



ADB

Dissemination Workshop
ADB TA Solid Waste Management Coordination
in the Beijing-Tianjin-Hebei City Cluster

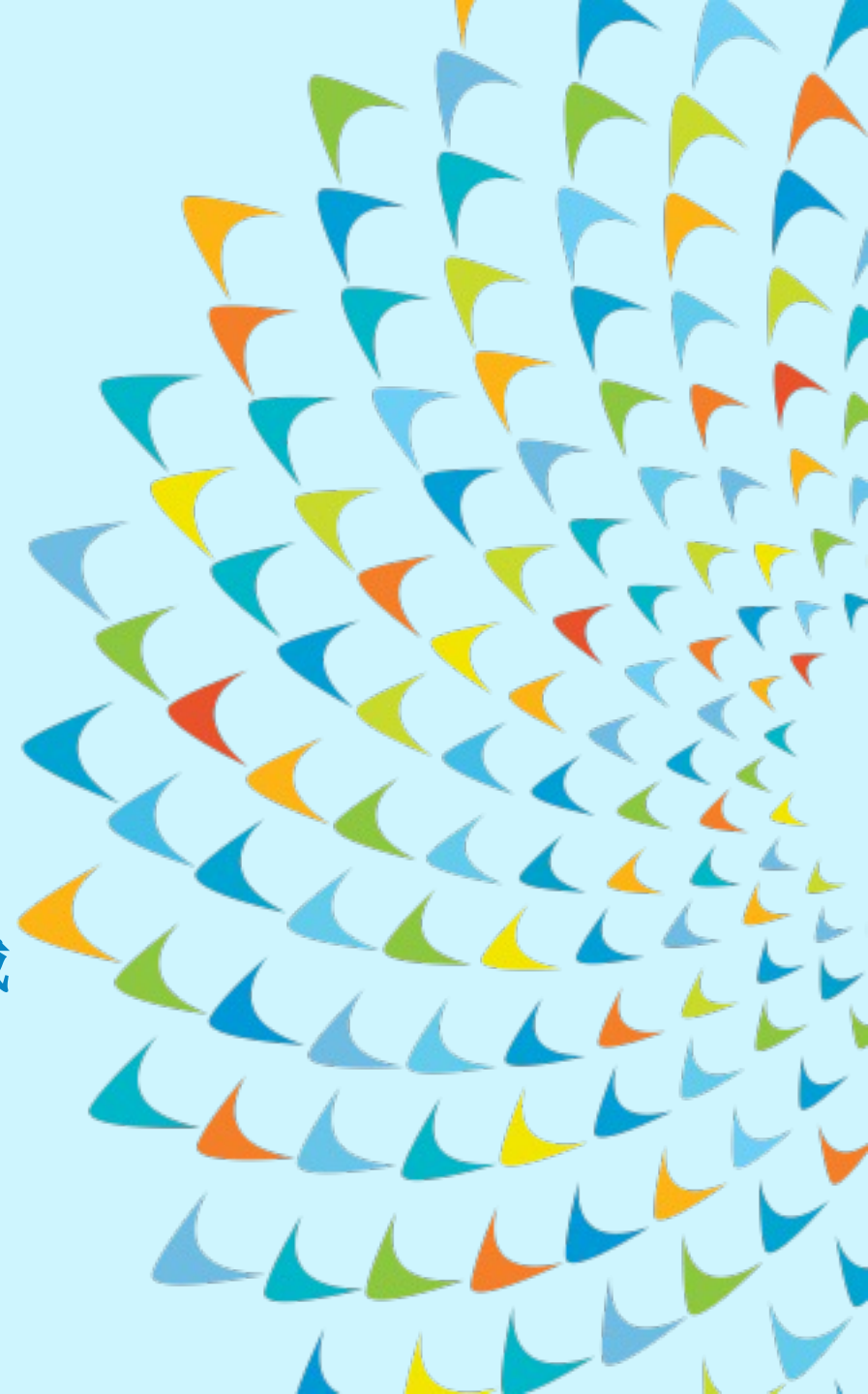
亚行技术援助传播研讨会
京津冀城市群固体废弃物管理协调

25-26 AUGUST 2022
2022年8月25-26日

The views expressed in this presentation are the views of the author/s and do not necessarily reflect the views or policies of the Asian Development Bank, or its Board of Governors, or the governments they represent. ADB does not guarantee the accuracy of the data included in this presentation and accepts no responsibility for any consequence of their use. The countries listed in this presentation do not imply any view on ADB's part as to sovereignty or independent status or necessarily conform to ADB's terminology.

**ADB TA on Circular Economy
Zero Waste Cities –
Project Introduction & Progress Overview**
亚行对中国技术援助 (TA6617)-绿色循环经济零废物城市---项目介绍和进

Lerwen LIU, PhD in Physics
刘乐文,物理学博士
Consultant Lead
顾问组组长



ADB TA 6617-PRC: Green Circular Economy Zero Waste Cities

亚行对中国技术援助 (TA6617)-绿色循环经济零废物城市

Topics Coverage

循环经济主题

- **Circular Manufacturing: Industry Parks**
循环制造: 工业园区
- **Circular Consumption & Waste Management**
循环消费和废弃物管理
- **Circular E-commerce**
循环电子商务
- **Policy Framework Design**
政策框架设计
- **Multi-Stakeholders Engagement & Cross-ministry Coordination**
多利益相关者参与 和 跨部门协调
- **Pilot Project Design**
试点项目设计

Expertise

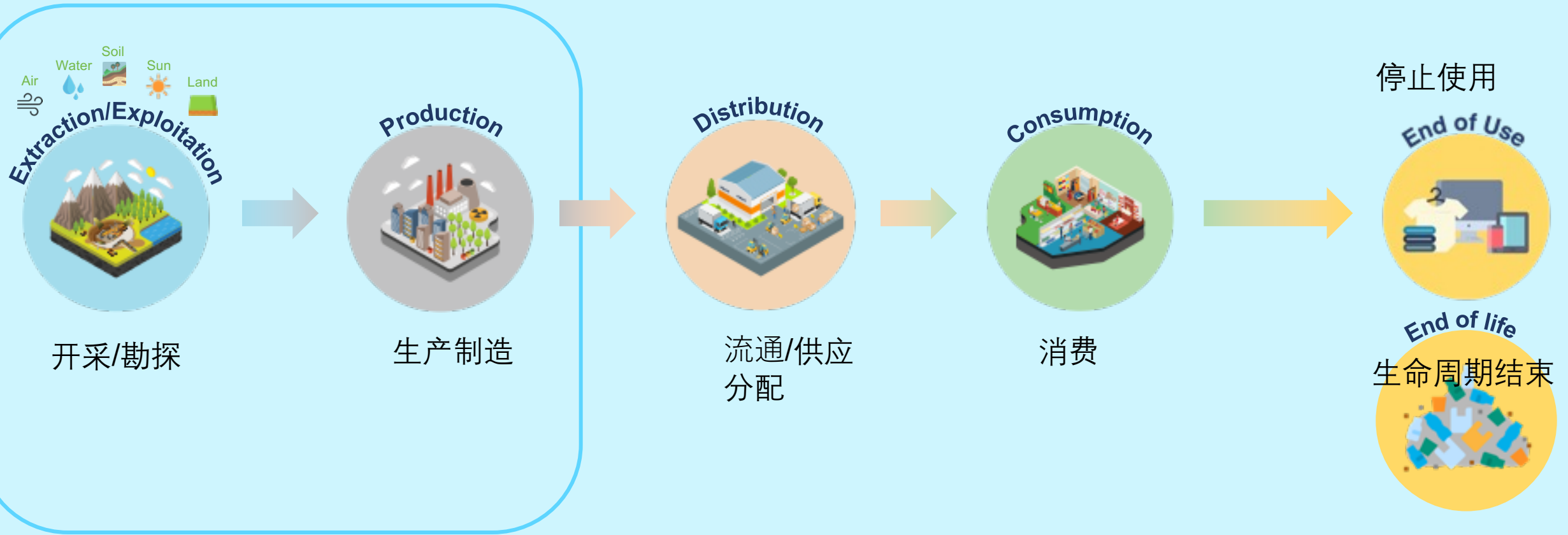
专业能力

- **Life Cycle Assessment**
生命周期评估
- **Global CE Policy & Standardization**
全球循环经济政策和标准制定
- **Circular Product Design**
循环产品设计
- **Industry Production & Energy**
工业生产和能源
- **Consumption & Waste Management**
消费和废弃物管理
- **Circular Supply Chain Management**
循环供应链管理
- **Circular Business Model**
循环商业模式
- **Capacity Development**
能力发展
- **International Best Practices**
国际最佳案例

