

TRASH

A review of 147 trash sites between 2014 and 2016 in Phnom Penh.

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Efficient and effective trash collection has been a major public health concern in Phnom Penh for decades, but is expected to get worse due to continued urban expansion and rapid increases in population¹. Poorly managed trash attracts vermin, and causes disease to spread. It even reduces property value and impacts tourism².

CINTRI – a private trash collection service – has had a monopoly in Phnom Penh since being contracted by the Government in 2002³, but residents are sceptical that they can make (and keep) the city clean: “public expectations...have grown and developed beyond what the current model is able to provide”⁴. Residents have been dissatisfied with CINTRI’s efforts since the start, but CINTRI claim they are “not to blame for the capital’s trash-strewn streets” and that the government is using them as a cover for their own inefficiencies⁵. Nevertheless, CINTRI’s contract was renewed in May 2016⁶. The private firm held a target of achieving a “sustainable trash collection system” by 2015⁷, but it is apparent this target was not met.

St. 14



Source: STT, 2014

St. 86K



Source: STT, 2016

St.350



Source: STT, 2016

¹ Meng, S. (2016). Phnom Penh’s burgeoning population could tip almost 3 million. The Phnom Penh Post. [online] Available at: <http://www.phnompenhpost.com/post-property/phnom-penh-burgeoning-population-could-tip-almost-3-million>

² Wood, R. (2004). Phnom Penh struggles with its garbage. The Phnom Penh Post. [online] Available at: <http://www.phnompenhpost.com/national/phnom-penh-struggles-its-garbage>

³ Meta, K. (2016). Cintri rewarded with contract extensions. The Phnom Penh Post. [online] Available at: <http://www.phnompenhpost.com/national/cintri-rewarded-contract-extensions>

⁴ Morales, J. (2015). A New Way for Waste in Phnom Penh? - The Asia Foundation. [online] The Asia Foundation. Available at: <http://asiafoundation.org/2015/04/15/a-new-way-for-waste-in-phnom-penh/>

⁵ Sovuthy, K. (2015). Phnom Penh’s Trash Problem Bigger Than Cintri, Company Says. The Cambodia Daily. [online] Available at: <https://www.cambodiadaily.com/archives/phnom-penh-trash-problem-bigger-than-cintri-company-78180/>

⁶ Meta, K. (2016). Cintri rewarded with contract extensions. The Phnom Penh Post. [online] Available at: <http://www.phnompenhpost.com/national/cintri-rewarded-contract-extensions>

⁷ Wood, R. (2004). Phnom Penh struggles with its garbage. The Phnom Penh Post. [online] Available at: <http://www.phnompenhpost.com/national/phnom-penh-struggles-its-garbage>

Methodology

This report utilised a data set originally collected in 2014, when 321 instances of uncollected trash were reported to Urban Voice⁸. Given that STT did not have the resources to review all 321 trash sites again, the following formula was used to generate a sample size:

$$\text{Sample Size} = \frac{\frac{z^2 \times p(1-p)}{e^2}}{1 + \left(\frac{z^2 \times p(1-p)}{e^2 N} \right)}$$

Population Size = N, Margin of error = e, z-score = z

e is percentage, put into decimal form (for example, 3% = 0.03).

The z-score is the number of standard deviations a given proportion is away from the mean.

With a confidence level of 90%, a margin of error of 5%, and z-score of 1.65, a statistically significant sample size of 147 sites was calculated. A random number generator was then used to randomly choose the data set, and a sample of 147 sites was generated. The research team visited each of the 147 sites. Because 8 sites were inaccessible to the team, additional sites from the randomized data set were substituted for those sites.

Overview

The following report presents information on 147 locations around Phnom Penh that were identified as trash problem areas in 2014. Each site is categorised into “better”, “same”, or “worse”:

Better	Trash is less of an issue in 2016 than it was in 2014. This may mean it has now been organised where before it was not, or that CINTRI now collect more regularly so trash does not pile up.
Same	The situation of trash in 2016 has neither improved or worsened overall since 2014. In some instances, a site will be categorised as “same” when one aspect has improved (e.g. trash is now organised), but another has worsened (e.g. dirty water because of trash piles). Sites within the “same” category will vary in severity. For example, a site that was bad in 2014 and is still bad in 2016, or a site that was ok in 2014, but has not improved or worsened since then.
Worse	Since 2014, the trash problem has gotten worse. This may be because CINTRI no longer collect, or collect as frequently, or because trash is not organised and continues to pile up.

