Work Fatigue Study

A survey into working hours and the sufficiency of rest among male foreign workers in Singapore.

By Transient Workers Count Too,

Fieldwork done in November 2016. Report released in March 2017.

Sections:

1. Key findings

Two-thirds of construction workers appear to be working so much overtime that, at the rate of overtime they're putting in, they exceed the legal maximum of 72 overtime hours per month. These two-thirds spend eleven hours or more at work each day. The law, meant to protect the health of workers, is widely ignored.

Male foreign workers are getting the bare minimum of sleep consistent with good health. On average, they get seven hours of sleep each night. A quarter of them get six hours or less, which cannot be sufficient on a continuing basis.

Three additional factors that seem to be reducing their available rest time are:

(a) being transported to the workplace too early – 34% arrived at the workplace an hour or more before the official commencement time of work;

(b) having to wait for company transport at the end of the work day – about 24% had to wait half an hour or more;

(c) having to queue to use the toilet and shower in the mornings and evenings – 38% reported having to do so in the mornings and 35% reported having to wait in the evenings.

2. Introduction

Singapore statistics for workplace fatalities and injuries (see Appendix 1) seem hardly to budge from year to year. The construction and marine sectors – where foreign workers predominate – feature particularly strongly in the dismal data. Construction accounted for 41% of fatalities in 2015 although this sector has only 11.4% of total employed persons in Singapore.

See box for explanation of the numbers

MOM's report "Labour Force in Singapore 2016", Table 1, page 80, states that there were 3,570,000 persons employed in Singapore in 2016, of which 2,165,300 were residents.

The same publication provides a figure of 91,000 fulltime employed residents in the construction sector in Table 58, page 178. However, Table 73, page 205, gives a figure of 79,700 resident permanent and term contract employees in the sector, excluding National Servicemen. The lower figure is a better reflection of the resident workforce in the construction sector.

There are 327,000 foreign Work Permit holders in the construction sector (MOM: Foreign Workforce numbers, 2016) which, added to the 79,700 residents in this sector, give a total of about 407,000 persons in construction. There may be a sprinkling of S-Pass and Employment Pass holders in construction too, but the figures are not available. They are unlikely to make much difference to the total.

407,000 persons employed in construction represent 11.4% of the 3,570,000 employed total.

Likewise, the construction sector accounted for 27% of major injuries and 18% of minor injuries in 2015, again disproportionately more than its share of employed persons.

Anecdotally, Transient Workers Count Too, in assisting workers with their salary claims, has noticed that they tend to work very substantial hours of overtime. The great majority of TWC2's caseload consist of workers from the construction sector.

Fatigue and insufficient rest have a major bearing on workplace accidents. A tired worker's attention may be cloudier, his reflexes slower, and there may be a temptation to take shortcuts when the proper way of doing something involves more walking, climbing or more effort.

This study aimed to collect data about their typical working hours for insight into the degree of work fatigue they may experience.

The Employment Act sets a legal maximum of 72 overtime hours per month[1]. Undoubtedly, this provision is meant to protect workers from putting their health at risk. Someone who works 4 overtime hours on Saturdays and 2.5 overtime hours each day Monday to Friday, would begin to breach this maximum. The study hopes to shed light on the percentage of Work Permit holders who may be exceeding this legal limit.

TWC2 has also noticed that even when not officially at work, foreign workers' leisure and relaxation are reduced by having to

- take company transport to the workplace far earlier than the starting time of work;
- wait for company transport well after the ending time of work;
- queue for bathroom facilities in their dormitories;
- do their own laundry;
- do their own cooking.

We included questions about these factors in this study to gain a more rounded picture of a typical day.

3. Method

A study about workers' working hours and other factors that eat into their rest and leisure can be done in two ways: a longitudinal study following a set of workers, or a snapshot study conducted at a not-untypical time.

This study is a snapshot study.

[1] Employment Act, Section 38(5).

A longitudinal study would have been difficult to conduct. We do not have easy access to working workers on a continuing basis, especially as they mostly stay in dormitories with turnstile control. It may also be a challenge incentivising the study subjects to stay on the programme and to record their daily times and movements diligently and with precision.

It so happened that a tertiary institution (which wishes to remain anonymous) had a large number of students who were available for conducting a survey, but only on one day. This offer made the snapshot approach feasible.

The survey was conducted in the late afternoon of Sunday, 13 November 2016. Interviewers fanned out to various locations where foreign workers are known to gather on their day off: near Aljunied and Paya Lebar MRT stations; Peninsula Plaza and Esplanade area downtown; near Little India and Farrer Park MRT stations; Chinese Garden; and near Jurong East and Boon Lay MRT stations.

The questionnaire (see Appendix 2) was available online on Google Forms, and respondents' answers were recorded through interviewers' mobile phones. At no point were workers' identities asked for; the survey was anonymous.

The survey was designed to be limited to male foreign workers on Work Permits. Interviewers were briefed to approach men who, by appearance, looked like they might be foreigners working in Singapore. Interviewees were asked their country of origin and whether they had an S-Pass, Work Permit or other kind of pass.

During the analysis stage, we filtered out those who were not on Work Permits. We also filtered out Malaysian nationals even if they held Work Permits because Malaysians have rather different work and accommodation conditions compared to the usual Bangladeshi, Chinese or Indian worker.

Essentially, the survey asked the interviewee to recall various details about his movements on the most recent Friday. Since the survey was conducted on Sunday 13 November 2016, the Friday in question would be 11 November. It was a typical working day without unusual weather.

The survey is thus a snapshot of workers' movements and hours on that day, multiplied over a sample size of 577 workers. An individual worker might have had an unusual Friday, e.g. he could have been off sick, or his boss made an unusual request to work extra late, but when averaged out over 577 respondents, we are able to glimpse general patterns from the data collected.

4. Limitations

Since the Singapore government does not publish foreign worker numbers by nationality, we have no reliable way to see if the nationality composition of our sample reflected the proportions of each nationality employed in Singapore. However, our sense is that we under-sampled the Chinese workers. This was largely expected. Chinese workers are less concentrated in specific areas compared to Indian, Bangladeshi or Burmese workers; they are more dispersed. Singapore is majority ethnic-Chinese, and it is relatively easy for a Chinese worker to spend his day off in any part of Singapore, whereas the Bangladeshi, Indian or Burmese worker might gravitate to specific areas where he can find familiar food or community services appropriate to his needs.

