



# **Bandar Seri Begawan ASCN Smart City Projects**

**HAJI HAIRUL MOHD DAUD BIN HAJI ABDUL KARIM**  
Deputy Permanent Secretary  
Ministry of Transport and Infocommunications

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# Revitalization of Kampong Ayer

**Redevelopment of** 157 houses in the area of Kampong Ayer, with a focus on High Quality of Life by improving access to community services, expand health and recreational services.

## Health and Well-being

- Provision of better utilities and services and requirements for community facilities and recreational areas which are necessary for the promotion of vibrant social and cultural life in Kampong Ayer.

## Civic and Social

- Kampong Ayer as part of Bandar Seri Begawan as the main tourist destination with its own unique characteristics such as its culture, treasures and historical heritage which create community identity and cohesion.





# Progress of Kampong Ayer Revitalization Project

## Current Progress

- Structure Integrity test by Department of Technical Services.
- Census on Population and Income for Kg Ayer Residents by Brunei Muara District.
- Identified areas of temporary relocation during construction.

## Challenges to Implementation

- The need for strong collaboration with various government stakeholders.
- Assessing the use Public Private Partnership

## Exploration of new areas for Smart City technologies

- Smart Meter for utilities (water and electricity)
- Ensuring connectivity to all houses and community areas
- Use of Visual AI and Analysis for Smart City Management
- Use of IOT Sensors for environment monitoring



# Clean River Management Project

Bandar Seri Begawan is determined to put in place an institutional framework that promotes sustainable waste management practices.

## Quality and Environment

- The city seeks to restore the quality of the Brunei River. Brunei's move towards being a smart and sustainable city involves strengthening regulatory and enforcement measures related to effluent discharges into the River and management of waste through latest technological interventions.



# Progress of Clean River Management Project

## Current Progress

- Daily and continuous clearing, cleaning and collection of all forms of floating wastes found along Sungai Brunei including underneath of building structures via 4 projects.
- Tender on the utilization of machinery to improve efficiencies and effectiveness.






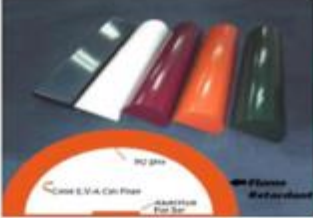



## Challenges to Implementation

- Increase of solid wastes (exceeding 500 tonnes daily capacity) despite having 'No Plastic Bags' and recycling initiatives.

## Exploration of new areas for Smart City technologies

- Use of IOT sensors to monitor quality of water
- Use of Visual AI and Analysis for Clean River Management