Table Key:

C = CINTRI Collect	Cor. = Corner
O = Trash is Organised	Hwy. = Highway
D = Near Development Site	St. = Street
S = Near Sewage System	Blvd. = Boulevard
	Dist. = District

Trash that is organised is placed into plastic bags or rubbish bins awaiting CINTRI collection. CINTRI will often only collect trash that has been properly organised, typically leaving unorganised trash or collecting it far less frequently. Additionally, sites near sewage systems create additional problems if the trash is thrown into the

sewage system, which can impact sanitation levels, flooding – particularly during rainy seasons – and create worse smells if the sewage system blocks. Finally, trash problems are likely to be addressed if development is occurring nearby. For example, if a new hotel is being built, investors are likely to address the issue as it may otherwise reduce the project’s value.

⁸ Urban Voice is a platform that allows Phnom Penh citizens to define problems and seek solutions to urban issues. The initial 321 trash sites were identified by local people who uploaded information to the Urban Voice webpage.

Better

Total sites where the trash issue has improved since 2014: 75 (51%)

Site	C	O	D	S	Site	C	O	D	S	Site	C	O	D	S
Silver St.	✓	✓			St. 87	✓	✓			Chak Tok Mok	✓	✓	✓	
Street 118	✓	✓			Russian Hwy.	✓				St. 261	✓			
St. 317	✓	✓			St. 598	✓	✓			St. 2002	✓	✓		
St. 209	✓				Sothearos Blvd.	✓				St. 88	✓	✓		
St. 70	✓		✓		St. 907	✓	✓			St. 39	✓			
St. 370	✓	✓			St. 456	✓	✓			St. 49	✓	✓	✓	
St. 540	✓	✓			St. 160	✓				St. 907	✓	✓		
St. 160	✓	✓			St. 19BT	✓	✓			Monivong Hwy.	✓	✓		
St.13	✓	✓			St. 105	✓	✓	✓		St. 26BT	✓	✓		✓
St. 147	✓	✓			St. 363	✓	✓			Daun Penh Dist.	✓	✓		
St. Veng Sreng	✓		✓		St. 214	✓	✓			St. 366	✓	✓		
St. 278	✓	✓			St. 211	✓	✓			St. 20MC	✓	✓		
St. 182	✓	✓			St. 2002	✓	✓			St. 155	✓	✓		
St. 205	✓				St. 371	✓	✓			St. 282	✓	✓		
Monivong Hwy.	✓	✓			St. 13	✓	✓			St. 430	✓	✓		
St. 13	✓				Monivong Hwy.	✓	✓			St. 14	✓	✓		
St. 336	✓	✓			St. 257	✓	✓			St. 430	✓	✓		
St. 93 (Near St. 80)	✓	✓			St. 106 (Market)	✓	✓			St. 93 (East of Monivong)	✓	✓		
St. 271 (Sewage system station)	✓				Cor. Of St. 10MC & 20MC	✓		✓		St. 217 (Health Centre)	✓	✓		
St. Wat Koh (Monivong)	✓	✓			St. Wat Koh (East)	✓	✓			St. 271 (Skybridge)	✓	✓		
Cor. St. 93 & Monivong	✓	✓			Street 230 (near St. 257)	✓	✓			St. 106 (near Freedom Park)	✓	✓	✓	
St. 230 (Royal Int. School)	✓	✓			St. 317 (Gas Station)	✓	✓			Samdech Sothear Hwy.	✓	✓		
Steungmean Chey Bridge	✓	✓	✓		St. 369 (Market)	✓	✓			Cor. of Stret 95 & 278 St. 155	✓	✓		
St. 271 (Hospital)	✓	✓			Cor. of St. 413 & Monirate	✓	✓			Cor. of St. 484 & St. 105	✓	✓		✓
Cor. of St. 193 & 33	✓	✓		✓	Near Teok Tla commune	✓	✓			Sangkat Ou Rues Ti Mouy	✓	✓	✓	

Summary:	Sites	Percentage
CINTRI Collect	75	100%
Trash is Organised	63	84%
Near Development Site	9	12%
Near Sewage System	3	4%

Case Study 1: Street 261

2014:



