

Business models in Circular

Economy

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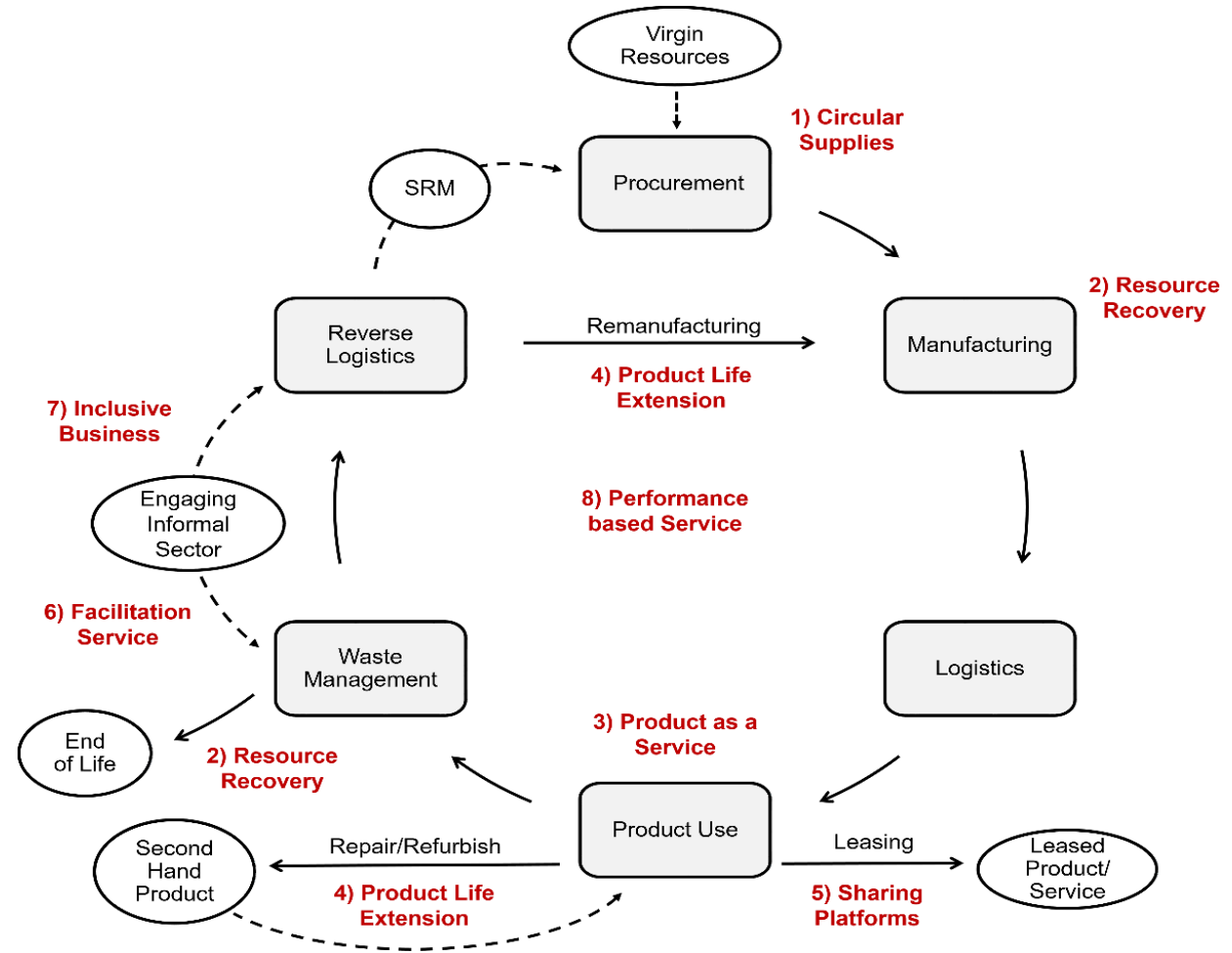
Today's Topics

