

Sustainability Performance

This sustainability report of Central Pattana PCL. includes economic, social and environment aspects according to the company's sustainable development strategy. The contents and details in this report disclose the performance outcomes of the Company and its subsidiaries and associates.

- **Economic:** This report discloses the performance of the Company and its subsidiaries and associates in Thailand and other countries as mentioned in the Annual Report 2022.
- **Social and Environmental:** This report discloses the performance outcomes of the Company and its subsidiaries and associates in Thailand only and any property that has a significant social and environment impacts.

Boundary of Sustainability Performance Reporting

No.	Property	Social (Employee and Safety)					Environment (Energy, GHG, Water and Waste)				
		2018	2019	2020	2021	2022	2018	2019	2020	2021	2022
Shopping Center		32	32	34	34	37	32	32	34	34	37
1	Central Ladprao	●	●	●	●	●	●	●	●	●	●
2	Central Ramindra	●	●	●	●	●	●	●	●	●	●
3	Central Pinklao	●	●	●	●	●	●	●	●	●	●
4	Central Marina	●	●	●	●	●	●	●	●	●	●
5	Central Chiangmai Airport	●	●	●	●	●	●	●	●	●	●
6	Central Rama 3	●	●	●	●	●	●	●	●	●	●
7	Central Bangna	●	●	●	●	●	●	●	●	●	●
8	Central Rama 2	●	●	●	●	●	●	●	●	●	●
9	Central World	●	●	●	●	●	●	●	●	●	●
10	Central Rattanathibet	●	●	●	●	●	●	●	●	●	●
11	Central Chaengwattana	●	●	●	●	●	●	●	●	●	●
12	Central Pattaya Beach	●	●	●	●	●	●	●	●	●	●
13	Central Udon	●	●	●	●	●	●	●	●	●	●
14	Central Chonburi	●	●	●	●	●	●	●	●	●	●
15	Central Khonkean	●	●	●	●	●	●	●	●	●	●
16	Central Chiangrai	●	●	●	●	●	●	●	●	●	●
17	Central Phitsanulok	●	●	●	●	●	●	●	●	●	●
18	Central Rama 9	●	●	●	●	●	●	●	●	●	●
19	Central Suratthani	●	●	●	●	●	●	●	●	●	●
20	Central Lampang	●	●	●	●	●	●	●	●	●	●

No.	Property	Social (Employee and Safety)					Environment (Energy, GHG, Water and Waste)				
		2018	2019	2020	2021	2022	2018	2019	2020	2021	2022
21	Central Ubon	●	●	●	●	●	●	●	●	●	●
22	Central Chiangmai	●	●	●	●	●	●	●	●	●	●
23	Central Hatyai	●	●	●	●	●	●	●	●	●	●
24	Central Samui	●	●	●	●	●	●	●	●	●	●
25	Central Salaya	●	●	●	●	●	●	●	●	●	●
26	Central Rayong	●	●	●	●	●	●	●	●	●	●
27	Central Phuket	●	●	●	●	●	●	●	●	●	●
	- Central Phuket Festival	●	●	●	●	●	●	●	●	●	●
	- Central Phuket Floresta	■	●	●	●	●	■	●	●	●	●
28	Central WestGate	●	●	●	●	●	●	●	●	●	●
29	Central EastVille	●	●	●	●	●	●	●	●	●	●
30	Central Nakhon Si	●	●	●	●	●	●	●	●	●	●
31	Central Korat	●	●	●	●	●	●	●	●	●	●
32	Central Mahachai	●	●	●	●	●	●	●	●	●	●
33	Central Village	■	●	●	●	●	■	●	●	●	●
34	Central i-City (Malaysia)	■	■	■	■	■	■	■	■	■	■
35	Central Ayutthaya	■	■	■	■	●	■	■	■	■	●
36	Central Sri Racha (2021)	■	■	■	■	●	■	■	■	■	●
37	Esplanade Ratchadapisek	■	■	■	■	●	■	■	■	■	●
38	Central Chanthaburi	■	■	■	■	●	■	■	■	■	●
Office Properties		7	7	7	10	7	7	7	7	10	10
1	Bangna	●	●	●	●	●	●	●	●	●	●
2	Chaengwattana	●	●	●	●	●	●	●	●	●	●
3	The Offices at CentralwOrld	●	●	●	●	●	●	●	●	●	●
4	Ladprao	●	●	●	●	●	●	●	●	●	●
5	Pinklao Tower A	●	●	●	●	●	●	●	●	●	●
6	Pinklao Tower B	●	●	●	●	●	●	●	●	●	●
7	Rama 9	●	●	●	●	●	●	●	●	●	●
8	G tower Grand Rama 9 *1	■	■	■	●	■	■	■	■	●	●
9	The Ninth Towers Grand Rama 9 *1	■	■	■	●	■	■	■	■	●	●
10	Uniliver House Grand Rama 9 *1	■	■	■	●	■	■	■	■	●	●

No.	Property	Social (Employee and Safety)					Environment (Energy, GHG, Water and Waste)				
		2018	2019	2020	2021	2022	2018	2019	2020	2021	2022
Hotel Properties		NR	NR	NR	NR	1	NR	NR	NR	NR	NR
1	Centara Hotel& Convention Center Udon Thani										
2	Hilton Pattaya										
3	Centara Korat *2					●					
Residential Properties		NR	NR	NR	NR	NR	NR	NR	NR	NR	1
1	Central City Residence										
2	Escent Chiangmai										
3	Escent Khonkaen										
4	Escent Rayong										
5	Escent Ville Chiangmai										
6	Escent Ville Chiangrai										
7	Escent Nakonratchasima										
8	Phyll Phahol 34										
9	Escent Ubonratchathani										
10	Escent Park Chiangmai										
11	Escent Rayong II										
12	Escent Korat										
13	Escent Hadyai										
14	Belle Grand Rama 9 *3									●	●
15	Escent Ville Ayutthaya										
16	Phyll Phuket										
17	Niyam Boromratchachonnani										
18	Ninya Kallapapruek										
19	Escent Town Phitsanulok										
20	Nirati Chiangrai										
21	Nirati Bangna										
22	Nirati Donmuang										
23	Escent Avenue Rayong										
Central Pattana Head Offices		3	3	3	4	4	3	3	3	4	4
1	CentralwOrld	●	●	●	●	●	●	●	●	●	●
2	Pinklao	●	●	●	●	●	●	●	●	●	●

No.	Property	Social (Employee and Safety)					Environment (Energy, GHG, Water and Waste)				
		2018	2019	2020	2021	2022	2018	2019	2020	2021	2022
3	Jewelry Trade Center	●	●	●	●	●	●	●	●	●	●
4	Grand Canal Land				●	●				●	●
5	Siam Future										
Community Malls *4		NR	NR	NR	NR	15	NR	NR	NR	NR	15 *6
1	Market Place Bangbon					●					●
2	Market Place Sukaphiban 3					●					●
3	Market Place PrachaUtit					●					●
4	Market Place Thonglo					●					●
5	J Avenue (Thonglo 15)					●					●
6	Market Place Nawamin					●					●
7	Petchkasem Power Center					●					●
8	Ekkamai Power Center					●					●
9	La Villa Ari					●					●
10	The Avenue Ratchayotin *5										
11	Pattaya Avenue					●					●
12	Nawamin City Avenue 1					●					●
13	Nawamin City Avenue 2					●					●
14	Meng Jai (B-Quik) *5										
15	Market Place Nanglinchee					●					●
16	Market Place Dusit					●					●
17	Market Place Krunghthep Kreetha					●					●
Shopping Mall *5		NR	NR	NR	NR	NR	NR	NR	NR	NR	NR
1	Mega Bangna										

Remarks NR = Non-Relevance or not significant to Central Pattana PCL.

