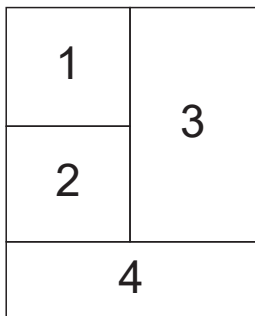


Construction Cost Handbook VIETNAM 2019

Arcadis Vietnam Co., Ltd





Handbook Cover Photos:

1. Hakura Binh Duong, HCMC
2. Sora Garden, HCMC
3. Springlight City, HCMC
4. Alma Resort, Cam Ranh

Copyright Statement and information caveat

Twelfth Edition 2019

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Unless otherwise stated, costs reflected in this handbook are current as at **4th Quarter 2018**.



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001

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2019

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This version of Arcadis Handbook – Vietnam 2019, as other future annually published handbooks, focuses on the construction cost profile of Vietnam and those of the major cities in Asia.

The handbook is structured to serve as a general reference guide on construction cost indicators in Asia.

The information contained in this handbook has been compiled by Arcadis Vietnam Co., Ltd. Any further information and/or if advice relating to particular projects in specific region is required, please contact any of the regional offices listed under the Directory of Arcadis Offices at the end of this handbook.

Arcadis Vietnam Co., Ltd.

Our Core Values

People First

We care for each other and create a safe and respectful working environment where our people can grow, perform, and succeed.

Integrity

We always work to the highest professional and ethical standards and establish trust by being open, honest and responsible.

Client Success

We are passionate about our clients' success and bring insights, agility, and innovation to co-create value.

Collaboration

We value the power of diversity and our global capabilities and deliver excellence by working as One Arcadis.

Sustainability

We base our actions for clients and communities on environmental responsibility and social and economic advancement.



CONSTRUCTION COST DATA

1



Construction Market 2019 Outlook

Major Rates for Selected Asian Cities

Construction Cost Specification

Construction Costs for Selected Asian Cities

M&E Costs for Selected Asian Cities

Utility Costs for Selected Asian Cities

CONSTRUCTION MARKET 2018 AND 2019 OUTLOOK

2018 saw an increase in construction activity around HCMC area and also in Cam Ranh, Nha Trang and Danang. North Vietnam remained relatively quiet but there was notable activity in the Van Don area.

We continued to expand our business during 2018 particularly in South Vietnam in all aspects of commercial development and we are seeing an increase in both Foreign and Domestic investment.

Construction output in HCMC should increase mid 2019 and notably in the Residential sectors and in Hospitality along the coastal regions.

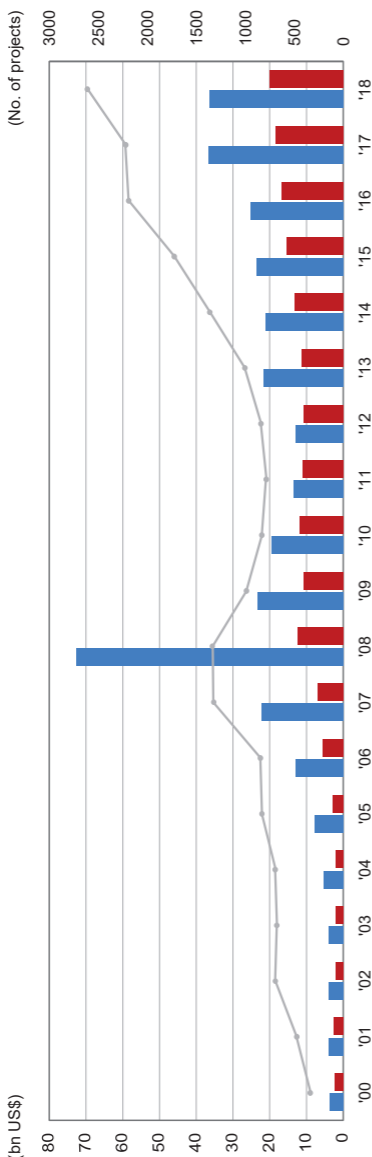
Major infrastructure is generally still funded through the Multilateral Development Banks and we do expect significant activity in the HCMC MTR sector.

Vietnam will still expand as a manufacturing export orientated growth economy in 2019 and GDP growth this year will remain at circa 6.0%.

ANNUAL FOREIGN INVESTMENT

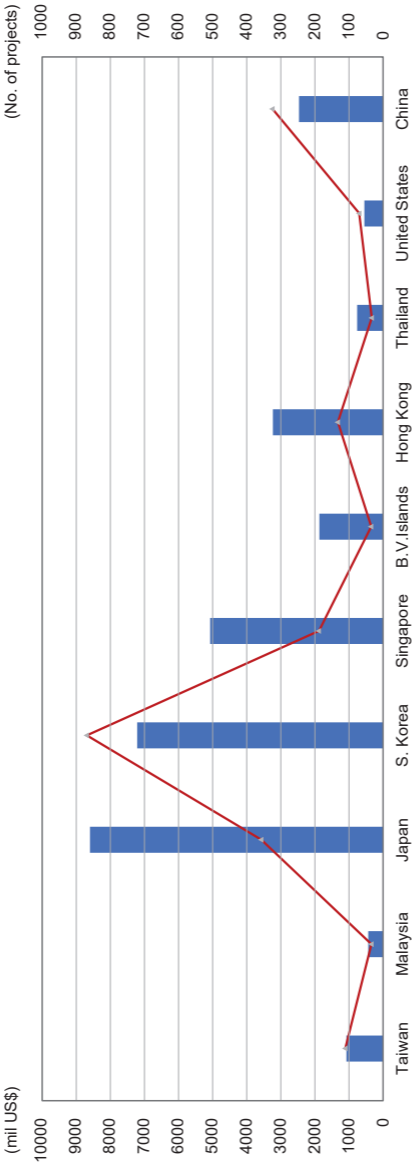
ARCADIS VIETNAM CO., LTD

(bn US\$)



Year	'00	'01	'02	'03	'04	'05	'06	'07	'08	'09	'10	'11	'12	'13	'14	'15	'16	'17	'18	
Registered Capital (bn US\$)	2.84	3.14	3.00	3.19	4.55	6.84	12.00	21.30	71.73	22.63	18.60	12.70	12.18	20.82	20.23	22.76	24.37	24.37	35.88	35.47
Legal Capital (bn US\$)	1.31	1.71	1.27	1.14	1.22	1.97	4.67	6.04	11.50	10.00	11.00	10.05	10.00	10.55	12.35	14.50	15.80	17.50	19.10	19.10
No. of Projects	391	555	808	791	811	970	987	1544	1557	1155	969	919	980	1175	1588	2013	2556	2591	3046	3046

FDI BY COUNTRIES



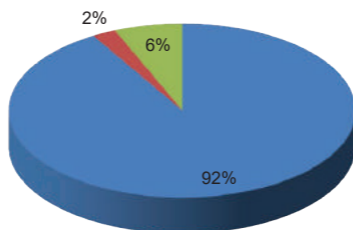
Country	Taiwan	Malaysia	Japan	S. Korea	Singapore	B.V. Islands	Hong Kong	Thailand	United States	China
Registered Capital (mil US\$)	1,006.54	364.80	7,991.95	6,885.29	4,162.81	1,843.41	1,727.69	739.97	487.28	1,810.26
No. of Projects	116.00	37.00	385.00	953.00	199.00	39.00	137.00	34.00	74.00	335.00

1 CONSTRUCTION COST DATA

FDI BY SECTORS

Registered Capital (mn US\$)

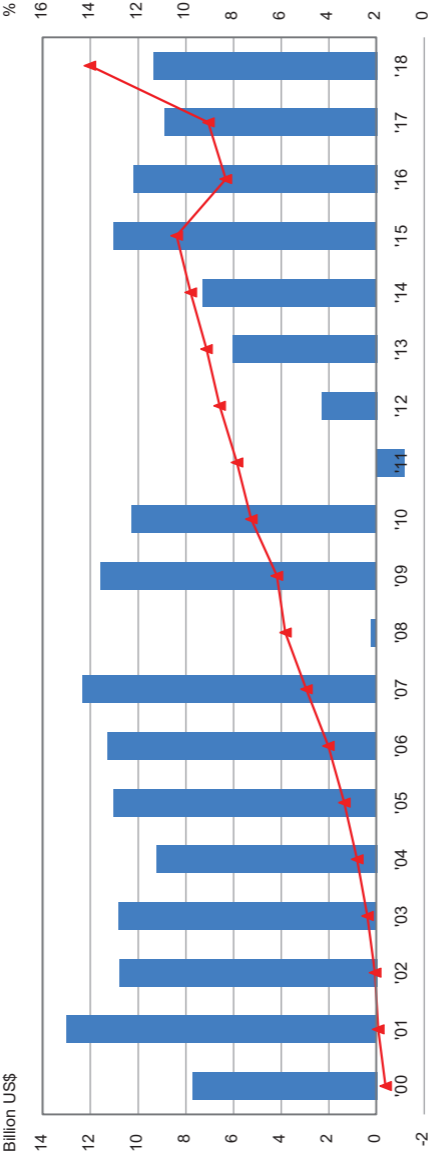
■ Industry and construction ■ Agriculture & Forestry & Aquaculture ■ Service



	Sector	No. of projects	Registered Capital (mn US\$)
1	Industry and construction	2,401	31,111
	Manufacturing	1,065	16,588
	Property	92	6,615
	Accommodation	102	579
	Construction	114	1,183
	Mining	2	25
	Electricity, gas and water production and distribution	19	1,628
	Information and Communication	243	561
	Wholesale & Retail; Repair	757	3,673
	Water supply & Waste treatment	7	259
2	Agriculture & Forestry & Aquaculture	11	141
3	Service	634	4,214
	Art & Entertainment	7	1,134
	Logistics	73	406
	Finance, Banking & Insurance	5	82
	Health care & Social welfare	7	133
	Science & Technology	386	2,147
	Education and Training	70	91
	Administration & Supporting services	77	214
	Others	9	7.77
4	Total	3,046	35,466

(Source: Vietnam Investment Review)

CONSTRUCTION VALUE



Year	'00	'01	'02	'03	'04	'05	'06	'07	'08	'09	'10	'11	'12	'13	'14	'15	'16	'17	'18
Construction, Real Growth	7.51	12.78	10.57	10.59	9.03	10.80	11.05	12.10	0.02	11.36	10.06	(0.97)	2.09	5.83	7.07	10.82	10.00	8.70	9.16
Construction Value	1.63	1.94	2.07	2.39	2.82	3.36	4.03	4.95	5.83	6.19	7.26	7.86	8.59	9.14	9.80	10.39	8.33	12.62	14.03

MAJOR RATES FOR SELECTED ASIAN CITIES

DESCRIPTION	UNIT	HO CHI MINH ^	INDIA *	HONG KONG	MACAU
		VND	INR	HK\$	MOP
1. Excavating basement ≤ 2m deep	m ³	92,400	199	200	150
2. Excavating for footings ≤ 1.5m deep	m ³	92,400	225	180	180
3. Remove excavated materials off site	m ³	84,700	N/A	300 #	150
4. Hardcore bed blinded with fine materials	m ³	280,900	4,620	950	1,200
5. Mass concrete grade 15	m ³	1,696,400	6,248	1,100	1,350
6. Reinforced concrete grade 30	m ³	1,865,650	7,822	1,200	1,250
7. Mild steel rod reinforcement	kg	19,764	70	9.70	9.00
8. High tensile rod reinforcement	kg	19,908	72	9.70	9.00
9. Sawn formwork to soffits of suspended slabs	m ²	215,000	708	410	280
10. Sawn formwork to columns and walls	m ²	245,000	761	410	280
11. 112.5mm thick brick walls	m ²	312,780	1,155	400	450

12. "Kliplok Colorbond" 0.64mm profiled steel sheeting	m ²	401,110 - 597,600	1,785	1,000	N/A
13. Aluminium casement windows, single glazed	m ²	6,315,000	6,300	3,800	4,000
14. Structural steelwork - beams, stanchions and the like	kg	52,650	126	36	35
15. Steelwork - angles, channels, flats and the like	kg	52,650	126	42	40
16. 25mm cement and sand (1:3) paving	m ²	94,000	498	160	120
17. 20mm cement and sand (1:4) plaster to walls	m ²	144,000	409	165	150
18. Ceramic tiles bedded to floor screed (m/s)	m ²	674,180	1,785	400	450
19. 12mm fibrous plasterboard ceiling lining	m ²	234,000	1,417	600	650
20. Two coats of emulsion paint to plastered surfaces	m ²	88,900	252	90	200
Average expected preliminaries	%	8 - 12	9 - 13	10 - 15	10

The above costs are based on lump sum fixed price contract rate exclusive of preliminaries and contingencies unless otherwise stated.

^ Rates are nett of VAT.

* Rates are supply & fix based on projects in Bangalore and are nett of GST. Mumbai costs are generally 8% higher.

Rate including dumping charges.

(Cont'd)

MAJOR RATES FOR SELECTED ASIAN CITIES

DESCRIPTION	UNIT	KUALA LUMPUR	BANGKOK*	JAKARTA*	MANILA	SINGAPORE®
		RM	BAHT	IDR'000	PHP	S\$
1. Excavating basement ≤ 2m deep	m ³	15 - 25	120 - 140	40	270	20
2. Excavating for footings ≤ 1.5m deep	m ³	15 - 25	140 - 180	75	500	20
3. Remove excavated materials off site	m ³	20 - 30	120 - 150	35	350	15 - 20
4. Hardcore bed blinded with fine materials	m ³	72 - 95	650 - 750	650	1,800	50
5. Mass concrete grade 15	m ³	240 - 315	2,300 - 2,500	950	3,400	175 - 185 +
6. Reinforced concrete grade 30	m ³	260 - 320	2,600 - 2,800	1,135	4,800	115 - 120
7. Mild steel rod reinforcement	kg	3.40 - 3.80	26 - 29	12.5	54	1.25 - 1.35
8. High tensile rod reinforcement	kg	3.40 - 3.80	26 - 28	12.5	55	1.25 - 1.35
9. Sawn formwork to soffits of suspended slabs	m ²	38 - 45	420 - 480	200	1,000	40
10. Sawn formwork to columns and walls	m ²	38 - 45	420 - 480	195	950	40
11. 112.5mm thick brick walls	m ²	42 - 50	650 - 750	250	N/A	35 - 40

12. "Kliplok Colorbond" 0.64mm profiled steel sheeting	m ²	65 - 70	1,200	300	1,400	43
13. Aluminium casement windows, single glazed	m ²	380 - 600	7,000	1,650	11,500 #	290
14. Structural steelwork - beams, stanchions and the like	kg	7.50 - 9.50	60 - 75	27	160	4.00 - 4.50
15. Steelwork - angles, channels, flats and the like	kg	7.50 - 9.50	60 - 75	27	160	4.00 - 4.50
16. 25mm cement and sand (1:3) paving	m ²	17 - 25	200 - 240	90	650	21
17. 20mm cement and sand (1:4) plaster to walls	m ²	18 - 25	220 - 260	100	700	22
18. Ceramic tiles bedded to floor screed (m/s)	m ²	50 - 70	1,200	200	1,800	74
19. 12mm fibrous plasterboard ceiling lining	m ²	35 - 45	750 - 850	215 \$	1,400	30
20. Two coats of emulsion paint to plastered surfaces	m ²	3.50 - 5.00	120 - 160	30	500	3.50 - 4.00
Average expected preliminaries	%	6 - 15	12 - 18	8 - 10	12 - 18	12 - 15

The above costs are based on lump sum fixed price contract rate exclusive of preliminaries and contingencies unless otherwise stated.

* Rates are nett of VAT.

@ Rates are nett of GST.

\$ 9mm gypsum board.

+ Rate for lean concrete blinding.

Aluminium with anodized finish; 6mm thick.

(Cont'd)

MAJOR RATES FOR SELECTED ASIAN CITIES

DESCRIPTION	UNIT	BEIJING		SHANGHAI		SHENZHEN/ GUANGZHOU		CHONGQING/ CHENGDU	
		RMB	RMB	RMB	RMB	RMB	RMB	RMB	RMB
1. Excavating basement ≤ 2m deep	m ³	30	30	30	30	30	30	30	30
2. Excavating for footings ≤ 1.5m deep	m ³	33	30	30	30	30	30	26	26
3. Remove excavated materials off site	m ³	60	135	135	135	105	105	95	95
4. Hardcore bed blinded with fine materials	m ³	180	190	190	190	190	190	170	170
5. Mass concrete grade 15	m ³	530	540	540	540	540	540	420	420
6. Reinforced concrete grade 30	m ³	550	570	570	570	580	580	550	550
7. Mild steel rod reinforcement	kg	5.60	5.80	5.80	5.80	6.00	6.00	5.30	5.30
8. High tensile rod reinforcement	kg	5.60	5.80	5.80	5.80	6.00	6.00	5.30	5.30
9. Sawn formwork to soffits of suspended slabs	m ²	90	90	90	90	90	90	65	65
10. Sawn formwork to columns and walls	m ²	85	90	90	90	85	85	60	60
11. 112.5mm thick brick walls	m ²	80	90 *	90 *	90 *	80	80	80	80

12. "Kliplok Colorbond" 0.64mm profiled steel sheeting	m ²	N/A	N/A	N/A	N/A	N/A
13. Aluminium casement windows, single glazed	m ²	815 +	700	700	700	650 +
14. Structural steelwork - beams, stanchions and the like	kg	11	11	12.50	12.50	11.00
15. Steelwork - angles, channels, flats and the like	kg	9.50	9.50	11.50	11.50	11.10
16. 25mm cement and sand (1:3) paving	m ²	32	35	35	35	25
17. 20mm cement and sand (1:4) plaster to walls	m ²	32	35	30	30	35
18. Ceramic tiles bedded to floor screed (m/s)	m ²	145	160	160	155	130
19. 12mm fibrous plasterboard ceiling lining	m ²	162	150	150	190	150
20. Two coats of emulsion paint to plastered surfaces	m ²	32	40	40	35	35
Average expected preliminaries	%	7 - 10	5 - 10	5 - 10	5 - 12	6 - 12

The above costs are based on lump sum fixed price contract rate exclusive of preliminaries and contingencies unless otherwise stated.

* Rate for 120mm thick concrete block walls.

+ Rate for double glazed window.