1 Types of business models

2 Case Studies

Types of business models

1. Circular Supplies
2. Resource Recovery
3. Product as a Service
4. Product Life Extension
5. Sharing Platforms
6. Facilitation Service
7. Inclusive Business
8. Performance based Service



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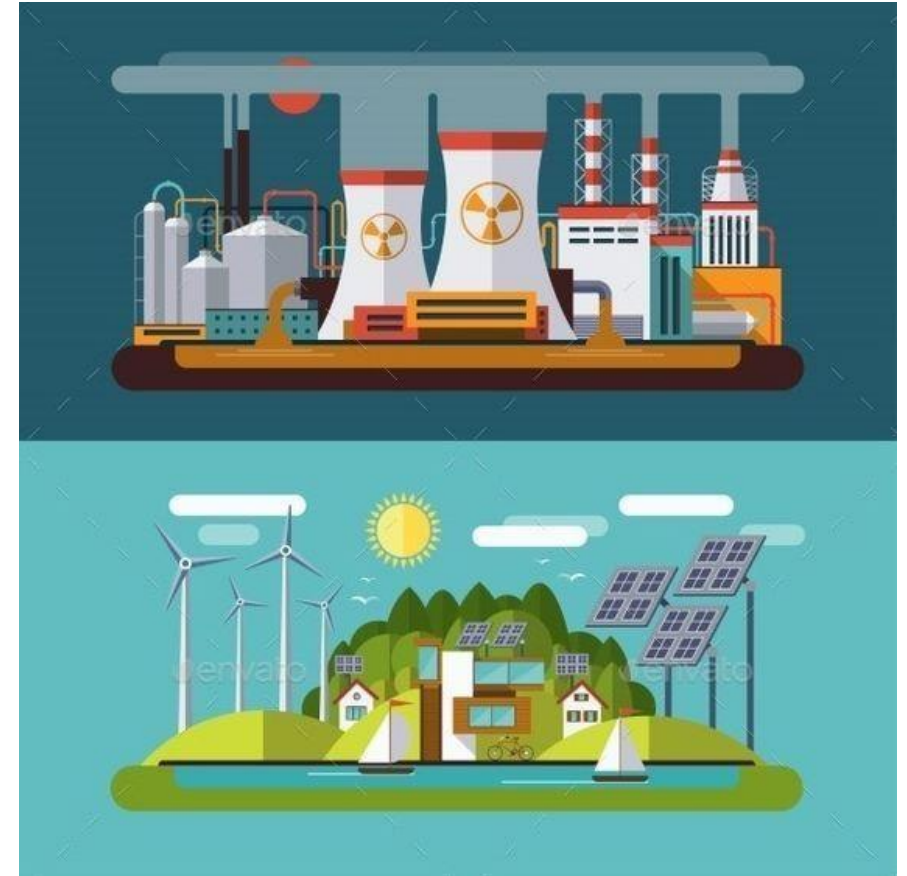
Circular Supplies

- Business models that supply fully renewable, **recyclable or biodegradable inputs/raw materials** to other industries
- Reduce demand for **virgin resources** benefiting over a long run