*1 FY2021, the reporting included social part of G-Tower Grand Rama 9, The Ninth Towers Grand Rama 9 and Uniliver House Grand Rama 9 which has withdrawn in 2022 because they are not the Central Pattana' operational control.

*2 Centara Korat Hotel was operated in September, 2022 which Central Pattana has operational control only the social part, so the reporting excluded the environmental data.

*3 The reporting has included data only the retail shopping zone of The Shoppes @ Belle Grand Rama 9.

*4 Asset Acquisition by Central Pattana PCL. pursuant to the purchase of common shares in Siam Future Development PCL. during July-October, 2021

*5 Central Pattana PCL. has not managing the projects myself.

*6 The environmental data of community malls has included the energy/water consumption and GHG Emission but excluded 'waste'

Financial

GRI Standards	Financial data	Unit	2018	2019	2020	2021	2022
201-1	Revenue from rental & Service, Food Center, Hotel and Real Estate Sales	Baht	33,887,063,383	36,719,391,517	27,862,029,895	24,840,010,288	35,574,604,652
	Cost from rental & Service, Food Center, Hotel and Real Estate Sales	Baht	17,579,005,654	18,086,342,013	15,037,054,727	14,784,102,998	18,032,752,396
	Net profit	Baht	11,383,353,146	11,738,404,950	9,557,096,859	7,148,451,831	10,759,886,091
	Employee Wages and Benefits	Baht	3,643,533,000	4,279,652,000	3,601,000,000	3,759,000,000	4,360,000,000
	Payment to Governments	Baht	426,332,773	811,468,750	1,864,971,756	1,789,932,274	2,203,710,145
	Taxes paid to the government	Baht	2,056,902,384	2,336,357,717	2,148,442,833	1,798,014,482	2,486,732,972
	Dividend per Share (pay in the following year)	Baht/Share	1.10	0.80	0.70	0.60	1.15

Corporate Governance

GRI Standards	Corporate Governance data	Unit	2018	2019	2020	2021	2022
2-9, 405-1	Governance Structure						
	Executive directors	Person	1	1	1	1	1
	Independent directors	Person	4	4	4	4	4
	Other non-executive directors	Person	6	6	7	7	7
	Board Meeting Attendance						
	Average board meeting attendance	% per year	98.86	90.90	95.87	98.15	98.96
205-2	Communication about Code of Business Conduct with Stakeholder						
	Employee	%	100.00	100.00	100.00	100.00	100.00
	Contractor/Supplier/Services Provider	%	100.00	100.00	100.00	100.00	100.00
	Subsidiaries	%	100.00	100.00	100.00	100.00	100.00
	Joint venture inc. stakes below 51%	%	100.00	100.00	100.00	100.00	100.00
205-3	Codes of Business Conduct: Reporting on breaches						
	Number of codes of conduct (Breaches)	Case	None	None	None	None	20 ^{*7}
206-1	Number of legal actions pending or completed and in which the organization has been identifies as a participant regarding						
	Anti-competitive behavior	Case	None	None	None	None	None
	Anti-trust and monopoly legislation	Case	None	None	None	None	None

Remark ^{*7} Due to 2022, The company encouraged employees to be aware of Human Rights Due Diligence and had strictly internal auditing, there have been found the breached of a 'codes of conduct' cases. However, the Company had no cases of dispute, judgment, litigation or complaint in environmental, social and corporate governance issues. The Company is determined to concisely audit the operations to reduce the corruption problems within the organization to “zero”

Tenant Management and Development

GRI Standards	Tenant Management and Development data	Unit	2018	2019	2020	2021	2022
2-29	Satisfaction Index						
	Overall shopping satisfaction index	%	82	80			54 ^{*8}
	Shopper satisfaction index on convenience aspect	%	85	86			48 ^{*8}
	Shopper satisfaction index on safety aspect	%	79	79			55 ^{*8}
	Tenant satisfaction index	%	80	83			36 ^{*8}
	Data Coverage of tenant satisfaction index	%	100	100			81.6
416-2	Complaints						
	Incidents of non-compliance concerning the health and safety impacts of products and service	Case	0	0	0	0	1
417-3	Incidents of non-compliance concerning marketing communications	Case	0	0	0	0	0
418-1	Total number of information security breaches	Case	0	0	0	0	0
	Total number of clients, customers, employees affected by the breaches	Case	0	0	0	0	0
2-27	Non-compliance with laws and regulations in the social and economic area	Case	0	0	0	0	0

Remark: Due to the ongoing pandemic, there were external factors that could affect customer satisfaction. For this reason, “Shopper and Tenant Satisfaction” was removed from our 2020-2021 performance indicators.

^{*8} In 2022, company change the customer satisfaction survey measurement by using Net Promoter Score (NPS) measure taken from asking customers how likely they are to recommend our service to others on a scale of 0-10. In the Net Promoter system, customers are categorized into three groups—promoters (score of 9 and 10), detractors (score of 7 and 8) and passives (score of 0 to 6), NPS is calculated by subtracting the percentage of customers who answer the NPS question with a 6 or lower (detractors) from the percentage of customers who answer with a 9 or 10 (promoters), so our score is lower than the past years.

Corporate Responsibility and Community Development

GRI Standards	Corporate Responsibility and Community Development data	Unit	2018	2019	2020	2021	2022
	Ratio Contribution by type						
	Charitable donations	%	8.43	8.98	17.66	8.70	8.95
	Community Investment	%	66.00	60.32	27.82	27.50	25.59

GRI Standards	Corporate Responsibility and Community Development data	Unit	2018	2019	2020	2021	2022
	Commercial initiative	%	25.57	30.70	54.52	63.80	61.46
	Contribution by type						
	Charitable donations	Baht	28,500,000	15,800,000	17,400,000	13,800,000	19,359,657
	Community Investment	Baht	233,400,000	106,100,000	27,400,000	43,600,000	64,030,53
	Commercial initiative	Baht	177,400,000	167,600,000	54,000,000	53,700,000	133,000,000
	Time Contribution						
	Volunteer hour	Hour	4,500	8,500	18,040	10,037	26,426
	Employees participate in volunteering activity	Person	1,774	2,5115	3,927	2,526	2,498