CONSTRUCTION COST SPECIFICATION

	BUILDING	OUTLINE SPECIFICATION
DOMESTIC	Apartments, high rise, average standard	Apartment units with fit-out, including air-conditioning, kitchen cabinets and home appliances, but excluding decorative light fittings and loose furniture
	Apartments, high rise, high end	Apartment units with good quality fit-out, including air-conditioning, kitchen cabinets and home appliances, but excluding decorative light fittings and loose furniture
	Terraced houses, average standard	Houses with fit-out, including air-conditioning, kitchen cabinets and home appliances, but excluding decorative light fittings, loose furniture, garden and parking
	Detached houses, high end	Houses with good quality fit-out, including air-conditioning, kitchen cabinets and home appliances, but excluding decorative light fittings, loose furniture, garden and parking
OFFICE / COMMERCIAL	Medium/high rise offices, average standard	RC structure, curtain wall, including public area fit-out, tenant area with raised floor/carpet, painted wall and false ceiling
	High rise offices, prestige quality	
	Out-of-town shopping centre, average standard	Including public area fit-out and M&E, but excluding shop fit-out
	Retail malls, high end	
INDUSTRIAL	Industrial units, shell only (Conventional single storey framed units)	RC structure with steel roof and M&E to main distribution, but excluding a/c, heating and lighting
	Owner operated factories, low rise, light weight industry	RC structure, including small office with simple fit-out and M&E, but excluding a/c and heating
HOTELS	Budget hotels - 3-star, mid market	1) Interior decoration
	Business hotels - 4/5-star	2) Furniture (fixed and movable)
	Luxury hotels - 5-star	3) Special light fittings (chandeliers, etc.) 4) Operating Supplies and Equipment (OS&E) excluded

OTHERS	Underground/basement car parks (<3 levels)	RC structure
	Multi storey car parks, above ground (<4 levels)	RC structure, natural ventilation, no facade enclosure
	Schools (primary and secondary)	Including fit-out and a/c, but excluding educational equipment
	Students' residences	Including fit-out, loose furniture and a/c
	Sports clubs, multi purpose sports/leisure centres (dry sports)	Dry sports (no swimming pool) and are for 'leisure centre' type schemes including main sports hall, ancillary sports facilities, changing and showers, restaurant / cafe, bar, etc. Costs include a/c, Furniture, Fittings and Equipment (FF&E).
	General hospitals - public sector	Excluding medical and operating equipment

Notes:

1. The costs for the respective categories given above are averages based on fixed price competitive tenders. It must be understood that the actual cost of a building will depend upon the design and many other factors and may vary from the figures shown.
2. The costs per square metre are based on **Construction Floor Areas (CFA)** measured to the outside face of the external walls / external perimeter including lift shafts, stairwells, balconies, plant rooms, water tanks and the like.
3. All buildings are assumed to have no basements (except otherwise stated) and are built on flat ground, with normal soil and site condition.
The cost excludes site formation works, external works, land cost, professional fees, finance and legal expenses.
4. The standard for each category of building varies from region to region and do not necessarily follow that of each other.
5. All costs are in US\$/m² CFA. Fluctuation in exchange rates may lead to changes in construction costs expressed in U.S. dollars.

CONSTRUCTION COSTS FOR SELECTED ASIAN CITIES

BUILDING TYPE	US\$/m ² CFA			
	HO CHI MINH #	INDIA *	HONGKONG ^	MACAU \$
<u>DOMESTIC</u> Apartments, high rise, average standard Apartments, high rise, high end Terraced houses, average standard Detached houses, high end	645 - 800 820 - 940 435 - 510 495 - 605	576 - 660 869 - 1,047 398 - 419 525 - 550	3,060 - 3,570 4,020 - 4,690 4,130 - 4,860 6,140 up	2,279 - 2,788 3,183 - 4,864 3,884 - 4,635 4,737 - 6,163
<u>OFFICE / COMMERCIAL</u> Medium/high rise offices, average standard High rise offices, prestige quality Out-of-town shopping centre, average standard Retail malls, high end	755 - 875 870 - 1,185 N/A 705 - 920	435 - 471 544 - 576 424 - 461 592 - 639	2,990 - 3,500 3,630 - 4,260 2,970 - 3,540 3,950 - 4,720	2,623 - 3,387 3,387 - 3,705 2,470 - 3,705 3,884 - 4,686
<u>HOTELS</u> Budget hotels - 3 star, mid market Business hotels - 4/5 star Luxury hotels - 5 star	1,400 - 1,710 N/A 1,765 - 2,120	817 - 905 1,272 - 1,508 1,607 - 1,759	3,840 - 4,160 4,020 - 4,720 4,720 - 5,460	3,451 - 3,909 4,686 - 5,602 5,602 - 6,621

INDUSTRIAL Industrial units, shell only. (Conventional single storey framed units). Owner operated factories, low rise, light weight industry	310 - 390	340 - 398	N/A	N/A
	350 - 460	361 - 424	2,330 - 2,950	N/A
OTHERS Underground/basement car parks (<3 levels) Multi storey car parks, above ground (<4 levels) Schools (primary & secondary) Students' residences Sports clubs, multi purpose sports/leisure centres (dry sports) General hospitals - public sector	640 - 765	288 - 309	3,200 - 3,840	2,050 - 3,005
	410 - 450	230 - 252	1,920 - 2,280	1,133 - 1,490
	540 - 590	285 - 324	2,520 - 2,710	2,266 - 2,623
	540 - 695	309 - 340	2,930 - 3,310	1,795 - 2,088
	800 - 855	602 - 628	3,820 - 4,450	N/A
	N/A	660 - 723	4,950 - 5,580	N/A
Exchange Rate Used : US\$1 =	VND 22,600	INR 71.90	HK\$ 7.82	MOP 8.07

The above costs are at **4th Quarter 2018** levels, inclusive of preliminaries but exclusive of contingencies.

Rates are nett of VAT and contingencies.

* Rates are based on projects in Bangalore and are nett of GST. Mumbai costs are generally 8% higher.

^ Rates are exclusive of contingencies. Offices of average standard are built to the following provisions:

(i) Curtain wall/window wall facade. (ii) Tenant are with screeded floor, painted wall and ceiling.

Schools (primary and secondary) are of public authority standard, no a/c and complete with basic external works.

\$ Rates are exclusive of contingencies and any management contract fee.

(Cont'd)

CONSTRUCTION COSTS FOR SELECTED ASIAN CITIES

BUILDING TYPE	US\$/m ² CFA				
	KUALA LUMPUR	BANGKOK *	JAKARTA #	MANILA @	SINGAPORE ^
<u>DOMESTIC</u> Apartments, high rise, average standard Apartments, high rise, high end Terraced houses, average standard Detached houses, high end	345 - 580	703 - 871	722 - 817	937 - 1,135	1,305 - 1,485
	710 - 1,120	978 - 1,207	996 - 1,124	1,265 - 2,107	2,030 - 3,045
	220 - 345	458 - 565	383 - 498	762 - 917	1,705 - 1,920
	740 - 980	794 - 962	1,042 - 1,165	1,631 - 2,724	2,175 - 2,900
<u>OFFICE / COMMERCIAL</u> Medium/high rise offices, average standard High rise offices, prestige quality Out-of-town shopping centre, average standard Retail malls, high end	575 - 745	642 - 794	712 - 789	933 - 1,076	1,705 - 1,920 +
	865 - 1,255	871 - 1,176	1,050 - 1,174	1,264 - 1,390	1,920 - 2,100 +
	550 - 715	626 - 810	611 - 675	762 - 935	1,920 - 2,030
	680 - 1,000	840 - 886	675 - 730	1,093 - 1,508	2,030 - 2,245
	1,020 - 1,395	1,146 - 1,268	1,237 - 1,461	1,195 - 1,312	2,140 - 2,355
<u>HOTELS</u> Budget hotels - 3 star, mid market Business hotels - 4/5 star Luxury hotels - 5 star	1,720 - 2,175	1,466 - 1,680	1,691 - 1,827	1,347 - 1,607	2,755 - 3,115
	1,940 - 2,435	1,711 - 1,986	1,801 - 2,030	1,851 - 2,524	2,755 - 3,115

INDUSTRIAL Industrial units, shell only. (Conventional single storey framed units). Owner operated factories, low rise, light weight industry	320 - 430 430 - 520	489 - 611 N/A	327 - 356 355 - 392	485 - 538 685 - 789	725 - 930 N/A
OTHERS Underground/basement car parks (<3 levels) Multi storey car parks, above ground (<4 levels) Schools (primary & secondary) Students' residences Sports clubs, multi purpose sports/leisure centres (dry sports) General hospitals - public sector	310 - 530 220 - 345 250 - 305 295 - 360 595 - 730 855 - 1,155	550 - 733 183 - 299 N/A N/A N/A N/A	505 - 619 327 - 356 N/A N/A 1,095 - 1,640 N/A	494 - 610 475 - 661 701 - 952 742 - 937 1,186 - 1,699 1,287 - 1,523	930 - 1,255 640 - 930 ++ N/A 1,560 - 1,705 1,955 - 2,100 2,755 - 2,900
Exchange Rate Used : US\$1 =	RM 4.18	BAHT 32.73	IDR 15,180	PHP 52.88	S\$ 1.38

The above costs are at **4th Quarter 2018** levels, inclusive of preliminaries but exclusive of contingencies.

* Rates exclude VAT and contingencies.

Rates are nett of VAT.

@ Rates are exclusive of contingencies & include 12% VAT.

^ Rates are nett of GST and exclusive of contingencies.

+ Includes raised floor and ceiling to tenanted areas but excludes office carpets (normally under tenant's fit-out)

++ Open all sides with parapet.

(Cont'd)

CONSTRUCTION COSTS FOR SELECTED ASIAN CITIES

BUILDING TYPE	US\$/m ² CFA			
	BEIJING*	SHANGHAI*	SHENZHEN/ GUANGZHOU*	CHONGQING/ CHENGDU*
<u>DOMESTIC</u>				
Apartments, high rise, average standard	613 - 673	668 - 740	534 - 590	552 - 661
Apartments, high rise, high end	1,484 - 1,690	1,554 - 1,697	874 - 958	907 - 1,149
Terraced houses, average standard	447 - 522	446 - 477	405 - 446	445 - 541
Detached houses, high end	673 - 749	666 - 740	553 - 609	591 - 682
<u>OFFICE / COMMERCIAL</u>				
Medium/high rise offices, average standard	857 - 1,154	868 - 1,156	777 - 860	882 - 1,025
High rise offices, prestige quality	1,154 - 1,895	1,158 - 1,445	1,132 - 1,361	1,122 - 1,520
Out-of-town shopping centre, average standard	653 - 873	N/A	749 - 822	706 - 912
Retail malls, high end	1,181 - 1,626	1,228 - 1,585	1,088 - 1,521	1,067 - 1,505
<u>HOTELS</u>				
Budget hotels - 3 star, mid market	966 - 1,191	952 - 1,169	985 - 1,084	958 - 1,189
Business hotels - 4/5 star	1,615 - 2,132	1,556 - 2,120	1,592 - 2,273	1,747 - 2,188
Luxury hotels - 5 star	2,057 - 2,646	2,117 - 2,538	2,165 - 2,386	2,159 - 2,592

INDUSTRIAL Industrial units, shell only. (Conventional single storey framed units). Owner operated factories, low rise, light weight industry	270 - 329	280 - 342	497 - 547	426 - 542
	522 - 598	432 - 540	N/A	N/A
OTHERS Underground/basement car parks (<3 levels) Multi storey car parks, above ground (<4 levels) Schools (primary & secondary) Students' residences Sports clubs, multi purpose sports/leisure centres (dry sports) General hospitals - public sector	746 - 820	742 - 1,033	513 - 820	413 - 589
	449 - 454	382 - 532	367 - 404	324 - 405
	520 - 671	528 - 676	407 - 448	438 - 487
	368 - 520	377 - 527	264 - 297	N/A
	890 - 897	955 - 1,172	754 - 832	N/A
	1,170 - 1,465	1,418 - 1,839	N/A	N/A
Exchange Rate Used : US\$1 =	RMB 6.94	RMB 6.94	RMB 6.94	RMB 6.94

The above costs are at **4th Quarter 2018** levels, inclusive of preliminaries but exclusive of contingencies.

* Rates are exclusive of contingencies. Houses are built to shell and core standard only, where all tenant or occupant areas are unfurnished. Schools (primary and secondary) are of public authority standard, no a/c and complete with basic external works.

M&E COSTS FOR SELECTED ASIAN CITIES

BUILDING TYPE	HO CHI MINH	INDIA #	HONGKONG	MACAU
	VND('000)/m ²	INR/m ²	HK\$/m ²	MOP/m ²
<u>MECHANICAL SERVICES</u> Offices Industrial * Hotels Shopping Centres Apartments	2,036 - 2,902	4,800 - 6,805	1,900 - 2,700	N/A
	N/A	2,210 - 3,925	160 - 260	N/A
	N/A	5,880 - 6,420	2,100 - 2,650	2,640 - 3,050
	N/A	4,585 - 6,005	2,200 - 2,750	2,400 - 3,000
	1,537 - 2,106	2,620 - 3,245	850 - 2,000 up	900 - 1,200
<u>ELECTRICAL SERVICES</u> Offices Industrial ** Hotels Shopping Centres Apartments	2,275 - 2,723	4,250 - 5,840	1,750 - 2,450	N/A
	N/A	2,500 - 4,150	620 - 860	N/A
	N/A	4,710 - 6,425	1,900 - 2,600	2,640 - 3,150
	N/A	4,050 - 5,420	1,800 - 2,450	2,640 - 3,000
	2,006 - 2,534	2,040 - 2,805	1,100 - 2,100 up	1,020 - 1,320
<u>HYDRAULIC SERVICES</u> Offices Industrial	332 - 621	740 - 1,130	700 - 900	N/A
	N/A	510 - 890	500 - 700	N/A

Hotels	N/A	3,868 - 5,825	2,000 - 3,000	1,830 - 2,240
Shopping Centres	N/A	1,100 - 1,990	700 - 900	610 - 810
Apartments	647 - 752	1,745 - 2,410	1,400 - 2,200	1,520 - 2,030
<u>FIRE SERVICES</u>				
Offices	704 - 1,167	1,185 - 1,545	550 - 700	N/A
Industrial	N/A	540 - 745	400 - 500	N/A
Hotels	N/A	1,375 - 1,760	600 - 850	910 - 1,120
Shopping Centres	N/A	1,130 - 1,310	550 - 700	610 - 810
Apartments	483 - 606	630 - 750	100 - 600	250 - 300
<u>LIFTS / ESCALATORS</u>				
Offices	670 - 1,279	985 - 1,250	700 - 1,200	N/A
Industrial	N/A	640 - 825	550 - 750	N/A
Hotels	N/A	1,430 - 2,085	550 - 850	610 - 810
Shopping Centres	1,364 - 1,931	1,675 - 2,145	850 - 1,000	460 - 710
Apartments	761 - 1,101	890 - 1,150	450 - 850	460 - 610

The above costs are at **4th Quarter 2018** levels, exclusive of contingencies unless otherwise stated.

* Generally without air condition.

** Excludes special power supply.

Rates are based on projects in Bangalore and are nett of GST. Mumbai costs are generally 8% higher.

(Cont'd)

M&E COSTS FOR SELECTED ASIAN CITIES

BUILDING TYPE	KUALA LUMPUR	BANGKOK @	JAKARTA #	MANILA \$	SINGAPORE ^
	RM/m ²	BAHT/m ²	IDR'000/m ²	PHP/m ²	S\$/m ²
<u>MECHANICAL SERVICES</u> Offices Industrial * Hotels Shopping Centres Apartment	320 - 490	4,400 - 4,800	1,028 - 1,183	4,000 - 5,930	153 - 249
	85 - 190	1,550 - 1,600	466 - 744	800 - 1,500	34 - 117
	300 - 590	4,600 - 5,100	1,022 - 1,210	3,500 - 9,670	129 - 278
	300 - 475	4,600 - 4,800	905 - 1,087	2,890 - 6,840	147 - 246
	120 - 210	4,300 - 4,500	915 - 1,001	1,360 - 4,430	90 - 170
<u>ELECTRICAL SERVICES</u> Offices Industrial ** Hotels Shopping Centres Apartment	290 - 460	3,400 - 3,800	830 - 1,060	3,700 - 7,000	158 - 258
	145 - 190	1,950 - 2,200	589 - 833	2,000 - 3,500	55 - 136
	295 - 550	3,800 - 4,500	835 - 937	4,700 - 12,000	181 - 356
	295 - 460	2,800 - 3,200	723 - 910	3,600 - 6,000	160 - 304
	105 - 210	2,800 - 3,350	878 - 1,049	3,600 - 6,800	97 - 213
<u>HYDRAULIC SERVICES</u> Offices Industrial	35 - 65	780 - 900	209 - 294	1,230 - 2,200	26 - 55
	40 - 50	750 - 790	139 - 214	800 - 1,300	18 - 36

Hotels	175 - 270	1,400 - 1,650	835 - 1,054	2,250 - 6,820	91 - 172
Shopping Centres	30 - 35	790 - 950	198 - 305	1,220 - 1,600	46 - 80
Apartment	50 - 100	1,200 - 1,400	889 - 1,124	2,250 - 3,600	72 - 146
<u>FIRE SERVICES</u>					
Offices	60 - 80	780 - 850	284 - 375	950 - 1,560	33 - 56
Industrial	45 - 65	730 - 750	150 - 214	800 - 2,000	23 - 51
Hotels	65 - 90	780 - 890	284 - 332	1,100 - 2,030	28 - 57
Shopping Centres	55 - 80	780 - 820	278 - 326	1,090 - 1,730	37 - 56
Apartment	15 - 30	720 - 850	294 - 343	900 - 1,300	25 - 43
<u>LIFTS/ESCALATORS</u>					
Offices	125 - 350	1,100 - 1,350	444 - 1,065	1,600 - 4,620	63 - 162
Industrial	55 - 180	N/A	N/A	0 - 400	41 - 104
Hotels	100 - 285	1,100 - 1,400	434 - 707	1,800 - 3,400	49 - 108
Shopping Centres	95 - 120	250 - 450	326 - 878	1,600 - 2,680	56 - 90
Apartment	65 - 110	500 - 580	434 - 798	850 - 3,440	41 - 100

The above costs are at **4th Quarter 2018** levels, exclusive of contingencies unless otherwise stated.

- * Generally without air condition.
- ** Excludes special power supply.
- @ Based upon nett enclosed area and nett of VAT.
- # All rates are nett of VAT. Rates for Electrical Services are excluding genset. Rates for Hydraulic Services are excluding STP. Rates for Mechanical Services refers to ACMV Rates only.
- \$ Transformer included in Electrical Services.
- ^ Rates are nett of GST and excluding BAS.

