

ECOLE

#### **Alpine Space**

Source: UNIDO (2019)

- Resource Efficienct and **Cleaner Production (RECP)**
- Low-carbon technology

Company

- Green chemistry
- Renewable energy
- Energy efficiency

**Collective resource efficiency** solutions and shared:

- Resources
- Infrastructure
- Supply
- Services

Industrial Park



#### Sustainable symbiosis:

- Waste Management
- Recycling
- Corporate social responsibility









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## **Circular Economy & Industrial Parks**

**Dispose**/ Repurpose







Consume



Industrial

**Symbiosis** 

## Services/ Distribute

This project is co-funded by the European Union through the Interreg Alpine Space programme.

## 

## **Extraction**/ Recovery



Water Circularity

### Design



## Manufacture

Source: World Bank (2021: 2)



## Compliance with national and local regulations, and fundamental international rights

## Park Management Performance

- Park management entity
- Park property, common infrastructure and services
- Monitoring performance and risks
- Climate risk assessment
- Information on applicable regulations and standards
- Planning and park design



## Environmental Performance

- Environmental and energy monitoring systems
- Energy efficiency
- Renewable and clean energy
- Energy network and waste heat recovery
- Water efficiency, reuse and recycling
- Dangerous and toxic material
- Resource conservation
- Treatment and disposal of waste
- Air, GHG emissions and pollution prevention
- Environmental assessment and ecosystem services

Source: Based on World Bank, UNIDO, GIZ (2019-2021)





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## Social Performance

#### • Management team

• Primary social infrastructure: gender equalty, facilities, services and networks that support wellbeing and quality of life

### Economic Performance

- SME development
- Maximizing local benefits
- Market demand for EIP services and infrastructure
- Service delivery pricing





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# Dual application of CE principles in:

Single enterprises action area		EIP action area
<u>some non-exhaustive examples:</u>		<u>some non-exhaustive examples:</u>
Renewable energy supply, renewable thermal supply, hazardous waste	Reduce	Rate of achievement of energy targets, water targets and waste reduction targets
Circular packaging, LCA studies	Rethink	Circular strategy, natural capital pressure studies
Product innovation, process innovation and digital innovation	Innovate	Joining Innovation Network and land monitoring systems
Water recovery, destination of waste, water recovery, circular design	Revalue	Energetic symbiosis, water recovery, destination of waste
	Collaborate	Supply chain management systems, industrial symbiosis, joining a network
	Regenerate	Participation in regeneration projeccts, regenerative cultivation
Employee incentives on regeneration, circular skills, internal training	Inclusiveness	Well-being local communities, local suppliers

Source: Frey et al. (2020)







## Strategies and principles of the CE: the Rs' strategies

Smarter product use and manufacture

Refuse

Rethink

Reduce

Refurbish Repair Repurpose

Re-use

Remanufacure

**Extend lifespan** of product and its parts



Source: Kirchherr et al. (2017)









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