Traditional raw materials from virgin resources

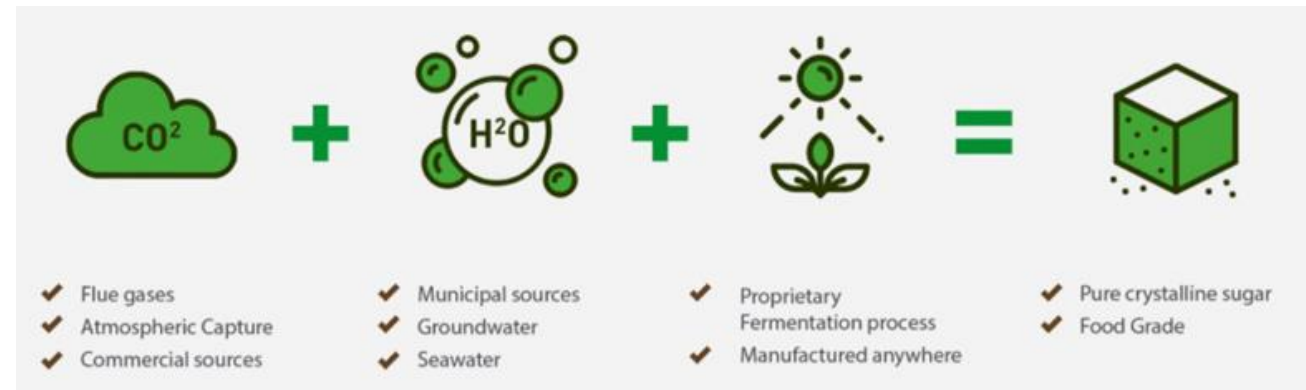


Bio-based
Renewable
Recovered
resources



Air Sugar, California

- Uses biosynthesis, AI and Carbon capture technology to produce sugar
- Process **captures more CO²** than it emits
- Bio-manufactured by **mimicking photosynthesis**
- Saves **1000 litres of water per kilogram** of sugar produced
- Converts light and CO₂ into sugar
- Generates Oxygen and pure water as byproducts



Fat hopes energy, Malaysia

- Aims to **develop sustainable fat, oils and grease solutions**
- **Supply renewable bio-based fuels**, known as biodiesel, for industrial market
- Uses **waste oil as a raw material** to produce biodiesel
- 150,500,000 kg of waste oil converted to biofuel
- Revenue generation of 105,350,000 USD
- Provide services to 17,623 outlets



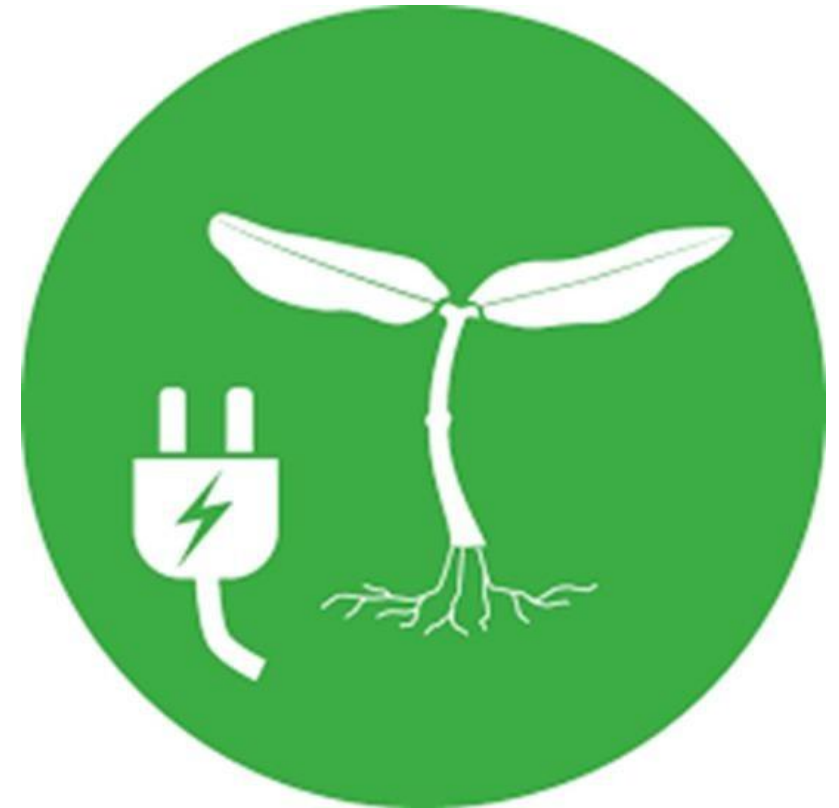
Ecoware, India

- Offers **sustainable food packaging solutions**
- Provide eco-friendly **alternatives to plastic** and Styrofoam
- Plant biomass, also known as **agricultural residue** is utilized as raw material
- **Prevents air pollution** from burning post-harvest waste
- All products are biodegradable and easily compostable