(Cont'd)

M&E COSTS FOR SELECTED ASIAN CITIES

BUILDING TYPE	BEIJING	SHANGHAI	SHENZHEN/ GUANGZHOU	CHONGQING/ CHENGDU
	RMB/m ²	RMB/m ²	RMB/m ²	RMB/m ²
<u>MECHANICAL SERVICES</u> Offices Industrial * Hotels Shopping Centres Apartments	775 - 1,071	790 - 1,005	775 - 1,070	730 - 990
	170 - 280	176 - 295	155 - 285	140 - 230
	950 - 1,224	1,010 - 1,316	1,080 - 1,350	930 - 1,280
	806 - 970	1,070 - 1,125	715 - 910	890 - 1,010
	143 - 459	320 - 423	152 - 410	150 - 300
<u>ELECTRICAL SERVICES</u> Offices Industrial ** Hotels Shopping Centres Apartments	470 - 717	620 - 700	540 - 795	450 - 660
	326 - 459	311 - 440	320 - 459	260 - 360
	719 - 962	677 - 864	715 - 1,020	580 - 830
	490 - 690	540 - 677	500 - 690	510 - 660
	258 - 406	262 - 383	285 - 500	230 - 340
<u>HYDRAULIC SERVICES</u> Offices Industrial	97 - 143	112 - 166	128 - 184	85 - 120
	97 - 143	89 - 131	89 - 124	85 - 120

Hotels	377 - 490	375 - 498	390 - 500	330 - 450
Shopping Centres	143 - 204	140 - 188	114 - 168	100 - 150
Apartments	173 - 234	171 - 231	150 - 280	100 - 180
<u>FIRE SERVICES</u>				
Offices	184 - 270	232 - 325	230 - 350	240 - 290
Industrial	153 - 230	160 - 268	143 - 272	130 - 230
Hotels	224 - 383	294 - 397	285 - 425	250 - 350
Shopping Centres	224 - 383	263 - 391	248 - 383	250 - 370
Apartments	71 - 138	56 - 105	72 - 152	60 - 110
<u>LIFTS / ESCALATORS</u>				
Offices	294 - 577	288 - 567	295 - 517	300 - 550
Industrial	145 - 400	139 - 402	150 - 440	150 - 350
Hotels	232 - 520	226 - 510	250 - 480	250 - 430
Shopping Centres	327 - 520	335 - 510	325 - 470	290 - 440
Apartments	175 - 289	170 - 300	130 - 500	140 - 240

The above costs are at **4th Quarter 2018** levels, exclusive of contingencies unless otherwise stated.

* Generally without air condition.

** Excludes special power supply.

UTILITY COSTS FOR SELECTED ASIAN CITIES

ARCADIS VIETNAM CO., LTD

COUNTRY	EXCHANGE RATE	ELECTRICITY (US\$/kwh)		WATER (US\$/m ³)		FUEL (US\$/litre)	
		DOMESTIC	COMMERCIAL / INDUSTRIAL	DOMESTIC	COMMERCIAL / INDUSTRIAL	DIESEL	LEADED UNLEADED
HO CHI MINH CITY							
All rates are VAT inclusive	VND 22,600	0.11	0.1 / 0.06	0.24	0.75 / 0.43	0.82	N/A 0.92
HONG KONG	HK\$ 7.82	0.11	0.13	0.83	0.59	1.83	N/A 2.21
ELECTRICITY (Domestic/ month): 0 - 400 kWh = US\$0.11; 400 - 1,000kWh = US\$0.12; 1,000 - 1,800kWh = US\$0.14; 1,800 - 2,600kWh = US\$0.18; 2,600 - 3,400 kWh = US\$0.21 3,400 - 4,200 kWh = US\$0.23; Above 4,200 kWh = US\$0.23 (Based on tariff scheme of CLP Holding Limited and is charged on bi-monthly consumption)							
WATER (Domestic): 0 - 12m ³ = F.O.C; 12 - 43m ³ = US\$0.54; 43 - 62m ³ = US\$0.83/m ³ ; Above 62m ³ = US\$1.17/m ³							
MACAU	MOP 8.07	0.17	0.17	0.56 - 0.90	0.75	1.7	N/A 1.45
ELECTRICITY: Electricity tariff are composition of demand charges, consumption charges, fuel clause adjustment and government tax							
WATER (Domestic): Consumption charge: US\$0.56/m ³ for 28m ³ or below, US\$0.64/m ³ for 29m ³ to 60m ³ , US\$0.75/m ³ for 61m ³ to 79m ³ and US\$0.90/m ³ for 80m ³ or above							
WATER (Commercial/ Industrial): Charges for ordinary users (e.g. Business, government buildings, schools, associations, hospitals and others) only. Special users (e.g. gaming industries, hotels, saunas, golf courses, construction, public infrastructures and other temporary consumption) are excluded.							
SHANGHAI	RMB 6.94	0.089 (peak) 0.044 (normal)	0.157 (peak) 0.075 (normal)	0.497 - 0.840	0.68	1.16	N/A 1.22
ELECTRICITY (Domestic): 0 - 3,120 kWh = US\$0.089 (peak)/ US\$0.044 (normal); 3,120 - 4,800kWh = US\$0.098 (peak)/ US\$0.049 (normal); Above 4,800kWh = US\$0.141 (peak)/ US\$0.070 (normal); Charged on yearly consumption.							
ELECTRICITY (Commercial/ Industrial): Charges on consumption less than 1,000kWh per month for summer period only. Refer to www.shdrc.gov.cn for detailed charges for different tiers and charges for non-summer period. Charged on yearly consumption.							

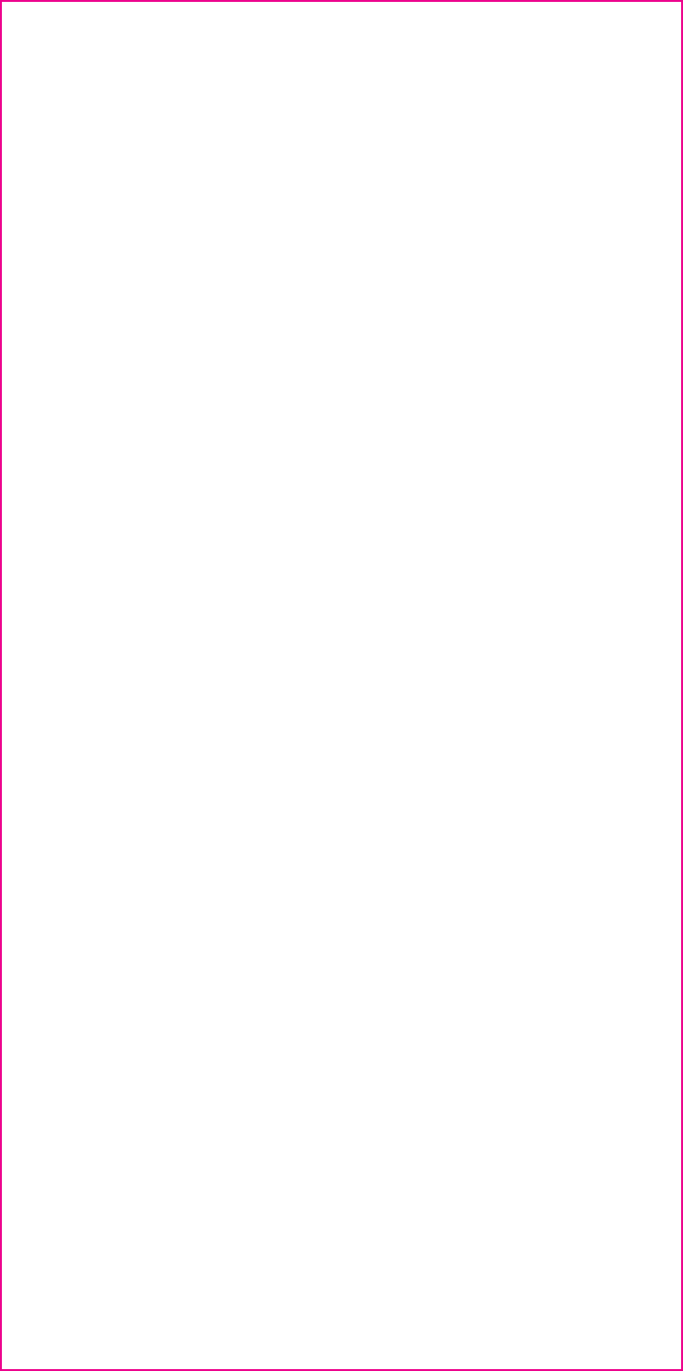
WATER (Domestic): 0 - 220m ³ = US\$0.497/m ³ ; 220 - 300m ³ = US\$0.696/m ³ ; Above 300m ³ = US\$0.840/m ³						
UNLEADED FUEL: Unleaded 95#						
BEIJING	RMB 6.94	0.071 - 0.113	0.219 - 0.221 (Peak) 0.124 ~ 0.126 (normal)	0.721 - 1.296	1.296 - 1.368	1.1 N/A 1.22
ELECTRICITY (Domestic/ month): 1 - 240 kWh = US\$0.071; 241 - 400 kWh = US\$0.078; 400 kWh above = US\$0.113						
ELECTRICITY (Commercial/ Industrial): Central Districts: Peak = US\$0.221, Normal = US\$0.126; Other Districts: Peak = US\$0.219, Normal = US\$0.124						
WATER (Domestic/ year): 1 - 180m ³ = US\$0.721; 181 - 260m ³ = US\$1.008; 261m ³ above = US\$1.296						
WATER (Commercial/ Industrial): Central Districts: US\$1.368; Other Districts = US\$1.296						
GUANGZHOU	RMB 6.94	0.085 - 0.128	0.089 - 0.124	0.285 - 0.571	0.5	0.97 N/A 1.12
UNLEADED FUEL: Unleaded gasoline 97						
CHONGQING	RMB 6.94	0.08	0.11	0.61	0.85	1.22 N/A 1.28
UNLEADED FUEL: Unleaded 93# = US\$0.93/litre; Unleaded 97# = US\$0.98/litre						
SINGAPORE	S\$ 1.38	0.17	0.17	1.99 2.67	1.99	1.34 N/A 1.94
All rates are nett of GST						
ELECTRICITY: Tariff is based on low tension power supply						
WATER (Domestic): Effective from 1 July 2018. Rate includes water conservation tax, water-borne fee, sanitary appliance fee and is an average for ≤40m ³						
WATER (Commercial / Industrial): Effective from 1 July 2018. Rate includes water conservation tax, water-borne fee, sanitary appliance fee and is an average for > 40m ³						
FUEL (Diesel): As at 2 November 2018						
UNLEADED FUEL: 98 Unleaded petrol as at 2 November 2018						

UTILITY COSTS FOR SELECTED ASIAN CITIES

ARCADIS VIETNAM CO., LTD

COUNTRY	EXCHANGE RATE	ELECTRICITY (US\$/kwh)		WATER (US\$/m ³)		FUEL (US\$/litre)		
		DOMESTIC	COMMERCIAL / INDUSTRIAL	DOMESTIC	COMMERCIAL / INDUSTRIAL	DIESEL	UNLEADED	
KUALA LUMPUR	RM 4.18	0.052 - 0.137	0.091 - 0.122	0.136 - 0.478	0.495 - 0.545	0.522	N/A	0.526
ELECTRICITY (Commercial/ Industrial): Tariff A & Tariff D (low voltage)								
UNLEADED FUEL: Unleaded petrol Ron 95								
BANGKOK	THB 32.73	0.072 - 0.136	0.096 - 0.098	0.259 - 0.441	0.290 - 0.483	0.895	N/A	0.881
ELECTRICITY (Domestic): For normal tariff with consumption not exceeding 150 kWh per month								
UNLEADED FUEL: Gasohol 95								
MANILA	PHP 52.88	0.21	0.19	0.29 - 0.74	1.37	0.972	N/A	1.146
ELECTRICITY (Domestic): 190 kWh - 2099kWh;								
ELECTRICITY (Commercial/ Industrial): 185,404kWh;								
WATER (Domestic): 24m ³ - 101m ³ ;								
WATER (Commercial/Industrial): 3,750m ³								
JAKARTA	IDR 15,180	0.097	0.097	0.069 - 0.491	0.450 - 0.965	0.481	N/A	0.543
WATER & ELECTRICITY (Domestic): Domestic group in Indonesia will cover residence, religion building, non-profit organization building and government hospital								
WATER & ELECTRICITY (Commercial/ Industrial): Commercial group in Indonesia will cover luxury residence, apartment, offices, hotel, commercial building, and factories								
NEW DELHI	INR 71.9	0.069 - 0.111	0.070 - 0.111	0.35 - 1.05	1.390 - 2.44	0.992	N/A	1.141
BANGALORE	INR 71.9	0.069 - 0.100	0.087 - 0.128	0.556 - 0.695	1.390	1.001	N/A	1.072

The above costs are at **4th Quarter 2018** levels.





GENERAL CONSTRUCTION DATA

2

Material Price Indices

Import Duties

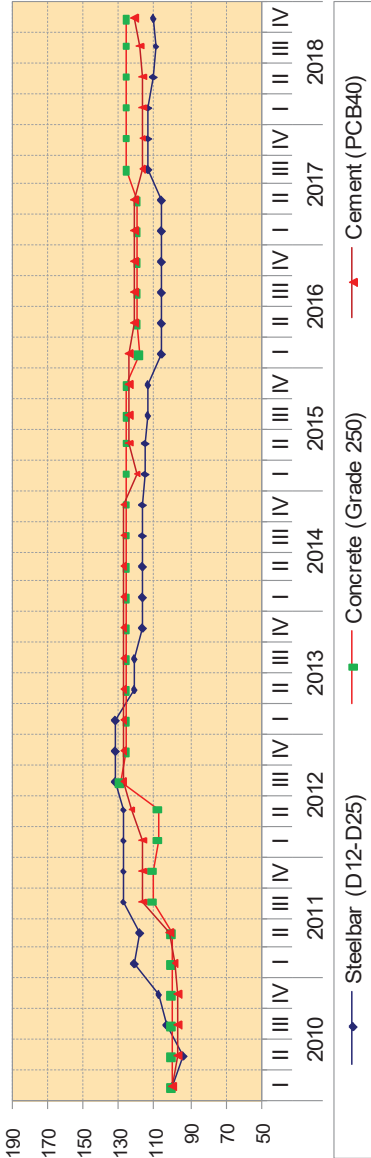
Progress Payments

Estimating Rules of Thumb

MATERIAL PRICE INDICES

Year	Quarter	Steelbar (D12-D25)			Concrete (Grade 250)			Cement (PCB40)		
		VND/T	Index (Base QI/2010)	Inflation	VND/m ³	Index (Base QI/2010)	Inflation	VND/kg	Index (Base QI/2010)	Inflation
2010	I	12,452,500	100.00	0.00%	879,819	100.00	0.00%	1,255	100.00	0.00%
	II	11,590,000	93.07	-6.93%	879,819	100.00	0.00%	1,218	97.05	-2.95%
	III	12,830,000	103.03	10.70%	879,819	100.00	0.00%	1,209	96.33	-0.74%
	IV	13,440,000	107.93	4.75%	879,819	100.00	0.00%	1,209	96.33	0.00%
2011	I	15,030,000	120.70	11.83%	879,819	100.00	0.00%	1,241	98.88	2.65%
	II	14,730,000	118.29	-2.00%	879,819	100.00	0.00%	1,263	100.64	1.77%
	III	15,925,000	127.89	8.11%	970,000	110.25	10.25%	1,459	116.25	15.52%
	IV	15,925,000	127.89	0.00%	970,000	110.25	0.00%	1,459	116.25	0.00%
2012	I	15,925,000	127.89	0.00%	945,000	107.41	-2.58%	1,459	116.25	0.00%
	II	15,925,000	127.89	0.00%	945,000	107.41	0.00%	1,546	123.19	5.96%
	III	16,320,000	131.06	2.48%	1,127,272	128.13	19.29%	1,600	127.49	3.49%
	IV	16,320,000	131.06	0.00%	1,109,000	126.05	-1.62%	1,600	127.49	0.00%
2013	I	16,320,000	131.06	0.00%	1,109,090	126.06	0.01%	1,600	127.49	0.00%
	II	15,170,000	121.82	-7.05%	1,109,090	126.06	0.00%	1,600	127.49	0.00%
	III	15,170,000	121.82	0.00%	1,109,090	126.06	0.00%	1,600	127.49	0.00%
	IV	14,470,000	116.20	-4.61%	1,109,090	126.06	0.00%	1,600	127.49	0.00%
2014	I	14,470,000	116.20	0.00%	1,109,090	126.06	0.00%	1,600	127.49	0.00%
	II	14,470,000	116.20	0.00%	1,109,090	126.06	0.00%	1,600	127.49	0.00%
	III	14,470,000	116.20	0.00%	1,109,090	126.06	0.00%	1,600	127.49	0.00%
	IV	14,470,000	116.20	0.00%	1,109,090	126.06	0.00%	1,600	127.49	0.00%
2015	I	14,350,000	115.24	-0.83%	1,109,090	126.06	0.00%	1,504	119.84	-6.00%
	II	14,350,000	115.24	0.00%	1,109,090	126.06	0.00%	1,550	123.51	3.06%
	III	14,200,000	114.03	-1.05%	1,109,090	126.06	0.00%	1,550	123.51	0.00%
	IV	14,200,000	114.03	0.00%	1,109,090	126.06	0.00%	1,550	123.51	0.00%
2016	I	13,100,000	105.20	-7.75%	1,036,000	117.75	-6.59%	1,550	123.51	0.00%
	II	13,100,000	105.20	0.00%	1,055,000	119.91	1.83%	1,523	121.35	-1.74%
	III	13,100,000	105.20	0.00%	1,055,000	119.91	0.00%	1,523	121.35	0.00%
	IV	13,100,000	105.20	0.00%	1,055,000	119.91	0.00%	1,523	121.35	0.00%

2017	I	13,100,000	105.20	0.00%	1,054,545	119.86	-0.04%	1,523	121.35	0.00%
	II	13,100,000	105.20	0.00%	1,054,545	119.86	0.00%	1,523	121.35	0.00%
	III	14,100,000	113.23	7.63%	1,109,091	126.06	5.17%	1,468	116.97	-3.61%
	IV	14,100,000	113.23	0.00%	1,109,091	126.06	0.00%	1,468	116.97	0.00%
2018	I	14,150,000	113.63	0.35%	1,109,091	126.06	0.00%	1,460	116.33	-0.54%
	II	13,700,000	110.02	-3.18%	1,109,091	126.06	0.00%	1,460	116.33	0.00%
	III	13,650,000	109.62	-0.36%	1,109,091	126.06	0.00%	1,476	117.61	1.10%
	IV	13,800,000	110.82	1.10%	1,109,091	126.06	0.00%	1,512	120.48	2.44%



