

## BATTAMBANG MUNICIPALITY, CAMBODIA

### City Information

**Population:**

As of 2013, registered residents total 148,449, and non-registered, 51,551.

**Area (km<sup>2</sup>):** 115.44<sup>1</sup>



**Climate:** Moist and wet tropical zone with annual average temperature between 20-37 °C and relative humidity ranges from 70-85%. The monsoon seasons runs from May through October with heavy rain.

**Main Economic Activities:**

Agriculture is the main economic activity of Battambang; approx. 74% of the municipal territory (85.6 km<sup>2</sup>) is agricultural area.

**Municipality website:** <http://www.battambang-town.gov.kh>

### Country Information

**Population:** 15.46 Million (2014)<sup>2</sup>

**Area (km<sup>2</sup>):** 181,035

**Economy and GNI/Capita**

Low-income economies<sup>3</sup> with GNI of USD838 per Capita<sup>4</sup> in 2011.

**Main Economic Activities**

Cambodia relies on services (41%), agriculture (35%) and industries (24%)<sup>5</sup>. The country's two largest industries are textiles and tourism.

## Government Agencies responsible for guidance on waste legislation

- Ministry of Environment: [www.moe.gov.kh](http://www.moe.gov.kh)
- Ministry of Interior: <http://www.interior.gov.kh/>

## MSW Sector Overview: City Level

### **Classification of MSW**

MSW refers to household waste and household-like waste discarded from dwellings, public buildings, factories, markets, hotels, business buildings, restaurants, transport facilities, recreation sites, etc.

### **MSW Generation**

Total waste generation in the municipality is estimated at 31,968 tonnes/year. Average waste generation per capita is 212 kg/year.



### **Collection Coverage and Type**

About 90% of generated waste from the urban area is collected every day except for some locations (3 days/week) in 9 Sangkats out of the total 10 Sangkats (commune-like area of a district). The mixed waste is collected, transported and disposed of at the municipal dumpsite by a private company, CINTRI.

Municipal waste separation at source has not yet been practiced, except for Boeng Chhouk Market. With support from the Institute for Global Environmental Strategies (IGES) and the Cambodian Education and Waste Management Organization (COMPED), organic waste is separated for composting and anaerobic digestion. Informally, some farmers collect animal and plant residues for animal feeding.

### **Waste Composition**

Waste at the dumpsite has a high organic content estimated to be around 73%, followed by 12% plastic waste, 4% paper, and 2% glass. Meanwhile, waste from Boeng Chhouk Market is composed of 84% organic (fruits and vegetables), 8% plastic, 3% paper, and 5% others.

### **Waste Management Practice**

Mixed waste of about 59 tonnes/day is formally collected door to door and transported to the municipal dumpsite without any prior treatment, except for 2 tonnes/day of organic waste from Boeng Chhouk Market that has been sent to a composting and anaerobic digestion facility located next to the dumpsite.

Only a referral hospital has its own incinerator using solar energy, but this has very limited capacity. The remaining medical waste is disposed of at the municipal dumpsite, which is currently dealing with an on-going fire since 2011.

The landfill is located in the middle of paddy fields. It is a simple dumpsite, has no liner, no soil cover and no leachate treatment.

### **Formal Waste Sector**

A private operator, CINTRI (Cambodia), has received a contract for waste collection and transport, and it is this company that operates the landfill. The collection services vary between daily and three times a week, depending on the availability of the trucks, waste volume, road condition, weather and so on.

A Social Waste Management Centre was established by COMPED in 2010. It receives organic waste from the market for composting and anaerobic digestion. This centre is invested in and operated by COMPED with a grant from the Municipality to use the land for 15 years.

### **Informal Waste Sector**

Waste pickers play a major role in segregating recyclable waste from the dumpsite, waste bins, communities, etc. Sellable items include glass bottles (for reuse), plastic bottles, cardboard and aluminum cans. There is no recycling facility in Battambang. Therefore, these recyclables are mostly exported to other provinces and neighboring countries such as Viet Nam and Thailand.

### **Financing of MSW**

There is no budget for waste management from the local and national governments. Privatization is a financial model for waste management in Cambodia. Licensed private companies need to collect waste fees from residents and businesses to cover their expenses. In Battambang, a door-to-door waste fee collection is applied by CINTRI. The service charges are ranged based on type of household, size of business and so on, and the fee is negotiable. Therefore it varies from USD0.5 per month for a small household to USD80 per month for businesses.

## **MSW Sector Overview: Country Level**

### **General description and overview of common practice**

Waste management in Cambodia is privatized. Open dumping is a common practice. There is no systematic national data record, and only data from a few main cities is available.

