

Water, Sanitation and Hygiene (WASH) situation and issues for urban poor people and vulnerable groups, Cambodia



Contents

Abbreviations	6
List of tables	6
List of figures	7
Preface	9
1. Summary	10
2. Introduction	16
3. National urban context	17
Total urban population	19
Urban poverty	20
Estimating poverty by socio-economic characteristics	20
Estimating poverty by consumption	22
Trends of poverty reduction	23
Drivers of poverty reduction 2004-2013	23
How many urban poor people are there?	24
Urban poor settlements	26
Urban poor settlements in other urban areas	30
Housing types and household sizes	32
Vulnerable groups in urban areas	33
Urban renters	37
4. Urban land possession, ownership and evictions	39
Land distribution and entitlement	39
Social land concessions	39
Circular No 3	41
Security of tenure among urban poor settlements	42
Evictions	43
5. An overview of WASH coverage in urban Cambodia	46
6. The institutional framework for urban water supply and sanitation	49
Urban WASH agencies and responsibilities	50
Sector coordination	52
Governmental strategy and policies	52
National water supply and sanitation policy	52
Rectangular strategy	53
National strategic development plan 2014-2018	53
Urban water supply sector strategy	53

Ministry of Industry’s action plan for urban water supply sector (2010)	53
Four levels of sub-national administrations	54
7. Urban WASH sector financing	55
Capital expenditure requirements	55
Sources of finance	55
Cost recovery	55
Alternative approaches to sector financing	57
8. The sanitation situation of the urban poor	59
Sanitation coverage for the urban poor	60
Toilet technologies	61
Public toilets	62
Sanitation supply chain	62
Faecal sludge management	63
Urban drainage	64
Urban solid waste	64
Urban sanitation relationships	67
Urban sanitation challenges	67
9. Urban water supplies	69
Urban water coverage	69
Urban water charges, tariffs and subsidies	71
Urban water supply management systems	72
Urban surface waters: rivers, streams, wetlands, lakes	73
Water supply relationships	74
10. Urban health and hygiene	76
Unhygienic and unhealthy urban environments	76
Urban health and hygiene promotion	79
11. Urban WASH monitoring and evaluation	80
12. NGOs engaged in urban programmes, including WASH	82
Development organisations overview	82
Phnom Penh	83
Opportunities for civil society/WaterAid Cambodia	85

Annex A – IDPOOR household weighting/scoring	87
Annex B – Figure 1 Overview of the concentration of informal settlements by Sangkat (source STT 2014)	89
Annex C – Figure 2 Location of informal settlements (source STT 2014)	90
Annex D – Social deterrents of urban poor community living	91
Annex E – PPWSA 4Q14 Performance review: earnings strong and net margin wide	92
Annex F – NGOs engaged in urban land programmes	93
Annex G – Construction Permit Anukret #86 ANK/BK/December 19, 1997	97
References	99

Abbreviations

DFAT	Department of Foreign Affairs and Trade of Australia, formerly AusAID
DPW	Department of Potable Water of the Ministry of Industry and Handicrafts
GIZ	Deutsche Gesellschaft für Internationale Zusammenarbeit
GRET	Groupe de Recherches et d'Echanges Technologiques (a French NGO)
JICA	Japan International Cooperation Agency
JMP	United Nations Joint Monitoring Programme for water and sanitation led by UNICEF and WHO as part of the Millennium Development Goals monitoring system
KHR	Cambodian Riel
MoEF	Ministry of Economy and Finance
MIH	Ministry of Industry and Handicrafts
MPWT	Ministry of Public Works and Transport
MIME	Ministry of Industry Mines and Energy (broken up into two Ministries in 2013) formerly responsible for urban water supply
MoWRM	Ministry of Water Resources and Meteorology
NSDP	The National Strategic Development Plan, currently covering 2014-2018, the leading government planning, programming, and results document.
O&M	Operation and Maintenance
PPUPA	Phnom Penh Urban Poverty Assessment, undertaken by the Municipality of Phnom Penh with UNICEF support
PPS	The Phnom Penh Survey A Study on Urban Poor Settlements in Phnom Penh by LNGO STT
PWD	Potable Water Department
PWP	Private Water Provider
RGC	Royal Government of Cambodia
SDA	Service Delivery Assessment (a WSP report)
SR	Siem Reap
STT	Sahmakum Teang Tnaut, a national Non-Governmental Organisation
VHSG	Village Health Support Group, in theory the lowest level of engagement by the health system based on system of village health volunteers

List of tables

Table 1	Access to water supplies, sanitation and solid waste management services	11
Table 2	Cambodia estimated urban population	19
Table 3	Estimating poverty by socio-economic characteristics	20
Table 4		21
Table 5	Household consumption expenditure in current riels, 2009	21
Table 6	Percentages of persons below the poverty line according to the New Poverty Line based on CSES 2009 data	22
Table 7	Opportunities for civil society/WaterAid Cambodia	29
Table 8	Opportunities for civil society/WaterAid Cambodia	31
Table 9	Number of rooms by geographical domain, percent and average in 2012	32
Table 10	Average floor areas per person (M2) per region 2012	32
Table 11	Legal requirements for social land concessions and prakas	39
Table 12	Cambodia: access to water supply and sanitation, current status and target	46
Table 13	Differences between the rich and poor in WASH services	47
Table 14	Differences in WASH services between the capital and other urban areas	47
Table 15	Urban WASH agencies and responsibilities	49
Table 16	Roles in urban WASH	53
Table 17	Summary of capital requirements	54
Table 18	Historical and current areas of WASH investment by donors	55

Table 19	Opportunities for civil society/WaterAid Cambodia	56
Table 20	Opportunities for civil society/WaterAid Cambodia	61
Table 21	Opportunities for civil society/WaterAid Cambodia	63
Table 22	Opportunities for civil society/WaterAid Cambodia	63
Table 23	Percentage of families that have access to rubbish collection by collection	65
Table 24	Opportunities for civil society/WaterAid Cambodia	65
Table 25	Opportunities for civil society/WaterAid Cambodia	67
Table 26	Percentage reduction in diarrhoea incidence	68
Table 27	Opportunities for civil society/WaterAid Cambodia	70
Table 28	Opportunities for civil society/WaterAid Cambodia	71
Table 29	Opportunities for civil society/WaterAid Cambodia	72
Table 30	Opportunities for civil society/WaterAid Cambodia	73
Table 31	Maternal and child mortality rates Cambodian Demographic Health Survey	76
Table 32	Cost Effectiveness of WASH Interventions	78
Table 33	Opportunities for civil society/WaterAid Cambodia	78
Table 34	Opportunities for civil society/WaterAid Cambodia	80
Table 35	Opportunities for civil society/WaterAid Cambodia	84
Table 36	Opportunities for civil society/WaterAid Cambodia	92

List of figures

Figure 1	Urban areas in Cambodia, following the 2011 reclassification	16
Figure 2	Urban centres by population size (based on Urban Reclassification, 2011)	17
Figure 3	Other urban areas (non designated municipalities/provincial capitals)	18
Figure 4	Urban Poverty Data (2015) Municipalities and 12 Khans (based on 13 indicators)	24
Figure 5	Number of Urban Poor Families between 1997-2013	25
Figure 6	Infrastructure and service provision in inner and outer khan settlements	27
Figure 7	Water and sanitation infrastructure	28
Figure 8	Map of Battambang informal settlements	30
Figure 9	Location of informal settlements in Siem Reap municipality	30
Figure 10	Household composition Demographic and Health Survey	32
Figure 11	Household heads	33
Figure 12	People with disabilities in urban areas	34
Figure 13	Street children in some of the urban centres	34
Figure 14	Identified vulnerable groups in urban areas, based on CDB data 2013	35
Figure 15	National and urban tenure status 2008 & 2013	36
Figure 16	Urban households by tenure of dwelling and household size	36
Figure 17	Displacement number of families by years (STT 2014)	43
Figure 18	Families and settlements under threat of eviction	43

Figure 19 Reported land conflicts in cities/khans 2013, (Ministry of Planning district dataset)	44	Figure 36 Main sources of drinking water by season and geographical domain, 2013 Dry Season	69
Figure 20 JMP 2015 urban water supplies	45	Figure 37 Urban water charges, tariffs and subsidies	71
Figure 21 JMP 2015 urban sanitation	45	Figure 38 Water supply relationships	74
Figure 22 Urban water supplies and sanitation in Cambodia	45	Figure 39 Reported incidence of symptoms in Under five years of age groups	76
Figure 23 Urban water supplies and sanitation in Cambodia	46	Figure 40 Top 10 reported cases diagnosis for the under 5 years age group	77
Figure 24 Sanitation coverage for the urban poor	59	Figure 41 Report rates of malnutrition (National Urban and Phnom Penh)	77
Figure 25 Sanitation coverage for the urban poor	59	Figure 42 Civil society entities	81
Figure 26 Comparison of sanitation coverage by two socio-economic groupings 2004-2011 (CSES data 2004-2011)	60	Figure 43 Phnom Penh programmes	82
Figure 27 Open defecation in the poorest urban quintile (CSES data 2004-2011)	60		
Figure 28 Sanitation coverage by type and geographical region (CDHS 2010)	60		
Figure 29 Urban sanitation coverage by type and socio-economic grouping (CSES 2011)	60		
Figure 30 Single off-set pit lined with rings	61		
Figure 31 Schematic latrine supply chain in Cambodia	62		
Figure 32 Estimated number of families affected by flooding in the main urban areas in 2013	64		
Figure 33 Urban sanitation relationships	67		
Figure 34 Use of improved water supply by wet/dry season and urban wealth quintile-2004 and 2011	68		
Figure 35 Main sources of drinking water by season and geographical domain, 2013 Wet Season	69		

Preface

Supporting improved water, sanitation and hygiene (WASH) services for urban poor and vulnerable communities is significantly more challenging than for rural poor communities. Urban technologies are usually more complex and always more costly; land ownership and security of tenure is often more uncertain. Communities are less homogenous, and the stakes are higher for the government both politically – as an urban population is more likely to agitate for adequate services and reside closer to authorities – and economically, as urban populations provide the goods and services that contribute most to national wealth.

The WASH situation of urban poor people in Cambodia is no different, and these notes were prepared in preparation for WaterAid Cambodia to undertake an urban WASH programme. They endeavour to summarise much of the urban landscape, bringing together information on the various Ministries and agencies involved, current coverage and targets, resources allocated and required, the legal situation and much more.

It was initially a product of a three-week mission in February and March 2015 by WaterAid Cambodia staff and consultants (James Wicken, Makathy Tep, Kanyara Seth and Alan Etherington), who interviewed key informants, visited a number of urban poor communities in three cities and towns, and reviewed available key documents. Further inputs and revisions were provided by Declan O’Leary, to focus the review prior to finalisation. The mission included a half-day workshop for a dozen key informants, at which various options for WaterAid’s new programme were discussed.

Many of the notes that follow were extracts from these documents:

- Briefing note on land tenure in Cambodia, Depika Sherchan 2015.
- Domestic private faecal sludge emptying services in Cambodia: between market efficiency and regulation needs for sustainable management, GRET, Frenoux and Tsitsikalas, 2015.
- Water and sanitation service delivery assessment, World Bank’s Water and Sanitation Programme, 2014.

- The Phnom Penh survey, a study on urban poor settlements in Phnom Penh, Sahmakum Teang Tnaut (national NGO), 2014.
- Redefining the poverty line, Ministry of Planning, Cambodian government, 2013.
- Where have all the poor gone? Cambodia Poverty Assessment, World Bank, 2013.
- Water supply and sanitation sector review, Cambodian government, Australian Department of Foreign Affairs and Trade, World Bank, 2013.
- Overview on urban water supply sector in the Kingdom of Cambodia, Cambodian government and Japan International Cooperation Agency.
- The social determinants of health and health service access: an in depth study in four poor communities in Phnom Penh, Cambodia, Soeung S.C. et al., International Journal for Equity in Health, 2012.
- Preliminary assessment for the cities for children framework, O’Leary, D, World Vision.
- Water and sanitation sector financing strategy for Cambodia, June 2010, Water and Sanitation Programme.

We thank those who met with us and who provided these documents and information. We welcome feedback on the accuracy and completeness of what we have written. It is our intention to re-visit this document from time to time to update and fill in gaps. We invite other agencies to use this in thinking about their own urban WASH programmes.

Exchange rate: the exchange rate has been maintained at or around US\$1 = 4,000 (KHR) Cambodian Riel on average in recent years.

1. Summary

This section presents a summary of the findings from the review. Findings are derived from a review conducted in 2015 comprising key informant interviews, visits to urban poor communities in three cities and towns and a review of key documents.

Urban Cambodia

- The reported urbanisation proportion is above 27% of the national population,^{1 2} but Cambodia has the lowest urbanisation percentage compared to the 11 other countries in the South East Asia region.³
- Total urban population is estimated at 3.7 million people, over half of whom live in the capital, Phnom Penh.
- Total urban population is projected to increase to around eight million by 2030, with an urbanisation rate in the region of 40%.⁴
- Three distinct categories of urban areas were identified:
 - the capital city Phnom Penh
 - provincial capitals and designated municipalities (“Krong”/cities) as secondary towns
 - 40 other towns/urbanising centres across in 64 urban communes.
- 82% of urban households live in one or two rooms,⁵ compared to 91% of households nationally
- 28% of urban households are headed by females.⁶ However, this does not infer that they are single parent households.
- Only about a third of urban households may have secure tenure through land and property titles.⁷
- Many of Cambodia’s urban centres risk flooding for two or three months a year (July to October), with urban risks of flooding having increased with the filling in and development of former wetlands, especially for developments in Phnom Penh and Siem Reap.
- There are significant differences between the WASH and socio-economic conditions of Phnom

Penh and other urban areas, as some datasets disaggregate these into this classification.

Urban poverty

- One of the challenges is defining who ‘the urban poor’ are. For over 20 years groups have arbitrarily used the term ‘urban poor’ with little or no agreement on what this actually means. The Cambodian government, with support from the German development company GIZ, and more recently the Australian Department of Foreign Affairs and Trade, have developed and rolled out an identification of the poor programme (IDPoor) approach since 2006. This has resulted in the identification of poor households and the issuing of IDPoor cards, which enables people to access basic services. However, the current approach is rurally focused, with an urban module that was promised in the National Strategic Development Plan 2014-2018 now unlikely to be piloted until 2016.⁸
- 500 informal settlements reported in the three largest urban areas (Phnom Penh (335⁹ -340¹⁰), Siem Reap (68),¹¹ and Battambang (66¹² -104¹³).
 - Approximately 40% are on ‘state’ land¹⁴ (roads, railways riverbanks, etc) and thus vulnerable to eviction; 132 settlements in Phnom Penh reported as being under threat of eviction.
- The government has established 54¹⁵ ‘resettlement’ areas in and around Phnom Penh and neighbouring provinces, often providing basic ‘site and services’ (e.g. boreholes with hand-pumps and household toilets as WASH components).
- The most recent (2015) official poverty rate estimates for the country¹⁶ report 614,693 families/households as being poor (2.9 million people) nationwide.
 - For the 38 official urban municipalities and 12 khans of Phnom Penh, the total figures are 52,628 poor households (257,217 people) with only 3,398 poor households being officially identified in Phnom Penh (17,626 persons), which differs significantly from NGO reported urban poor figures that frequently

report 10 times this figure.

- The incomplete IDPoor review (which covered 220 of the 225 identified urban communes across 27 municipalities in 2012), reported figures of 62,019 IDPoor households in 2012, meaning 276,891 people were identified as being poor.
- The World Bank's 2013 poverty assessment¹⁷ reports that total urban poverty (Phnom Penh and other urban areas) was 30% in 2004 and 9% in 2011. To extrapolate this would indicate that 51,000 urban households across the country are poor (256,000 people), which roughly aligns with the above government figures.
- For Phnom Penh and based on:
 - the Urban Poverty Assessment (Municipality of Phnom Penh, 2012) indicated between 30-46,000 households in 'urban poor communities' (so 150,415-231,684 people)
 - cambodian NGO Sahmakum Teang Tnaut (STP's) Settlements Survey 2014 reports 33,605 families in the 340 settlements it identified, so 168,000 people.
- The living situation of residents in poor settlements was summarised by one health research team as "low education, poor living conditions and high food costs in the context of low and irregular incomes (which) reinforce a pattern of living from moment to moment and results in a cycle of disadvantage and ill health". A recent urban poor settlement focused study (People in Need, 2014) found:
 - o 29% of children under 60 months old were stunted
 - o 36% were underweight
 - o 11% were malnourished and suffering from wasting
 - o 40% reported an episode of diarrhoeal illness in the preceding two weeks.

Institutions

Six Ministries play significant roles in urban WASH, with the Ministry of Industry and the Ministry of Public Works and Transport the most significant:

- The Ministry of Industry and Handicrafts' Potable Water Supply Department is responsible for regulating piped urban water supplies and related private sector concessions.
- The Ministry of Public Works and Transport is responsible for drainage and thus sewerage, it also has responsibilities for wastewater treatment, solid waste management roads etc.
- The Ministry of Water Resources Management and Meteorology is responsible for water resources, hydrological flood control and water extraction licences.
- The Ministry of Environment is responsible for water and air quality,¹⁸ water pollution control and solid waste management.
- The Ministry of Economy and Finance is responsible for financial management of the two autonomous state water supply operators, and the repayment of development loans and credits that have been used to build and expand public sector facilities.
- The Ministry of Interior through the Secretariat for the National Committee for Democratic Development is responsible for deconcentration and decentralisation reforms and sub-national planning processes, which includes consideration of water supply, sanitation and hygiene services and issues.

These Ministries all have departments at provincial level and many have offices at district level responsible for the delivery of sector-related activities, coordination and technical support. These are generally more accountable to their national Ministry levels in practice than local councils, although this is slowly transitioning (ideally) to become more accountable to the locally indirectly elected district and municipal councils.

In terms of other actors and stakeholders:

- A recent assessment for World Vision (2015) identified "at least" 239 civil society organisations (CSOs) reporting actively implementing projects in Phnom Penh alone, the majority of which supposedly aim at alleviating poverty. Eighty-one are reported delivering projects for 'community and social welfare'. At least a dozen CSOs work with urban poor communities to map, document, provide legal

support to negotiate tenure-related issues and title rights, re-plan and upgrade.

- Considerable investments have been made in urban water supply, drainage and sewerage infrastructure from donors including the Japan International Cooperation Agency (JICA), Asian Development Bank and World Bank over the past 30 years.
- A small number of international agencies and NGOs are supporting urban WASH through research, analysis and service delivery: Water and Sanitation Programme (World Bank), French NGO Groupe de Recherches et d’Echanges Technologiques (GRET) and German NGO Bremen Overseas Research and Development Association.
- A national policy on water supply and sanitation was adopted by the Council of Ministers in 2003, but it appears to be rarely promoted or referred to.

Urban WASH coverage

- UN Joint Monitoring Programme (JMP) estimates (2015) indicate 75% urban coverage of piped water, with the remaining 25% reported as using other improved sources. There is 88% urban coverage of improved sanitation, with 12% using shared facilities;¹⁹ though this estimated figure is generated through the JMP projection methodology.
 - Reviewing the data used for the JMP estimate,

the Cambodia socio-economic survey (CSEC) data, and the Cambodia inter-censal population survey (CIPS) indicated that:

- 11% of the urban population nationwide are still using unimproved water supply sources and (unimproved) sanitation – 71,500 households (357,940 people), including:
 - 9% practicing open defecation – 293,0000 people.
 - 6% using open water sources – 195,000 people.
- Meanwhile an analysis of the Ministry of Planning district level data²⁰ for 2014 indicates that:
 - 90% of families in Phnom Penh have access to some form of improved water supply, with 89% using some form of improved sanitation.
 - 66% of families have access to an “improved source” across all declared municipalities (excluding Phnom Penh), while 58% have access to improved sanitation.
- An analysis of the CSES data from 2004-2011 indicated that for the poorest urban quintile (in 2011):
 - 61% use an improved source of drinking water.
 - 58% use improved toilets while 36% practice open defecation.
- A number of studies have been undertaken in Phnom Penh over the last few years focusing on

#	Study title	“Urban poor communities” settlements covered	% “urban poor households” with piped water connections	% “urban poor households” with access to improved sanitation	% with access to solid waste management services
1	MPP/UNICEF PPUPPA 2012	281	85%	78%	40%
2	STT UPSS 2013	340	77%	82%	505
3	PiN/UNICEF PPMIAUP 2014	50?	81%	86%	-
Average			81%	82%	
1. Phnom Penh Urban Poor Poverty Assessment: PPUPPA 2. Urban Poor Settlements Survey: UPSS 3. Phnom Penh Multiple Indicator Assessment of the Urban Poor: PPMIAUP					

‘urban poor’ communities/settlements. Table 1 summarises the findings for access to water supplies, sanitation and solid waste management services in terms of the coverage of the service for urban poor populations in the city.

Water supplies

- An internationally recognised exceptionally well performing water utility (Phnom Penh Water Supply Authority) in the capital has delivered piped water to a large portion of Phnom Penh’s dwellings, delivered effective services in an efficient manner, and combined with a specific policy to connect ‘poor’ households.
- The Authority operates with considerable autonomy, transparent reporting and regulation by the government.
- The Siem Reap water supply operator is also autonomous, and there are currently 13 public suppliers in provincial capitals: Preah Sihanouk, Pursat, Battambang, Kampong Cham, Kampong Thom (three suppliers), Svay Rieng, Kampot, Kampong Chhnang, Rattanakiri, Kratie, and Stung Treng).
- Private sector investments for water supply are encouraging and there are reported to be 300 for-profit private water providers, of which around half are reported to be licensed.
- Water is priced at cost-recovery prices which means that connection fees are substantial but consumption tariffs are low.
- High water supply connection charges, although connections for poor people in Phnom Penh have been subsidised by resources from the Phnom Penh Water Supply Authority, donors and others.
 - A range of subsidy initiatives to tackle high connection costs have been undertaken through programmes supported by the World Bank (the Cambodia Provincial and Peri-Urban Water Supply and Sanitation Project), Asian Development Bank (Cambodia Water Supply Project²¹), USAID (Micro, Small and Medium Enterprises project) and others.
- Often households with water supply connections will ‘sell on’ to neighbours who have no connections at increased rates.

- Water supply network expansion outside of Phnom Penh is not keeping pace with city and town expansions and population growth, often requiring households in peri-urban areas to use non-piped supplies.
- The practice of on-selling of water appears to have been curtailed in Phnom Penh by recent municipal and utility (Phnom Penh Water Supply Authority and Electricity du Cambodge) instructions,²² though this may only apply to accommodation provided by employers and not the private rental sector.
- Rainwater collection is widespread during the wet season in poor communities, though storage is not always protected or adequate for the prolonged dry season averaging six months.
 - The CSES used to collect data on rainwater harvesting but ceased this question in 2008, when 12% of urban households were reported to use rainwater harvesting as their main source of water during the wet season, with 21% of the poorest quintile reporting rainwater harvesting at that time.
- It is important to note that most water supply sources are surface sources, and there are numerous licenced systems outside of Phnom Penh (which has five). All provincial capitals/ municipalities reporting operating water treatment plants, however the overall operation and quality of systems may be dubious.

Toilets

- As mentioned above based on JMP current figures (2015), there is 88% urban coverage for ‘improved sanitation with 12% using shared facilities’.²³
 - Ministry of Planning urban district data for 2014 (excluding Phnom Penh) indicates that 42% of families do not have access to improved sanitation.
- Phnom Penh data indicated that 11% of families do not have access to improved sanitation, but they may share a neighbour’s toilet and this appears to be quite acceptable.
 - Elsewhere 7% of urban households report open defecation, as there are a limited number

of public toilets outside of the core city area.

- Some improved toilets dispose to open areas or, if emptied, their faecal sludge is not transported to disposal site(s); few municipalities have organised faecal sludge management systems or services, was exist ad-hoc.
- By law all urban houses are required to have some form of septic system (based on the provisions of the Construction Anukret (Sub Decree #86, 1997). Typical toilet designs are offset and attempt to mimic septic systems with two sets of connected concrete rings in relay/series.

Sewerage and drainage

- Current municipal drainage systems are usually a combined system where effluent from septic tanks – blackwater – and greywater from washing are mixed.
- These combined systems also serve as the main rainwater drainage systems in the monsoon season and frequently overflow.
- There are statutory requirements (Anukret #86, 1997) for all urban housing and development projects to adequately address wastewater, through the construction of septic tanks to treat effluent prior to releasing it into public sewer systems.
- Most sewerage systems combine storm water and wastes; although Phnom Penh and Siem Reap have partially separated systems.

Health and hygiene

- The preliminary results from the 2014 Cambodia Demographic Health Survey (CDHS) indicate that 86% of urban children obtain their basic vaccination requirements compared with 73% on average nationwide.
- “Acute respiratory illness, fever and dehydration from severe diarrhoea are major causes of childhood morbidity and mortality,” (CDHS 2014). Thirteen percent of all children under five years were reported to have suffered an incident of diarrhoeal illness within a two-week period.
 - 10% of urban children under five years (across the country) were reported to have

had diarrhoea in the two weeks preceding the Cambodian Demographic Survey CDHS (2010).²⁴

- A recent sample study in ‘poor communities’ in Phnom Penh²⁵ supported by UNICEF indicated that children in slum ‘urban poor’ communities were at significantly higher risk than other children in the city, and reported a prevalence rate of 40% of children having a diarrhoeal illness, 73% having fever and 61% having the symptoms of a respiratory infection in a two-week period.
- Of even greater concern was the prevalence of malnutrition. The preliminary results from the CDHS 2014 indicate that 32% of all children nationwide are chronically stunted, 24% are underweight and 10% wasted, while the figures for Phnom Penh indicate that nearly a fifth of all children (18%) were stunted, 13% underweight and 9% wasted.
 - The UNICEF-supported study focused on a sample of 340 reported informal settlements, and found far higher incidence of malnutrition in these areas with 22% of children under-five stunted, 32% underweight and 11% wasted. The findings resulted in UNICEF commissioning a greater nutritional survey to better qualify urban poor nutritional issues.

Solid waste management

- Solid waste collection services often only cover parts of most municipalities and towns; with urban district data (2014) indicating that only 36% of urban families across 38 municipal areas have access to solid waste management services. This ranged from 6% in Pailin municipality to an average of 71% across the 12 khans making up Phnom Penh.
- The Municipality of Phnom Penh study in 2012 indicated that 60% of the 280 settlements surveyed did not have access to a regular solid waster management services, while STT’s Settlements Survey 2014 indicated a similar result with 202 of 340 settlements identified not being able to access services on a regular basis, if at all.
- Private contractors (especially CINTRI Co. Ltd) provide a collection service every few days, paid for by a surcharge attached to electricity bills that

averages US\$1/month per household.

- However, solid waste still blocks surface drains, increasing the risk of flooding. Thirty-seven percent of respondents from the 202 settlements without access to solid waste management services reporting being forced to “dump garbage elsewhere”.

Conclusions

- Rural poverty and WASH conditions are much worse than urban areas including the capital Phnom Penh: the major focus for WaterAid Cambodia should be on its rural programme.
- But consideration is needed due to the ongoing and projected population shift to urban areas, which are projected to double in the next 15 years; particularly for the capital, currently the destination for 50% of rural migrants.²⁶
- There are pockets of urban poverty, with high rates of open defecation and relatively low connections to piped water supplies scattered throughout urban areas, and efforts are needed to better target and support these poor and unserved communities.
- Substantial sums have been invested from external sources in water supplies and drainage, including allocations to ensure urban poor households benefit; donors and government agencies seem to need more help to reach urban poor people.
- WaterAid Cambodia should address issues of urban sanitation and expansion to universal urban access to piped connections.
- Urban WASH appears fragmented with space for more exchange and collaboration among the various agencies working in and across the sub-sector. There is space for WaterAid to initiate and support a forum for urban WASH agencies to promote such cooperation, information exchange and joint programming.

Entry points

- Supporting programmes to eliminate urban open defecation and move up the sanitation ladder to improved sanitation, as well as to improve faecal

sludge management in Phnom Penh and other urban areas.

- Support poverty and WASH mapping and link these findings with programmes that subsidise or provide connections for poor and vulnerable households in the capital and other urban areas.
- Support networking among government departments, water supply operators, development partners and NGOs and seek ways to increase the allocation of new resources to urban poor and vulnerable people.
- Support a centre of knowledge about urban WASH services for poor and vulnerable people.
- Support NGOs and municipalities working on regularising informal settlements into re-settled and legally approved communities.

2. Introduction²⁷

It is not possible to comprehend living conditions in Cambodia today without discussing the impact of the Vietnam war, the Khmer Rouge period, and nearly 30 years of concurrent internal conflicts and civil wars from 1970 to 1999. The war in Vietnam started in late 1955, eventually spreading to Cambodia and Lao – especially along the border with Vietnam, which was heavily bombed by the US. After a coup d'état in 1970, Cambodia sank into a bitter civil war that resulted in the Khmer Rouge coming to power from 1975-79. This was to be a period characterised by loss of all personal property, forced labour and migration, imprisonment and executions. An estimated two million people died from conflict execution, famine and disease during the 1970s.²⁸

The Vietnam-backed liberation government of the People's Republic of Kampuchea was installed in early 1979 but this did not stop the fighting, which continued throughout the 1980s and 1990s as a low-intensity conflict. The eventual withdrawal of Vietnamese forces in 1989²⁹ led to negotiations that resulted in the Paris Peace Accords, signed in October 1991. Even though all political factions signed the Accords, fighting continued mainly with Khmer Rouge forces until 1997, when the majority of their armed forces reached an amnesty deal with the government. Conflict was only officially reported to have ceased in 1999, when the last remnants of the Khmer Rouge surrendered.

These conflicts have had a profound effect on Cambodia. Estimates of the death toll from 1970 to 1987 range from 2.3 to 3.9 million people, or almost one-third to one-half of the 7.1 million Cambodians alive in 1970. All urban centres were evacuated in 1975, and as of 2010, Cambodia had the third lowest urbanisation rate across all 57 countries in Asia.³⁰

The situation has, however, turned around during the past two decades. GDP growth has been strong, averaging 8% for 2005-2014,³¹ and peaking at over 13% in 2005.

Sustained growth has been possible because of four key factors:

- Cambodia achieved peace and stability and has derived a growth dividend, as evidenced by significant inflows of foreign direct investment and official development assistance.

- The global and regional environment during this period was very favourable, and Cambodia was able to tap into this potential through open trade and investment policies.
- Macroeconomic policies – essentially through fiscal policy and given the high actual dollarisation of the economy – were conducive to stability.
- The growth of the garment sector through bilateral trade agreements with the US and the EU under an 'everything but arms' agreement. Both agreements allowed for better access to markets against higher labour standards. It is worth noting that in 2014, "the textile, garment and footwear industry contributed US\$5 billion to total export and employed more than 620,000 workers who received more than US\$1 billion in wage and salaries".³²

The economy was considered to be overheated in 2007 and 2008, with very rapid growth in credit to the private sector and a bubble in real estate prices. When combined with the successive shocks of food and fuel price increases, resulting high inflation peaked at 36% in May of 2008. This sustained growth was then interrupted in 2008 and 2009 because of the adverse impacts of the global financial crisis. After this, the global financial crisis led to a sharp deceleration in growth. The crisis hit Cambodia severely in 2009 and flattened its real growth rate.

Nevertheless, over the seven years from 2004 to 2011, Cambodian economic growth was tremendous, ranking among the best in the world. Household consumption increased by nearly 40%. And this growth was pro-poor—reducing inequality, and boosting poor people's consumption further and faster than that of non-poor people. As a result, the poverty rate dropped from 52% to 21%, surpassing all expectations. However, the majority of these people escaped poverty only slightly: and they remain highly vulnerable to even small shocks – which could quickly bring them back into poverty.