IMPORT DUTIES

DESCRIPTION (all figures)	Unit	MFN/WTO	Special Tariff										VAT Tariff		
			ATIGA	VCFTA	ACFTA	Non-ACFTA	AKFTA	Non-AKFTA	VKFTA	AJCEP	VJEPA	AANZFTA		AIFTA	VN-EAEUFTA
Marble	kg/m ³	12	0	11	0	⁽¹⁾	0	⁽²⁾	0	8	9	0	5	3.3	10
Granite	kg/m ³	12	0	11	0	⁽³⁾	0	⁽²⁾	0	8	9	0	5	3.3	10
Carpentry of Wood	kg	3	0	5	0	-	0	-	0	0	0.5	0	1	0	10
Portland cement	kg	32	0	20	20	-	*	-	35	*	*	5	*	22.3	10
Ceramic building bricks, flooring blocks	kg/m ² /1000 unit	35	0	19	20	-	0	-	0	13	15	0	15	22.3	10
Ceramic roofing tiles	kg/m ² /1000 unit	45	0	46	20	-	0	-	0	16	19	0	20	28.6	10
Ceramic floor, hearth, wall, tiles	m ²	45	0	48	50	-	0	⁽⁴⁾	0	16	19	0	20	28.6	10
Ceramic sanitary fixtures of porcelain	Unit	35	0	30	15	⁽⁵⁾	0	⁽⁴⁾	0	18	21	0	20	11.7	10
Multiple-walled insulating units of glass	kg/m ² /unit	25	0	14	0	-	20	-	20	30	30	0	*	8.3	10
Glass mirror (unframed)	kg / unit	25	0	17	50	-	20	-	20	30	30	0	*	8.3	10
Concrete steel	kg	15	0	*	15	⁽⁶⁾	*	-	-	0	0	10	*	9.5	10
U,I or H section of steel (height under 80mm)	kg	15	0	37	15	-	*	-	10	0	0	*	*	6.4	10
Aluminium doors, windows, frames and thresholds	m ²	15	0	9	0	-	0	-	0	0	2	5	10	5	10
Air conditioner (window or wall mounted) not exceeding 26,38 kW	unit	30	0	20	15	⁽⁷⁾	*	-	18	11	9	5	25.5	0	10
Passenger lifts	unit	10	0	5	0	⁽⁸⁾	0	⁽⁸⁾	0	0	1	0	3	3.3	10
Water pump	unit	20	0	14	0	-	20	-	20	9	11	0	25.5	12.7	10
Electric genset	unit	20	0	14	12	⁽¹⁾	20	-	20	30	30	5	*	*	10

MFN/WTO

: Most-Favored-Nation/World Trade Organisation

: Normal Tax Rate = Favoured Tax Rate x 150%

ATIGA

: ASEAN Trade In Goods Agreement/ ASEAN free trade area

VCFTA

: Vietnam-Chile Free Trade Agreement

ACFTA

: ASEAN-China Free Trade Agreement

AKFTA

: ASEAN-Korea Free Trade Agreement

VKFTA

: Viet Nam-Korea Free Trade Agreement

AJCEP

: ASEAN-Japan Comprehensive Economic Partnership

VJEPA

: Vietnam-Japan Economic Partnership Agreement

AANZFTA

: Australia-ASEAN-New Zealand Free Trade Agreement

AIFTA

: ASEAN-India Free Trade Agreement

VN-EAEUFTA

: Vietnam-Eurasian Economic Union Free Trade Agreement

⁽¹⁾: Cambodia, Thailand⁽²⁾: Thailand⁽³⁾: Cambodia, Indonesia, Thailand⁽⁴⁾: Myanmar⁽⁵⁾: Cambodia, Indonesia, Malaysia⁽⁶⁾: Cambodia, Lao, Malaysia, Thailand⁽⁷⁾: Brunei, Cambodia, Philippines, Thailand⁽⁸⁾: Malaysia, Thailand

(*) When the MFN duty rate of a goods item specified in the preferential import table of rates is lower than the particularly preferential tax rate specified in Vietnam's particularly preferential import table of rates applicable to each trade agreement promulgated under the Finance Minister's decision, the import duty rate applicable to this goods item is the MFN tax rate.

(*) Symbol in AKFTA column: Goods made in Khai Thanh Industrial Zone of North Korea (GIC Items).

(*) Imported goods are not received special preferential tariffs at the corresponding time.

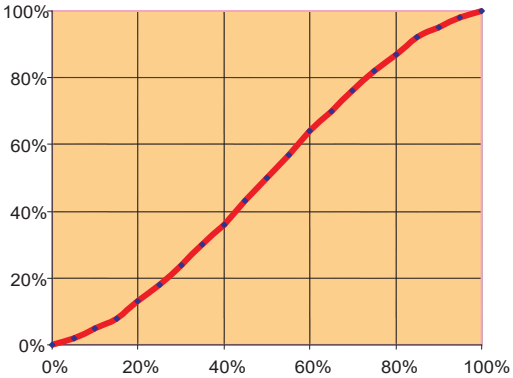
PROGRESS PAYMENTS

The following graph and table are an indication of the rate of expenditure for construction projects.

The rate of expenditure is an average rate and will vary from project to project when specific project circumstances are taken into account.

No account has been made for retention.

Progress Claims



Project Period

CONTRACT	CUMMULATIVE PROGRESS CLAIMS	CONTRACT PERIOD	CUMMULATIVE PROGRESS CLAIMS
5%	2%	55%	57%
10%	5%	60%	64%
15%	8%	65%	70%
20%	13%	70%	76%
25%	18%	75%	82%
30%	24%	80%	87%
35%	30%	85%	92%
40%	36%	90%	95%
45%	43%	95%	98%
50%	50%	100%	100%

ESTIMATING RULES OF THUMB

Structural Design - Concrete Ratios

The following is a range of concrete ratios for building superstructure design in Viet Nam.

Concrete/floor area	0.4 m ³ /m ²	to	0.5 m ³ /m ²
Formwork/floor area	2.2 m ² /m ²	to	3.0 m ² /m ²
Reinforcement	160 kg/m ³	to	250 kg/m ³

Average External Wall/Floor Ratio

Residential Apartments	1.0 m ² /m ²
Office	0.4 m ² /m ²
Hotel	0.4 m ² /m ²

Average Internal Wall/Floor Ratio

Residential Apartments	1.0 m ² /m ²
Office	0.5 m ² /m ²
Hotel	1.5 m ² /m ²

Air - Conditioning

Average	0.065	RT/m ² of floor area
---------	-------	---------------------------------

Average Lighting Level

Building Type	Lux
Residential	300
Office	500
Retail	400-500
Hotel	250-300
School	300-450

Average Power Density

Building Type	VA/m ² CFA
Residential	80-100
Office	120-150
Retail	150-200
Hotel - Accommodation	120
Hotel - F&B Area	150
School	45-60

Average Cooling Load

Building Type	m² Cooling Area/ RT
Residential	20-25
Office	12-15
Retail	10-15
Hotel	22-25
School	25

The above ratios are indicative and for reference purposes only. They do not account for buildings with special shapes, configurations or particularly small footprints.

Indicative Dimensions for Sports Grounds

	Length	Width
Tennis Court	40 m	20 m
Squash Court	13 m	6 m
Basketball Court	38 m	23 m
Volleyball Court	30 m	20 m
Badminton Court	20 m	10 m
Ice Rink	61 m	26 m
Soccer Pitch	110-120 m	70-80 m

The above dimensions are for a single court with appropriate clearance. No Spectator seating or support area has been allowed.

Densities of Common Materials

Concrete	2,400 kg/m ³	Water	1,000 kg/m ³
Cement	1,441 kg/m ³	Softwood	700 kg/m ³
Sand	1,600 kg/m ³	Hardwood	1,100 kg/m ³
Gravel	1,350 kg/m ³	Aluminum	2,750 kg/m ³
Steel	7,850 kg/m ³	Soil (compact)	2,100 kg/m ³

(Cont'd)

ESTIMATING RULES OF THUMB

Concrete Strength (in accordance with TCVN 3118 - 1993)

CYLINDER 15cm x 30cm		CUBIC 15cm x 15cm	CYLINDER 15cm x 30cm		CUBIC 15cm x 15cm
Psi	Mpa	Mpa	Mpa	Psi	Mpa
8,000	55	66	60	8,700	50
7,000	48	58	50	7,300	42
6,000	41	49	40	5,800	33
5,000	34	41	35	5,000	29
4,000	28	34	30	4,400	25
3,000	21	25	25	3,600	21
8,000	55	66	20	2,900	17
			15	2,200	13

1.00 MPa = 145.04 Psi

1.00 MPa (Cylinder 15cmx30cm) - 1.20 MPa (Cubic 15cmx30cm)

Reinforcement

Bar Dia. (mm)	Weight/m (kg/m)	Perimeter (m/m)	Area (mm ²)
6	0.222	18.85	28.27
8	0.395	25.13	50.26
10	0.616	31.42	78.54
12	0.888	37.70	113.10
16	1.579	50.27	201.06
20	2.466	62.83	314.16
25	3.854	78.54	490.88
32	6.313	100.53	804.25
40	9.864	125.66	1,256.64

Composition of Concrete (per m3)

Mix	Cement	Sand	Aggregate
1:3:6	216 kg	0.45 m ³	0.90 m ³
1:2:4	308 kg	0.43 m ³	0.86 m ³
1:1:2	540 kg	0.38 m ³	0.75 m ³

Average Loads

Volume

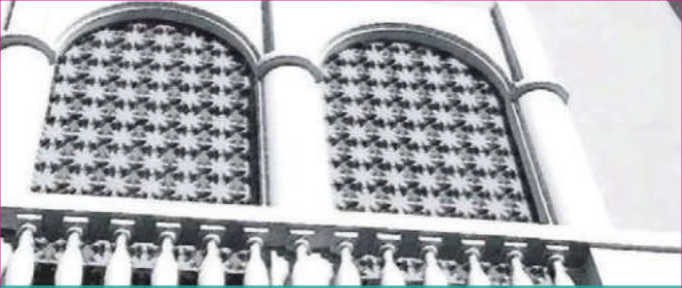
Lorry (24 ton)	10.0 m ³
Concrete truck (24 ton)	5.5 m ³
Barge	200 - 1,450 m ³

Dimensions for Standard Parking Space.

Loading / Unloading Bays and Lay - bys

	Length	Width	Minimum Headroom
Private Cars, Taxis and Light Vans	5 m	2.5 m	2.4 m
Coaches and Buses	12 m	3.0 m	3.8 m
Lorries	11 m	3.5 m	4.1 m
Container Vehicles	16 m	3.5 m	3.5 m

Minimum headroom means the clearance between the floor and the lower most projection from the ceiling including any lighting units, ventilation ducts, conduits or similar.



PROPERTY INVESTMENT

3



Building Control and Procedures

Project Closed Out Procedures

Typical Submission Flowchart

Key Planning Parameter

Building Areas Definitions

Procurement Strategies

Contractor Selection Strategies

BUILDING CONTROL AND PROCEDURES

Project Classification

Projects are categorized based on the scale, nature and source of fund in accordance with Appendix 01 of the Decree 59/2015/ND-CP dated 18 June 2015. Special projects under the jurisdiction of the Prime Minister's Office encompass the most national important project and or top security project. Projects classified as Group A under the jurisdiction of the Ministers of Ministries encompass infrastructure and ports (sea-ports and airports), oil and gas, cultural and sensitive projects to national defense and all projects over VND 2,300 billion, or equivalent to approx. USD 100 million. Group B projects encompass all other projects and fall under the jurisdiction of Provincial People's Committees and require registration only for investment licenses and applies to projects with a manufacturing and export earnings component. A full assessment for investment licenses is required for all other projects.

Project Investment Appraisal

Developers must carry out the project investment report (feasibility study report) and the basic design for project investment appraisal including the Planning Certificate applied to the People's Committee of the relevant province. The information of basic design to be included encompasses address and description of land plot, function of land plot, red-line boundary and exit and connection with the existing transportation and infrastructure including power, water, storm water drainage, waste water treatment, overall dimension and existing level, construction boundary, construction density, plot ratio, schedule of land use area and schedule of floor area, maximum floor height and building height, parking lot ratios, principle of architectural, structure and infrastructure design, environmental impact plan, fire protection plan, design standards and building codes. The project investment appraisal is in accordance with the Circulation 03/2009/TT-BXD dated 26 March 2009.

Technical Design and Detailed Design

Developers using foreign design consultancies must ensure their projects undergo a Design Evaluation Assessment to the Ministry of Construction or the Chairman of the Peoples Committee of relevant province who will delegate to the Ministry of Construction or provincial Construction Department. The Technical Design and Detailed Design must be in line with the previous approved basic design including the compliance of design standards and building codes, the integrity of project, the well protection of environment and the safety in the event of fire circumstances. The appraisal and approval of technical and detailed design are in accordance with the Decree 15/2013/NDCP dated 6 February 2013 and Circulation 13/2013/TT-BXD dated 15 August 2013.

Construction Permit

Under the Law on Construction investors must first obtain a construction permit issued by the Provincial People's Committee Construction Department prior to construction can commence.

The investor of residential development projects shall submit an application dossier of all the mentioned inclusion plus the certificate of EIA (Environment Impact Assessment) and Fire Protection, which are issued by the Provincial Department of National Resources and Environment and Provincial Fire Police Department respectively. An application dossier shall contain design implementation drawings and land-use right certificates and land rental contracts. The basic inclusions are mandatory and they are location and description of works, storey height and height above sea-level, site boundary demarcation, overall site plan, major cross sections, main elevations, structural framing plans and foundation designs, environmental and safety technical

(Cont'd)

BUILDING CONTROL AND PROCEDURES

details, principle of materials, schematic line diagrams of infrastructure connection of power, telecommunication, water supply, storm and waste water drainage system, and quantities for key components. Construction Permit applications will be checked against various compliances in respect of boundaries and interference with neighboring properties and approved planning (site coverage, plot ratio and car-parking). The issuing body should provide timely notice to the investor of any non-compliance for their remedy and resubmission to allow the implementation stage to commence. The content of application, procedures of construction permit are in accordance with the Decree 64/2012/ND-CP dated 4 September 2012 and Circulation 10/2012/TT-BXD dated 20 December 2012.

Site Clearance

A plan for site clearance and/or resettlement shall be submitted at the same time as the application for the investment license and resettlement carried out prior to site clearance taking place for construction. The time limit for site clearance should comply with the project implementation schedule. Resettlement is based on the principle of providing similar or better conditions and governmental regulations on principles, methods and a price framework shall be adopted by the People's Committee for determination of compensation levels. This is a matter for great uncertainty and foreign investors are advised to seek vacant possession prior to transfer of land use right to the joint venture.

Supervision of Construction

Independent Supervision of construction works by a competent and registered firm is a mandatory requirement. The supervisory role encompasses quality control and compliance checking, schedule control, quantification control, safety and environmental

hygiene control during construction. The safety and environment control are conducted regularly and continuously during the implementation phase. The Supervisor is also responsible for arranging independent inspections witnessing of testing and commissioning data and assistance in compilation of the dossier for putting the building into operation and receipt of the Occupation Permit.

Commencement of Construction

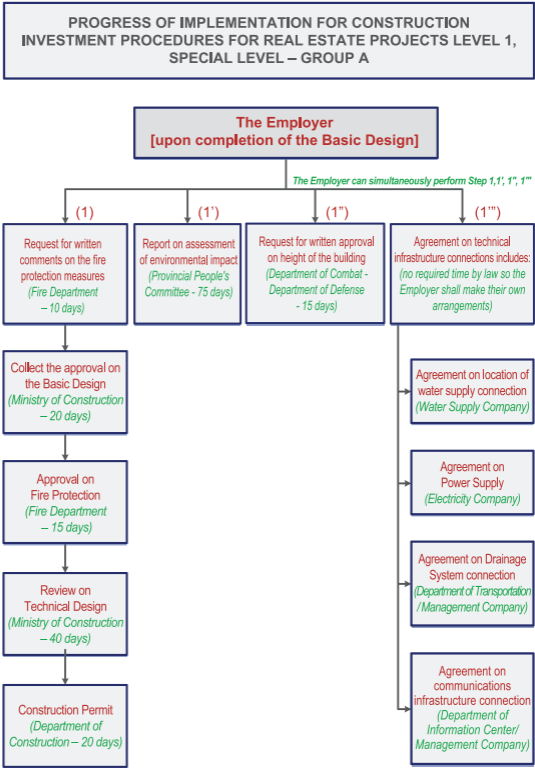
Construction of works may only commence after satisfying the following conditions: the site area being ready to be handed over, either in whole or in section and free of encumbrances; a construction permit; approved design drawings for execution of building; a construction contract; sufficient capital funds to ensure the building schedule in accordance with the approved building schedule in the investment license; measures to ensure safety and minimum environmental impact during the construction process. Construction All Risks and Third Party Liability Insurances as well as all required insurances in accordance with conditions of contract are recommended to be effected prior to commencement of any physical construction works on Site.

PROJECT CLOSED OUT PROCEDURES

Before an investor can receive rental income and occupy the premises for its intended use, the receipt of approval must be received by the provincial Construction Department or the Ministry of Construction depending on the category and size of the project.

The Construction Department will receive a dossier complete with independent testing and commissioning data (prepared by an independent party not the original designer) for piling, structure, electricity and earthing, environmental impact with regard to water and waste disposal, final checking and approval of fire protection requirement. The dossier needs to have Minutes to put the Building into Operation signed by the Investor, Testing Body, Contractor and Designer including the Project or Construction Manager if appointed. The project close out procedure is in accordance with Decree 46/2015 – NDCP dated 12 May 2015.

TYPICAL SUBMISSION FLOWCHART



Note:

1. "Date" as above mentioned is considered as working days from the date of receipt of sufficient and valid documents.
2. The Employer can implement procedures for collecting of the agreements on technical infrastructure connections after receipt of approval on the basic design. However, if after the basic design approved by the Ministry of Construction that the technical infrastructure management agency does not agree with the Employer's plan, then the Employer must change the plan for technical infrastructure connections, leading to change in the basic design and to request the Ministry of Construction to approve again on the basis design dossier. Therefore, the Ministry of Construction recommends that the Employer should have in advance the written agreement on the provision of electricity, water and drainage connections, transportation system connection for the project, infrastructure communication connection before submitting documents to the Ministry of Construction for approval on the basic design.

KEY PLANNING PARAMETER

MAXIMUM SITE COVERAGE

Maximum site coverage of linked houses and villa houses

Land plot area (m ² /house)	≤50	75	100	200	300	500	≤1,000
Maximum site coverage (%)	100	90	80	70	60	50	40

Maximum site coverage of condominium buildings

Building height measured from ground level (m)	Maximum site coverage (%) according to land plot area			
	≤3,000 m ²	10,000 m ²	18,000 m ²	≥35,000 m ²
≤16	75	65	63	60
19	75	60	58	55
22	75	57	55	52
25	75	53	51	48
28	75	50	48	45
31	75	48	46	43
34	75	46	44	41
37	75	44	42	39
40	75	43	41	38
43	75	42	40	37
46	75	41	39	36
>46	75	40	38	35

The maximum site coverage of urban public building such as educational, healthcare, cultural buildings, sport centres and market in the new urban development area is 40%.

For the other types of urban public buildings and mixed-use buildings built on a land plot of area ≥3.000m², depending on its location in urban areas and specific planning solution for land plot, the maximum site coverage can be as specified in the table below as long as the requirement of the minimum distance between buildings, the set-back areas and parking lot must be complied with the current regulation.