Employee Management and Engagement

GRI Standards	Employee Management and Engagement data	Unit	2018		2019		2020		2021		2022		
			Male	Female	Male	Female	Male	Female	Male	Female	Male	Female	
Workforce													
2-7	Workforce												
	Total workforce	Person	11,717		11,144		8,778		12,005		862,496		
	Employee	Person	4,911		5,093		4,863		4,712		4,991		
			2,464	2,447	2,562	2,531	2,497	2,497	2,392	2,320	2,497	2,494	
	2-8	Sub-contractor	Person	6,806		6,051		3,915		7,293		857,505* ⁹	
	2-7	Employee by employee status											
		Permanent	Person	2,461	2,441	2,558	2,524	2,455	2,369	2,376	2,269	2,493	2,470
Contract		Person	3	6	4	7	4	35	16	51	4	24	
405-1(b)	Employee by level (include new employee)												
	Top management	Person	15	3	15	4	13	6	12	6	15	7	
	Middle management	Person	271	310	296	349	303	347	315	355	359	427	
	Junior management	Person	401	468	435	517	428	507	427	516	475	579	
	Non-management	Person	1,777	1,666	1,816	1,661	1,715	1,544	1,638	1,443	1,648	1,481	
	Employee by age (include new employee)												
	Less than 30 years old	Person	1,093	806	585	782	442	631	332	485	323	532	
	Between 30-50 years old	Person	639	699	1,791	1,628	1,816	1,634	1,853	1,673	1,906	1,762	
	More than 50 years old	Person	732	942	186	121	201	139	207	162	268	200	

GRI Standards	Employee Management and Engagement data	Unit	2018		2019		2020		2021		2022	
			Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
	Employee by work area (include new employee)											
	Bangkok Metropolitan Region	Person	1,492	1,661	1,571	1,739	1,520	1,669	1,339	1,468	1,565	1,821
	Central	Person							82	76		
	Northeast	Person	228	162	230	162	217	148	228	153	231	163
	South	Person	289	267	292	267	277	239	257	222	243	172
	North	Person	235	174	237	180	231	176	219	155	208	139
	East	Person	220	183	232	183	214	172	230	218	250	199
	West	Person							37	28		
	Employee by cultural background (exclude new employee)											
	Bangkok Metropolitan Region	Person	1,102	1,194	952	1,063	1,032	1,215	1,193	1,344	1,311	1,468
	Central	Person	45	24	159	136	157	132	92	67		
	Northeast	Person	196	135	405	313	406	291	288	178	214	119
	South	Person	201	146	297	243	302	267	262	227	218	141
	North	Person	215	160	242	186	268	192	235	163	205	123
	East	Person	185	150	149	150	165	156	174	155	195	121
	West	Person	33	17	40	30	37	30	20	15		
	Employee by nationality											
	Thai	Person					4,856		4,703		4,981	
	Australian	Person					1		1		1	
	Canadian	Person					1		1		1	
	Icelandic	Person					1		1		1	
	Indian	Person					1		1		1	
	Singaporean	Person					2		3		2	
	Taiwanese	Person					1		1		1	
	American	Person					0		1		1	
	Vietnamese	Person									1	
	Laotian	Person									1	
	Employee by function group											
	Science, Technology, Engineering and Mathematics (STEM) function	Person					285	529	323	615	210	582
	Revenue generating functions	Person		2,168	1,791	2,269	1,955	2,174	1,875	2,069	1,705	2,237

GRI Standards	Employee Management and Engagement data	Unit	2018		2019		2020		2021		2022	
			Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Equality												
405-2(a)	Ratio of basic salary of male and female employees											
	Middle and Junior management	Female: Male	1.00	0.99	1.00	0.99	1.00	0.99	1.00	1.06	1.00	0.99
	Non-management	Female: Male	1.00	1.03	1.00	1.01	1.00	1.00	1.00	0.95	1.00	0.98
	Gender pay gap (hourly rate)											
	Mean gender pay gap	%					7.28		7.82		7.48	
	Median gender pay gap	%					7.31		9.88		8.73	
	Mean bonus gap	%					13.82		12.63		8.37	
	Median bonus gap	%					4.61		9.08		3.53	
New employee hires and employee turnover												
401-I(a)	New employee											
	Total new employee	Person	1,108		728		213		299		876	
			487	621	318	410	92	121	128	171	354	522
	New employee by age											
	Less than 30 years old	Person	302	413	180	238	35	73	44	86	153	276
	Between 30-50 years old	Person	175	205	132	172	57	45	83	85	196	240
	More than 50 years old	Person	10	3	6	0	0	3	1	0	5	6
	New employee by level											
	Top management	Person					0		0		1	0
	Middle management	Person					4		65		60	74
	Junior management	Person					5		51		72	70
	Non-management	Person					204		183		221	378
	New employee by nationality											
	Thai	Person					95		297		874	
	Others	Person					n/a		2		2	
	New employee by work area											
	Bangkok Metropolitan Region	Person	312	426	226	291	80	102	54	70	254	353
	Central	Person							27	22		
	Northeast	Person	32	27	21	15	3	0	10	13	17	44
	South	Person	88	121	30	52	2	2	1	12	25	31

GRI Standards	Employee Management and Engagement data	Unit	2018		2019		2020		2021		2022	
			Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
	North	Person	20	14	14	19	3	7	6	1	3	16
	East	Person	35	33	27	33	4	10	30	53	55	78
	West	Person										
	New employee hired											
	Ratio of new employee hired	%	22.56		14.29		4.38		6.35		17.55	
			19.76	25.38	12.41	16.20	3.74	5.03	5.35	7.37	14.18	20.93
	Internal mobility											
401-I(b)	Employee transferred to homeland	Person	19		11		16		77		41	
	Initiated turnover by age (include resignation or due to dismissal, retirement, or death in service)	Person	860		805		538		558		932	
	Less than 30 years old	Person	189	297	154	265	87	152	78	145	118	266
	Between 30-50 years old	Person	163	189	151	208	130	145	143	159	29	22
	More than 50 years old	Person	15	7	15	12	17	7	17	16	204	293
	Initiated turnover by work allocation (include resignation or due to dismissal, retirement, or death in service)	Person	860		805		538		558		392	
	Head office	Person	59	135	65	126	57	77	66	94	90	145
	Branch	Person	308	358	255	359	177	227	172	226	261	436
	Voluntary turnover by age (resignation)	Person	725		790		426		470		785	
	Less than 30 years old	Person	146	245	154	265	65	119	69	110	102	199
	Between 30-50 years old	Person	144	169	148	208	108	129	132	147	188	276
	More than 50 years old	Person	14	7	9	6	4	1	4	8	12	8
	Voluntary turnover by work allocation (resignation)	Person	725		790		426		470		785	
	Head office	Person	58	128	64	125	48	72	61	81	77	140
	Branch	Person	246	293	247	354	129	177	144	184	225	343
	Voluntary turnover by tenure group (resignation)	Person	725		790		426		470		785	
	Less than 4 months	Person	102	158	81	122	57	80	5	1	51	108
	4 months - 1 year	Person	34	63	53	84	0	0	29	41	55	74
	1-3 years	Person	74	105	94	147	60	90	57	95	61	43
	3-5 years	Person	67	76	37	61	28	39	48	58	59	95
	5-10 years	Person			32	41	22	34	66	70	66	97
	More than 10 years	Person	27	19	14	24	10	6	0	0	28	48