CE Value Chain

循环经济价值链

Output 1: Strategic Plan for Transition to Green & Low Carbon Circular Production in Industrial Parks



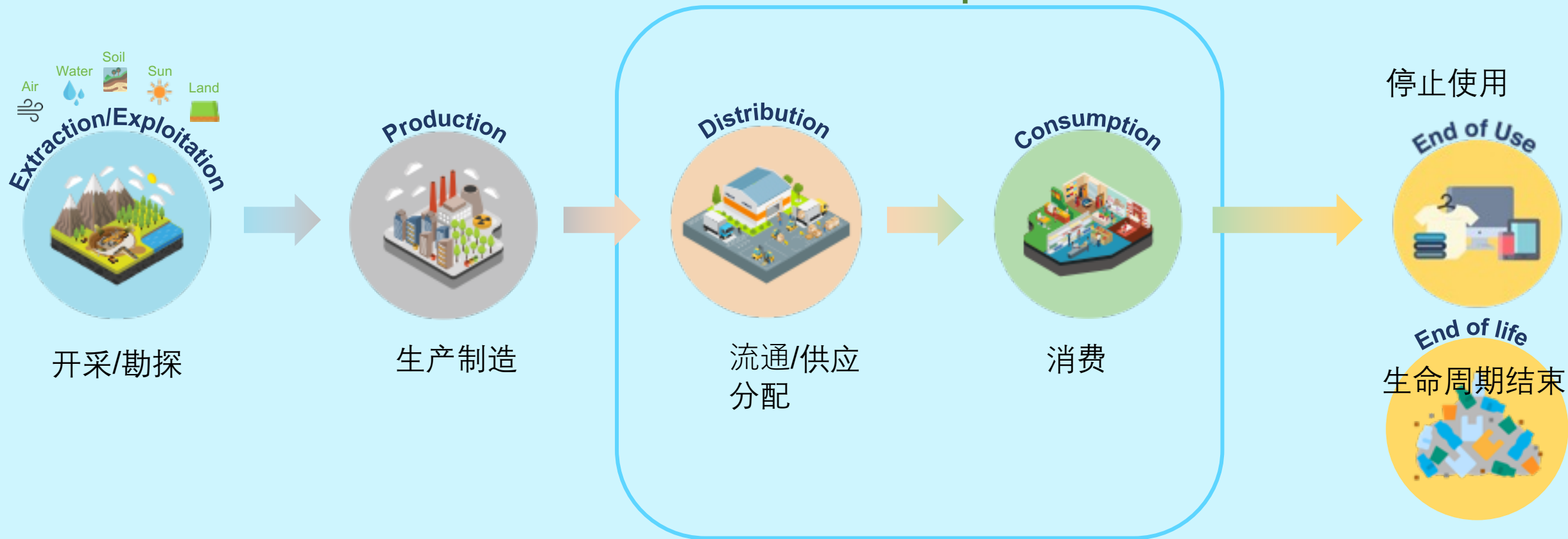
1.提高资源利用率；2.降低对环境的消极影响；3.浪费最小化

1. Improve resource efficiency 2. Reduce negative environmental impact 3. Minimize wastage

CE Value Chain

循环经济价值链

Output3: Green circular e-commerce packaging and logistics pilot program for the PRC Developed