It would have taken much extra effort, having to station interviewers at more places, to reach the same numbers of Chinese workers as Indian and Bangladeshi workers. Moreover, it is harder to tell the Chinese worker apart from the Chinese-Malaysian or Chinese-Singaporean.

Some foreign workers do shift work. It was felt that designing a survey that could take into account shiftwork scenarios would render the questionnaire too complex. Hence, the questionnaire checked if the respondent worked a day shift on the most recent Friday. Respondents who did not work a day shift would not be asked the detailed questions, and these workers are largely removed from the analysis.

What effect the separation of shiftwork workers from the survey results has on the conclusions of this study is impossible to say, since we have no other information about a shift worker's hours relative to a day-shift worker's hours. Anecdotally however, from TWC2's casework, we believe the differences are slight, if any.

As the survey was conducted on a Sunday, workers who habitually worked on Sundays would be under-represented. Quite likely, these workers would be working even more hours in total compared to workers who had Sundays off. Their relative absence from our sample would have the effect of rendering our conclusions regarding excessive overtime work rather better than things really are.

5. Profile of respondents

We interviewed 687 men. There were eight Malaysians and three other respondents who did not specify their nationality. We eliminated these eleven respondents, leaving us with 676 men.

Of these, 645 were in possession of a Work Permit.

Table 5.1

Do you have a Work Permit?

	Men	%
Yes, Work Permit	645	95.4
No, I have a Special Pass	2	0.3
No, I have an S Pass	18	2.7
No, other pass	11	1.6
TOTAL	676	100.0

There were nearly equal numbers of Bangladeshis and Indians. Together they made up almost 90% of respondents.

Table 5.2

Which country are you from?

	Men	%
Bangladesh	292	45.3
China	48	7.4
India	285	44.2
Myanmar	17	2.6
Philippines	3	0.5
Other	0	0.0
TOTAL	645	100.0

Of these 645 Work Permit holders, 577 of them worked a day-shift on the most recent Friday, 11 November 2016. These 577 men would be the main population for our analysis.

Table 5.3

On the most recent Friday, did you work the day shift?

			Which country are you from? (men)				
	Men	%	Bdesh	China	India	Myan	Phil
Yes, (i.e. started work in the morning)	577	89.5	258	41	259	17	2
No, I worked the afternoon or night shift	53	8.2	24	7	21	0	1
No, I didn't work on Friday	15	2.3	10	0	5	0	0
TOTAL	645	100.0	292	48	285	17	3

Table 5.4

Which sector are you working in?

	Men	%	Which country are you from? (men) Bdesh	China	India	Myan	Phil
Cleaning	3	0.5	1	0	1	1	0
Construction	417	72.3	191	36	181	7	2
Landscaping	13	2.3	11	0	2	0	0
Manufacturing	13	2.3	8	0	4	1	0
Marine/shipyard	68	11.8	23	2	40	3	0
Process	13	2.3	6	0	6	1	0
Service	12	2.1	7	0	3	2	0
Other	35	6.1	9	3	21	2	0
Don't know / no answer	*3*	*0.5*	*2*	*0*	*1*	*0*	*0*
TOTAL	577	100.0	258	41	259	17	2

The above table shows the industry sectors in which the workers were employed. 417 men (72.3%) were in construction. The second largest group were the 68 men (11.8%) in the marine sector, i.e. shipyards.

6. Sleep

We asked each respondent to recall what time he woke up on Friday morning.

Table 6.1

On the most recent Friday, roughly what time did you wake up?

	All sectors		Construction		Marine	
	Men	%	Men	%	Men	%
4 am or earlier	8	1.4	5	1.2	0	0.0
4:30 am	28	4.9	18	4.3	8	11.8
5:00 am	75	13.0	49	11.8	12	17.6
5:30 am	86	14.9	60	14.4	14	20.6
6:00 am	156	27.0	116	27.8	14	20.6
6:30 am	94	16.3	70	16.8	11	16.2
7:00 am	96	16.6	77	18.5	7	10.3
7:30 am or later	34	5.9	22	5.3	2	2.9
TOTAL	577	100.0	417	100.0	68	100.0
Weighted average	6:02 am		6:04 am		5:46 am	

The average waking-up time was 6:02 am. The average for construction workers was 6:04 am, whilst for marine sector workers, it was earlier, at 5:46 am.

We also asked each respondent to recall what time he went to bed on Friday night.

Table 6.2

On Friday evening, roughly what time did you go to bed / sleep?

	All sectors		Construction		Marine	
	Men	%	Men	%	Men	%
9:00 pm or earlier	19	3.3	14	3.4	2	2.9
9:30 pm	16	2.8	11	2.6	2	2.9
10:00 pm	96	16.6	70	16.8	16	23.5
10:30 pm	89	15.4	65	15.6	9	13.2
11:00 pm	160	27.7	105	25.2	25	36.8
11:30 pm	80	13.9	61	14.6	10	14.7
12 midnight	79	13.7	60	14.4	2	2.9
12:30 am	10	1.7	8	1.9	0	0.0
1:00 am	15	2.6	15	3.6	0	0.0
1:30 am	3	0.5	2	0.5	0	0.0
2:00 am or later	7	1.2	4	1.0	2	2.9
No answer	*3*	*0.5*	*2*	*0.5*	*0*	*0.0*
TOTAL	577	100.0	417	100.0	68	100.0
Weighted average	10:59 pm		11:00 pm		10:47 pm	

The average for 574 workers (3 men could not recall) was 10:59 pm. For construction workers, the average was 11:00 pm (excluding 2 men who couldn't recall), whilst for marine workers, it was 10:47 pm.

Marine workers seem to go to bed about a quarter of an hour earlier than construction workers, and wake up a quarter of an hour earlier too.

Knowing the waking-up time and the going-to-bed time of each of 574 men, we could compute for each man, the total number of hours he was awake on that most recent Friday. The mirror figure would be the hours of sleep he got on a typical day.

