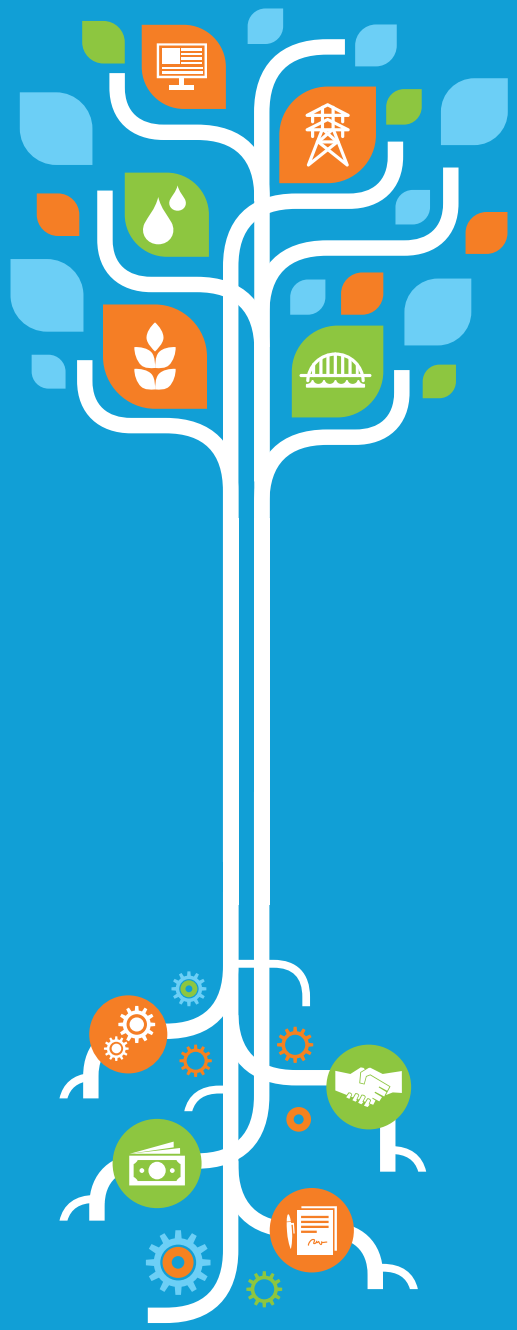


ADB

Circular Economy and Urban Development

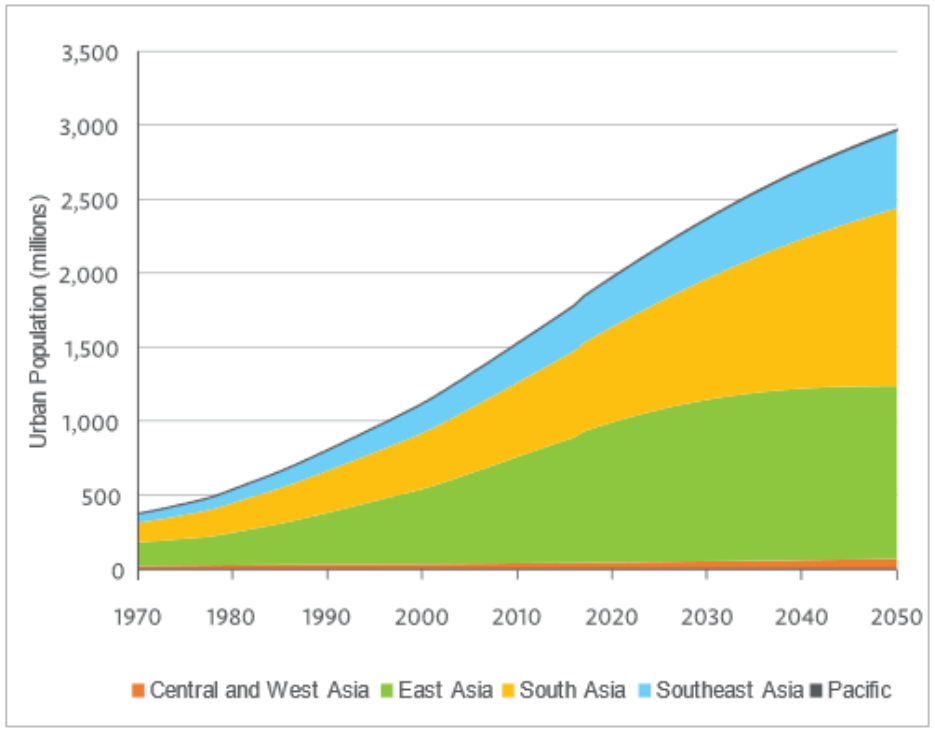
14 July 2022

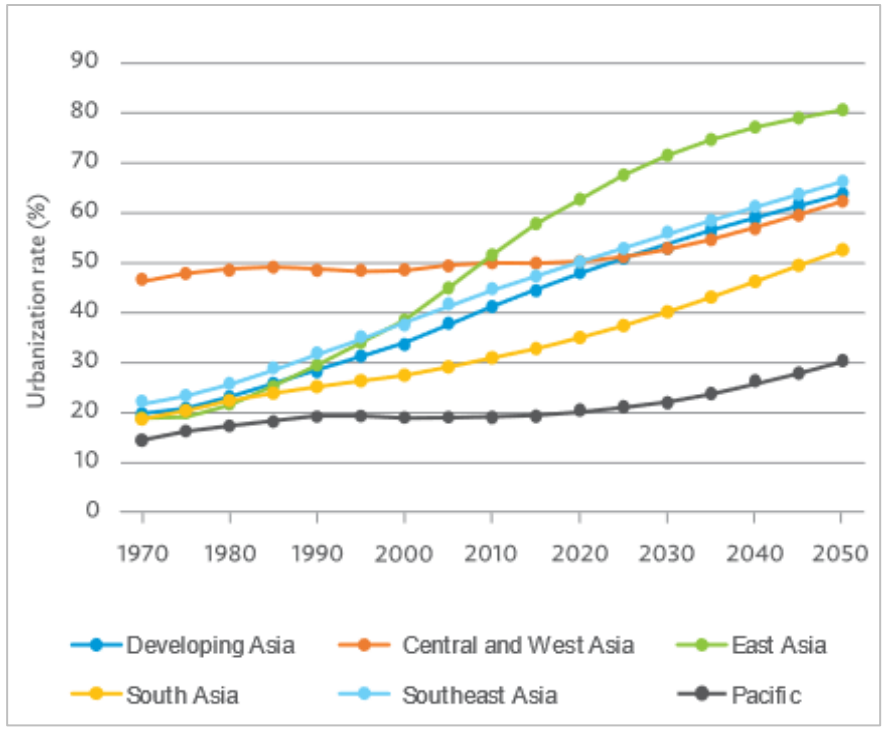
Presented by Terry Cho
Senior Urban Development Specialist (waste management),
Urban Sector Group, Sustainable Development
and Climate Change Department

BUSINESS OPPORTUNITIES

Urbanization Trends Asia-Pacific Region

- *The Asia and Pacific region is home to more than 56% of the world's total population, 54% of the world's urban population.*
- *Of the 36 cities that grew more than twice as fast as the global annual average rate of 2.4% between 2000 and 2018, 28 cities are located in Asia.*