GRI Standards	Employee Management and Engagement data	Unit	2018		2019		2020		2021		2022	
			Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
	Turnover rate by nationality											
	Thai	Person							557		784	
	Others	Person							1		1	
	Turnover rate by level											
	Top management	Person							0		0	
	Middle management	Person							18		104	
	Junior management	Person							56		113	
	Non-management	Person							484		568	
	Lay-off	Person	0	0	0	0	0	0	0	0	3	0
	Head office	Person	0	0	0	0	0	0	0	0	1	0
	Branch	Person	0	0	0	0	0	0	0	0	2	0
	Turnover rate											
	Voluntary turnover	%	14.76		15.51		8.76		9.97		15.73	
	Regrettable loss Rate	%	6.60		8.10		0.95		0.98		2.70	
Employee Engagement & Retention												
	Employee Engagement											
	Employee Engagement by gender	%	73		73		83		78		76	
			80	66	79	67			82	73	80	72
	Employee Engagement by level											
	Executive level (President, Senior Executive Vice President, Executive Vice President)	%	60		65		77		87		79	
	Management level (Senior Vice President, Vice President, Vice President)	%	57		62		75		71		68	
	Manager level (Assistant Manager, Manager, Senior Manager)	%	57		57		72		64		62	
	Team Leader level (Senior Officer and Supervisor)	%	71		71		84		80		79	
	Operation level (Staff)	%	80		80		87		86		87	
	Employee Engagement by work allocation											
	Head office	%	45		51		66		61		64	
	Branch	%	82		80		90		84		80	

GRI Standards	Employee Management and Engagement data	Unit	2018		2019		2020		2021		2022	
			Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
401-3(a) 401-3(b) 401-3(c) 401-3(e)	Parental leave											
	Number of employees having the right of maternity/parental leave	Person	2,464	2,447	2,562	2,531	2,460	2,404	2,392	2,320	2,497	2,494
	Number of employees using the right of maternity/parental leave	Person	0	81	0	103	0	76	0	69	0	63
	Number of employees returning to work after of maternity/parental leave	Person	0	73	0	92	0	71	0	66	0	54
	Percentage of employees returning to work and remaining at work after of maternity/parental leave	%	0	90.12	0	89.32	0	93.42	0	95.65	0	85.71
Employee Development												
404-1(a)	Training Course	Course		477		540		310		339		390
	Training Cost / FTE	Baht						1,388		1,626		3,002
	Number of employees training in various course	Person		5,010		5,086		4,838		4,624		4,704
	Number of employees training by age											
	<30 year	Person						429		790		703
	30-50 year	Person						4,190		3,468		3,626
	>50 year	Person						219		366		375
	Number of employees training by level											
	Top management	Person						12		19		21
	Middle management	Person						668		721		875
	Junior management	Person						951		966		1,031
	Non-management	Person						3,207		2,918		2,777
	Training course											
	Percentage of employees training in various course	Hour		26.70		24.00		11.00		25.00		10.00
	Employee satisfaction from training	%		91.90		91.70		92.07		93.00		87.00
Employee complains												
	Number of employees' complaints in relation to labor practices	Case		0		0		0		0		10
	Number of resolved complaints	Case		0		0		0		0		9
	Number of pending complaints	Case		0		0		0		0		1
Promoting employment among various types of people												
	Disabled person											
	Area for people with disabilities to sell product	Person		46		46		48		48		42
	Area for people with disabilities to sell product	Shopping center		21		21		21		21		19

Collective Bargaining Agreement							
2-30	Total employees covered by collective bargaining agreements	%	100	100	100	100	100

Definitions and Calculation Methodologies

Company employees are workers under the employment contracts with Central Pattana PLC. They are categorized into four groups, which include Top Management, Middle Management, Junior Management and Non-Management.

- Top Management comprises President, Senior Executive Vice Presidents (SEVPs) and Executive Vice Presidents (EVPs).
- Middle Management comprises Senior Vice Presidents (SVPs), Vice Presidents (VPs), Vice Presidents (AVPs), Senior Managers and Managers.
- Junior Management comprises Assistant Managers and Supervisors.
- Non-Management comprises Senior Officers, Officer and Consultants.

Remarks

- By employment type, our workforce can be categorized into two groups, permanent and contractual employees.
- The total number of employees and contractors reported excludes Grand Canal PLC workforce, which includes 156 employees, 80 male and 76 female, and 215 contractors.
- In 2021, we expanded our reporting boundary to cover contractors, housekeepers and security guards.

Occupational Health and Safety

GRI Standards	Occupational Health and Safety data	Unit	2018		2019		2020		2021		2022	
			Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Occupational Health and Safety												
403-8(a) (2018)	Ratio of employee represent in OHS Committee per total employee (Exclude contract employee)	%	7.55		6.69		7.17		7.53		7.20	
403-9(a) (2018)	Work-related injuries of employee											
	Number of fatalities as a result of work-related injury	Case	0.00		2.00		0.00		0.00		0.00	
	Number of high-consequence work-related injuries (excluding fatalities)	Case	0.00		0.00		0.00		0.00		0.00	
	Number of recordable work-related injuries	Case	7.00		15.00		7.00		7.00		9.00	
	Number of Lost Time Injury Frequency Rate (LTIFR)	Case	5.00		13.00		6.00		4.00		6.00	
	Number of hours worked	Hour	10,935,644		11,399,797		10,903,670		11,700,563		11,733,725	
	Rate of fatalities as a result of work-related injury (fatalities)											
	Rate of fatalities as a result of work-related injury per 200,000 hours worked	Case	0.00		0.04		0.00		0.00		0.00	
	Rate of fatalities as a result of work-related injury per 1,000,000 hours worked	Case	0.00		0.18		0.00		0.00		0.00	
	Rate of high-consequence work-related injuries (excluding fatalities)											
	Rate of high-consequence work-related injuries 200,000 hours worked	Case	0.00		0.00		0.00		0.00		0.00	
	Rate of high-consequence work-related injuries 1,000,000 hours worked	Case	0.00		0.00		0.00		0.00		0.00	
	Rate of recordable work-related injuries (recordable)											
	Rate of recordable work-related injuries per 200,000 hours worked	Case	0.13		0.26		0.13		0.12		0.15	
	Rate of recordable work-related injuries per 1,000,000 hours worked	Case	0.64		1.32		0.64		0.60		0.77	
	Rate of Lost-time injuries frequency rate (LTIFR)											
	Rate of Lost-time injuries frequency rate per 200,000 hours worked	Case	0.07		0.23		0.11		0.07		0.10	
	Rate of Lost-time injuries frequency rate per 1,000,000 hours worked	Case	0.37		1.14		0.55		0.34		0.51	
	Rate of Days away/restricted or transfer rate (DART)											
	Rate of Days away/restricted or transfer rate per 200,000 hours worked	Day	1.23		3.82		2.02		1.81		1.19	
	Rate of Days away/restricted or transfer rate per 200,000 hours worked	Day	6.13		19.12		10.09		9.06		5.97	
	Rate of Lost workday rate (LWD)											
	Rate of Lost workday rate per 200,000 hours worked	Day	0.00		0.00		0.00		0.00		0.00	
Rate of Lost workday rate per 200,000 hours worked	Day	0.00		0.00		0.00		0.00		0.00		
Absentee Rate (AR)	%	1.36		1.10		0.58		1.16		0.005		

