

Section 5: Scope of Contract

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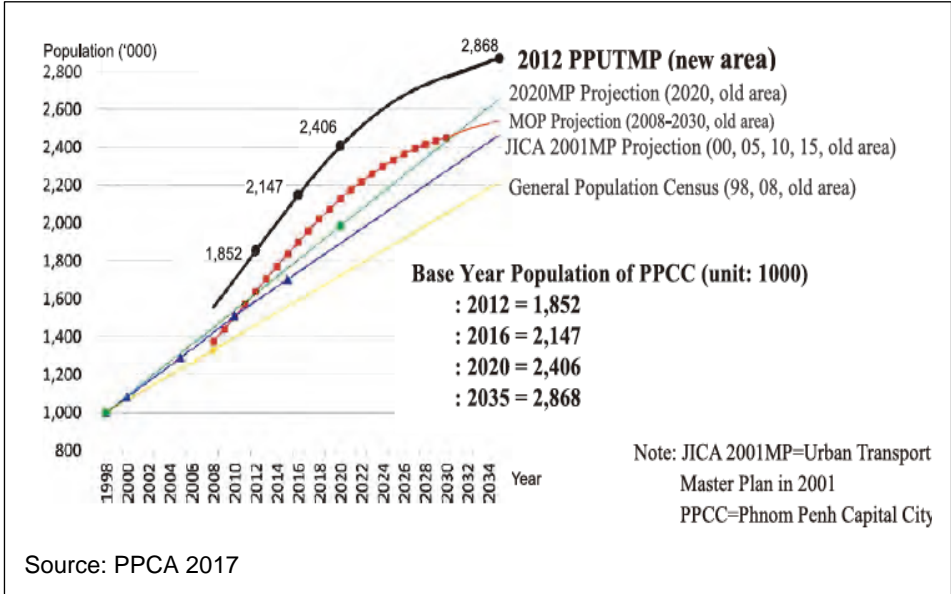
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A. Introduction

1. Cambodia's economy has exhibited strong and sustained growth over the past decade, with a GDP growth rate of approximately 7%, the major drivers of which were the service sector, manufacturing sector including garments, and tourism sector.
2. Phnom Penh, the capital of Cambodia, has achieved remarkable economic growth in the last several decades, generating prosperity and improving the livelihoods of its people. However, the rapid economic development coupled with urban and industrial development, as well as lifestyle changes have given rise to an equally rapid increase in waste generated in the city, posing significant public health, environmental and resource challenges. Just like in any developing city, waste management has been a major societal issue for Phnom Penh. The monthly amount of disposed waste at the landfill more than doubled in the past decade, owing to factors such as population and economic growth, changes in industrial structure, and common lifestyle. While Phnom Penh Capital Administration has been exerting much effort to an organized waste management system, coping with such a dramatic increase has been a challenging task.
3. The collection, transportation, and disposal need to be strengthened, but 3R (reduce, reuse, and recycle of waste) and appropriate disposal also need to be promoted through the cooperation of those who produce the waste. Awareness among citizens of waste management and public hygiene tends to be low. As a result, due to the manner in which waste is discharged at the designated areas (improperly packed or not following designated timetables), much uncollected litter remains on roads, vacant land, canals and riversides, causing degradation of urban sanitation and the living environment.
4. The Phnom Penh Waste Management Strategy and Action Plan 2018-2035 has been designed to respond to these challenges and demands through programs and actions that are developed under a common vision, mission and goal. The Strategy aims to provide actionable activities within short, medium and long-term timeframes to promote efficient use of resources for sustainable waste management practices in Phnom Penh. The Phnom Penh Municipal Solid Waste Management Project - Collection and Transportation of Solid Waste to Phnom Penh City ("the Project"), is an integral part of this strategy and will cover 3 (three) designated zones of the Phnom Penh Capital Administration (the "PPCA" or "Owner"). The PPCA is seeking to award service contracts through a fair, transparent and open competitive bidding process in accordance with the law of Cambodia and international best practices (the "Bidding Process"), following a Prequalification Process.