### **Waste Generation (per capita/year)**

The amount of waste generation at the national level was estimated by the Ministry of Environment at approximately 318kg/cap/year or 4.96 million tonnes per year in total in 2012<sup>6</sup>.

### **Collection Coverage**

There is no systematic record, but it can be estimated that about 80% of the population in major urban areas receives waste collection service.

### **Number of Landfills/MSW Disposal rate (tonnes/year)**

There are about 60 dumpsites and an engineered landfill across the country<sup>7</sup>. The collected mixed waste from different sources like households, hospitals and commercial sectors is being disposed of at open dumpsites and sometimes open-burning is practiced to reduce the volume of waste.

### **Recycling Rate**

No systematic record, but the recycling rate may not be so high because there is only a very limited number of recycling facilities within the country.

### **Waste management of organic fraction (composting, anaerobic digestion)**

There are only three composting plants for municipal organic waste of about 1,460 tonnes/year operated by two local NGOs: COMPED (in Battambang Municipality) and CSARO (in Phnom Penh and Kampot). There are a few small-scale anaerobic digestion facilities.

### **Energy Recovery Rate**

Energy recovery rate is very low. There are no landfill gas recovery projects. A few small anaerobic digestion systems exist but are mainly for demonstration purposes.

## **Plans, Strategies, Policies [including financial instruments] and National Objectives**

### **City Level**

#### **Aimed at improving Waste Management in General**

Since 2012, the Battambang Municipality administration has promoted city cleanness, waste separation at source for recycling and improved landfill.

#### **Aimed at addressing Climate change and reducing SLCPs through waste related activities**

Battambang Municipality has attempted to improve municipal solid waste management to reduce greenhouse gas emissions. The Municipality has recently been concerned about SLCPs emission reduction from waste management and has its own vision to be **“Clean, Green and World Heritage Municipality.”**



## **Country Level**

### **Aimed at improving Waste Management in General**

#### *Sustainable Development*

The Political Platform established by the Royal Government of Cambodia (RGC) of the Fifth Legislature of the National Assembly announces its global long-term vision and strategic objectives toward a sustainable development. The economic development includes a strategy to protect the environment and natural resources. RGC has underlined that:

- the implementation of the Law on Environment should be accelerated;
- sound environmental impact assessments should be undertaken for all projects; and
- the environment should be controlled and pollution reduced, including solid waste, hazardous substances and visual pollution.



#### *Integrated Solid Waste Management*

MOE develops a Strategic Plan on Integrated Solid Waste Management 2014-2023 considering the challenges of waste management in the country. It promotes the 3R concept, which is the hierarchy for a sustainable waste management by favoring, in order: Reduction, Reuse and Recycling. The draft of the strategic plan is setting mid- short- and long-term targets for waste collection, waste separation, recycling rate, special treatment for hazardous and medical waste, etc. It also gives priority to the national projects to be carried out and emphasizes the importance of monitoring. Finally, it details the participation and role of the different national institutions and stakeholders<sup>8</sup>.

### **Aimed at addressing Climate change and reducing SLCPs through waste related activities**

At the same time, MOE has drafted a new Law on Environment and Pollution Management. A specific National Strategic Plan is being drawn up, to define the precise objectives regarding waste management. “Clean Air, Clean Water and Clean Land” is the key concept of the Ministry of Environment of Cambodia. The Climate Change Strategic Plan 2014-2023 has also been prepared reflecting the high commitment of RGC to address climate change towards national development and global contributions to greenhouse gas emissions reduction.

## **Legislation**

### **City Level**

#### **Legislation governing MSW management**

Local directive on municipal solid waste separation at the markets.

**Climate and Clean Air Coalition Municipal Solid Waste Initiative**

<http://waste.ccac-knowledge.net/>

### **Guidance for MSW management (after legislation, before inspection activities)**

Through a participatory approach, the Working Group for local directive development (including municipality staff, Provincial Department of Environment, Market owners, committees and vendors) has engaged in waste separation promotion at the market. Activities include capacity building workshops, awareness raising, face-to-face discussions, public announcements, distribution of posters and brochures, and site visits to a good market management practice in Phnom Penh. Additionally, the city and international partners provided training to improve waste management in the city.

### **Inspection activities/supervision and enforcement of legislation**

In the first few years, the city applied a “carrot” approach to increase awareness and cooperation from residents. From 2014, the city will apply a more strict “stick” approach to fine vendors and residents who do not follow the local directive.

For the penalty process, the municipality needs a supporting letter from the provincial level called Deikar (local regulation) base on the Penalty Article of Sub-decree 36, and then it will be publicly announced to the citizens. Currently, it is under a consultation process.