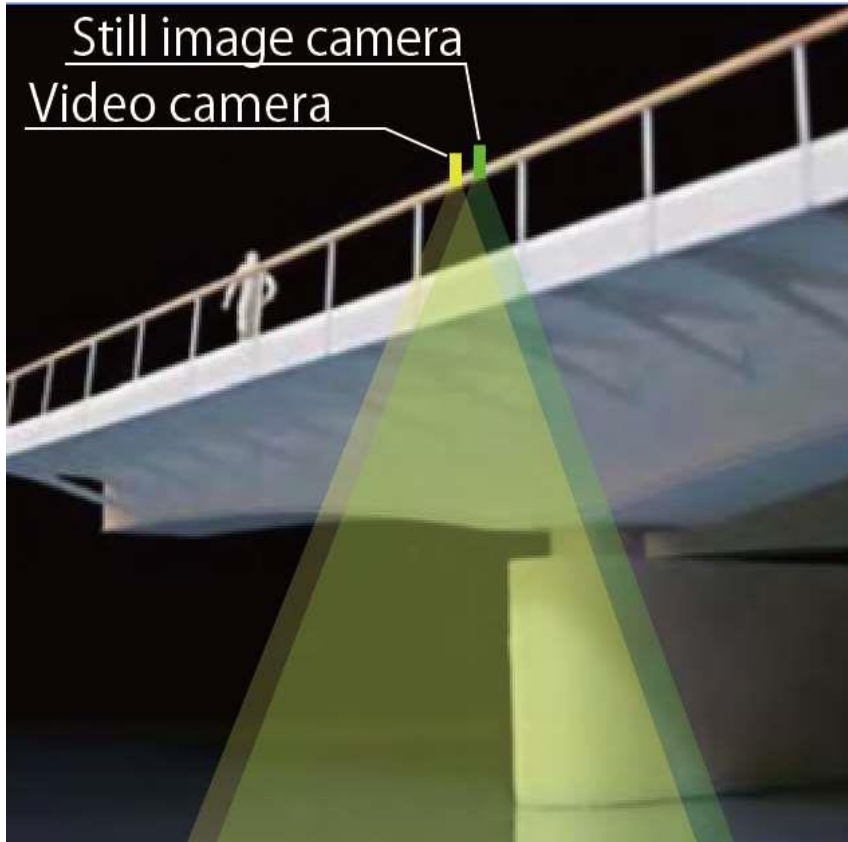


Work Scope	Current	Future Improvement
Collection of floating waste on Brunei River and its main tributaries	<p>Waste collection and transportation:</p> <ul style="list-style-type: none"> <li>• 3 scavenger boats</li> <li>• 3 workboats</li> </ul> <p>Unloading of waste:</p> <ul style="list-style-type: none"> <li>• Manual labour</li> </ul>	<ul style="list-style-type: none"> <li>• 6 trash skimmer boats</li> <li>• 4 scavenger boats</li> <li>• 6 workboats</li> </ul> 
Hauling and unloading of collected waste to riverside waste collection centre	 	<ul style="list-style-type: none"> <li>• 7 waste collection barges</li> <li>• 2 units of conveyor belt to unload waste</li> </ul> 
Materials used for floating debris booms	<ul style="list-style-type: none"> <li>• PVC – require frequent maintenance, particularly during heavy rainfall</li> </ul> 	<ul style="list-style-type: none"> <li>• Polyurea closed cell foam - maintenance free</li> </ul>  
Collection coverage		

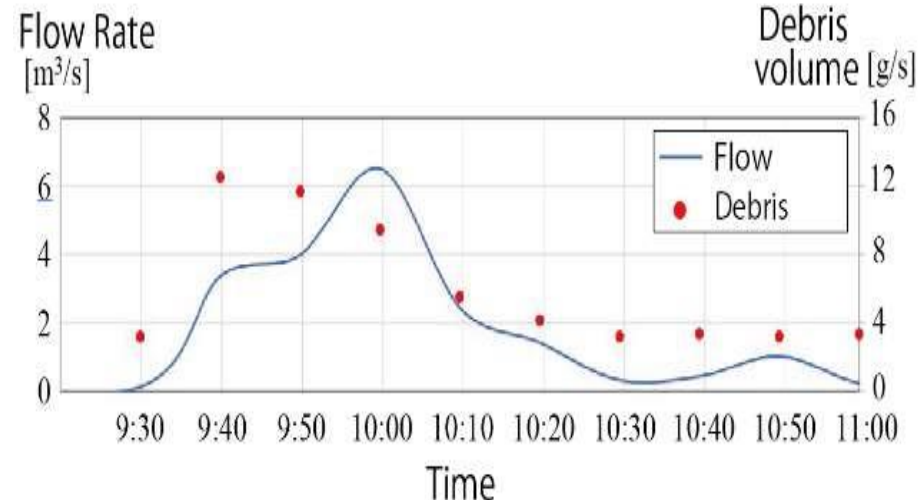
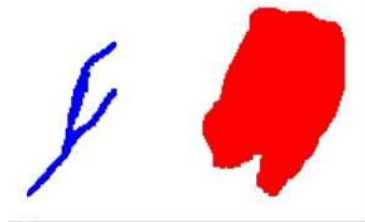
# Use of Computer Vision for Clean River

Exploring the use of Image Analysis In Collaboration with Smart JAMP:

- Recording of video & photo images of river water surface, and then
- Automatically estimate the actual amount of man-made debris flowing down (and up) in the river.