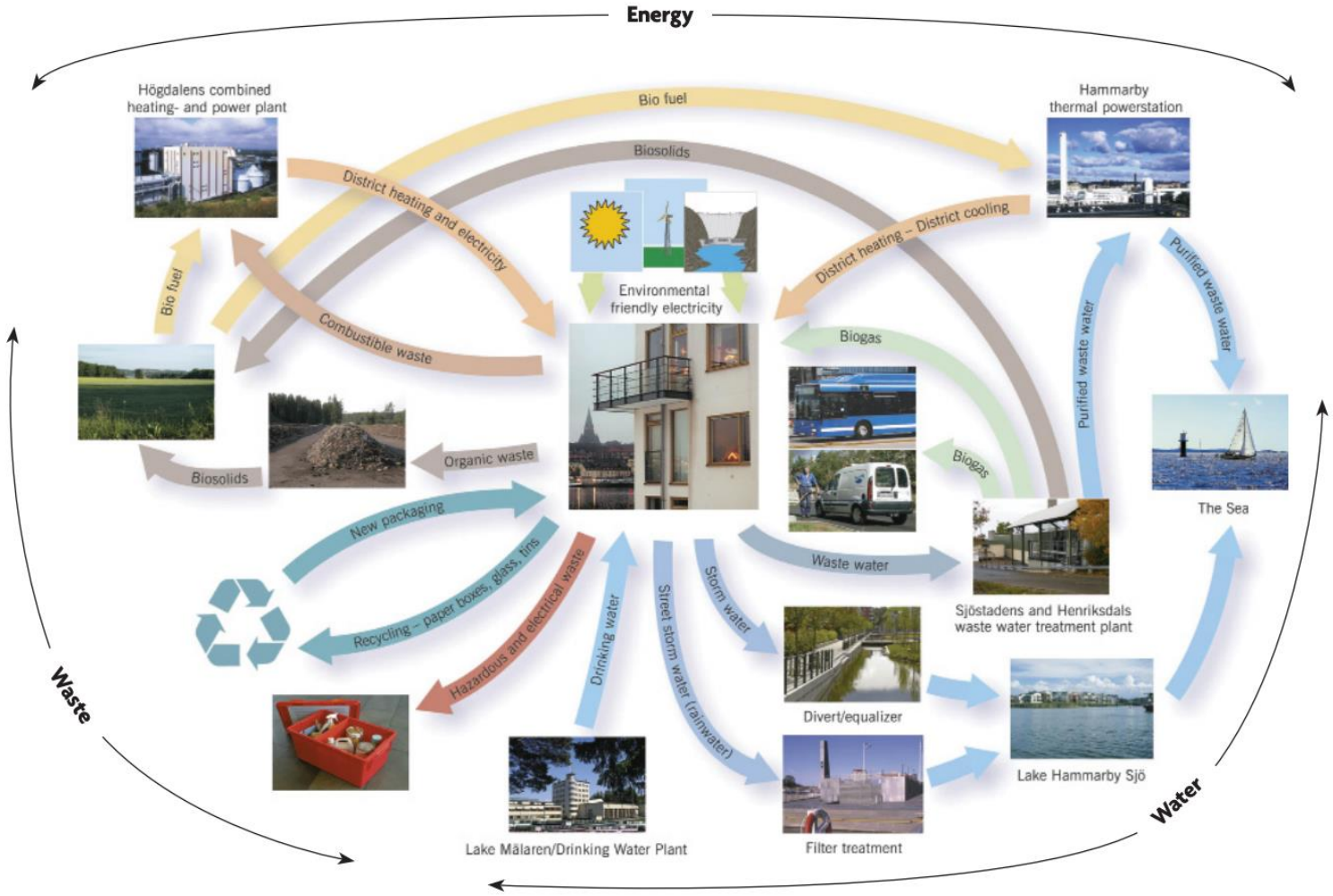




BUSINESS OPPORTUNITIES

Urban Planning and Circular Economy