B. Waste generation in Phnom Penh

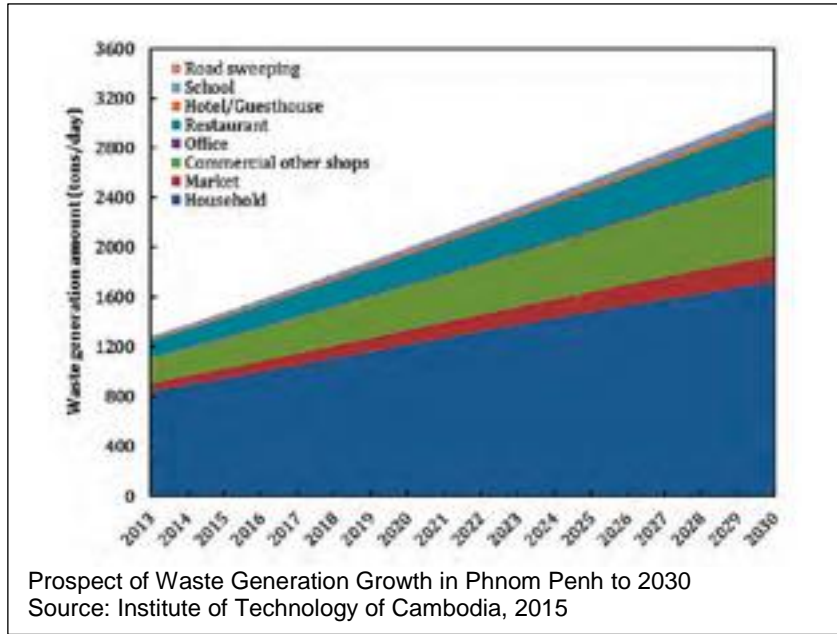
5. The annual total generation of Municipal Solid Waste (MSW) in Phnom Penh is estimated at close to 1 million tonnes per year, of which only a little over 700,000 tonnes is deposited in the landfill. Phnom Penh’s landfill in Dangkor district receives close to 2,000 tonnes of MSW a day from 12 districts. With the previous efforts exerted by the city towards improving waste collection, the amount of waste brought into the final disposal site has gradually increased in the last decade¹.



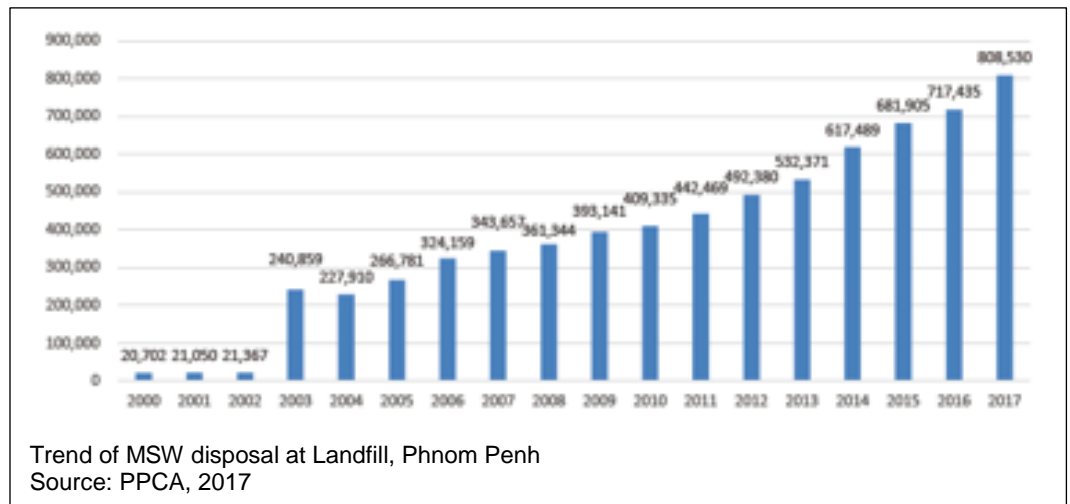
6. The proposed Project is for Phnom Penh city, the capital and largest city of Cambodia with a population of 1,445,902 as of 2014, and annual population growth of 3.97%. The population density is 2,213 inhabitants per square kilometer (Phnom Penh Department of Planning, 2015). Geographically, the city is located in the south-central region of the country at the confluence of three rivers – Tonle Sap, Mekong and Bassac. The city has an area of 692.64 square kilometres, equivalent to 0.37% of the country’s total land area (PPCA, n.d.). Recent population projections using the last census data of 2008 and taking into account new areas show that in 2016 the Phnom Penh population stood at 2,147,000, rising to 2,406,000 in 2020 and 2,868,000 in 2035 (Phnom Penh Capital City Strategic Action Plan for Climate Change, 2017).