Table 6.3

Hours of sleep

	All sectors		Construction		Marine	
	Men	%	Men	%	Men	%
3.0 hours	3	0.5	2	0.5	1	1.5
3.5 hours	4	0.7	2	0.5	0	0.0
4.0 hours	1	0.2	1	0.2	0	0.0
4.5 hours	13	2.3	10	2.4	0	0.0
5.0 hours	22	3.8	16	3.9	3	4.4
5.5.hours	45	7.8	35	8.4	4	5.9
6.0 hours	54	9.4	36	8.7	9	13.2
6.5 hours	90	15.7	58	14.0	15	22.1
7.0 hours	87	15.2	68	16.4	9	13.2
7.5 hours	72	12.5	52	12.5	7	10.3
8.0 hours	88	15.3	70	16.9	10	14.7
8.5 hours	51	8.9	32	7.7	7	10.3
9.0 hours	32	5.6	22	5.3	2	2.9
9.5 hours	6	1.0	6	1.4	0	0.0
10.0 hours	4	0.7	3	0.7	1	1.5
10.5 hours	2	0.3	2	0.5	0	0.0
TOTAL	574	100.0	415	100.0	68	100.0
Weighted average	7:03 hours		7:04 hours		6:59 hours	

The 574 men averaged 7 hours and 3 minutes of sleep. Construction workers averaged 7 hours and 4 minutes, whilst for marine sector workers, it was 6 hours 59 minutes.

It is generally accepted that adults need 7 to 9 hours of sleep each night. The averages we obtained were at the lower limit of the range. These men were getting the bare minimum consistent with health. 24% of them had only 6 hours or less of sleep, and could be classed as sleep-deprived.

7. Work hours

The survey asked each man to recall what time he started work on the most recent Friday.

Table 7.1

What time did your work start?

	All sectors		Construction		Marine	
	Men	%	Men	%	Men	%
4 am or earlier	0	0.0	0	0.0	0	0.0
4:30 am	1	0.2	1	0.2	0	0.0
5:00 am	0	0.0	0	0.0	0	0.0
5:30 am	1	0.2	0	0.0	0	0.0
6:00 am	10	1.7	3	0.7	3	4.4
6:30 am	8	1.4	6	1.4	1	1.5
7:00 am	57	9.9	46	11.0	6	8.8
7:30 am	68	11.8	43	10.3	18	26.5
8:00 am	329	57.0	243	58.3	35	51.5
8:30 am	64	11.1	51	12.2	1	1.5
9:00 am or later	38	6.6	23	5.5	4	5.9
No answer	*1*	*0.2*	*1*	*0.2*	*0*	*0.0*
TOTAL	577	100.0	417	100.0	68	100.0
Weighted average	7:53 am		7:55 am		7:44 am	

The most common starting time was 8 am, but there was considerable spread. One man in the construction sector reported starting work at 4:30 am. It could be a recording error.

The spread was much wider when we asked respondents what time they finished work. Six workers finished work at midnight. Overall, about 8.5% worked to 10 pm or later. That's one in twelve workers.

Table 7.2

What time did you finish work last Friday?

	All sectors		Construction		Marine	
	Men	%	Men	%	Men	%
5:00 pm or earlier	86	14.9	50	12.0	14	20.6
5:30 pm	27	4.7	15	3.6	5	7.4
6:00 pm	45	7.8	22	5.3	6	8.8
6:30 pm	58	10.1	37	8.9	13	19.1
7:00 pm	179	31.0	152	36.5	13	19.1
7:30 pm	34	5.9	27	6.5	2	2.9
8:00 pm	41	7.1	30	7.2	4	5.9
8:30 pm	12	2.1	8	1.9	1	1.5
9:00 pm	33	5.7	26	6.2	5	7.4
9:30 pm	10	1.7	7	1.7	0	0.0
10:00 pm	36	6.2	33	7.9	1	1.5
10:30 pm	4	0.7	3	0.7	1	1.5
11:00 pm	3	0.5	1	0.2	0	0.0
11:30 pm	0	0.0	0	0.0	0	0.0
Midnight or later	6	1.0	5	1.2	1	1.5
No answer	*3*	*0.5*	*1*	*0.2*	*2*	*2.9*
TOTAL	577	100.0	417	100.0	68	100.0
Weighted average	6:20 pm		6:41 pm		5:43 pm	

About 12% of construction workers and 20% of marine workers finished work at 5 pm or earlier. This indicates that there was no overtime work for them at all. In these industries, this is unusual and may imply that business is bad. Indeed, starting in the second half of 2016, Singapore's marine sector had fast-shrinking order books.

These percentages of early shut-down (12% in construction and 20% in marine) can be read as indicators of the percentage of foreign workers at risk of salary non-payment as their employers go under.

Since each man gave us a start-work time and end-work time, we were able to calculate for each of 574 workers (3 men could not recall their end-work time) the total hours they were at work. The total hours are nett of a one-hour meal break. That is, a man who worked from 8 am to 6:30 pm would be considered to have spent nine and a half hours at work, not ten and a half. This is to keep our work hours computation consistent with the Employment Act.

Table 7.3

Hours at work (nett of 1-hour meal break)

	All sectors		Construction		Marine	
	Men	%	Men	%	Men	%
7.0 hours	1	0.2	0	0.0	1	1.5
7.5 hours	0	0.0	0	0.0	0	0.0
8.0 hours	11	1.9	3	0.7	7	10.3
8.5 hours	16	2.8	8	1.9	7	10.3
9.0 hours	67	11.6	37	8.9	6	8.8
9.5 hours	26	4.5	14	3.4	5	7.4
10.0 hours	52	9.0	24	5.8	17	25.0
10.5 hours	59	10.2	46	11.0	7	10.3
11.0 hours	128	22.2	111	26.6	8	11.8
11.5 hours	38	6.6	29	7.0	1	1.5
12.0 hours	63	10.9	48	11.5	2	2.9
12.5 hours	19	3.3	13	3.1	1	1.5
13.0 hours	32	5.5	28	6.7	2	2.9
13.5 hours	16	2.8	15	3.6	1	1.5
14.0 hours	27	4.7	24	5.8	1	1.5
14.5 hours	7	1.2	5	1.2	0	0.0
15.0 hours	6	1.0	5	1.2	0	0.0
15.5 hours	0	0.0	0	0.0	0	0.0
16.0 hours	4	0.7	4	1.0	0	0.0
16.5 hours	0	0.0	0	0.0	0	0.0
17.0 hours	2	0.3	2	0.5	0	0.0
Unable to compute	*3*	*0.5*	*1*	*0.2*	*2*	*2.9*
TOTAL	577	100.0	417	100.0	68	100.0
Weighted average	10:42 hours		11:05 hours		9:27 hours	

The numbers are not cheery. Construction workers averaged 11 hours 5 minutes at work; marine sector workers averaged 9 hours 27 minutes – nett of the meal break.