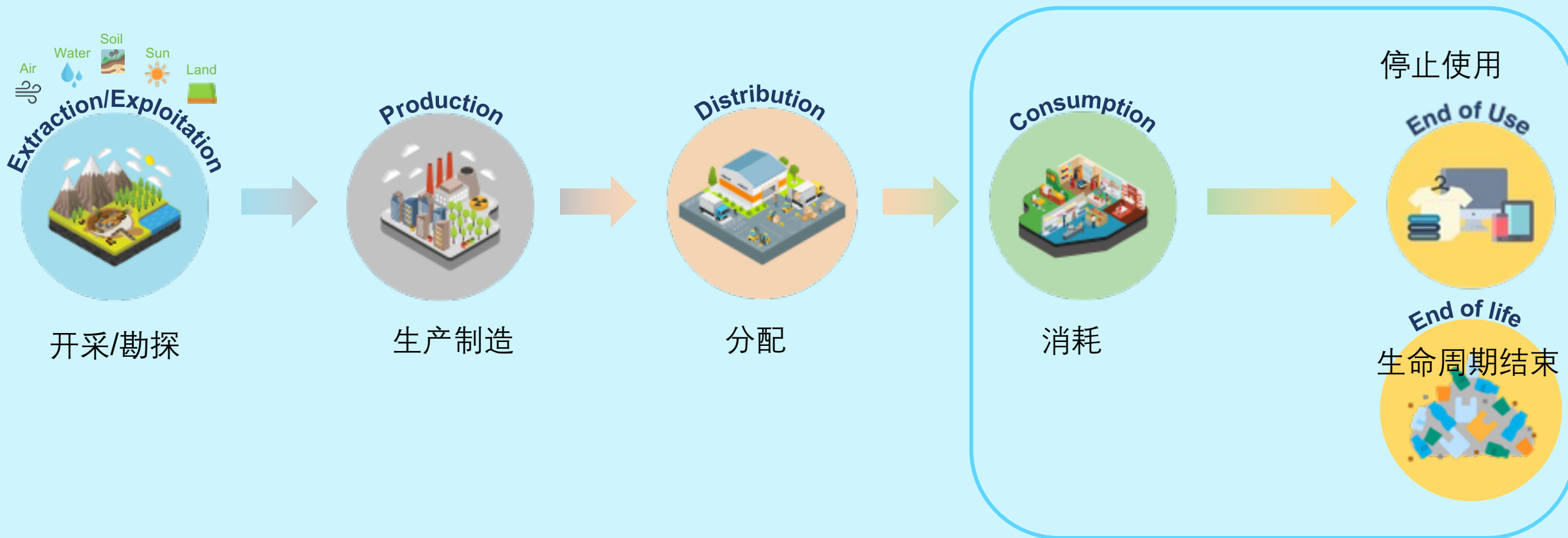
1.提高资源利用率；2.降低对环境的消极影响；3.浪费最小化

1. Improve resource efficiency 2. Reduce negative environmental impact 3. Minimize wastage

CE Value Chain

循环经济价值链

Output 2: Zero municipal waste action plan for Guangdong Province developed



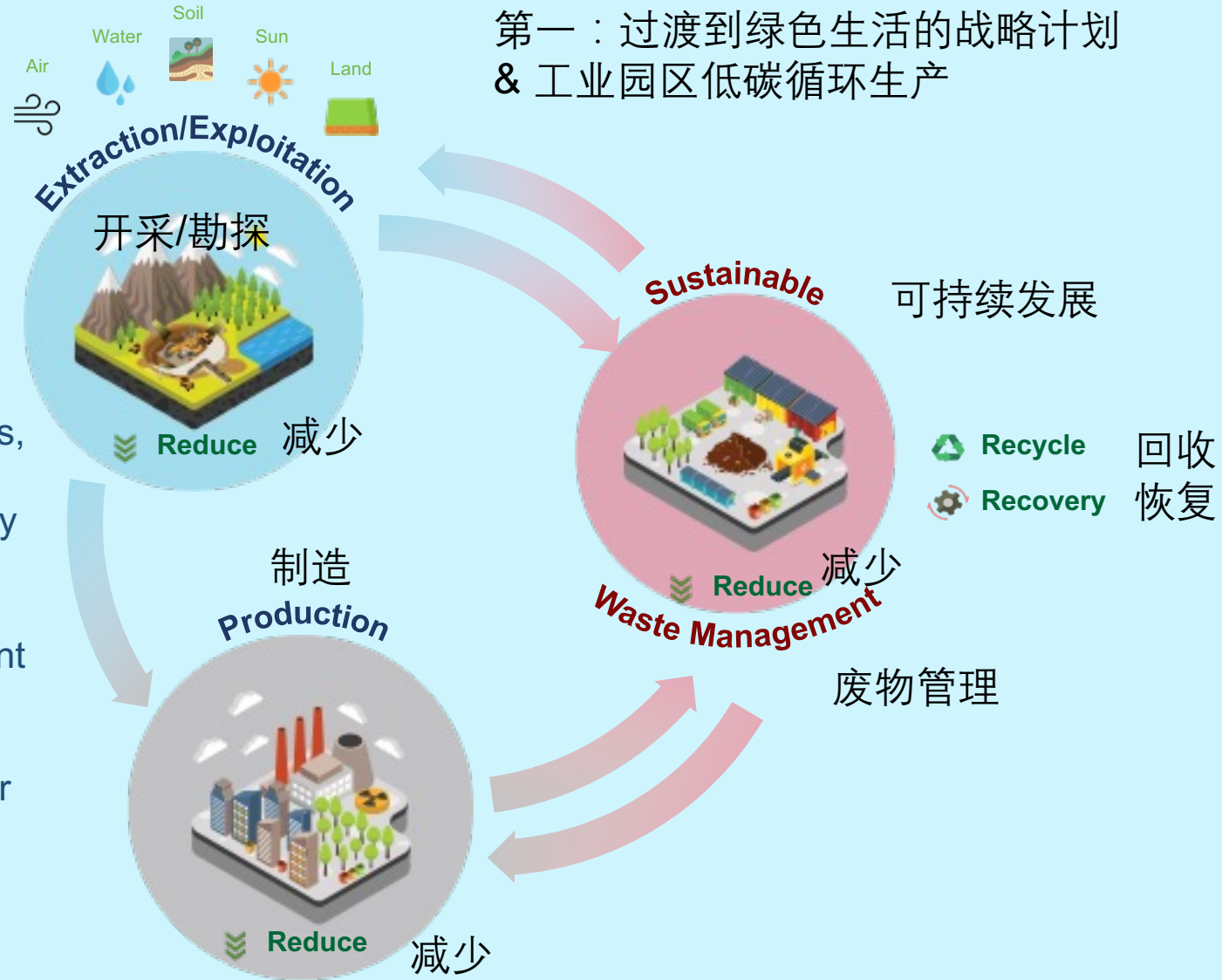
1.提高资源利用率；2.降低对环境的消极影响；3.浪费最小化

1. Improve resource efficiency 2. Reduce negative environmental impact 3. Minimize wastage

Output 1: Strategic Plan for Transition to Green & Low Carbon Circular Production in Industrial Parks

1. 识别挑战、机遇和市场失灵；
2. 设计技术指南、政策法规和试点项目；
3. 设计产业共生；
4. 确定减少污染物排放的解决方案；
5. 确定创造新就业机会，包括为穷人和妇女创造就业机会；
6. 提高认识并促进行为改变。

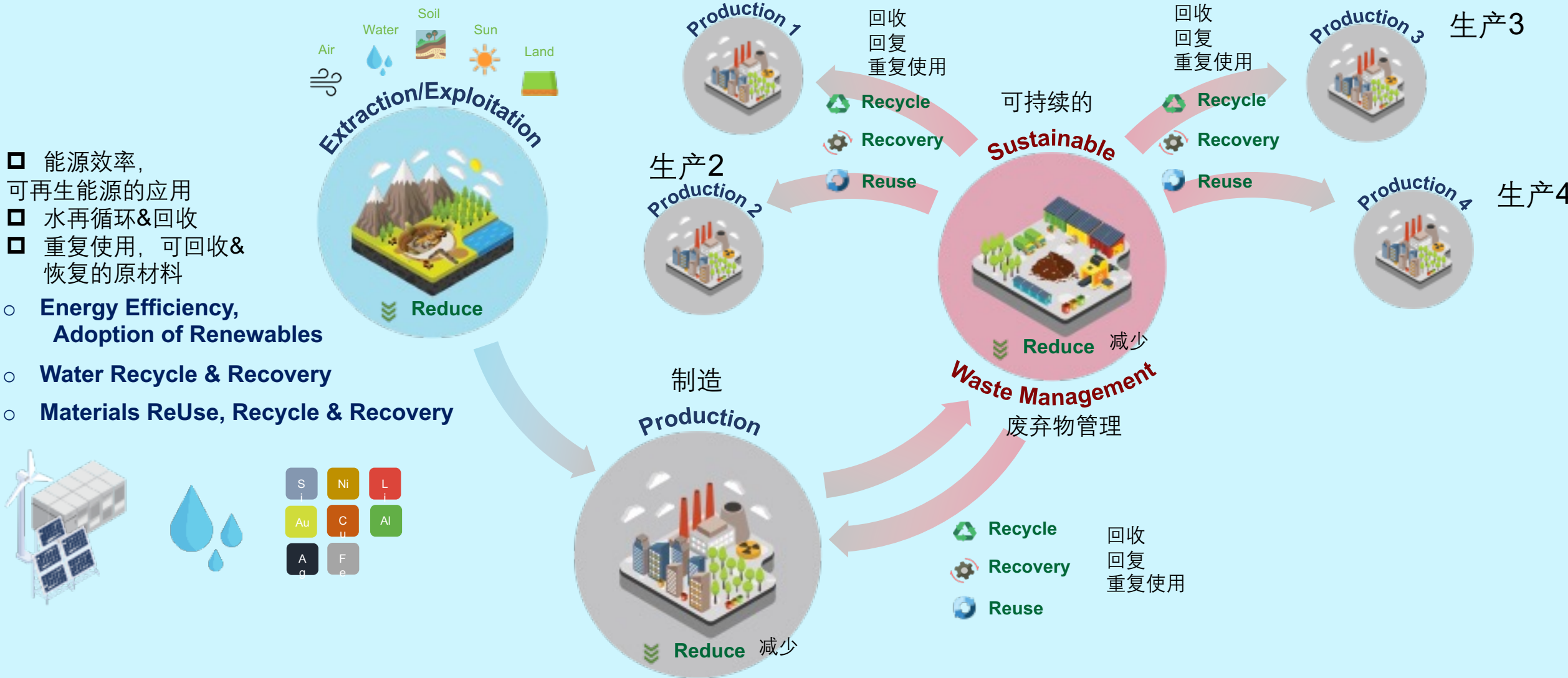
1. Identify Challenges & Opportunities, and Market Failure
2. Design Technical Guidelines, Policy & Regulations, and Pilot Project
3. Design Industry Symbiosis
4. Identify solutions to reduce pollutant emission and discharge
5. Identify opportunity for new jobs creation, including jobs for the poor and for women, and
6. Raise awareness and promote behavioral change