¹ Ministry of Economy and Finance, 2015

7. The prospective trend of waste generation estimated by the Institute of Technology of Cambodia present continuous growth of waste generation in Phnom Penh to 2030. MSW collected for landfill has increased exponentially over the past two decades due to an increase in population in Phnom Penh as well as increase in waste generation by source. A rising trend in collections has been seen over the years. In 2017, the average daily quantum of MSW taken to the Dangkor final landfill was 2,215 tonnes/day (Dangkor Landfill Authority, PPCA, 2018).



8. The most recent per capita household waste generation measurement was carried out by the Asia Foundation (2013) and equates to 0.498 kg/capita/day, slightly higher than a JICA study in 2003 that showed 0.487 kg/capita/day. The historic trend in waste generation in Phnom Penh over the past decade is given in the graph alongside.



9. MSW collected and brought into the final disposal sites from 12 Khans (districts) across the city are largely mixed in nature. As per a study undertaken by The Asia Foundation in 2013, for breakdown of MSW by source, household waste constituted the highest proportion (55.3%), followed by hotels/guesthouses (16.7%), restaurants (13.8%) and markets (7.5%). The same study noted that over 50% of waste at the discharge point is organic waste, followed by plastics (20.9% - including plastic bags, other plastics and PET bottles), papers (9.9%), grass and wood (2.3%).

C. Current management of waste in Phnom Penh

10. Cintri, a private operator has been responsible for cleaning, collection and transportation of the waste generated in the city since 2002. The service in peripheral areas of the city is considered to be limited and needs to be expanded considerably to address the technical standards. The contract with Cintri was discontinued in October 2019, and currently, the services are provided under the management of Phnom Penh Capital Administration.

11. Phnom Penh relies almost entirely on Dangkor landfill site, located in Dangkor District approximately 18 kilometers from the city center, for the final treatment and disposal of MSW generated within the jurisdiction. The quantum of MSW collected and brought into Dangkor landfill site in Phnom Penh is estimated to be 2,900 tonnes/day on average, as per August 2019 data. The total area size of Dangkor landfill is 30.40 hectares including 4 dumping areas, 1 leachate pond, and 2 weight bridges. The landfill has a capacity to continue operations for the next two years (until 2021). The Royal Government of Cambodia is in the process of selecting a new location for a regional landfill site which is expected to come in operations before the capacity at Dangkor landfill is exhausted.
12. Management of medical waste generated in Phnom Penh City is currently handled by Red Cross Cambodia. Since 2009, Red Cross has been providing collection, transportation, treatment and final disposal services to the medical facilities in the city.
13. The industrial solid waste management is conducted by Sarom Trading Company, a private sector entity that collects and transports various industrial wastes (including sludge from wastewater treatment plants) from factories (i.e., garment, leather, plastic and paper) to their own final disposal sites located in the Por Sen Chey district (formerly known as Phum Chambok, Khan Kombol, Srok Angsnuol, Kandal Province), based on a permit from the Ministry of Environment. The collected industrial waste is brought into the final disposal site without any treatment, and the site itself is an open dump site with minimum controls such as basic scaling and entry registration.