As mentioned in the Introduction, the legal limit of 72 hours of overtime per month would be easily reached if a worker worked 2.5 overtime hours each weekday together with 4 overtime hours Saturdays. In industries heavily reliant on foreign workers, working 4 afternoon hours on Saturday is the norm and we can take it that any man who has any evening overtime work would already be doing 4 overtime hours – often more – on Saturdays.

The calculation is as follows:

> 72 overtime hours per month divided by 4.3 weeks per month = 16.74 permissible overtime hours per week (on average).
>
> 16.74 permissible overtime hours, less 4 hours on Saturdays = 12.74 hours on weekdays (on average).
>
> 12.74 overtime hours divided by 5 weekdays per week = 2.55 hours per weekday.

Thus, on weekdays, inclusive of the normal 8 hours per day, this means a daily total of 10.5 working hours would take a worker right up to the legal monthly limit of 72 overtime hours per month.

Table 7.4

How many men worked enough hours to breach legal overtime maximum?

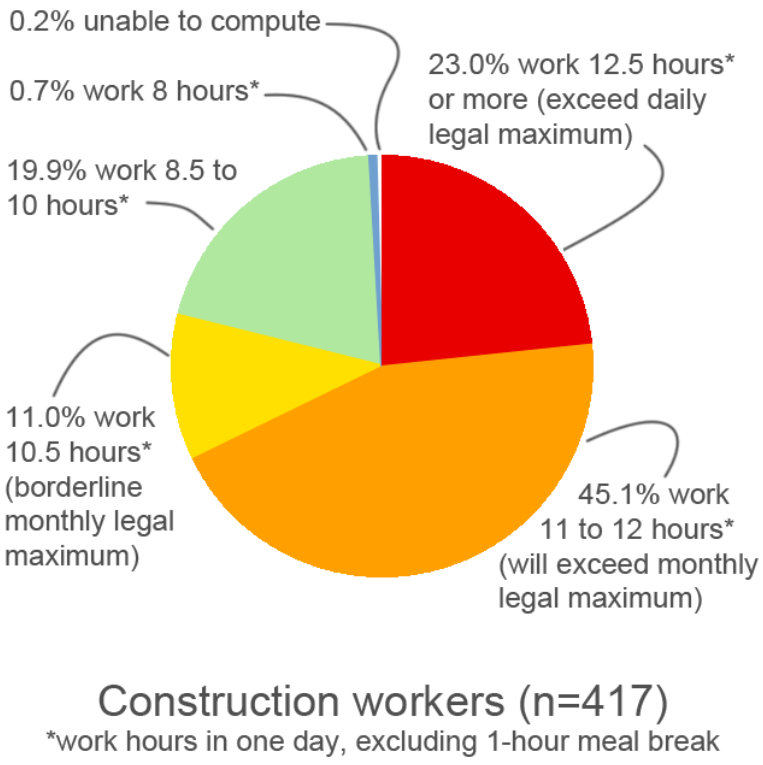
	All sectors		Construction		Marine	
	Men	%	Men	%	Men	%
11 hours or more -- will breach limit	342	59.3	284	68.1	16	23.5
10.5 hours -- borderline	59	10.2	46	11.0	7	10.3
10 hours or less	173	30.0	86	20.6	43	63.2
Unable to compute	*3*	*0.5*	*1*	*0.2*	*2*	*2.9*
TOTAL	577	100.0	417	100.0	68	100.0

11% of construction workers are right at this limit, working 10.5 hours on the most recent Friday.

68% of construction workers had to work even more than that, putting in 11 hours or more the most recent Friday, which places them on track to doing more than 72 hours of overtime a month – in violation of the law.

More alarmingly, one in three of these men (23% of construction workers) worked 12.5 hours or more that day. This is in violation of the law which bans[2] working more than 12 hours a day, except for the most urgent or essential work necessary in the public interest.

That such high percentages are found in this study, indicates that legislation is widely ignored.



[2] Employment Act, Section 38(8).

8. Transport and waiting time

We asked the men what mode of transport they used to get to work. 432 of them (74.8%) said they took the company lorry or company bus.

Table 8.1

How did you go to work?

	Men	%
Company bus or lorry	432	74.9
Bicycled	10	1.7
Walked	41	7.1
Public bus or MRT	74	12.8
Other means	20	3.5
TOTAL	577	100.0

In addition to asking what time each man woke up, we asked what time they started on their journey to work. This way we can glimpse how rushed they were in the early mornings.

This analysis looks only at the 432 men who took the company lorry or company bus because unlike other modes of transport, these men had less control over timing. The following table provides a cross-tabulation of wake-up time and the start-journey time of company lorry or company bus.

Table 8.2

Wake-up time x Time departed for work

			Time at which company vehicle came, picked up men to work											
Wake up	Men	%	4:00	4:30	5:00	5:30	6:00	6:30	7:00	7:30	8:00	8:30	9:00	Can't*
4:00 am or earlier	8	1.9	0	2	3	0	2	1	0	0	0	0	0	0
4:30 am	26	6.0	0	0	8	11	2	3	1	0	0	0	0	1
5:00 am	61	14.1	0	0	1	23	21	9	5	2	0	0	0	0
5:30 am	67	15.5	0	0	0	3	27	27	4	4	1	0	0	1
6:00 am	122	28.2	0	0	0	0	12	38	48	12	7	0	0	5
6:30 am	65	15.0	0	0	0	0	0	10	33	18	2	0	0	2
7:00 am	68	15.7	0	0	0	0	0	0	21	28	7	0	0	12
7:30 am or later	15	3.5	0	0	0	0	0	0	0	1	8	0	0	6
TOTAL	432	100.0	0	2	12	37	64	88	112	65	25	0	0	27

**Can't = cannot recall when vehicle came, or unclear answer*

When we compared wake-up time for each man with start-journey time, we could compute how much time each had in the morning. We found that 49.8% had to get onto the lorry or bus within half an hour of waking up. This suggests a degree of rushing. These men would have even less sleep than they did if not for cutting it a bit fine in the morning.