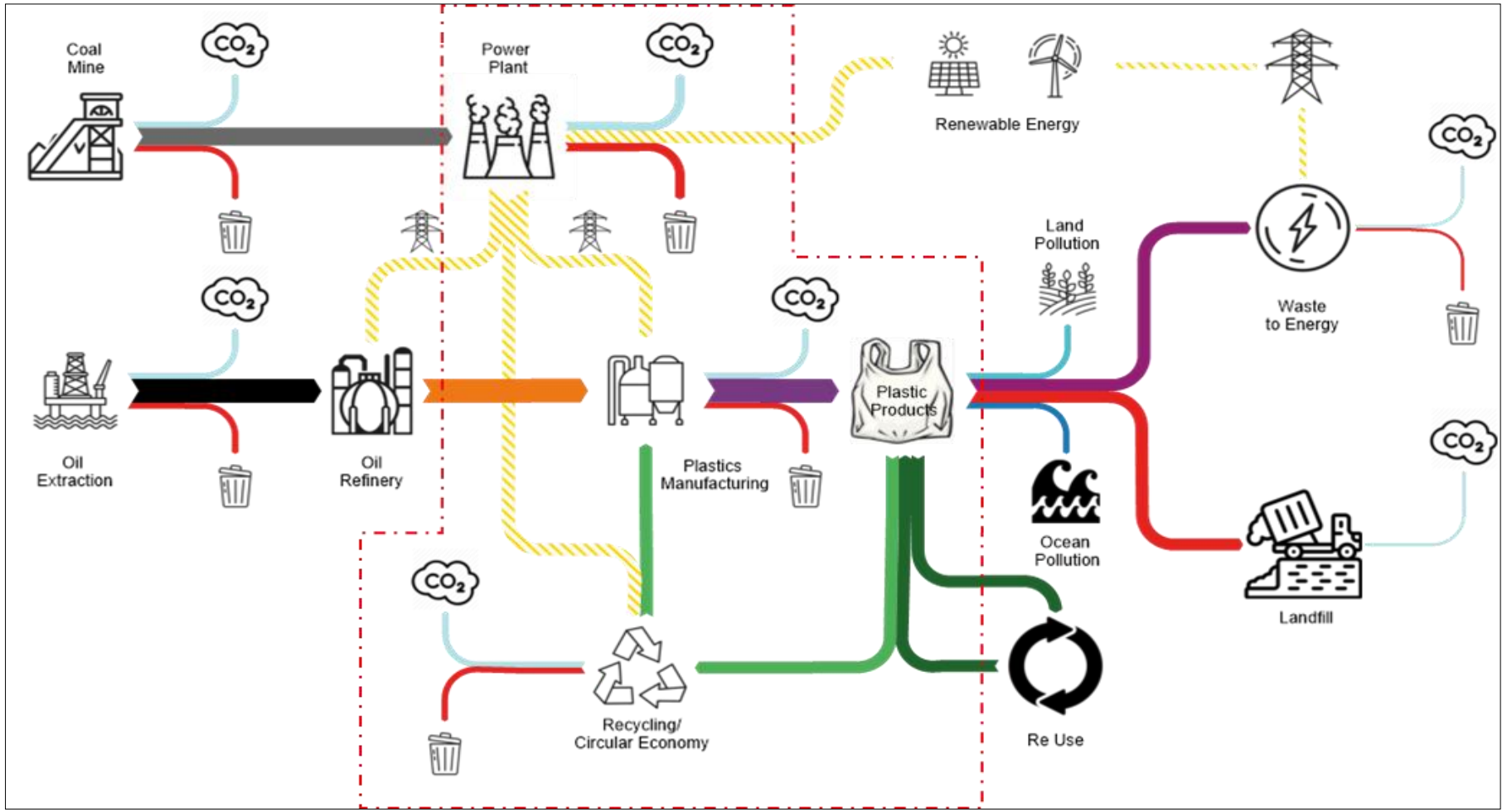
- *The Hammarby Model: Integrated Planning and Management*