Building height measured from ground level (m)	Maximum site coverage (%) according to land plot area			
	3,000 m ²	10,000 m ²	18,000 m ²	≥35,000 m ²
≤16	80	70	68	65
19	80	65	63	60
22	80	62	60	57
25	80	58	56	53
28	80	55	53	50
31	80	53	51	48
34	80	51	49	46
37	80	49	47	44
40	80	48	46	43
43	80	47	45	42
46	80	46	44	41
>46	80	45	43	40

For those built on a land plot of area <3.000m², the site coverage of the remaining land lot after building set-back area can be 100% but the requirement of the minimum distance between buildings, the set-back areas and parking lot must be complied with the current regulation.

MINIMUM LANDSCAPING RATIO FOR CONSTRUCTION LAND LOTS

Type of building	Minimum of ratio for landscape (%)
1. Dwelling House	
- Detached house (garden house, villa)	20
- Condominium	20
2. Public building	
- Kindergarten, School	30
- Hospital	30
- Culture house	30
3. Factory	
- Scattered construction	20
- Combined block	20

(Cont'd)

KEY PLANNING PARAMETER

MINIMUM OF CAR PARKING LOT

Type of building	Minimum car parking lot
- Hotel from 3 star standard upward	4 bedrooms / 1 lot
- High-grade office, foreign affairs offices	100m ² floor area / 1 lot
- Super market, shopping mall, conference centre, exhibition, show room and display center	100m ² floor area / 1 lot
- High-grade/luxury condominium	1 apartment / 1.5 lot

MINIMUM OF PARKING SPACE

Type of vehicle	Minimum area of parking space
- Car parking space	25 m ²
- Motorcycle parking space	3 m ²
- Bicycle parking space	0.9 m ²
- Bus parking space	40 m ²
- Truck parking space	30 m ²

For the hotel grade of below three-star, public administration office and public service buildings, the numbers of parking lot must be at least 50% of the parking lots specified in the table above.

ROAD FOR FIRE PROTECTION

Width of road > 3.5 (m)

Clearance height > 4.25 (m)

Area for making U-turn > 15x5 (m)

BUILDING AREAS DEFINITIONS

The following guidelines are derived from the RICS “Code of Measuring Practice: A Guide for Surveyors and Valuers. 5th Edition’ and the RICS ‘Standard Form of Cost Analysis, Principles, Instructions and Definitions”.

Gross External Area (GEA)

Gross External Area is the area of a building measured externally at each floor level.

Includes:

- Perimeter wall thicknesses and external projections
- Areas occupied by internal walls and partitions
- Columns, piers, chimney breasts, stairwells, liftwells, and the like
- Atria with clear height above, measured at base level only
- Internal balconies
- Structural, raked or stepped floors are to be treated as a level floor measured horizontally
- Horizontal floors, whether accessible or not, below structural, raked or stepped floors
- Mezzanine areas intended for use with permanent access
- Lift rooms, plant rooms, fuel stores, tank rooms which are housed in a covered structure of a permanent nature, whether or not above main roof level
- Outbuildings which share at least one wall with the main building
- Loading bays
- Areas with a headroom of less than 1.5m
- Pavement vaults
- Garages
- Conservatories

(Cont'd)

BUILDING AREAS DEFINITIONS

Excludes:

- External open-sided balconies, covered ways and fire escapes
- Canopies
- Open vehicle parking areas, roof terraces, and the like
- Voids over or under structural, raked or stepped floors
- Greenhouses, garden stores, and the like in residential property

Gross Internal Area (GIA)

Gross Internal Area is the area of a building measured to the internal face of the perimeter walls at each floor level

Includes:

- Areas occupied by internal walls and partitions
- Columns, piers, chimney breasts, stairwells, lift-wells, other internal projections, vertical ducts, and the like
- Atria with clear height above, measured at base level only
- Internal open-sided balconies and the like
- Structural, raked or stepped floors are to be treated as a level floor measured
- Horizontal floors, with permanent access, below structural, raked or stepped floors
- Corridors of a permanent essential nature (e.g. fire corridors, smoke lobbies, etc.)
- Mezzanine areas intended for use with permanent access
- Lift rooms, plant rooms, fuel stores, tank rooms which are housed in a covered structure of a permanent nature, whether or not above main roof level

- Service accommodation such as toilets, toilet lobbies, bathrooms, showers, changing rooms, cleaners' rooms, and the like
- Projection rooms
- Voids over stairwells and lift shafts on upper floors
- Loading bays
- Areas with a headroom of less than 1.5m
- Pavement vaults
- Garages
- Conservatories

Excludes:

- Perimeter wall thicknesses and external projections
- External open-sided balconies, covered ways and fire escapes
- Canopies
- Voids over or under structural, raked or stepped floors
- Greenhouses, garden stores, fuel stores, and the like in residential property

Gross Floor Area (GFA)

Gross Floor Area is the total of all enclosed spaces fulfilling the functional requirements of the building measured to the internal structural face of the enclosing walls.

Includes:

- Areas occupied by partitions, columns, chimney breasts, internal structural or party walls, lift-well, and the like
- Lift, plant, tank rooms and the like above main roof slab

(Cont'd)

BUILDING AREAS DEFINITIONS

Note:

- Sloping surfaces such as staircases, galleries, tiered terraces and the like should be measured flat on plan.

Excludes:

- Any spaces fulfilling the functional requirements of the building which are not enclosed spaces (e.g. open ground floors, open covered ways and the like). These should each be shown separately
- Private balconies and private verandahs which should be shown separately.

Net Internal Area (NIA)

Net Internal Area is the usable area within a building measured to the internal face of the perimeter walls at each floor level.

Includes:

- Atria with clear height above, measured at base level only
- Entrance halls
- Notional lift lobbies
- Kitchens
- Built-in units, cupboards, and the like occupying usable areas
- Ramps of lightweight construction to false floors
- Area occupied by ventilation/heating grills
- Area occupied by skirting and perimeter trunking
- Areas severed by internal non-structural walls, demountable partitions, whether or not permanent, and the like, where the purpose of the division is partition of use, not support, provided the area beyond is not used in common
- Pavement vaults.

Excludes:

- Those parts of entrance halls, atria, landings and balconies used in common
- Toilets, toilet lobbies, bathrooms, cleaners' rooms, and the like
- Lift rooms, plant rooms, tank rooms (other than those of a trade process nature), fuel stores, and the like
- Stairwells, lift-wells and permanent lift lobbies
- Corridors and other circulation areas where used in common with other occupiers or of a permanent essential nature (e.g. fire corridors, smoke lobbies, etc.)
- Areas under the control of service or other external authorities including meter cupboards and statutory service supply points
- Internal structural walls, walls enclosing excluded areas, columns, piers, chimney breasts, other projections, vertical ducts, and the like
- The space occupied by permanent and continuous air-conditioning heating or cooling apparatus, and ducting in so far as the space it occupies is rendered substantially unusable
- Areas with headroom of less than 1.5m
- Areas rendered substantially unusable by virtue having a dimension between opposite faces of less than 0.25m
- Vehicle parking areas (the number and type of spaces noted)

Building Footprint

Building Footprint' is not a term defined by the RICS, but is generally understood to mean the area of the land upon which the building sits (excluding all basements), measured to the outside face of external walls.

PROCUREMENT STRATEGIES

Overview

The primary consideration in the choice of procurement strategy is the need to obtain overall value for money during the entire life of the facility and each method has a different risk profile for the employer and contractor. In Vietnam the following is currently prevalent.

Traditional Lump Sum	- high extent
Management Contracting	- low extent
Construction Management	- medium to high extent
Design and Construct	- low extent
Prime Contracting	- low extent
Framework Agreements	- rising extent
Public Private Partnership (PPP)	- new and promoted extent

Most if not all projects in Vietnam are tendered in competition. The new Law on Bidding passed in 2013 replaces the earlier legislation promulgated in 2006 and is intended primarily for state projects defined as over 30% total investment capital by a state entity and for Vietnamese Private firms. Foreign Investors do not need to follow the Bidding Law although it is advisable. The law recognizes open tendering, limited tendering and competitive tendering. For state projects tenders are normally sought using a “two-envelope system” i.e. technical and financial the former being opened first to check for compliances.

Most foreign entities short-list tendering contractors by having a robust pre-qualification procedure for checking financial and technical competencies. Tenders are usually open for 90 days.

The FIDIC suite of contracts is widely used for Vietnam construction contracts with the 1999 Red Book being the most commonly used. There are official translations of some of the FIDIC forms and the Vietnam Engineering Consultant Association (VECAS) is an official member of FIDIC. Most Official Development Aid (ODA) projects in Vietnam adopt FIDIC also.

a) Traditional Lump Sum

Most contracts are let in Vietnam on a lump sum basis using a modified FIDIC Red Book Contract which in its unamended form is a measure and value contract. This

method requires appointment of independent design consultants by the employer and a sufficiently developed design preferably “frozen” prior to tender. Bills of Quantities are usually provided for “information only” to the contractor who normally provide their own quantities with their tender for comparison purposes only and only the rates are contract rates with any “errors and omissions” not being subject to remeasurement after the lump sum is finalized. Prime costs sums for nominated subcontracts for mechanical and electrical and lift sub-contracts are widely used.

b) Construction Management

This form of procurement is often portrayed as “fast-track” as tender packages are often let successively throughout the design process with no need to wait until detail design is complete. A construction management consultant is engaged normally for a fixed percentage fee to procure and manage the individual trade contracts which are placed by the employer. This necessitates effective cost management as the total construction budget is not finalized until the final packages are let. The employer bears not an insignificant risk in terms of price certainty, delays, disruption, design and coordination problems. Clients adopting this approach need to be conversant with the local environment and have the requisite in-house skills to deal with issues as they arise. This method of procurement, combined with traditional lump sum packages, is popular with high rise buildings.

c) Framework Agreements

Framework agreements referred sometimes as “call-off” contracts between investors with a “pipe-line” of projects and contractors can result in significant savings to both parties using any of the procurement options above. The advantages are time reduced for tendering and negotiations, improved processes and knowledge transfer, bulk order costs savings, reduced confrontation and economies of scale due to continuity of workflow. All these advantages are extremely important in the Vietnam context because it is of paramount importance to maintain healthy relationships between employers and contractors as unforeseen events are prevalent during the design and procurement stages in Vietnam.

d) Public Private Partnership (PPP)

PPP is the generic term for the relationships formed

(Cont'd)

PROCUREMENT STRATEGIES

between the private sector and public bodies often with the aim of introducing private sector resources and / or expertise in order to help provide and deliver public sector assets and services. The term PPP is used to describe a wide variety of working arrangement from loose, informal and strategic partnerships to design, build, finance and operate type services contract and formal points of joint venture companies. The PPP mechanisms would help attract commercial capital and other sources of capital that private investors will seek for PPP projects. In that way, investment efficiency will be improved while public debts controlled at safe levels. Investors of projects will be chosen via competitive bidding in order to maximize benefits and create equal opportunities for domestic and foreign investors. On 9 November 2010 the Prime Minister of Vietnam authorized the issue of detailed regulations covering the piloting of investment in the form of Public Private Partnerships (PPPs) in Vietnam. The PPP Regulations became effective on 15 January 2011 and will continue to be implemented over the next three to five years. The Vietnamese Government intends to carry out PPP programme according to a list of defined projects to ensure that investors are provided with carefully prepared projects with a view to creating a real PPP commercial market in Vietnam. In the coming years the government will carry out some pilot projects. The PPP projects in the country will concentrate on core technical infrastructure that requires much capital, and furthermore, mechanisms to mobilize private investment: (i) Roads, Road bridges, road tunnels, ferry road stations; (ii) Railway, railway bridges, railway tunnels; (iii) Airports, sea ports and river ports; (iv) Clean water supply systems; water drainage systems; liquid and solid waste collection and treatment systems; (v) Power plants, electricity transmission cables; (vi) Hospitals; (vii) Other infrastructure projects.

The decrees on PPP Investment Form has been official effective since 14 Feb 2015 to create solid legal frame work for preparation and implementation of PPP projects. There are subsequent circulars issued in 2016 for further guidance on how to preliminary project selection for implementation, establishment, submission, appraisal and approval of Feasibility Study Report (Circular 02); procedure of obtaining the Investment Registration Certificate and the project contract for implementation of the Project which shall be entered by the investor and the competent authority being the party to the contract (Circular 06).

Table A - Procurement Strategy

Project Criteria		Appropriateness of Contract Strategy						
Parameter	Objectives	PPP	Traditional	Management Contracting	Construction Management	Design and Construct	Prime Contracting	Framework Agreements
Timing	Early Completion	x	x	✓	✓	✓	x	✓
Cost	Pre construction price certainty	✓	✓	x	x	✓	x	✓
Quality	Design prestige	x	✓	✓	✓	x	x	x
Variations	Avoid prohibitive cost of change	x	✓	✓	✓	x	x	x
Complexity	Technically advanced or highly complex building	✓	x	✓	✓	x	✓	x
Responsibility	Single contractual link	✓	x	x	x	✓	✓	✓
Professional Responsibility	Need for design team to report to sponsor	x	✓	✓	✓	x	x	✓
Risk Avoidance	Desire to transfer complete risk	✓	x	x	x	✓	✓	✓
Damage Recovery	Facility to recover cost direct from construction	✓	✓	✓	x	✓	✓	✓
Build ability	Contractor input to economic construction	✓	x	✓	✓	x	✓	✓

Table B - Risk Allocation

Contract Strategy	INDICATIVE RISK ALLOCATION	
	Client	Contractor
Public Private Partnerships		
Design and Construct		
Prime Contracting		
Traditional		
Framework Agreements		
Management Contracting		
Construction Management		

CONTRACTOR SELECTION STRATEGIES

There are four tiers of contractor available for tendering foreign investment projects, these tiers are not official classifications.

- Tier 1** Foreign contractor from Japan, Korea, Singapore, Hong Kong, Europe, Australia
- Tier 2** Foreign contractor from China, Russia, Taiwan and Malaysia
- Tier 3** Local private and Joint Stock contractors
- Tier 4** State contractors

There is a considerable diversity between these tiers in terms of general expertise, technological know-how, human-resource skills and training which leads to a different risk profile for delivery of buildings to time, quality and cost targets. The lowest tiers use less modern equipment, machinery and system formwork and have much lower human resource costs. This is inevitably leading to higher tender returns. A rigorous pre-qualification procedure is recommended with weighted scoring in line with project objectives eg. lowest cost objective will have an inevitable impact on quality and time.

A typical pre-qualification assessment might cover (indicative weighting for Vietnam 1 through 10, 10 highest)

- Vietnam experience (if foreign) 8
- Project type experience (local and foreign) 7
- Financial capacity (particularly local) 8
- Plant and equipment inventory (particularly local) 7
- Direct labour strength (local and foreign) 6

(Cont'd)

CONTRACTOR SELECTION STRATEGIES

Proposed joint venture / sub-contracting arrangements (local and foreign) 7

Planning and programming capability (particularly local) 8

Cognizance of international procedures, codes and specifications (local) 8

Financial capacity (local)

Local contractors now have access to bank funding but should not be expected to finance projects by punitive cash-flow arrangements. Most contracts are let with investors paying 10-15% advance payments which is re-couped from subsequent milestone or interim payments. Deductions for defective works and liquidated damages may compound problems so careful diplomacy is often more productive. Claims for additional costs due to prevailing market conditions are more common in today's climate but also for misinterpretation of contract obligations making the need for good quality contract documentation essential.

Plant and Equipment Inventory (local)

State firms tend to share or pool plant and equipment for example tower-cranes and piling rigs. It is often impossible to determine the true owner of plant and equipment on-site in the event of premature demobilization.

It is essential that the pre-qualification process determines that a contractor owns plant of sufficient size, capacity and suitable state of repair as contractors may not have full control of leased equipment suddenly required on other job-sites.

Direct labour strength (local)

The source of labour supply, also being verified as labour strength, may be "topped-up" by importing

unskilled and untrained workers from remote provinces, who often are not legally resident at their working destination.

Contractors should be asked to prove their direct labour records and declare any labour only sub-contracting arrangements. The tier 1 contractors will not have any full-time dedicated labour on their payroll. Tier 2 contractors often import workers from their home country for the project duration and shall be responsible for all associated costs and taxes.

Labour is not usually permitted to reside on site. Contractors shall provide details of training curriculums for each trade discipline when tendering as well as health and safety programmes.

Proposed sub-contracting arrangements (local)

Sub-contracting is prevalent in Vietnam so it is essential to check the percentage of work subcontracted out to ensure quality control issues are minimized. It is highly unlikely that any one firm will possess the required human resource and plant and equipment to complete a project using in-house resources. Foreign contractors largely act as management function providing only project engineers, site supervisors, health and safety officers and planners. Both foreign and local contractors rarely directly employ foremen, gang-leaders or indeed skilled and unskilled operatives. These arrangements are perfectly normal and accepted but it is preferable to know in advance the exact arrangements being proposed to ensure no conflicts of interests with other projects and to understand fully the amount of “control” the appointed contractor has on the works he is engaged to undertake.

Planning and programming capability (local)

This capability needs careful verification from the lowest tier contractors. The use of first principle time

(Cont'd)

CONTRACTOR SELECTION STRATEGIES

resourced planning is rarely used. The approach adopted is often “rule of thumb” whereby planners determine critical activity durations using their knowledge of other projects. Floor/structure cycle times are often inconsistent and the lack of recording and reutilization of historical data means the planning process can be crude at best. Time or delay is a perennial problem in Vietnam sometimes due to employer delays such as site clearance or permit issues or neutral delays such as weather but contractor culpable delays should not be of any surprise. The use of critical path analysis, planned impacted analysis, window analysis and collapsed as-built are not widely known in Vietnam. This means time recovery analysis and the implementation of acceleration measures are not readily adopted and time for completion can become unpredictable. The input of experienced Project Management might be invaluable in reducing delays and formulating time recovery plans.

International experience (local)

The influx of foreign invested projects has brought with it an influx of different standards and procedures normally from the source country. It is essential to determine the degree of exposure local contractors have had to international standards, procedures and indeed expectations. The Vietnamese Codes and Standards whilst detailed need to be used concurrently with international standards such as American, Australian, British or Japanese standards and specifications as they are not comprehensive enough to “stand-alone” on an international standard project. There is no uniform and widely accepted standard or specification. The nett result is a hybrid where every project has a unique and bespoke set of standards depending on the investor and his consultant source country. The appointed design team will naturally look to use their familiar “off the shelf” specifications and tendering contractors should be asked to list the

standards they have successfully built for the key trades and building elements. There is a move to produce a set of consolidated Vietnamese standards but this is some way off and the hybrid approach will continue for some time to come.

However, no international standard shall over-ride any mandatory Vietnam building code or standard. Design consultants should provide a translated bi-lingual version of their specifications and locally registered design firms shall provide “localization” of the design to obtain local approvals. The contractors should also be asked to list investments such as system formwork and their use of recent technology and list previous employers and consultants whom they have worked with.



