

As per the SWM Rules, 2016 “Materials Recovery Facility” (MRF) means a facility where noncompostable solid waste can be temporarily stored by the local body or any person or agency authorized by any of them to facilitate segregation, sorting and recovery of recyclables from various components of waste by authorized informal sector of waste pickers, informal recyclers or any other work force engaged by the local body for the purpose before the waste is delivered or taken up for its processing or disposal;

Material recovery starts at the primary level, by households who segregate recyclables like newspapers, cardboard, plastics, bottles, etc. from waste to sell such material to kabadiwalas, local recyclers and scrap dealers. The items that cannot be sold to the kabadi system are discarded and become part of the MSW.

As per the SWM Rules 2016, Dry Waste is defined as “waste other than bio-degradable waste and inert street sweepings and includes recyclable and non-recyclable waste, combustible waste and sanitary napkins and diapers, etc.”

#### **Duty of ULB to set up MRF as per SWM rules 2016**

**As per the SWM Rules 2016, it is the duty and responsibility of the ULB to setup material recovery facilities (MRFs) or secondary storage facilities with sufficient space for sorting of recyclable materials to enable informal or authorized waste pickers and waste collectors to separate recyclables from the waste and provide easy access to waste pickers and recyclers for collection of segregated recyclable waste such as paper, plastic, metal, glass, textile from the source of generation or from material recovery facilities (MRFs).**

A Material Recovery Facility (MRF) is an infrastructure to receive, sort, process and store recyclable/ non recyclables/ RDF and inert materials, with the aim to maximize the quantity of recyclables processed, while producing materials that will generate the highest possible revenues in the market and maximize the reuse of other segregated fraction in different processes/ industries.

A material recovery facility (MRF) accepts waste materials, whether source segregated or mixed, and further separates, processes and stores them for later use as raw materials for remanufacturing, reusing and reprocessing.

Material Recovery Facility (MRF) is also known as Material Reclamation Facility or Material Recycling Facility.

An MRF is a place where waste collected from the doorstep in a segregated manner is further segregated and various components of recyclable waste recovered from it for recycle or resale.

The waste material is basically segregated into different streams of waste fractions (paper, plastic, packaging paper, bottles etc.) which is sold to intermediaries who supply bulk material to the recycling industries. MRFs require medium to large storage spaces depending on their capacity to temporarily store sorted recyclables which can be made available to recyclers in bulk at higher resale value.

**The main function of the MRF is to maximize the quantity of recyclables processed, while segregating materials that will generate the highest possible revenues from the recycling market. MRF also helps in segregating combustible fraction (RDF), non-recyclables and inert from the dry waste stream.**

**These fractions may be utilize/reused as –**

**Recyclables – Reuse/ reprocessed**

**Non-recyclables - Road making/ plastic to oil**

**RDF - Waste to Energy/ Cement Industries**

**Inert - C&D plant/ daily cover of SLF**

Types of material recovery facility by ownership and operations

**MRFs may be publicly owned and operated, publicly owned and privately operated, or privately owned and operated. Jointly owned and jointly operated MRFs are also possible.**

**There are basically two types of MRFs:**

**Mixed**

**Dry/Clean**

**Mixed : Unsegregated, mixed waste with biodegradable and non-biodegradable material is collected and sent to the MRF processing facility.**

**At the mixed MRF, the mixed waste stream may be segregated manually or mechanically to separate recyclable material from compostable and inert wastes.**

**Compostable matter and recyclable materials may then be processed separately, and residual inert wastes are sent to the landfill.**

**Receiving mixed waste (recyclable materials combined with other municipal solid waste) that requires labor intensive sorting activities to separate recyclables from the mixed waste.**

**The MRF unit can use a combination of manual, hybrid and machine-based sorting .**

Selection of MRF

Waste Quantity

- Waste characterization

Availability of land

Capital and Operational cost of facility (including cost of Manpower)

Provisions/ Linkages for sale of recyclables and by products

Type and linkage of final treatment/disposal facility

### **Siting criteria for MRF**

**MRFs need to be located close to existing roads, but traffic blocks resulting from the movement of waste collection trucks should be considered and avoided.**

**These facilities must be near or within urban areas that generate the inputs to be processed for recyclables.**

**If the development area is zoned, MRFs are preferably located in an industrial zone or close to a sanitary landfill to facilitate efficient movement of waste from various generators and disposal of residual waste.**

**MRFs should be sited, considering the local geographical features, in a safe manner**

**Flood-prone areas should not be selected.**

### **Advantages of MRF**

**Recycling prevents a significant fraction of municipal, institutional and bulk waste from being dumped or disposed in landfills.**

**It results in the availability of scarce resources as well as reducing environmental impacts and the burden of waste management on public authorities.**

**If the necessary market mechanisms are established, recycling can generate revenue, contributing to the cost recovery in the municipal solid waste service provision.**

**It helps the ULB by reducing waste volumes and results in cost savings in the collection, transportation and disposal infrastructure, longer life span for landfills/reduced requirement of land, reduced environmental management efforts**

**and generates livelihood opportunities for informal, local vendors/recyclers in the recycling industry.**

Authorizations/ Permissions required

The permissions have to be sought from the State Pollution Control Board (SPCB) in the form of consent to establish, consent to operate, etc. Later, an annual report needs to be given to the SPCB / Pollution Control Committee (PCC).