GRI Standards	Occupational Health and Safety data	Unit	2018		2019		2020		2021		2022	
			Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Occupational Health and Safety												
403-9(b) (2018)	Work-related injuries of contractor											
	Number of fatalities as a result of work-related injury	Case					0.00		0.00		1.00	
	Number of high-consequence work-related injuries (excluding fatalities)	Case					0.00		0.00		0.00	
	Number of recordable work-related injuries	Case					1.00		4.00		25.00	
	Number of Lost Time Injury Frequency Rate (LTIFR)	Case					1.00		4.00		6.00	
	Number of hours worked	Hour					4,107,982		64,305,863		64,357,045	
	Rate of fatalities as a result of work-related injury (fatalities)											
	Rate of fatalities as a result of work-related injury per 200,000 hours worked	Case					0.00		0.00		0.003	
	Rate of fatalities as a result of work-related injury per 1,000,000 hours worked	Case					0.00		0.00		0.02	
	Rate of high-consequence work-related injuries (excluding fatalities)											
	Rate of high-consequence work-related injuries 200,000 hours worked	Case					0.00		0.00		0.00	
	Rate of high-consequence work-related injuries 1,000,000 hours worked	Case					0.00		0.00		0.00	
	Rate of recordable work-related injuries (recordable)											
	Rate of recordable work-related injuries per 200,000 hours worked	Case					0.05		0.01		0.08	
	Rate of recordable work-related injuries per 1,000,000 hours worked	Case					0.24		0.06		0.39	
	Rate of Lost-time injuries frequency rate (LTIFR)											
	Rate of Lost-time injuries frequency rate per 200,000 hours worked	Case					0.05		0.01		0.02	
	Rate of Lost-time injuries frequency rate per 1,000,000 hours worked	Case					0.24		0.06		0.09	
	Rate of Days away/restricted or transfer rate (DART)											
	Rate of Days away/restricted or transfer rate per 200,000 hours worked	Day					0.15		0.31		0.22	
	Rate of Days away/restricted or transfer rate per 1,000,000 hours worked	Day					0.73		1.54		1.12	
	Rate of Lost workday rate (LWD)											
	Rate of Lost workday rate per 200,000 hours worked	Day					0.00		0.00		0.00	
	Rate of Lost workday rate per 200,000 hours worked	Day					0.00		0.00		0.00	
403-10(a) (2018)	Work-related ill health of employee											
	Number of fatalities as a result of work-related ill health (Fatality)	Case					0.00		0.00		0.00	
	Number of recordable work-related ill health (recordable)	Case					0.00		0.00		0.00	
	Rate of Occupational Illness Frequency Rate (OIFR)											
	Rate of Occupational Illness Frequency Rate per 200,000 hours worked	Case					0.00		0.00		0.00	
	Rate of Occupational Illness Frequency Rate per 1,000,000 hours worked	Case					0.00		0.00		0.00	

GRI Standards	Occupational Health and Safety data	Unit	2018		2019		2020		2021		2022	
			Male	Female	Male	Female	Male	Female	Male	Female	Male	Female
Occupational Health and Safety												
403-10(b) (2018)	Work-related ill health of contractor											
	Number of fatalities as a result of work-related ill health (Fatality)	Case					0.00		0.00			0.00
	Number of recordable work-related ill health (recordable)	Case					0.00		0.00			0.00
	Rate of Occupational Illness Frequency Rate (OIFR)											
	Rate of Occupational Illness Frequency Rate per 200,000 hours worked	Case					0.00		0.00			0.00
	Rate of Occupational Illness Frequency Rate per 1,000,000 hours worked	Case					0.00		0.00			0.00

Definitions and calculation guidelines

Definitions and Recording Criteria

Below are the definitions and recording criteria used by Central Pattana Plc to calculate, collect and report occupational health and safety statistics:

- **Work-hours** Total number of working hours.
- **Work-related fatalities** as a result of injuries that occur from work or activity of the Company.
- **Recordable work-related injuries** Medical Treatment Injuries: MTIs that resulted in a certain level of treatment given by health professionals to combat injury, disease or disorder, which includes suturing of any wound, casting, surgeries (major and minor), detoxification, gastric lavage, Sodium Chloride IV Infusion, blood transfusion, administration of oxygen, CPR, medication dispensing, rehabilitation and loss or removal of an organ, as well as restricted work activity or death. MTIs do not include the following:
 - First aid
 - Medical visits for the purpose of observation or consultation
 - Diagnostic procedures including x-rays, ultrasound, blood tests, prescription medication solely for diagnostic purposes (e.g., mydriatics)
- **High-consequence work-related injuries** Work-related injuries that result in time away from work where a full recovery cannot be made within 180 days.
- **Lost Time Injury Frequency Rate: LTIFR** The rate of work-related injuries that result in time away from work.
- **Days Away/Restricted or Transfer Rate: DART** The rate of work-related injuries and diseases that result in time away from work, restricted work activity or job transfer.
- **Lost Workday Rate: LWR** The rate of work-related injuries and diseases of high-consequence that result in time away from work where a full recovery cannot be made within 180 days.
- **Occupational Illness Frequency Rate: OIFR** The rate of occupational illnesses that result in time away from work.

Method for Calculating Work-Hours

- Number of employee work-hours
 = Working hours (hour) = Number of worker x scheduled workday x number of working hour per day

Calculation Guidelines

- Rate of fatalities as a result of work-related injuries**

$$= \frac{\text{number of fatalities as a result of work – related injuries} \times [200,000 \text{ or } 1,000,000]}{\text{number of hour worked}}$$
- Rate of high-consequence work-related injuries (excluding fatalities)**

$$= \frac{\text{number of high – consequence work – related injuries (excluding fatalities)} \times [200,000 \text{ or } 1,000,000]}{\text{number of hour worked}}$$
- Rate of recordable work-related injuries**

$$= \frac{\text{number of recordable work – related injuries} \times [200,000 \text{ or } 1,000,000]}{\text{number of hour worked}}$$
- Lost-time injuries frequency rate: LTIFR**

$$= \frac{\text{number of Lost – time injuries frequency} \times [200,000 \text{ or } 1,000,000]}{\text{number of hour worked}}$$
- Lost-time injuries frequency rate: OIFR**

$$= \frac{\text{number of Lost – time Occupational illness frequency} \times [200,000 \text{ or } 1,000,000]}{\text{number of hour worked}}$$
- Days away/Restricted or Transfer rate: DART**

$$= \frac{\text{Total Number of Days away/restricted or transfer from injuries and illness} \times [200,000 \text{ or } 1,000,000]}{\text{number of hour worked}}$$
- Lost Workday Rate: LWR**

$$= \frac{\text{Total Number of Lost Days from injuries and illness of high – consequence work} \times [200,000 \text{ or } 1,000,000]}{\text{number of hour worked}}$$
- Absentee Rate: AR**

$$= \frac{\text{Number of lost day injuries and other occupational diseases that are not excused} \times 100}{\text{Total number of operating day in a year}}$$

Remarks

- FY2021 data includes the number of work-hours and the number of work-related injuries and occupational diseases of Grand Canal Land PLC, which comprises G Tower, the Ninth Tower, Unilever House, the Shoppes at Belle and Head Office.
- In 2021, we expanded our reporting boundary further to cover contractors including housekeepers and security guards, in addition to contractors in construction and renovation projects, which have been included since 2020.

