

Reduction of Unintentionally Produced Persistent Organic Pollutants (UPOPs) emissions by improving waste management practices at landfills

Fire risk mitigation for tyre storage

GEF Project ID: 5558 – Component 2 - Development and Implementation of a Sustainable Management Mechanism for POPs in the Caribbean



Mitigating fire risk in tyre stockpiles

Challenges

- Tyre stockpiles are usually large, uncontained, unmonitored with no fire breaks or bunds to rapidly smother a fire.
- Tyre fires are very difficult to put out in lack of readily available extinguishing materials and equipment and rapid response
- Tyre fires generate serious air and soil pollution, with hazardous and persistent compounds migrating into surface and groundwater
- Heavy smoke from tyre fires often disrupts road and air traffic.

Manage tyres to mitigate fire risk

Fire Prevention Objectives

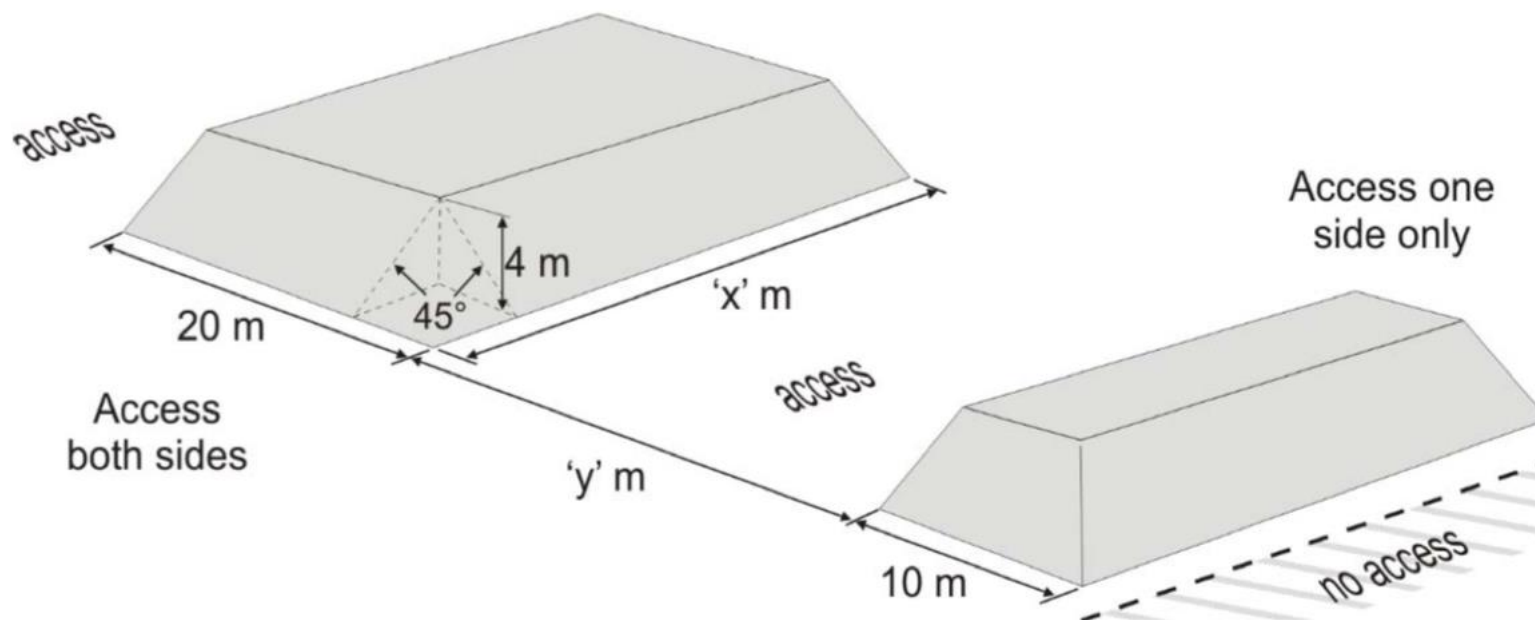
- Minimise the likelihood of a fire happening
- Aim for a fire to be extinguished within 4 hours
- Minimise the spread of fire within the site and to neighbouring sites

Fire Prevention Basics

- Implement effective fire prevention and site procedures to minimise the risk of fire occurring
- Limiting the size of waste material stockpiles as far as is practicable
- Maintaining adequate clearance between stockpiles and other infrastructure
- Configuring stockpiles in a way that ensures access for firefighting and maximises its effectiveness
- Protection of human health and the environment in the event of a fire.