Resource Recovery

- Recycle waste to **recover resources**
- Divert waste from final disposal
- Displace extraction and processing of **virgin natural resources**
- Recycling infrastructure- such as **Material Recovery Facility (MRF)**- sorting, recycling and recovery at scale
- Recover resource outputs that **eliminate material leakages and maximizes economic value**



Bio-Bus, U.K

- 40-seater bus, which runs of gas generated by treatment of **sewage and food waste**
- Can travel up to **300 km** on full tank of gas
- **Annual waste of around 5 people** can be used to generate **one full tank of gas**
- The sewage treatment plant treats **75 million cubic meter of sewage** and **35,000 tones of food waste** annually



Kloth Cares, Malaysia

Operating since 2013

Fabric recycling company

Aims to keep fabrics **and textiles out of the landfill**

Has set up more than 280 recycle bins across

Malaysia for collecting discarded/unwanted

garments

Have collected more than **4,35,268 kg of fabrics**

Work with more than 300 recycling partners



Kloth Cares 5R Principles

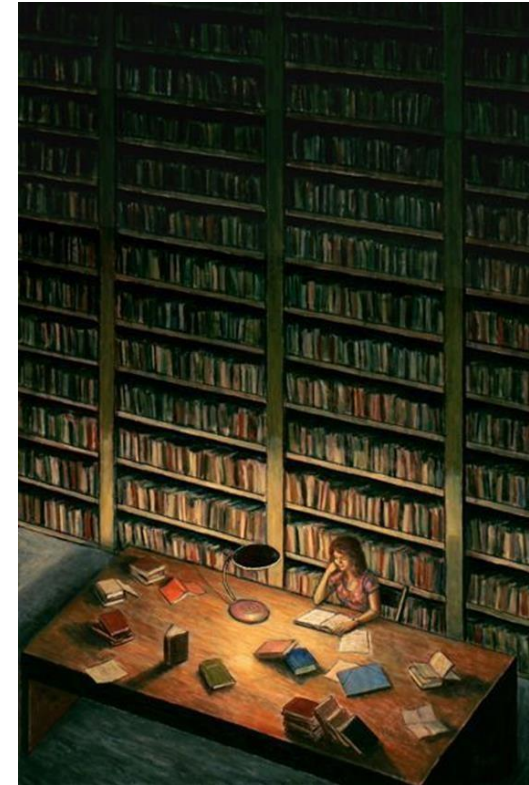
Toast Ale, U.K

- Uses **surplus bread** slices to brew Beer
- More than **1.9 million slices** saved to raise **1.5 million Beer toasts**
- **42 tones of CO₂ (e)** saved from reaching atmosphere



Product as a Service (PaaS)

- **Services**, rather than products are marketed
- Incentivize **green product design**
- **Efficient product use**



Book store Vs Library

Mud Jeans, Netherlands

- Jeans made from **organic and recycled cotton**
- **75% sale and 25% lease**
- Partnered with **RE:Pack** for **returning** jeans after customer use
- **Free repairs**
- **Save 5500 litres** of water, **29 Kg of CO₂ (e)** emissions
- Uses 40% recycled cotton



Pay-per-lux, Phillips, Netherlands

- Offers light-as-a-service
- ‘Pay-per-lux’ is an **intelligent lighting system** to fit the requirement of space and price
- **LightRec**, Philip’s partner responsible for the **reuse of lighting components**
- Improves energy efficiency and **reduces operational cost**
- Schiphol Airport, Netherlands benefits by **50% energy saving** through **installation, monitoring and optimization**