3. National urban context

An urban settlement in Cambodia is defined by density, size and employment sector criteria developed by the Ministry of Planning:

- population density > 200 persons/km²
- total population > 2,000 people in each commune
- male and female population NOT employed (fulltime) in agriculture > 50%.³³

The designation of cities has been declared through a 2008 royal sub-decree that designated the capital and 26 kongs ('cities') in (then) 23 provinces. This sub-decree has since been amended as administrative readjustment has occurred. Most designated municipalities are made up of districts that contain the provincial capitals and municipality, (as can be seen from the map below, some appear to cover large physical areas).

- The capital Phnom Penh is made up of 12 khans (urban districts) and 96 sangkats/urban communes following its most recent administrative expansion (2012/13), including the addition of 20 communes from neighbouring provinces.
- In the rest of the country there are 26 designated municipalities (24 provincial capitals and two border municipalities).
- A total of 289 urban communes are reported, including 64 communes outside designated cities that qualify as urban – some of which are substantial with populations of over 50,000. The following tables show the locations of the majority of urban communes, as well the populations of designated municipalities/cities and other identified urban areas.

Figure 1. Urban areas in Cambodia, following the 2011 reclassification (*Ministry of Planning 2012*)

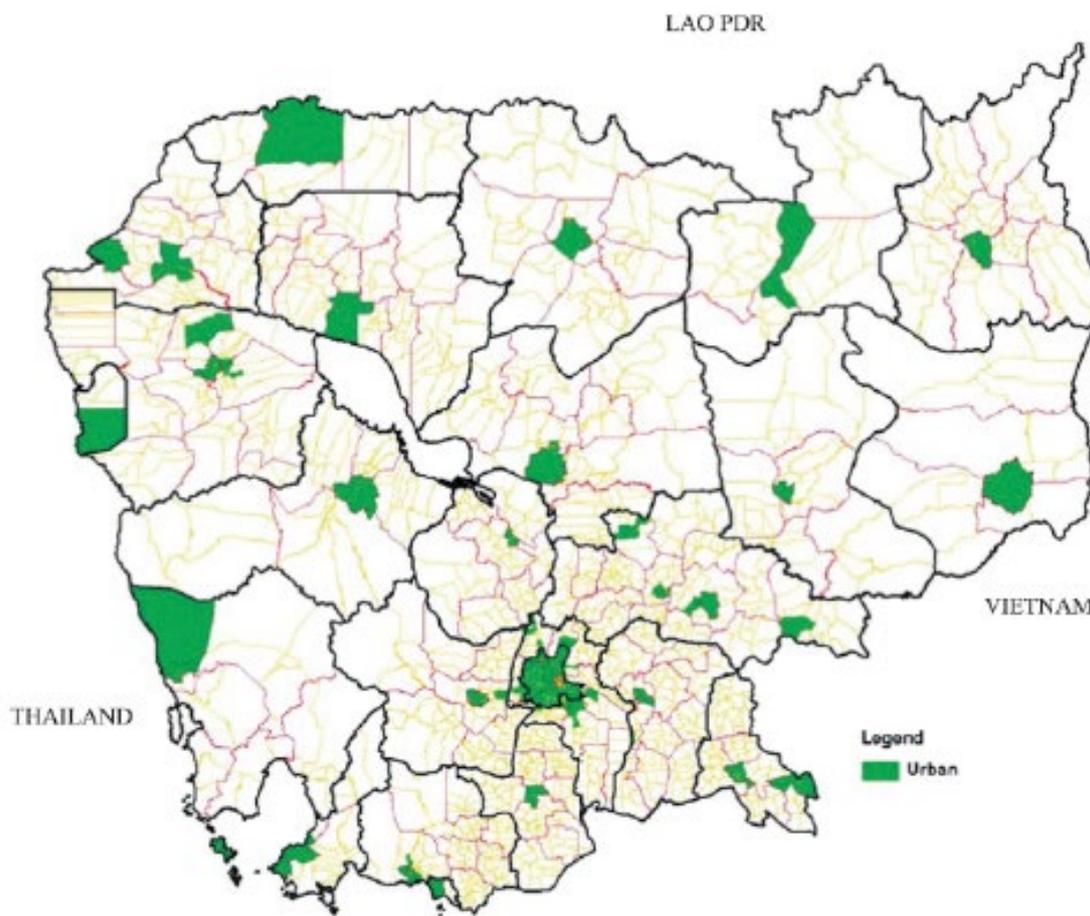


Figure 2. Urban centres by population size (based on Urban Reclassification, 2011)

City size	Name of Province	Municipality	Population reclassification 2011 of 2008 data
A. Municipalities			
1M and above		Phnom Penh	1,501,725
Large: >100,000	Siem Reap	Siem Reap	230,714
	Banteay Meanchey	Paoy Paet	107,989
	Battambang	Battambang	144,323
Medium: 50,00-100,000	Kandal	Takhmao	80,141
	Banteay Meanchey	Serei Sophoan	90,279
	Kampong Thom	Krong Stung Saen	54,033
	Outdar Meanchey	Krong Samroang	51,414
	Pursat	Pursat	58,846
	Preah Sihanouk	Preah Sihanouk	91,284
Small: <50,000	Kampong Cham	Kampong Cham	47,300
		Suong	35,896
	Svay Rieng	Svay Rieng	40,536
		Krong Bavet	37,123
	Prey Veng	Prey Veng	23,890
	Takeo	Takeo	41,383
	Kg. Chhnang	Kg. Chhnang	43,130
	Pailin	Pailin	36,355
	Kampot	Kampot	36,367
	Koh Kong	K. Phumin	25,957
	Kep	Kep	19,573
	Kampong Speu	Chbar Mon	46,850
	Kratie	Kratie	30,544
	Mondulkiri	Saen Monorom	12,340
	Preah Vihear	Preah Vihear	21,179
Rattanakiri	Ban Lung	28,982	
Stung Treng	Stung Treng	30,959	

Source: Reclassification of urban areas in Cambodia, 2011 (NIS, Ministry of Planning)

Sources: Pannasastra University of Cambodia Urbanisation Study 2014

Figure 3. Other urban areas (non designated municipalities/provincial capitals)

Province	Towns	>20,000	Towns	<19,999	Town 3	<9,999
Kandal	SaAng	53,649	KhsachKandal	18,395	KandalStung	9,644
	AngSnoul	40,463				
	KienSvay	34,898				
	PonheaLeu	26,979				
KampongCham	MukhKampul	22,898				
	Memot	36,994	PreyChhor	14,982	KangMeas	6,770
	ChamkarLeu	35,750	CheungPrey	13,620	P'hav	7,386
	ThbongKhmum	19,273	SreySanthor	12,569		
SvayRieng			KampongSiem	14,939		
PreyVeng			PeamRo	18,531	SithorKandal	6,492
Takeo						
BanteayMeanchey	Mongkulborei	22,124			Malay	8,092
Battambang	Sangke	22,358	TaPung	13,651		
			TaMeun	15,192		
			KoukKhmum	11,477		
			AekPhnom	11,085		
			SampovLoun	10,595		
KampongChhnang						
KampongThom					Baray	7,315
SiemReap			SoutrNikum	14,038	Kralanh	5,603
			Puok	13,679		
OtdarMeanchey						
Pailin						
Pursat					Kandieng	4,782
Kampot			ToeukChhou	15,029	KampongTrad	9,455
KohKong			MondulSeima	12,236		
			SraeAmbel	12,676		
Kep						
PreahSihanouk	StungHav	20,277	PreyNoub	10,228		
KampongSpeu			SamroangTong	17,356	Oudong	7,655
Kratie					Chlong	6,931
Mondulkiri						
PreahVihear						
Rattanakiri						
StungTren						
	SUBTOTALS	11		18		11
					TOTAL	40

Source: Extrapolated from Ministry of Planning, 2012, Reclassification of Urban Areas

Total urban population

The total population of Cambodia is estimated at 15.4 million (2015),^{35 36} of whom 2,961,171 are now officially reported in one of the 27 cities (Cambodia Inter-censal Population Survey 2013).

This officially reported figure is likely an underestimate, partially due to reporting by local authorities of families and household for whom they have official records (known as family books). A significant number of urban residents are still recorded in family books in rural areas, where they no longer live.

The urban population is concentrated in the capital Phnom Penh and its growing metropolitan area, home to approximately half of all urban residents (two million people in and around Phnom Penh).

Other 'large' cities and towns are significantly smaller; Siem Reap, a major tourist centre near the Angkor Wat complex, is fast growing and is now home to a quarter of a million people. Other urban centres are Battambang and Poi Pet on the border with Thailand. Most of the other 24 provincial centres

and cities have urban populations ranging from 12,000 to 100,000 people in 2008. Cambodia’s urban ratio is reported to be the lowest among the 11 nations in the South East Asia region,³⁷ but the total urban population is expected to more than double by 2030.

	estimated total pop in 2015 (000)	pop in 2030 (000)
PP	2,000	4,000
BB	150	
SR	250	
Poi Pet	120	
other 7 2ry twns	380	
all other urban	800	
total	3,700	8,000

Source: consultant’s estimate

Issues with the urban population figures and projections

The National Institute of Statistics (NIS) of the Ministry of Planning (MoP) “undertook a reclassification of urban areas in Cambodia in 2011,”³⁴ which adjusted the percentage of the population living in urban areas (in 2008) based on National Census data. This raised the percentage living in urban areas from 20% to 27%. It is likely that the numbers living in urban areas has continued to grow since 2008 and has resulted in the 30% quoted.

It is worth noting the MoP has continued to use the old 2008 dataset without the readjustment, resulting in contradicting figures for the urban populations ranging from 21% (old data) to 30% (current projection). MoP reported that they hope to be able to revise the figures next year (2016) and have requested funding from central government to do so.

It seems to be common that urban migrants – either short term or long-term migrants – return to their rural homes if a shock occurs, suggesting that rural areas provide a safety net during crises. This was clearly evident in 2009 when the global financial

crisis affected the garment, footwear, construction and service industries. Many laid-off workers returned to their families in rural areas, waiting for an opportunity to return to the cities.³⁸ This caused a temporary increase of 1% in the rural population in 2011.

Urban poverty

The definition of poverty, and estimates of its prevalence and how it is changing are highly significant for WaterAid programmes, and thus it is important that we have a good understanding of how Cambodia addresses these issues, as well as its recent performance in reducing poverty.

Estimating poverty by socio-economic characteristics

The most significant recent initiative to identify poverty has been the Cambodian government’s “Identification of poor households programme” (IDPoor), initiated in 2006.

The main objectives of the IDPoor programme are:

- To reduce duplication of effort and resources by different institutions and organisations in identifying their target groups for various poverty reduction interventions.
- Ensure that assistance is provided to those households who most need it.
- When institutions or organisations use this data for targeting services and assistance to poor households, local authorities and local populations will more easily accept the selection of beneficiaries, because the lists of poor households have already been approved and accepted in the participatory identification process.³⁹

All rural areas of the country have been covered by IDPoor, and updates of the data are carried out about every three years. The IDPoor programme is currently also developing procedures for implementation in urban areas from the beginning of 2016.⁴⁰ IDPoor is a seven-step participatory process:

- **Step 1:** orientate and train the planning and budgeting committee representative group at the commune level to oversee and validate the process.

- **Step 2:** establish and train village representative groups to undertake household identification and poverty assessment.
- **Step 3:** village representative groups compile a list of households, conduct household interviews, consider special circumstances of households and score them; after a commune review meeting, they compile and publicly display the draft list of poor households in the village.
- **Step 4:** village representative groups conduct consultation on the draft list of poor households, receive complaints, prepare and display final draft list, and submit it to the commune council.
- **Step 5:** commune council reviews and approves the list, sends data to the provincial department of planning, and distributes IDPoor cards to poor households (after data entry and photography in Steps 6 and 7).
- **Step 6:** provincial department of planning enters all data and household photos into database.
- **Step 7:** photography of poor households.

So the major activities in the identification of poor households are undertaken in steps three and four, where the assessment of whether they are poor or not, and then whether they are ‘extremely poor’ or ‘poor’ is undertaken, as well as public displays and consultation with communities. The assessment gathers various information on households using the following assessment requirements:

- a. Housing condition, which includes roof, wall, area, house quality (and specification of whether it is the household’s property or is rented).
- b. Size of legally owned residential land and productive agricultural land.
- c. Main source of income from growing crops or fishing, or other activities.
- d. Animal raising (such as raising fish for sale).
- e. Ability to meet food requirements.
- f. Number of household members unable to earn an income, relative to the total number of household members.
- g. Material goods and equipment.
- h. Means of transportation.
- i. Unexpected problems or serious crises which

cause the household to lose income, experience food shortages, sell property, or go into debt.

- j. Number of children aged 6-11 who miss school, and the reasons.
- k. Situations which cause deterioration of the household’s living conditions, such as the head of household (husband or wife) suffering from serious disability or chronic disease, households consisting exclusively of elderly members, households with orphans living with them, female-headed households with many young children, or households with no members with the capacity to work.
- l. Situations which improve the household’s living conditions, such as assistance from relatives or other income sources.

These can be grouped and summarised as below:

Table 3. Estimating poverty by socio-economic characteristics		
Socio-economic group	Socio-economic subgroup	Socio-economic characteristics
Housing	Housing	Roofing material
		Wall material
		Condition of house
		Floor area of house
Ownership	Assets	Own radios, mobile phones battery charger, etc.,
	Livestock	Raise fish and/or own pigs, cows, buffaloes etc.
	Transportation	Own bicycles, motorbikes or boats
Productivity	Active members	# of members who cannot produce income
	Income generation	Grow rice, fish, other sources

Source: Ministry of Planning (2012) IDPoor Atlas, Identification of Poor Households, Cambodia, Results from Data Collection Rounds 4 (2010) and 5 (2011), WFP.

The table in Annex A shows the scoring/weighting mechanism used in the household assessment, which results in the following classification:

Category	Classification	Score
ID poor 1	extremely poor	59-68
ID poor 2	poor	45-58
Non poor		<45

Since the programme's initiation in 2006, the majority of the country has been covered at least once (excluding parts of the capital and some urban areas). So far, IDPoor has only been used in rural locations as these were prioritised areas, with an urban methodology long overdue, but promised in the National Strategic Development Plan 2014-18. Ministry of Planning with Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) support has planned to expand and develop an urban methodology and criteria, at which time it should be used by all agencies working in urban areas, including WaterAid.

The table at the end of this section shows IDPoor households identified in 2012: 52,019 households (approximately 277,000 people) in 27 municipalities including the capital.

Estimating poverty by consumption

In 2012, the Cambodian government and donors re-worked and updated poverty benchmarks, approach and data from previous Cambodian socio-economic

surveys to, "better measure well-being using per capita consumption." Two poverty lines were estimated:

- The first corresponds to the cost of a (basic) food basket that contains a minimum amount of calories for the proper biological functioning of a human being. It is called the food poverty line, and is set at a minimum requirement of 2,200 kcal/day.
- The second includes the food poverty line, plus an allowance corresponding to a minimum of non-food goods and services that are also considered

basic for a human being. This is the total poverty line.

Households are classified as extremely poor if their daily per capita consumption is below the food poverty line. Households are classified as poor if their daily per capita is below the total poverty line

Food and non-food items were converted into cash equivalents, and the numbers and percentages of households at or below these levels estimated. The following tables provide (i) the monetised values for the four geographical categories, and (ii) estimated percentages of the population falling below these levels in 2009.

Life in general is more expensive in urban areas, with food estimated to cost (at least) KHR195,000 (US\$49) more per capita per month in Phnom

Region	Food items		Non-food item		Total	
	KHR	US\$	KHR	US\$	KHR	US\$
Phnom Penh	194,510	49	188,820	47	383,330	96
Other urban areas	152,730	38	121,270	30	274,010	69
Rural areas	68,934	17	107,380	27	176,314	44
Cambodia	120,632	30	86,141	22	206,773	52

Source: Ministry of Planning (2013) Poverty in Cambodia A new Approach- Redefining the Poverty Line

Table 6. Percentages of persons below the poverty line according to the New Poverty Line based on CSES 2009 data

Region	Food poverty rates (%)	Poverty rates (%)
Phnom Penh	0.3	12.8
Other urban areas	2.0	19.3
Rural areas	5.1	24.6
Cambodia (weighted average)	4.23	22.89

Phnom Penh. To afford other basic non-food items costs an additional KHR189,000 (US\$47) per capita per month is added to make a combined poverty threshold of 383,000 (US\$ 96) per capita per month in Phnom Penh. However, the proportion of households suffering food poverty in Phnom Penh were low (0.3%), relative to the rest of Cambodia.

Trends of poverty reduction⁴¹

Cambodia's recent economic performance has produced growth with equity. The proportion of people at or below the poverty line has decreased. But many remain vulnerable to any shock, which would push them back into poverty. The average daily per capita consumption increased 38% from KHR6,399 (US\$1.6) in 2004 to KHR8,815 (US\$2.2) in 2011, which was consistent with GDP growth.

Improved access to services and increased ownership of consumer goods also confirms consumption growth, with leading indicators in housing, services and durable goods illustrating that improvements are as big as or greater than the increases in consumption. This is true for the following improved access to housing services:

- electricity (tripled)
- sewerage or septic tanks (doubled)
- piped water during the dry season (25% increase).

and also improvements in access/possession of durables such as:

- televisions (37% increase)
- motorbikes (doubled)

- mobile telephones (quadrupled).

Summary findings from the revised poverty line were that the poorest households in 2011 were equivalent to the average households in 2004. Such consumption increases clearly benefited poor people, with the percentage increase in consumption higher for poor people than for rich. So the shared prosperity index also improved. The share of consumption for the poorest 40% of the population increased from 21% in 2004 to 23% in 2011. After an initial increase, inequality has decreased every year since 2007. But the actual gap between rich and poor people has increased in absolute terms. Combined with pro-poor growth, the consumption increase resulted in poverty nationally decreasing from 53% in 2004 to 21% in 2011.

But the majority of households that escaped poverty did so by only a small margin—they are highly vulnerable to falling back into poverty. For example, in 2011 a small shock of KHR 1,200 per day (US\$0.30) – or the cost of two small water bottles from a street vendor in Phnom Penh – would cause Cambodia's poverty rate to double. So where did all the poor people go? Not very far it seems. Most moved from being poor to being vulnerable. The tremendous poverty reduction was possible because many people who were just below the poverty line in 2004 were able to move just above the poverty line by 2011.

Drivers of poverty reduction 2004-2013

- ▶ Poverty reduction was concentrated in rural Cambodia (where 90% of poor people reside) and was predominately driven by agriculture.

- ▶ Poverty reduction in urban areas was driven by increased salaried employment. The share of urban workers engaged in salaried employment increased, reaching over 50% by 2011. Salaried workers in urban areas generally have more years of education than other workers and were able to take advantage of this education premium, thereby increasing their income.
- ▶ Women have benefited from the garment industry, but wage inequalities remain important. Among salaried jobs, the garment industry is one of the main employers. About 85% of workers in the garment industry are female, and the higher wages paid by garment factories have benefited women in Cambodia. Nevertheless, the overall gender wage gap was 30% – most of it from lesser returns to women with similar endowments to men: education, age and so forth.

How many urban poor people are there?

It remains difficult to know how many poor people live in urban areas. Understanding this is important for WaterAid to determine the level of effort it should be investing in urban programming.

It is worth noting that the Ministry of Planning issued a notification in 2012, the Poverty Estimate in 2012 in Cambodia, following the adoption of a new poverty line that reported the following adjusted poverty lines for Phnom Penh, other urban and rural areas for 2012.⁴²

- Phnom Penh 16%
- other urban areas 14%
- rural 20%.

The following tables for 2015 extrapolate from the officially published poverty data for the 27 designated municipalities in the country, based on the current data from the 2014 commune database, and also that published by the Ministry of Planning.⁴³ It also shows the reported number of poor people in all urban areas (apart from Phnom Penh, which is only partially reported) based on the rural criteria, which may underestimate urban poor people but at least provides an indicative number and a starting point.

The poverty commune database data is based on 13 criteria including water and sanitation factors. The

table shows:

- The reported number of commune/sangkats in the municipalities and the 12 khans of Phnom Penh.
- Officially reported households, population and poverty rates in 2014. Overall, it indicates that an average of 11% of the urban household population could be considered poor; ranging from 1% in Phnom Penh to 28% in Samroang in Oddar Meanchey province.
- IDPoor numbers for 2012 indicate that 62,000 urban households were identified as poor: that's 278,900 people across 27 municipal areas, or 8% of total urban households.

It is also evident that the poverty situation is changing quickly, and rapidly outdated prior reported figures. It is worth bearing in mind that many of those who are now considered non-poor are still very vulnerable, and only marginally above the evolving poverty line. This is very evident in urban areas, where identification of poor households based on agreed criteria and approaches has yet to be undertaken. Various figures on poor households and populations for Phnom Penh have been produced and are reported in the following section to demonstrate the range that the lack of a consistent approach results in.

Phnom Penh

For Phnom Penh we have three possible estimates of the urban poor population, ranging from 168,000 to 400,000.

1. **Estimate 1:** is based on the STT estimates that there are (at least) 33,605 urban poor families in Phnom Penh alone. Using an average household size of five, this suggests there are 168,000 urban poor people living in the 340 settlements they were able to identify. This study is presented in more detail below, but the overall distribution of urban poor people and their changing number over time is:

Figure 4. Urban Poverty Data (2015) Municipalities and 12 Khans (based on 13 indicators)

Urban Poverty Data (2015) Municipalities and 12 Khans (based on 13 indicators)							IDPoor Programme Data			
Municipalities/Khan	# of Sangkats	HH 2014	Popn (2014)	Poverty rate	# of Poor HH	# of Poor Pop	Reported IDPoor households 2012	Reported IDPoor People 2012	# of Sangkats in 2012	
0106	Serei Saophan Municipality	7	21,327	94,979	18%	3,892	17,334	3,539	15,628	
0110	Paoy Paet Municipality	3	22,157	110,691	19%	4,303	21,496	1,596	7,847	
0203	Battambang Municipality	10	27,767	153,727	17%	4,584	25,380	6,632	32,151	9
0305	Kampong Cham Municipality	4	8,800	40,023	10%	854	3,886	533	2,120	
0403	Kampong Chhnang Municipality	4	8,493	42,734	16%	1,381	6,949	2,491	10,805	
0502	Chbar Mon Municipality	5	9,288	49,646	16%	1,504	8,038	704	3,055	
0603	Stueng Saen Municipality	8	12,837	58,017	19%	2,411	10,896	2,585	10,627	
0708	Kampot Municipality	5	7,316	35,874	8%	572	2,805	302	1,196	2
0811	Ta Khmau Municipality	6	15,570	74,273	7%	1,146	5,466	815	3,543	
0904	Khemera Phoumin Municipality	3	5,639	28,672	7%	419	2,130	544	2,398	2
1002	Kracheh Municipality	5	6,265	31,673	19%	1,188	6,005	1,395	5,740	
1105	Saen Monourom Municipality	4	2,676	14,213	21%	562	2,988	383	1,697	
1201	Chamkar Mon Khan	12	24,015	133,133	1%	255	1,411	Were not covered by IDPoor programme in 2012		
1202	Doun Penh Khan	11	15,976	84,676	1%	120	635			
1203	Prampir Meakkakra Khan	8	13,388	71,078	1%	78	412			
1204	Tuol Kouk Khan	10	26,658	146,487	1%	152	835			
1205	Dangkao Khan	13	17,456	87,009	1%	143	713	1,893	7,484	
1206	Mean Chey Khan	4	31,835	170,228	1%	350	1,873	4,900	23,385	12
1207	Russey Keo Khan	6	33,942	152,273	2%	662	2,969	2,119	9,660	7
1208	Saensokh Khan	4	26,397	133,798	1%	219	1,111	781	3,265	6
1209	Pur SenChey Khan	10	37,051	214,758	2%	830	4,811	1,863	7,993	13
1210	Chraoy Chongvar Khan	5	13,493	63,957	2%	202	959	Newly established Khans separated/created out of the older Khans + integrating new Communes		
1211	Praek Pnov Khan	5	12,019	57,533	1%	93	443			
1212	Chbar Ampov Khan	8	26,522	130,972	1%	294	1,454			
1308	Preah Vihear Municipality	2	5,016	22,602	23%	1,135	5,113	1,317	5,740	
1410	Prey Veng Municipality	3	6,036	25,579	10%	609	2,581	1,116	4,145	
1505	Pursat Municipality	7	14,591	67,055	19%	2,753	12,653	2,433	10,532	
1602	Ban Lung Municipality	4	6,381	30,482	20%	1,247	5,959	844	3,843	3
1710	Siem Reap Municipality	13	44,553	237,469	16%	7,298	38,897	8,023	39,010	
1801	Preah Sihanouk Municipality	5	17,156	78,250	8%	1,457	6,643	155	683	1
1904	Stueng Traeng Municipality	4	6,043	31,214	21%	1,270	6,558	906	3,933	
2006	Svay Rieng Municipality	7	9,991	47,007	13%	1,326	6,238	826	2,972	
2008	Bavet Municipality	3	9,169	44,132	14%	1,271	6,117	1,089	4,227	5
2108	Doun Kaev Municipality	3	9,169	44,132	14%	1,271	6,117	1,885	8,134	
2204	Samraong Municipality	5	14,622	62,615	28%	4,025	17,238	4,396	18,585	
2302	Kaeb Municipality	3	4,545	21,018	12%	531	2,457	1,437	6,433	2
2401	Pailin Municipality	4	7,485	31,937	20%	1,466	6,253	3,320	14,963	
2506	Suong Municipality	2	8,298	37,255	9%	756	3,394	1,197	5,097	
		225	589,942	2,961,171	11%	52,628	257,217	62,019	276,891	
Indicators include (i) The proportion of families without latrines; (ii) proportion of families with concrete houses, (iii)thatched roofs, (iv) TVs, (v) motorbikes, and (vi) bicycles; (vii) family size; (viii) proportion of literate adult women; (ix) proportion of adult men; (x) proportion of women who give birth with a traditional midwife; (xi) proportion of families with access to electricity; (xii) proportion of out-of-school children; and (xiii) proportion of families with a water source within 150 meters of the home (MOP 2012).										

Figure 5. Number of Urban Poor Families between 1997-2013

Inner Khans	1997	2003	2009	2013
Doun Penh	2,970	7,188	2,337	614
Chamkarmon	6,479	8,574	2,421	2270
Toul Kork	3,411	4,540	4,920	2288
7 Makara	1,762	3,875	1,884	611
Subtotal	14,622	24,177	11,562	5,783
	48%	39%	28%	18%
Outer Khans	1997	2003	2009	2013
Meanchey	6,656	5,382	9,002	7017
Russey Keo	7,969	13,000	8,482	6023
Sensok	N/A	N/A	4,260	6255
Dangkor	903	19,690	7,242	3976
Porsenchey	N/A	N/A	N/A	4551
Subtotal	15,528	38,072	28,986	27,822
	52%	61%	72%	82%
Grand Total	1997	2003	2009	2013
	30,150	62,249	40,548	33,605

2. **Estimate 2:** a second figure is provided by a Phnom Penh Urban Poverty Assessment undertaken with UNICEF in 2012, which estimated that at least a quarter of a million people (257,484) live in 516 urban poor areas.

However, we would caution about using this figure, as the actual quotation from the report states: “Since 1980, 516 different urban poor communities have been identified by the Phnom Penh administration”. So this could be a cumulative figure over time. Elsewhere in the report a map dated 2012 (page 9) identified 335 communities, which would give an urban poor figure of 165,167 people, which aligns with the STT finding.

3. **Estimate 3:** a third perspective is to simply say that WaterAid Cambodia would be interested in the WASH conditions of the poorest quintile in urban areas, which could equate to 592,234 people across the 27 cities, of whom roughly 400,000 could be in Phnom Penh. Though this would likely cover both the poor and (many of the) vulnerable in urban areas.

This range is significant, and also seems to differ from the current nationally reported levels of urban poverty based on district data (Ministry of Planning 2015), which indicates that 257,217 people (52,628 families) in urban areas throughout the country could be poor. The World Bank’s Poverty Assessment (2013) states that the urban poverty rate in 2011 was 8.7%,⁴⁴ so giving 257,622 people as being poor in all urban areas.

Urban poor settlements

One study⁴⁵ of the living conditions and health status of four poor communities in Phnom Penh summarised the situation as follows: “The interactions of low education, poor living conditions and high food costs in the context of low and irregular incomes reinforce a pattern of ‘living from moment to moment’ and results in a cycle of disadvantage and ill health in these communities.” Findings from this study were organised into six themes that could provide useful insights into the living conditions of urban poor communities (see Annex D).

But in many instances they were still better than many rural areas, where health and other indicators

based on the Cambodia Demographic Health Survey and the 2013 Poverty Assessment show that access to basic services even in slum communities is better, and their residents have access to more durable goods. This ‘improved’ living for some is a pulling factor to stay in urban areas no matter what the conditions.

This review looks at three of the largest urban areas

Phnom Penh⁴⁶

The national NGO Sahmakum Teang Tnaut (STT) undertook a survey in 2013 and identified, confirmed and mapped the presence of (at least) 340 ‘urban poor’ settlements in Phnom Penh (see density and location maps for Phnom Penh from STT 2014, Annex B and C). They defined a settlement as “a group of ten or more adjacent households whose housing structures are of visibly poor quality, and/or whose homes have been laid out in a non-conventional fashion without adherence to a ground plan”.

It is worth observing that this threshold may have excluded (an un-quantified number of) other smaller and possibly more at risk communities/settlements and their residents from consideration (and an area for possible further research). But it does for the first time provide a geo-referenced location for settlements across the city.

Some of the major findings included:

- Urban poor people are moving (or being forced to) move from the core to the periphery of the city.
 - There is a decreasing percentage of settlements in the inner khans, and a corresponding increase in outer khan settlements. With 80 identified settlements remaining in the inner khans and 260 now in the outer khans in 2013, just over three quarters of informal settlements are located in the outer khans, up from 69% in 2009.
- The overall number of settlements has decreased from 410 in 2009 to 340 in 2013, and the number of reported ‘urban poor’ families in 2013 was 33,605, approximately 7,000 families less than 2009.
- This reduction is (probably) due to the decrease in the number of urban poor settlements because of ‘vanished’ settlements, either because the land has been developed, or is now vacant, or settlements did not meet the (STT) criteria for urban poor settlements.
- STT speculates that some of the disappearances of these settlements is also likely attributable to displacement (or consolidation?) and/or evictions; the most notorious case would be the forced eviction of approximately 3,500 families living around Boeung Kak Lake in Doun Penh between 2008 and 2011.
- STT have also mentioned that while they identified 340 settlements, these can be made up of one or more communities, which may have been separately identified in previous assessments. And in fact a number of the existing settlements are fragmented, with multiple communities within them.
- The majority of surveyed settlements (71%) were reported as not being organised as communities, meaning that the settlement households have not been organised with a community committee through such means as savings groups.
 - Previously savings schemes had often been a starting point for community organising. As communities with savings schemes are often stronger and better organised than those without them. It now appears that these networks and structures have faded.
 - STT’s research now shows that only 63 settlements had organised savings schemes; 59 in the outer khans (23%) and 4 (5%) in the inner khans. Out of these savings schemes 43 (68%) were reported to still be functional.
 - Other settlements in the outer khans also reported having other organisations or associations working with them (38%), more than in the inner khans (11%).