BUSINESS OPPORTUNITIES

Urban Development and CE (ISWM)

- *Intervention Points between ISWM and the Circular Economy*



BUSINESS OPPORTUNITIES

ISWM case in Island State of South Asia

MLD: Greater Malé Environmental Improvement and Waste Management Project

The project will establish a sustainable solid waste management (SWM) system in the Greater Malé area by (i) establishing a modern waste collection, transfer, treatment (waste-to-energy), and disposal system; (ii) improving outer island waste management systems; (iii) building institutional capacity for sustainable services delivery; and (iv) raising public awareness on sustainable behaviors.

Issues and Problems: the Greater Malé capital region and its outer islands suffer from severe environmental pollution and deteriorating livability because of the inadequate collection and haphazard disposal of solid waste. Plumes of smoke compromise air quality and pose a daily nuisance to residents and tourists, while toxic leachate contaminates soil and marine environment.

Approach and Project design: Integrated intervention from collection to disposal. Phased approach to match implementation capacity and achieve high project readiness (15 ha land reclaimed). Design-build and operate contract for the complex 500 t/d waste-to-energy (WTE) plant to build long-term capacity. HLTF support and twinning program with WTE model operators in Japan. Climate resilient project design (min 1.6 meters elevation, storm water and costal protection).

Impact and Value addition: (i) healthy living environment with positive impact on tourism and fisheries; (ii) climate change mitigation and adaptation; and (iii) sustainable energy generated (8MW).

OP2 | OP3 | OP4 | OP6

Phase 1

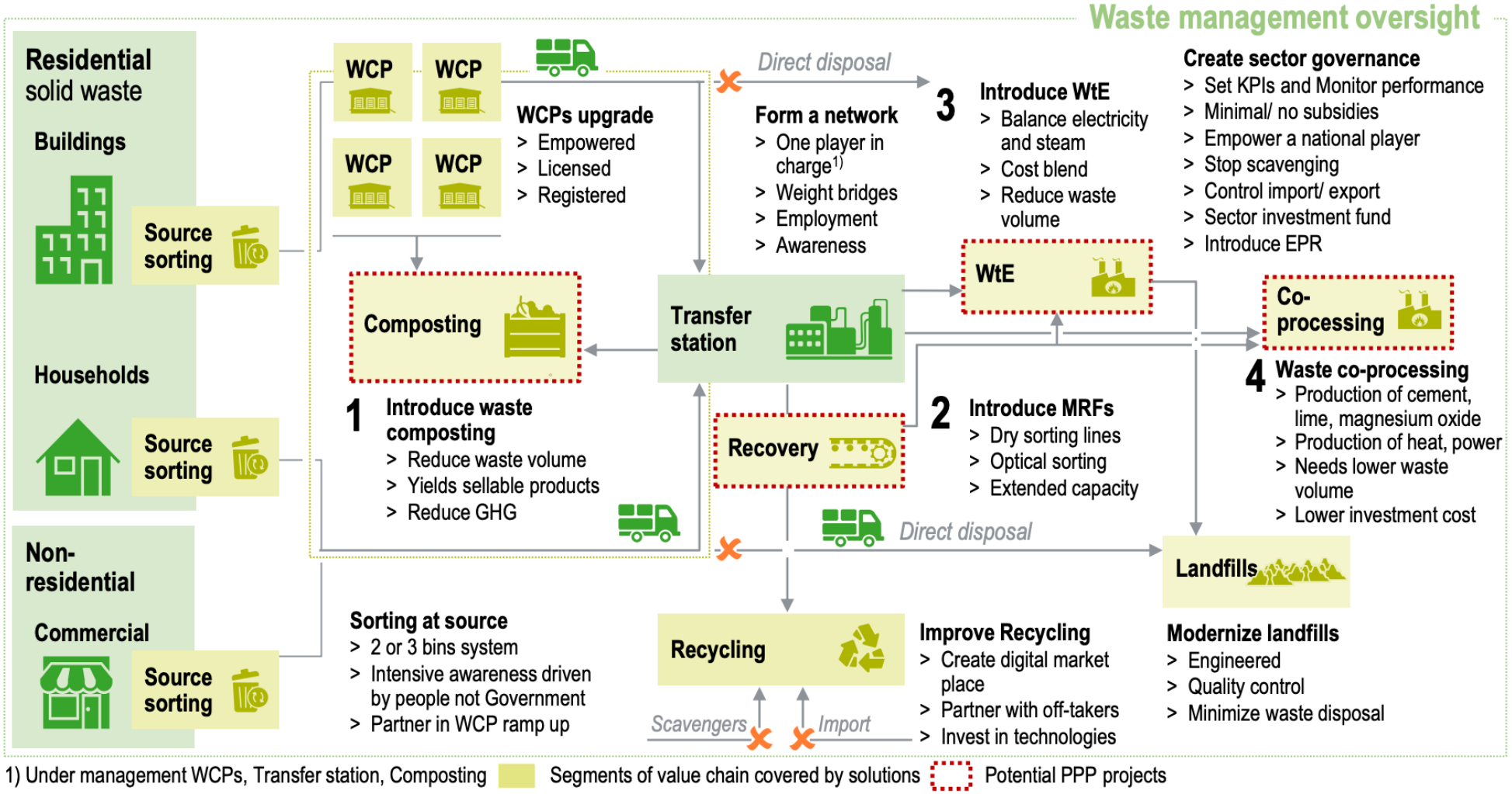
Approval Date	:	28 June 2018
Commitment Date	:	24 October 2018
Completion Date	:	31 December 2023
Modality	:	Project grant
Total	:	$40 million
ADB	:	$33 million ($2 million JFPR)