VIETNAM BUSINESS ENVIRONMENT 4

Language

Accounting System

Banks

Government Administration

Taxation

Insurance

Workforce

LANGUAGE

Vietnamese was declared the official language of Vietnam in 1945, as much as 70% of the vocabulary is borrowed from Chinese and the intonation is similar to Cantonese. It is spoken by approximately 90% of the Vietnamese population and ranked as the world's 15th most spoken language. English, however, is widely used in the business community.

ACCOUNTING SYSTEM

Accounting records are required to be maintained in VND. Foreign-invested business entities can select a foreign currency to be used for their accounting records and financial statements provided that they meet all requirements specified in Circular 244/2009/TT-BTC issued by the Ministry of Finance ("MoF"). Accounting records are required in Vietnamese language, but this can be combined with a commonly-used foreign language. At the end of a financial year, the entity must perform a physical count of its fixed assets, cash and inventory.

Companies operating in Vietnam are required to comply with the Vietnam Accounting System ("VAS"). It is possible to diverge from the standard VAS, but this is subject to specific approval from the MoF. The tax authorities treat VAS non compliance as a basis for tax reassessment and imposition of penalties, including withdrawal of CIT incentives, disallowance of expense deductions for CIT purposes and disallowance of input VAT credits/refunds.

The annual financial statements of all foreign-invested business entities must be audited by an independent auditing company operating in Vietnam. Audited annual financial statements must be completed within 90 days from the end of the financial year. These financial statements should be filed with the applicable licensing body, MoF, local tax authority, Department of Statistics, and other local authorities if required by law.

BANKS

Banking industry of Vietnam is considered as young in terms of integration to worldwide, until in 1990, it was only restructured to separate the State Bank of Vietnam from commercial banks. The State Bank of Vietnam acts as a central bank and a supervisory institution and is also a main share holder in state-owned commercial banks (SOCB). Later, more forms of commercial banks are established especially after 2006 when Vietnam joined WTO. With less than 5% of the population regularly using banking service, and 10%-20% holding bank accounts, it has provided good opportunities for growth, however, competition in banking sector is considered as very harsh. Besides Vietcombank, Vietinbank, Agriculture Bank, BIDV as top of SOCB, top joint stock banks can be named as ACB, Sacombank, Techcombank, Indovina Bank as top of joint venture bank. Nowadays, in the banking sector, we can see a variety range of plenty commercial banks including 4 biggest SOCB, around 40 joint stock banks, and 40 foreign invested banks or branches of foreign banks, representative offices, 4 joint venture banks in playground. Although all the big names of foreign banks such as Citibank, HSBC, Standard Chartered Bank, ANZ are all presence in Vietnam, the banking system is still characterized by the strong dominance of market share by SOCB.

Official currency in Vietnam is VND, however, laws allow local and foreign entities and individuals to hold foreign currency at bank accounts as deposit/savings and funds received/transferred from foreign countries in freely. Nevertheless, domestic payment, usage or cross border outward transfer of foreign currency is prohibited or limited to certain kinds of transactions and it requires supporting documents.

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BANKS

Banks can provide customers with all kinds of services, however, it is more characterized by commercial banking market rather than having a clear division on investment banking and commercial banking. Commercial banking services are such as deposits, loans, trade finance, bank guarantees. Deposit can be made in both VND or foreign currencies and deposit is including current account, saving accounts and fixed deposit from 1 month to 24 months. Interest rate for VND is always higher than foreign currencies (currently average VND interest rate is 5%-7%p.a. compared to USD interest rate at 0.75%p.a). Loan services comprises of short term loan (under 1 year), medium term loan (from 1 to 5 years) and long term loan (over 5 years). Loans in foreign currencies (popular USD) are restricted to companies who have the proceeds in foreign currency. Getting loans in USD is also always cheaper than loans in VND especially for those who having source of fund from their export. Banks always offer a credit line to their customers to finance all their need in short term working capital or long time investment in machineries or factories. Credit line may be used for loan disbursement, trade finance or bank guarantee service. Trade finance can be listed as L/C service (sight or usance L/C), bills for collection D/P or D/A, L/C negotiation, shipping guarantee, factoring. The most popular trade finance service in Vietnam is L/C, D/P and D/A, while factoring service is rarely used. Bank guarantee services are comprised of many types, some commonly used in the economy are such as bid bond, performance bond, warranty guarantee, payment guarantee or advance payment guarantee... Fee for issuance of bank guarantee is 2% p.a. of the guarantee value plus a small amount charge on documentation. Customers can request banks to issue for them a bank guarantee by deposit fund to bank or from a credit line offered by bank.

GOVERNMENT ADMINISTRATION

The National Assembly is the highest representative organ of the people and the highest organ of the state power of the Socialist Republic of Vietnam. Members are elected for a five year tenure through nation wide elections. Sittings of the National Assembly are held twice a year and have full constitutional and legislative powers. The standing committee of the National Assembly is responsible for enforcement of laws. Its functions are carried out through the Ministries, State Committees and General Departments by promulgating and explaining the Constitution, law and decree-laws.

The Country's President is the head of state, elected by the National Assembly from among its members to represent the Socialist Republic of Vietnam in internal and foreign affairs. The Vice President is proposed by the President and elected by the National Assembly from the representatives. The National Defense and Security Council has the duty to mobilize all forces and potentials of the country to defend the Homeland.

The Government is the executive organ of the National Assembly and shall report to the National Assembly, the National Assembly standing committees and the Country's President. The Government consists of the Prime Minister, Deputy Prime Minister, Ministers and Heads at ministerial level. The Prime Minister is presented by the President and elected by the National Assembly and has the term of 5 years. The Deputy Prime Ministers are the assistants of the Prime Minister and may be delegated by the Prime Minister during his absence. The Ministers and Heads at ministerial levels take on the State management of allotted branches or fields.

The People's Supreme Court is the highest judicial organ of the Socialist Republic of Vietnam. The court consists of the Tribunal President, Vice Tribunal President, judges, the juror and the secretary of the court. Moreover, the court is composed of the judge Council, judge Committee, the Military court and criminal court, civilian court, the court of appeal and the assistant apparatus.

TAXATION

TAXATION IN THE REAL ESTATE INDUSTRY

I. Corporate Income Tax (“CIT”)

Organizations established in Vietnam deriving income from transferring or leasing property are subject to Corporate Income Tax (“CIT”) at the standard tax rate of 20% from 1 January 2016.

Generally, real estate developers are not given preferential tax rates, tax holidays or other tax reductions except for special cases such as projects located in poor and remote areas or social housing projects (i.e. construction of residential houses for the poor or workers).

In principle, the time of formal revenue recognition should be when the properties are handed over to the buyer.

However, in the case where an advance payment is received for properties under development, real estate developers are required to pay provisional CIT at 20% on provisional income in the case where corresponding expenses can be determined and matched with the revenue; where the expenses cannot be determined, the provisional CIT is at 1% on the advance payments which are not recorded as revenue for CIT purposes in the tax year.

Where the enterprise sub-leases out a property, if the lessee pays a lump sum for a number of years and certain conditions are met then the lessor is able to recognise revenue by one of two methods

- (i) allocation on a year-by-year basis or
- (ii) lump-sum basis.

Losses incurred in a given year can be carried forward for 5 years. With effect from 1 January 2014, losses from real estate transfer activities can be offset against the taxable income of other business activities of the relevant tax year.

However, the gain from transfer of real estate is still required to be recorded and taxed separately without offsetting losses derived from other activities.

The proposal to allow offsetting of gains from the transfer of real estate against losses from other business activities is under consideration in the draft amended tax law.

Land use rights (“LURs”) with indefinite terms may not be depreciated for tax purposes. However, LURs with a definite term used for production or business activities can be amortized over the prescribed land use duration.

Any gains from the revaluation of a LUR for capital contribution purposes shall be determined as follows:

- (i) For capital contribution for residential housing for sale: the whole gain is recognized as other income in the tax period the capital contribution is made.
- (ii) For capital contribution for production or business activities, if the company receiving LUR is allowed to depreciate such LUR, the whole gain is recognized as other income in the tax period the capital contribution is made or the gains may be allocated to other income over a period up to ten years.

II. Value Added Tax (“VAT”)

The transfer of a LUR without any related infrastructure is not subject to VAT. Conversely, the transfer of LUR with an infrastructure and building component is generally subject to VAT at 10% (proposed change to 11% from 2019 and 12% from 2020 under the draft

amended tax law). However, the land value can be excluded from the revenue subject to VAT. The determination of deductible land price for VAT purpose varies depending on how the land was acquired for the project. It is proposed in the draft amended tax law that taxable price for VAT purposes with regard to real estate transfer is calculated as the selling price of the real estate exclusive of VAT minus (-) the land use fee or lump-sum land rental fee paid to the State Budget.

Input VAT incurred for construction costs can generally be claimed as an input VAT credit. Output VAT will also be applied to the payment collection on schedule and the deductible land value for VAT purpose is also allocated accordingly.

The VAT rate of 5% is applicable to contracts for selling/leasing/financial leasing for social housing which satisfy the stipulated conditions.

III. Stamp Duty

Stamp duty is payable on the transfer of title of real estate property by the buyer. Some specific transfers may be exempted from the stamp duty. Stamp duty is imposed at 0.5% on the value of the property up to VND 500 million (approx. USD 22,000) per asset per transaction.

IV. Foreign Contractor Tax (“FCT”)

Foreign companies, with or without a permanent establishment (“PE”) in Vietnam, carrying out business activities in Vietnam and/or deriving income in Vietnam under a contract or agreement signed with a Vietnamese organization or individual, are referred to as a foreign contractor (“FC”) and subject to Vietnamese FCT.

VAT and CIT are the two components of the FCT.

Currently there are three tax filing and payment options:

- (i) full registration method with maintenance of books and accounts in Vietnam under Vietnam Accounting System;
- (ii) deemed withholding method; and
- (iii) the hybrid method, which consists of paying VAT on the conventional deduction method like a Vietnamese company but paying CIT on a deemed withholding method basis.

The Deemed Withholding method is the most common one in practice by which the contracting Vietnamese party is responsible for registering, withholding, filing and paying the FCT due on each payment made to the FC. The applicable rates vary depending on the nature of goods and services provided. For projects having a substantial portion of local purchases, the Hybrid method is often applied so that the FCs can claim credit on the input VAT incurred on local purchases but can still pay the CIT on a deemed basis. Note that it is being proposed under the draft amended tax law that conventional deduction method would be the compulsory VAT declaration method for foreign contractors.

V. Personal Income Tax (“PIT”)

Generally, real estate (other than a property used as a sole residential property and some other specific exempt transactions) transferred by an individual is subject to PIT. Property transactions subject to PIT include the transfer of “the right to buy” and the transfer of “the right to lease”.

PIT exemption for transfer of sole residential property is not applicable for:

- (i) transfer within 182 days from the date of having the right of ownership/LUR; and
- (ii) transfer of house/apartment/construction work yet to be completed.

Typically, a Vietnam tax resident has to pay PIT for the property transactions at 2% on the transfer price.

No PIT declaration and payment are required in the case where individuals/households are leasing a

property for an annual rental of VND100 million or less (approx. USD4,500 per year).

VI. Non-agricultural land-use tax

Non-agricultural land-use tax (“NALUT”) is generally applicable to the following types of land: Non-agricultural land used for residential, production or business purposes.

The calculation of the tax liability is generally based on the land area, price of land (normally set by the provincial-level People Committee and remains unchanged within 5 years from 1 January 2017) and tax rate. For residential land holding a multi-floor building or non-agricultural land holding a production or business establishment, the applicable tax rate is 0.03%.

Organizations granted with LUR and existing land users are required to submit NALUT declaration on a yearly basis at the tax office of the relevant district no later than 31 March of the following year. However, no further declaration in subsequent years is required if there is no change in tax payer or tax liability. If there is any change, the tax payer is required to submit an amended declaration within 30 days following the date on which the change takes effect.

The tax payer may opt to pay the NALUT on one-off basis a year no later than 31 May each year or twice a year no later than 31 May and 31 October each year. If the tax payer requests to pay the NALUT on one-off basis for multiple years up to 5-year period, the payment of tax is not later than 31 December of the year in which the request is made.

NALUT exemption and reduction can be granted for certain types of land including land related to investment projects in the sectors eligible for special investment incentives, investment projects in geographical areas with qualifying socio-economic difficulties and other specific cases.

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INSURANCE

Overview

Most risks that a company would insure anywhere else in the world can be adequately insured for in Vietnam. Rates and terms are generally a function of the world market with due consideration given to local factors however it should be noted that VAT of 10% applies to insurance premiums on policies written within Vietnam. While the overall ability to insure large or complicated risks entirely within Vietnam is limited, the Vietnamese insurance industry can nonetheless insure any size risk through reinsurance arrangements with international reinsurance organizations. The leading reinsurers and those who carry more than 10% have to be rated at least BBB by Standards & Poors or B++ by AM Best or Baa by Moody's or equivalent.

Vietnam passed a comprehensive Insurance Law in December 2000 which took effect on April 1, 2001. The Amendment of Insurance Law has been passed and was effective as at July 1, 2011. The key changes are focused at keeping up with any WTO commitments such as: the insurance market is professional & open, foreign insurers are allowed to establish a branch in Vietnam or issue an insurance policy into Vietnam. However, the law gives the power to the government to release detailed guidance and to license such transactions. The Decree No. 123/2011/ND-CP was issued on 28 Dec 2011 to provide guidance on the implementation of the Amended Insurance Law. In addition, the government issued Circular No. 124/2012/TT-BTC and Circular No. 125/2012/TT-BTC on 30 Jul 2012 with effective from 01 Oct 2012 to guide on the operation and finance of the insurance market. The Decree No. 98/2013/ND-CP effective from 15 Oct 2013 providing guidance on penalties for administration offences in Insurance Business.

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Construction All Risks (CAR) insurance, including the covers for the Contract Work & Third Party Liability, is popular in Vietnam. Recently, owners of larger projects have shown interest in considering more technical coverages such as Advance Loss of Profit (ALoP) / Delay in Start-Up (DSU) to protect their anticipated profit/fixed costs and Completed Operation/Product Liability insurance or liability of a particular project.

The implementation of Decree No. 119/2015/ND-CP on Compulsory Insurance for Construction Investment Activities together with Circular No. 329/2016/TT-BTC on Guideline for Implementation effected March 2017 provide clarity for responsibilities of participation in a compulsory insurance program, conditions for sale or purchase of compulsory insurance, sum insured, rules of determination of insurance premiums and governmental authority to regulate compulsory insurance for construction investment activities. Subjects of application include investors and contractors, consultancies, construction contractors, non-life insurance enterprises, branches of foreign non-life insurance enterprises and ceding companies. A summary of its regulation can be found as follows:

Insurance Type	Cost to be included in	Responsible Entities	Scope of Coverage	Minimum Insured	Validity Period
Construction	Construction investment value	Project owners/ developers/ Contractors	Material Damage Third Party Liability	MD – Est. total construction value TPL – No minimum limit required	Inception date: Opening date Expiry date: Closing construction activities date
Professional Liability	Consultancy service fee	Consultancy service Contractors	Contractor's duty to pay for losses or claims cause to a third party and related statutory cost incurred from provision of a construction consultancy service	Consultancy contract value or Design contract value	Inception date: Rendered date Expiry date: warranty term of construction works ends
Workmen Compensation	Business expenses	Construction contractors	Bodily injury and death of employees suffered from work accidents or occupational diseases.	VND 100 million/person/ occurrence	Inception date: Start work date Expiry date: warranty term of construction works ends

Moreover, under Circular 329, tariff premium rates and deductibles for Construction, Professional Indemnity, Worker's Compensation are also specified for projects valued below VND700bn (~ USD30m) or Construction Insurance and VND1,000bn (USD45m) for Professional Indemnity Insurance. Tariff premium rates and deductibles for Construction Insurance of projects valued above VND700bn (~USD30m) or Professional Indemnity Insurance of projects valued above VND1,000bn (USD45m) are based on market conditions and negotiation between Insurer and Policy holder. The requirement of Foreign ceding companies and organizations shall be those ranked at least BBB by the Standard & Poor's or B++ by A.M. Best or the equivalent rank in the immediately preceding year of the ceding year by qualified and experienced rating organizations remains unchanged.

Compulsory Insurances in Vietnam

Compulsory insurances are regulated in insurance laws & some specialized laws. Below is the consolidation:

- **Fire and Explosion** - (Article 8 of Law on Insurance Business)
- **Motor Vehicle/Aviation** carriers to passengers - (Article 8 of Law on Insurance Business, Decree 103/2006/ND-CP/ Article 163 of Civil Aviation Law)
- **Civil Liability Insurance** of those who deal in the transport of passengers or cargo in inland waterways - (Article 6 &7 of Decree 125/2005/ND-CP and Article 58 & 126 of Marine Law)
- **Professional Indemnity insurance** for:
 - Insurance brokers - (Article 8 of Law on Insurance Business)
 - Lawyers - (Article 8 of Law on Insurance Business & Article 40 of Law on Lawyer)
 - Contractor to perform survey for construction works - (Article 51 of Law on Construction)
 - Contractor to design for construction works - (Article 58 of Law on Construction)
 - Contractor to supervise for execution of building works

(Cont'd)

- (Article 90 of Law on Construction)
- Securities companies - (Article 71 of Law on Securities)
- Fund management companies - (Article 72 of Law on Securities)
- Auditing Companies - (Decree 105/2004/ND-CP on independent auditor)
- Enterprises on price assessment - Article 11 of Decree 111/2005/ND-CP on Price assessment)
- Medical examination and treatment

▪ **Insurance for Construction works:**

- Applicable to investors/developers - (Article 75 of Law on Construction, Decree No. 119/2015/ND-CP, Circular No. 329/2016/TT-BTC)
- Applicable to contractors - (Article 76 of Law on Construction, Decree No. 119/2015/ND-CP, Circular No. 329/2016/TT-BTC)
- Applicable to Construction consultants (Designer, surveyor) (Decree No. 119/2015/ND-CP, Circular No. 329/2016/TT-BTC)
- Applicable to parties who call construction tender - (Article 104 of Law on Construction)
- Professional insurance, civil liability insurance and environmental damage compensation liability insurance applicable to organizations and individuals performing radiation jobs

▪ **Civil Liability Insurance and Environmental Damage Compensation Liability Insurance applicable to Organizations and Individuals performing Radiation Jobs**

▪ **Travel Insurance for Vietnamese traveling overseas**

Technically there is no requirement for worker compensation insurance. However since there is a liability regarding employees under the Vietnamese labour law the purchase of worker compensation insurance can act as a risk transfer method to protect against these liabilities.

MARKET PLAYERS

Insurers & Reinsurers

There are numerous domestic and foreign companies licensed to provide non-life insurance, including insurance for construction sectors in Vietnam.