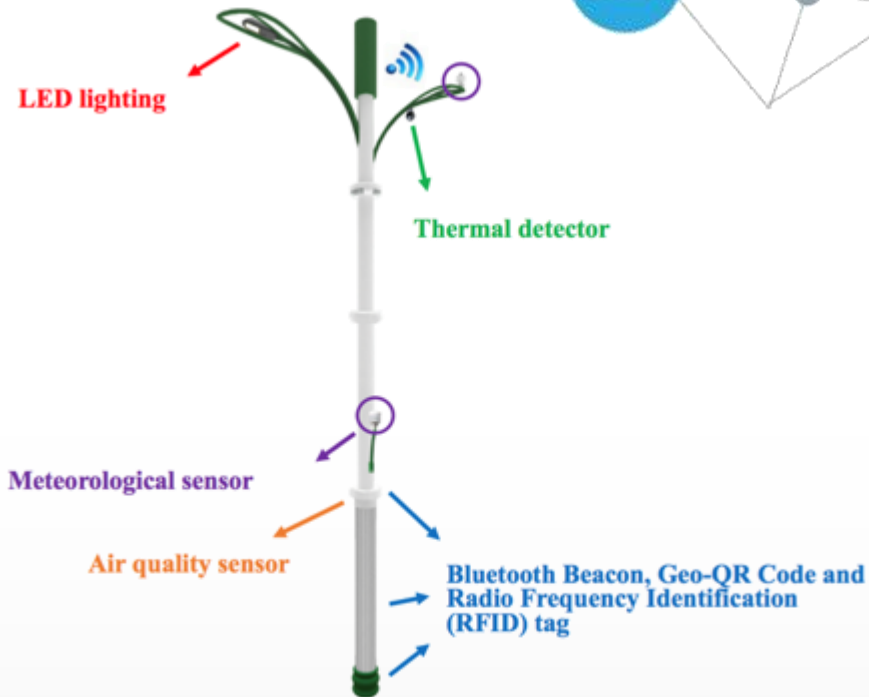


Auto-selection of man-made debris

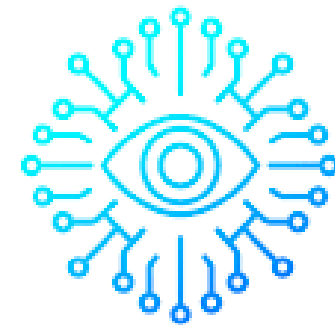




# Revisiting Smart City in Brunei



*Functions and Applications*



MACHINE VISION



2021

2022

2023

2024

2025

**Visual AI POC**

- Lamppost Installation (BSB)
- Real-time air quality information
- Garbage Detection

**Visual AI Phase 1**

- Lamppost Installation (Perpindahan)
- Open Fire Detection
- Traffic monitoring
- Traffic Incident Detection

**Visual AI Phase 2**

- Lamppost Installation (National)
- Smart Surveillance
- Smart Traffic Control
- ANPR

**Sensor Analytics POC**

- Water level sensors

**Sensor Analytics Phase 1**

- 5G network or IOT network

**Sensor Analytics Phase 2**

- Sensor Deployment
- Water quality monitoring
- Leakage detection and control

**Sensor Analytics Phase 3**

**Smart Meter**

- Water Consumption tracking
- Home energy consumption tracking

- Public transit real-time info system POC

- Smart Bins POC
- Smart Parking POC
  - Water Drones POC
  - Smart Parcel Locker POC
  - Public transit digital payment POC

- (ASCN) Kampong Ayer Revitalization - tentative

- (ASCN) Clean River Management

**To develop plans**

- On-Demand micro transit
- Autonomous vehicles
- Car Sharing
- Bike sharing
- Intelligent traffic signals
- Digital land and building permits
- Data-driven building inspections
- Home security systems
- Home energy automation systems
- Building automation systems
- Smart Grid (Dynamic Pricing)

**THANK YOU**