However, this appears to digress from the UNICEF-supported Urban Poverty Assessment 2012, which stated that “86% (of the 281 communities they

surveyed), reported to have appointed a community representative/leader”. This may call into question issues of urban/community good governance and representation.

- In terms of size and locations, it was found that settlements in both inner and outer khans are now relatively small in size, with the majority of settlements containing fewer than 50 building structures and only 13% containing 110 or more structures.
- 40% of settlements were reported on public land of some form, though residents in 86% of them state they know who owns the land and frequently claim it belongs to the residents. There was also evidence from settlements (25%) and communities that they had been excluded from government and donor-supported systematic land registration processes.
- 41% of settlements were located next to some kind of body of water such as rivers, canals and lakes. Ninety settlements in the outer khans (35%) and 40 settlements (50%) in the inner khans are on land that had previously been water. In the outer khans settlements had also been established on vacant land (36%), and on rice fields (15%).

Infrastructure and service provision

Infrastructure and service provision is lacking in the urban poor settlements of Phnom Penh, with no significant changes since 2009,⁴⁷ when it was reported that there was a gap between the inner and outer khan settlements in terms of infrastructure and service provision, with services and infrastructure being more limited and of worse quality in the outer khans. Today the outer khan settlements still lag

behind in this regard. The following table indicates the difference in coverage between settlements in inner and outer khans. In terms of access to water supplies, while a larger number of settlements are reported to have access to piped water supplies, 30% of outer settlements are reported to use other sources of water rather than piped water. A quarter (24%) of all outer communities appear to be buying water through private distribution systems (most likely Phnom Penh Water Supply Authority water) and at inflated prices reported at three and a half times the Authority’s rate: 2,615KHR (US\$0.65) vs 750KHR (US\$0.19). Only a small number of inner khan settlements (8%) are forced to do this.

As shown, there are several problems particularly pertinent in the outer khans including drainage, solid waste collection, and electricity and water connections. There also appears to have been some confusion amongst the authors of these assessments over what is meant by drainage and sewage systems which may mean that the data presented does not provide an accurate picture.

Nearly all settlements are affected by flooding to a varying extent, a larger proportion of inner khan settlements (68%) were affected at least once in the last three rainy seasons compared to the outer khans (53%). However, outer khans reported flooding that took longer to drain. Waste collection was also lacking, especially in the outer khans with the majority of settlements (72%) without any collection, compared with 18% of inner khan settlements. About 80% of both inner and outer khan settlements are connected to state electricity, Electricite du Cambodge, although more settlements in the inner khans (80%) than in the outer khans (60%) have direct connections, as opposed to connections through landlords or middlemen.

Figure 6. Infrastructure and service provision in inner and outer khan settlements

Locations	# of Settlements	Water Supply			Sanitation		SWM Services
		Piped Water Supplies	PPWSA connections	No Piped Water Supplies	Sanitation (individual HH latrines)	No Sanitation at all	
Inner Khans	80	86%	78%	9%	86%	3%	82%
Outer Khans	260	67%	43%	30%	77%	14%	28%

In conclusion, the Phnom Penh survey found that the overall living conditions of urban poor settlements are still in dire need of improvement. This is particularly true for outer khan settlements, where residents experience a greater lack of infrastructure and service provision. Although improved living conditions will make a significant difference to the daily lives of settlement residents, this alone cannot guarantee them adequate housing. Crucially, urban poor settlements must be provided with secure tenure.

However, the question remains of whether they are entitled to it. Demanding tenure security is one thing, but there remain legal issues as the threats of eviction, both formal and informal, persist because the majority of settlements have not taken part in land registration processes; some have even been explicitly excluded.

The Phnom Penh Urban Poor Assessment, Municipality of Phnom Penh⁴⁸

As noted earlier, in 2012 the municipality of Phnom Penh conducted an Urban Poor Assessment with UNICEF support to be their baseline study on urban poor communities, and to give an overview of living conditions, socio-economic status and delivery of social services in the capital. According to the study, “since 1980, 516 different urban poor communities have been identified by the Phnom Penh administration”. The study surveyed 281 communities with an average 499 people in each settlement, which could equate to 230,000 people in the 516 communities identified. The report

also stated that 342 surveyed communities were reported as organised, while 174 were not. Within the communities a sample of households and community representatives were interviewed.

The study revealed a gloomy economic picture for urban poor families; 60% reported earning less than US\$75 per month, thus living below the poverty line. Eighty-three percent of families were found to be in debt.

In terms of infrastructure and services, the following table indicates the results from the 281 community representatives. While sanitation and environmental hygiene were of concern for almost 30% of communities without a proper sewage system, close to 40% reported being without garbage collection and 15% without a connection to a running water source. Community representatives indicated that only 11% of the 281 communities had public toilets, and 80% of the 2,000 households interviewed indicated having access to a “private household toilet”.

In their summary of this research, STT observed that:

1. This study aggregates all khan data together, leaving out any differences between inner and outer khans, a distinction that has been important in the past for many issues including tenure security, infrastructure and service provision.
2. The study did not specifically collect data on tenure security or land registration but, nevertheless, noted that “most urban poor communities... have developed on public land”.

Figure 7. Water and sanitation infrastructure

Reported Access to Services	N responses of community representatives	Percent of communities
Access to clean water (N=280)	239	85%
Sewage system in community (N=273)	196	72%
Garbage collection system in community (N=274)	165	60%
Public toilet in community (N=268)	30	11%
Dissemination campaign to promote WASH (N=266)	174	65%

Source: Phnom Penh Urban Poor Assessment 2012 Table 11: Water and sanitation infrastructure

Table 7. Opportunities for civil society/WaterAid Cambodia

Area	Description
<p>Become more actively engaged with the newly established (2014) Basic Social Services & Economic Development Sub Working Group in Phnom Penh city and its proposed adoption of a minimum package of approaches including for WASH⁴⁹ in informal settlements. Test WASH component.</p>	<ul style="list-style-type: none"> • Support more in-depth and focused WASH-related studies to validate findings of previous studies in terms of access, use and costs of WASH-related infrastructure and services. • Examine the successes, failures, challenges and opportunities coming from previous interventions. • Engage and expand urban WASH actors’ and stakeholders’ networks and identify needs and demands. • This would contribute to WaterAid’s standing in the capital urban sector and provide WaterAid with practical experience and learning opportunities close to the WaterAid office and accessible to monitor. • Contribute to expanding on the draft minimum package under development, though time may be running out on this.

Urban poor settlements in other urban areas

Battambang

Battambang municipality is reported to have 107 informal settlements,⁵⁰ of which 66 are ‘recognised’ by the municipality, and were reported to have some 2,250 households (around 10,600 residents) in 2009.⁵¹

WaterAid Cambodia visited two adjoining communities in Toul Ta Ek near the old railroad (currently out of service, but due to be rehabilitated as an economic development project with Asia Development Bank and Australian support). These had 237 households, of which 46 (19%) had been classified as poor (IDPoor 1 or 2). These communities were ‘organised’ into two savings groups with a total of 188 members (79%). Though the communities had no legal tenure, almost all had piped water connections, either from the Battambang water supply operator at a total connection charge of about US\$255, or from a private water supplier who, using the railway water tank as a reservoir, provided a connection for about US\$55. The tariff from the Battambang water supply operator was KHR1,500 per m3 (US\$0.36), and KHR 2,000 per m3 (US\$0.5) from the private operator. Water was cleaner from the Battambang water supply operator because the

railway tank had not been cleaned.

Approximately 70% of households had their own toilet; other households shared a neighbour’s toilet and contributed to the de-sludging costs. The municipality and Battambang water supply operator provide a partial subsidy for water connections, with Battambang municipality reporting a connection cost of US\$190 for non-poor and US\$140 for a poor household. Local NGO, Community Managed Development Partners, has established an urban community research centre that works with communities to map and survey all the houses in selected informal settlements to prepare land use maps/plans. They facilitate the proposal of a new, more organised arrangement, that would also set aside land for public development projects such as railway or road construction, but also allocate and accommodate space for upgrading the communities.

Siem Reap

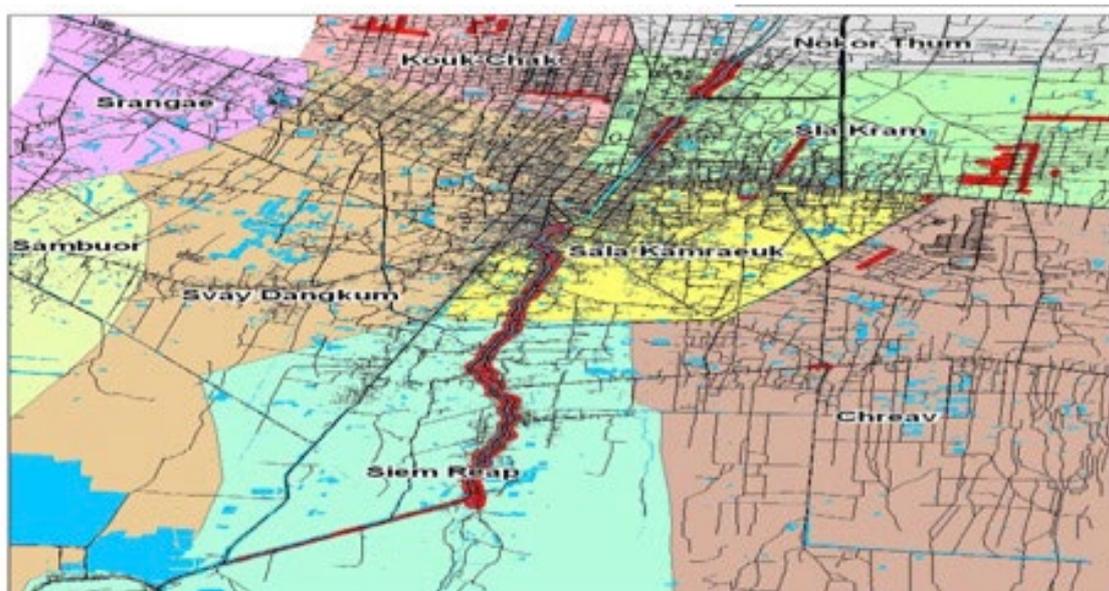
Siem Reap municipality estimates that the city has a population of 246,000 spread across 47,000 households. There are reported to be 21,000 wells and 6,635 households with a piped connection. In 2006, the municipality estimated that 17% of the population could be classified as poor; if that ratio was valid today that would suggest 42,000 people

Figure 8. Map of Battambang informal settlements



Source: Goad and Meas STT 2012

Figure 9. Location of informal settlements in Siem Reap municipality (red dots) (Kraput, K. 2006)



Source: Goad and Meas STT 2012

(it is worth observing that the 2015 poverty rate for Siem Reap municipality is indicated to be 16%, which would be 7,298 households and 38,897 people). The city’s economy is driven by a large tourist sector with many hotels, shops and guest houses, due to its closeness to the nearby Angkor temples complex, which has contributed to driving large amounts of people migrating in search of employment.

Three studies of informal settlements in Siem Reap were located during this review. One study in 2006 identified 29 settlements with approximately 1,600 families⁵² (8,000 people), a second study referred to by STT⁵³ was undertaken by architectural students from the Royal University of Fine Arts in 2009 and reported 66 settlements, while a more recent report⁵⁴ listed 1,260 families (6,300 people) in 31 settlements.

Some of these settlements had been relocated from the river in the town centre as a ‘beautification’ measure, and some households had built new dwellings in resettlement areas some 15 kilometres from the town. Here they had been provided with a plot (approximately 100m²), a toilet, septic tank and a borehole with a Afridev handpump for every

10 plots. Hundreds of such plots had been prepared and are waiting for inhabitants. There are numerous informal settlements along the river that goes south from the city to Tonle Sap lake. These clearly discharge their human waste into the river.

Housing types and household sizes

The Cambodian Socio-Economic Survey has monitored the use of household assets and the most recent findings are that approximately 80% of all urban dwellings are one or two room, (excluding kitchens and bathroom), compared with 92% in rural areas. The survey reports at least two persons per room in Phnom Penh and three persons in other urban areas, with an average of 12 square metres per person. This indicates that, “the statistical average size of a household is larger in urban areas (4.8 persons) than in rural areas (4.6 persons) in 2013. While the average number of rooms per household are also larger in urban areas (1.98 rooms) than in rural areas (1.34 rooms), hence the average number of persons per room is smaller in urban areas (2.41 persons) than in rural areas (3.43 persons) in 2013.”

Table 8. Opportunities for civil society/WaterAid Cambodia:

Area	Description
Assemble and analyse more detailed WASH data on urban poor communities (including physical mapping and possession rights).	<ul style="list-style-type: none"> • JICA have GIS maps for eight provincial cities and are able to share with NGOs. • Support ongoing mapping efforts by strengthening human resources: <ul style="list-style-type: none"> • Develop and support the adoption of a community mapping protocol on scale, outputs (size) legend and icons used etc...to harmonise and enable shared platform usage. • Facilitate collaboration and sharing of mapping info between NGOs and stakeholders. Ensure that produced maps are open access and available (internet cloud posting). • Support the integration of WASH-related assessments into current mapping activities, and identify gaps and excluded groups from existing services. • Meet with GIZ team developing criteria for IDPoor for urban areas to understand the process and update estimates of urban poor populations.

Table 9. Number of rooms by geographical domain, percent and average in 2012

Number of rooms	2012			
	Cambodia	Phnom Penh	Other urban	Other rural
One room	70	44	56	76
Two rooms	22	35	25	20
Three rooms	5	12	12	3
Four rooms	2	5	5	1
Five or more rooms	1	4	3	0
Total	100	100	100	100
Average number of rooms per average household size	1	2	2	1

Table 10. Average floor areas per person (M2) per region 2012

	2012			
	Cambodia	Phnom Penh	Other urban	Other rural
Average square metres per person	10	12	12	9

Source: Cambodian Socio-Economic Survey household data⁵⁵

The review identified three types of housing:

1. Formal housing built to standard on legally registered land, owned privately, durable materials.
2. Informal settlement housing, small, high density, durable and non-durable materials, uncertain rights of possession; owner-occupied or rented out.
3. Factory worker residences.

Two-thirds of all urban households had between three and six members, with an average size of five. The proportion of urban households headed by women across different studies ranged from 22-28%.

Figure 10.
Table 2.3 Household composition

Percent distribution of households by sex of head of household and by household size; and mean size of household, according to residence, Cambodia 2010

Characteristic	Residence		Total
	Urban	Rural	
Household headship			
Male	72.2	73.1	72.9
Female	27.8	26.9	27.1
Total	100.0	100.0	100.0
Number of usual members			
0	0.0	0.0	0.0
1	2.4	2.9	2.8
2	8.8	7.8	8.0
3	13.9	16.4	16.0
4	21.1	22.7	22.4
5	17.8	20.3	19.9
6	14.6	13.8	13.9
7	9.2	7.9	8.2
8	5.1	4.5	4.6
9+	7.1	3.6	4.2
Total	100.0	100.0	100.0
Mean size of households	5.0	4.7	4.7
Number of households	2,652	13,015	15,667

Note: Table is based on de jure household members, i.e., usual residents.

Source: Demographic and Health Survey, 2010, Table 2.3

Vulnerable groups in urban areas

An effort was made to quantify different vulnerable groups in urban areas using a variety of sources.

Female-headed households

Nationwide, the Cambodia Inter-Censal Population Survey reports that 27% of all households nationwide were female-headed. On further analysis the CIPS states that, “the number of both male-headed and female-headed households has increased rapidly and are higher than the annual population growth rate by sex, female-headed households increased 0.72 million in 2008 to 0.85 million with a growth rate of 3.4%,” over the half decade, against the male-headed household growth of 2%. This indicates that females are being left to manage and head households more frequently as male members leave or migrate. Female-headed households were found to be slightly more prevalent in urban (28%) than rural areas (27%).⁵⁶

It is worth observing as the Asian Development Bank has done that, “In 2011, the difference in income poverty rates between households headed by women and those headed by men appear very

small. However, if household composition is taken into account, female-headed households with more than two children and no adult males are much more likely to be poor, and the girls more likely to be working.”⁵⁷ This would appear to be a very specific set of criteria, which if considered in terms of single parent households (i.e. a household with one parent (female or male) with two or more children) it would be fair to speculate that they are more likely to be poor and vulnerable regardless of gender considerations.

Figure 11.

	Household heads		% FHH	% Annual Growth Rate FHH 2008-2013
	Male	Female		
Cambodia Total	2,306,765	856,462	27	3
Urban	472,422	185,529	28	6
Rural	1,834,342	670,933	27	3
Province s				
Banteay Mean Chey	128,178	33,245	21	1
Battambang	173,697	56,607	25	1
Kampong Cham	289,095	114,532	28	4
Kampong Chhnang	85,715	25,641	23	2
Kampong Speu	110,607	47,374	30	6
Kampong Thom	112,655	36,750	25	-1
Kampot	102,418	33,731	25	2
Kandal	176,941	61,494	26	1
Koh Kong	18,844	6,814	27	-2
Kratie	60,324	12,726	17	4
Mondul Kiri	12,377	2,874	19	10
Phnom Penh	243,436	109,266	31	9
Preah Vihear	38,555	9,687	20	14
Prey Veng	169,991	85,969	34	2
Pursat	70,864	25,419	26	5
Ratanak Kiri	30,952	5,226	14	10
Siem Reap	142,386	47,322	25	3
Preah Sihanouk	33,747	18,208	35	9
Stung Treng	20,078	5,281	21	9
Svay Rieng	94,863	36,109	28	1
Takeo	133,806	66,293	33	3
Otdar Meanchey	38,312	11,954	24	9
Kep	6,577	1,801	22	5
Pailin	12,345	2,139	15	-2

Urban poor women

A 2015 report by the United Nations Population Fund (UNFPA) says of the Phnom Penh Urban Poor Assessment that; “with over 45% ‘urban poor’ households (in Phnom Penh) having six or more members, the urban poor are more crowded than the average household in Phnom Penh. In addition, 57% of these poor households have two or more children (the average in Phnom Penh is 1.5). One-sixth of the households have at least one vulnerable family member, and a quarter of families reported a member with chronic disease. This is compounded by the fact that up to 38% of surveyed households reported being female-headed, compared to a national average of 27% and the urban average of

28% (in 2013). With more family members to care for, the burden on household heads is enormous.”⁵⁸

The UNFPA goes further and states that, “most households in urban poor communities need multiple sources of income, and on average two people work to support the entire family – an indication of a high dependency ratio. Partly due to their limited education, most slum dwellers engage in low-paid, labour-intensive occupations. Up to 60% of households reported earning less than US\$75 per month. With the average household size of over five, such income translates into just 50 cents per day per person – hardly enough to buy food, let alone other basic necessities, and significantly below the adjusted monetised Phnom Penh poverty line of 6,347 KHR (US\$1.59).”⁵⁹

Health problems, including HIV/AIDS and malnutrition, are also some of the key challenges among Phnom Penh’s poor communities. For example, less than 80% of urban poor families with pregnant women attended four antenatal care visits (full prenatal care). Many (83%) poor households were therefore pushed into contracting debts for food, business start-up, health care, childbirth and children’s education.

People with disabilities in urban areas

Two sources of data were used to attempt to quantify and qualify the scale and number of people with disabilities in urban areas.

The first was the Cambodia Inter-Censal Population Survey’s 2013 Analytical Report on Disability,⁶⁰ which indicated that overall only 2% (of the national population of 302,000 people) were reported to have a disability. This seems like a significant underestimate (although it is an increase on the numbers considered disabled when compared to the 2008 census, which reported 1.7%).

It is generally considered that a tenth of the population are likely to be challenged by some form of disability, with the majority of disabled people (86%) living in rural areas of Cambodia.

Of those living in urban areas (41,600), the following is the percentage breakdown by disability grouping. Just under half (47%) were reported to be economically active.

Figure 12.

Total number of Disabled persons	301,629	41,649
		14%
% Breakdown by Disability Grouping		
Total	100	100
Type of Disabled		
Seeing	35	42
Speech	5	5
Hearing	9	10
Movement	33	26
Mental Retardation	5	7
Mental illness	7	5
Other	4	3
Multiple Disabilities	2	2

Source: National Institute of Statistics 2014 table 3.3

The second source of information on disability and other vulnerable groups was the commune database, aggregated for the capital city and municipalities in the country. As can be seen below, it appears to significantly underreport the number of disabled people in urban areas with just 11,000 people living with disability, which is only about 25% of those identified in the Cambodia Inter-Censal Population Survey.

Street children/child labourers and homeless people

In terms of homeless people, street children and child labourers, the table opposite also significantly underreports their presence in urban areas, with only 569 homeless people and 74 street children being reported. This underreporting is most likely due to limited capacity and resources to assess and effectively consider vulnerable groups within local

authority areas of responsibility.

There are a limited number of sources of information on street children in some of the urban centres, and estimates are usually based on periodic snapshot surveys by the Cambodian Street Children's Network. Two available reports were looked at, for 2011 and 2014, and the table below shows reported numbers and changes over time. It should be noted that the methodology for these snapshot surveys is likely to lead to underrepresentation, as it is a rapid approach based on collecting data through one whole day only.

Across both surveys only about a fifth of children (21%) recorded are living on the street with either family, friends or by themselves across both surveys, while the remaining have homes but spent the greater part of the day on the street. Roughly a third (36%) across the two surveys do not attend school.

Child labour also appears to remain an issue, with Municipality of Phnom Penh (2014) reporting just 100 orphaned children working, and indicating that child labour only occurs in some khans. When this was compared with the ILO-supported Cambodia Labour Force and Child Labour Survey (2012), this indicated that at least 19% of all children 5-17 years (755,000 children) were working nationwide.

For Phnom Penh, the number of working children reported was 28,000, with over half (14,922) considered as child labourers (60% of whom were girls). Of greatest concern were the 5,400 children reported in hazardous labour (57% female). The majority of child labourers were unpaid family workers.

Figure 13.

City	# in 2011	%	# in 2014	%	Decrease
Battambang	170	4%	100	3%	-41%
Kampong Cham	n/a	n/a	115	3%	
Neak Loeung (Prey Veng)	174	4%	160	5%	-8%
Phnom Penh	2,184	45%	2,081	60%	-5%
Poipet &	228	5%	135	4%	-41%
Siem Reap	1318	27%	628	18%	-52%
Sihanoukville	755	16%	274	8%	-64%
	4,829		3,493		

Source: CSCN reports 2011 & 2014

Figure 14. Identified vulnerable groups in urban areas, based on CDB data 2013

#	Municipality	Total Population (2015) CDB 2014	Total number of disabled people per 1000 population		Total Homeless people per 10,000 population & Estimated #		Families living in a house on public land per 1000 families & Estimated #		# of vagabond/homeless children below 18 living on public land per 100,000 under 18 & Estimated #	
0106	Serei Saophoan Municipality	94,979	4	427	2	16	43	921	5	1.49
0110	Paoy Paet Municipality	110,691	4	465	2	20	67	1,520	2	1
0203	Battambang Municipality	153,727	4	573	1	12	83	2,299	4	2
0305	Kampong Cham Municipality	40,023	3	128	1	4	13	114	20	2
0403	Kampong Chhnang Municipality	42,734	5	213	4	16	34	292	0	-
0502	Chbar Mon Municipality	49,646	7	323	2	11	11	107	11	2
0603	S tueng Saen Municipality	58,017	6	370	2	12	43	552	0	-
0708	Kampot Municipality	35,874	6	226	0	0	54	399	0	-
0811	Ta Khmau Municipality	74,273	4	267	13	96	39	611	91	20
0904	Khemara Phoumin Municipality	28,672	2	64	4	12	77	436	0	-
1002	Kracheh Municipality	31,673	5	155	3	9	58	362	0	-
1105	Saen Monourom Municipality	14,213	8	108	1	1	1	3	0	-
1201	Chamkar Mon Khan	133,133	1	128	0	0	41	982	0	-
1202	Doun Penh Khan	84,676	2	153	5	43	5	74	51	12
1203	Prampir Meakkakra Khan	71,078	2	107	0	0	4	55	0	-
1204	Tuol Kouk Khan	146,487	2	229	0	7	60	1,611	0	-
1205	Dangkao Khan	87,009	6	536	1	13	49	850	0	-
1206	Mean Chey Khan	170,228	1	236	1	14	40	1,267	0	-
1207	Russey Keo Khan	152,273	1	121	1	16	67	2,273	6	3
1208	Saensokh Khan	133,798	3	365	0	7	77	2,036	0	-
1209	Pursenchey Khan	214,758	3	598	2	42	13	500	8	5
1210	Chraoy Chongvar Khan	63,957	2	144	1	7	29	387	0	-
1211	Præk Pnov Khan	57,533	5	286	4	22	36	436	47	8
1212	Chbar Ampov Khan	130,972	3	341	1	20	21	552	0	-
1308	Preah Vihear Municipality	22,602	12	266	2	4	16	81	0	-
1410	Prey Veng Municipality	25,579	4	110	2	6	6	33	0	-
1505	Pursat Municipality	67,055	8	527	6	39	63	925	4	1
1602	Ban Lung Municipality	30,482	2	72	1	4	35	225	0	-
1710	Siem Reap Municipality	237,469	4	927	1	34	69	3,095	1	1
1801	Preah Sihanouk Municipality	78,250	2	184	1	7	55	935	14	3
1904	S tueng Traeng Municipality	31,214	4	122	3	11	4	26	0	-
2006	Svay Rieng Municipality	47,007	5	238	0	0	4	44	0	-
2008	Bavet Municipality	39,744	4	163	4	17	12	109	43	5
2108	Doun Kaev Municipality	44,132	5	216	6	28	12	112	41	5
2204	Samraong Municipality	62,615	9	566	2	12	5	73	8	1
2302	Kaeb Municipality	21,018	13	277	0	1	6	25	0	-
2401	Pailin Municipality	31,937	17	552	1	3	10	77	32	3
2506	Suong Municipality	37,255	4	146	1	3	10	83	0	-
		2,956,783		10,929		569		24,483		74

Source: Ministry of Planning, district indicators dataset 2013

Urban renters⁶¹

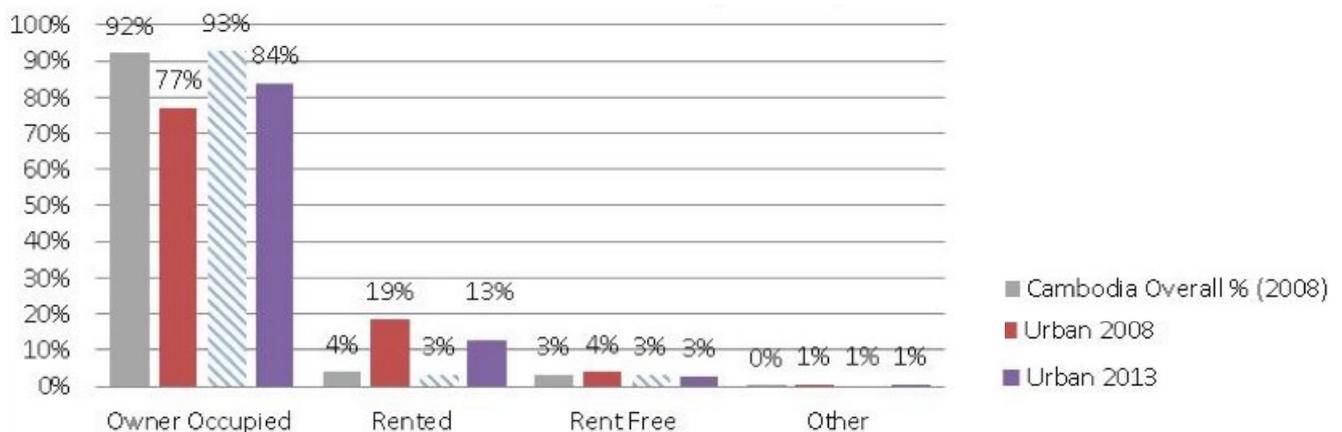
Very little concrete information exists on the urban rental situation in Phnom Penh. Urbanisation since the Paris Peace Agreement of 1991, when large-scale migration was allowed to occur, has occurred at a very high rate of 8.4% according to the Asian Development Bank. Research by STT on government-established relocation sites indicated that many relocated households often abandon (at least temporarily) their plots at the site and become renters in the city⁶² again, as few if any economic opportunities exist in or around relocation sites to support evictees. Parallel with this has been the ongoing rural-to-urban migration, bringing increasing numbers of potentially low-income workers to the city. Combined with increased scarcity of unclaimed and undeveloped land in and around the capital,

the number of low-income renters in the city is rapidly growing.

From the most recent Cambodia Socio-Economic Survey in 2013, it would appear that nationally only 3% of housing stock is reported as being rented, down from 4% in 2008. For urban areas, the rental portion is significantly higher but has also shown a decline between 2008 and 2013, dropping from 19% to 13% of housing stock, which was reported as 94,312 housing units in urban areas in 2008 down to 83,205 units in 2013, a drop of 11,200 units.

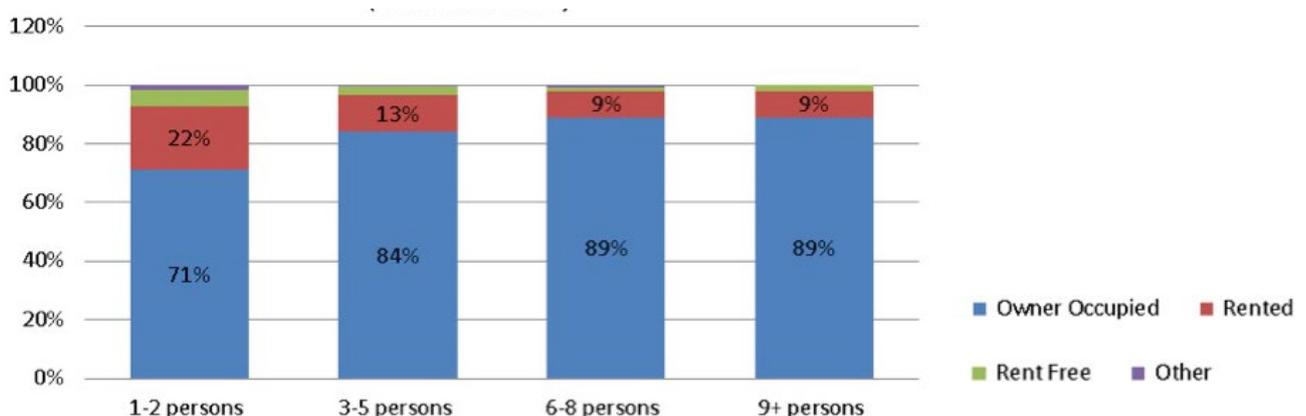
In terms of household sizes by different tenure types in urban areas, the following chart tries to display available findings from the 2013 Cambodia Socio-Economic Survey. It indicates that a fifth of single occupancy rentals (1-2 persons) make up a considerable portion of the single occupancy tenure

Figure 15. National and urban tenure status 2008 & 2013



Source: NIS

Figure 16. Urban households by tenure of dwelling and household size



Source: CSES 2013

type. Based on this, and taking the median number of household sizes by grouping and the reported number of housing units rented, it would indicate that at least 355,000 people are living in urban rental accommodation in 2013.

The main findings from STT's study of renters in 2014 are:

- Six main occupations:
 - a. Street vendor (snail/shellfish seller, fruit seller, grilled meat seller, etc.).
 - b. Food and service worker (restaurant service, beer promoter, etc.).
 - c. Rubbish collector (CINTRI rubbish collector, scavenger, push cart 'etchai').
 - d. Other urban poor (miscellaneous jobs).
 - e. Youth/student.
 - f. Garment worker.
- Average dwelling size: 13m²
- Average rent per household: US\$26.5/month.
- Connected to piped water supply: 67%.
- Private toilet: 62%.
- Garbage collection: 66%.
- Electricity supply: 90%.
- Formal rental agreement with landlord: 2%.