Industry Park Circularity

Industry Symbiosis: Waste to resource

工业园区循环
产业共生：变废为宝



- ☐ 能源效率, 可再生能源的应用
- ☐ 水再循环&回收
- ☐ 重复使用, 可回收&恢复的原材料

- **Energy Efficiency, Adoption of Renewables**
- **Water Recycle & Recovery**
- **Materials ReUse, Recycle & Recovery**



QingHai 14th 5-Year CE Action Plan – Industry Value Chain重点任务

- Extend the industrial value chain of comprehensive utilization of salt lake resources
- Improve the industrial value chain of the clean energy sector
- Expand the industry value chain of new materials.
- Create a whole industrial value chain of green organic agricultural and livestock products.
- Optimize the eco-tourism industry value chain
- Streamline the commercial and logistics industry supply chain
- Develop a Circular Industrial Value Chain of Waste Materials.
- 延伸盐湖资源综合利用产业链
- 完善清洁能源发展产业链
- 拓展新型材料产业链
- 打造绿色有机农畜产品全产业链
- 优化生态旅游产业链
- 畅通商贸物流产业链
- 培育废旧物资再利用资源化产业链

Key Actions 专项行动

Construction of a World-class Salt Lake Industrial Base.

National Clean Energy Industry Highland Construction Action

Actions to Create Zero-carbon Industry Demonstration Park

Cleaner Production Implementation Actions

Circularity Transformation Actions in Key Industry Parks

Core Logistics Hub Strong Base Action

Actions to Improve Basic Service Infrastructure for Eco-tourism

Special Actions for Plastic Pollution Control

Implementation Actions for the Green Transformation of Express Packaging

- **世界级盐湖产业基地建设行动**
- **国家清洁能源产业高地打造行动**
- **零碳产业示范园区创建行动**
- **清洁生产推行行动**
- **重点园区循环化改造行动**
- **核心物流枢纽强基行动**
- **生态旅游基础服务设施提升行动**
- **塑料污染治理专项行动**
- **快递包装绿色转型实施行动**