Environmental Resource Management

GRI Standards	Environmental Resource Management data	Unit	2019	2020	2021	2022	Compared with based year
Energy Consumption within the organization							
302-1(a)	Total fuel consumption from non-renewable sources	GJ	468,723.30	342,412.74	302,890.08	389,911.06	-16.8%
	Diesel	GJ	8,328.58	6,450.87	5,038.00	6,546.76	
	Gasoline	GJ	10,389.28	7,332.17	4,837.75	5,335.24	
	LPG	GJ	449,954.04	328,594.64	292,970.64	377,988.83	
	Oil	GJ	51.40	35.07	43.70	40.24	
	Total fuel consumption from non-renewable sources	MWh	130,200.92	95,114.65	84,136.13	108,308.63	
	Diesel	MWh	2,313.49	1,791.91	1,399.44	1,818.54	
	Gasoline	MWh	2,885.91	2,036.71	1,343.82	1,482.01	
	LPG	MWh	124,987.23	91,276.29	81,380.73	104,996.90	
	Oil	MWh	14.28	9.74	12.14	11.18	
302-1(b)	Total consumption from renewable sources						+143.3%
	Solar PV	GJ	32,562.92	45,239.31	69,539.97	79,211.66	
		MWh	9,045.25	12,566.48	19,316.66	22,003.24	
302-1(c)	Electricity purchased						-15.8%
	Electricity purchased from grid (Metropolitan Electricity Authority and Provincial Electricity Authority)	GJ	3,943,268.35	3,068,980.54	2,553,221.09	3,318,661.06	
		MWh	1,095,352.32	852,494.59	709,228.08	921,850.30	
302-1(d)	Energy sold to tenant						-20.9%
	Electricity sold to tenant	GJ	2,016,462.19	1,683,729.96	1,197,090.30	1,595,591.09	
		MWh	560,128.39	467,702.77	332,525.08	443,219.75	
	LPG sold to tenant	GJ	448,958.90	327,786.70	292,589.07	377,445.01	
		MWh	124,710.80	91,051.86	81,274.74	104,845.83	
302-1(e)	Total energy consumption within organization						-10.8%
	Total non-renewable energy consumption within organization (Fuel and Electricity)	GJ	1,946,570.57	1,399,876.63	1,366,431.81	1,735,536.02	
		MWh	540,714.05	388,854.62	379,564.39	482,093.34	
	Total Energy consumption (Renewable and Non-Renewable)	GJ	1,979,133.48	1,445,115.94	1,435,971.78	1,814,747.68	
		MWh	549,759.30	401,421.09	398,881.05	504,096.58	

GRI Standards	Environmental Resource Management data	Unit	2019	2020	2021	2022	Compared with based year
	Ratio of energy consumption within organization						
	Ratio of renewable energy per total energy	%	1.65	3.13	4.48	4.36	+165.3%
302-3	Total energy intensity (renewable and non-renewable energy) per unit area	kWh/ Square meter	154.00	112.32	105.58	128.07	-16.8%
	Total electricity intensity (renewable and non-renewable energy) per unit area	kWh/ Square meter	152.46	111.18	104.83	127.19	-16.6%

Definitions and calculation guidelines

Energy

The total energy consumption comprises fuel combustion (non-renewable), electricity and renewable energy (solar energy).

- Total fuel consumption = The sum of energy consumed for each energy source X the calorific value of each fuel.
- Conversion Factors based on the Annual Thailand Energy Report and Department of Alternative Energy Development and Efficiency.
- Electricity consumption = The sum of electricity used (kWh) x 3.6 (Unit: GJ)
- Total energy consumption within organization = non-renewable energy + renewable energy + electricity purchased – electricity sold to tenants.

Intensity

- Energy intensity is calculated based on gross leasable area (GLA). GLA includes all rental areas and common areas in the shopping centers.

Base Year

- Our base year for the calculation of environmental impact is FY2019.
- Central Pattana acquired shares of Grand Canal Land Plc. (GLAND) and Siam Future Development Plc. in 2018 and 2022, respectively. Consequently, we collected additional data of fuel consumption, electricity usage and update energy consumption during 2019-2022 to reflect the latest change data availability.

GRI Standards	Area	Environmental Resource Management data	Unit	2019	2020	2021	2022	Compared with based year
Water and Effluents								
303-3 (2018)	All areas	Water withdrawal from all areas (TDS ≤ 1,000 mg/L)	Cubic Meter	12,102,183.89	8,896,504.61	7,119,037.27	9,895,643.24	-18.2%
		Municipal water	Cubic Meter	11,823,972.79	8,683,885.72	6,918,385.00	9,682,951.90	
		Ground water	Cubic Meter	278,211.10	206,070.22	199,442.58	210,996.34	
		Rainwater	Cubic Meter	-	6,548.67	1,209.69	1,695.00	
		Water withdrawal from all areas (TDS > 1,000 mg/L)	Cubic Meter	-	-	-	-	-
	Areas with water stress	Water withdrawal from all areas with water stress (TDS ≤ 1,000 mg/L)	Cubic Meter	2,586,255.00	1,913,003.49	1,669,162.00	2,221,437.00	-14.1%
		Municipal water	Cubic Meter	2,385,563.00	1,790,756.49	1,568,988.00	2,118,155.00	
		Ground water	Cubic Meter	200,692.00	122,247.00	100,174.00	103,282.00	
		Rainwater	Cubic Meter	-	-	-	-	
		Water withdrawal from all areas with water stress (TDS > 1,000 mg/L)	Cubic Meter	-	-	-	-	-
303-4 (2018)	All areas	Water discharge by destination to all areas (TDS ≤ 1,000 mg/L)	Cubic Meter	5,910,763.30	4,157,148.85	3,648,102.61	4,851,246.13	
		Surface water	Cubic Meter	5,910,763.30	4,157,148.85	3,648,102.61	4,851,246.13	
		Seawater	Cubic Meter	-	-	-	-	
		Groundwater	Cubic Meter	-	-	-	-	
		Third-party water	Cubic Meter	-	-	-	-	
		Water discharge by destination to all areas (TDS > 1,000 mg/L)	Cubic Meter	1,924,595.70	1,332,767.20	1,093,330.48	1,733,009.67	
		Third-party water : wastewater	Cubic Meter	1,924,595.70	1,332,767.20	1,093,330.48	1,708,406.40	
		Third-party water : Oil&Grease and sewage	Cubic Meter	-	-	-	24,603.27	
	Areas with water stress	Water discharge by destination to all areas with water stress (TDS ≤ 1,000 mg/L)	Cubic Meter	1,624,907.00	1,161,080.97	987,984.45	1,289,400.90	
		Surface water	Cubic Meter	1,624,907.00	1,161,080.97	987,984.45	1,289,400.90	
		Seawater	Cubic Meter	-	-	-	-	
		Groundwater	Cubic Meter	-	-	-	-	
		Third-party water	Cubic Meter	-	-	-	-	