Group-controlled: PVI Insurance Corporation (PVI), Petrolimex Joint Stock Insurance Company (PJICO), Post and Telecommunication Joint Stock Insurance Corporation (PTI), Global Insurance Corporation (GIC), Vietnam National Aviation Insurance Corporation (VNI)

Bank-based: Vietinbank Insurance Corporation (VBI), BIDV Insurance Corporation (BIC), Agriculture Bank Insurance JSC (ABIC), Military Insurance Corporation (MIC), Sai Gon - Hanoi Insurance Corporation (BSH)

Joint Stock: Bao Viet Insurance Corporation (Bao Viet), Bao Minh Insurance Corporation (Bao Minh), Bao Long Insurance Corporation (Bao Long), VASS Assurance Corp (VASS), AAA Assurance Corporation (AAA), Phu Hung Assurance Corporation (PAC), Hung Vuong Assurance Corporation (BHV), Xuan Thanh Insurance JSC (XTI)

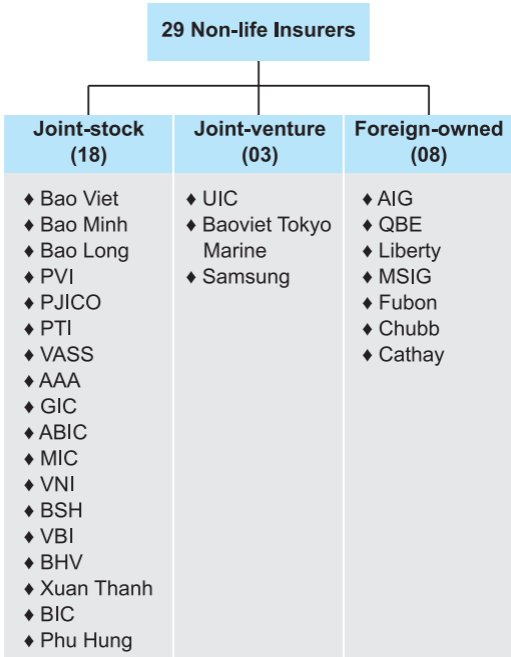
Foreign: QBE Insurance (Vietnam) Company Limited (QBE), AIG Vietnam Insurance Company Limited (AIG), Chubb Insurance Vietnam Company Limited (Chubb), Liberty Insurance Limited (Liberty), Fubon Insurance Vietnam Company Limited (Fubon), MSIG Insurance Vietnam Co., Ltd (MSIG), Cathay Insurance (Vietnam) Co., Ltd. (Cathay), Seoul Guarantee Insurance Company – Hanoi Branch Office (SGI Hanoi)

Joint Venture: Bao viet Tokio Marine Insurance Company Limited (Bao viet Tokio Marine – JV between Baoviet Holdings and Tokio Marine), United Insurance Company of Vietnam (UIC – JV of Bao Minh Insurance Corporation, Sompo Japan Insurance Inc. & KB Insurance Company), Samsung

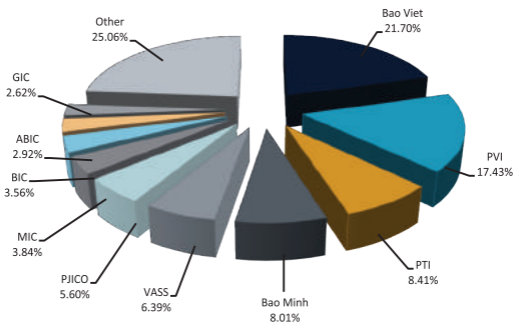
(Cont'd)

Vina Insurance (Samsung – JV between Samsung Fire & Marine Insurance Co., Ltd. and Vietnam National Reinsurance Corporation)

Reinsurers: Vietnam National Reinsurance Corporation (VinaRe), PVI Reinsurance Joint Stock Corporation (PVI Re).



Non-life Insurance Market Share – Q1/2018
(Source: Vietnam Insurance Associate – Quarter 1 of 2018)



Brokers

As insurance is best arranged through a licensed insurance broker who can help companies to assess the underlying risks and then arrange appropriate insurance on their behalf, there are a number of licensed insurance brokers.

International: Jardine Lloyd Thompson Limited (JLT), Aon Vietnam Company Limited (Aon), Marsh Vietnam Ltd. (Marsh), Gras Savoye Willis Vietnam, Toyota Tsusho Vietnam Company Limited.

Local: Viet Quoc, A Dong, Thai Binh Duong, Sao Viet, CIMEICO, Nam A.

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WORKFORCE

The estimated population of Vietnam in 2019 will be circa 97,4 million (as the General Office for Population Family Planning).

The Government has recently issued the Decree No. 143/2018/ND-CP elaborating on the Law on Social Security and the Law on Occupational Safety and Hygiene regarding the compulsory SI program in which foreign employees who are foreign nationals are required to participate whilst working in Vietnam.

The Decree has provided detailed instructions for the following specific matters:

- Regarding subjects of the compulsory SI program, foreign nationals working in Vietnam are required to participate in this program when they obtain the work permit, the practicing certificate, the practicing license issued in Vietnam, the indefinite-term employment contract or the employment contract valid for at least 1 year with employers in Vietnam.
- The compulsory SI program in which employees are required to participate is composed of sickness, maternity and paternity, occupational accident, occupational disease, retirement and death insurance programs.
- Regarding the contribution rates:

From January 1, 2022, a foreign employee must make a monthly contribution accounting for 8% of his/her monthly salary into the retirement and death benefit fund.

An employer must make monthly contributions which are the percentages of the payroll for the employee's SI contributions

- √ 3% paid into the sickness, maternity and paternity insurance fund;
- √ 0.5% paid into the occupational accident – occupational disease insurance fund;
- √ 14% paid into the retirement and death insurance fund from January 1, 2022



OTHER INFORMATION **5**



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VIETNAM MAP



DOMESTIC ROUTES

Route	Distance (km)	Duration
From Hanoi to:		
Buon Ma Thuot (Dak Lak)	960	01h40'
Cam Ranh (Khanh Hoa)	1039	01h45'
Can Tho	1221	02h10'
Chu Lai (Quang Nam)	770	01h55'
Da Lat (Lam Dong)	1065	01h50'
Da Nang	606	01h15'
Dien Bien Phu (Dien Bien)	301	01h05'
Dong Hoi (Quang Binh)	399	01h25'
Ho Chi Minh City	1138	02h05'
Hue	549	01h10'
Phu Quoc (Kien Giang)	1575	02h10'
Pleiku (Gia Lai)	814	02h20'
Quy Nhon (Binh Dinh)	882	01h35'
Tuy Hoa (Phu Yen)	956	02h35'
Vinh (Nghe An)	254	01h00'
From Ho Chi Minh City to:		
Buon Ma Thuot (Dak Lak)	260	01h00'
Ca Mau	248	01h00'
Cam Ranh (Khanh Hoa)	318	01h00'
Chu Lai (Quang Nam)	557	01h15'
Con Dao (Ba Ria - Vung Tau)	248	01h00'
Da Lat (Lam Dong)	214	00h50'
Danang	603	01h15'
Dong Hoi (Quang Binh)	745	01h35'
Hai Phong	1111	02h00'
Hanoi	1138	02h05'
Hue	630	01h20'
Phu Quoc (Kien Giang)	300	01h05'
Pleiku (Gia Lai)	384	01h20'
Quy Nhon (Binh Dinh)	431	01h10'
Rach Gia (Kien Giang)	194	00h55'
Tuy Hoa (Phu Yen)	381	01h00'
Vinh (Nghe An)	883	01h45'
From Da Nang to:		
Buon Ma Thuot (Dak Lak)	374	01h15'
Cam Ranh (Khanh Hoa)	436	01h05'
Da Lat (Lam Dong)	480	01h25'
Hai Phong	709	01h15'
Hanoi	606	01h15'
Ho Chi Minh City	603	01h15'
Pleiku (Gia Lai)	227	00h55'
Vinh (Nghe An)	452	01h15'

VIETNAM KEY DATA

Government

Country Name	: The Socialist Republic of Vietnam
Head of State	: President
Government Type	: Socialist Republic
Head of Government	: Prime Minister
Capital City	: Hanoi
Administrative Divisions	: 58 provinces and 5 municipalities
Independence	: 2nd September 1945
Legal System	: Based on Constitution of Vietnam
Official Language	: Vietnamese
National Language	: Vietnamese

Geography

Geographic Coordinates	: 16 10 N, 107 50 E
Location	: South East Asia
Border Countries	: Cambodia 1,158 km, China 1,297 km, Laos 2,161 km
Total Area	: 331,210 sq km
Land Area	: 310,070 sq km
Water	: 21,140 sq km
Land use	: arable land: 19.64%; permanent crops: 11.18%; other: 69.18%
Irrigated Land	: 45,850 sq km (2005)
Coastline	: 3,444 km (excludes islands)
Land boundaries	: 4,616 km
Natural Resources	: phosphates, coal, manganese, rare earth elements, bauxite, chromate, offshore oil and gas deposits, timber, hydropower
Climate type	: tropical in south; monsoonal in north with hot, rainy season (May to September) and warm, dry season (October to March)
Natural hazards	: occasional typhoons (May to January) with extensive flooding, especially in the Mekong River delta

People

Total Population	: 94.67 million (2018 est.)
Age structure	: Urban: 35.7% Rural: 64.3% Male: 49.4% Female: 50.6%
Population Growth Rate	: 1.06% (2018 est.)
Median Age	: total: 31.7 (est. 2017)
Life Expectancy	: average age: 73.5 years old male: 70.9 years old female: 76.2 years old
Urban Population	
Hanoi	: 7.83 million (2018 est.)
Ho Chi Minh City	: 8.7 million (est. 2018)
Ethnic Groups	: 54 Ethnic Groups Kinh (Viet) 85.7%, Tay 1.9%, Thai 1.8%, Muong 1.5%, Khome 1.5%, Hmong 1.2%, Nung 1.1%, others 5.3% (2009 census)
Languages	: Vietnamese (official), English (increasingly favored as a second language), some French, Chinese, and Khmer; mountain area languages (Mon-Khmer and Malayo-Polynesian)
Literacy (definition: age 15 and over can read and write)	: total population: 95% (2016 est.) male: 96.6% (2016 est.) female: 93.5% (2016 est.)
Population below poverty line	: 8% (2017 est.)
Labor Force	: 55.4 million (est. 2018)
Labor Force by occupation	: Agriculture: 38.1% (est. 2018) Industry: 26.6% (est. 2018) Services: 35.3% (est. 2018)
Unemployment Rate	: 2.19% (est. 2018)

Economy

Monetary Unit	: Vietnamese Dong
Currency Code	: VND
Exchange rate to USD	: dong (VND) per : 23,058 (est. 2018)
Euro	: 27,369 (est. 2018)
British Pound	: 30,881 (est. 2018)
Average Consumer Price Index (CPI)	: 3.54% (est. 2018)

(Cont'd)

VIETNAM KEY DATA

Fiscal Year	: 1 January to 31 December
GDP (Official Exchange Rate)	: US\$ 240,06 billion (est. 2018)
GDP Growth Rate	: 7.08% (est. 2018)
GDP composition by sectors	: Agriculture: 14,57% (est. 2018) Industry: 34,28% (est. 2018) Services: 41,17% (est. 2018)

Trade

Total Exports : US\$ 244,72 billion (est. 2018)

Major Exports Commodities :

- 1- Telephones, mobile phones and parts thereof
- 2- Textiles and garments
- 3- Computers, electrical products, spare-parts and components thereof
- 4- Foot-wear
- 5- Fishery products
- 6- Crude oil
- 7- Machine, equipment, tools and instruments
- 8- Wood and wooden products
- 9- Other means of transportation, parts and accessories thereof
- 10- Rice

Export Partners : EU 11%, US 14.2%, Asean 13.7%, Japan 12.9%, Korea 23.2%, China 18.5%

Total Imports (USD billion) : US\$ 237,51 billion (est. 2018)

Major Imports Commodities :

- 1- Machine, equipment, tools and instruments
- 2- Computers, electrical products, spare-parts and components thereof
- 3- Textile, leather and foot-wears materials and auxiliaries group
- 4- Telephones, mobile phones and parts thereof
- 5- Petroleum products

6- Iron and steel

7- Plastics

8- Animal fodders and animal fodders materials

9- Chemical

10- Other means of transportation, parts and auxiliaries thereof

Import Partners : China 12.3%, Asean 13%, Korea 2%, EU 13.1%, Japan 13.4%, US 36.7%

International Airports : Tan Son Nhat International Airport (Ho Chi Minh City), Da Nang International Airport (Da Nang), Hanoi Noi Bai International Airport (Hanoi), Nha Trang Cam Ranh International Airport (Nha Trang), Can Tho International Airport (Can Tho),

Major Seaports : Cam Pha Port (Quang Ninh), Hai Phong Port (Hai Phong), Nghi Son Port (Thanh Hoa), Cua Lo Port (Nghe An), Vung Ang Port (Ha Tinh), Chan May Port (Thua Thien Hue), Da Nang Port (Da Nang), Dung Quoc Port (Quang Ngai), Quy Nhon Port (Binh Dinh), Van Phong Port (Khanh Hoa), Saigon Port (Ho Chi Minh City), Vung Tau Port (Vung Tau), Dong Nai Port (Dong Nai), Can Tho Port (Can Tho)

SOME INTERESTING FACTS

Vietnam's history can roughly be divided into the following periods:

- Pre-history: from circa 400,000 years (Palaeolithic to 4,000 years (Neolithic) ago, cultures in the area included Son Vi, Hoa Binh, Bac Son, Ha Long, and Hoa Loc.
- Proto-history: According to legends, Vietnam originated in the seventh century BC when the Hung Kings founded Van Lang. In the third century BC, King An Duong Vuong named founded Au Lac and ruled until 179 B.C.
- Chinese Occupation: Vietnam was occupied by China from the first to the tenth century A.D.
- Monarchy: Kings rules the area from 968 to 1945.
- Independence: The Socialist Republic of Vietnam was founded after the 1945 revolution, when President Ho Chi Minh declared independence.
- French War: Vietnam battled French colonialism from 1858 to the August Revolution in 1945, and from 1946 to the victory at Bien Bien Phu in 1954.
- American War: Vietnam fought America from 1954 to Ho Chi Minh's victory on April 30, 1975.
- From 1975 until now: Vietnam has been working towards development and success and has been member of International Organizations
- 1976: Non-Aligned Movement (NAM)
- 1976, Jun: World Intellectual Property Organization (WIPO)
- 1976, Oct: Member of UNESCO
- 1977, Sep: Vietnam became the member of The United Nations (UN)
- 1995, Jul: Vietnam became the seventh member of Association of Southeast Asian Nations (ASEAN)
- 1995, Jul: ASEAN Free Trade Area (AFTA)
- 1996: The Asia-Europe Meeting (ASEM)
- 1998, Nov: Asia-Pacific Economic Cooperation (APEC)
- 2000, Jul: signed the Bilateral Trade Agreement (BTA) with the United States
- 2007, Jan: Vietnam became the 150th member of the World Trade Organization (WTO)
- 2013, Jul: Vietnam maintains diplomatic relationships with 182 nations throughout the world, including permanent members of United Nations Security Council

- 2015, May: Free Trade Agreement (FTA), South Korea and Vietnam sign Free-Trade Agreement
- 2015, May: The Free Trade Agreement between the Socialist Republic of Viet Nam and the Eurasian Economic Union and its Members States, of the other part (VN-EAEU FTA)
- 2015, Oct: The Trans-Pacific Partnership ("TPP") was concluded on 5 October 2015 in Atlanta, Georgia, USA.
- 2015, Nov: ASEAN Economic Community (AEC)
- 2015, Dec: Free Trade Agreement between EU and Vietnam (EVFTA)

RELEVANT WEBSITE

Government Office

Ministry of Public Security

Ministry of Home Affairs

Ministry of Justice

Ministry of Planning and Investment

Ministry of Finance

Ministry of Industry and Trade

Ministry of Agriculture and Rural Development

Ministry of Transport

Ministry of Construction

Ministry of Natural Resources and Environment

Ministry of Information and Communication

Ministry of Labor, War Invalid and Social Affairs

Ministry of Culture, Sports and Tourism

Ministry of Science and Technology

Ministry of Health Portal

Ministry of Education and Training

Ministry of Foreign Affairs

The State Bank of Vietnam

General Statistics Office of Vietnam

Directorate for Standards, Metrology and Quality

Vietnam National Administration of Tourism

Vietnam Customs

Vietnam Register

<http://www.chinhphu.vn>
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<http://www.tcvn.gov.vn>
<http://www.vietnamtourism.com>
<http://www.customs.gov.vn>
<http://www.vr.org.vn>

PUBLIC HOLIDAYS

	2019
VIETNAM	
Normal Scheduled Holidays	
New Year's Day	01 Jan
Lunar New Year	04 - 08 Feb
Hung Vuong King Celebration	14 - 15* Apr
Liberation Day of Saigon	30 Apr
International Labour Day	01 May
National Day	02 Sep
Christmas Day	24 - 25 Dec
* Substitute for 14 Apr (Sunday)	
MALAYSIA	
New Year's Day**	01 Jan
Chinese New Year	05 - 06 Feb
Labour Day	01 May
Wesak Day#	19 May
Hari Raya Aidilfitri*	05 - 06 Jun
Hari Raya Qurban*	11 Aug
National Day	31 Aug
Awal Muharam (Maal Hijrah)#	01 Sep
King/Agong's Birthday	09 Sep
Malaysia Day	16 Sep
Deepavali*#	27 Oct
Prophet Muhammad's Birthday	09 Nov
Christmas Day	25 Dec
* Subject to change	
** Except Johor, Kelantan, Kedah, Perlis & Terengganu	
# The following day will be an additional Public Holiday	

	2019	
HONG KONG		
New Year's Day	01	Jan
Lunar New Year (Day 1)	05	Feb
Lunar New Year (Day 2)	06	Feb
Lunar New Year (Day 3)	07	Feb
Ching Ming Festival	05	Apr
Good Friday	19	Apr
Holy Saturday	20	Apr
Easter Monday	22	Apr
Labour Day	01	May
The day following the Birthday of the Buddha	13	May
Tuen Ng Festival	07	Jun
HKSAR Establishment Day	01	Jul
The day Following Chinese Mid-Autumn Festival	14	Sep
National Day	01	Oct
Chung Yeung Festival	07	Oct
Christmas Day	25	Dec
The 1st weekday after Christmas Day	26	Dec
<p><i>* As the Birthday of the Buddha in 2019 falls on a Sunday, the day following it is designated as a general holiday in substitution</i></p>		
CHINA		
New Year's Day	01	Jan
Chinese New Year's Eve	04	Feb
Chinese New Year ^{\$}	05	Feb
Women's Day ^{*@}	08	Mar
Tomb-Sweeping Festival	05	Apr
Labour Day	01	May
Dragon Boat Festival	07	Jun
Mid-Autumn Festival	13	Sep
National Day [#]	01	Oct
Chung Yeung Festival [@]	07	Oct
<p>^{\$} 05 - 10 February 2019 are holidays. [*] All women can have half day holiday. [#] 30 Sept - 7 October 2019 are public holidays. 05 October 2019 is a working day.</p>		

(Cont'd)

PUBLIC HOLIDAYS

	2019	
MACAU		
New Year's Day	01	Jan
Lunar New Year's Eve (Afternoon)*	04	Feb
Lunar New Year's Day	05	Feb
The 2nd day of Lunar New Year	06	Feb
The 3rd day of Lunar New Year	07	Feb
Ching Ming Festival	05	Apr
Good Friday	19	Apr
Holy Saturday	20	Apr
Easter Monday*	22	Apr
Labour Day	01	May
Birthday of the Buddha Holiday*	13	May
Tung Ng Festival	07	Jun
The day following the Chinese Mid-Autumn Festival	14	Sep
National Day	01	Oct
The day following National Day	02	Oct
Chung Yeung Festival	07	Oct
All Soul's Day	02	Nov
All Soul's Day Holiday*	04	Nov
Feast of the Immaculate Conception	08	Dec
Feast of the Immaculate Conception Holiday*	09	Dec
Macau SAR Establishment Day	20	Dec
Winter Sosltime	22	Dec
Winter Sosltime Holiday*	23	Dec
Christmas Eve	24	Dec
Christmas Day	25	Dec
New Year's Eve (Afternoon)*	31	Dec

* Special holiday granted by Chief Executive for staff in Public.