In Section 9, we will examine how much of this little time they had was spent queuing to use the bathroom facilities. Many of them would not have time for breakfast.

Skipping breakfast would have adverse effects on energy levels and alertness, which in turn would impact on safety risks.

Our survey also asked each respondent what time the company lorry or company bus arrived at the workplace, and what time the workday officially began. Between these two times, we could compute how much waiting there was after arrival at the worksite – time which they could have used to add to their sleep in the dorm.

Table 8.3

Time arrived at worksite x Official start of work

Vehicle arrived at worksite	Men	%		Time at which work officially commenced											
				4:00	4:30	5:00	5:30	6:00	6:30	7:00	7:30	8:00	8:30	9:00	*Can't**
4:00 am or earlier	1	0.2		0	0	0	0	0	0	0	1	0	0	0	*0*
4:30 am	0	0.0		0	0	0	0	0	0	0	0	0	0	0	*0*
5:00 am	1	0.2		0	0	0	0	0	0	0	1	0	0	0	*0*
5:30 am	6	1.4		0	0	0	1	0	0	4	0	1	0	0	*0*
6:00 am	25	5.8		0	0	0	0	3	1	8	5	8	0	0	*0*
6:30 am	51	11.8		0	0	0	0	0	3	15	10	21	0	1	*1*
7:00 am	91	21.1		0	0	0	0	0	0	8	21	53	4	1	*4*
7:30 am	127	29.4		0	0	0	0	0	0	0	14	103	8	0	*2*
8:00 am or later	125	28.9		0	0	0	0	0	0	0	0	61	38	21	*5*
Cannot recall	*5*	*1.2*		*0*	*0*	*0*	*0*	*0*	*0*	*1*	*0*	*2*	*0*	*1*	*1*
TOTAL	432	100.0		0	0	0	1	3	4	36	52	249	50	24	*13*

**Can't = unclear answer regarding start-time of work*

62.0% had to wait half an hour or less. Some would have used the time to take breakfast since there was not, for many men, enough time to do so in the dorm between waking up and taking the company transport.

A story published on TWC2's website in July 2014 (Singaporean concerned about workers with nowhere to sleep) recounts the case of a group of workers who had to wake up at 4 am each day in order to catch the company bus that left at 5 am.

The dorm was little more than two kilometres away; the journey didn't take more than 5 minutes. The men arrived near the worksite some three hours before starting work at 8 am -- three hours which they could have added to their sleep.

They also reported that a typical workday would end around 8 pm, and by the time they got back to their dorm, it could be 9 or 10 pm. That did not leave much time for dinner, washing, calling home, a bit of TV, or a proper night's rest.

Table 8.4

How many had to wait excessively long at site before starting work?

	Men	%
Had to wait 90 minutes or more	47	10.9
Had to wait an hour	100	23.1
Started immediately or within half hour	268	62.0
Unclear or no answer	*17*	*3.9*
TOTAL	432	100.0

What was concerning was that 47 men (10.9%) had to wait 90 minutes or more before starting work. 100 others (23.1%) had to wait about an hour. Taken together, these two figures mean that 34% were transported to their workplaces unnecessarily early, depriving them of rest.

Table 8.5

How long did you have to wait for the company vehicle to come?
(at end of work shift)

	Men	%
Didn't have to wait	121	29.2
About 5 - 10 minutes	121	29.2
Around 15 minutes	72	17.3
Around 30 minutes	70	16.9
Around 45 minutes	8	1.9
1 hour or more	21	5.1
Cannot remember	*1*	*0.2*
No answer	*1*	*0.2*
TOTAL	415	100.0

It is a similar situation at the end of the workday. Out of 415 men who took the company lorry or company bus back to the dorm after work, 99 (23.9%) said they waited half an hour or more for the vehicle to arrive.

9. Washing and cooking

With men from the same company housed together in the same room and taking the same transport to work at the same time, there is a surge in demand for the bathroom at a particular time. We wanted to see how much time men ”wasted” waiting for their turn.

Table 9.1

On that Friday morning, did you have to queue/wait to use the bathroom / toilet?

	Men	%		Roughly how long did you have to queue / wait? (minutes) <5	5-10	10-15	>15	*Can't**
Yes	220	38.1		42	72	44	54	*8*
No	353	61.2						
Cannot remember	*4*	*0.7*						
TOTAL	577	100.0						
% of "Yes"				19.1	32.7	20.0	24.5	*3.6*

**Can't = cannot estimate how long he waited*

It didn’t seem as bad as we had expected. 61.2% said they didn’t have to queue for the bathroom at all. Of the 38.1% of the men who did, the average waiting time was about 10 minutes.

Was bathroom demand a factor in any way for men choosing to wake up earlier than they needed to? We didn’t specifically ask this question, but we could test the results and see if those who woke up earlier had a lower rate of having to wait. Table 9.2 on the next page displays the results.

There isn’t much difference between those who woke up at different times in terms of their having to wait to use the bathroom. But this also means that if, as suggested above, employers should not be transporting men to work too far ahead of the start-work time, then there would be an even more acute surge.

With most companies starting work at 8 am, this may translate to more men waking up and having to use the bathrooms at the same time. The knock-on effects on bathroom adequacy from improving the transport situation must be taken into account.