A quote from one resident:

"All the renters here – around 26 families – have to share one toilet in the complex. The quality of housing is very low; for instance, the roof and walls are littered with holes so we always suffer whenever it rains. Also, the rooms are too small to even share with our family members. The ground is always wet or flooded, which leaves a terrible odour."

(STT, pg. 19)

Anecdotal discussions during the mission suggested that renters usually pay about US\$10 per month (KHR 40,000) per person, and this is paid in advance every two or four weeks.

Using the UN Habitat definition (see box below), many of these settlements could be classified as 'slum':

- Almost all dwellings on the basis of space (average of five persons living in one or two rooms).
- Some dwellings are made of non-durable materials.
- Some, perhaps many, have no security of tenure.

However, most seem to have access to improved water and sanitation

Slums are defined by UN Habitat as lacking any one of the following:

- sufficient space (not more than 2 people per room);
- durable structure (permanent and adequate structure in a safe location);
- security of tenure (documented proof or protection from eviction);
- access to improved water;
- access to improved sanitation.

4 Urban land possession, ownership and evictions⁶³

A recent UNFPA study on urbanisation⁶⁴ in Cambodia states that it, “identified a list of 261 legal and policy texts related to land management, urban planning and construction for the period 1989 to 2014. The list at least comprises of the Constitution, 11 laws, 7 royal decrees, 156 sub decrees, 31 (inter-ministerial) prakas, 26 decisions/directives, 18 circulars, 8 announcements, and 4 policy papers. Despite the exhaustive search, it is likely that the Directory of Regulatory Framework on Land Management, Urban Planning and Construction (is still) incomplete.”

The legal framework related to land ownership, rights and land tenure is based on the principles set out in the Cambodian Constitution, which under Article 44 states, “All persons, individually or collectively, shall have the right to ownership. Only Khmer legal entities and citizens of Khmer nationality shall have the right to own land.” The legislative framework is further developed in the 2001 Land Law and supplemented by various sub-decrees, prakas, circulars and administrative documents. The Constitution recognises that all persons, individually or collectively, have the right to private ownership. It (in theory) provides for protection against arbitrary expropriation, requiring that privately owned land can only be confiscated in the public interest, and only on the condition of fair and just compensation.⁶⁵ The 2001 Land Law extends private ownership rights to residential and agricultural land, but retains state ownership over natural resources and the forests.

Land distribution and entitlement

Apart from possession rights as outlined in the Land Law, a number of legal mechanisms have been developed by the government to address land-related issues, and these are being applied to different parts of the country, including urban areas. They have significant implications for urban vulnerable and poor people, especially those living in informal settlements scattered around the cities and towns of the country. The mechanism most used is social land concessions, as these have been used to establish relocation sites and onsite upgrades. A

secondary mechanism is known as the Circular on (the) Resolution of Temporary Settlement on Land Which Has Been Illegally Occupied in the Capital, Municipal, and Urban Areas – –perhaps more easily known as Circular #3.

Social land concessions

Chapter five of the 2001 Land Law allows the competent authority to give any natural person or legal entity or group of persons the right to occupy a land and to exercise thereon the rights set forth by Land Law. Land concessions can respond to a social or economic purpose. Where for a social purpose it, “allows beneficiaries to build residential constructions and/or to cultivate lands belonging to the State for their subsistence”. A land concession may not be gratuitously granted, except for the concession responding to a social purpose, i.e. being given to poor families to establish residences for themselves and/or to develop subsistence cultivation. Only land granted for social purposes can have ownership rights established, and a land concession can only be granted on lands that are part of the State’s private property land bank.

Another important clause, Art 53, states that: “A land concession can never result from a de facto occupation of land. The land concession must be based on a specific legal document, issued prior to the occupation of the land by the competent authority, such as the State or a public territorial collective or public institution that is the owner of the land on which the concession is being granted. The concession must be registered with the Ministry of Land Management, Urban Planning and Construction.” However, this clause has been ignored or sidestepped on a number of occasions where lands were occupied prior to initiating a social land concession.

Sub-decree #19 (2003) outlines the legal requirements for social land concessions and prakas, laying out a basic five step process.

Table 11. Legal requirements for social land concessions and prakas	
Steps	Requirements
<p>Step one: Public dissemination</p>	<p>With technical assistance from the district-khan working group, the commune-sangkat council shall implement a local social land concession plan by widely disseminating and informing the community and targeted land recipients about the local social land concession programme, and the purposes and conditions for participation in the social land concession programme.</p>
<p>Step two: Notice of application process</p>	<p>The commune-sangkat council shall specify date(s), duration and place for accepting the application for social concession land. The notice of application shall be made at least 30 days prior to the date of accepting the application.</p> <p>The application for social land concession lasts 20 days.</p> <p>The list of all applicants who have been accepted during the application process shall be publicised at the commune-sangkat office for at least 30 days prior to the assessment of the application.</p>
<p>Step three: Selection of recipients</p>	<p>The commune-sangkat councils shall be responsible for selecting targeted land recipients from among all applicants. The approval or disapproval of the application shall be in writing by specifying clear reasons and arguments for each applicant, and shall be made openly and publicly. The district-khan working groups shall provide technical assistance to assess every application.</p> <p>The Targeted Land Recipient Selection Technical Unit shall review the selection of the targeted land recipients based on the selection criteria specified in the social land concession plan.</p> <p>The list of land receivers and the list of concession land alternates shall be publicised for 20 days for the public or failed applicants or alternate applicants to file their complaints.</p>
<p>Step four: Land allocation</p>	<p>The notification of the parcel lottery draw must be at least seven days prior to the draw date, and shall be made in public places within the concession land area, with the presence of the community and all land receivers with names listed in the concession land receivers' list.</p> <p>Prior to the parcel lottery draw, the commune-sangkat council shall show the parcel plans that will be allocated through the social land concession plan, and shall show identification number of the parcels and the lottery draw procedure.</p>
<p>Step five: Monitoring and evaluation of the implementation</p>	<p>The district-khan working groups shall monitor to see whether:</p> <p>Land for social land concession is granted for residential purposes, the concessionaire must build at least any part of a permanent shelter within three months after receiving the land, and the concessionaire or family member shall exactly and permanently reside on the land at least six months a year.</p> <p>For land granted for family farming purposes, the concessionaire shall exactly cultivate or do husbandry on the land within 12 months of receiving the land, and shall continue to utilise the land in accordance with the conditions of the concession programme.</p> <p>After properly complying with the conditions in the social land concession programme for five years, the concessionaire has the right to land ownership and may request an ownership title under the determined procedures.</p>

An additional programmatic approach supported by GIZ and the World Bank, known as the Land Allocation for Social and Economic Development programme, follows a more complicated 10-step process including additional safeguards and livelihood steps.

The main issue with a social land concession approach is that after five years' occupation of the land, households have the right to claim and register ownership. Concessions have been rolled out across the country since 2003, with at least 500 being reported in existence up to 2013.⁶⁶ However, no objective reviews have as yet been undertaken, and what has been published indicates lots of challenges, especially with the identification of land to allocate, as well as of beneficiary households, transparency with the process and obtaining land/property titles after the five years.

Case study

Borei Keila

Borei Keila was one of Cambodia's first social land concession projects, initiated in 2003 as a commercial land sharing project to address the housing needs of a reported 1,776 households, who occupied buildings and land totalling 14 hectares in the inner city of Phnom Penh. The project was promoted by one of the biggest and most powerful land development companies in the country. The approved agreement stated that the developer would build 10 blocks of apartments on two hectares of land, and obtain 2.6 hectares in return for this development. By 2010 only eight of the 10 proposed blocks had been built, and the company wanted to forego the construction of the remaining two blocks, but to still keep the land they were due to be built on. This still left 3-400 families without permanent housing, most of whom remained in shanties on and around the site in dire conditions. Many of these families were violently evicted in 2012 to two relocation sites in neighbouring Kandal province some 25 kilometres away, with little or no consideration or support for their needs.

Circular #3

More recently, in 2010, the government adopted Circular #3. This was developed following a series of forced evictions that shook Phnom Penh in the years leading up to 2009. Initially foreseen as a tool to standardise the treatment of evictees, it has since taken on a wider role defining measures ranging from identification of so-called illegal settlements, to provision of on-site upgrading and resettlement combined with basic service provision. Many see the Circular as an opportunity – perhaps the only opportunity – for households located on state public land to be possibly rendered legal. Even before its adoption, the Circular saw strong buy-in from Germany, the central donor to the Cambodian land sector, who made its implementation a key part of their continued support. Following its adoption in May 2010, the Circular has been used by GIZ to support multi-stakeholder processes to formalise communities in Battambang.⁶⁷

The Circular is a five-page document that mentions a seven-step process through which the occupation of state land (both public and private) in urban areas can be 'resolved'. The term 'temporary settlement' is used to describe what are elsewhere termed 'urban poor'. The seven steps are:

1. Data collection from temporary settlements.
2. Identification, mapping and classification of sites of temporary settlements.
3. Household and population census in temporary settlements.
4. Findings solutions (onsite upgrading, relocation, others).
5. Discussion of tenure options (usufruct, ownership, rental).
6. Basic infrastructure and livelihood support provisions.
7. Further development of new site.

The Circular includes three options for those who claim home ownership in settlements but does very little for renters, with the options being onsite upgrading, relocation or 'other forms of resolution based on the local conditions'.

In September 2010, Ministry of Land Management, Urban Planning and Construction

issued a supplemental ‘decision’ that added 13 appendices to the Circular. These are generally possible templates of official documentation required in order to complete all steps in the Circular. Apart from these templates very little guidance has been given on how to undertake the formal process, especially with regard to step 4.

Article 5 of the Circular elaborates a little on the issue of resolutions. It states that for any settlement where onsite upgrading is possible, municipal/provincial governors should discuss with the relevant stakeholders the drafting of an infrastructure development plan. Procedures for developing housing must also be prepared, along with any other relevant policies for the development of local livelihoods. In cases where onsite upgrading is not possible, a specific action plan and policies must be developed in order to facilitate relocation. This must be done prior to any relocation. The article also states that both those who are granted onsite upgrading and those who are relocated may be entitled to:

- Usufruct rights (rights to use, but still short of ownership) based on agreement;
- Ownership rights after the beneficiaries continuously occupy and reside on the site for at least 10 years, commencing from the date of the resolution agreed; or
- The right to rent for a specific period with a symbolic renting fee.

The implementation of Circular #03 started in Phnom Penh and Battambang municipality from mid 2010 following the approval of the Circular and its appendices. This has been supported by GIZ and some NGOs such as Community Empowerment and Development Team, Community Managed Development Partners, Cambodian Volunteers for Society and Vishnu Law Group mainly working in Battambang, while the review found that Siem Reap municipality started implementing it from March 2014 with the support of Community Empowerment and Development Team.

The Circular is considered problematic as it starts with the premise that all urban poor communities residing on state public and state private land are ‘illegal’, without carrying out any proper legal analysis of their possession rights or tenure status. At present no one knows how many settlements

existed or how many households lived there before the Land Law was passed in 2001. The implementation of the above steps has also been very slow, as the formation of administrative structures related to the Circular, namely the Sangkat field working teams, municipal state land working groups and the provincial state land management committees has been slow. Also to date it has been reported that only relocation options proposed by authorities though NGOs have supported communities to propose land sharing options.

Where and if tenure rights are issued it is worth bearing in mind that under Circular 03 urban communities/settlements have to reside on the land for 10 years compared with five years under a social land concession. This could be considered as discriminating against families in urban informal settlements. While initiatives have been launched in Battambang, Phnom Penh, and now Siem Reap, where they currently are in the process is not clear.

Security of tenure among urban poor settlements

Previous research by national NGOs the former Urban Resource Centre and the Solidarity with the Urban Poor Federation⁶⁸ in 1997, and by STT in 2009, showed that security of tenure is a key issue for urban poor settlements. The Solidarity with the Urban Poor Federation study found that 33% of families in settlements had a history of evictions or threat of eviction, and “The 8 khan Survey” by STT (2009) reported that 18% of settlements had formal eviction threats, while 46% had experienced rumours of eviction. A recent study⁶⁹ found that close to 40% of settlements had been threatened with eviction and/or pressure to relocate.

Out of those threatened, 33% and 15% in the inner and outer khans respectively received formal, written eviction notices while the rest, 67% in the inner khans and 85% in the outer khans received informal threats including verbal eviction notices, notifications through meetings with local authorities, and rumours of eviction. Settlement respondents most often heard about eviction through rumours, reflecting feelings of tenure insecurity. For those that knew about the reason for the eviction, private development reasons (47%) were more common than public development (32%).

The type of land that settlements have been established on is closely related to feelings and experiences of tenure insecurity and eviction. A key factor contributing to ongoing insecurity is that the legal status of land in much of Phnom Penh is unknown, given limited systematic land titling and a reported lack of state public land mapping or a publicly accessible land register. Forty percent of settlements surveyed in 2013 stated they had been informed they are residing on state land, and hence illegal. Given past experiences of forced eviction in Phnom Penh, residents in these settlements are duly worried.

Sixty-one (18%) of the 340 settlements surveyed by STT in 2013 stated they had undertaken the land registration process, although only 27 (8%) stated they subsequently received land titles. Up to a quarter of settlements may have been excluded from land registration because they were near to settlements that had been registered or were currently engaging in the process. Fourteen percent of settlements were explicitly told they were being excluded. Although the municipality of Phnom Penh has stated that it has started to implement Circular #3, only 15 settlements reported that they had been informed they had been selected for implementation. While working with one community excluded from systematic land registration (Tommunp village, Sangkat, Phnom Penh), Community Empowerment and Development Team found the following issues:

1. No state land mapping to show state private and public – no data, unclear status and there are land disputes.
2. The land where urban poor communities live has been unilaterally excised from adjudication zones, resulting in many communities being excluded from accessing the land registration process – even in instances where communities have a legitimate claim to convert their possession rights into ownership.
3. A database including maps of excluded land parcels in all provinces has not been prepared; this occurred under the Land Management and Administration Project, and continues to be an issue under the Land Administration Sub-Sector Programme. A comprehensive analysis needs to be conducted on why exclusions have occurred, on what scale, at what stage in the process, and what legal process these exclusions followed (if any).

4. No clear procedure on access to information: if a decision is made to exclude a specific area from an adjudication area, there is no public announcement with legal reasons given for why the areas are excluded.
5. Lack of mechanisms for complaint once areas are excluded.

Evictions

STT reports that over 150,000 people⁷⁰ in Phnom Penh were evicted through 61 evictions⁷¹ undertaken between 1990 and 2014. Meanwhile the United National Office of the High Commissioner for Human Rights (OHCHR) reports 120,000 people evicted in Phnom Penh up to 2012.⁷² STT and the media claim this, “represented 11% of the capital’s population” who have been displaced over the past two decades (1990-2011).

It is worth observing that some of those impacted by these evictions were evicted multiple times over the years, and moved from one settlement to another in an effort to try to stay in the city close to employment and earning opportunities. The results of these evictions in Phnom Penh is also evident by the reported changes in location of informal settlements from inner to outer khans in Phnom Penh, as well as the creation of 54 relocation sites in and around the capital province.

At the end of 2014 STT reported⁷³ that over 12,000 families scattered across 132 settlements in Phnom Penh city were under threat of eviction – either being formally notified or informally at risk with the threat hanging over them. That equates to roughly a third of all identified settlements, and possibly 60,000 people.

However, little appears to be known about evictions and displacements in other cities and urban areas of the country.

Some advocacy and rights groups believe that urban poor communities living on state private or public land are protected against forced evictions. This is based on an interpretation of Article 31 of the Constitution, which states, “The Kingdom of Cambodia shall recognise and respect human rights as stipulated in the United Nations Charter, the Universal Declaration of Human Rights, the covenants and conventions related to human rights,

women’s and children’s rights.” With Cambodia becoming a signatory to the International Covenant on Economic, Social and Cultural Rights in 1992 it is, in theory, obliged to follow General Comment No 4 (Right to Adequate Housing) and No 7 (Forced Evictions).

While there may be some truth in this, advocacy and rights groups have as yet to challenge this in court, or to seek a review by the Constitution Council. Like many, if not most, countries the literal applications of UN Right Covenants are generally not adhered to. The land law states that evictions/dispossessions/

expropriation of land can only be carried out for public interest purposes (Art 5), and only by the competent state authorities or by others following a court order. While General Comment No 7 outlines a set of requisite requirements for evictions, they are generally not adhered to or followed.

The following table shows the estimated number of land conflicts being reported by local authorities in urban cities across the country and in Phnom Penh’s khans in 2013, and it is likely a considerable number of these are to do with land occupation and could result in evictions.

Figure 17. Displacement number of families by years (STT 2014)

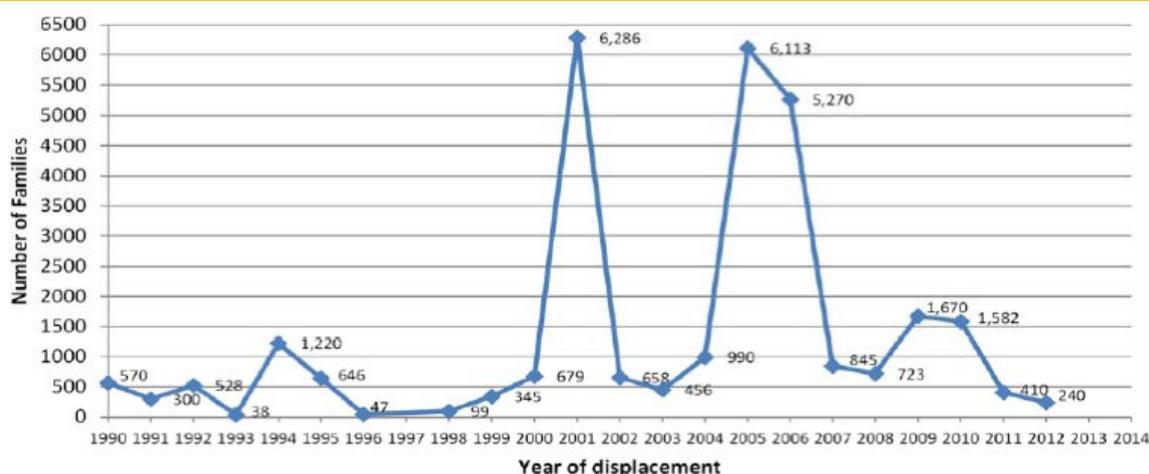


Figure 18. Families and settlements under threat of eviction

	Phnom Penh Khans	Number of Settlements under Formal ToE	Number of Settlements under Informal ToE	Number of Families under Formal ToE	Number of Families under Informal ToE
1201	Chamkarmon	7	7	463	435
1202	Doun Penh	2	6	94	201
1203	7 Makara	N/A	4	N/A	196
1204	Toul Kork	3	7	925	568
1205	Dangkor	N/A	11	N/A	485
1206	Mean Chey	1	12	500	1430
1207	Russey Keo	7	22	751	1515
1208	Sensok	N/A	6	N/A	825
1209	Porsenchey	2	7	1053	461
1210	Chraoy Changvar	N/A	11	N/A	747
1211	Praek Pnov Khan	N/A	N/A	N/A	N/A
1212	Chbar Ampov	4	13	226	1,258
	SubTotal	26	106	4,012	8,121
	Total		132		12,133

(Source: STT 2014)

Figure 19. Reported land conflicts in cities/khans 2013, (Ministry of Planning district dataset)

Code	Municipality/ KHANS	# of HH (CDB-2014)	Total Population (2015) CDB 2014	8.2.2. Number of Land Conflict cases in the past year per 1000 Families	
				Reported Incidence rate (2013)	Est. # of cases
0106	Serei Saophoan Municipality	21,327	94,979	2.33	50
0110	Paoy Paet Municipality	22,671	110,691	1.55	35
0203	Battambang Municipality	27,767	153,727	1.51	42
0305	Kampong Cham Municipality	8,800	40,023	1.68	15
0403	Kampong Chhnang Municipality	8,493	42,734	4.05	34
0502	Chbar Mon Municipality	9,288	49,646	2.76	26
0603	Stueng Saen Municipality	12,837	58,017	5.26	68
0708	Kampot Municipality	7,316	35,874	4.19	31
0811	Ta Khmau Municipality	15,570	74,273	1.02	16
0904	Khemara Phoumin Municipality	5,639	28,672	1.66	9
1002	Kracheh Municipality	6,275	31,673	5.06	32
1105	Saen Monourom Municipality	2,676	14,213	7.64	20
1201	Chamkar Mon Khan	24,015	133,133	0.98	24
1202	Doun Penh Khan	15,976	84,676	0.38	6
1203	Prampir Meakkakra Khan	13,388	71,078	0.00	0
1204	Tuol Kouk Khan	26,658	146,487	0.93	25
1205	Dangkao Khan	17,456	87,009	2.28	40
1206	Mean Chey Khan	31,835	170,228	1.42	45
1207	Russey Keo Khan	33,942	152,273	2.09	71
1208	Saensokh Khan	26,397	133,798	1.25	33
1209	Pur SenChey Khan	37,051	214,758	0.54	20
1210	Chraoy Chongvar Khan	13,493	63,957	2.45	33
1211	Praek Pnov Khan	12,019	57,533	2.70	32
1212	Chbar Ampov Khan	26,522	130,972	1.17	31
1308	Preah Vihear Municipality	5,016	22,602	4.13	21
1410	Prey Veng Municipality	6,036	25,579	2.41	15
1505	Pursat Municipality	14,591	67,055	3.56	52
1602	Ban Lung Municipality	6,381	30,482	22.54	144
1710	Siem Reap Municipality	44,553	237,469	0.75	33
1801	Preah Sihanouk Municipality	17,156	78,250	2.12	36
1904	Stueng Traeng Municipality	6,043	31,214	3.13	19
2006	Svay Rieng Municipality	9,991	47,007	1.01	10
2008	Bavet Municipality	8,927	39,744	1.03	9
2108	Doun Kaev Municipality	9,169	44,132	8.03	74
2204	Samraong Municipality	14,622	62,615	4.47	65
2302	Kaeb Municipality	4,545	21,018	5.96	27
2401	Pailin Municipality	7,485	31,937	13.58	102
2506	Suong Municipality	8,298	37,255	2.97	25
		590,224	2,956,783		1,368

5 An overview of WASH coverage in urban Cambodia

The most recent UNICEF and WHO joint monitoring programme estimates for Cambodia (July 2015) appear to indicate complete coverage for improved water supplies and sanitation in urban areas, which is slightly misleading being based on the programme's two-year linear projection methodology.

The following two tables look at the programme's data sources for urban water supplies and sanitation in Cambodia, and give a different view.

The first table looks at the data sources for the progressive estimation for improved water supply

coverage. From this it can be seen that by 2013 the average coverage (based on CSES and CIPS surveys) indicate that 68% of the urban population are likely to have some form of piped water connection. While cumulatively, 89% of the urban population are likely to have access to some form of improved water supply.

Eleven percent are still dependent on unimproved water sources, with 6% reporting using a surface source as their main source of water, which potentially equates to between 250,000-325,000 people using unimproved water sources across all urban areas.

Figure 20. JMP 2015 urban water supplies

URBAN WATER					
Estimated coverage 2015 update					
Year	Total improved	Piped onto premises	Other improved	Other unimproved	Surface water
1990	34%	15%	19%	40%	26%
1995	43%	18%	25%	34%	23%
2000	57%	32%	25%	26%	17%
2005	72%	47%	25%	17%	11%
2010	86%	61%	25%	8%	6%
2015	100%	75%	25%	0%	0%

Figure 21. JMP 2015 urban sanitation

URBAN SANITATION				
Estimated coverage 2015 update				
Year	Improved	Shared	Other unimproved	Open defecation
1990	19%	3%	13%	65%
1995	28%	4%	11%	57%
2000	43%	6%	8%	43%
2005	59%	8%	4%	29%
2010	74%	10%	1%	15%
2015	88%	12%	0%	0%

Figure 22. Urban water supplies and sanitation in Cambodia

Source	Code	Year	Piped onto		Total improved		Surface water	
			Used in ests.	Not used	Used in ests.	Not used	Used in ests.	Not used
Cambodia Socio-Economic Survey	SES94	1994		4.64	26.6		27.2	
Demographic Survey of Cambodia	DS96	1996	22.6		46.9		15.9	
Socio-Economic Survey	SES96	1996		5.6	42.4		29.7	
National Census	CEN98	1998	29.8		56.6		15.5	
Socio-Economic Survey	SES99	1999		7.2	48.5		22.3	
Demographic and Health Survey	DHS00	2000	32.5		67.7		10.0	
Child Labour Survey: Report	CLS01	2001	28.5		60.2		17.0	
Inter-Censal Population Survey	ICPS04	2004	37.3		65.4		16.1	
Cambodia Household Socioeconomic	HSES04	2004	44.0		75.3		9.7	
Demographic and Health Survey	DHS05	2005	43.0		79.4		8.8	
Socio-Economic Survey	SES07	2007	62.9		84.1		6.2	
Census 2008	CEN08	2008	56.8		80.9		6.2	
Cambodia Socio-Economic Survey	SES08	2008		36.3	78.9		11.2	
Cambodia Household Socioeconomic	HSES09	2009	62.7		84.3		6.8	
Socio Economic Survey	SES10	2010	58.7		87.9		3.4	
Measure DHS 2010-2011	DHS11	2011	61.9		90.6		2.1	
Cambodia Socio-Economic Survey	SES11	2011	64.7		85.9		2.2	
Cambodia Socio-Economic Survey	SES12	2012	67.7		88.5		4.5	
Cambodia Inter-Censal Population Survey	IPS13	2013	63.7		88.9		6.1	
Cambodia Socio-Economic Survey	SES13	2013	72.1		90		5.5	

Figure 23.

Sources	Code	Year	Sewer connection		Total improved		Shared		Open defecation	
			Used in ests.	Not used	Used in ests.	Not used	Used in ests.	Not used	Used in ests.	Not used
Cambodia Socio-Economic Survey	SES94	1994			27.0				53.3	
Demographic Survey of Cambodia	DS96	1996	5.9		35.6				57.3	
Socio-Economic Survey	SES96	1996			32.3				54.9	
National Census	CEN98	1998	27.4		53.4				36.3	
Socio-Economic Survey	SES99	1999	2.5		32.8				61.0	
Demographic and Health Survey	DHS00	2000	32.3		55.1		15.2		39.8	
Child Labour Survey: Report	CLS01	2001		23.5		55.3				0.3
Inter-Censal Population Survey	ICPS04	2004	33.5		54.4				44.6	
Cambodia Household Socioeconomic Survey	HSES04	2004	30.9		63.8				33.8	
Demographic and Health Survey	DHS05	2005	32.1		65.5		9.4		31.0	
Socio-Economic Survey	SES07	2007	48.4		77.7				17.0	
Census 2008	CEN08	2008	45.7		78.7				18.5	
Cambodia Socio-Economic Survey	SES08	2008								
Cambodia Household Socioeconomic Survey	HSES09	2009	44.0		87.5				10.6	
Socio Economic Survey	SES10	2010	43.4		88.2				10.9	
Measure DHS 2010-2011	DHS11	2011	40.8		87.4		11.0		11.9	
Cambodia Socio-Economic Survey	SES11	2011	43.8		89.0				9.9	
Cambodia Socio-Economic Survey	SES12	2012	43.5		88.9				10.6	
Cambodia Inter-Censal Population Survey	IPS13	2013	53.4		85.6				12.5	
Cambodia Socio-Economic Survey	SES13	2013.0	44.8		92.7				5.2	

The second table looks at the urban sanitation data sources and shows that cumulatively, by 2013 (based on CIPS and CSES 2013 data) 89% of the urban population may have access to improved sanitation of some form. Eight percent are still openly defecating, with the remaining 3% using some form of unimproved sanitation – which in total would equate to between 250-325,000 people being forced to use unimproved sanitation or continuing to openly defecate.

The Water and Sanitation Programme of the World Bank in 2014 summarised the national situation as follows, although it appears that the urban targets may have already been met. The issue will be to keep up with the urban areas and areas that transition to urban areas or get incorporated into urban areas, such as the 20 communes added to Phnom Penh in 2012.

Table 12. Cambodia: access to water supply and sanitation, current status and target. Source: SDA, pg. 13

	Status			Targets		
	2012 (NSDP) ^a	2012 (JMP) ^b	2015 (JMP) ^{xc}	2015 (CMDGs) ^c	2018 (NSDP) ^a	2025 ^d (RWSSH Strategy/ SDA target)
Water Supply National	51% ^e	71%	-			100%
Rural	47%	66%	69%	50%	60%	100%
Urban	69%	94%	100%	80%	>85%	100%
Sanitation National	36% ^e	37%	-			100%
Rural	25%	25%	30%	30%	65%	100%
Urban	>80%	82%	100%	74%	>80%	100%

^a Source: National Strategic Development Plan 2014-2018 Royal Government of Cambodia

^b JMP Progress on Drinking Water and Sanitation – Update 2014 RGC 2003. National Policy on Water Supply and Sanitation, Royal Government of Cambodia; MDGs are formulated for national level access

^d For rural official targets as per the National Strategy; for urban sub-sectors these are targets agreed to be used in the SDA

^e These are imputed figures using sub-sector reported progress and a 20%-80% population division between rural and urban. Urban sanitation has not been reported on other than >80% in its current progress and projections beyond 2012

x JMP estimates for urban water supply and sanitation, wssinfo 2015

While overall coverage figures are fine, they may conceal issues of access to basic services by the poor and vulnerable sections of society. These need champions to advocate and ensure they gain the benefits of improving services and are not left out by donor-supported urban water programmes and projects that frequently report improvements based on households transitioning from one improved supply option to another, or upgrading their means

of water and sanitation, while poor people remain excluded. Selected WASH indicators by urban quintile (most likely from the CSES data set) show the differences between the rich and poor in WASH services.

There are also significant differences between the capital and other urban areas.

Table 13. Differences between the rich and poor in WASH services					
Quintile	1 (poorest)	2	3	4	5
Improved water supply dry season ⁷⁴	64%	80%	83%	91%	96%
Improved toilet 2011	58%	80%	92%	94%	97%
Open defecation ⁷⁵	36%	14%	4%	2%	0%

Table 14. Differences in WASH services between the capital and other urban areas		
Piped water to dwelling ⁷⁶	Phnom Penh	Other urban
CSES 2011	90%	33%
NSDP 2014-2018	85%	50%
Improved sanitation ⁷⁷	'near universal'	75%

6 The institutional framework for urban water supply and sanitation

Responsibility for urban water supply and sanitation lies primarily with two ministries:

- The Ministry of Industry and Handicrafts for urban water supply; it is also responsible for delivering on the urban component of the National Water Supply and Sanitation Policy adopted by Council of Ministers in 2004, which has a specific section on urban water and sanitation provisions, approaches and guiding principles.
- The Ministry of Public Works and Transport for urban drainage, sewerage, septage and the operation of wastewater treatment plants.

Provincial departments of these ministries undertake related functions at sub-national levels, while in the urban water supply sector two state-owned enterprises are functioning as autonomous utilities (Phnom Penh Water Supply Authority, Siem Reap Water Supply Authority). In theory the provincial department of the Ministry of Information is meant to monitor and regulate the 300+ private waste supply operators functioning across the country.