D. Scope and components of contract

14. The contract is proposed to be structured as a 10 to 15-year service agreement between the Phnom Penh Capital Administration and the three (3) private operators selected for the for (3) collection zones – zone 1-3. The final service duration will be specified in the bidding documents. The components of the Contract shall include, but not be limited to, the following services to be provided to the Owner (the “Services”) in the relevant service zones (3 collection zones) to be defined in each Contract. The services shall include:
 - i. Collection and transportation of municipal solid waste covering Zone 1-3 [for details of zones and area map, please see next section];
 - ii. Acquisition of new collection bins and acquisition/lease of collection vehicles [not older than 5 years];
 - iii. Street cleaning on a regular² basis;
 - iv. Segregation of waste at source in bins and clearly marked for nature of usage. More details will be provided in the bidding documents;
 - v. Installation of bins prior to start of collection;
 - vi. Repair and replacement of bins on an on-going basis, as required;
 - vii. Collection of all urban municipal solid waste from designated bins based on requirements of each Zone and as per pre-agreed time schedules³ for transportation of the waste to the designated disposal site;
 - viii. Cleaning of the defined bin area at the time of each collection;
 - ix. Maintenance of collection bins and collection vehicles;
 - x. Emergency clean-up services if and when directed by PPCA;

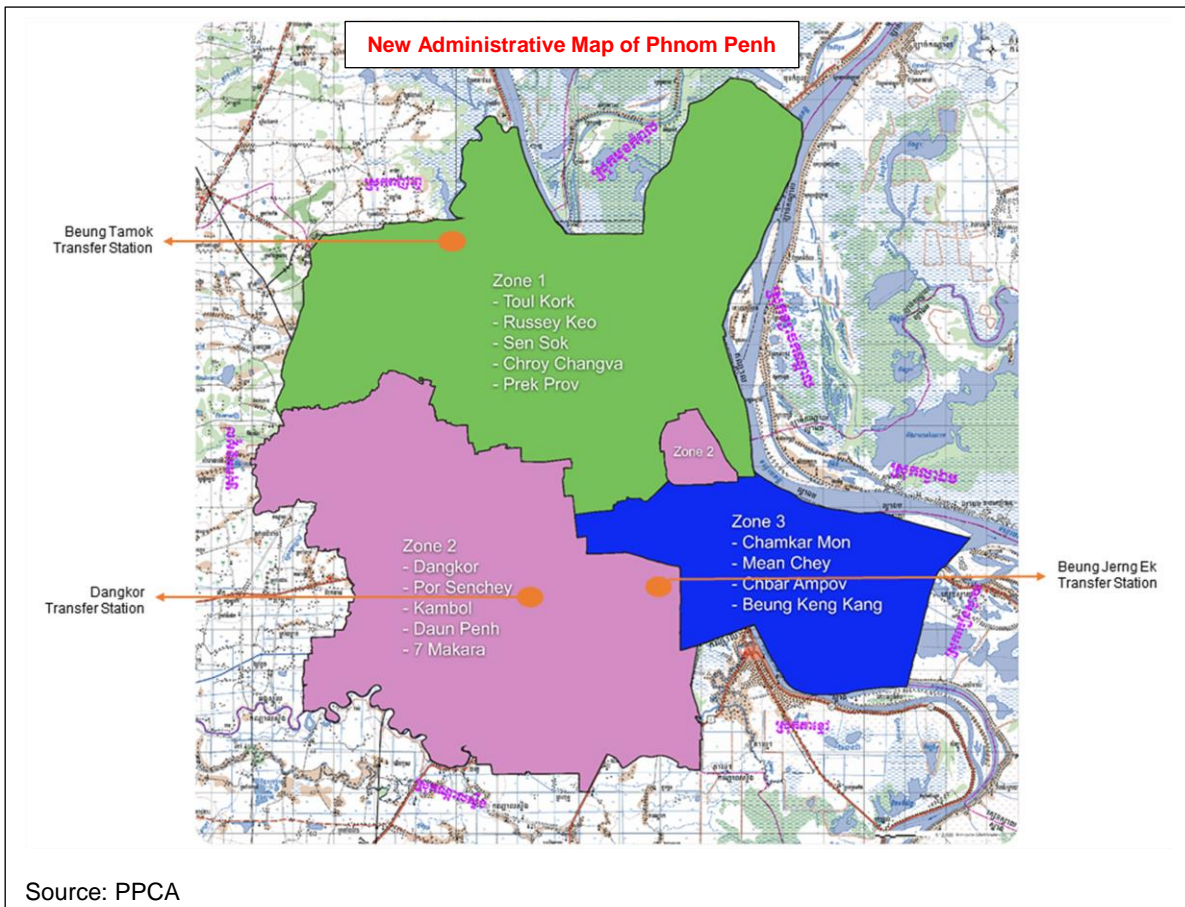
² The detailed schedule of the frequency of street cleaning will be specified in the bidding documents.