Table 9.2

Of those who woke up before 6 am

	Men	%		<5	5-10	10-15	>15	*Can't**
Yes	95	48.2		18	29	19	26	*3*
No	101	51.3						
Cannot remember	*1*	*0.5*						
TOTAL	197	100.0						
% of "Yes"				18.9	30.5	20.0	27.4	*3.2*

Of those who woke up around 6 or 6:30 am

	Men	%		<5	5-10	10-15	>15	*Can't**
Yes	86	34.4		13	36	19	15	*3*
No	164	65.6						
Cannot remember	*0*	*0.0*						
TOTAL	250	100.0						
% of "Yes"				15.1	41.9	22.1	17.4	*3.5*

Of those who woke up 7 am or later

	Men	%		<5	5-10	10-15	>15	*Can't**
Yes	39	30.0		11	7	6	13	*2*
No	88	67.7						
Cannot remember	*3*	*2.3*						
TOTAL	130	100.0						
% of "Yes"				28.2	17.9	15.4	33.3	*5.1*

Turning now to the end of the day, 67.8% of men had to cook after returning from work. 29.6% didn't need to but had to spend a little time taking dinner.

15 men (2.6%) reported that they neither cooked nor ate after returning from work. When we looked back at when they returned to their dorms, all 15 of them returned at or after 10pm. They would probably have had their dinner while at work.

Table 9.3

After going back to your room, did you have to spend time cooking?

	Men	%
Cook and eat	391	67.8
No cooking, just eat	171	29.6
No cooking, no eating	15	2.6
TOTAL	577	100.0

Another common chore after returning to the dormitory was to wash their clothes. 85.1% said they did this. If they are doing this virtually daily, with just the day's workclothes, underwear and socks, they would not have to spend that much time, but nonetheless, it would still mean less leisure or rest time as a result.

Table 9.4

After going back to your room, did you have to spend time washing your clothes?

	Men	%
Wash clothes	491	85.1
No	85	14.7
Cannot remember	*1*	*0.2*
TOTAL	577	100.0

Finally, 34.8% had to queue to use the bathroom in the evenings. For them, there was an average waiting time of 9.7 minutes.

Table 9.5

On last Friday night, did you have to queue/wait to use the bathroom / toilet?

	Men	%		Roughly how long did you have to queue / wait? (minutes) <5	5-10	10-15	>15	*Can't**
Yes	201	34.8		49	58	45	46	*3*
No	375	65.0						
Cannot remember	*1*	*0.2*						
TOTAL	577	100.0						
% of "Yes"				24.4	28.9	22.4	22.9	*1.5*

**Can't = cannot estimate how long he waited*

10. Discussion and recommendations

The finding that raises the most concern is that of long working hours. 59% of respondents (all sectors) and 68% of construction workers worked at least 11 hours per day, a rate that would take them above the legal maximum of overtime. Inclusive of the one-hour meal break and waiting times for transport, they are out of their dorms for some 13 or 14 hours a day.

This results in them getting the bare minimum amount of sleep consistent with good health. The average is 7 hours, whilst 24% of respondents had 6 hours of sleep or less.

Particularly as these men do physically demanding jobs six days a week, the insufficiency of rest and long working hours can be expected to lead to high levels of fatigue, with consequences for worksite safety.

Our concern is even greater for those without Sundays off. From helping men who approach TWC2 for assistance in doing their salary calculations – to support their salary claims – we regularly come across workers who had no rest days at all except for Chinese New Year.

We have also heard complaints about sleep disturbed by bedbugs, and by other workers with different shifts coming and going.

It may be argued that this being a snapshot survey, a man who reported long working hours and little sleep for the Friday in question might, on another day, have a shorter working day and more sleep, and that therefore the figures we obtained are more alarming than the reality.

This is to misunderstand the nature of a snapshot survey. Whilst a respondent who said he worked an above-average number of hours (e.g. 11.5 hours) on Friday could have had a shorter working day the next, similarly, a respondent who said he had a below-average number of hours (e.g. 9.5 hours) on Friday could have had a longer working day the next. The average holds.

Alternatively, a respondent who worked the above-average 11.5 hours might be working an even longer 12 hours the next day. The one who worked the below-average 9.5 hours might be working an even shorter 9 hours the next day.

There is no reason to expect the average hours of any one day – for a sample population – to be much different any other day once major factors that can impact work are excluded. These factors could include bad weather, widespread transport breakdown, civil unrest, electricity blackouts, etc. As far as we know, none of these occurred on the Friday in question. We have no reason to consider that Friday anything but a typical working day.

The averages we obtained could be applied to any other typical working day, and can therefore to taken to reflect the state of affairs quite broadly.

Long working hours – what are the factors?

Why is the working day so long? Generally speaking, both employer and foreign employee want it to be so. An examination of why they want it to be so ineluctably points to the regulatory and economic terrain. Solutions therefore must be found in those places.

For the employer, particularly a construction contractor, time is of the essence. Promising an early completion date may help him win a tender. Delays, on the other hand, may expose him

to liquidated damages, a common feature of construction contracts. There is nothing unique in these pressures; they are true all over the world.

But how employers respond to these pressures may be affected by the regulatory environment. A contractor may speed work up by having more workers on the job, each working reasonable hours per day; or he can achieve the same output by having fewer workers work longer.

The quota system set up by the Ministry of Manpower sets a hard limit on the number of foreign workers an employer can have, a limit that is linked to the number of Singaporean employees the company has. Given that Singaporean employees are not keen to work in these "dirty, dangerous and degrading" sectors, this makes it very difficult for contractors to have more workers, local or foreign.

Secondly, the monthly levy imposed by the Ministry of Manpower for foreign workers is on a per-worker basis. Whilst overtime pay is 1.5 times basic pay, which makes it more costly to use overtime to get work done compared to hiring more workers working normal time, the employer saves on the monthly levy by keeping his headcount low and making his workers work longer.

In any case, the widespread underpayment of overtime wages enables those employers responsible to evade bearing extra per-hour costs that they would have to shoulder if they obeyed the law.