Quick low-cost interventions:

- Minimise pile sizes (small piles with appropriate separation are safer than one big one) –
- Tyre piles must not exceed 450m³ - e.g. 20m wide x 10m deep x 2m high – no side should ever exceed 20m and never exceed 4m high.
- Minimum distance between piles of 6m but more effectively 20m (unless fire walls used)



Maximum external stockpile size and minimum separation

Improved tyre stockpile layout



RWA, 2019

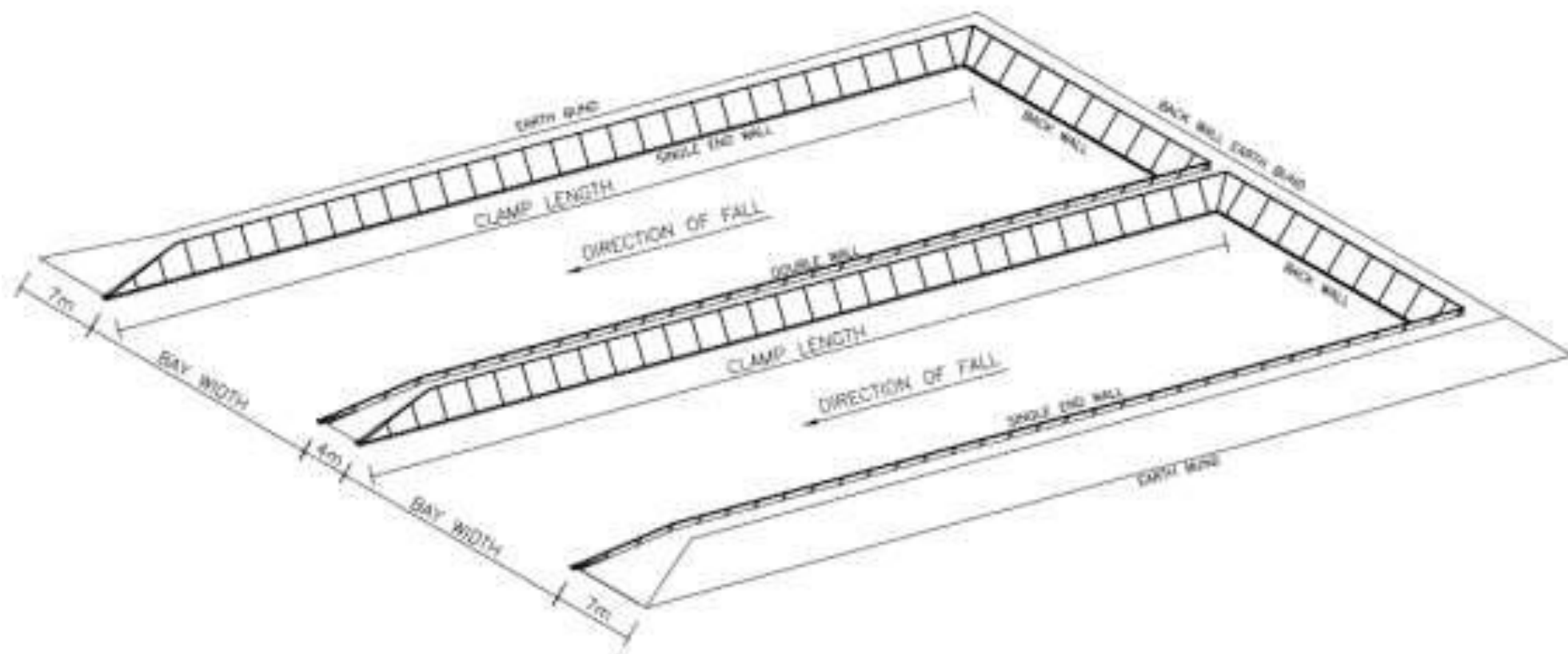
Manage stockpiles with adequate bunding

Bunds must have 1m free height above top of waste stockpile maximum height



RWA, 2019

Earth bays with earth walls sufficient to quickly push over contents and extinguish fire