Propose to Establish the Qinghai Circular Solar PV Economy Base

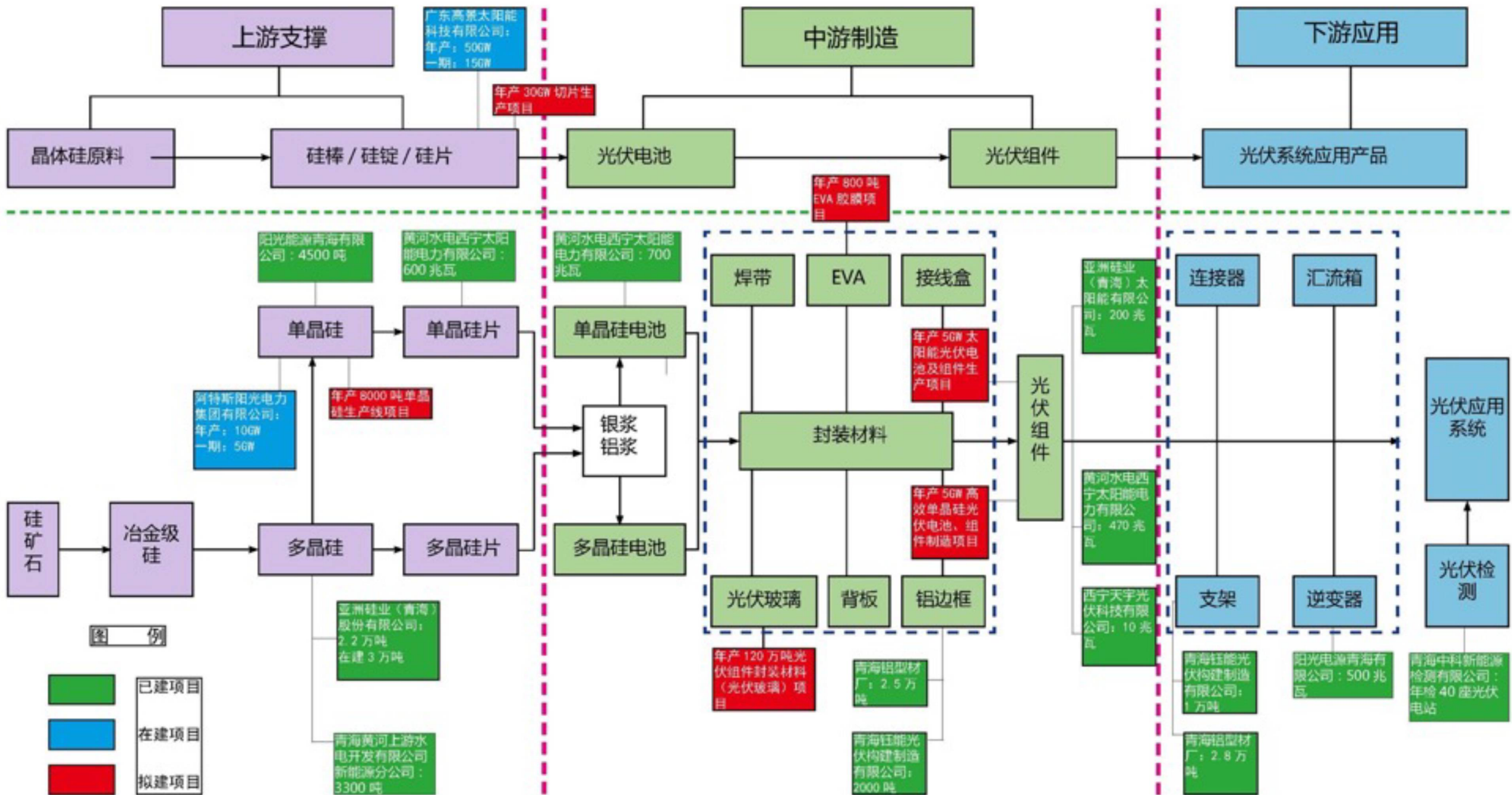
拟建立青海循环太阳能光伏经济基地

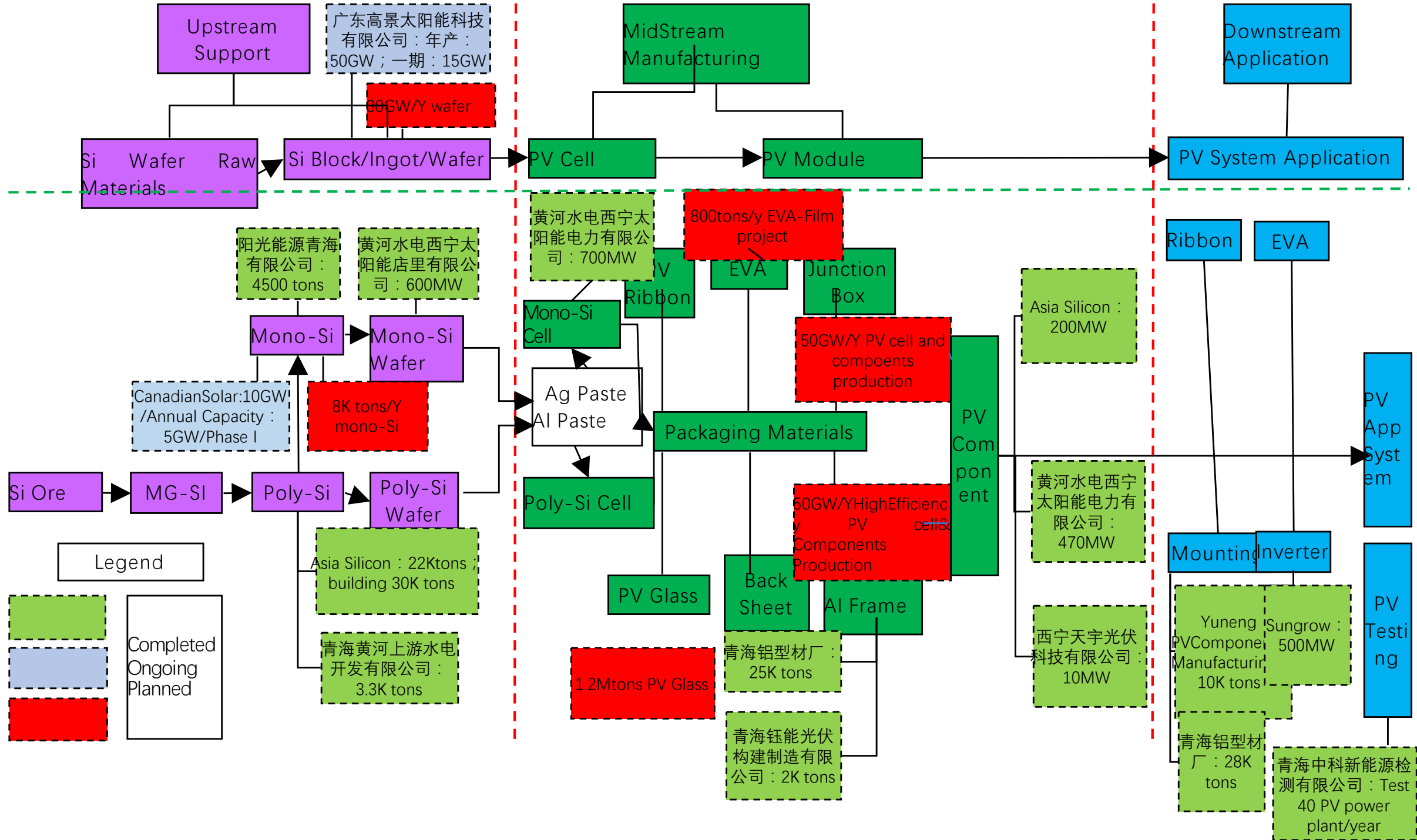
Work in progress- Ayman Elshkaki Presentation

进行中的工作 - Ayman Elshkaki 介绍

Current Solar PV Industry Value/Supply Chain

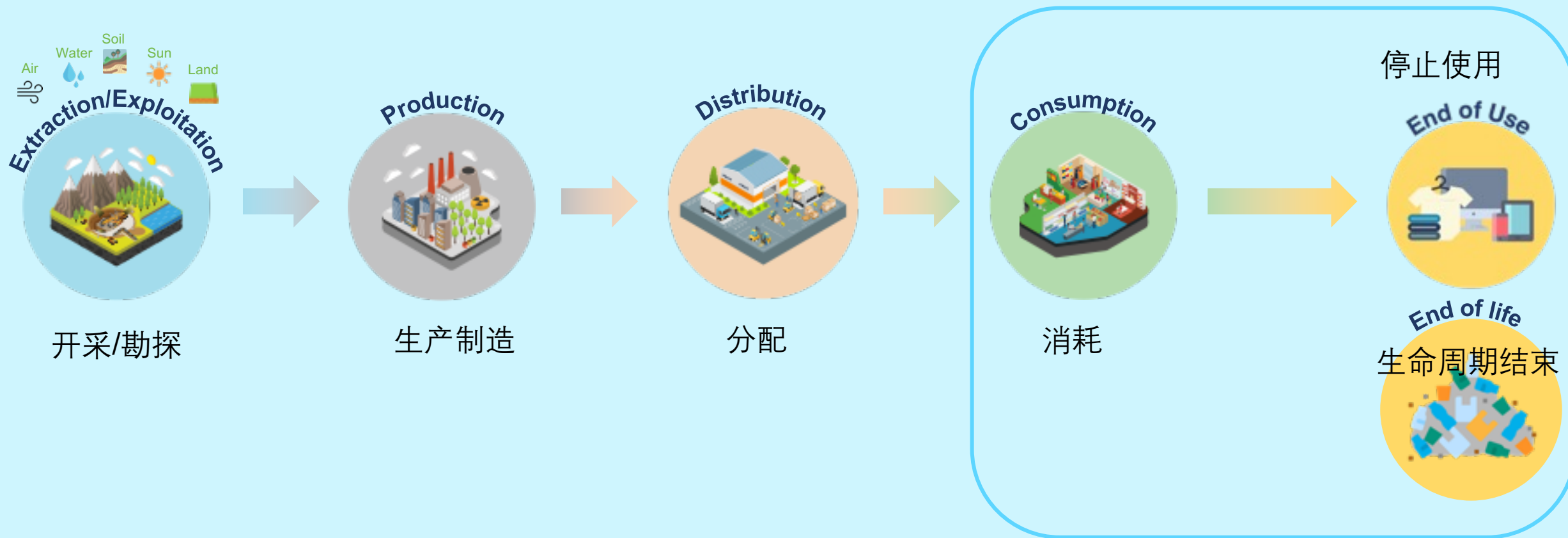
当前青海太阳能光伏产业价
值/供应链





CE Value Chain

循环经济价值链



Output 2: Zero municipal waste action plan for Guangdong Province developed

第二：广东省零城市废物排放行动计划



1. Focus on designing and prioritizing actions to significantly reducing municipal waste in Guangdong Province, with a goal of nearly full recovery of municipal waste,
 2. include research on and policy design for municipal waste classification and recommendations to efficiently manage segregation and recycling technologies in both highly developed urban centers and lesser developed towns and villages,
 3. The 3R principle will be applied in capacity development and in the action plan, and pilots will be designed to improve waste management and resource recovery,
 4. City governments, communities, households, and local businesses will be engaged through public awareness raising initiatives and government incentives will be proposed to encourage industry and people to do the "right things" (e.g., designing green products aimed at reducing or eliminating waste),
 5. propose options for government-imposed disincentives—such as charges, taxes, and levies—for doing the "wrong things" (e.g., continuing to produce waste and use up natural resources).
1. 重点设计和优先考虑广东省显著减少城市垃圾的行动，显著加快城市垃圾回收的效率；
 2. 协助广东省在发达城市和欠发达城市制定有效的城市垃圾管理政策（包括制度、实施机制、流程、管理、评估和回收技术）；
 3. 将 3R 原则应用于能力发展和行动计划中，并设计试点以改善废物管理和资源回收，重点关注有机废物、可回收废物和危险废物；
 4. 通过提高公众意识的举措，让市政府、社区、家庭和当地企业参与进来；
 5. 提出政府激励措施，鼓励工业和居民做“正确的事情”（例如，设计和消费旨在减少或消除浪费的绿色产品）；
 6. 为政府强加的抑制措施（例如收费、征税）提出选项，以防止做“错误的事情”（例如，继续产生废物和消耗自然资源）。

Circular Economy 循环经济



食物/有机废物

Food / Organic Waste



-  **Reduce** 减少
-  **Recycle (Compost)** 回收 (堆肥)