For employees, the incentive to work excessive hours is quite strong too. This is an outcome of the fact that the sunk cost of getting the job is enormous compared to the basic salary offered. A recent pilot study conducted by Transient Workers Count Too[3] found that the recruitment fees paid by first-time Bangladeshi workers averaged $15,000 in 2015 for jobs that typically pay $500 or $600 in monthly basic salary. Even if they managed to save every dollar of their basic salary, it would take them around 27 months to recover this cost. Workers of other nationalities may be faced with lower recruitment costs, but even for them, the amounts generally exceed a year's wages. With the typical Work Permit in the construction sector being only of 12 months' duration, the prospect of earning enough to recover the sunk cost is daunting.

The men naturally try to squeeze in as much overtime work as they can to quicken the pace of cost recovery.

The ridiculously high recruitment cost is a result of market failure. The channels by which workers in countries of origin can get jobs in Singapore are largely controlled by a limited

[3] Average recruitment cost hit $15,000 in 2015 for first time Bangladeshi construction workers. http://twc2.org.sg/2017/02/05/average-recruitment-cost-hit-15000-for-first-time-bangladeshi-construction-workers/

number of well-connected parties. Unsurprisingly, there is much profiteering. Moreover, the imbalance of supply (of jobs) and demand (by prospective workers) and the resulting high fees tempt employers in Singapore to insist on a slice of the recruitment fees charged by job agents in the sending countries. By its nature, this is hard to document; nevertheless, there is a widespread conviction among migrant workers that this happens, with some fragmentary evidence to support their opinion. Having to provide for a "cut" for the employer in turn pushes the fees even higher.

The lack of regulation of the cross-border recruitment networks despite clear signs of market failure lies at the root of the high fees, and thus, the desperate need to work excessive overtime.

Recommendations

Solutions therefore must go much further than closer monitoring of working hours at worksites. Improving health and safety must likewise go beyond just looking at safety practices.

Clearly, better enforcement of the existing law governing maximum overtime would be a good place to start. However, when both employer and employee are motivated to flout the law, it will take enormous inspection and monitoring resources to combat this practice. Hence, solutions must include

- Reviewing the quota system
- Reviewing the monthly levies
- Speeding up mechanisation so that the same number of workers can be more productive without having to work excessive hours
- Detaching safety supervisors from employers. See box.
- Aggressive measures to reduce recruitment costs
- Better job security for foreign workers so that they can be more relaxed about the pace they need to work in order to earn back their (lowered) sunk cost

The last point should not be misinterpreted as a call for guaranteed jobs. Better security can be achieved in two simple ways:

(a) Doing away with the present rule that when a worker's job is terminated, he

A properly empowered safety supervisor would be useful in combatting excessive overtime and the resultant fatigue.

Unfortunately the industry practice is that the safety supervisor is an employee of the same contractor who is highly motivated to get his workers to work a lot of overtime. There is no way such a safety supervisor – especially if he is also a foreign worker afraid to stand up to his boss lest he lose his job – can exert himself to do what is necessary for site safety.

TWC2 has previously proposed that industry practice should be changed. Safety supervisors should be direct employees of specialised safety companies and be independent of contractors. An analogous example would be the way independent auditors are engaged to review and report on a company's finances.

must be repatriated. Giving him the assurance that should one job end, he can stay on to look for an alternative job without first going home and then having to pay agents exorbitant recruitment fees all over again, is a form of career security if not exactly job security.

(b) Raising the barrier to bringing in fresh new workers from source countries. Doing so is necessary if the above recommendation of allowing existing workers here to seek new employment is to be meaningful. Giving employers total freedom to choose new workers over existing workers will defeat the aim of (a) above. Restricting entry of fresh new workers will also help Singapore in retaining skills and experience, and in keeping workers who are better socialised to our linguistic and cultural environment.

Finally, attention should also be paid to other factors that eat away at workers' limited free time, and which reduce their sleep time.

It is necessary to find ways to call out employers who cart their workers to site far too early, or whose transport arrangements are such that workers are kept waiting for the company lorry or bus at the end of a long working day. A publicity campaign, making it clear that the Ministry of Manpower frowns on such practices, will set the right tone. Then, inviting members of the public to report instances that they have observed would permit a better scrutiny of the situation.

The present Environmental Health Guidelines[4] (Ref: COPEH 2005, Section 2) need to be revised. Currently these stipulate that in dormitories,

> *The following sanitary facilities shall be provided for every 15 workers/boarders or less:*
> - *1 water closet*
> - *1 urinal*
> - *1 wash-hand basin*
> - *1 shower room*

As this study has shown, a substantial number of workers have to queue and wait to use bathrooms, resulting in further loss of limited rest and leisure time. The ratio in the present guidelines is contributing to the problem.

Alex Au
2 March 2017

[4] www.nea.gov.sg/docs/default-source/training-knowledge-hub/environmental-health-guidelines-for-dormitories.pdf

Appendix 1

Data from MOM's Workplace Safety & Health Department

Numbers from Annual Reports except for 2016

	2013	2014	2015	2016 [1]
FATALITIES				
Construction	33	27	27	24
Marine	3	4	4	6
Manufacturing	6	6	6	9
Logistics and transportation [2]	6	9	11 [3]	11
Wholesale & retail	0	0	0	?
Accommodation & food services	0	0	0	?
Other	11	14	18	?
	59	60	66	66
MAJOR INJURIES				
Construction	164	202	157	
Marine	36	29	32	
Manufacturing	134	140	126	
Logistics and transportation [2]	34	30	25	
Wholesale & retail	27	44	30	
Accommodation & food services	33	27	46	
Other	161	200	181	
	589	672	597	594
MINOR INJURIES				
Construction	2,423	2,686	2,076	
Marine	462	469	354	
Manufacturing	2,680	2,992	2,556	
Logistics and transportation [2]	798	649	656	
Wholesale & retail	535	631	594	
Accommodation & food services	848	920	923	
Other	3,721	4,516	4,529	
	11,467	12,863	11,688	12,354

[1] Preliminary data from media statement 14 Feb 2017, not from Annual Report

[2] This classification sometimes known as "Transportation & storage"

[3] Stated as 11 fatalities in 2015 Annual Report but the 14 Feb 2017 media statement refers to 15 fatalities in this sector.

Appendix 2

The survey was conducted using an online form, stored on Google Forms. The interviewer recorded respondents' answers via his mobile phone. All questions were multiple-choice, with only one answer permitted per question.

Survey Form

P3: Which country are you from?