Other central agencies with lesser roles in the sector include the following:

- The Ministry of Water Resources and Meteorology issues the permits required for water abstraction over a defined level.
- The Ministry of the Environment is responsible for setting standards, monitoring and regulation for effluents discharging into water bodies as defined by the sub-decree on water pollution control issued in 1999. However, in practice, it only monitors industrial on-site wastewater treatment facilities, not domestic or public wastewater.
- The Ministry of Education, Youth and Sport has responsibility – in coordination with Ministry of Rural Development – for school sanitation via the School Health Department, though activity in this area has generally been limited to donor-funded construction of facilities with limited attention to hygiene promotion.
- The Ministry of Health is responsible for adequate water, sanitation and hand washing facilities in

health centres, in coordination with Ministry of Rural Development. The Department of Preventive Health also has a role in hygiene promotion and has issued an Environmental Health Action Plan, although its implementation on the ground is limited.

- The Ministry of Land Management, Urban Planning and Construction is responsible for checking the adequacy of water supply provision in new development areas, and for checking on and approving all urban construction including the requirement for the adequacy and quality of water supplies' 'septic tanks' for all urban construction, as required by Construction Sub-Decree 1997 (see Annex G for more details).
- The Ministry of Interior, notably the Secretariat of the National Committee for Democratic Development plays a role in supporting the implementation of national decentralisation and deconcentration reforms in close coordination with line ministries. While the Organic Law of 2008 formalised the start of decentralisation and deconcentration, current control of financing⁷⁸ as well as most technical capacity, remains at central government level. Local authorities, as part of their general mandate for poverty reduction, could – and already are to a limited extent – playing a role in water supply and sanitation (and are increasingly held responsible for health and hygiene issues) with support from provincial departments, but the capacity for planning implementation and monitoring is weak at sub-national level.⁷⁹

The table below also includes Ministry of Rural Development as it and Ministry of Industry and Handicrafts must jointly cover all communities and negotiate responsibility for those peri-urban areas that are in transition from rural to urban status.

Table 15. Urban WASH agencies and responsibilities	
Key Ministries	Sector Responsibility
<p>Ministry of Industry and Handicrafts – MIH (formerly the Ministry of Industry Mines and Energy –MIME); Potable Water Supply Department</p>	<p>Since late 2014 MIH is responsible for:</p> <ul style="list-style-type: none"> • Providing potable water supply services in urban areas through piped connections to households; • Developing and implementing the urban water sector policy and strategy; • Has one seat on the Board of Directors of the 2 autonomous WSAs (Phnom Penh and Siem Reap); • Developing an urban water supply database and sector development plan; • Coordinating external donor programmes/projects; • Regulating and supporting the sector; • Developing water quality standards, • Developing relevant procedures and guidelines; • Approving water tariffs; • Issuing licences to private water operators; • Administering and monitoring public water utilities; and • Managing water quality laboratories. <p>Provincial MIH departments guide the technical, administrative and financial aspects of the 12 public water supply operators and implement the programmes/projects of MIH at provincial level.</p> <p>They are also meant to monitor the performance and operations of licensee private sector water supply operators around the country and regulate this growing sector.</p> <p>Urban water supply is allocated to the Industry Ministry because water is viewed as being produced by an industrial process.</p>
<p>Ministry of Public Works and Transport (MPWT)</p>	<p>MPWT has assumed responsibility for faecal sludge management (in Phnom Penh) and more recently sewerage systems and wastewater treatment plants, as most of the investment funding for these has been tied to MPWT projects.</p> <p>MPWT is mainly responsible for roads, railway and water transportation, as well as solid waste disposal sites, drainage and, because Cambodia’s policy is to combine wastewater with storm water, it assumes wastewater treatment responsibilities.</p>

<p>Ministry of Water Resources Management and Meteorology (MOWRM)</p>	<p>The Law on Water Resources Management 2007 determines the rights and obligations of water users, the principles of Water Resources Management to be used in the country, and outlines the participation of water users associations for irrigation systems. It promotes an Integrated Water Resources Management – IWRM approach.</p> <p>MoWRM objectives included:</p> <ul style="list-style-type: none"> • Establishing the position of the government in terms of political and strategic orientations with respect to both water resources availability for local development, and its sustainability at national and international scale. • Set directions and roadmap for the short, medium and long term with respect to water consumption, to fulfil the needs of the country’s development and of industry, and preserve those of urban and rural populations. • Control and monitor all activities consuming water to mitigate incurred risks. • Mitigate conflicting uses and risks to water resources and users. • Prepare and draft laws and regulations linked to the use of water and control procedures. • Issuing licences for water extraction for commercial purposes (this requires a licensee to pay a fee; the process is not clear and some such users extract water without licence or fee).
<p>Ministry of Environment (MoE)</p>	<p>MoE is responsible for the environmental quality of water sources and receiving waters in terms of the risk of water pollution (Anukret on the Water Pollution Control No 27 ANTK/BK of April 06, 1999), for instance wastewater discharges from industries. It also set the standards and for solid waste management through the Anukret on Solid Waste Management No 36 ANK/BK of April 27, 1999, as well as for air pollution.</p> <p>It is host to the secretariat for the Sustainable Development Council, merging the government’s Green Growth and Climate Change Responsibilities into one coordinating body.</p> <p>It prepares national environmental management plans and related policies, and is also responsible for managing preservation areas and natural resources, and environmental observation and monitoring (including Environmental Impact Assessment).</p>
<p>Ministry of Economy and Finance (MoEF)</p>	<p>Responsible for coordinating the use of donor funds (loans and grants), and also what can be requested. Details Standard Operating Procedures (SOPs) for government programmes and projects. Allocates and manages government financial resources and where they can be used, based on requests from line Ministries.</p> <p>Oversees the financial management systems of the two autonomous water supply authorities; seat on the Boards of Directors of these two authorities.</p>
<p>Ministry of Education, Youth and Sport</p>	<p>School sanitation and hygiene promotion through the schools curriculum via the School Health Department.</p>

Ministry of Health	Adequate water, sanitation and hand washing facilities in health centres. Reporting on the incidence of diseases related to poor sanitation, as well as promoting good health and hygiene practices.
Ministry of Land Management, Urban Planning and Construction	Is meant to ensure that all developments from single households to large scale developments in urban areas and elsewhere are compliant and safe and have adequate provisions for water supply and sanitation (toilets and septic systems). Based on the Ankruet #86 (sub decree) of 1997.
Ministry of Interior, Secretariat of the National Committee for Democratic Development	Is responsible for facilitating and supporting sub-national planning and project delivery mechanisms to villages, communes, districts, municipalities and provinces under the Commune Administration 2001 and Organic Law 2008. These include provisions for the consideration of and improvement in access to basic services including water supplies and sanitation, poverty reduction and improvement in the living conditions of the population, in line with the implementation of the democratic development reforms in close coordination with line ministries.
Ministry of Rural Development	Rural water supply and sanitation; and health care/hygiene. Sector policies, strategic and action plans for rural areas.

Sector coordination

The Infrastructure and Regional Integration Technical Working Group is chaired by the Minister from the Ministry of Public Works and Transport, and JICA. In 2010 a formal sub-group for urban water supply was established chaired by the Ministry of Industry and Handicrafts, with JICA as its current co-chair. The low frequency of meetings and the fact that the sub-group has not yet augmented its official mandate to cover urban sanitation remains an ongoing constraint to progress in the urban sector.^{80 81}

Governmental strategy and policies

National Water Supply and Sanitation Policy

The National Water Supply and Sanitation Policy was adopted by the Council of Ministers in 2004. This document merged two former (urban and rural) policy documents into one following development partner concerns over the risk of possible lack of uniformity in approaches by actors. It is divided into three parts i) urban water supply, (ii) urban sanitation and (iii) rural water supply and sanitation.

The urban water supply section encourages private

sector participation, and protecting poor people to enable them to access and use safe and affordable water supplies. It also promotes and encourage increasing autonomy for water utilities in line with decentralisation principles, and the establishment of an independent regulator.

For urban sanitation it supports and promotes the development of appropriate technologies and infrastructure to meet user demand and affordability, and the progressive linkage of onsite and neighbourhood sanitation systems to zonal and citywide sanitation systems. Systems should be developed on affordability for operation and maintenance and cost recovery principles. It also encourages the establishment of a sanitation management hierarchy from household, through communes, to the ministry with increasing responsibilities being decentralised to encourage management and responsibility at the lower levels. It sees a role for the private sector in expanding access to sanitation as well as promoting the need for pro-poor approaches.

Extracts from current key governmental documents:

Rectangular strategy

One of the key guiding documents for the Cambodian government is the Rectangular Strategy for Growth, Employment, Equity & Efficiency,⁸² currently into its third phase since being launched in 2004. This broad national strategy document includes the following consideration for urban areas, water supply, sanitation and hygiene.

- The government will be more attentive to the development of urban infrastructure (including water supply, which is considered under the infrastructure side of the strategy).
- Expansion of the capacity and coverage of clean water supply, development of the legal framework, institutional capacity and human resources in the water sector.
- Further expanding the coverage of clean water supply to rural and urban areas through the rigorous implementation of The National Strategy for Rural Water Supply and Sanitation 2011-2025, including formulation of a clear action plan and encouraging participation from the private sector.
- Promote sustainable development of the health sector, aimed at improved sanitation, health, nutrition and wellbeing of Cambodian people, particularly poor and vulnerable including women and children.

National Strategic Development Plan 2014-2018

It is worth quoting the key government programme document the National Strategic Development Plan (2014-2018) which states, “The urban water supply situation has improved progressively, especially during the last five years of the fourth legislature. The coverage rate of piped water supply in urban areas increased from 52% in 2008 to 69% in 2012. Over the same period the number of urban households having access to safe water increased from 269,755 to 400,181. Despite this progress, and with the exception of Phnom Penh, which had a coverage rate of 85% in 2012, urban water supply coverage outside of the capital is still limited at around 50%. In addition, many small towns and rural growth centres are experiencing rapid urbanisation, outpacing the speed of water supply development. Threats due to climate change are also likely to have an increasing impact on urban water supply services

in the future.”⁸³

The target for urban water supplies and sanitation are to have urban water supply coverage greater than 85% by 2018, and greater than 80% for sanitation.⁸⁴

Meanwhile sector-related strategies have been development by line Ministries:

Urban Water Supply Sector Strategy

The Ministry of Industry, Mines and Energy’s 2010 vision and mission statement for the water supply sector states that it would aim to be, “a leading utility in providing clean water supply to people sustainably with high quality now and in the future”. This strategy and vision continues under the Ministry of Industry and Handicrafts. It will provide:

- clean water supply
- good service to people
- safe, adequate
- an affordable tariff
- pay high attention to poor people
- consider sustainability and quality of water sources.

it aims to:

- facilitate private sector partnerships
- strengthen the management of publicly-owned water supply agencies
- integrate urban water supply with urban environmental management.

Water and Sanitation Sector Financing Strategy for Cambodia (2010)⁸⁵

This was developed with support from the World Bank’s Water and Sanitation Programme, and aimed to harmonise and develop costed investment scenarios for the water supply and sanitation sub-sectors for the whole country including:

- strategic development plans taking into account the whole water supply sector including rural water supply sector
- ensure that such plans are financially sustainable and affordable to the population by 2028
- increased and more harmonised donor assistance.

The strategy identified the following issues:

- the lack of a legal framework to hold responsible government agencies and service providers accountable to time bound performance targets
- fragmented coordination and responsibilities across relevant institutions
- who sets policy and leads on household on-site sanitation and wastewater treatment?
- ministries are under-resourced with insufficient staff numbers
- specific mention of tariff affordability but no mention of connection charge affordability
- how is ‘peri-urban’ defined and who is responsible for their WASH services?

Four levels of sub-national administrations

Table 16. Roles in urban WASH	
Roles in urban WASH	
Province/capital	Provincial Departments of Potable Water and Public Works and Transport are responsible for providing technical support and training to municipal staff and Private Water Providers.
Municipalities (only for the 27 municipalities)	Responsible for working with Public Water Authorities or Private Water Providers to provide and expand access to and use of piped water supplies. Also to encourage users to connect to drains and sewers where these exist.
District/khans	Responsible for working with Public Water Authorities or Private Water Providers to provide and expand access to and use of piped water supplies. And for encouraging users to connect to drains and sewers where these exist.
Commune/sangkat	Reducing poverty through use of Sangkat funds, most of which are currently used for roads but could be used for WASH. But there is also an increasing number of other competing demands on the limited resources made available to communes/ sangkats.

7 Urban WASH sector financing

Capital expenditure requirements

The Water and Sanitation Programme summarised the capital requirements as follows:

Table 17. Summary of capital requirements		
	Urban water supply	Urban sanitation
Base year coverage 2012	94%	82%
000/yr. additional coverage to reach 100% by 2015	260	275
Annual capital expenditure "CAPEX" requirement (USD million) ⁸⁶	60.1	86.7
Per capita investment required ⁸⁷	\$116	\$147

Per capita investment requirements for urban areas were six times more than for rural water supplies, and seven times more for sanitation (rural per capita investment requirements for water: US\$21 p.c. and sanitation: US\$20 p.c.).

Total capital expenditure required is further divided by the service delivery assessment into:

- New investments for expanded water supplies – US\$30 million per annum.
- Replacement costs for of existing services to be maintained by replacing assets – US\$30 million per annum.

Sources of finance

Most of the financing for the sector has come from external (donor) sources using grants and loans. The levels of private sector investment remains unknown, with anecdotal figures mentioned for the investment made by private investors depending on the location size and types of the systems being developed in some urban areas. The following table shows the historical and current areas of WASH investment by donors (excluding health and education).

JICA has for some years been a key donor in the subsector, its major lending projects being the Niroth water treatment facility near Phnom Penh, and the expansion of the Siem Riep water supply system. A third project involves the rehabilitation and expansion of water distribution systems in the provincial capitals of Pursat, Battambang and Sihanoukville. JICA is also providing capacity-building support to a number of urban utilities through the Phnom Penh Water Supply Authority.

French development agency (AFD) has also supported the construction of the Niroth water treatment facility and provided a loan of just under Euro 30 million to the Phnom Penh Water Supply Authority, in part to extend the distribution network to low-income communities.

UN-Habitat has also provided financial and technical assistance to the sector (small scale and community-based projects) in emerging urban areas, mainly district centres scattered across the country, but it has since completed this project.

The Asian Development Bank is currently preparing a new series of loans to support urban utilities with service expansion outside of Phnom Penh, with a focus on the municipalities along the Greater Mekong sub-region corridors including Bavet, Svay Rieng, Pursat, Kampong, Chhnang, Battambang and Kampot to name some (but not all). In a number of urban areas, sanitation and wastewater systems will be expanded and/or developed.

Cost recovery

In an ideal situation, replacement costs are fully accounted for through full cost recovery tariffs, and should not rely on national transfers and investment budgets. However, except for the Phnom Penh Water Supply Authority, most public utilities do not yet charge full cost recovery tariffs, while the level of full cost recovery by private water operators is assessed to be adequate.^{88 89}

A major weakness for sustaining water supply services is that tariff reviews are not regularly conducted though the principle of tariff and cost recovery as highlighted in the National Water Supply and Sanitation Policy. A clear economic regulation

Table 18. Historical and current areas of WASH investment by donors	
Donors	
Asian Development Bank	<ul style="list-style-type: none"> • Phnom Penh Water Supply Authority support. • Solid Waste Management in Phnom Penh. • Wastewater treatment plant in Siem Reap and now in some corridor towns. • An “integrated urban development approach”, Greater Mekong Sub-region-GMS corridor towns (i) east west; Bavet, Svay Rieng, Kampong Chhnang, Pursat, Battambang, (ii) southern (Kep, Kampot, Sihanoukville and Koh Kong). • City development in Asia – Battambang.
French Development Agency (AFD)	<ul style="list-style-type: none"> • Rehabilitation of Phnom Penh central market. • Urban drainage system in Siem Reap. • New water treatment plant in Phnom Penh. • Provided support for private sector water suppliers through favourable credit terms and technical assistance. • Ongoing intermittent support to Phnom Penh Water Supply Authority.
Japanese International Cooperation Agency	<ul style="list-style-type: none"> • Substantial long-term financial and technical assistance to Phnom Penh and Siem Reap for water supplies, sewerage and drainage.
World Bank	<ul style="list-style-type: none"> • Urban water supply in Phnom Penh, Sihanoukville and Siem Reap. • Pilot of output-based aid and design-build-lease approaches in urbanising district centres and some provincial towns, as well as support to the drafting of a water regulatory law (never adopted); development of template contracts for private sector participation. • Land management administration projects. • Land Allocation for Social and Economic Development urban pilot in Battambang.
Water and Sanitation Program	<ul style="list-style-type: none"> • Broad ranging support to rural and urban water supply and sanitation sub-sectors, including support to private water providers and a newly established network.
GIZ	<ul style="list-style-type: none"> • LMAP national titling programme including urban. • Land Allocation for social and economic development including urban. • Supported implementation of Circular #3. • Land use planning in Battambang and Siem Reap under the component of good governance.
UNICEF	<ul style="list-style-type: none"> • Minimum package pilot in 12 communities of Phnom Penh, including WASH.
UN Habitat	<ul style="list-style-type: none"> • WASH programme for seven small towns 2008-2013 now completed.
UN Capital Development Fund	<ul style="list-style-type: none"> • Support to national district database.
USAID	<ul style="list-style-type: none"> • Supported 26 private water supply operators through its micro, small and medium size enterprise development programme to expand and grow their systems, as well as extending connections to poor and vulnerable households in service areas covered. It also support sanitation marketing in these areas.

framework and methodology remain absent, and although considerable efforts were put into this during the early 2000s they were not adopted. Additionally the capacities and support for Ministry of Industry and Handicraft’s Department of Potable Water Supply to carry out such reviews on a regular basis is lacking.

Other than the Phnom Penh Water Supply Authority, which has been able to easily attract concessional loans from AFD, the World Bank, Asian Development Bank and JICA, expansion is constrained by the difficulties that public and private utilities face in financing expansion schemes. Both public and private operators generally do not have a well-developed business plan and – unless able to access external support services – the development of such investment plans and feasibility studies is a bottleneck, compounded by their overall weak financial position and technical performance. Access to financing was an issue (short term loans and high interest only from the myriad of local banking operations) in the past, and was part of the justification for the USAID through the Micro, Small and Medium Enterprises programme.

JICA now and the World Bank and Asian Development Bank in the past, (and now also Asian Development Bank in the future) are providing assistance to strengthen the capacity of public utilities on their pathway to becoming autonomous entities. Once autonomous and in a better position, they may be able to access both sub-sovereign concessional as well as commercial finance, with the approval of the Board of Directors – though currently Ministry of Finance endorsement also has to be obtained. For private operators, the recent change of license duration to 20 years has facilitated access to finance, especially now that the Cambodia Water Association, with the help of development partners, is able to offer business development services and feasibility studies to their members. The establishment of an umbrella association where both public and private operators could become members, is expected to support the professionalisation and capacity development of the sector.⁹⁰

Alternative approaches to sector financing

The sector review (page 39) discussed two approaches to sector financing that had been tried in Cambodia: design-build-lease and output-based aid.

Table 19. Opportunities for civil society/WaterAid Cambodia

Area	Description
<p>Document financing approaches for urban poor people to access WASH facilities - microcredit, revolving funds, output-based aid, design-build-lease.</p>	<ul style="list-style-type: none"> • Include the internal/ external financing model. • Include a discussion of the level of debt of poor households/ • Share this info with relevant NGOs for them to inform communities. • Mobilise microfinance, NGOs and private companies providing loans/subsidies on community toilets/ sanitation to create a network to work in urban poor areas.

Box 1. Design-build-lease and output-based aid schemes as applied in Cambodia

In design-build-lease schemes, the service provider designs and builds the financed water supply system for a fee (the government pays the provider for services rendered), and subsequently leases the facility for a period of 15 years, which was the maximum then allowed. During the lease period, the service provider is given the right to collect tariffs from consumers, and in exchange pays the government a lease fee. The lease fee is usually an amount equivalent to, or a significant portion of, the investment cost. Also, the service provider shoulders the equity of 10% of the investment cost. Under this scheme, connection fees of households who connect to the system during construction are waived. These costs are included as part of the investment cost and recovered over the lease period. On the other hand, the output-based aid scheme requires the service provider to advance financing for the construction of the water supply facility, in exchange for the right to provide services to the community, including poor households living in the service area. The provider is then reimbursed an agreed amount by the government for every connection made to a pre-identified poor household.

The objective in both schemes is to leverage private sector funds using donor and government funding, and to maximise benefits by expanding the consumer base to include low-income households or communities. Those that would normally be excluded from the network because of high connection fees, are helped either through free connections that are subsidised by the government, or extended repayment periods for connection fees. This allows poor people to receive benefits and, at the same time, enhances project viability through an expanded consumer base. The argument for providing poor people with access to safe water is that they are usually unable to afford the high connection costs, but are

capable of paying the recurrent costs of water supply provision. Global studies show that poor households who resort to self-provisioning usually spend up to ten times more for water supply than those connected to formal networks. Implementing tariffs that recover costs is therefore a critical element in the incentive framework.

The tariffs of the design-build-lease and output-based aid operators were set at 2,000 riels at project start (2002), which was deemed by the Micro, Small and Medium Enterprises as a socially acceptable level. The tariff under the design-build-lease scheme was to recover the lease fee (which was the bid parameter), the 10 percent equity, and operation and maintenance costs. On the other hand, the tariff under the output-based aid scheme was to recover the upfront investment made by the private operator and operation and maintenance costs. The subsidy amount was the bid parameter, and was not expected to be recovered. Contracts under both schemes had a provision for regular tariff adjustment to cover inflation. In practice, this was not followed, affecting the financial sustainability of the operations, as well as technical issues such as the lower than projected connection rate and volume consumption. Based on a review of the schemes in 2008, the leveraging effect was reported to be between US\$2 and US\$5 for every US\$1 of public funds for design-build-lease, and a little over US\$1 for output-based aid.

There were 17 systems completed in 2011 using these schemes under the World Bank-funded project. GRET-MIREP replicated the output-based aid approach in a number of their supported systems. For design-build-lease schemes, plans for replication were affected by the World Bank loan cancellation in 2006, with unfinished projects completed without Bank assistance.

Source: Mission estimates

8 The sanitation situation of the urban poor

Urban sanitation can be understood as a multi-step process that includes the collection, storage, transportation, treatment/re-use or disposal of excreta – ideally in ways that improve or sustain health and decrease negative impacts on the environment. It also operates at multiple levels involving onsite and offsite options, ranging from simple pit latrines to septic tanks, community neighbourhood systems, and onwards to large interconnected city-based systems.

For urban areas in Cambodia the construction permit anukret (sub-decree #86) from 1997 requires all new construction to fulfil building permit requirements, which includes consideration of adequacy of water supply and sanitation, while renovations that modify sanitary installations are also required to have a permit. For the construction permit, plans are required that need to detail how sanitation will be dealt with. Article 31 of the decree relates to “Drinkable Water Supply and the Disposal of Sewage Waters” requirements. For water supplies, “if the site is not connected to the water supply system the developer shall provide proof that he can supply drinking water in sufficient quantity(ies),” and “if a well is used indicate the technical (type and quality) of the well and the quality of the water”. For sanitation, in the absence of a sewer system, the developer shall make provisions to treat and

evacuate sewage water through a septic tank and a sub-terrained filtering system, or make provisions to connect their septic tank to the sewer system, with further detail on the minimum size to be installed. The Anukret goes on to state that, “construction permits shall be denied if it does not present sufficient assurance of hygiene and health of the projected construction”.

On a broader level, the urban sanitation sub-sector in Cambodia is largely underdeveloped at present and there have been no significant policy initiatives since 2003 when the national policy document was adopted, although this has been largely ignored. The Ministry of Public Works and Transport has taken responsibility for policy, planning, coordination and the implementation of investment projects. In 2011 a mandated department under this Ministry was established to set technical standards and tariffs for urban sanitation (the Department of Sewerage, Sub-national Urban Infrastructure and Engineering). However, the department is in the early stages of development and has few staff and resources.

Provincial departments of the Ministry of Public Works are responsible for planning, project implementation, and operation and maintenance of drainage, sewer and treatment facilities (treatment facilities are only present in Siem Reap, Sihanoukville and to some extent Battambang)

CASE STUDY: Preah Sihanouk city waste water treatment plant and system

It is worth reviewing the project completion report of the Asian Development Bank financed Provincial Towns Improvement Project (which ran from 2000-2007). This included a component to build a wastewater system and treatment plant in parts of Preah Sihanouk city. This was built with a capacity to deal with 5,700 m³/day of wastewater, and a 58-kilometre long sewage collection and transmission network, to service an idealised 3,300 connections. By the end of the project only 665 connections (20%) had been made. In drawing conclusions, the report states that, “The wastewater facility is not sustainable financially because it generates very little income. The annual operating expenses are about US\$25,000 (in 2008) and are currently funded by the government. The associated cost of this component was finally US\$22.5 million, when it had been appraised at just US\$5.5 million. Two thirds of this was locally financed. mainly to purchase the land required for the treatment plant, while additional investment was required because of significant cost overruns in the construction of the plant and sewage network, which increased by a nearly a fifth, while consulting services doubled to nearly US\$1.8 million.”⁹³

through other plants and systems financed by the Asian Development Bank are planned in a number of other cities. Fee collection arrangements differ from city to city, with the Phnom Penh Water Supply Authority providing this service through their water bills.⁹¹ Improving on-site sanitation and the safe collection, management and treatment of faecal sludge are not well understood and appear neglected by government urban agencies, while private sector involvement is unregulated and appears limited beyond Phnom Penh.⁹²

In most urban areas, privately installed on-site facilities - pour flush latrines or latrines with septic tanks with unknown levels of treatment are the most common technology, in some cases connected to combined sewer and drainage systems where these exist.

There is high access and use of on-site improved latrines in urban poor areas, but pockets of households still practice open defecation. Some people in these areas may have access to shared sanitation for part of the day, but at night time resort to open defecation and ‘flying toilets’ involving bagging and disposal of faecal material on open ground at night.

Few of the settlements in the outer khans of Phnom Penh are connected to the combined drainage system, even though unconnected systems have been built in relocation sites, with similar situations with limited coverage of combined drainage systems in other urban areas.

Sanitation coverage for the urban poor

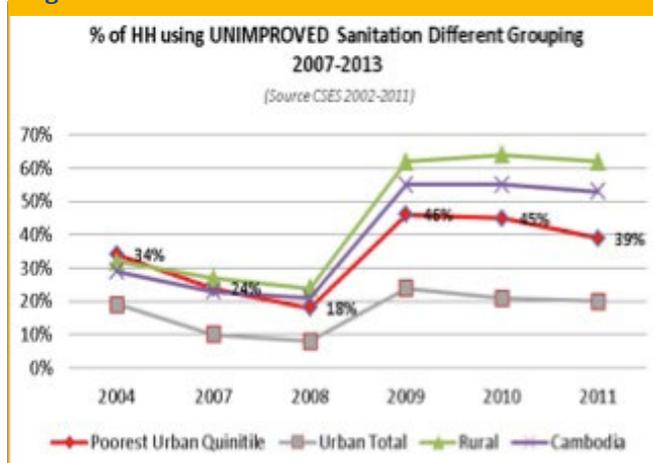
The following chart and tables show the reported urban levels of sanitation usage (comparing 2004 and 2011) by different socio-economic groupings. The table shows the levels of usage by the urban population based on socioeconomic quintiles, while the charts shows the poorest urban quintile compared against the urban total, the rural population and the extrapolated and aggregated Cambodian levels for the combined unimproved sanitation usage. As can be seen a redefining of how and what was improved and unimproved led to a significant change in the percentage reported using unimproved sanitation.

Figure 24.

	Toilet Usage by Quintile - PP & Urban 2004 & 2011					Total
	1 Poorest	2	3	4	5 Richest	
2011						
1 Improved	58%	80%	92%	94%	97%	84%
2 Unimproved	6%	5%	4%	4%	2%	4%
3 Open Defecation	36%	14%	4%	2%	%	11%
Total	100%	100%	100%	100%	100%	100%
2004						
1 Improved	19%	49%	66%	86%	95%	63%
2 Unimproved	9%	10%	7%	4%	2%	6%
3 Open Defecation	72%	41%	27%	10%	2%	30%
Total	100%	100%	100%	100%	100%	100%

Source: CSES 2004, 2011

Figure 25.



The CSES findings suggest that self-supply has achieved remarkable results. Use of an improved toilet by the poorest two quintiles increased from 34% in 2004 to 69% in 2011, implying an estimated annual increase of 16,000 toilets by the urban poor, as estimated below. While a number of urban water supply and sanitation programmes supported by the Asian Development Bank and the World Bank and others were being implemented through the 2000s, the vast majority of this increase was driven by self-supply of sanitation, where households invested because of increasing urban prosperity and households placing a higher priority on having a private toilet. There was also a corresponding decline during the same period in urban open defecation by the poorest quintile, which has dramatically halved in less than a decade from 72% in 2004 to 36% in 2011 – which, if continued for the following four years, is likely to result in just 8%-12% of urban (poor) households still practicing open defecation.

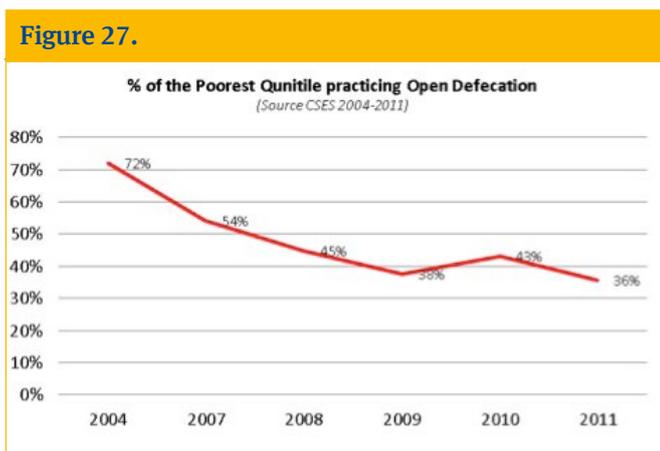
Comparison of sanitation coverage by two socio-economic groupings 2004-2011 (CSES data 2004-2011)

Figure 26.

Construction / Use of Improved Toilets - Poorest 40% of urban Cambodia Households - 2004 and 2011

	2004	2011	
estimated total urban population ('000)	2,300	3,200	
total population in lowest 2 quintiles (000)	920	1,280	
no. of households in poorest quintiles (000)	184	256	
% of lowest 2 quintiles using an improved toilet	34%	69%	
no. of improved toilets in poorest 2 quintiles	62,560	176,640	
net increase in toilets for poorest 40%			114,080
average annual construction over 7 years			16,297

Open defecation in the poorest urban quintile (CSES data 2004-2011)



Source: author's calculation based on CSES data

The following data from the CDHS 2010 survey shows a far lower level of open defecation in urban areas, with just 5% of the urban population practicing open defecation, and 8% using some form of unimproved sanitation including open defecation, through it should be noted that these are aggregated figures for the whole urban population.

Sanitation coverage by type and geographical region (CDHS 2010)

Figure 28.

Type of facilities	Cambodia	Phnom Penh	Other urban	Other rural
Improved toilets	51.7	98.4	86.4	40.2
Pour flush/flush connected to sewerage	11.3	73.9	12.9	1.8
Pour flush/flush connected to septic tank	39.9	24.5	72.4	37.8
Pit latrine with slab	0.5	-	1.2	0.5
Unimproved toilets	48.3	1.6	13.6	59.8
Pit latrine without slab/open pit	0.4	-	0.3	0.5
Latrine overhanging field/water	1.6	0.1	2.3	1.8
Public toilet (pit latrine/latrine)	1.1	-	1.6	1.2
Open land	44.9	1.5	9.2	56.0
Other included in not improved	0.2	-	0.2	0.3
Not stated	-	-	-	-
Total percent	100	100	100	100
Number of households	3,162,000	363,000	331,000	2,468,000

Urban sanitation coverage by type and socio-economic grouping (CSES 2011)

Figure 29.