GRI Standards	Area	Environmental Resource Management data	Unit	2019	2020	2021	2022	Compared with based year
		Water discharge by destination to all areas with water stress (TDS > 1,000 mg/L)	Cubic Meter	-	-	-	7,098.50	
		Third-party water : wastewater	Cubic Meter	-	-	-	-	
		Third-party water : Oil&Grease and sewage	Cubic Meter	-	-	-	7,098.50	
		Water discharge level of treatment	Cubic Meter	7,835,359.00	5,491,670.05	4,741,433.09	6,584,255.80	
		No Treatment	Cubic Meter	-	1,754.00	-	24,603.27	
		Primary Treatment	Cubic Meter	1,924,595.70	1,332,767.20	1,093,330.48	1,708,406.40	
		Secondary Treatment	Cubic Meter	5,910,763.30	4,157,148.85	3,648,102.61	4,512,841.41	
303-5 (2018)	All areas	Total Water Consumption from all areas	Cubic Meter	4,266,824.89	3,406,588.57	2,377,604.18	3,311,387.44	-22.4%
	Areas with water stress	Total Water Consumption from all areas with water stress	Cubic Meter	961,348.00	751,922.52	681,177.55	924,937.60	-3.8%
		Total water intensity						
		Total water consumption intensity per unit area	Cubic Meter/ Square meter	1.20	0.95	0.69	0.82	-31.5%
		Total recycled water						
		Total recycled water	Cubic Meter	520,299.85	446,662.76	423,894.69	585,474.41	+12.5%
		Percentage recycled water per total water withdrawal	%	4.30	5.02	5.95	5.92	+37.6%

Definitions and calculation guidelines

Our water management comprises water supplied from external water sources, treated wastewater, water discharge and recycled water. Water use efficiency and water risk assessments are conducted as part of our water management.

- **Water withdrawal** The sum of all water drawn from surface water, groundwater, seawater, or a third party for any use over the course of the reporting period.
- **Water consumption** includes water supply and recycled water that is withdrawn and is not returned to the source because of evaporation and transpiration, for instance.
- **Water reuse** The amount of water reused after being treated in onsite wastewater treatment systems designed specifically for our shopping centers and buildings.
- **Water discharge** Treated water discharged to the public sanitary sewer systems. FY2021 total water discharge excludes cooling tower discharges or bleed off, which are released directly into the public sewer.

Stages of wastewater treatment

- **Primary treatment** Physical treatment before the water is discharged to municipal treatment ponds (Central World, Central Lardprao, Central Pattaya Beach, Central Marina, Central Sriracha and Pattaya Avenue).
- **Secondary treatment** Physical and biological treatment through Sequence Batch Reactor (SBR) and Deep Shaft systems.
- **Water stress area** Areas with insufficient water to sustainably meet long-term demand. They include areas with high levels of baseline water stress where our shopping centers are located.
- **Water Intensity** is calculated based on gross leasable area (GLA). GLA includes all rental areas and common areas in the shopping centers.

Base Year

- Our base year for the calculation of environmental impact is FY2019.
- Central Pattana acquired shares of Grand Canal Land Plc. (GLAND) and Siam Future Development Plc. in 2018 and 2022, respectively. Consequently, we collected additional data of water consumption and update data during 2019-2020 to reflect the latest change data availability.

GRI Standards	Environmental Resource Management data	Unit	2019	2020	2021	2022	Compared with based year
Greenhouse Gas Emission							
305-1	Direct emissions of greenhouse gas (Scope 1)	tCO ₂ e	7,009.90	6,959.36	2,662.31	2,068.33	-70.5%
	Fuel combustion	tCO ₂ e	1,427.19	1,054.82	782.99	878.41	-38.5%
	Fugitive emissions	tCO ₂ e	5,582.70	5,904.54	1,879.33	1,189.91	-78.7%
305-2	Energy indirect emissions of greenhouse gas (Scope 2)	tCO ₂ e	312,117.55	248,747.01	188,936.84	239,267.41	-23.3%
	Location-based	tCO ₂ e	312,117.55	248,747.01	188,936.84	239,267.41	-23.3%
	Market-based	tCO ₂ e	312,117.55	248,747.01	188,936.84	239,267.41	-23.3%
305-3	Other indirect emissions of greenhouse gas (Scope 3)	tCO ₂ e	529,080.88	417,718.69	288,585.17	365,140.03	-31.0%
	1. Purchased goods and services : municipal water	tCO ₂ e	6,033.37	4,429.02	3,551.67	4,915.95	-18.5%
	5. Waste generated in operations: landfill disposal	tCO ₂ e	157,905.72	114,111.67	98,232.40	108,800.49	-31.1%
	6. Business travel	tCO ₂ e	2,195.90	585.42	142.94	245.60	-88.8%
	9. Downstream transportation and distribution : Waste transportation	tCO ₂ e	8,541.37	5,638.78	1,488.68	5,775.08	-32.4
	13. Downstream leased assets : electricity sold to tenants	tCO ₂ e	326,050.73	272,252.60	166,691.16	221,565.55	-32.0%
	13. Downstream leased assets : LPG sold to tenants	tCO ₂ e	28,353.77	20,701.21	18,473.83	23,837.36	-15.9%
	Total scope 1&2 emissions	tCO ₂ e	319,127.45	255,706.37	191,599.15	241,335.74	-24.4%
	Total scope 1&2&3 emissions	tCO ₂ e	848,208.33	673,425.06	480,184.32	606,475.77	-28.5%
305-4	Greenhouse gas emission intensity						
	Scope 1 direct emissions per unit area	kgCO ₂ e / Square meter	1.96	1.95	0.70	0.53	-73.2%
	Scope 2 indirect emissions per unit area	kgCO ₂ e / Square meter	87.43	69.60	50.01	60.79	-30.5%
	Scope 3 other indirect emissions per unit area	kgCO ₂ e / Square meter	148.20	116.88	76.39	92.77	-37.4%
	Scope 1&2 emissions per unit area	kgCO ₂ e / Square meter	89.39	71.55	50.72	61.32	-31.4%
	Scope 1&2&3 emissions per unit area	kgCO ₂ e / Square meter	237.60	188.43	127.10	154.09	-35.1%

Definitions and calculation guidelines

Greenhouse Gas

Our GHG emissions reporting covers CO₂, CH₄, N₂O, HFCs, PFCs and SF₆. Emissions are measured in carbon dioxide equivalents using the Global Warming Potentials (GWPs) established by the Intergovernmental Panel on Climate Change 2006 (IPCC) and emissions factors according to the IPCC and Thailand Greenhouse Gas Management Organization (TGO).