Ahrend, UK

- Offers furniture-as-a-service (FAAS)
- Manufactures products with **modularity, disassembly and life extension design** principles
- Pay **monthly fees for renting furniture**
- Reduction in material usage and carbon emission
- Secure material supply chain
- Lower office set-up costs



Product Life Extension

- Earning **profits by repurposing** products
- Extends use period of products
- Reduce **rate of virgin resource extraction** and waste generation
- Achieved through **Repair and Refurbish** of products
- Reduces the amount of waste sent to the landfills



PanurgyOEM

- Repair business supported by **reverse logistics**
- 90,000 sq.ft repair facility
- Repair- **consumer electronics, computers and office equipments**
- Repair leader for **40 years** now



Renew cell, Malaysia

- Uses a patented process (electro-pulsation sulfation reversion) to **regenerate old batteries**
- Chemical free and eco-friendly process
- **Doubles life** of batteries and **saves money**

Regeneration Technology Application on



Certified by Malaysian Ecolabel

FairPhone

- Smartphones segment
- Buy-and-Replace model
- Manufactures phones with **modular designs** which can be **easily recycled**
- Features:
 - Easy to repair
 - Take back program
 - Best recycling methods



Replenish, Los Angeles

- Customizable **packaging platform for liquid concentrates**
- Sells their own products (since 2010)
- Also provides packaging solutions to other brands (since 2017)
- **Packaging services** can be used for most packaged liquid goods- cleaners to beverages
- Extends products life through **design and innovation**



Repair Café, Global

- Founded by **Martina Postma** in **2009** in **Amsterdam**
- Meeting place for people to **repair household, electronic** and other **personal belongings** together
- Learn and **exchange repair skills**
- As of today, more than **750 Repair Cafes** exist



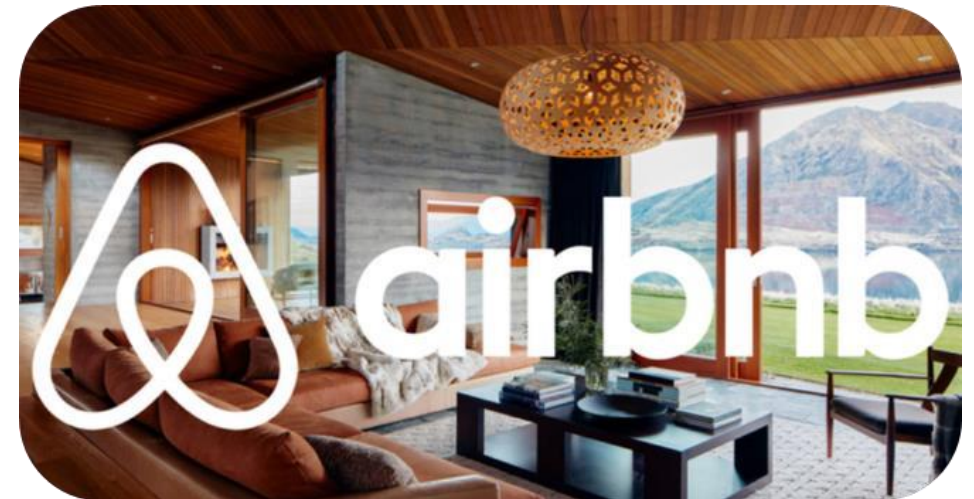
Sharing Platform and collaborative consumption

- Facilitates **better utilization of products and services**
- Reduces consumption of virgin resources
- Maximizes product use
- Enhance **productivity and value creation**
- **Promotes sustainable consumption**



Airbnb, Global

- Operational since 2008
- An online platform which allows **sharing rooms and properties/homes with traveler**
- Offer affordable alternative options to a hotel
- Host and guest community, generated a direct economic impact of **\$100 billion in 2018**
- Offers more than **5 million listings** in 81,000 cities in 91 countries.
- Currently has **150 million active users**