	Toilet Type by Quintile - PP & Urban 2011					Total
	1 Poorest	2	3	4	5 Richest	
1 Pour flush (or flush) connected to sewerage	15%	28%	44%	55%	72%	43%
2 Pour flush (or flush) to septic tank or pit	43%	50%	48%	39%	25%	41%
3 Pour flush (or flush) to elsewhere (i.e. not a sewer or pit/tank)	4%	5%	4%	4%	2%	4%
4 Pit latrine with slab	1%	2%	0%	0%	0%	1%
5 Pit latrine without slab or open pit	1%	0%	0%	0%	0%	0%
6 Latrine overhanging field or water (drop in the field, pond, lake, river, sea)	1%	0%	0%	0%	0%	0%
7 None	36%	14%	4%	2%	0%	11%
8 Other	0%	0%	0%	0%	0%	0%
9 Latrine overhanging water (drop in lake, river, sea) (household living in boat)	0%	0%	0%	0%	0%	0%
Total	100%	100%	100%	100%	100%	100%

Source: CSES 2011

Toilet technologies

Major findings:

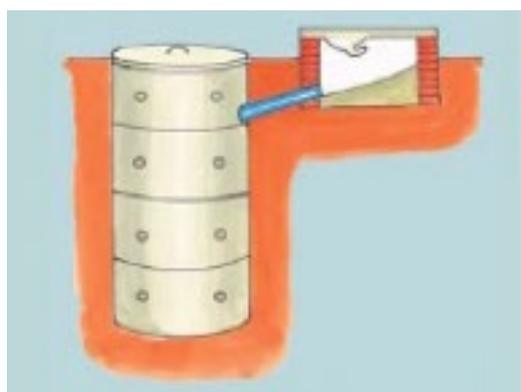
- Septic tanks with sewer connections are mostly used in Phnom Penh and parts of Siem Reap, amongst the richest 40% of the population.
- Septic tanks or pits are the most common technologies used in other urban areas, and among the poorest three quintiles.
- There are inconsistencies in estimates of open defecation, with 25% of the two poorest urban quintiles reporting no sanitation (which suggests that many may practice open defecation) in the CSES (2011), and 11% overall. However the data

set (2013) disaggregated by areas reports only 9% in the other urban areas and less than 2% in Phnom Penh using open land – combined, this suggests only 5% of all urban households. It is not clear whether all households reported as having no latrine are practicing open defecation; it could be that a proportion of these households are sharing neighbour’s latrines (as described in the Siem Reap case study below). This is a topic for possible research.

A common approach, seen during the field visits, were inline twin pit latrines with rings in relay or series to mimic a two-chamber septic tank with 2 or 3 rings, approximately 40-50 cm in height, with the rings connected by pipes from the platform to the first hole and from the first to the second. This may double the storage capacity if only one pit was built, but does not allow for the practice of alternating use, where one chamber is left to compost when full before being opened, emptied and used when the second is full. How and where this wasteful practice started is unknown, but it indicates a clear lack of knowledge on latrine construction.

Other toilets observed were a single off-set pit lined with rings (as pictured below).

Figure 30.



Source: Water and Sanitation Program 2008

Some disposal was observed on open ground or water-logged areas under raised silted dwellings. In these cases, the absence of systems to manage waste from households to proper disposal results in significant pollution of water sources (possibly both surface and ground water) which in turn:

- obliges users to treat such water, usually by boiling
- results in depleted fish harvests from rivers⁹⁴
- exposes those who swim in rivers and ponds (especially children), to pathogen and diarrhoeal diseases and intestinal infections.

Public toilets

There appear to be few public toilets in urban areas. In Phnom Penh, toilets have been established in fixed locations in core city areas and near markets, and operate on a fee for use basis. Additionally, toilets are available at nearly all petrol stations, although it is not clear where destitute people (pavement dwellers, street children) and itinerant street workers go to meet their sanitation needs. Where communal toilets have been provided to communities they have been poorly maintained and fall into disuse.

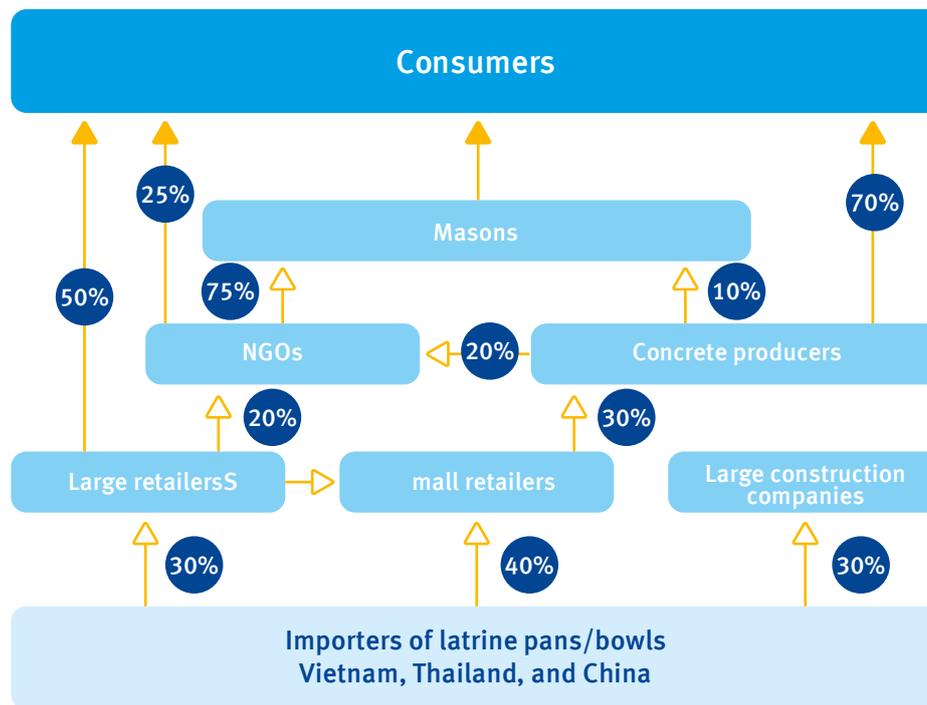
Table 20. Opportunities for civil society/WaterAid Cambodia

Area	Description
Research public/mobile toilets in Phnom Penh and other cities for use by destitute and daytime street workers.	<ul style="list-style-type: none"> • In market areas the community toilet model was reported to have failed in some urban areas – explore this. • Undertake research and provide recommendations on providing available and accessible public toilets, especially for use by the very poor.

Sanitation supply chain

Ceramic toilet bowls and pans appear to be the only options available to households, all imported from neighbouring nations and then distributed by various channels before reaching end users. The Water and Sanitation Programme estimated that the supply chain was as below for rural and peri-urban markets. For urban markets it is likely to be similar, with perhaps a smaller role played by NGOs (who are estimated below to supply approximately 18% of latrines for these users).

Figure 31. Schematic latrine supply chain in Cambodia. Source: WSP 2008



Faecal sludge management

French NGO Groupe de Recherches et d’Echanges Technologiques (GRET)⁹⁵ studied faecal sludge management in three urban areas in 2011 (Phnom Penh, Siem Reap and Kampot – a coastal provincial city) and found:

- An adequate number of private Emptying and Transporting Operators (ETOs) – 40 ETOs are thought to be operating in Phnom Penh, six in Siem Reap and two in Kampot.
- A competitive market providing households with good value (about US\$7/m³).
- A low demand from households; only a minority (around 20%) of households had used the ETO services, which begs the questions: why are current urban sanitation technology options not filling up, and what is happening to the faecal sludge material?
- Risks to public health from poor quality on-site sanitation infrastructure (many facilities leak) may exist.
- High risk disposal practices, in unregulated public lands, with only 16% of ETOs disposing at designated sites.

- Weak regulatory oversight.

Some of GRET’s recommendations from this study included:

- Provide support to public authorities to implement policy dialogue and sector regulation.
- Construct decentralised sludge treatment plants for safe disposal of faecal sludge and reducing transportation distances.
- Place more emphasis on the use of pre-treatment technologies at the household level to ensure that only pre-treated wastewater is discharged into the drainage system, leaving faecal sludge to be collected by the ETOs (this means an adequate septic tank, with pre-treated liquid disposed to soak pit or leach field).
- Support manual operators to adopt semi-mechanised technologies in small cities. Manual operators can play a significant role as they already cover a large part of the market, but their working conditions need to be improved to increase efficiency as well as to minimise health risks.
- Promote public awareness and environmental protection on the urban sanitation situation.

Table 21. Opportunities for civil society/WaterAid Cambodia

Area	Description
Understand faecal sludge management chains in various cities, building on GRET work	<ul style="list-style-type: none"> • Document private sector involvement – who is doing what now in 2016. • Explain business opportunities for the private sector to expand – estimate number of septic tanks and on-site storage.

Urban drainage

The common urban drainage system generally dates back to colonial times, and was based on a combined storm water drainage with sewerage system. Only in Phnom Penh, Sihanoukville, Siem Reap and Battambang has there been significant public investment in drainage (in Phnom Penh) and sanitation infrastructure (in the other three), with these cities having the beginnings of a sewerage network including wastewater treatment plants. It is estimated that less than 5% of the total urban area of these cities is connected.⁹⁶ There is still no wastewater treatment facility in Phnom Penh, and wastewater is drained into lagoons with questionable treatment capacity before being discharged in rivers. In 2009, the Ministry of Economy and Finance and the Ministry of Public Works and Transport issued a decision on user and connection fees for sewer collection and treatment. These Prakas determined the principles of network connection fees and monthly service fees for discharging into the public sewage system, collection and treatment of wastewater in the service coverage demand. This fee varies according to the types of business establishments and/or residential types. Some of the main drainage issues are:

- Large deficit in all cities and in all types of roads.
- Drains accumulate solid waste and some open defecation; they are sometimes blocked, especially by silt and plastic.
- Almost all urban centres experience flooding, with probably low income settlements being more vulnerable.

The table on page 62 shows the estimated number of families affected by flooding in the main urban

areas in 2013. Numbers are likely to significantly underreported, but the data set on which it is based could be used to back track and estimate areas at risk of perennial flooding, as there is a strong likelihood that a significant portion of those affected by flooding are vulnerable households in informal settlements.

Table 22. Opportunities for civil society/WaterAid Cambodia

Area	Description
Sustainable Urban Drainage Systems (SUDS)	Provide technological assistance and encouragement to municipalities and communities to adapt the principles of SUDS, which aim to optimise rainwater using infiltration beds and wetlands rather than running storm water out of town. SUDS is used in Vietnam, Brazil and Uganda as well as OECD countries, to help mitigate water shortages in the dry season and flooding during the wet season. ⁹⁷

Urban solid waste

Solid waste management is important because unmanaged solid waste is a major cause of blockage of urban drains, increasing the risk and severity of floods. Household collection of solid waste is available in some urban areas with the cost (approximately US\$1/month) added to the monthly EDC bill. A private company (CINTRI) has a licence to manage contracts in some cities.

The following tables, extracted from the district indicator dataset maintained by MOP (based on 2013 data), shows that only about a third of households (36%) in the 27 municipalities across the country have access to solid waste management services, while the national average is 7%. Municipal coverage varies from an average of 71% across the 12 khans making up Phnom Penh to 6% in Pailin and 7% in a number of other municipalities. The inappropriate disposal of solid waste is a significant contributor to poor sanitary and hygiene conditions in urban areas.

Figure 32.

Code	Urban District /Khan	# of HH (CDB-2014)	Total Population (2015) CDB	Families affected by heavy floods in the current year per 1000 families	Est. of the # of Families impacted by flooding in 2013
0106	Serei Saophoan Municipality	21,327	94,979	147.30	3,142
0110	Paoy Paet Municipality	22,671	110,691	157.59	3,573
0203	Battambang Municipality	27,767	153,727	9.01	250
0305	Kampong Cham Municipality	8,800	40,023	1.12	10
0403	Kampong Chhnang Municipality	8,493	42,734	30.60	260
0502	Chbar Mon Municipality	9,288	49,646	0.00	-
0603	S tueng Saen Municipality	12,837	58,017	135.04	1,734
0708	Kampot Municipality	7,316	35,874	0.00	-
0811	Ta Khmau Municipality	15,570	74,273	1.29	20
0904	Khemara Phoumin Municipality	5,639	28,672	0.00	-
1002	Kracheh Municipality	6,275	31,673	35.91	225
1105	Saen Monourom Municipality	2,676	14,213	0.00	-
1201	Chamkar Mon Khan	24,015	133,133	0.00	-
1202	Doun Penh Khan	15,976	84,676	0.00	-
1203	Prampir Meakkakra Khan	13,388	71,078	0.00	-
1204	Tuol Kouk Khan	26,658	146,487	0.00	-
1205	Dangkao Khan	17,456	87,009	6.61	115
1206	Mean Chey Khan	31,835	170,228	0.00	-
1207	Russey Keo Khan	33,942	152,273	0.00	-
1208	Saensokh Khan	26,397	133,798	0.24	6
1209	Pursenchey Khan	37,051	214,758	0.00	-
1210	Chraoy Chongvar Khan	13,493	63,957	2.45	33
1211	Praek Pnov Khan	12,019	57,533	0.27	3
1212	Chbar Ampov Khan	26,522	130,972	41.18	1,092
1308	Preah Vihear Municipality	5,016	22,602	121.88	611
1410	Prey Veng Municipality	6,036	25,579	21.34	129
1505	Pursat Municipality	14,591	67,055	62.81	916
1602	Ban Lung Municipality	6,381	30,482	0.00	-
1710	Siem Reap Municipality	44,553	237,469	28.91	1,288
1801	Preah Sihanouk Municipality	17,156	78,250	0.00	-
1904	S tueng Traeng Municipality	6,043	31,214	45.44	275
2006	Svay Rieng Municipality	9,991	47,007	13.39	134
2008	Bavet Municipality	8,927	39,744	0.00	-
2108	Doun Kaev Municipality	9,169	44,132	11.55	106
2204	Samraong Municipality	14,622	62,615	30.74	449
2302	Kaeb Municipality	4,545	21,018	0.00	-
2401	Pailin Municipality	7,485	31,937	35.55	266
2506	Suong Municipality	8,298	37,255	0.00	-
		590,224	2,956,783		14,638

Table 23.	
Municipal districts/khans	% of families that have access to rubbish collection by collection
	7.4.4
Serei Saophoan municipality	12
Paoy Paet municipality	12
Battambang municipality	36
Kampong Cham municipality	44
Kampong Chhnang municipality	15
Chbar Mon municipality	7
Stueng Saen municipality	7
Kampot municipality	33
Ta Khmau municipality	24
Khemara Phoumin municipality	21
Kracheh municipality	24
Saen Monourom municipality	16
Chamkar Mon khan	100
Doun Penh khan	99
Prampir Meakkakra khan	99
Tuol Kouk khan	97
Dangkao khan	33
Mean Chey khan	91
Russey Keo khan	98
Saensokh khan	75
Pur SenChey khan	62
Chraoy Chongvar khan	43
Praek Pnov khan	15
Chbar Ampov khan	43
Preah Vihear municipality	12
Prey Veng municipality	18
Pursat municipality	12
Ban Lung municipality	28
Siem Reap municipality	29
Preah Sihanouk municipality	50
Stueng Traeng municipality	24
Svay Rieng municipality	14
Bavet municipality	7
Doun Kaev municipality	15
Samraong municipality	8
Kaeb municipality	7
Pailin municipality	6
Suong municipality	13
ONLY Cities	36

A number of NGOs have worked on promoting more sustainable solid waste management practices in urban areas, working with vulnerable groups. However, they have only been able to work on a relatively small scale, while commercial operators appear to have difficulties in delivering the quality of services demanded by urban households. It is noted that in over a decade the tariff for domestic SWM has not been increased even though the municipal disposal site for Phnom Penh has moved 15 kilometres away from the old site.

Table 24. Opportunities for civil society/WaterAid Cambodia

Area	Description
Household composting	<ul style="list-style-type: none"> Promote the 3Rs (reduction reuse and recycling) as well as separation into wet and dry waste by households. Promote urban composting at household or community level. Promote use of compost for kitchen gardens or urban agriculture where space permits. Promote sludge waste management enterprises.

CASE STUDY: the sanitation situation of Siem Reap municipality⁹⁸

“The vast majority of households and businesses (e.g. hotels and restaurants) in Siem Reap district use on-site sanitation options such as septic tanks or infiltration tanks/soak pits to collect and pre-treat wastewater from toilets. Septic tanks will generally be connected to local waterways or public storm water drains. This means that public drainage systems are acting as a combined sewer and storm water system. Due to low soil permeability and high (seasonal) groundwater in some areas, infiltration tanks may also be connected to public drainage systems. In relation to greywater (washing, cooking, cleaning), it is usually disposed of directly to local waterways or public drains with no treatment.” (JICA, 2006).

Clear data on sanitation coverage in Siem Reap district is patchy at best. However, the 2008 census found that 25% of people had no toilet,

33% a connection to sewage, 40% had septic tanks and 2% had pit latrines (National Institute of Statistics 2008).

In 2011, the French NGO GRET conducted a sample survey on urban sanitation in Siem Reap district and found that 10% had no toilet, 79% had traditional flush toilets and 11% had modern toilets. Of the 10% that don't have toilets, most use a neighbour's toilet while the rest would use public toilets. They also found that 66% of wastewater is disposed of directly into the environment, 8.3% have septic tanks, and 32% are connected to the sewer.

In February 2015, the Operations Manager of the Siem Reap wastewater treatment plant explained that only 700 users had connected to the system, which is far too low to cover operating costs. To encourage more connections all connection fees are now waived, but uptake continues to be slow.

Urban sanitation relationships

If we analyse the roles of the three groupings in the sanitation situation, we may conclude that:

- The producer-consumer relationship appears to be working reasonably well: latrine construction materials are available for purchase, latrines are constructed by users and masons, and faecal sludge removal services are available at a reasonable cost and used by households.
- The relationship between authorities (municipal) and producers needs to be strengthened on technical standards for toilet construction and disposal of faecal sludge.
- Between national authorities and producers there is a need for national standards and support to treatment facilities.
- Authorities can strengthen their relationship with consumers by more explicitly embracing their obligation for maintaining public health, by hygiene and sanitation promotion, and by passing and enforcing sanitation by-laws.

Urban sanitation challenges

Sanitation in urban poor communities in Cambodia needs to address significant challenges relating to settlement patterns and geography:

- High-density settlements on small plots available to the urban poor usually allow a small toilet to be squeezed in, but may constrain household ability to construct any pre-treatment.
- Limited distribution and development of drainage and sewerage systems across the cities is currently a barrier to effectively developing a large scale sewer system.
- Annual floods risk swamping the toilets unless elevated.
- For informal settlements: the absence of possession rights and thus a reluctance to invest in a toilet and pre-treatment.

The key policy issues are:

- Finding one institutional home for urban sanitation.
- Strategies developed to date are not adequate to address all areas of sanitation, and none are a standalone document.
- The need to address simultaneously the household aspect of responsibility for sanitation (containment/collection of faeces), and the public responsibility for transportation and treatment of sludge and final disposal.

At a policy level, a road-map is required that plainly gives direction in:

1. How urban settings should best address their current sanitation issues.
2. List the different sanitation options and approaches they need to adopt.
3. Clearly identifies roles and responsibilities of each party at national, sub-national and city/town level.

Figure 33.

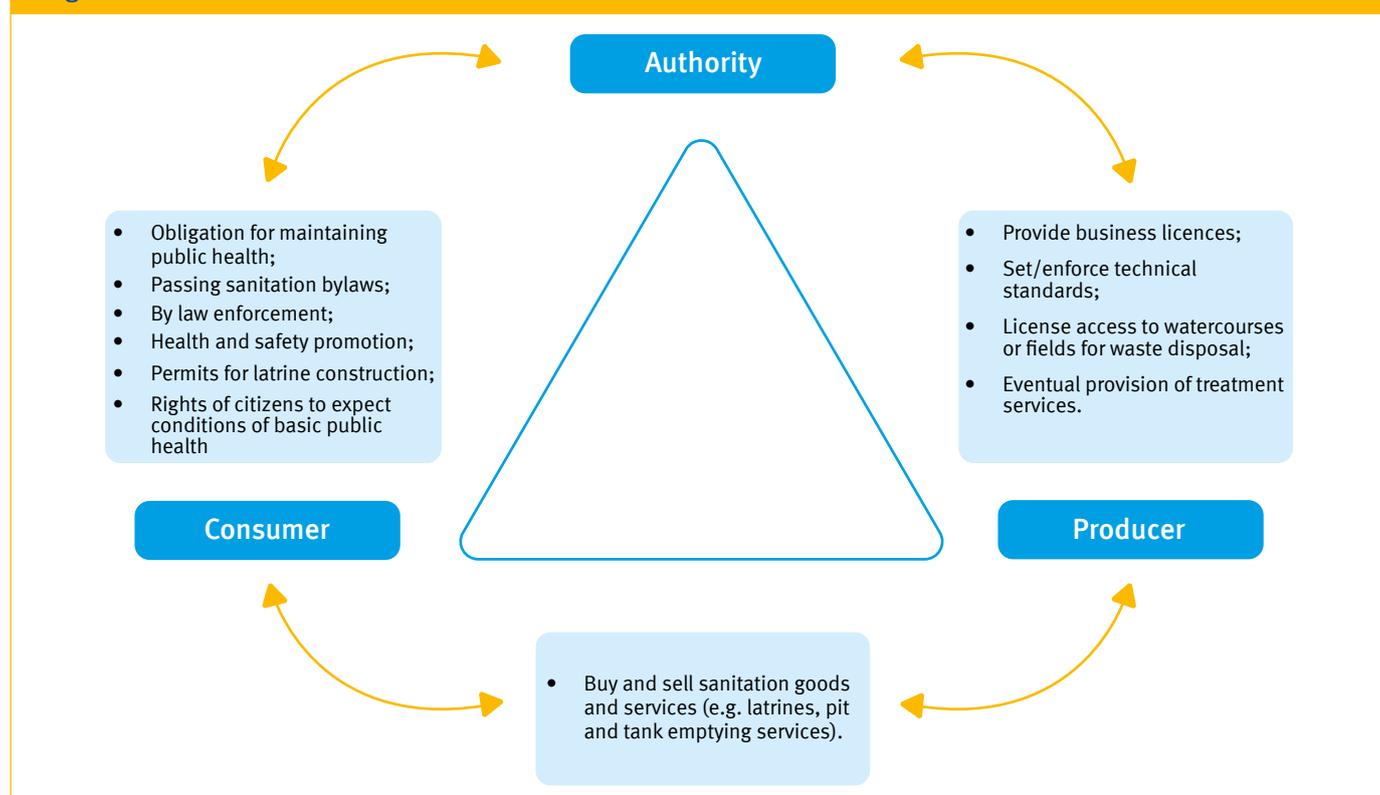


Table 25. Opportunities for civil society/WaterAid Cambodia

Area	Description
Initiate dialogue on urban sanitation strategy	<ul style="list-style-type: none"> Create a regular forum for all parties to discuss urban sanitation approaches and issues, and for consensus building. Support on-going initiatives to create a consensus. Provision of technical assistance in the development of sanitation strategy.
Demonstrate solutions to sanitation challenges	<ul style="list-style-type: none"> Provision of technical assistance to NGOs working with urban poor communities, to support them to improve access to toilets and related drainage and sewerage facilities.
Prepare compendium of WASH technical options/approaches for the urban poor: Could include:	<ul style="list-style-type: none"> Would be relatively low cost. Can use material from existing compendiums and translate into Khmer.
<ul style="list-style-type: none"> toilets and discharge wastewater Decentralised wastewater treatment systems (DEWATS) small bore sewers condominium sewer layouts urban Community Led Total Sanitation Sanitation marketing disability and universal designs. 	

9 Urban water supplies

Urban water coverage

A water system is defined as urban in Cambodia under two criteria:

1. If water is delivered by piped distribution system, includes a treatment plant, and has a commercial base.
2. If water is managed by a public or private operator.

If a water supply system uses bore holes or dugwells or is managed by the users, or if it is community-based (and water charges are sufficient to only cover operating costs) and not commercial, then it is classified as rural. As with the toilets, section above, Cambodia has produced data on water source use by geography and wealth quintile. This data shows the following major patterns and trends in drinking water source use:

- Households in Phnom Penh report 90% or more use of improved sources in both seasons;
- Two thirds of households in other urban areas use improved sources during the wet season, and almost three quarters in the dry season;
- Dry season use of improved sources increased for all quintiles between 2004 and 2011;
- Wet season use of improved water sources showed some small declines for three quintiles between 2004 and 2011 – these differences are within the confidence level of the survey or perhaps a reflection of the choice of rain water rather than purchased piped water;
- The gaps in use of improved water between the poorest and richest quintiles remained almost constant over the seven-year period.

The Phnom Penh Water Supply Authority reports a total of 226,000 household connections,⁹⁹ which suggests that at least 1,130,000 residents benefit from direct connection (average household size is five). This is only 66% of a total estimated population (1.7 million), yet 89% reported a piped connection to their dwelling. It is unclear whether the population estimate is incorrect or if there is a lot of shared connections and ‘on-selling’.

Figure 34.

	1 Poorest	2	3	4	5 Richest	Total
	n%	n%	n%	n%	n%	n%
2011						
wet	61%	72%	80%	89%	96%	80%
dry	64%	80%	83%	91%	96%	83%
2004						
wet	66%	72%	83%	92%	94%	81%
dry	58%	63%	76%	89%	92%	76%

Source: CSES 2004, 2011

One important feature of the Cambodian approach to urban water supply is its emphasis on piped water connections to each dwelling; in other words, there are minimal public tapstands or hand pumps (with the exception of some of the re-settlement areas which have Afridev handpumps). Though it is worth noting that this emphasis upon piped connections to households has important health benefits.

Table 26.

	% reduction in diarrhoea incidence ¹⁰⁰
Public source water supply	17
House connection water supply	80

Figure 35.

Table 9. Main sources of drinking water by season and geographical domain, 2013. Percent

Water sources	Cambodia	Phnom Penh	Other urban	Other rural
<i>Wet season</i>				
Improved	49.7	89.7	67.1	41.5
Piped in dwelling or on premises	22.2	88.8	47.90	8.9
Public tap	-	-	-	-
Tubed/piped well or borehole	23.0	0.9	15.1	27.3
Protected dug well	4.3	-	3.7	5.0
Improved rainwater collection	0.2	-	0.4	0.2
Unimproved	50.3	10.2	32.9	58.5
Unprotected dug well	10.3	-	3.4	12.8
Pond, river or stream	11.2	2.1	5.6	13.3
Unimproved rainwater collection	25.9	6.1	18.8	29.7
Vendor-provided water/Tanker truck provision of water	1.9	0.8	3.0	1.9
Bottled water	0.6	1.2	2.0	0.4
Other	0.3	-	-	0.4
Note state	-	0.1	-	-
Total percent	100	100	100	100
Number of households	3,162,000	363,000	331,000	2,468,000

Figure 36.

<i>Dry season</i>				
Improved	58.7	91.3	74.3	51.8
Piped in dwelling or on premises	22.9	89.0	49.7	9.6
Public tap	0.1	-	-	0.1
Tubed/piped well or borehole	30.3	2.3	19.8	35.9
Protected dug well	5.4	-	4.7	6.3
Improved rainwater collection	0.0	-	0.1	0.0
Unimproved	41.3	8.7	25.7	48.2
Unprotected dug well	14.0	-	4.6	17.3
Pond, river or stream	18.9	2.1	11.7	22.3
Unimproved rainwater collection	1.3	0.3	0.8	1.5
Vendor-provided water/Tanker truck provision of water	5.9	5.2	6.0	6.0
Bottled water	0.9	1.1	2.7	0.6
Other	0.4	-	-	0.5
Note state	-	-	-	-
Total percent	100	100	100	100
Number of households	3,162,000	363,000	331,000	2,468,000

Area	Description
Expand or continue service delivery support to water supply connections for poor households – with public and/or private providers: study, dialogue, support	<ul style="list-style-type: none"> • Could take up through informal urban forum. • JICA and GRET, and some NGOs such as Habitat for Humanity and Centre for Development have experience on this and can share more info. • Links to JICA-supported work on water law. • Make the case for connection charges to be financed in pro-poor ways, particularly in towns other than Phnom Penh (e.g. cost spread over time, paid as an additional cost of the consumption tariff). • Continue to assemble data from other urban surveys on WASH to triangulate with JMP, and begin to understand important differences between different towns that JMP does not capture.

Urban water charges, tariffs and subsidies

The official policy for urban water supply is full cost recovery. In practice towns use:

- An increasing block tariff with lower cost first block for the first 15m³ in Phnom Penh per month for households, while some operators use a higher rate for commercial, public and industrial users.
- Universal metering.
- Full cost connection charges (flat rate + charge for materials based on the distance to tertiary pipes).
- Tariff structure and levels differ between towns and range between KHR 550 and 3,400/m³.

The Phnom Penh Water Supply Authority, which has connected a total of 226,000 households, uses a subsidy system to help poor households connect, paying 30%, 50%, 70% or 100% of the connection cost depending on the degree of poverty. In 2014, 1,600 households (approximately 10% of all new connections) were connected using this system, bringing the total subsidised connections to 30,577 households (the Authority’s annual report, 2013). During our meeting with management from the Authority, we were told they found it difficult to identify poor households.

Official water tariffs seem low by international standards of cost recovery requirements but the Authority’s operating margin¹⁰¹ – a measure of profitability – seems healthy, which suggests that tariffs are appropriate for Phnom Penh.

Private vendors have charged a significantly higher ‘on-selling’ tariff, but steps have been taken recently to curtail this practice and establish limits on the additional mark-up. Landlords of factory worker hostels, for example, have been told they can only mark-up the tariff by approximately 18% (purchase at KHR 1,020 and ‘on-sell’ at 1,200/m³). But this may not apply to the significant numbers of factory workers staying in private rental accommodation.

The following table reports the tariff rate being applied in some of the municipalities across the country and the block rates where used.

Some of the possible issues are:

- Is it more pro-poor to subsidise connection costs and charge a higher price for consumption? (Significantly more health benefits from yard connection than public water point).
- Does this tariff encourage water demand management by high volume users?
- The system would have more checks and balances with an independent regulator to scrutinise tariff changes etc.

