



BATTAMBANG

Retaining a city's unique character requires universal care for the environment, supplemented by smart solutions

PROJECT SNAPSHOT

PROJECT NAME	Smart Solid Waste Financial Management (Phase 1) and Digital Solutions for Urban Services in the Tonle Sap Basin – Phase 3
COUNTRY	Cambodia
SECTOR	Urban development
MAIN GOVERNMENT BODY SUPPORTED	Battambang Provincial Government
SMART SOLUTION	Feasibility study for digital waste management solutions and pilot of solid waste management billing system
PROJECT PERIOD	May 2021–June 2023; February 2024–March 2025
ADB PROJECT OFFICER	Alexander Nash, Senior Urban Development Specialist
MAIN PROJECT OBJECTIVE	To identify digital innovations that can improve the operations and finances of the waste sector in Battambang, which can inform a potential pilot intervention that can serve as a model for national reform

The third largest city in Cambodia, Battambang is often seen as the serene alternative to Phnom Penh and Siem Reap. But little do people know, this city has its own impressive credentials and aspirations. Battambang, for one, is considered the “rice bowl of Cambodia”, with its fertile and verdant land.

The city is also an artistic hub, rich in its own long-standing culture, history, and traditions, set against numerous pagodas mixed with remnants of French colonial architecture. Battambang is well aware of its charm and character, especially how it stems from its natural surroundings, and it is keen on preserving this as it grows and aims to become a smart city.



THE CHALLENGE

Addressing Pollution Amidst Progress

A downside of urbanization is the increase in waste. Infrastructure and services for waste management have not kept up with the changing city. Waste collection is insufficient among households in Battambang; and if available, pickups can sometimes be delayed. People also either burn their waste or dump trash in public areas, including in canals and rivers, which pollute Tonle Sap Lake, the largest lake in Southeast Asia.

The Asian Development Bank (ADB) has been working with the Royal Government of Cambodia to support solid waste management and wastewater management in cities around the lake, such as the Second Urban Environmental Management in the Tonle Sap Basin Project. This project covers Battambang and includes the construction of a landfill and sewer network.

In a video relating to this investment, ADB Senior Urban Development Specialist Alexander Nash detailed a critical part of waste services—payment. *“Landfills are a really important tool for managing solid waste,”* he said. *“But operating landfills well, and collecting the trash regularly has a cost, and in Cambodia this cost is paid for by households and businesses who pay a fee for the service... If people don’t get a good service, they don’t want to pay for it, and then of course low revenues make delivering a good service impossible. This is known as the ‘low service, low revenue trap.’”*



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“Good solid waste service needs sufficient revenues and good financial management to make it work.

We also think this service in particular is suitable to the application of some new digital technologies, which is what this [AASCTF] project is about.”

Alexander Nash, Senior Urban Development Specialist, Asian Development Bank

THE SOLUTION

Diagnostics and Recommendations for Smart Financial Management

The **ASEAN Australia Smart Cities Trust Fund (AASCTF)** was engaged to support Battambang with identifying smart solutions that could remedy the financial and operational challenges of the waste sector. This not only served to complement the Tonle Sap project but also to recognize that Battambang is part of the ASEAN Smart Cities Network. In its smart city action plan, Battambang indicated having a quality environment as one of its three priorities.

To assist the city, AASCTF delivered a two-stage pre-feasibility assessment of the potential solution:

Diagnostics and Readiness Assessment

This study examined the state of waste management in the city, combining a desktop review with various stakeholder consultations and site visits, such as the Cintri and Leap Lim dumpsites and the markets, where trash also tends to pile up. The study also identified relevant non-government organizations and other entities delivering gender equality, disability, and social inclusion expertise in Battambang and other Cambodian cities for potential partnerships in subsequent phases of the project and beyond. Before any smart tools could be proposed, understanding the challenges and barriers to waste management was essential, as well as reviewing the current use of digital tools and the enabling environment in Battambang. By using a 360-degree assessment of various components, the maturity was determined and a list of 10 appropriate interventions were presented.

Option Analysis Report

This succeeding report built on the ideas from the first stage, as it delved into the stocktaking process of the smart solutions and put forward two main options for piloting. First, a geographic information system for storing, processing, and managing digital data could be introduced to increase efficiency and performance. Second, digital payment and economic incentives for improving waste collection services could be implemented. The report included an assessment of the bankability, viability, sustainability, and scalability of each option, and a high-level business case for the potential pilot.