³ The detailed schedule of the collection frequency (inclusive of the collection schedule based on types of waste) will be specified in the bidding documents.

- xi. Communication and socialization of the Project to promote adoption of segregation to communities in a sustainable manner.
- 15. The Contract Company appointed for each contract shall acquire the bins and the Collection vehicles, and shall hold these for the duration of the contract.
- 16. The Contract will require the Royal Government of Cambodia to make payment to the private Contract Company of a monthly service fee which is expected to be based on dollars per ton of waste delivered to the landfill site.
- 17. The Contract will contain clear minimum performance standards and a clear definition of the obligations of both parties. Minimum performance standards will include tests for vehicle maintenance. Penalties will be deducted from contract fees otherwise payable in the case of failure to meet minimum performance standards.

E. Overview of waste collection zones

- 18. The Prequalification process is for the award of three (3) Contracts covering three (3) designated collection zones. The map below provides an overview of the zones and the districts they cover.



19. The average volume of MSW collections per day for each of the districts covering the 3 zones was calculated as below in August 2019.

No.	Khan/District	# of Trucks (avg/day)	# of Trips (avg/day)	Total volume (MT/month)	Average volume (MT/day)
1	Chamka Morn	21	33	7,335.28	236.62
2	Daun Penh	19	30	7,062.05	227.81
3	7 Makara	9	16	3,848.76	124.15
4	Toul Kork	21	39	9,359.23	301.91
5	Dang Kor	14	29	4,773.85	154.00
6	Mean Chey	28	60	11,365.06	366.61
7	Russey Keo	28	36	6,824.70	220.15
8	Sen Sok	34	47	10,157.50	327.66
9	Por Sen Chey	37	69	13,931.84	449.41
10	Chroy Changva	9	6	1,073.90	34.64
11	Chba Ompov	12	19	3,937.96	127.03
12	Prek Pnov	8	14	3,916.94	126.35
13	Beung Keng Kang	12	19	5,017.77	161.86
14	Kambol	8	8	1,851.90	59.74
Total		260	425	90,456.74	2,917.94

20. The above waste volumes are distributed across the three (3) Zones as follows:

Zone 1			
No.	Khan/District	Volume (MT/day)	Avg Distance (km)
1	Russey Keo	220.15	13.00
2	Sen Sok	327.66	10.00
3	Chroy Changva	34.64	17.00
4	Prek Pnov	126.35	13.00
5	Toul Kork	301.91	16.00
Total		1,010.71	13.80

Zone 2			
No.	Khan/District	Volume (MT/day)	Avg Distance (km)
1	Daun Penh	227.81	15.00
2	7 Makara	124.15	14.00
3	Dang Kor	154.00	2.50
4	Por Sen Chey	449.41	20.00
5	Kambol	59.74	21.00
Total		1,015.11	14.50

Zone 3			
No.	Khan/District	Volume (MT/day)	Avg Distance (km)
1	Chamka Morn	236.62	7.60
2	Mean Chey	366.61	10.00
3	Chba Ompov	127.03	24.00
4	Beung Keng Kang	161.86	7.70
Total		892.12	12.33