Figure 37. Opportunities for civil society/WaterAid Cambodia:

Category	Water Tariff/m ³	US\$ 1=4000 KHR	Authority	Category	Water Tariff/m ³	US\$ 1=4000 KHR	Authority	
Phnom Penh City				KHR				
Residential	From 0m ³ To 07m ³	550 Riel/m ³	\$ 0.14	Phnom Penh Water Supply Authority (PPWSA)	Location (Province)	Water Tariff m ³	Authority	
	From 08m ³ To 15m ³	770 Riel/m ³	\$ 0.19		Battambang Municipality (Battambang)	1,500 Riel/m ³	\$ 0.38 Battambang Water Supply	
	From 16m ³ To 50m ³	1,010 Riel/m ³	\$ 0.25		Pursat Municipality (Pursat)	1,600 Riel/m ³	\$ 0.40 Pursat Water Supply	
	Over 51m ³	1,270 Riel/m ³	\$ 0.32		Kampot Municipality (Kampot)	1,400 Riel/m ³	\$ 0.35 Kampot Water Supply	
Institution & Community	1,030 Riel/m ³	\$ 0.26	Svay Rieng Municipality (Svay Rieng)		1,200 Riel/m ³	\$ 0.30 Svay Rieng Water Supply		
Business-Industrial	From 0m ³ To 100m ³	950 Riel/m ³	\$ 0.24		Kratie Municipality (Kratie)	1,400 Riel/m ³	\$ 0.35 Kratie Water Supply	
	From 101m ³ To 200m ³	1,150 Riel/m ³	\$ 0.29		Steung Treng Municipality (Steung Treng)	1,500 Riel/m ³	\$ 0.38 Steung Treng Water Supply	
	From 201m ³ To 500m ³	1,350 Riel/m ³	\$ 0.34		Banlong Municipality (Rattana Kir)	1,500 Riel/m ³	\$ 0.38 Ratanakiri Water supply	
	Over 501m ³	1,450 Riel/m ³	\$ 0.36		Kampong Chhnang Municipality (K. Chhnang)	1,600 Riel/m ³	\$ 0.40 Kampong Chhnang Water Supply	
Siem Reap (Siem Reap)					KHR			
Residential	From 1m ³ To 07 m ³	1,100 Riel/m ³	\$ 0.28		Siem Reap Water Supply Authority	Prey Veng Municipality (Prey Veng)	1,200 Riel/m ³	\$ 0.30 Prey Veng Water Supply
	From 08m ³ To 15 m ³	1,500 Riel/m ³	\$ 0.38			Stueng Municipality (Kampong Thom)	1,500 Riel/m ³	\$ 0.38 Stueng Water Supply
	From 16m ³ To 30m ³	1,800 Riel/m ³	\$ 0.45			Doun Keo Municipality (Takeo)	1,800 Riel/m ³	\$ 0.45 Private company
	Over 31m ³	2,000 Riel/m ³	\$ 0.50			Chba Mom Municipality (Kampong Speu)	1,650 Riel/m ³	\$ 0.41 Private company
Business-Industrial	From 0m ³ To 50m ³	1,900 Riel/m ³	\$ 0.48	Sereysoptom Municipality (Banteay Meancheay)		1,800 Riel/m ³	\$ 0.45 Private company	
	From 51m ³ To 150m ³	2,400 Riel/m ³	\$ 0.60	Preah Vihear Municipality (Preah Vihear)		1,800 Riel/m ³	\$ 0.45 Private company	
	From 151m ³ To 350m ³	2,900 Riel/m ³	\$ 0.73	Sang Kat Pailin (Pailin)		2,000 Riel/m ³	\$ 0.50 Private company	
	From 351m ³	3,400 Riel/m ³	\$ 0.85	Khemarakpumin Municipality (Koh Kong)		1,800 Riel/m ³	\$ 0.45 Private company	

Table 28. Opportunities for civil society/WaterAid Cambodia

Area	Description
Advocacy on tariff reform	<ul style="list-style-type: none"> Civil society/WaterAid can support a utility and Board to reform their tariffs: e.g. to subsidise connections and charge full costs. Evaluate impact of such reforms upon adequacy, consumer satisfaction, health and availability of funds for service expansion and improvements.
Improve targeting of connection subsidies	<ul style="list-style-type: none"> Help Phnom Penh Water Supply Authority identify poor households.

Urban water supply management systems

Phnom Penh

In 1996, a law was passed granting legal autonomy to the Phnom Penh Water Supply Agency. In the succeeding years, the utility became a profitable and efficient company, and today is often cited as a prime example of utility transformation. Following extensive reforms and investment and capacity building support from multiple development partners, the Water Authority has become hugely successful over recent decades. It has a listing on the Cambodia Stock Exchange and a high level of operational autonomy, with its Board of Directors headed by the Chairman of Phnom Penh municipality. As a state-owned enterprise, the water supply infrastructure remains in government ownership.

The Q4 2014 summary of Phnom Penh Water Supply Authority (Annex E) shows both its recent performance statistics as well as the strength of its reporting and analysis.

Other urban areas

Siem Reap has also moved to be an autonomous utility, while 13 provincial water works and systems remain under the Department of Potable Water Supply, following the recent privatisation of a number of provincial public water works. Institutional arrangements for the non-autonomous utilities are in stark contrast to the Phnom Penh Water Supply Authority; they are bound by government rules and compensation systems, have difficulty attracting skilled staff and have little incentives to improve performance.

Private water providers

Small-scale private operators also play a significant role in water supply provision, particularly in rural growth centres and emerging towns. There are an estimated 300 private providers at present, though only 145 (approximately) are licensed. In 2013 it was estimated that over one million people are currently being served by the domestic private sector.¹⁰² However, small private operators are poorly regulated, have limited capabilities and struggle to access capital for service improvements and expansion. Several development partners have been supporting these operators, through experimenting with various public-private partnership arrangements in the past. Recently, focus has been on creating more favourable financing through local banks, and the provision of business development services to improve performance and develop investment plans. In 2012, the Cambodia Water Association of private water operators was established, now serving over 50 members covering more than 70 licenses.¹⁰³

In 2014, the Ministry of Industry and Handicrafts issued a ministerial decree that provides more clarity about the licensing process, as well as granting a 20-year license term for operators in a defined service area.

Regulation

At present, there is no independent regulator for urban water supply, although this is seen as international best practice. Efforts to establish one were made in 2003, when a Water Regulatory Law was drafted and submitted by the Ministry to the Council of Minister, but the draft was never enacted because of a lack of political support both from the Ministry and at central levels. The Department of Potable Water Supply currently fulfils this role.

Currently, the Ministry of Industry and Handicrafts is drafting technical standards for urban water supply and revising the existing water quality standards issued in 2004 by Ministry of Industry, Mines and Energy. It is expected that in 2015, the Ministry of Industry and Handicrafts will issue water quality standards for urban water supply systems, while Ministry of Rural Development will issue a guideline for rural water supply quality.^{104 105}

In the absence of an independent regulator, and as outlined in the National Strategic Development Plan 2014-2018, the Ministry of Industry and Handicrafts through its Department of Potable Water Supply has responsibility for urban water supply policy, strategic planning, regulation and sector oversight, including the licensing of private water operators. While tariffs of public utilities require approval from the Prime Minister, in the recent past tariffs of private operators have mostly been determined through local negotiation with hands-off involvement from the Ministry of Industry and Handicrafts. As per the 2014 licensing decree, tariffs will be stipulated in the license issued by the Ministry requiring consultation at local level, however, no tariff review guideline has been issued as yet.

The Department of Potable Water Supply has around 20 staff and faces high demands, leaving some departmental functions only implemented in full when there is technical and financial support from development partners. Ministry of Industry and Handicrafts responsibilities in provincial and small towns include monitoring drinking water quality standards in piped systems and supporting the licensing of private operators.

Table 29. Opportunities for civil society/WaterAid Cambodia

Area	Description
Further research into private water providers and services for poor people	Learn more about private Private Water Providers, the obstacles that prevent their expansion, and how they can better serve urban poor people in their markets.

Urban surface waters: rivers, streams, wetlands, lakes

The process of urbanisation often destroys or

significantly changes surface water sources with negative results, for example, increased flooding and less groundwater recharge. Such water sources can become increasingly polluted from waste and eutrophication (enrichment of water with nitrates and salts resulting in excessive algae and other changes). Best practice is increasingly seen to work with natural resources and topography, rather than drain wetlands or attempt to excessively control water flows.

Cities and big towns increasingly have to recognise their “water footprint”, and take measures to ensure their water catchment areas are protected and enhanced to sustain their water supply sources.

Table 30. Opportunities for civil society/WaterAid Cambodia	
Area	Description
Water security of towns	Work with towns to support them to better understand and manage their water catchments, in order to ensure their long term environmental health.

Water supply relationships

The core relationships underlying water supply are between the consumer, the producer and the relevant authorities. In urban Cambodia the relationship between producers and consumers has displayed a rapid increase in household connections, especially in Phnom Penh where over half the urban population reside.

Outside the capital there is significant room to expand the number of connections, and this relationship would be improved by supporting water supply operators to expand and provide connections in a pro-poor-friendly arrangement. Producers need skills in business planning, water quality maintenance and testing, resource mobilisation and technical capacities. Evidence of this have been shown through the USAID-supported Micro, Small and Medium Sized (MSME) programme, and prior to that World Bank-supported initiatives for Output Based Aid, as well as the Water and Sanitation Programme’s support for the capacity-building of private sector water supply operators, by contracting the INGO GRET to develop and providing training to water supply operators.

USAID’s Micro, Small and Medium Enterprises Project (2007-2012)¹⁰⁶

The MSME project supported 26 water supply operators across nine provinces: Takeo, Kandal, Svay Rieng, Prey Veng, Kampong Speu, Battambang, Siem Reap, Kratie, and Kampong Cham.

The project developed a water investment strategy to invest US\$1.4 million through a matching incentive-based payment process with 26 WSO in 7 provinces in order to expand clean water supply in urbanising and peri-urban areas. The programme support a value chain analysis of the water small-scale supply sector. This influenced its innovative approach of by covering a portion of the system’s expansion costs through grants, MSME allowed participating WSOs to offer discounted connection fees that, in turn, enticed many new customers to connect to their systems. The investment rebate approach relied on the business judgment of WSOs on how best to expand their water services. As a result of the water investment strategy, the project is credited with

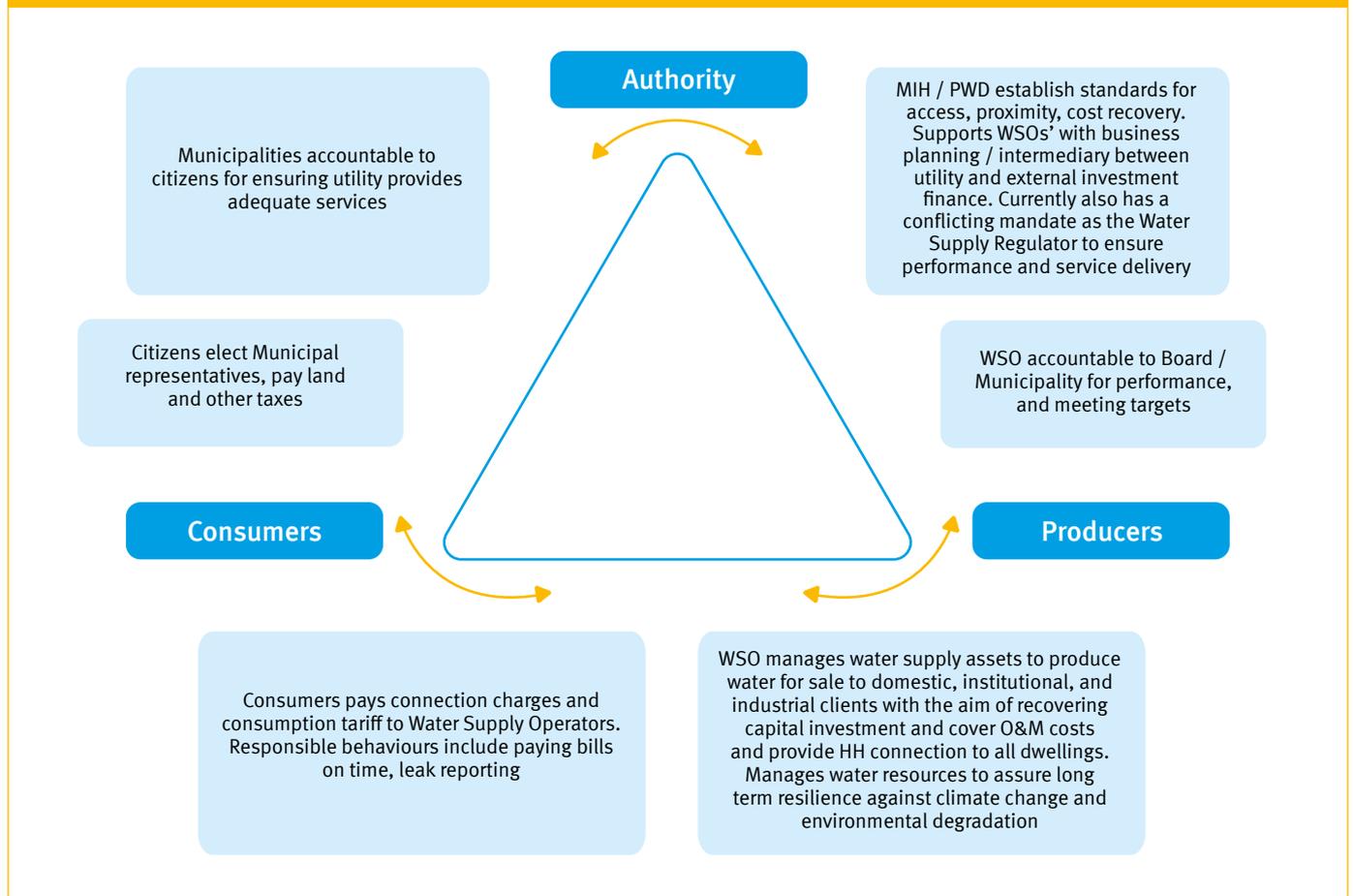
- Initiating clean water access through new household piped connections to 20,003 families, and increasing access to piped water for over 100,000 families.
- Double the net value of the 26 WSO
- Enabled 4,974 households latrines to be constructed in water supplied areas through direct marketing of latrines
- Established and created the Cambodian Water Supply Association-CWA which was officially launched on August 31, 2012, with the technical assistance of the MSME project, in collaboration with the World Bank. CWA will function as an independent association with the support from its active members to promote the networking of WSOs, to share experience or problems/ solutions with one another, as well as to strengthen their voice within the public sector

It also identified some issues

- The water supply system experienced seasonal issues in relation to consumption and impacts on revenue.
- The local water utilities (WSOs), in particular, are vulnerable to larger utilities that are “waiting in the wings” to enter the Cambodian market

At present the Department of Potable Water Supply is short-staffed and challenged to guide, monitor and regulate the large number of water supply operators.

Figure 38.



10 Urban health and hygiene

The government of Cambodia maintains a Health Management Information System that gathers health information from commune health centres and health posts through operational district hospitals to the provinces and onward to national levels. This parallels the health referral system, with an increasing concentration of specialisation as one moves up the system.

A number of challenges exist when it comes to health, in that

- a) The (health) operational districts are not aligned with the statutory subnational administration system but rather operate in parallel to it. Health operational districts frequently cover parts of two or more administrative districts.
- b) While commune clinics are the prevalent public health sector access point, they are not yet available in all communes.
- c) Additionally in urban areas health posts generally are not available because of the presence of provincial and national hospitals, which are meant to provide basic clinic services within their buildings and institutions.
- d) National level data is aggregated for the entire country and visits to the provinces and districts are needed in order to obtain subnational health data.
- e) The current public health system is often accused of being highly corrupt, with users paying demanded fees in addition to charges necessary for treatment, though efforts have been made to improve on this through health equity funds and increased transparency.

For health reporting and monitoring, the country generally depends on periodic (every five years) Demographic Health Survey, which collects a wide range of health and reproductive health-related information.

Unhygienic and unhealthy urban environments

Urban areas in developing countries are among the

worst polluted and disease-ridden habitats of the world,¹⁰⁷ due to the concentration of people in small areas and lack of access to basic services. Conditions in informal and poor settlements are usually even worse, with residents often pushed to the periphery of urban society and excluded from formal services and systems, or living at the edges of urban areas where such systems have no reach.

The conditions in which urban poor people live and the impacts on people's health are commonly understood to include the following:

- **Housing:** overcrowded, poor ventilation and lighting, risk of flooding, mud floors and walls made from non-durable materials.
- **Personal hygiene:** body, hands and clothing hygiene is constrained by inadequate and often costly water supplies and the high cost of soap.
- **Food:** unhygienic conditions for preparation, storage and serving food within households; higher use of street food vendors who are also constrained in good hygiene.
- **Human waste management:** open defecation, unclean and unsafe communal latrines, difficult access for emptying pits and septic tanks.
- **Other solid waste:** open disposal of solid waste, no drainage, more industrial and medical waste, dead animals, flies, insects and rodents.

The implications of these include:

- Higher exposure to health problems and increased incidence of faecal-orally transmitted and hygiene illnesses such as diarrheal, skin and parasitic illnesses, as well as increased exposure to vector-transmitted illnesses such as malaria, dengue, leptospirosis.
- Poor or limited access to health services.
- Poor health status, (some evidence from Kenya suggests the health status of unplanned urban settlements may be worse than in both other urban and rural areas).

Specific sanitation and water related diseases:

- **Fecal-oral disease:** diarrheal diseases e.g. cholera.
- **Water-washed diseases:** trachoma, skin diseases.

- Water-based diseases: schistosomiasis.
- Water-related diseases: malaria, filariasis.

The majority of current urban health data comes from the Cambodian Demographic Health Survey 2010 (though new data from the 2014 survey is pending). Four have been undertaken in 2000, 2005, 2010 and most recently 2014. Data from the other surveys is available, while only the first round of preliminary data is available from 2014.

The survey collects a rolling dataset to enable the monitoring of trends and progress on specific issues. Some of the key areas monitored are maternal and child mortality rates. As can be seen by the disaggregated 2010 data, mortality rates in Phnom Penh were significantly lower than the national average and that of some other urban areas, particularly the under-five mortality rate.

These surveys include asking mothers about the prevalence of diarrhoea in the previous two weeks for their children aged under five. Overall, urban children had significantly lower rates of diarrhoea than rural children (12% vs 15%) but what the data did not provide was the prevalence among urban poor households; research in other countries has sometimes found disease rates among the urban poor to be higher than both rural as well as urban non-poor.

Information from a recent World Vision review (2015) for its Cities for Children Framework found that children continue to suffer the greater burden of illnesses and risk of death in Phnom Penh (as a proxy for other urban areas).

Figure 39. Reported incidence of symptoms in Under five years of age groups

CDHS Locations	Diarrhoea	Fever	ARI
Phnom Penh	12%	24%	1%
Urban	11%	25%	3%
National	15%	28%	6%
Preliminary Findings for CDHS 2014 (assumed to be national levels)	13%	28%	6%

(CDHS 2010 & preliminary findings for 2014)

Many of the reported symptoms of the top ten illnesses reported by Ministry of Health’s Health Management Information System in 2012 affected the vulnerable under-five population. Those associated with sanitation and hygiene issues and continued exposures/bouts of illness may result in tropical enteropathy, the effects of which may deprive a child of learning and/or cognitive ability due to contributing to or intensifying malnutrition and stunting. Reported symptoms (CDHS 2010)¹⁰⁸ of critical illnesses are not significantly lower in the city when compared to national results, with at least 12% of under-fives suffering a bout of a diarrhoeal illness in a two-week period compared to 15% nationally, and 24% suffering a fever against 28% nationally, while respiratory infections were lower at 1% to 6%.

Table 31.

Indicator	Defined as	2005		2010		2014
		National	National	Urban	Phnom Penh	National
Maternal mortality rate	deaths per 100,000 live births	472	206			170
Infant mortality rate	deaths per 1,000 live births between birth and the first birthday	66	45	22	13	28
Child mortality rate	deaths per 1,000 live births between the first and fifth birthday	19	9	7	5	7
Under-five mortality	deaths per 1,000 live births between birth and the fifth birthday	83	54	29	18	35

Figure 40.

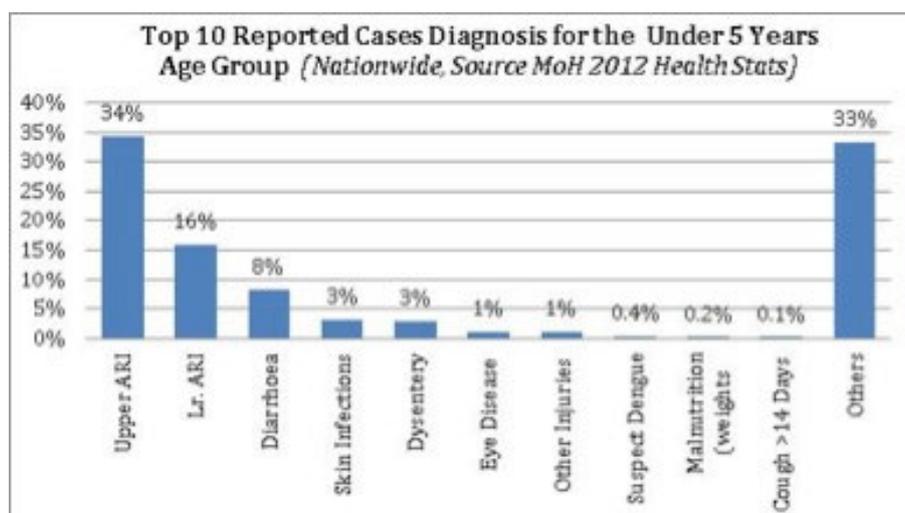


Figure 41. Report rates of malnutrition (National Urban and Phnom Penh) from different sources

Category	Defined by	CDHS 2010						CDHS2014						PPMIAUP/ PiN	
		National		Urban		Phnom Penh		National		Urban		Phnom Penh		Phnom Penh	
		Chronic/ acute	Severe												
Underweight	weight-for-age (wFA)	28%	7%	19%	4%	19%	3%	24%	5%	15%	3%	13%	2%	32%	4%
Stunting	height-for-age (HFA)	40%	14%	28%	10%	25%	12%	32%	10%	24%	6%	18%	5%	22%	7%
Wasting	weight-for-height (wFH)	11%	3%	12%	3%	11%	3%	10%	2%	8%	2%	9%	1%	11%	

A recent sampled study focusing on ‘poor communities’ in Phnom Penh (2014) was supported by UNICEF and undertaken by People in Need. This study indicated that children in slum communities were at significantly higher risk than other children in the city, and reported a prevalence rate of 40% of children having diarrhoeal illnesses, 73% having fevers and 61% having the symptoms of a respiratory infection in a two-week period.

Another persistent health challenge for children in Cambodia remains malnutrition. While progress has been made, it continues to afflict a significant portion of the child population with the longer term risk of stunted development. The preliminary results from the CDHS 2014 indicate that 32% of all children nationwide are chronically stunted, 24% are underweight and 10% wasted, while the figures for

Phnom Penh indicate that nearly a fifth of all children (18%) were stunted, 13% were underweight and 9% wasted.

The People in Need 2014 study focused on a sample of 340 reported informal settlements (or “poor communities”), and found far higher incidence of malnutrition in these areas – with 22% of children under-five being stunted, 32% underweight and 11% wasted. The findings from the sample study resulted in UNICEF commissioning a larger nutritional survey to better qualify urban poor nutritional issues. An associated health issue is anaemia, which compounds malnutrition; and 41% of all children (<5 yrs) in Phnom Penh were anaemic, while 42% of women of reproductive age (15-49) were also found to suffering, compared to 56% for children and 45% for women nationally.

Urban health and hygiene promotion

An authoritative study¹⁰⁹ suggests that promotion of hygiene and sanitation are among the most cost effective health interventions not only in WASH, but in terms of all other medical interventions. (The study compared estimated costs to avert a DALY (a Disability Adjusted Life Year), which combines years of life lost to premature death and years of disability. The data suggest that it costs US\$3 and US\$11 respectively to prevent one year’s premature death or disease by promoting hygiene and sanitation).

Table 32. Cost Effectiveness of WASH Interventions

Intervention	Cost per DALY averted in USD
Hygiene promotion	3
Sanitation promotion	11
Oral Rehydration Treatment ORT promotion	23
Water sector regulation & advocacy	47
Hand pump / stand post	94
House connection for water	223
Basic sanitation construction & promotion	< 270

For Cambodia it seems likely that targeted health interventions including behaviour change, primary healthcare services and nutritional inputs continued to be needed, as the current investment and costs of health services appears to exclude some section of the urban society. But these inputs need to better targeted, monitored and reported. In terms of access to community-targeted approaches, in Phnom Penh only 53% of communities were reported to have a village health support group, and only 45% had received some health outreach activities within the past three months (Phnom Penh Urban Poverty Assessment 2012).

Table 33. Opportunities for civil society/WaterAid Cambodia

Area	Description
Citizen/ community education on: Hygiene/health risks; water safety; sewer connections; waste disposal	<ul style="list-style-type: none"> • Through MIH and Sangkats – also include private water providers and landlords • Look at hygiene work that has been done and the impact, develop core curriculum and results framework • Consider KAP study • Include citizen/community education on WASH into Commune Development Plan • Find out what is being done on urban hygiene by UNICEF, NGOs etc. – could do this through the informal urban forum.

11 Urban WASH monitoring and evaluation¹¹⁰

The current general national monitoring framework is undertaken through the Ministry of Planning and its sub-ordinate departments, in support of what is known as “the Commune Database (CDB).” This is maintained and operated through National Committee for Democratic Development and its secretariat, and its support to sub-national administrative levels. The CDB monitors overall development progress across a wide range of sectors, including access to water supplies and sanitation not just in terms of families, but also at schools. Data is collected/reported annually by all official villages, gathered by sangkats and communes, and aggregated at district/khan level and again at municipal and provincial levels. The theory behind the CBD is sound in that it was meant to establish a real-time monitoring system, however its implementation has not lived up to this and there are anecdotal concerns expressed by the Ministry of Planning. There appears to be an issue with quality control and validation of submitted data, with little evidence that quality checking is effectively undertaken.

There is a need for improved sector monitoring – although the intention to establish a sector monitoring system has been recognised in various policy and strategy documents and sector reviews. At present, much of the monitoring in the sector is partially dependent on census and other survey data, rather than a robust real-time sub-sectoral monitoring system. Why this is the case remains unanswered, as **limited information concerning sub-national progress can be distilled**. The focus is usually on monitoring access, and data is not in real-time to inform the annual review, planning and programming at sub-national level. Another source of information is the commune database, which includes both urban communes (Sangkat) and rural (Khum), hosted by the National Committee for Democratic Development, and in the absence of more precise data, this is the only available data at commune level. However, the reliability of this data is not assured, as it is based on unverified reports made by village chiefs and collected by commune council chiefs.

Urban water supply and sanitation

The Phnom Penh Water Supply Authority monitors and evaluates some 200 water supply parameters, publishes the data on its website, and is often recognised and promoted internationally as an example of best practice. However, for the national urban water supply subsector as a whole, utility performance data is not comprehensively and systematically gathered by the Department of Potable Water Supply of the Ministry of Industry and Handicrafts, with whom the responsibility rests for monitoring public and private water utilities. This has been a long identified deficiency. What data is being collected from the almost 150 licensed private operators is scattered (without verification) and stored in a rudimentary excel spread sheet, and not publicly available or released. Accessibility of basic sector data is also an issue, as no data-sharing platforms/websites are in place that share information with the wider public. The subsector appears to rely on assessments supported by development partners, such as the JICA-supported urban water supply overview,¹¹¹ and the Cambodia Water and Sanitation Sector review, supported by the World Bank.

Realising the importance of better monitoring, some improvements in the urban sub-sector are now being made. JICA’s support to public utilities is starting to improve their internal management information systems (billing, accounting, etc), for both better utility performance and improved reporting to the Ministry of Industry and Handicrafts against a range of performance indicators covering not only technical parameters, but also financial performance. With the support of the Water and Sanitation Programme and the Cambodian Water Supply Association, private water operators are being encouraged to use computerised management systems that support improved recording and accounting practices.

The Department of Potable Water Supply, with support from the Water and Sanitation Programme, has recently embarked upon the establishment of an M&E system for both public and private operators. However, additional human and financial resources will be required to support its roll-out, sustain its

application, and especially ensure a minimum level of data verification, as well as water quality monitoring by Provincial Departments of Industry and Handicraft in the province. As part of the new licensing regime, it is expected that a monitoring guideline will be issued, stipulating reporting requirements (even though minimal reporting requirements and the need for these were included in the development of standardised contracts over a decade ago). The establishment of the system is expected to facilitate a future review process of private operator water tariffs.

The situation related to the urban sanitation sector is weaker, with little or no real consideration given. It is captured by the commune database with its identified deficiencies and other weak

monitoring systems, which are mostly tied-in with project implementation of drainage and sewer systems. Reporting on the effectiveness of faecal waste treatment is largely absent, as there are few wastewater treatment plants in operation. In fact by 2015, only three systems are reported as operational or partly operational (Preah Sihanouk, Siem Reap and Battambang municipalities and these only cover part of the cities), with a number of others either under construction or planned for.

In terms of a joint annual sector review process by government and key development partners, Service Delivery Assessment participants agreed that this process has not yet been put in place for either urban water supply or sanitation.¹¹²

Table 34. Opportunities for civil society/WaterAid Cambodia

Area	Description
<p>Knowledge management of evaluation findings</p>	<ul style="list-style-type: none"> • Better engage national and sub-national actors and stakeholders to improve the quality of the CDB to support better targeting of limited resources. • Improve consideration of WASH issues in subnational planning processes by supporting non-state actors to engage, question and raise the profile of WASH issues in such processes. • Assemble as many evaluations and similar studies on urban WASH in Cambodia as can be found; store them in a Dropbox or similar instrument • Extract major findings and lessons learnt from the evaluations and summarise these • Commission reviews and evaluations of innovative approaches and make these available • Initial or support forums to encourage discussion and reach consensus on approaches as well as encouraging researchers to present their study plans and findings at events for interested Urban WASH agencies

12 NGOs engaged in urban programmes, including WASH

An effort was made to identify non-state actors active in urban areas, but mainly focusing Phnom Penh, as it would appear no significant research has been done on trying to identify what development organisations and groups are actually working in different sectors and where they are work. This would appear to be a serious deficiency for aid coordination, management and networking.

At present the municipality of Phnom Penh does not maintain an active list of development actors in the city, what they have is usually based on officials’ personal knowledge. The same can be said for the subordinate levels of the public administration in terms of khans and Sangkats, though these sometimes have better knowledge as they are closer to the ground. While development organisations frequently huddle together in working groups and self-established networks, it would appear there are limited efforts to engage with other sector actors and stakeholders.

Development organisations overview

A total of 3,490 civil society organisations (CSOs) were reported as registered in Cambodia in 2011¹¹³ (Cooperation Committee for Cambodia 2012). Local groups (LNGOs, associations and community-based Organisations – CBOs) generally register with the Ministry of Interior (MoI), while international organisations are generally registered through the Ministry of Foreign Affairs’ Department of International Cooperation, though they are sometimes

registered with other ministries or agencies. Of those entities registered at Ministry of Interior, over half were LNGOS (53%), with the remainder mainly associations (46%). The difference between these registrations is unclear, “as there is crossover between entities titled NGOs and associations, as some organisations registered as associations, functioning more like NGOs and vice versa”. Of the total number of CSO entities identified for the 2011 CSO census, only 35% were reported active in some form, with the remaining 65% generally un-contactable and considered inactive after a number of approaches based on a described process and verification with local authorities in the place of registration (by the Cooperation Committee for Cambodia study).

Of the entities registered, a disproportionate number were listed in Phnom Penh (420 active, 1,334 inactive), although this is not reflective of the actual distribution of their activities and was due to many organisations registering in Phnom Penh as the location of their head offices, while their activities take place in other provinces. Further analysis by the CSO census indicated that between 135-150 organisations were possibly working in Phnom Penh at the time (figure 16, Cooperation Committee for Cambodia, 2012).

The Cambodian government also maintains a separate ODA database, one component of which is an NGO database. The declared aims of this database are to:

- Record all development finance to Cambodia from all sources.
- Promote the effective planning, budgeting and management of external resources.
- Provide public access to information on aid provided to Cambodia.
- Support empirical analysis and the provision of practical policy-relevant advice, and contribute to aid effectiveness reporting.

The NGO database was also used by the Civil Society Census in 2011. Overall the ODA database currently (2015) lists:

Figure 42.