Library of Things, U.K

- Believe in ‘**Why buy when you can borrow?**’
- Online platform to **borrow things for home, businesses and personal use**
- 1 out of the 4 ‘Library of Things’ site, saved more than **15,900 kg of waste from going to landfill** by borrowing rather than buying
- Categories of things include- Cleaning, Cooking, DIY, Gardening, Adventuring etc



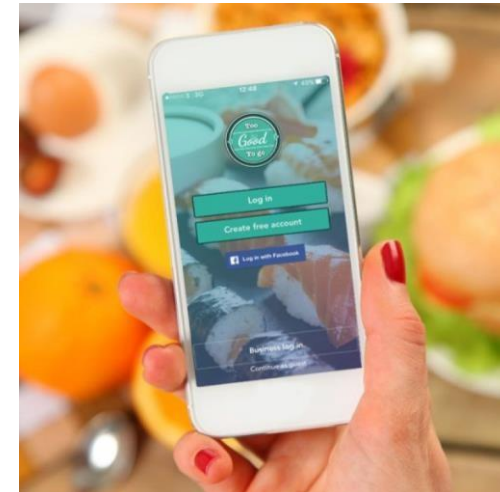
Facilitation Services

- Offer facilitation services to **stakeholders**
- Connecting them through various digital platforms and helping them in **aggregation, reverse logistics and material management**



Too good to go, Global

- App connects **restaurants, cafés, bakeries,** and food outlets with locals
- Enlists **unsold food items** at **lower rates** on their dashboard for locals to choose from
- Has more than **29 million users**
- **Saved 53.7 million meals since 2016**



iCycle, Malaysia

- Solution provider for waste management and recycling
- Introduces ‘Internet of waste Things’ (IoWT)
- Consumers and organizations can clean, sort and pack non-food items/waste
- Put a ‘iCycle’ label on the bag and drop them in **collection bins**
- Online dashboard helps in tracking the nearest collection bins
- Get Rewarded with **recycling points (RP)** which are exchangeable for merchandise and cash vouchers



Kabadiwala Connect, India

- **Decentralised waste management** solution
- Integrate the informal ecosystem into the reverse logistics supply chain
- Helps **municipalities, brands,** and waste management companies **recover postconsumer waste** efficiently
- **Uses ICT and IoT** based technology
- Offers services like – **Mapping, Digitalisation, Sourcing and Collection**



Inclusive Business

- Most relevant for **developing economies**
- Work with informal sector for business as well as ensure **livelihood, health and safety**
- **Meet Extended Producer Responsibility** related obligations



NEPRA, India

- **Dry waste management**
- Working with informal sector- **collection, segregation** through manual and mechanical process, **sale** of recyclables
- **90% waste sorted is recycled**
- 10% is send to cement kilns for use as **refuse derived fuel**
- Collected waste from **1700 waste pickers until 2018**
- **Fair prices, transparent service, cash payment**
- **Employee 210 employees**