Why it Matters: Battambang Smart Solid Waste Financial Management Reports

- Provides a collaborative inspection of waste issues
- Presents smart solutions that can tackle targeted areas of concern, i.e., improving waste segregation, enforcing governance, increasing awareness
- Offers two practical options tied to other initiatives and local platforms
- Supports ADB investments that can lead to holistic transformation
- Paves the way for piloting a digital billing system to boost revenues and service





Lessons and Pivots

The principal pivot in this AASCTF project was the cancellation of the third stage: the pilot scoping. This part of the project was meant to follow the analysis of the proposed options and deliver a preliminary design and high-level sustainment plan for the pilot intervention. A separate consulting firm, Mott MacDonald, continued with the pilot implementation instead, while still financed by the trust fund.

On a different note, establishing the right counterpart agency was another key lesson. The project was primarily implemented with Battambang Province, although managing waste in the city is in the purview of the municipal government. Such overlaps are not uncommon in public sector structures. Nonetheless, ensuring the right counterpart and project ownership is vital for securing invested engagement and timely decision-making.

Early Results and Emerging Benefits

The Option Analysis Report opened a discussion with the government and ADB to combine the two pilot ideas proposed. They saw this as an opportunity for a more robust and multisectoral approach integrating operational improvements with the financial system that would also revert to enhancing the service.

One of the platforms presented in the report was chosen to actualize these goals.

This is the SamRaam app developed by Luma System, a Phnom Penh-based tech company that has been supported by the Ministry of Environment. The app is a convenient tool for people to view waste pickup schedules, get garbage truck location alerts, and pay waste collection fees. ADB launched the platform in Battambang and four other Tonle Sap towns in 2023, after the completion of the AASCTF project.

Key features of the SamRaam app include:

- **Waste collection information**
Customers can see pickup times and order collection, create incident reports, and upload pictures of uncollected waste or illegal trash disposal. They can also request for pickup if they have accumulated a large amount of waste.
- **Real-time tracking**
Waste trucks, as part of the system, are fitted with a GPS (global positioning system) tracker to enable live views and notifications of truck locations.
- **Payment solution**
Customers can view their waste collection invoice and any balance due, and pay their bill.
- **Landfill check**
Though this feature was not yet available in Battambang at the time of the project, this allows tracking of waste trucks that come and go from the landfill, as well as measuring the waste collected.
- **Service monitoring**
Not on the app per se, rather this is a backend feature of the platform that enables the waste operator and/or local authorities to review and analyze the data to supervise service delivery and performance. Payment solution. Customers can view their waste collection invoice and any balance due, and pay their bill.

BENEFITS OF THE SAMRAAM APP AND BILLING SYSTEM



Streamlined waste management operations



Easy payment of fees: better revenues, better service



Contributes to less pollution and reduced clogging of waterways



Leads to minimized public health risks, i.e., diseases, air pollution from burning waste



Closer alignment with smart city ambition



Sustaining the Gains

In 2024, AASCTF continued its support by way of financing the pilot led by ADB and Mott MacDonald. The trust fund shouldered the consulting services, purchase of computer hardware and licenses, and SamRaam's operations and maintenance costs for a 12-month transitional period.

As of early 2025, about 36 waste trucks have been equipped with GPS trackers, improving waste collection and coverage. Using the platform has also led to higher revenues, approximately \$70,000 per month. Maintaining this level of income is enough to fund and sustain the collection of waste in the city, as well as manage landfill activities.



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“Previously, only about 40% of the 32,000 households in the city received the solid waste service. After implementing this new system by Luma, about 75 to 80% of Battambang citizens now benefit from the service. The plan and vision of the city is to achieve 90 to 95% coverage to make Battambang a clean and smart city.”

*Leang Veasna, Governor,
Battambang City Government*

LEARN MORE



For more information on this project, check the Battambang resources in the AASCTF Data Room



ABOUT THE ASEAN AUSTRALIA SMART CITIES TRUST FUND

The ASEAN Australia Smart Cities Trust Fund (AASCTF) assists ASEAN cities in enhancing their planning systems, service delivery, and financial management by developing and testing appropriate digital urban solutions and systems. By working with cities, AASCTF facilitates their transformation to become more livable, resilient, and inclusive, while in the process identifying scalable best and next practices to be replicated across cities in Asia and the Pacific. AASCTF is supported by the Australian Government through the Department of Foreign Affairs and Trade, managed by the Asian Development Bank, and implemented by Ramboll.



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