Phase 2

Approval Date	:	Q2 2020 (proposed)
Commitment Year	:	2020
Completion Date	:	2025
Modality	:	Project grant/loan
Total	:	$146 million
ADB	:	$70 million ($10 million JFJCM)
AIIB	:	$40 million
ISDB	:	$15 million

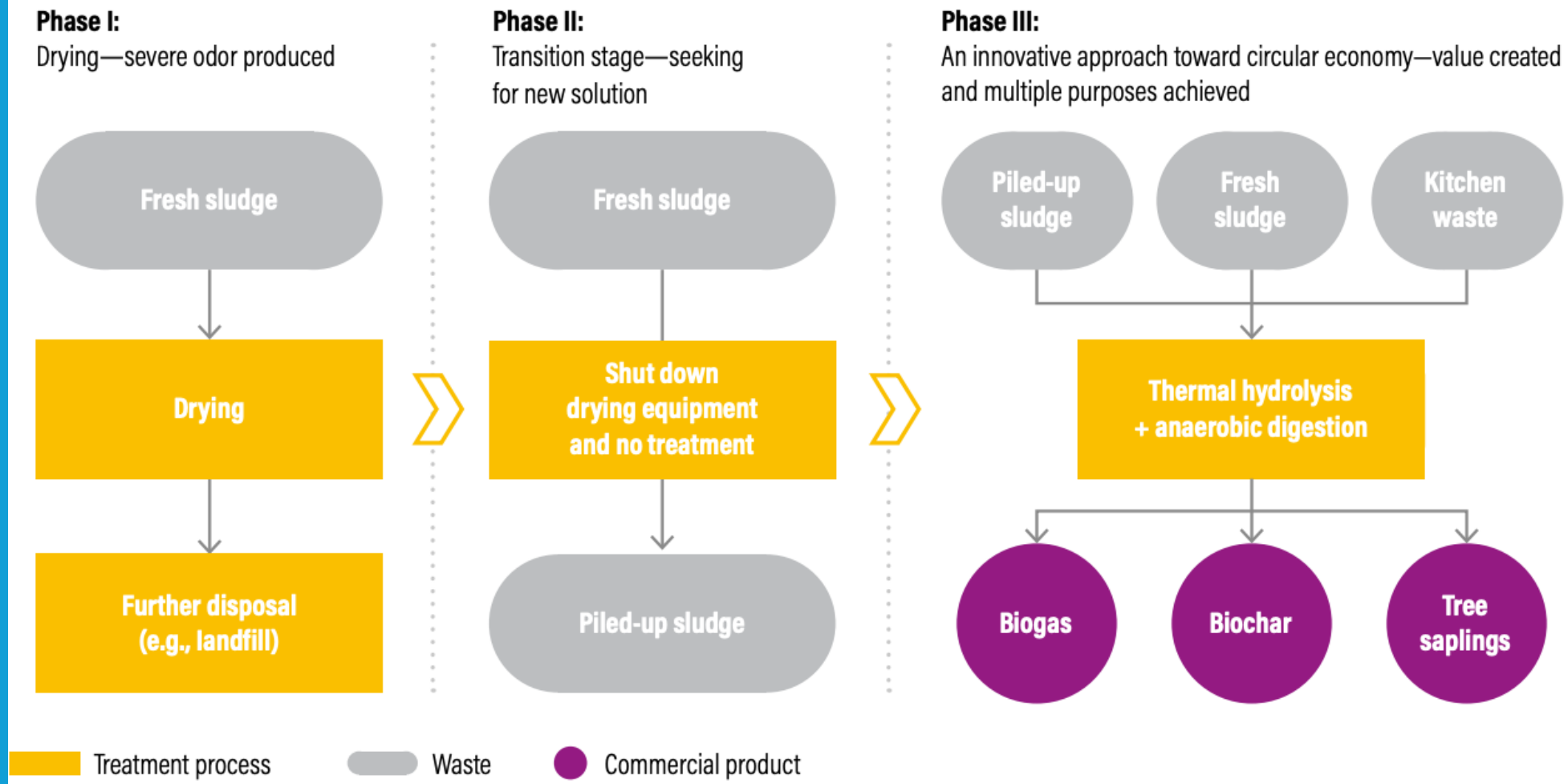
BUSINESS OPPORTUNITIES

ISWM PPP case in Central West Asia



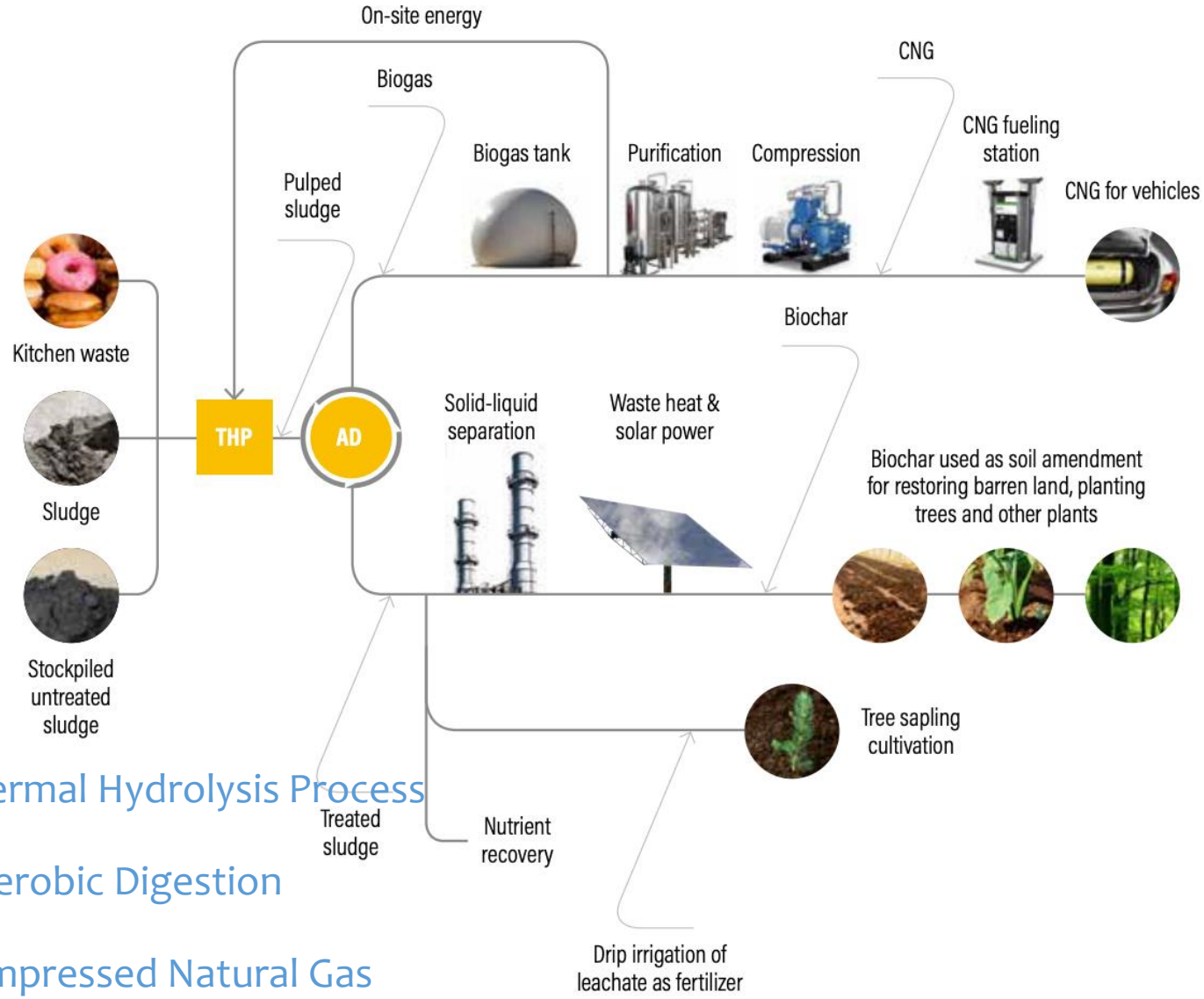
BUSINESS OPPORTUNITIES

Sewage Sludge Reuse Options Evolution



BUSINESS OPPORTUNITIES

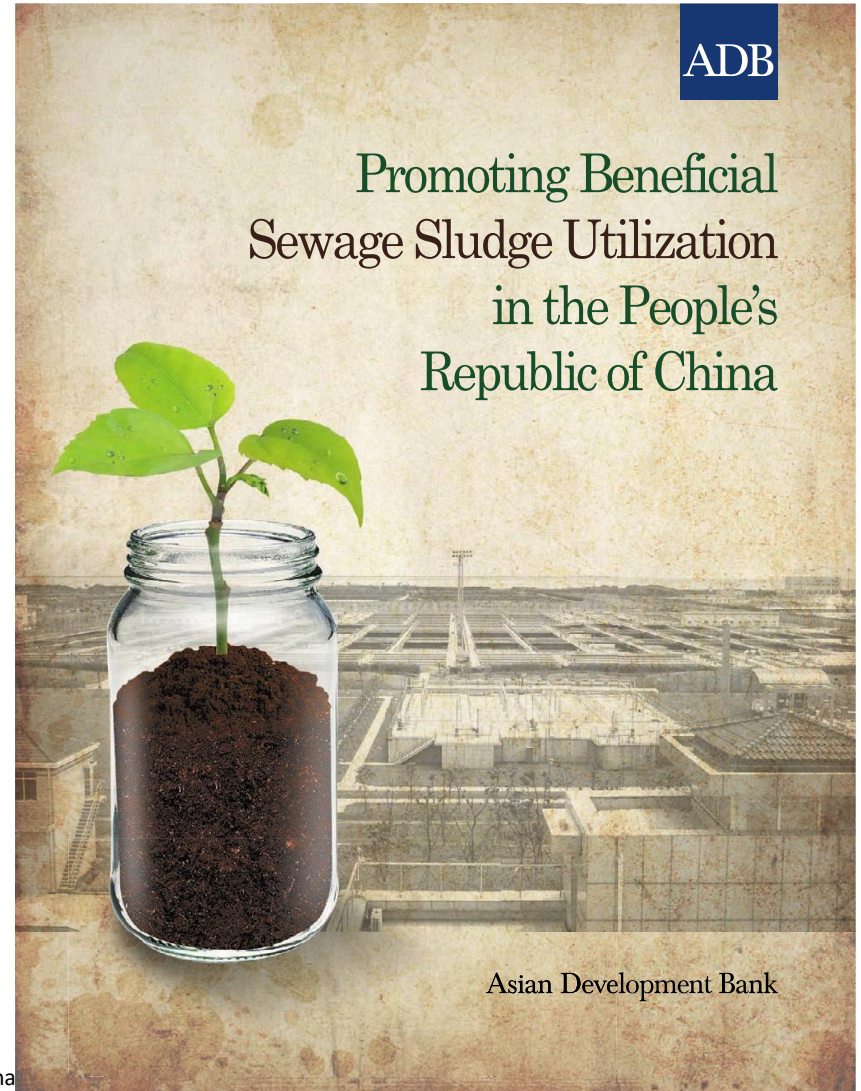
Sewage Sludge Reuse - Energy Recovery

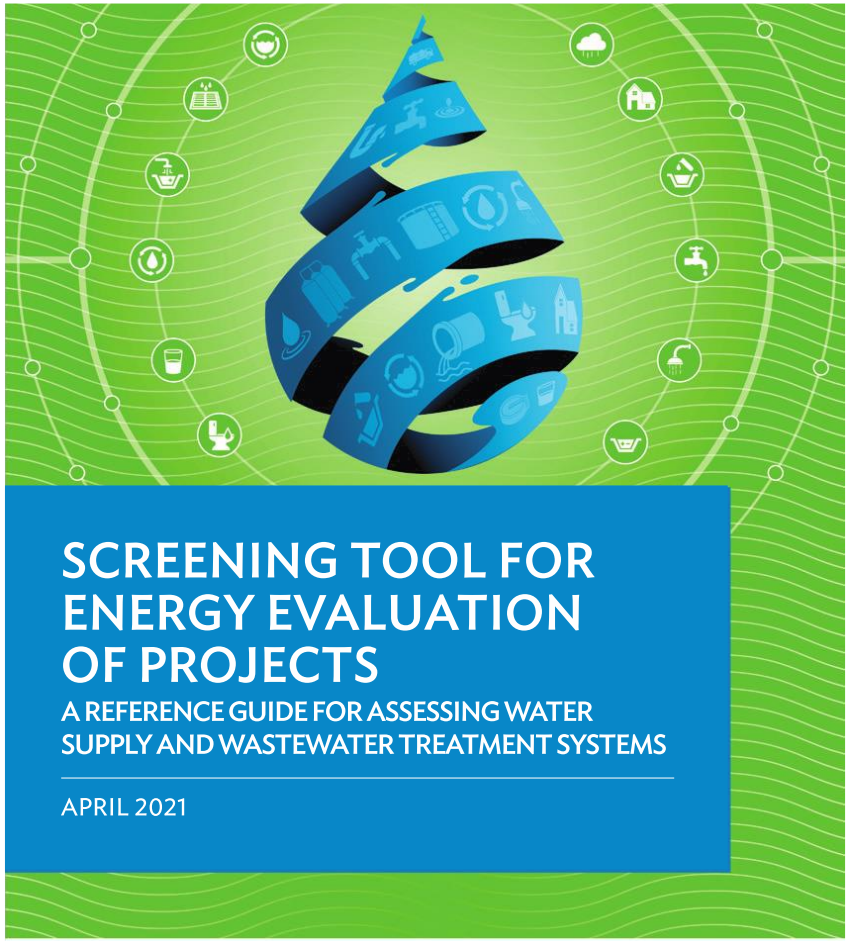


- THP – Thermal Hydrolysis Process
- AD – Anaerobic Digestion
- CNG - Compressed Natural Gas