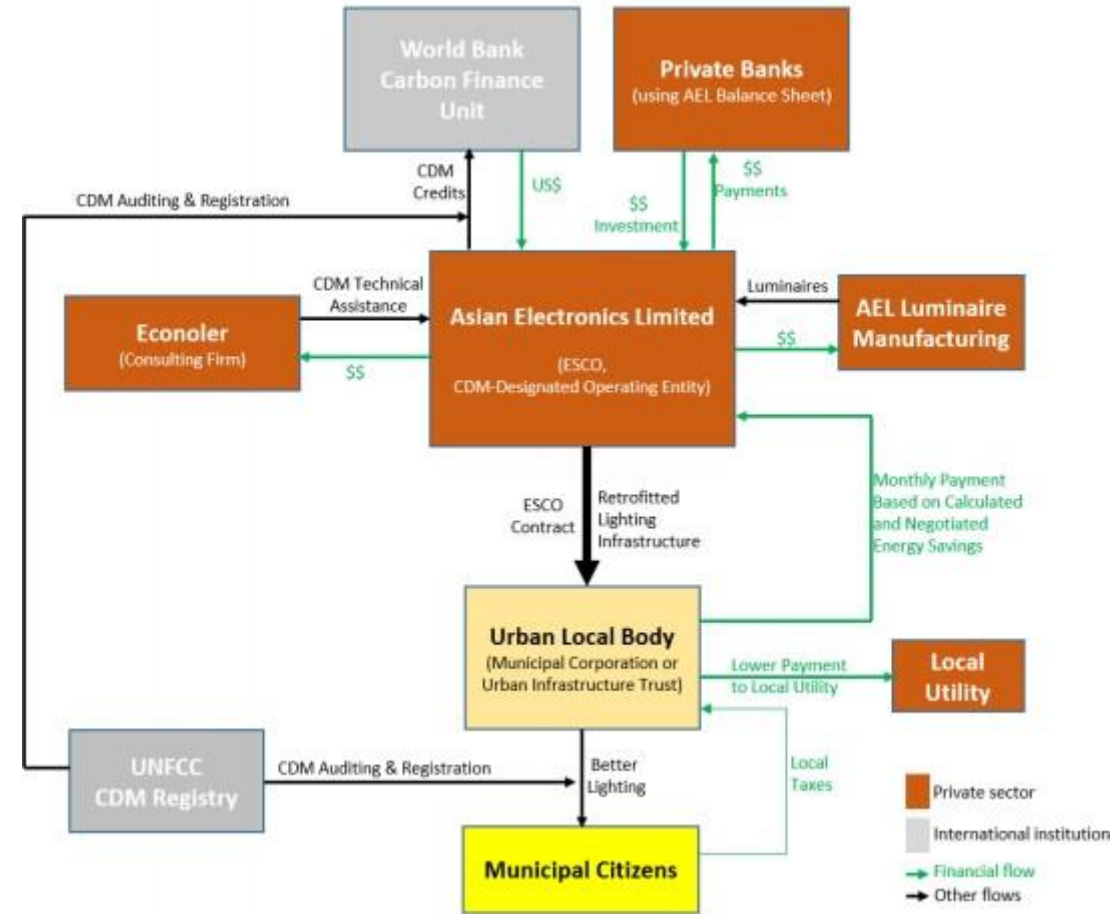


Performance based service

- Follows ‘consumer/user pays principle’
- Resource efficiency, Optimization,
- Addresses Contextual Sustainability
- **Energy Performance Contracting (EPC)** is a form of ‘creative financing’ for asset improvement
- Payments made based on savings accrued

ESCO delivery model for LED public lighting- Asian Electronics Ltd, India

- **Efficient street lighting** project was implemented in **9 municipalities** in India
- Benefited from **Carbon Finance** – sale of Certified Emission Reduction Credits (CERs) to **World Bank**- managed Community Development Carbon Fund (CDCF)
- Implemented through **build-own-operate-transfer (BOOT)** basis through **ESCO shared-saving** model
- **ESCO and municipality shared performance risk** – receive fraction of saving from investment
- **Asian Electronics Ltd** is World Bank's implementation partner and **energy service & LED luminaries provide**



Performance contract for waste management- Chennai, India

- **Corporation of Chennai-** agreement with Ramky Enviro Engineers
- Municipal solid waste management
- **Door-to-door collection** of household waste, **segregation** of waste, **transport**, and **disposal** of non-recyclable waste
- Fee payment- **50% linked** automatically to **weight** and rest **50% is linked** to **performance**
- **Minor penalties** (0.25- 2%) for service deficiency
- Success is defined based on performance criteria

Key Takeaways

- Each business model is **unique, but also overlaps**
- Producer Responsible Organization (PRO)
- **Facilitation** is gaining popularity
- **PPP** is essential in **resource recovery** models
- **Integrating Product-life-extension** and **Product-as-a-service** will promote behavioral change
- **Inclusive** business models provide **social and economic advantage**
- **Performance** based business models push for **innovation, resource efficiency and re-circulation**



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