☐ Bangladesh	Continue to next question
☐ China	Continue to next question
☐ India	Continue to next question
☐ Malaysia	End survey
☐ Myanmar	Continue to next question
☐ Philippines	Continue to next question
☐ Thailand	Continue to next question
☐ Other	Continue to next question

P4: Is the worker male?

☐ Male	Continue to next question
☐ Female	End survey

P5. Do you have a Work Permit (工作准证)?

☐ Yes, I have a Work Permit (工作准证)	Continue to next question
☐ No, I have an S Pass instead (S 准证)	End survey
☐ No, I have a Special Pass instead (特殊准证 / 白卡)	End survey
☐ Other	End survey

P6: On the most recent Friday, did you work the day shift?

☐ Yes (i.e. started work in the morning)	Continue to next question
☐ No, I worked the afternoon or night shift	End survey
☐ No, I didn't work on Friday	End survey

Q1: On the most recent Friday, roughly what time did you wake up?

- ☐ 4:00 am or earlier
- ☐ 4:30 am
- ☐ 5:00 am
- ☐ 5:30 am
- ☐ 6:00 am
- ☐ 6:30 am
- ☐ 7:00 am
- ☐ 7:30 am or later
- ☐ Cannot remember

Q2: On that Friday morning, did you have to queue/wait to use the bathroom/toilet?

☐ Yes	Continue to next question
☐ No	Go to Q4
☐ Cannot remember	Go to Q4

Q3: Roughly how long did you have to queue/wait?

- ☐ Less than 5 minutes
- ☐ 5 - 10 minutes
- ☐ 10 - 15 minutes
- ☐ More than 15 minutes
- ☐ Cannot remember

Q4: How did you go to work?

☐ By company lorry or company bus	Go to Q6
☐ Took public bus (SBS/SMRT) myself	Go to Q6
☐ I walked to work	Go to Q6
☐ I bicycled to work	Go to Q6
☐ Other means	Continue to next question
☐ Cannot remember	Go to Q6

Q5: Please describe 'other means'

Q6: Roughly what time did the company lorry come? Or what time did you start on your journey to work?

- ☐ 4:00 am or earlier
- ☐ 4:30 am
- ☐ 5:00 am
- ☐ 5:30 am
- ☐ 6:00 am
- ☐ 6:30 am
- ☐ 7:00 am
- ☐ 7:30 am
- ☐ 8:00 am or later
- ☐ Cannot remember

Q7: Roughly what time did you reach your working place?

- [ ] 4:00 am or earlier
- [ ] 4:30 am
- [ ] 5:00 am
- [ ] 5:30 am
- [ ] 6:00 am
- [ ] 6:30 am
- [ ] 7:00 am
- [ ] 7:30 am
- [ ] 8:00 am or later
- [ ] Cannot remember

Q8: What time did your work start?

- [ ] 4:00 am or earlier
- [ ] 4:30 am
- [ ] 5:00 am
- [ ] 5:30 am
- [ ] 6:00 am
- [ ] 6:30 am
- [ ] 7:00 am
- [ ] 7:30 am
- [ ] 8:00 am
- [ ] 8:30 am
- [ ] 9:00 am or later
- [ ] Cannot remember

Q9: What time did you finish work last Friday?

- [ ] 5:00 pm or earlier
- [ ] 5:30 pm
- [ ] 6:00 pm
- [ ] 6:30 pm
- [ ] 7:00 pm
- [ ] 7:30 pm
- [ ] 8:00 pm
- [ ] 8:30 pm
- [ ] 9:00 pm
- [ ] 9:30 pm
- [ ] 10:00 pm
- [ ] 10:30 pm
- [ ] 11:00 pm
- [ ] 11:30 pm
- [ ] Midnight or later
- [ ] Cannot remember

Q10. After work did you go back to your dormitory/room by yourself or did you take the company lorry or company bus?

- [ ] I took company lorry/company bus — Continue to next question
- [ ] Went back to my room by myself (public bus, walk, bicycle, etc) — Go to Q12
- [ ] Cannot remember — Go to Q12

Q11: How long did you have to wait for the company lorry or company bus to come?

- [ ] I didn't have to wait (lorry/bus was waiting for the workers)
- [ ] About 5 - 10 minutes
- [ ] Around 15 minutes
- [ ] Around 30 minutes
- [ ] Around 45 minutes
- [ ] 1 hour or more
- [ ] Cannot remember

Q12: After going back to your room, did you have to spend time cooking?

- [ ] Yes (cook and eat)
- [ ] No (spent time eating only)
- [ ] No cooking, no eating
- [ ] Cannot remember

Q13: After going back to your room on Friday night, did you have to spend time washing your clothes?

- [ ] Yes
- [ ] No
- [ ] Cannot remember

Q14: On last Friday night, did you have to queue/wait to use the bathroom/toilet?

- [ ] Yes — Continue to next question
- [ ] No — Go to Q16
- [ ] Cannot remember — Go to Q16

Q15: Roughly how long did you have to queue/wait?

- [ ] Less than 5 minutes
- [ ] 5-10 minutes
- [ ] 10 - 15 minutes
- [ ] More than 15 minutes
- [ ] Cannot remember

Q16: On Friday evening, roughly what time did you go to bed/sleep?

- [ ] 9:00 pm or earlier
- [ ] 9:30 pm
- [ ] 10:00 pm
- [ ] 10:30 pm
- [ ] 11:00 pm
- [ ] 11:30 pm
- [ ] Midnight
- [ ] 00:30 am
- [ ] 1:00 am
- [ ] 1:30 am
- [ ] 2:00 am or later
- [ ] Cannot remember

Q17: Which sector are you working in?

[ ] Construction (建筑业)	End survey
[ ] Marine/shipyard (海事业, 造船业)	End survey
[ ] Landscaping (园艺业)	End survey
[ ] Service (服务业)	End survey
[ ] Cleaning (清洁业)	End survey
[ ] Manufacturing (制造业)	End survey
[ ] Process (过程工业)	End survey
[ ] Other (其他)	Continue to next question
[ ] Don't know or unclear answer	End survey

Q18: Please describe your job

END OF FORM