Circular Economy

循环经济



可回收的废弃物

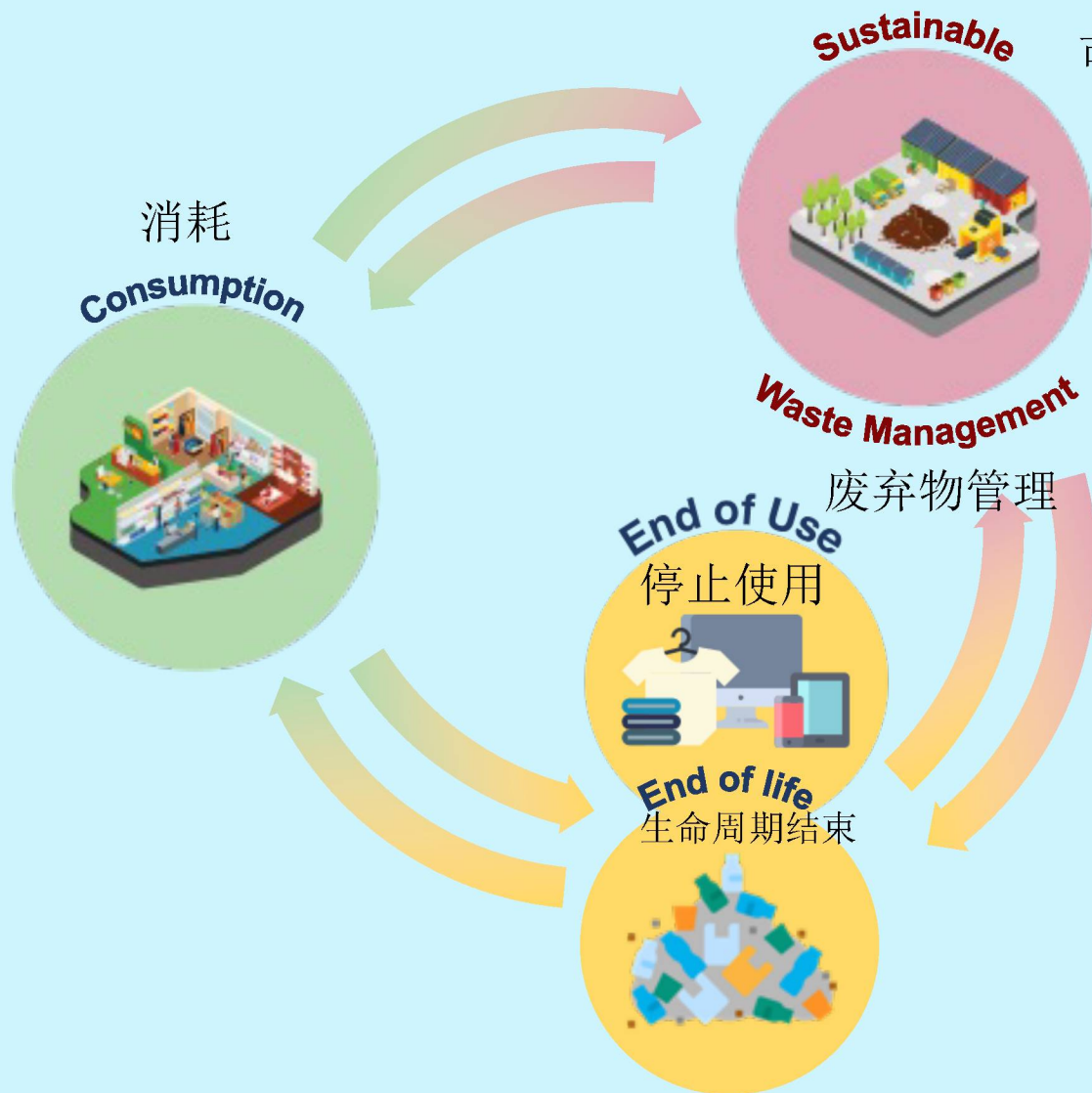
Recyclable Waste



- Reduce** 减少
- Reuse** 重复使用
- Repair** 修复
- Recycle** 回收

Circular Economy

循环经济

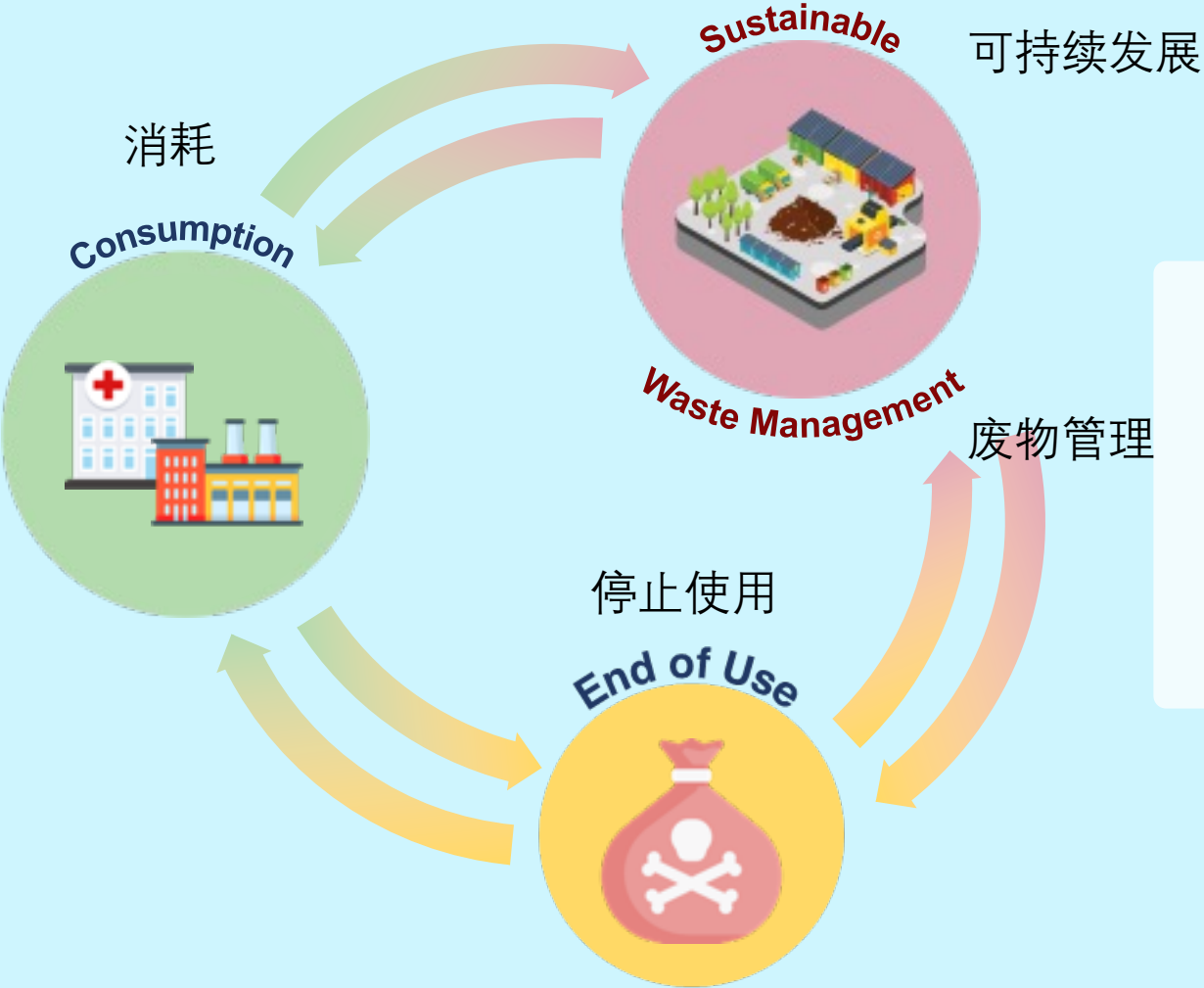


可回收的废弃物
Recyclable Waste

Icons representing various types of recyclable waste: paper, plastic bottles, a metal can, and a cardboard box.