## ***National Level***

### **Legislation governing MSW management**

At the national level, the Ministry of Environment of Cambodia (MOEC) is responsible for solid waste management. Until now, several laws related to waste management have been enacted. For example, the law on natural resource protection (1997), the sub-decree 36 on solid waste management (1999), the Inter-ministerial declaration (Prakas) No. 80 of the Ministry of Environment and Ministry of Interior on solid waste management in all provinces and cities of the Kingdom of Cambodia (2003), and the Sub-Decree #72 on Environmental Impact Assessment Process (1999). Currently, MOEC is drafting a law on environment and pollution management which includes sustainable waste management.

### **Guidance for MSW management (after legislation, before inspection activities)**

To enhance the adoption of the law, the following declaration was published by MOEC:

- Prakas (Declaration) No. 12 on the delegation of functioning to the provincial/municipality department by implementation of a sub-decree on the monitoring of water pollution and waste management (1999)
- Prakas (Declaration) No. 33 on the organization and functioning of the Environmental Provincial-Municipal Department (1999)

### **Inspection activities/supervision and enforcement of legislation**

MOEC has a duty to take the lead in environmental pollution management, while sub-national administration has to be responsible for all environment pollution in their relevant areas and shall submit an annual report to the MOEC of environment on the results of solid waste management implementation. It shall prepare a Work Plan and implementation for solid waste management promoting and implementing waste separation, reduce recycle and reuse, or extract sources from garbage solid waste before sending it to landfill.

In case of notification or complaint about environment pollution or offense causing serious harm to public health or damage of property, there shall be immediate inspections by the MOEC and relevant authorities.

Everyone has the right to information or report to MOEC or relevant institutes of sub-nation administration about persons or business sites that dispose of waste or toxic waste into the environment or cause environment pollution.

At the local level, solid waste management is under the responsibility of the municipality (with technical support from the provincial government). Due to some constraints including financial allocation, the enforcement is still limited. So far only in Phnom Penh and Kampot have already carried out some punishment of improper disposal of solid waste after issuance of a Deikar (local law with referring to the national level-Sub-decree 36) by the provincial administration to improve waste management in the city.

### ***Involvement to date in CCAC MSW Initiative***

Battambang has been part of the CCAC MSW Initiative since 2013. Currently, the Municipality has completed its Municipality assessment and developed an action plan with support from IGES, Department of Environmental Quality Promotion and Phitsanulok Municipality of Thailand.

### ***Current Projects or activities aimed at reducing SLCP Emissions***

Battambang, in collaboration with IGES and the COMPED, has an on-going project on organic waste separation at source for composting at Boeng Chhouk Market.

### ***Key Stakeholders***

- Institute for Global Environmental Strategies, Japan: [www.iges.or.jp](http://www.iges.or.jp)
- Department of Pollution Control, MOE Cambodia: [www.moe.gov.kh](http://www.moe.gov.kh)
- Department of Climate Change, [www.camclimate.org.kh](http://www.camclimate.org.kh)
- Battambang Municipality, [www.battambang-town.gov.kh](http://www.battambang-town.gov.kh)
- COMPED, [www.comped-cam.org](http://www.comped-cam.org)

### ***Additional useful information***

Battambang Municipality wants to develop a work plan and implement projects to reduce SLCP emissions to promote waste separation at source, improving waste recycling efficiency, improving landfill management (especially prohibiting open burning) and targeting zero SLCP emissions from MSW in Battambang Municipality. The Municipality is willing to cooperate with other potential partners/organizations to achieve its vision to be “Clean, Green and World Heritage.”

## Contacts

### MSW Initiative City Lead

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### MSW Initiative City Representative

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### MSW Initiative Country Contact

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<sup>1</sup>GIZ, 2009: Master Plan and Team Battambang, "Technical Report on the Land-Use Plan for Battambang Municipality," (2009)

<sup>2</sup>CIA, 2014: <https://www.cia.gov/library/publications/the-world-factbook/geos/cb.html>

<sup>3</sup>WB, 2014: East Asia and the Pacific Update Report: <http://data.worldbank.org/about/country-classifications>

<sup>4</sup>UN: <http://data.un.org/CountryProfile.aspx?crName=Cambodia>

<sup>5</sup>CIA, 2014: <https://www.cia.gov/library/publications/the-world-factbook/geos/cb.html>

<sup>6</sup>MOE, 2013: *Draft of National Strategic Plan on Integrated SWM*, 2013

<sup>7</sup>MOEC, 2012: Annual Report

<sup>8</sup>MOE, 2013: *Draft National Strategic Plan on Integrated SWM*