BUSINESS OPPORTUNITIES

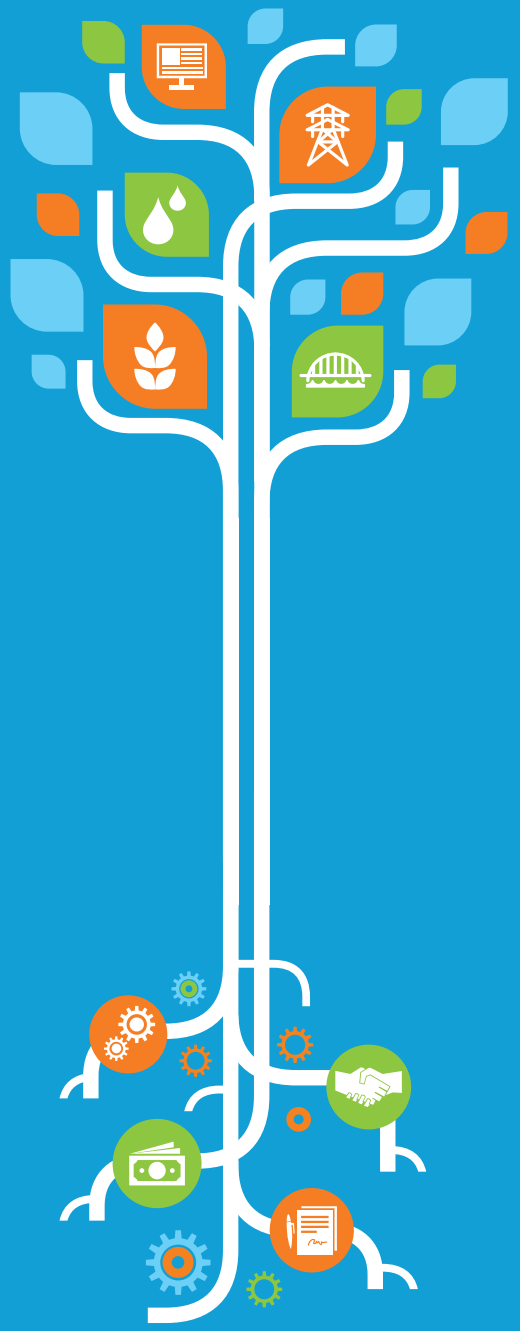
Knowledge and Capacity Development on Sewage Sludge Reuse and Energy Assessment of WW Treatment System





BUSINESS OPPORTUNITIES

Mana



BUSINESS OPPORTUNITIES

THANK YOU!

Terry Cho

Senior Urban Development Specialist, USG/SDCC

sicho@adb.org

ADB

Ningbo MSW Minimization and Recycling Project - Zero Waste Cities Initiative

Existing waste disposal – WTE, landfill shartfall of 1,000 tons per day capacity




Existing waste collection and transfer – aging facilities, low efficiency, smelly




Ningbo MSW Minimization and Recycling Project - source separated waste collection

Recyclables

Hazardous waste

Kitchen waste

Other waste

waste collection for COVID-19 response

Ningbo MSW Minimization and Recycling Project - Lesson Learned, M&E data collection & verification

Separation at source could be introduced at scale with good results and over a relatively short time if the right conditions are in place; (i) strong government commitment, (ii) capacity to roll out an integrated waste management system that supports separation at source, and (iii) effective public outreach.

RBF to influence population behavior could be successful in non-homogeneous highly urbanized, high-rise building settings.

A two-staged procurement process to review the readiness of the market to investors in MSW treatment technologies proved successful in Ningbo by matching the need of the municipality to secure private know-how and capital with willingness of the investor to enter the waste market in a PPP arrangement.

Ningbo's KWTF is as a good example of treating household kitchen was through anaerobic digestion processes at scale.

Smart Sanitation Information System

Internet-based and includes data related to waste collection, transfer vehicles and transfer stations;
Used for statistics monitoring of the number of waste bags distributed, monitoring of the quality of kitchen waste separation; monitoring of volumes collected and transported.