	Reduce	减少
	Reuse	重复使用
	Repair	修复
	Recycle	回收

Circular Economy 循环经济



有害废物

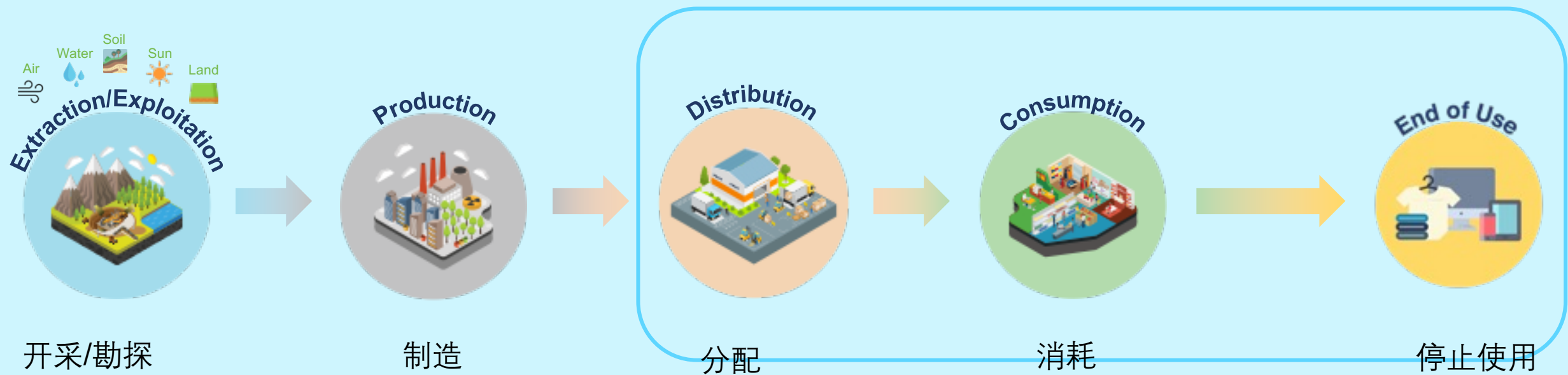
Hazardous waste



Reduce 减少

Recovery 恢复

CE Value Chain



Output 3: Green circular e-commerce packaging and logistics pilot program for the People's Republic of China Developed

第三：中国电商包装和物流的绿色循环试点项目

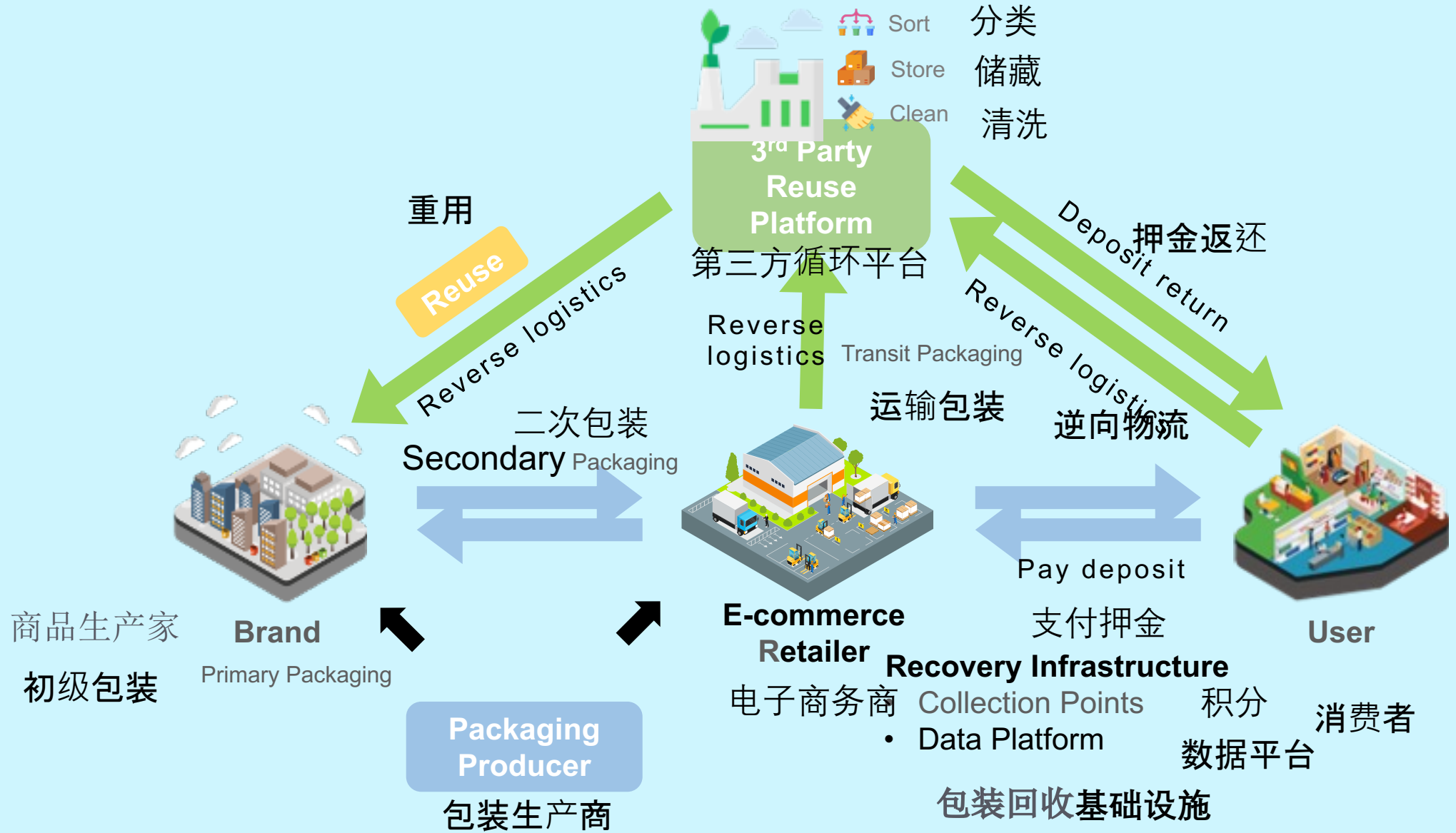
1. Focus on the important emerging challenge of reducing plastic pollution caused by significantly increasing e-commerce and food delivery, and associated packaging and logistics
2. Support the development of a national pilot program customized for cities of various types, sizes, and development levels, engaging market players in e-commerce and logistics
3. Explore new forms of recyclable and/or reusable packaging, logistics, and distribution equipment and facilities with the goal of creating a green supply chain in which single-use plastics are eliminated
4. Design for a pilot program to include options for market-based instruments and business models



1. 关注如何减少因电商和食品配送以及相关包装和物流显著增加而造成塑料污染的重要新挑战；
2. 支持针对不同类型、不同规模、不同发展水平的城市开展国家试点，吸引电商和物流市场的主体参与进来；
3. 探索可回收和/或可重复使用的包装、物流和配送设备和设施的新形式，以创建消除一次性塑料的绿色供应链；
4. 设计试点项目，包括市场工具和商业模式的选择。

Business Model Reuse Packaging for E-Commerce

商业模式: 电子商务的循环快递包装



Pilot Proposal (NDRC)- 组织开展可循环快递包装规模化应用试点 -试点主要内容

- 提升可循环快递包装产品绿色设计和标准化水平
 - 培育可循环快递包装可持续使用机制
 - 发挥电商平台可循环包装推广应用作用
 - 完善可循环快递包装基础设施
 - 创新可循环快递包装回收模式
 - 健全可循环快递包装调拨运营网
- To improve the green design and standardization of reusable express delivery packaging products
 - To identify the mechanisms for sustainable adoption of reusable packaging
 - To encourage e-commerce platforms to play a role in the promotion and adoption of reusable packaging
 - To improve the infrastructure for re-usable express packaging recovery
 - To innovate reusable packaging recovery modes
 - To improve reusable packaging allocation/logistics operation network



