Municipal Solid Waste Management Assessment Report
Vientiane Capital
Laos is a landlocked country shares border with China to the north, Cambodia to the south, Vietnam to the east, Thailand to the west and Myanmar to the northwest.

- The Mekong River traverses the entire length of the country from north to south approximately 1,865 km of its total length of 4,000 km are within or along Laos borders. This inland waterway system provides great potential for hydropower development.

- The country stretches out 1,000 km from north to south, with its widest east-west width of over 500 km, and its narrowed width of 140 km.

Area: 236,800 Km², approximately 80% of the land area is covered by high mountains and plateaus and crisscrossed by rivers and streams, the rest is plain area which is located mainly along the Mekong River.

Population: 6,771,000 (female 3,389,000) in 2014 with density of 28 person/km²

18 provinces, 145 districts (37 of them are classified as poorest districts); 8,600 villages (2,291 Poor villages: 2,353 Developed villages; 1,144,526 Households (116,808 poor households; 724,792 developed households)
Vientiane Capital

- Vientiane is the Capital City of the Lao People’s Democratic Republic (Lao PDR), it plays an important role in the political, economical and cultural activities of the country

- It faces the left bank of Mekong River which flows at the southern end of Vientiane Plain. The other side of the Mekong River is Nongkhai Province, Thailand

- The area of Vientiane Capital is 3,920km² comprising 9 administrative districts. As of 2013, the population of Vientiane Capital was 876,838 that was 12% of the national population

- The topography of Vientiane Capital City is generally flat and the elevation varies from 164m to 175m above mean sea level
Vientiane Capital (cont’d)

• The annual monsoon cycles that affect the mainland of south-east Asia produce two seasons in the Lao PDR in general and in Vientiane Capital in particular: the rainy season starts from May to October while the dry season from November to April.

• The temperature in Vientiane ranges from a low of 12 degree Celsius during the coolest months from December to February to a high of 38 degree Celsius during the hottest months from March to May.

• The relative humidity is in general 75 to 80% during the rainy season and 65 to 70% in other period.

• The average annual rainfall is around 1,700mm of which about 86% occurs during May through September.
Institutional arrangement for waste management

• Department of Public Works and Transport of Vientiane Capital is responsible for urban development and environmental protection and oversees the municipal solid waste management at the provincial level

• Vientiane Urban Development and Administration Authority (VUDAA) is responsible for municipal solid waste management in Vientiane Capital City. It has a Waste Collection Unit with 36 collection trucks, a Waste Disposal Unit and an Urban Decoration Unit

• 8 Private Companies are participating in the solid waste collection using a total of 44 waste collection trucks
Institutional arrangement for waste management – VUDAA
Municipal Solid Waste Characteristics

• The per capita waste generation rate is 0.65 kg/c/d and the waste density is 250kg/m³

• The total waste generation is 500 tons per day, of which 300 tons can be collected, transported and disposed of at the landfill site located at Km32 of Road 13th South

• Compositions of wastes are as follows: food waste = 16.9%, paper = 2.8%, textile = 1.6%, plastic = 6.1%, wood/bamboo = 38.2%, leather/rubber = 3.7%, metals = 9.3%, glass/ceramic = 1.1%, others = 20.3%

• The sources of solid wastes include residential, commercial, institutional, and industrial activities. By-law industries are bound to have their own arrangement for discharging/ disposing of their solid wastes generated by industrial activities.
Policy/ Regulation/ Financing Mechanism and Stakeholders

- Vientiane Capital issued a policy for keeping city clean, green, beautiful and livable by launching its six so’s (in Lao language) slogans namely: peaceful, clean, bright, green, civilized and charming

- VUDAA issued a Regulation on the establishment and management of solid waste transport service businesses in Vientiane Capital City

- Decision on the management of solid waste disposal sites of the Ministry of Public Works and Transport

- Financing Mechanism used is as follows: user charges (waste collection fee, tipping fee); penalty and fines; environmental fund; private sector participation

- Key Stakeholders: Department of Housing and Urban Planning, Ministry of Public Works and Transport; Vientiane Urban Development and Administration Authority, Vientiane Capital; Department of Hygiene and Health Promotion, Ministry of Public Health; Department of Industry, Ministry of Industry and Commerce; Department of Mine, Ministry of Mine and Energy; Department of Agriculture, Ministry of Agriculture and Forestry; Department of Pollution Control, Ministry of Natural Resources and Environment; Private Sector; Representatives of waste generators.
Weaknesses

- Lack of clear policy and implementation strategy for municipal solid waste management
- The enforcement of law/ regulation is not strict
- Lack of awareness among key stakeholders
- Lack of data collection for analysis of waste composition and characterization
- Lack of technical staffs who can make a plan for municipal solid waste management at the central, provincial and district levels
- Lack of financial support from projects/ programs/ governments
- Lack of good coordination among key stakeholders
- Level of education and field of studies of stakeholders are different
- Solid waste management is a low-esteem work so it is a need to create more incentives for stakeholders
- Unsanitary landfill
- Low capacity of healthcare waste incinerator leads to mix MSW with healthcare waste
- Low percentage of collection coverage around 40-60% coverage
40-60% Collection Coverage - garbage left on street

Source: RRC.AP, June 2015
Collection Trucks provided by various donor countries

Source: RRC.AP, June 2015
No Segregation at Source – Households, On Street Bin

Source: RRC.AP, June 2015
Uncontrolled/ Unsanitary landfill site K.M.32

Source: RRC.AP, June 2015
Insufficient Capacity of Healthcare waste Incinerator at K.M.32 Site

Healthcare waste incinerator with capacity of 20kg./h
VUDAA operates only

Source: RRC.AP, June 2015
Strengths

• In general, some of solid wastes are separated at sources by waste generators.
• The rate of recycling is estimated at 10% of wastes generated.
• The types of recyclable materials are plastic, glass, paper, cardboard, metals etc.
• The recyclables are sent to China, Vietnam, Thailand for further processing and recycling.
Recycling facilities at K.M.32 site by VUDAA

Plastic bottle grinder

Aluminium can compression
Identified Priorities for next cooperation

• To cooperate with CCAC-MSWI in the areas of legislation, strategy formulation, capacity building, awareness raising and implementation of a pilot project

• To develop city action plan based on priorities identified:
  ➢ Capacity building the state worker to collect the necessary data/information on waste characteristics.
  ➢ Implementation of policy, plan to enhance segregation, collection, and disposal
  ➢ Strategic plan to enforce the legislation
  ➢ Public awareness raising for all stakeholders
  ➢ Technical assistance including economic analysis to identify best available and appropriate applications
  ➢ Investment assistance to improve open dumping to sanitary landfill
  ➢ City exchange visit to draw lessons learnt from other ASEAN cities experience of good practices and achievement in the municipal solid waste management
  ➢ Pilot project demonstration in order for the upscaling to the other cities and the country level