Types of Civil Society Entities (2011)	# of Entities
Local NGO (MoI)	1,591
Associations (MoI)	1,382
INGOs (MoFA)	508
CBO (MOI)	9
Reported Total	3,490

Source: Cooperation Committee for Cambodia 2012

- 278 International NGOs actively implementing 478 programmes and project throughout the country.
- 252 national NGOs actively implementing 436 programmes and projects in the country.

While significantly lower than the figure registered with Ministry of Interior and Ministry of Foreign Affairs, this is probably due to the fact that while the ODA database is government owned and managed, the responsibility for entering data lies with development partner organisations. This is apparently one of the challenges, as completing the database is not mandatory but voluntary and appears to be frequently left undone by many organisations,

There are also limitations with the database, in that integrated or multi-sectoral development approaches are not effectively considered or captured and, unless data is entered per sector programmatic approaches, entries may only appear aligned with one sector.

Searches of the government’s two development assistance databases, maintained by Cambodian Rehabilitation and Development Board of the Council for the Development of Cambodia (CDC), identified reported projects being implemented in the country. One database focuses on donor-related projects (multilateral, bilateral and International Financial Institutions), while the other database identifies reported NGO-implemented projects, where the responsibilities for entering projects and information lies with NGOs.

Phnom Penh

For Phnom Penh, the ODA NGO database initially lists 239 ongoing programmes and projects being implemented by 198 national and international NGOs. The breakdown of projects into a number of relevant groupings summarised below.

Sources (CDC NGO database, and Consultant)

The analysis did throw up some anomalies;

- There would appear to be more projects in the database being implemented in Phnom Penh than are reported by the provincial search query. As mentioned, this is likely due to some projects being reported under a number of sector headings.
- Some sectors seem to be poorly represented (gender, rights and governance, environmental etc.). This is likely to be due to the fact that, while activities for these are undertaken, they were not identified as the key project sector activity when reporting.

Based on a World Vision review of NGOs reporting urban WASH programmes, only two organisations report doing so directly. It is highly likely that other organisations are also working on urban WASH, as a recent review of urban NGO actors (based on the CDC data) indicated that 239 NGOs are directly implementing 281 projects in Phnom Penh alone. It is speculated that there are a dozen or so national

Figure 43.

Location	Health	Education	Community & Social Welfare	Gender	Environment & climate	HIV/AIDS	Rights and Governance	Livelihoods/ Watsan & (urban) agriculture	Subtotal
Phnom Penh									
# of NGOs active in Phnom Penh	34	56	81	3	2	51	4	8	239
#of Projects active in Phnom Penh	38	66	92	3	3	66	4	9	281
% of nationally reported Projects	26%	31%	39%	27%	6%	100%	10%	6%	
Nationwide									
#of Projects active (up to 12/2014)	147	212	238	11	47	66	39	159	919

Sources (CDC NGO database, and Consultant)

NGOs, and about half that number of INGOs, working in the urban WASH sector. This is a rich resource of potential partners for WaterAid Cambodia. Some of these organisations are also working on urban land issues, and are listed in section 4.

Some NGOs felt that their expertise was in the areas of in planning, mapping, community development and architecture; they felt they were not so informed on WASH topics and would welcome the opportunity to know more.

A New Initiative to Engage and Build on

The recently formally established (2014) Basic Social Services & Economic Development Sub Working Group (SWG- BSS&ED) intended to focus on the urban poor's limited access to education, public health facilities, information, protection, nutrition and WASH services (particularly household and environmental sanitation) as well as limited opportunities for livelihoods.

The SWG- BSS aims to coordinate the stakeholders, both government and non-government actors in the planning and implementation of effective responses related to Basic Social Services in Urban Poor Settlements in Phnom Penh, with a focus on:

- Access to health care
- Protection of children and most vulnerable
- Access to information related to identification status (e.g. ID Poor status), health, hygiene, family planning, nutrition, etc
- Access to sustainable and affordable safe water supply and sanitation
- Empowerment of youth through engagement in social projects, vocational trainings, prevention programs, etc.
- Access to formal and informal education
- Access to vocational training and microfinance

(source the SWG- BSS&ED ToR 2014)

Table 35. Opportunities for civil society/WaterAid Cambodia	
<p>Support an Informal urban WASH forum national, PP, or each city?</p> <p>Knowledge management, advocacy and learning focus</p>	<ul style="list-style-type: none"> • At least 239 NGOs identified as operating in PP – how many are doing WASH? Better networking surely needed • Identify and reach out to organisations working in urban areas, develop a plan/process to follow up with all actors – not only forums, and • Build up a database on who is doing what where • Engage with them to identify their knowledge and interest in WASH related issues • Develop Urban WASH training modules • Work out which Ministry best to lead - Ministry of Industry and Handicrafts., or Ministry of Land Management (MLMUPC), Ministry of Interior/NCDD or another? • Build on UN-Habitat’s initiated urban forum. • List out existing forums – including – • Development Partners meetings on land issues and possibly the Technical Working Group on Land ; • NGO Forum grouping on land and housing; • Technical Working Group on Urban Water (under MoPWT and chaired by MIH); • The Women’s and Children’s Affairs Committee, operating at provincial, Municipal and khan/district levels. • Basic Social Services & Economic Development Sub Working Group (SWG-BSS&ED) the newly established group on urban issues supported by UNICEF – Can it be motivated and guided to be more a talking shop? • Phnom Penh Technical Working Group on Health • Develop a more effective approach to engage with Sangkat councils and Village Health Support Groups, Cambodian Red Cross volunteers and other CBOs. • Provide online knowledge hub/ community of practice between NGOs in which people can openly discuss UP issues – could use Google Groups as used for rural WASH
<p>WASH training for NGO staff working in urban poor communities –</p> <p>Provide additional support by paying for WASH staff or technical back-stopping</p>	<ul style="list-style-type: none"> • Adapted and innovated an urban WASH capacities and competencies curriculum • Provide training, coaching and mentoring for technicians and relevant staff on technical support to implementation/piloting in the field and proper documentation of the WASH situation. • This training could be utilized by local authorities and other groups – can this be passed from NGOs to local authorities to facilitate faster action? • NGOs working with WASH need to have their staff trained so they can pass on knowledge to communities • Develop linkages with planned UN-Habitat work on water governance – next step is a Training Needs Analysis for local authorities at Sangkat, khan and Municipal levels

<p>Support to Young Professionals – on mapping/ approaches - Urban Community Resource Centre, CIUS etc.</p>	<ul style="list-style-type: none"> • Develop linkages to young professional and youth groups and networks studying architecture/engineering, environment, and health • Build on linkages to the new Cambodian Institute for Urban Studies • Young professionals can provide technical support to mapping • Include Community Youth and institutionalize Community Youth and Young Professionals – as in UCRC • Facilitate WASH knowledge with training institutes that train young people in related fields – engineering, urban planning, social work. • Build on emerging opportunities – capacity needs assessment and capacities and competency framework to start guiding HR development
<p>Prepare compendium of WASH technical options/ approaches for UP:</p> <p>Could include:</p> <p>Water Supply</p> <ul style="list-style-type: none"> • Alternatives to piped water supplies, available and ranked options • Household Water Treatment and Storage, • WASH services targeting, <p>Sanitation and Waste Water</p> <ul style="list-style-type: none"> • Toilets and discharge • Wastewater; • Decentralised Wastewater Treatment Systems DEWATS; • Small bore sewers; • Condominium sewer layouts; • Urban CLTS and sanitation marketing; • Disability & universal designs • SWM issues? <p>Hygiene</p> <ul style="list-style-type: none"> • Urban Hygiene issues and practices 	<ul style="list-style-type: none"> • Based on a urban WASH needs assessments developed and associated with some of the other proposed inputs • Develop/ adapt a urban WASH curriculum to meet the needs and demands of other WASH sector actors and stakeholders • Would be relatively low cost • Can use material from existing compendiums and interpreted into Khmer

Annex A

IDPOOR household weighting/scoring

The following is extracted from Form 4, Section C (parts of which are used to generating the Household Score/Weighting) sourced in MoP (2008) Implementation Manual on the Procedures for Identification of Poor Households, supported by GTZ

HOUSING		Points
Q2. Roofing		
	Thatched, palm leaf, plastic sheet, other soft material	8
	Corrugated iron	4
	Tile, fibro, cement concrete	0
Q3. Exterior Walls		
	Sampling, bamboo, thatch, palm leaf or other soft material	4
	Wood, sawn boards, plywood, corrugated iron	2
	Cement brick concrete	0
Q4. General condition of Housing		
	In a dilapidated state or not own house (rent free or paying rent)	4
	Average State, liveable	2
	In good condition, safe	0
Q5. Size of housing floor area M2		
	20 meters square or less	4
	21-50 square metres	2
	>51 m ²	0
LIVELIHOOD		
Q6. One of the following only asked depending on which livelihood area identified by HH, Agriculture, fisheries, other		
Q6b. Land areas for agriculture		
	From 0-20 "ar"	8
	From 20-50 "ar"	4
	Over 50 "ar"	0
Q6c. Fisheries equipment		
	None or little equipment and or in poor condition	8
	Little equipment in fair condition	4
	enough equipment in good conditions	0
Q6d. Other livelihood activities		
	Work as labourer, supported by others, beg etc...	8
	Micro business, skilled labourer, civil servant	4
	Medium or large size business	0
Base on Q6 source of livelihood, only ask one of the following depending on livelihood group.		
Q7a. For land based households (Possession of livestock)		
	No pigs or goats, cows buffaloes, horse or fish raising ability	10
	1-3 pigs, or 1-3 goats or 1-2 cows buffaloes or horse, no fish raising ability	5
	4-9 pigs, and/or 20 or more goats, and or 10 or more cows buffaloes or horses	0
Q7b. For water based households		
	No pigs or fish raising ability	10
	1-3 pigs and/or fish raising ability (but not both)	5
	4 or more pigs and or has fish raising ability	0
The following for All Household identified		
RICE/FOOD BORROW		
Q8. Did the HH owe or borrow rice for how many months.		
	8-12 months	8
	3-7 months	4
	0-2 months	0
HH INCOME EARNERS		
Q9b. How many persons in the household cannot produce an income (because of age (young or old), education/school, poor health, disability, fulltime child care, or other reasons)		
	More than Half of all HH members cannot produce or earn an income	8
	Equal to or less than half but more than a quarter of all HH members cannot produce or earn an income	4
	Equal to or less than a quarter of all HH members	0

Annex A

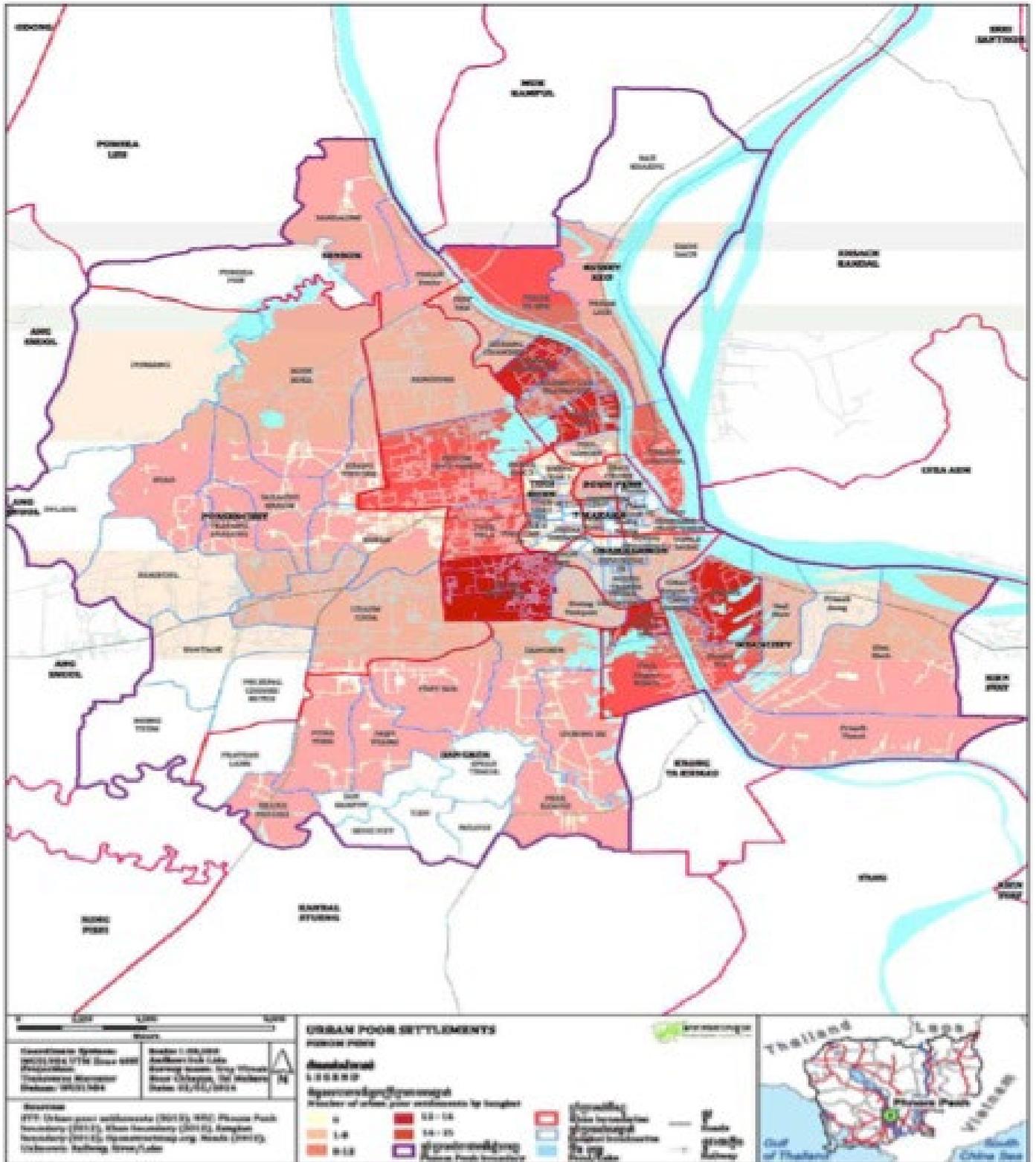
HH ASSETS		
Q10b. household assets		
	Nothing or one small radio	4
	Large radio or black and white TV	3
	Colour TV and /or Stereo, and /or mobile phone and/or video player, and/or video player Karaoke machine and/or water pump	0
	Video camera, threshing machine or rice milling machine generator	Disqualify
Q11b. Related to transport assets		
	No means of transport, or one old bicycle, or one small old row boat canoes (total value less than 100,000 Riel (<\$25))	8
	Old bicycle, motorcycle in fair condition old horse or oxen cart, old medium sized rowboat (without motor) (total value from 100,000 to less than 400,000 (<\$100))	4
	Bicycle or motorbike fair condition, oxen or horse cart, large row boat or canoe or boat with motor, moto-remorque, Kau you (hand-tractor) (total value over 400,000 Riel (>US\$100))	0
	Possess Tractor, car, van truck,	Disqualify

Notes

In question 6B an unit of land measurement is used the "ar" which is a 10*10 metre plot unit equal to 100m²

Annex B

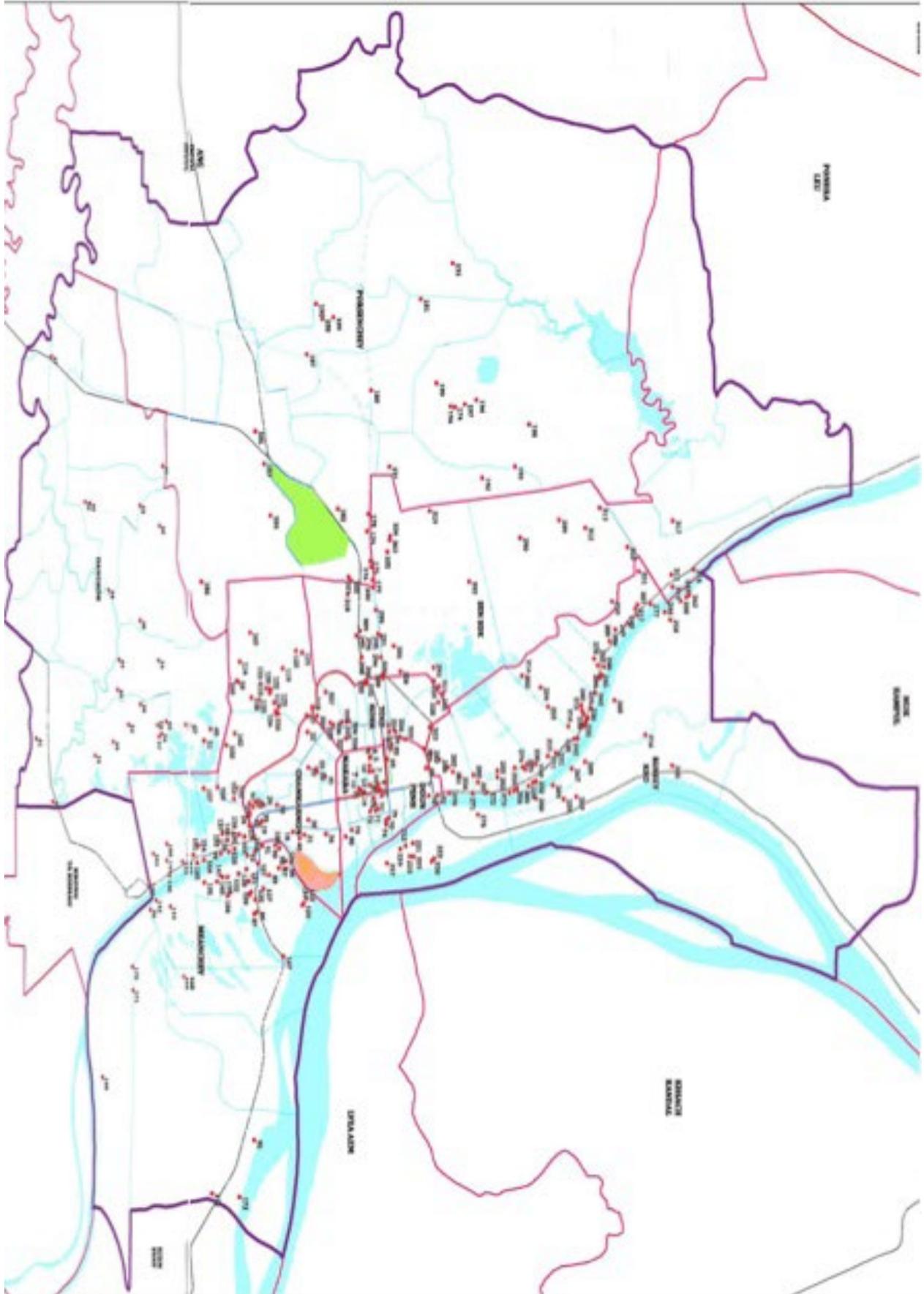
Figure 1 Overview of the concentration of informal settlements by Sangkat (source STT 2014)



(source STT 2014)

Annex C

Figure 2 Location of informal settlements (source STT 2014)



(source STT 2014)

Annex D

Social deterrents of urban poor community living

From - The social determinants of health and health service access: an in depth study in four poor communities in Phnom Penh Cambodia Soeung S.C. et al. International Journal for Equity in Health, 2012

Theme area	Detailed finding
Social Structure	Poor communities are complex in structure and do not rely solely on the administrative leadership for social cohesion or social action. Community members often identify more closely with community subgroups, community leaders, NGOs and even resident health private practitioners, and are primarily reliant on their own family and neighbours for assistance. This supports a case for a health promotion strategy to work locally with community subgroups and families and their networks rather than relying solely on the administrative organization and procedures.
Social Insecurity	There are many aspects of social insecurity in communities that impact on health and well-being. These include physical, income and health insecurity. This social context for health and well-being indicates that the primary determinants of poor health in these communities can best be understood in structural rather than behavioural terms. This supports a case for a more comprehensive social policy approach to address the structural factors rather than a reliance on health education strategies for individual behaviour change.
Social Isolation	There are particular subgroups of the poorest families in the four communities that are particularly at high risk of social exclusion and social isolation – these include single mothers, young school-age children (but not attending school) and teenagers. Social programmes should target these most vulnerable groups to provide them with a minimum level of social opportunity for development and social protection.
Social Protection	Health workers assess the poverty status of their patients, and patients know they are being assessed for their capacity to pay. As a result, mistrustful relationships can develop between government health centre staff and community members. On the other hand, those people with exemption cards expressed confidence in attending health facilities. This makes the case for extending the health equity fund or related health protection schemes to increase the use of health care services by the very poor.
Health Networks	Informal networks are likely to be the most influential factor in determining health care-seeking behaviour. The quality and cost of health care services are routinely discussed among families, friends and neighbours. This being the case, the most powerful advertisement for improving health care and health care access is the quality, attitude and cost of services provided directly to the communities, enabling community members then to share this information through their local social networks.
Health Markets	There is no single unified health care system in the urban context. There is instead a health care market with a wide range of choice of provider and type of service, even for the urban poor. The poor are "shopping for health." A better understanding of the dynamics of this health care market for the poor could guide policy makers towards improving mechanisms for quality health care and social protection.

From - The social determinants of health and health service access: an in depth study in four poor communities in Phnom Penh Cambodia Soeung S.C. et al. International Journal for Equity in Health, 2012

Annex E

PPWSA 4Q14 Performance review: earnings strong and net margin wide

Water subscriptions hit five-year high

- Total water subscribers came to 270,812 in 4Q14, increasing by 18,497 or 7.3% YoY (vs 17,187 or 7.3% in 4Q13). Household subscriptions accounted for 83% or 225,735, rising by 7.5% YoY or 15,734 (vs 7.6% or 14,751 in 4Q13) and commercial and industrial subscriptions accounted for 16% or 44,259, with the number of subscriptions growing by 6.6% or 2,753 (vs 6.3% or 2,475 in 4Q13).

Revenue rises on strong water sales in 4Q14

- Total revenue grew 0.8% QoQ and 12.8% YoY to KHR 41.3bn in 4Q14 (vs -2% QoQ and -2.2% YoY in 4Q13). We attribute the robust YoY growth to a strong increase in its core business of water sales (+14.1% YoY, +2.1% QoQ, vs +4.5% YoY, -3.2% QoQ in 4Q13) to KHR38.8bn, accounting for 93.9% of the total revenue.
- Full-year 2014 total revenue grew slightly by 3.3% YoY (vs 12.2% in 2013) to KHR156.5bn, mainly due to the completion of service contracts with other provincial water authorities for related water distribution network construction.
- Revenue from construction services dropped 97.2% YoY in 2014, with a margin of just 0.1%, vs 4.8% in 2013. However, revenue from its core business of water sales remained strong in 2014, rising 7.7% YoY (vs a 3-year average growth of 8.9% over 2011~2013). Other income, on the other hand, contributed 6.1% (vs 5.2% in 2013) to overall revenue, helping to drive 2014 growth.

Operating margin narrows in 4Q14, but remains high for full-year 2014

- Operating profit came to KHR5.7bn in 4Q14 (-63% QoQ, -40.4% YoY), with operating margin declining to 13.9% (vs 26.3% in 4Q13), as other operating expense ratio and depreciation expense ratio expanded to 15.2% (vs 7.9% in 4Q13) and 24% (vs 15.8% in 4Q13), respectively. Forex losses amounted to KHR1.1bn, accounting for 2.8% of total revenue. The increase in depreciation expense was due to additional depreciation costs from a new Noroth water treatment plant and a solar power plant.
- For the entire year of 2014, even though depreciation expense ratio expended to 21.7% (vs 16.2% in 2013), operating margin remained high at 28.7% (vs 34% in 2013), thanks to a marginal decrease in COGS ratio to 28.6% (vs 31.5% in 2013) and forex gains, which contributed 1.4% to the overall revenue.

Net profit grows strongly with big net margin; 1Q15 earnings to grow 29% YoY

- Net profit came to KHR11.3bn (-38.4% QoQ, +32.3% YoY), with a net margin of 27.3% (vs 23.3% in 4Q13), as net interest income from net foreign exchange gains on borrowings added KHR6.9bn to net profit. Management expects 1Q15 net profit to grow at least 29% YoY to KHR11bn.
- For 2014, net profit rose 18% YoY to KHR45.7bn, with a net margin rising to 29.2% (vs 25.6% in 2013) due to net interest income gains of KHR11.4bn, the biggest gain ever since 2008.

Annex F

NGOs engaged in urban land programmes

The review identified the following national NGOs and about half the number of international NGOs working on urban land issues. This is a possible resource of potential partners for WaterAid Cambodia, but it is limited.

Organisation	No of Staff & Volunteers	Urban Activities
Community Empowerment, Development Team (CEDT)	8 staff & 5 volunteers	<ul style="list-style-type: none"> Works with informal settlements and urban poor people Community strengthening Mapping and documentation (each community and commune) Technical support on housing options, and infrastructure Community research Legal investigation of land status Community environmental improvement re housing improvement, land tenures realise housing rights.
Sahmakum Teang Tnaut (STT) (sugar palm leaf)	30 staff	<ul style="list-style-type: none"> Works with urban poor communities and eviction threatened communities in Phnom Penh Land/housing, tenure security, prevention eviction, community organising, community maps and citizen documentation (hard copy and cloud storage) Small scale infrastructure upgrading Subsidy housing construction Urban poor surveys in Phnom Penh Social media Support communities' advocacy.
Urban Poor Women Development	7 staff	<ul style="list-style-type: none"> Works with women in urban poor communities in Phnom Penh Land and housing improvement Land tenure security and gender through community organising Community strengthen/organising Right to food Women empowerment Land rights training

Community Managed Development Partners	7 staff & 5 volunteers: Young Professionals, Community Youth, Community Activists	Works with urban poor communities in Phnom Penh, Kampot, Sihanoukville, Battambang province Land and housing improvement Land tenure security Community organising Infrastructure documentation Surveying and mapping of Informal settlement locations Technical support on cost estimate and design of infrastructures
Urban Community Resource Centre	5 young professionals	Youth professionals groups working on urban poor communities in Battambang city by assisting municipality on technical support Regular commune meeting with communities within their communes, Community organising Documentation for Circular 03 Onsite upgrading Technical support on housing and infrastructures.
Cambodia Volunteer Services (CVS)	7 staff and 5 volunteers	Mobilises youth in Phnom Penh, Kampot, Sihanoukville, Koh Kong, and Battambang by providing space to learn and participate in social development Support youth for their engagement in the protection of land and natural resources Potentially provide job security in their own communities, and work in areas to strengthen their own voice.
Housing Rights Task Force (HRTF)		Works with urban poor communities to prevent land and housing eviction in Phnom Penh Community legal services Monitoring on land and housing eviction cases, community empowerment Media and advocacy work

Equitable Cambodia	5 staff and 1 volunteer	<p>Works in rural and urban communities in Phnom Penh and other provinces to support people’s action for inclusive development and social justice and human rights</p> <p>Child protection facilities</p> <p>Formal and non-formal education</p> <p>Leadership and harm reduction programs</p> <p>Leading advocate of land and housing rights in Cambodia through media and legal advocacy,</p> <p>Coalition building</p> <p>Policy research and lobbying at national and international level</p> <p>Volunteer programme</p>
Urban Poor Development Fund/Community Development Foundation -CDF		<p>Work with urban poor communities in 24 provinces in Cambodia</p> <p>Providing housing and infrastructure loans</p> <p>Subsidy/grant on upgrading</p> <p>Housing building</p> <p>Income generation</p> <p>Food production</p>
Live With Dignity		<p>Strengthen local leadership and improve governance</p> <p>Empower communities to obtain improved and sustainable socio-economic livelihoods</p> <p>Empower communities to conserve and manage natural resources and to manage and mitigate disaster risk, including climate change adaptation.</p>
International NGOs		
World Vision	105 staff on urban programme	<p>Child protection and nutrition</p> <p>Strengthen urban community</p> <p>Leadership training</p> <p>Livelihood training</p> <p>Climate change</p> <p>Dialogue with government on land and housing,</p> <p>Support NGO partners on community empowerment, mapping, survey, community profiles</p> <p>Support community infrastructures through Commune Investment Plan</p>

Habitat for Humanity, Battambang	5 staff	<p>Works with urban poor communities in Battambang city to have housing solutions and land tenure security</p> <p>Assist municipality of BB to implementation Circular 03 and Social Land Concession through community organising, mapping, survey, filling annexes of Circular 03</p> <p>Housing models and infrastructures design, provide housing loans</p>
People in Need		<p>Support to municipality of Phnom Penh to run two working groups relating to land tenure and basic services</p> <p>Infrastructure support to poor communities in vulnerable locations in Phnom Penh (including WASH).</p>

Annex G

Construction Permit Anukret #86 ANK/BK/December 19, 1997

The Anukret sets out the general provisions for construction and determines the rights and obligations to develop urban areas. It determines the duties and obligations of population and public institutions for public and private construction. The Anukret remains in 2015 the main source of requirements for building control. It is believed that the Ministry of Land Management, Urban Planning and Construction is in the process of developing a more comprehensive building code (with a fourth draft dated 2015 observed), but as yet it has not been consulted. Therefore, in the absence of newer legislation/regulations, the Anukret predominates.

The current Anukret includes the following requirements,

Article 2 states that “All constructions in the cities or provincial towns shall be subjected to construction permits”. Renovation of existing buildings building shall be subjected to construction permits if they modify seven areas including “sanitary installations and sewer connections” and “treated wastewater installation connected to sewer system”

Article 9 on the ‘content of the construction permit’ this sets out the requirements for plans to be submitted to obtain construction permits

Section 9.3 for site plans states that “pipe system (materials, diameters, slopes, levels) with hook up with the public sewer system and drinking water supply, septic tanks, well” should be shown at on scale 1/ 200e (or 1/ 500e after official approval for bigger lots)

Section 9.4 “sanitary installations and the pipe system” scale 1/ 100e

The Anukret has specific provisions related to water and sanitation, namely under Article 31 which relates to “Drinkable Water Supply and the Disposal of Sewage Waters”

Section 31.1 Drinkable water supply shall be made available for all constructions subjected to the construction permits. In the event that the drinkable water supply does not serve the terrain, upon which a construction is proposed. The applicant shall provide proof that he can supply drinking water in sufficient quantit(ies) to its building and shall indicate by what means he intends to do so whether by connecting to an existing water supply system or the use or the digging of a well. If a well is used or a new one is dug specifications construction, the applicant has to indicate the technical of the well and the quality of the water. In the event a collective well is used, the permits application shall include the written consent of the chief of the village.

31.2 The individual lots or the whole housing division shall be served by a drinkable water distribution drinkable and a sewer system, which can evacuate directly the sewage waters.

31.3 In the absence of a sewer system, building owners shall make provisions to treat and evacuate sewage water through a septic tank and a sub-terrained filtering system. In urban areas building owners shall make provisions to connect their septic tank to the sewer system.

Septic tank specifications are defined as follows:

- The volume of the septic tank measured between the bottom and the inferior level of the affluent outlet shall be: a minimum of 3m³ by living unit or 3m³ per floor of the “apartment” or the house, or 3m³ for 80m² of floor;
- for hotels: 2m³ plus 0.5m³ per bedroom.
- The height of the septic tank shall not be less than 1.5m.
- The septic tank will be ventilated.
- Under no circumstances may rain waters penetrate in the septic tank.

31.4 The construction permit application shall include the blue print of a septic tank for hygienic installation and the connection to the sewer systems.

Most importantly “A construction permits shall be denied if it does not present sufficient assurance of hygiene and health of the projected construction and surrounding existing constructions”.

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