2016:



In 2014, this area was very untidy and emitted a terrible smell. Large piles of trash would cause issues for passing drivers, and local businesses and residents would suffer illnesses from it. Now, in 2016, this area has greatly improved. A local resident selling meats and vegetables nearby explained to STT researchers that she and other home owners sent a letter of complaint to the local authorities to prevent homeowners from dumping trash outside their homes (where CINTRI vehicles could not access). Once residents began piling their trash on Street 261, some business owners on this street complained again to the local authorities, this time because there was too much trash. Since then, CINTRI have been collecting every day, preventing any build-up. Although trash is no longer a problem in this area, dirty water is left behind once CINTRI have collected it, which creates a bad smell.

Case Study 2: Street 106 (Near Freedom Park)

Though trash was never a major problem in this area, increased efforts from CINTRI – who collect daily – have improved it further. This is likely a result of the site's location, where being in the centre of Cambodia's capital has made it a priority for trash collection and general upkeep of aesthetics. Additionally, this site is located next to the US embassy, further encouraging the continued cleanliness of the area. When STT visited the site in 2016, communal trash bins were overturned to allow dirty water to drain out, but there was no trash left next to them during the time they were out of service.

Case Study 3: Street 598

2014:



2016:



This site has improved greatly since 2014. Where unorganised trash – affecting the environment, and damaging local aesthetics – was once strewn along the side of the road, neat baskets of organised plastic bags now takes its place. Residents have improved their knowledge of trash management through interactions with other people, and have learned that CINTRI will only collect trash that is organised. In making these efforts, there is no longer any bad smells or reported illnesses as result of the trash.

Same

Total sites where the trash issue has remained the same since 2014: 55 (37%)

Site	C	O	D	S	Site	C	O	D	S	Site	C	O	D	S
St. 167	✓				St. 132	✓				St. Sola	✓			
St. 230	✓	✓			St. 586	✓				Tela Market	✓			
St. 249	✓				St. 430	✓			✓	Cor. Russian St.	✓			
Street 134	✓	✓			St. 516	✓				Hi-Tech Road	✓			
St. 335					St. 2011	✓				St. 310	✓			
St. 167					St. 289	✓				St. 528	✓			
St. 53	✓				St. 367	✓	✓			St. 608	✓	✓		
St. 182	✓	✓			St. 2013	✓				St. 138	✓			
St. 2004	✓				St. 128	✓				St. 291	✓			
St. 102	✓	✓			St. 108	✓	✓			Veng Sreng St.	✓	✓		
St. 310	✓				St. 173	✓			✓	St. 1019	✓			
St. 230	✓				St. 2007	✓	✓			St. 187	✓			
St. Keo Chenda	✓				St. 456	✓				St. 384	✓			✓
St. 271	✓				St. K5	✓				St. 106				
St. 217 (Restaurant)	✓				St. 10MC (close to 7MC)	✓				Community SOS	✓			
Cor. of St. 199 & 284					St. 230 (Boeung Salang)	✓			✓	St. 230 (Market)	✓			✓
Cor. of St. 608 & 132					Cor. of St. 105 & 432	✓				Phum Trapeang Thloeng	✓	✓		✓
Cor. of St. 366 & St. 173	✓			✓	Cor of St. 10MC & 73BT					Cor. St. 230 & 257	✓			
St. Wat Koh (North)	✓													

Summary:	Sites	Percentage
CINTRI Collect	49	89%
Trash is Organised	10	18%
Near Development Site	0	0%
Near Sewage System	7	13%

Case Study 4: Street 335

2014:



2016:



In 2014, there was a lot of unorganised trash piled at the side of the road. This emitted bad smells and impacted residents' health. Children especially suffered bad health from the piles of trash as this site is opposite a school, where nursery, pre-school, and primary age children attend. After re-visiting this location in 2016, STT observed that this precise area had not improved – some unorganised trash was still at the side of the road. However, this area is no longer used to dump trash, and residents of the surrounding area have begun to take control of their trash to prevent the community from looking worse. It is now organised and left outside each residential building, where CINTRI collects it daily. In addition to residents organising their trash, the local school has begun utilising plastic bins, which CINTRI empties daily. Because trash is not dumped (unorganised) in this one place anymore, the surrounding area does appear to look cleaner. However, efforts must still be made to clear the previous trash site, which will not be done by CINTRI because it has not been organised.