Stockpile bays with fire walls



RWA, 2019

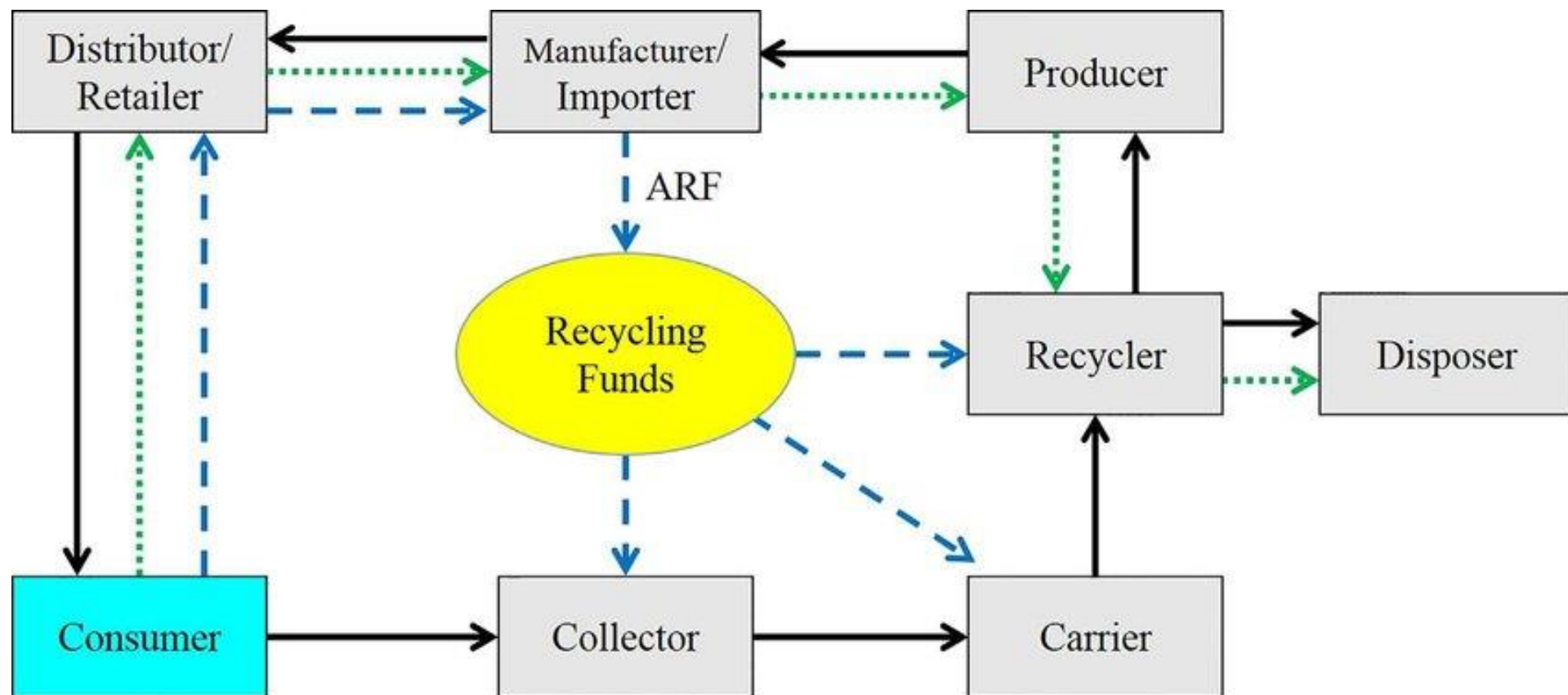
Tyre Management Options

Effective segregation of tyres in operation

Establish sustainable management route for tyres

- EPR system to fund management
- Shredding for integration into cover material
- Shredding for use in tyre-derived aggregates (TDA) (locally or regionally)
- Cut up and used as leachate or gas drainage medium on and around landfill
- Cut sides and use cylinders for road construction (see Recovery waste tyres page)
- **Needs a robust sustainable Operator Model!**

Example EPR flows



→ Flow of WEEE - - -> Flow of Payments > Flow of WEEE processing fund

Similar Management for all waste stockpiles

Establish improved management options for stockpiled waste streams with accountability against performance standards

Establish enabling environment for private sector to sustainably operate.

- **ELV** – De-polluted and baled for export
- **Whitegoods** – de-polluted and baled for export or disposal
- **WEEE** – containerized whole, dismantled or shredded with hazardous components to Hazardous waste facility, valuable components to brokerage

Establish voluntary or mandatory EPR

Feasibility studies required to assess economic viability of local initiative versus regional hubs for activities.