently. But with the new business model where EPR fee is introduced, it could finance the collection cost and thereby incentivize the formal recycling in India.

Proposal for a Business Model in Plastic Waste Management

The below figure shows the complexity in recycling different types of plastic grades. It is crucial to understand this, to comprehend how recycling market works. The primary collectors like the kabadiwallas are ignorant of this. The complexity in recycling these grades decides the market rates.

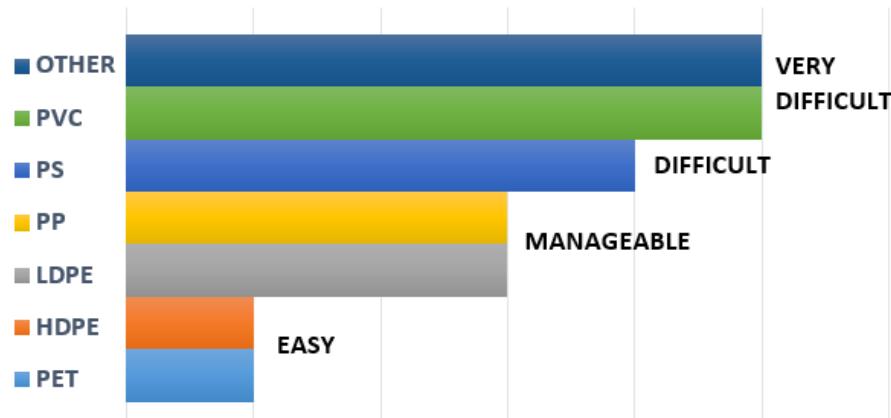


Figure 1 Complexity in recycling plastic grades

From *Figure 1* it's understood that PET bottles and HDPE are the easiest to recycle, which directly makes it high in demand in the recycling market. This complexity of each grades affect the recycling market, and this has to be studies to curb the production of harmful grades of plastic.

Average Recycling Rates in Market			
Type of Plastic Grade Used	Ragpickers	Informal Shop/sector	Recycling Agency
PET	Rs.15-20/Kg	Rs.28-32/Kg	Rs.100+/Kg
HDPE	Rs.8-10/Kg	Rs.17-20/Kg	White Rs.80+/Kg Black Rs.70+ /Kg considering the market value
LDPE	Rs.5-Rs.10/Kg	Rs.25-Rs.30/Kg	Rs.70+/Kg
PP	Rs.8-10/Kg	Rs.20-30/Kg depending on the quality	Rs.40-70/Kg
PS	Rs.5-10/Kg	Rs.20-30/Kg depending on market demand	Rs.35-50/Kg
PVC	Rs.8-10/Kg	Rs.15-30/Kg according to condition	40-70/Kg
MLP	No value	No value	5-10 if sold to cement kilns

Figure 2 Recycling rates in market (2020)

Proposed Business Model:

- Introducing EPR Fees:** Fees should be decided on the basis of the grade of plastic used since each grade has its own market value (*figure 2*). Grades like LDPE, PET are recyclable and hence they are not mere waste but value generating sources. Plastic rates per kilogram of the plastic material used in the product is recorded during PIBO registration. The PIBO pays fees/fund equivalent to the plastic produced (production records) per quarter.
- Creating a nodal agency/platform:** Urban Development Department or the state committee formed to observe EPR implementation verifies the production record submitted by each PIBO and credits the required fund to each ULB according to the waste generated/to be recycled in their boundary.
- Empowering the ULB:** The respective urban local body (ULB) connects with one more agencies to collect and recycle all the wastes generated within their boundary.
- Formalizing 'Safai Karamcharis':** ULB should formalize the rag pickers and facilitate a dignified livelihood for them.