Case Study 5: Street 2007

2014:



2016:



In 2014, unorganised trash was dumped on Street 2007, affecting passing traffic, emitting bad smells, and hindering nearby businesses, playgrounds, and social spots. Though CINTRI come to collect trash every evening (at 20:00 / 21:00), some residents and nearby businesses take their trash out too late, so there is a constant pile of it. However, some aspects have improved – a local restaurant who paid to have the road re-constructed has been attempting to encourage residents to organise their trash and keep it tidier. Though some trash is now organised, without enough bins to accommodate it, it appears to remain an issue that is affecting traffic and the health of local people.

Worse

Total sites where the trash issue has gotten worse since 2014: 17 (12%)

Site	C	O	D	S	Site	C	O	D	S	Site	C	O	D	S
St. 350	✓				St. 234	✓				St. 203	✓			
St. 5	✓	✓			St. 265	✓				Old Market	✓			✓
St. 123					Railway	✓				St. 187	✓			
Duong Ngeap	✓			✓	St. 610	✓				St. 86K	✓			
St. 907	✓				Bethong St. 2105	✓				St. 217 (Cor. Skybridge)	✓			
Kdeysongkem (Church)	✓				Near Threa Village									

Summary:	Sites	Percentage
CINTRI Collect	15	88%
Trash is Organised	1	6%
Near Development Site	0	0%
Near Sewage System	2	12%

Case Study 6: Street 265

2014:



2016:



The Urban Voice description of Street 265 revealed piles of rotten garbage that polluted the local area with bad smells, and caused respiratory health issues. In 2016, STT observed that a sign post had been placed, attempting to prevent the dumping of unorganised trash on the street. Though some residents do understand that CINTRI will only collect trash if it is organised (and as such prepare theirs into plastic bags), many residents – through force of bad habit – continue to dump unorganised trash here. Whilst CINTRI come to collect trash every day, dirty water from unorganised trash remains at the side of the road for a long time, making this site worse than before. A local business woman explained an urgency to overcome this problem as the site is behind Preah Kossamak Hospital, and could inflict further illness on those already sick. Residents nearby have called ABC radio to vocalise their concerns, but trash has remained an issue.

Conclusions

Considerable progress has been made regarding trash in Phnom Penh. This is indicated by the 51% of sites that have shown improvement since 2014. One noticeable distinction between sites of improvement and those that have remained the same or gotten worse is the number of sites that organise their trash (84% better, 18% same, 6% worse). Most of these sites have shown improvement since 2014 purely because trash is now organised, and thus collected by CINTRI. Additionally, it was noted during data collection that, on average, the “better” sites receive CINTRI collection daily, whilst “same” and “worse” receive CINTRI collection every 3-4 days and once a week respectively. This may be a result of unorganised trash (e.g. of those that have worsened since 2014, only 1 site has organised trash), but it may also be that those in the “same” and “worse” categories are in locations where CINTRI cannot access (e.g. narrow roads) or simply do not service.

Another driver of improvement appears to be nearby development. Where new developments are occurring (or have been completed) near trash sites, the trash issue has been addressed. This is likely due to a desire for an aesthetically pleasing environment, encouraging investors or buyers to care more for their surroundings.

Street 278 (Better)



Source: STT, 2016

Street 167 (Same)



Source: STT, 2016

Street 123 (Worse)



Source: STT, 2016

Recommendations

From this research, it is evident that where trash is organised, the area is cleaner. Thus, the key recommendation is to encourage residents and local businesses to organise their trash into plastic bags or communal bins (if provided) so it can be collected by CINTRI. In some areas, knowledge of trash management is very good (e.g. Street 598), however many residents and local businesses – either through lack of knowledge or force of bad habit – continue to leave their trash strewn and unorganised. Because of this, local authorities should aim to increase trash knowledge management in their area.

Whilst efforts can be made by residents and local businesses, some areas will continue to suffer from trash problems if CINTRI do not maintain regular schedules. Central authorities must ensure CINTRI can provide an adequate service, especially given their contract was recently renewed, and the continued growth in population in Phnom Penh, which – if CINTRI cannot provide adequate service – will worsen Phnom Penh’s trash situation. If CINTRI does not maintain adequate trash collection, residents and local businesses should be encouraged to contact local authorities and demand a better service.