21. The annual waste volume by each Zone for the years 2016, 2017 2018 and 2019 is provided district-wise and is enclosed as Annex 1.
22. For collection of waste, the following sizes of bins are expected to be used. Namely,
 - (i) 120L (Depth: 104cm; Lid: 58x45cm; Bottom: 38x34cm)
 - (ii) 240L (Depth: 106cm; Lid: 63.5x57cm; Bottom: 43.5x42cm)
 - (iii) 10MT (Length: 610cm; Width: 240cm; Depth: 220cm)
 - (iv) 4MT (Length: 360cm; Width: 205cm; Depth: 130cm)
 - (v) Bin: 40cm; Bottom: 57x20cm; Circumference: 57x20cm)
23. Transportation of garbage is expected to be undertaken through the following types of vehicles. The majority of the waste collected is transported directly to the Dangkor Landfill dumpsite.
 - (i) 3 tons Compactor trucks
 - (ii) 4 tons Compactor trucks
 - (iii) 7 tons Compactor trucks
 - (iv) 8 tons Compactor trucks
 - (v) 10 tons Compactor trucks
 - (vi) 15 tons Compactor trucks
 - (vii) 13 tons Dumpster trucks
24. The indicative payment mechanism involves the Phnom Penh Capital Administration making periodic payments to the private operators for the three (3) zones, that shall consist of a consolidated fee and include the following components:
 - i. service fee which is expected to be based on dollars per ton of waste collected from each zone
 - ii. transportation fee which is expected to be based on dollars per km for delivery to the landfill;
 - iii. fee for completion of bin installation works, as per the agreed installation milestones with the PPCA;
 - iv. fee for bin repair, replacement and for provision of any emergency servicesThe payment mechanism will be provided in the bidding documents.
25. The PPCA will through yearly allocation in the general budget, finance the payments for collection and transportation services under the scope of work for the duration of the contract.

Annex 1 - Zone wise waste collection data

Zone 1																
No.	Khan	Volume (MT)				Average # trucks per day				Average # of trips per day				Population		
		2016	2017	2018	2019	2016	2017	2018	2019	2016	2017	2018	2019	2016	2017	2018
1	Russey Keo	51,954.04	78,437.93	94,207.78	85,468.35	21	30	29	30	28	44	50	41	135,779	162,864	167,257
2	Sen Sok	50,000.90	75,301.11	103,905.24	119,173.92	19	29	30	31	26	29	47	49	139,910	145,625	160,755
3	Chroy Changva	11,765.19	15,587.96	13,301.97	10,721.86	6	8	8	9	7	9	7	12	62,010	63,597	67,849
4	Prek Pnov	46,968.58	5,842.61	6,668.17	24,355.34	7	3	3	7	12	3	4	8	55,264	56,579	58,750
5	Toul Kork	87,162.00	94,333.59	102,337.00	104,013.41	22	22	20	19	35	37	37	37	122,568	133,102	137,086
	Total	247,850.71	269,503.20	320,420.16	343,732.88	15	18.40	18	19.20	21.60	24.40	29	29.40	515,531	561,767	591,697
Zone 2																
1	Daun Penh	64,168.30	69,781.49	77,706.55	78,484.62	18	17	18	22	25	29	29	29	70,312	71,354	71,242
2	7 Makara	38,938.98	39,519.48	42,673.47	43,155.16	9	10	9	9	16	13	13	15	64,776	65,151	63,782
3	Dang Kor	15,634.42	23,248.20	41,418.89	50,600.18	5	6	8	14	7	6	20	26	95,527	99,236	102,095
4	Por Sen Chey	103,869.86	131,754.45	159,601.33	163,551.44	33	45	46	48	53	45	70	70	204,348	216,295	191,015
5	Kambol	-	-	-	8,812.65	-	-	-	5	-	-	-	5	-	-	5,725
	Total	222,611.56	264,303.62	321,400.24	344,604.05	13	15.60	16.20	19.60	20.20	18.60	26.40	29.00	434,963	452,036	433,859
Zone 3																
1	Chamka Morn	116,311.92	121,907.33	134,013.80	113,378.76	27	26	26	24	49	49	48	42	106,751	104,634	47,399
2	Mean Chey	85,955.40	96,603.93	122,965.88	133,413.75	23	26	21	33	45	48	55	60	138,743	148,344	159,773
3	Chba Ompov	27,884.30	40,366.74	38,079.89	35,193.42	8	9	11	11	14	18	16	15	133,064	156,512	140,891
4	Beung Keng Kang	-	-	-	25,468.28	-	-	-	8	-	-	-	8	-	-	53,083
	Total	230,151.62	258,878.00	295,059.57	307,454.21	14.50	15.25	14.50	19.00	27.00	28.75	29.75	31.25	378,558	409,490	401,146
	Total	700,613.89	792,684.82	936,879.97	995,791.14	14.38	16.77	16.65	19.69	23.31	24.08	29.10	30.60	1,329,052	1,423,293	1,426,702