Circular Economy needs all stakeholders cooperation

循环经济需要所有利益相关者的合作



停止使用

End of Use

教育家

Educators

消费

Consumption

消费者

消费者

媒体

Media

物流

Distribution & service

分配和服务

Remanufacture/
Recycle/
Recover

Manufacture

Researchers

Production

制造

投资者

Investors

制造者

Producer

环境

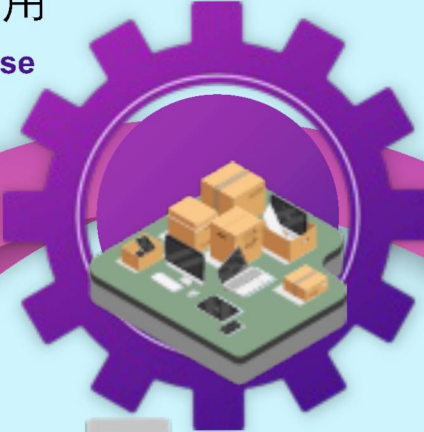
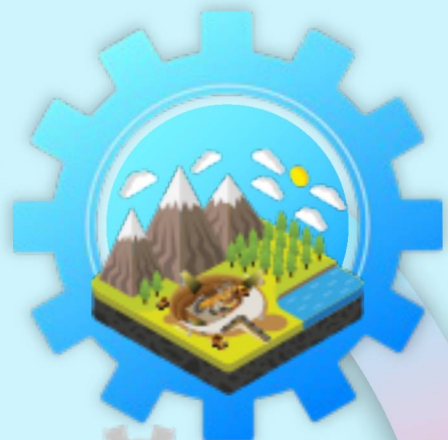
Environment

政策制定者

Policy
Makers

开采

Extraction





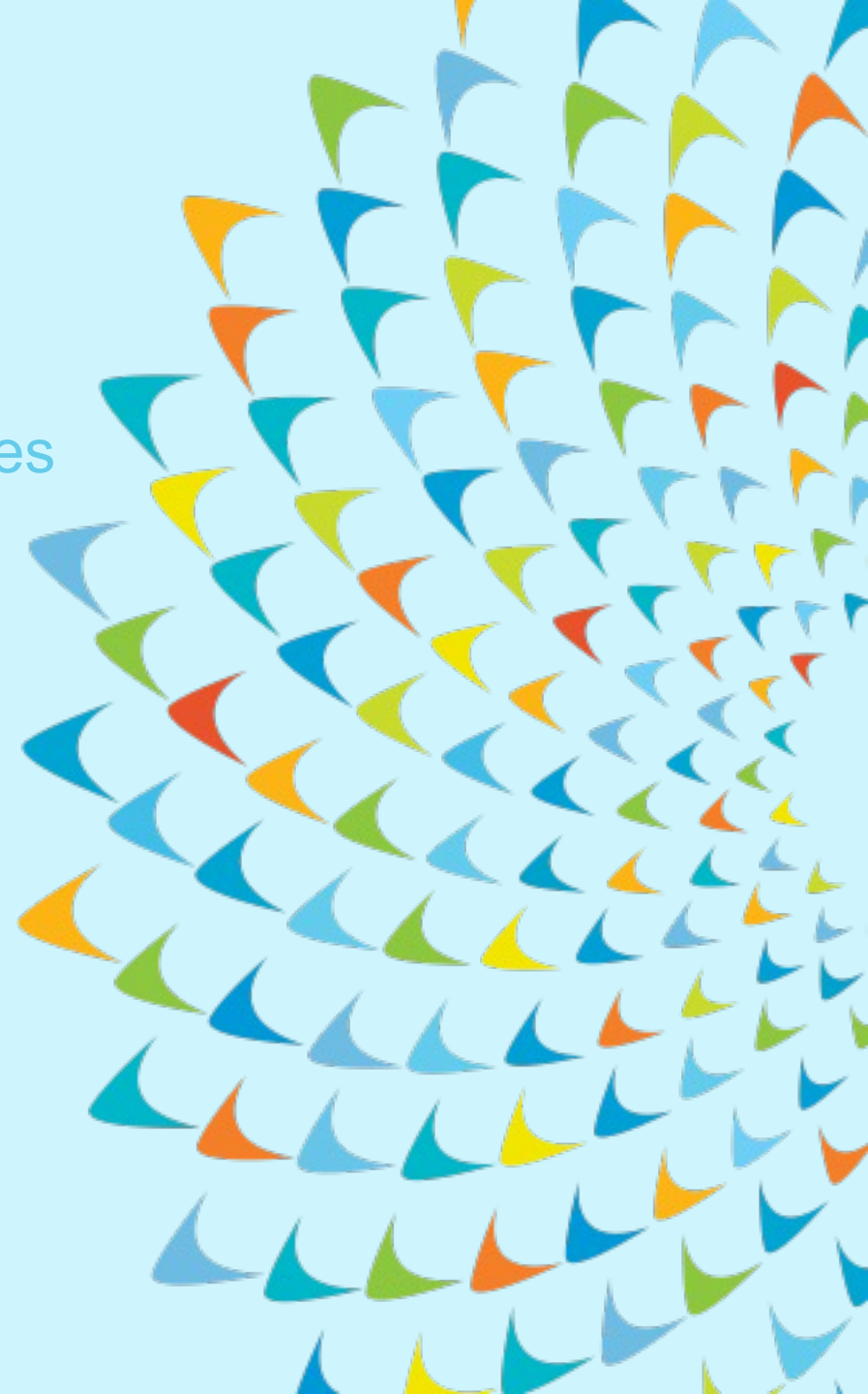
ADB TA for Circular Economy in the PRC,
Guangdong Province and International Experiences

亚行的发展路线图
广东省的循环经济
和国际经验

Thank you for your interest
感谢您对我们工作的支持。

lerwen@yahoo.com

lerwen67@gmail.com





刘乐文 Dr. Lerwen Liu

- 她专门从事新兴技术、循环经济和可持续性方面的业务发展和教育。
- 她专注于新兴技术的战略、评估和支持，包括纳米技术和人工智能在所有领域的应用。
- 凭借 20 年的全球业务发展实践经验，刘博士在开发可持续解决方案以应对当今人类面临的挑战方面为政府、行业和学术界架起了桥梁。
- 她曾在发达国家和发展中国家工作，专注于青年领导力和企业家精神的可持续发展。

- She specializes in business development and education in emerging technologies, circular economy, and sustainability.
- She focuses on strategy, assessment, and support of emerging technologies, including nanotechnology and Artificial Intelligence, with applications in all sectors.
- With her 20 years of practice in global business development in strategic partnership & communication, and marketing, Dr. Liu bridges government, industry, and academics in developing sustainable solutions to address the challenges humanity is facing today.
- She has worked in both the developed and developing world focusing on youth leadership and entrepreneurship development towards sustainability.

- 她是 NanoGlobe 的创始董事总经理，这是一家可持续和新兴技术的战略咨询公司。
- 她是 World Scientific 于 2009 年出版的“新兴纳米技术力量：亚太地区的纳米技术研究和商业趋势”的编辑。

- She is the founding managing director of NanoGlobe, a strategic consultancy on sustainable technologies.
- She is the editor of “Emerging Nanotechnology Power: Nanotechnology R& D and Business Trends In The Asia Pacific Rim published by World Scientific in 2009.