1. **Reporting Boundary** The organizational boundary includes emissions from subsidiaries, associates, joint ventures and other companies under the operational control of Central Pattana PLC.
 - 1.1 Direct emissions (Scope 1) are emissions that occur from sources that are controlled or owned by Central Pattana. They comprise emissions from fuel combustion, fleet vehicles (owned by Central Pattana) and fugitive emissions of GHG from refrigerants, Sulfur Hexafluoride (SF₆) from high-voltage switchgears and CO₂ from fire extinguishing agents.
 - 1.2 Indirect emissions (Scope 2) are emissions that occur from energy purchased from external sources for use across Central Pattana's operations. Our indirect emissions are from the consumption of electricity only.
 - 1.3 Other indirect emissions (Scope 3) are emissions that occur from operations and activities associated with Central Pattana, including business travel by taxi, bus, airplane, train, boat or hire vehicle, for example, as well as water use and tenant electricity consumption. In 2021, the reporting boundary has been expanded to include emissions from tenant LPG usage and offsite waste management activities including landfill disposal and transportation of waste to disposal facilities.
2. **Emissions Reporting**
 - 2.1 Direct emission (Scope 1) The volume of fuel that is combusted (by weight or quantity), e.g., the quantity of fuel oil or natural gas consumed x GHG emission rate based on the 2006 IPCC Guidelines
 - 2.2 Indirect emission (Scope 2) includes indirect emissions from the generation of purchased or acquired electricity from grid. The GHG Protocol defines two calculation methods for the measurement of Scope 2 emissions
 - Market-based methods based on average energy generation emission factors for defined geographic locations, including local, subnational, or national boundaries
 - Location-based method based on GHG emissions emitted by the generators from which the reporter contractually purchases electricity bundled with contractual instruments, or contractual instruments on their own
 - 2.3 Other indirect emission (Scope 3) is considered for operational carbon emissions of building that occurs in a company's value chain. Total 5 categories in scope 3 are considered for the Company:
 - Category 1 Purchased goods and services include emissions from water usage
 - Category 5 Waste generated in operations include emissions from third-party disposal and treatment of waste generated in the reporting company's owned or controlled operations
 - Category 6 Business travel includes emissions from the transportation of employees for business related activities in vehicles owned or operated by third parties, such as aircraft, trains, buses, and passenger cars.
 - Category 9 Downstream transportation and distribution include emissions from waste transportation to and from disposal site
 - Category 13 Downstream leased assets includes emissions from the operation of assets that are owned by the Company and leased to other entities. This includes fuel combustion and electricity use of tenants under leasing arrangements.
3. **Measurement** Based on the Greenhouse Gas Protocol: The GHG Protocol Corporate Accounting and Reporting Standard Revised Edition and Thailand Greenhouse Gas Management Organization (TGO) guidelines for assessment of Carbon Footprint of Organization (CFO).

Intensity

- Emission intensity is calculated based on gross leasable area (GLA). GLA includes all rental areas and common areas in the shopping centers.

Base Year

- Our base year for the calculation of environmental impact is FY2019.

Central Pattana acquired share of Grand Canal Land Plc. (GLAND) and Siam Future Development Plc. in 2018 and 2022, respectively. Greenhouse gases for the Company have been recalculated in response to the structural change in the organization. Central Pattana collected additional data of new acquisitions covering fuel consumption, electricity usage and updated Scope 1, 2 and 3 during 2019-2022 to reflect the most recent data available.

GRI Standards	Environmental Resource Management data	Unit	2019	2020	2021	2022
Waste						
306-3 (2020)	Waste generation	Metric tons	70,246.16	51,894.98	44,898.57	59,545.44
	Hazardous waste	Metric tons			18.36	7.42
	Electronic waste (E-waste)	Metric tons		8.80	4.26	9.86
	Infectious waste	Metric tons		19.61	22.53	23.00
	General waste	Metric tons	68,070.86	49,230.35	42,341.55	46,818.43
	Incineration with energy recovery (RDF)	Metric tons			55.56	6,398.26
	Recycle waste (plastic, paper, metal, can, glass)	Metric tons	1,987.90	2,185.96	2,064.74	5,782.57
	Preparation food	Metric tons	175.31	450.25	391.57	505.90
306-4 (2020)	Waste diverted from disposal	Metric tons	2,167.44	2,645.02	2,460.57	6,298.32
	Hazardous waste	Metric tons	4.23	8.80	4.26	9.86
	Recycling/ Reclaim (Hazardous waste, E-waste)	Metric tons	4.23	8.80	4.26*	9.86*
	Non-hazardous waste	Metric tons	2,163.21	2,636.22	2,456.31	6,288.47
	Recycling	Metric tons	1,987.90	2,185.68	2,064.74	5,782.57
	Composting	Metric tons	175.31	450.25	391.57	505.90
	Reuse (waste for art)	Metric tons		0.29	-	-
306-5 (2020)	Waste directed to disposal	Metric tons	68,078.72	49,249.96	42,438.00	53,247.11
	Hazardous waste	Metric tons	7.86	19.61	40.89	30.42
	Incineration (Infectious waste)	Metric tons	7.86	19.61	22.53	23.00
	Incineration (General hazardous waste)	Metric tons			18.36	7.42
	Non-hazardous waste	Metric tons	68,070.86	49,230.35	42,397.11	53,216.69
	General waste	Metric tons	68,070.86	49,230.35	42,341.55	46,818.43
	Incineration with energy recovery (RDF)	Metric tons			55.56	6,398.26
	Waste generated rate	Kilogram/person	0.12	0.17	0.18	0.16
	Diversion rate	%	3.08	5.10	5.48	10.58
	Waste Prevention (Organic waste into agriculture)	Metric tons			2,099.72	5,455.17

Definitions and calculation guidelines

- **Waste generated** by the operations and activities of Central Pattana PLC and Grand Canal PLC. The total amount of waste reported is determined by weighing or estimation.
- **Waste diverted from disposal** Waste sent for offsite reuse, recycling and other recovery operations.
- **Waste directed to disposal** Waste disposed of in landfills or through incineration with/without energy recovery offsite.
- **Waste generation rate** Calculated from the amount of total waste generated divided by customer traffic.
- **Waste diversion rate** Calculated from the amount of total waste diverted and total waste generated.
- **RDF:** Refuse Derived Fuel is the combustible sub-fraction of municipal solid waste that undergoes physical treatment including sorting, size reduction and dehydration to produce fuel with high heat with sizes and characteristics according to the purpose of use that is easy for transport. It is suitable for use as substitute or secondary fuels for industrial or community use or in community waste to energy plants or solid waste incinerators.

Remarks

- * The amount of hazardous recycled waste included e-waste only.