	2019	
INDIA		
New Year's Day	01	Jan
Maharashtra Day	01	May
Ramzan	05	Jun
Independence Day	15	Aug
Ganesh Chaturthi	02	Sep
Gandhi Jayanthi	02	Oct
Dasara	08	Oct
Diwali	28	Oct
Christmas Day	25	Dec
INDONESIA		
New Year's Day	01	Jan
Chinese New Year (Imlek)	05	Feb
Hindu Day of Quiet (Nyepi)	07	Mar
Ascension of Prophet Mohammad	03	Apr
Good Friday	19	Apr
International Labour Day	01	May
Waisak Day	19	May
Ascension Day of Jesus Christ	30	May
Pancasila Day*	01	Jun
Idul Fitri	05 - 06	Jun
Idul Adha Day	11	Aug
National Independence Day	17	Aug
Hijriyah New Year	01	Sep
Prophet Muhammad's Birthday	09	Nov
Christmas Day	25	Dec
* Subject to changes		

(Cont'd)

PUBLIC HOLIDAYS

	2019
PHILIPPINES	
Regular Holidays	
New Year's Day*	01 Jan
Chinese New Year#	05 Feb
EDSA People Power Revolution (Additional)#	25 Feb
Araw ng Kagitingan*	09 Apr
Maundy Thursday*	18 Apr
Good Friday*	19 Apr
Black Saturday (Additional)#	20 Apr
Labor Day*	01 May
End of Eid-ul-Fitre (Feast of Ramadhan)*	06 Jun
Independence Day*	12 Jun
Eid-ul-Adha*	12 Aug
Ninoy Aquino Day#	21 Aug
National Heroes Day*	26 Aug
All Saint's Day#	01 Nov
All Soul's Day (Additional)#	02 Nov
Bonifacio Day*	30 Nov
Feast of the Immaculate Conception of Mary#	08 Dec
Christmas Eve (Additional)#	24 Dec
Christmas Day*	25 Dec
Rizal Day*	30 Dec
Last Day of the Year (Additional)#	31 Dec
* Regular Holidays	
# Special Non-Working Day	
SINGAPORE	
New Year's Day	01 Jan
Chinese New Year	05 - 06 Feb
Good Friday	19 Apr
Labour Day	01 May
Vesak Day	19 May#
Hari Raya Puasa	05 Jun
National Day	09 Aug
Hari Raya Haji	11 Aug#
Deepavali*	27 Oct#
Christmas Day	25 Dec
* Subject to change	
# The following Monday will be a public holiday	

	2019
THAILAND	
New Year	01 Jan
Makha Bucha Day	19 Feb
Chakri Memorial day	08 Apr*
Songkran Festival	15 - 16 Apr**
Labour Day	01 May
Wisakha Bucha Day	20 May***
Asamha Bucha Day	16 Jul
H.M. King Maha Vajiralongkorn's Birthday	29 Jul****
H.M. The Queen's Birthday	12 Aug
H.M. King Bhumibol Adulyadej Memorial Day	14 Oct*****
Chulalongkorn day	23 Oct
H.M. King Bhumibol Adulyadej's Birthday / Father's Day	05 Dec
Constitution Day	10 Dec
New Year's Eve	31 Dec

* As Chakri Memorial Day falls on Saturday (6 Apr) , Monday is designated as a general holiday in substitution

** As Songkran Festival falls on Saturday (13 Apr) and Sunday (14 Apr); Monday and Tuesday is designated as a general holidays in substitution

*** As Wisakha Bucha Day falls on Saturday (18 May) , Monday is designated as a general holiday in substitution

**** As H. M. King Maha Vajiralongkorn's Birthday falls on Sunday (28 July) , Monday is designated as a general holiday in substitution

***** As H. M. Bhumibol Adulyadej Memorial Day falls on Sunday (13 Oct) , Monday is designated as a general holiday in substitution

PRIME RATES

PRIME RATES AND BASE LENDING RATES AS AT 4TH QUARTER 2018.

COUNTRY	RATE (%)
China*	4.75
Hong Kong	5.13
India	9.45
Indonesia	6.75
Macau	5.38
Malaysia**	4.60
Philippines	4.35
Singapore	5.33
Thailand+	7.00
United Kingdom	0.75
United States of America	5.25
Vietnam#	9.00

* 5-Year Benchmark Lending Rate

** Indicative Effective Lending Rate

+ Minimum Loan Rate % pa (Average Based on Local Bank)

Minimum and in VND per year

FINANCIAL FORMULAE

Future value of \$1	$FV = PV (1 + i)^n$
Future value of \$1 per period	$FV = PMT [((1+i)^n - 1) \div i]$
Sinking fund (the amount required to be put away periodically to realise some future sum)	$PMT = FV [i \div ((1 + i)^n - 1)]$
Present value of \$1	$PV = FV [1 \div (1+i)^n]$
Present value of \$1 per period	$PV = PMT [((1+i)^n - 1) \div (i(1+i)^n)]$
Annuity with a PV of \$1 (mortgage bond formula)	$PMT = PV [i (1+i)^n \div ((1+i)^n - 1)]$

PV = present value

FV = future value

PMT = payment amount

n = period (e.g. 10 years with monthly payments, $n = 10 \times 12 = 120$)

i = interest rate per period

(e.g. 12% p.a. compounded monthly;

$i = 12\% \div 12 \text{ months} = 1\% \text{ per period}$)

IDD CODES AND TIME DIFFERENCES

LOCATION	IDD COUNTRY CODE	AREA CODE	TIME DIFFERENCE (Hours)*
Australia:			
Melbourne	61	3	+3
Perth	61	8	0
Sydney	61	2	+3
Bahrain	973	-	-5
Bangladesh (Dhaka)	880	2	-2
Bhutan (Thimphu)	975	2	-2
Brunei:			
Bandar Seri Begawan	673	2	0
Kuala Belait	673	3	0
Cambodia (Phnom Penh)	855	23	-1
Canada:			
Toronto (Metropolitan)	1	416	-13
Vancouver	1	604	-16
China:			
Beijing	86	10	0
Guangzhou	86	20	0
Hong Kong	852	-	0
Macau	853	-	0
Shanghai	86	21	0
Shenzhen	86	755	0
France (Paris)	33	1	-7
India:			
Bangalore	91	80	-2.5
Chennai	91	44	-2.5
New Delhi	91	11	-2.5
Mumbai	91	22	-2.5
Indonesia:			
Bali	62	36	0
Jakarta	62	21	-1
Ireland:			
Cork	353	21	-8
Dublin	353	1	-8
Japan:			
Tokyo	81	3	+1
Osaka	81	6	+1
Korea (Seoul)	82	2	+1
Korea (Pyongyang)	850	2	+1
Laos (Vientiane)	856	21	+0.5

Source: www.worldtimeserver.com ; www.worldtimezone.com
www.timeanddate.com

LOCATION	IDD COUNTRY CODE	AREA CODE	TIME DIFFERENCE (Hours)*
Malaysia:			
Johor Bahru	60	7	0
Kota Kinabalu	60	88	0
Kuala Lumpur	60	3	0
Kuching	60	82	0
Penang	60	4	0
Mongolia (Ulaanbaatar)	976	11	0
Myanmar (Yangon)	95	1	-1.5
Nepal (Kathmandu)	977	1	-2.25
Netherlands:			
Amsterdam	31	20	-7
New Zealand:			
Auckland	64	9	+5
Wellington	64	4	+5
Pakistan (Karachi)	92	21	-3
Philippines (Manila)	63	2	0
Qatar	974	-	-5
Singapore	65	-	0
South Africa:			
Johannesburg	27	11	-6
Cape Town	27	21	-6
Sri Lanka (Colombo)	94	11	-2.5
Russia (Moscow)	7	495	-5
Taiwan (Taipei)	886	2	0
Thailand:			
Bangkok	66	2	-1
Phuket	66	76	-1
United Arab Emirates:			
Abu Dhabi	971	2	-4
Dubai	971	4	-4
United Kingdom:			
London	44	20	-8
Edinburgh	44	131	-8
USA:			
Los Angeles	1	213	-16
New York	1	212	-13
Vietnam:			
Ho Chi Minh City	84	28	-1
Hanoi	84	24	-1

* As compared to Hong Kong. Allowance should be made for seasonal time variations. Time differences above as at 1 January.

CONVERSION FACTORS

UNIT	
LENGTH	
10mm = 1 cm	12 in = 1 ft
100cm = 1 m	3ft = 1 yd
1,000m = 1 km	1,760 yd = 1 mile
AREA	
10,000 m ² = 1 ha	9 ft ² = 1 yd ²
100 ha = 1 km ²	4,840 yd ² = 1 acre
	638 acre = 1 miles ²
VOLUME	
1,000 ml = 1 l	(UK) 8 pt = 1 gal
	(US) 8 pt = 1 gal
MASS	
1,000 g = 1 kg	16 oz = 1 lb
1,000kg = 1 tonne	2,240 lb = 1 ton
16 tael = 1 catty	
PRESSURE	
1 N/m ² = 1 Pa	0.068 atm = 1 Psi
10.197 kgf/cm ² = 1 MPa	0.491 Psi = 1 inHg
10 bar = 1 MPa	
POWER	
TEMPERATURE	

TO METRIC (Approx)		TO IMPERIAL (Approx)	
1 in	= 25.400 mm	1 cm	= 0.394 in
1 ft	= 30.480 cm	1 m	= 3.281 ft
1 yd	= 0.914 m	1 m	= 1.094 yd
1 mile	= 1.609 km	1 km	= 0.621 mile
1 ft ²	= 0.093 m ²	1 m ²	= 10.764 ft ²
1 yd ²	= 0.836 m ²	1 m ²	= 1.196 yd ²
1 acre	= 0.405 ha	1 ha	= 2.471 acres
1 miles ²	= 2.590 km ²	1 km ²	= 0.386 miles ²
(UK) 1 pt	= 0.568 l	(UK) 1 l	= 1.760 pt
(US) 1 pt	= 0.473 l	(US) 1 l	= 2.113 pt
(UK) 1 gal	= 4.546 l	(UK) 1 l	= 0.220 gal
(US) 1 gal	= 3.785 l	(US) 1 l	= 0.264 gal
1 oz	= 28.350 g	1 gram	= 0.035 oz
1 lb	= 0.454 kg	1 kg	= 2.205 lb
1 ton	= 1.016 tonne	1 tonne	= 0.984 ton
1 catty	= 0.605 kg		
1 psi	= 6.89 kPa	1 kPa	= 0.145 psi
1 atm	= 101 kPa	1 MPa	= 9.87 atm
1 ton/in ²	= 15.4 Mpa	1 MPa	= 0.647 ton/in ²
1 inHg	= 33.9 mb	1 mb	= 0.0295 inHg
1hp	= 0.746 kw	1 kw	= 1.340 hp
°C	= (°F-32)x5/9	°F	= (°Cx9/5)+32

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ARCADIS ASIA SECTORS

AUTOMOTIVE

At the present time we are witnessing a massive shift in the automotive sector. Electric vehicles are rapidly establishing themselves as a credible alternative as their range and performance meets (and exceeds) customer expectation. We are seeing more and more brands developing their own models across the region. In addition, the race for autonomous vehicles is leading to the development of new technologies at a pace that is unprecedented in the sector. We are helping our clients to restructure their manufacturing bases to meet shifting global demand, to remodel production lines for the new models demanded by customers, and to invest in the new supply chain technology.

Automotive retail continues to be fiercely competitive, with digital technology entering this space creating a more immersive buying experience. The race to roll out new retail formats around the globe requires lean and efficient delivery models and global standardization, supply chains and logistics.

AVIATION

The recent successful launches of new airframe technologies has caused airports to rethink how they can service larger passenger planes, and, with the prospect of new routes being enabled by longer range and new airframe formats, we expect to see further expansion and development of airports around the globe.

Domestic air travel and cargo hubs are also among popular areas of investment in aviation sector. Investment in domestic air travel is essential, as passengers demand an experience comparable with the best international airports. New cargo hubs are planned to meet 'same day' delivery expectations from online retailers and logistics firms. We expect to see continued investment and demand for high quality design and engineering solutions in the aviation sector for many years to come.

CHEMICALS & PHARMACEUTICALS

The chemical and pharmaceutical industry faces a diverse range of challenges across globe. Growing and ageing populations have created rising demands for medication and more effective cures for diseases. Asia is no exception, despite Asia having a relatively younger population compared the other regions. It is also important to take note that approximately two thirds of total global demand growth for chemicals is expected to be generated in Asia.

In order to stay ahead of the competition, we work with our clients across Asia to improve their supply chain and secure their pipelines. The chemicals and pharmaceuticals industry will continue to be 'on the move' to Asia with rapid development in the future to fulfill demand coming from Asia and beyond.

COMMERCIAL DEVELOPERS

Commercial developers are a significant proportion of our market in Asia, especially in those countries where the economy is driven by investment in property. In the last 10 years China, for example, has been fuelled by demand for properties as a result of rapid urbanization, and this is also now the case in countries such as Vietnam and the Philippines.

All building types, including commercial offices, residential, leisure, hospitality and retail, are confronted with ever increasing challenges in terms of efficiency of land use, planning compliance, product positioning, cost, quality, impact on communities, sustainability and also market competitiveness. The commercial developer sector will continue to play a key role in all economies across Asia.

(Cont'd)

ARCADIS ASIA SECTORS

FINANCIAL INSTITUTIONS

Driving better investment and asset performance and improving sustainable returns in current challenging markets is the key focus of our sector specialists.

Through utilizing unique market insight, such as our global asset performance benchmarks, our deep technical knowledge, and an unrivalled global track record in working with financial institutions, we are able to define solutions to meet client needs and to enhance their business outcomes.

OIL AND GAS

Rising production costs and unpredictable prices put oil & gas clients under more pressure than ever. Growing complexities of shifting environmental legislation combined with an increased need for asset decommissioning, oil & gas has become a complex and rapidly evolving sector.

We partner with global oil & gas clients to maximize returns on our clients' investments, through better management of project risks and costs, and improvement of opex performance. We work across the asset lifecycle from concept through to decommissioning. We bring together upstream & downstream expertise and understanding from a broad base of capabilities including cost & risk management, environmental management, project management and maintenance strategy.

RAIL

Rapid large scale urbanization, tight budgets and environmental sensitivity require innovative approaches to deliver advanced infrastructure. With our expertise in rail, and our transformational thinking, clients rely on us to improve performance and connect communities across countries and regions.

In Asia, we have been involved in providing engineering design, cost management, contract administration, risk management, business advisory and mobility oriented design for numerous metro and high speed rail projects in Hong Kong, Mainland China, Taiwan, Singapore and Malaysia.

PORTS AND WATERWAYS

Ports are at the heart of globalization, facilitating the spread of trade and prosperity. The rapid growth of Asia has seen a substantial investment in port and logistics infrastructure, but also increasing competition between ports, and a focus on raising productivity and service quality. At the same time, it is increasingly necessary to respond to public concerns about environmental and safety issues.

Delivering sustainable growth is a great challenge and requires know-how and expertise across a broad range of disciplines. We offer governments, port institutions, private terminal operators, investors and shipping lines all the disciplines necessary for an integrated approach and the delivery of successful outcomes, whether in the technical, operational, nautical, environmental, risk, financial or economic arena.

RETAIL & CONGLOMERATES

As the world of retail faces the fiercest competition yet due to a change in the traditional retail landscape and the rapid development of online retail industry, we work with our retail clients to gain a competitive advantage in their market expansion or re-branding. It is essential for us to tailor our services to fit client strengths and needs, to minimize spend and achieve the best solution for each individual company.

With unrivaled experience across all facets of retail development, from luxury and sports fashion to cosmetics, supermarkets and restaurant chains, we help our clients successfully navigate through complex challenges in retail development.

ARCADIS ASIA SERVICES

BUSINESS ADVISORY

From rapid urbanization and pressure on natural resources, to tighter regulation and market consolidation, we live in an increasingly complex world. We understand your business challenges and have first-hand experience of the assets you own and operate. We partner with you and bring unique insights to support you in getting better results, with more certainty from strategy, optimizing performance, enhancing resiliency or transformation of your asset- Arcadis has helped clients globally deliver success.

COST MANAGEMENT

Be it a high-rise office building, a state-of-the-art rail station or a large scale industrial development, the need to achieve value for money is central to every investment strategy. Our people understand the need to accurately advise on costs and procurement at planning stage, ensuring a development or program is both economically and environmentally viable for many years to come.

DESIGN & ENGINEERING

From tall buildings to the busy airports; from underground tunnels to iconic bridges, engineering feats help to improve the quality of life for us all. Our specialist engineers use their expertise and knowledge to deliver exceptional and sustainable outcomes for clients through working on some of the world's most impressive and well-known buildings and structures.

ENVIRONMENT

We all deserve a clean, safe environment in which to live. Now more than ever, businesses and governments recognize the need to incorporate environmental concerns into their decision making. Arcadis is a global leader in inventive technical and financial approaches, helping some of the world's leading corporates and governments understand their impact on the natural world.

PROJECT & PROGRAMME MANAGEMENT

Organizing the creation of the world's largest, most complex and iconic programs of work in the built and natural environment today is no easy task. Budgets, supply chains, health and safety, time-frames and the large number of parties involved can be daunting. We work alongside our clients to create the right strategy, manage and mitigate risk, and assure the outcomes to meet our clients' business objectives and create exceptional value. As construction programs grow more complex, often with multi-geography delivery and faster paced schedules, the risks are getting.

WATER

From source to tap and then back to nature, the planet's most precious resource should be cherished. Thanks to over a century of experience in the water sector, Arcadis' specialist teams around the globe are uniquely positioned to provide safe and secure water technology that is built to withstand the demands of a rapidly changing world.

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