

Sensitivity Analysis on the Cost of Affordable Housing



For more information, please contact:

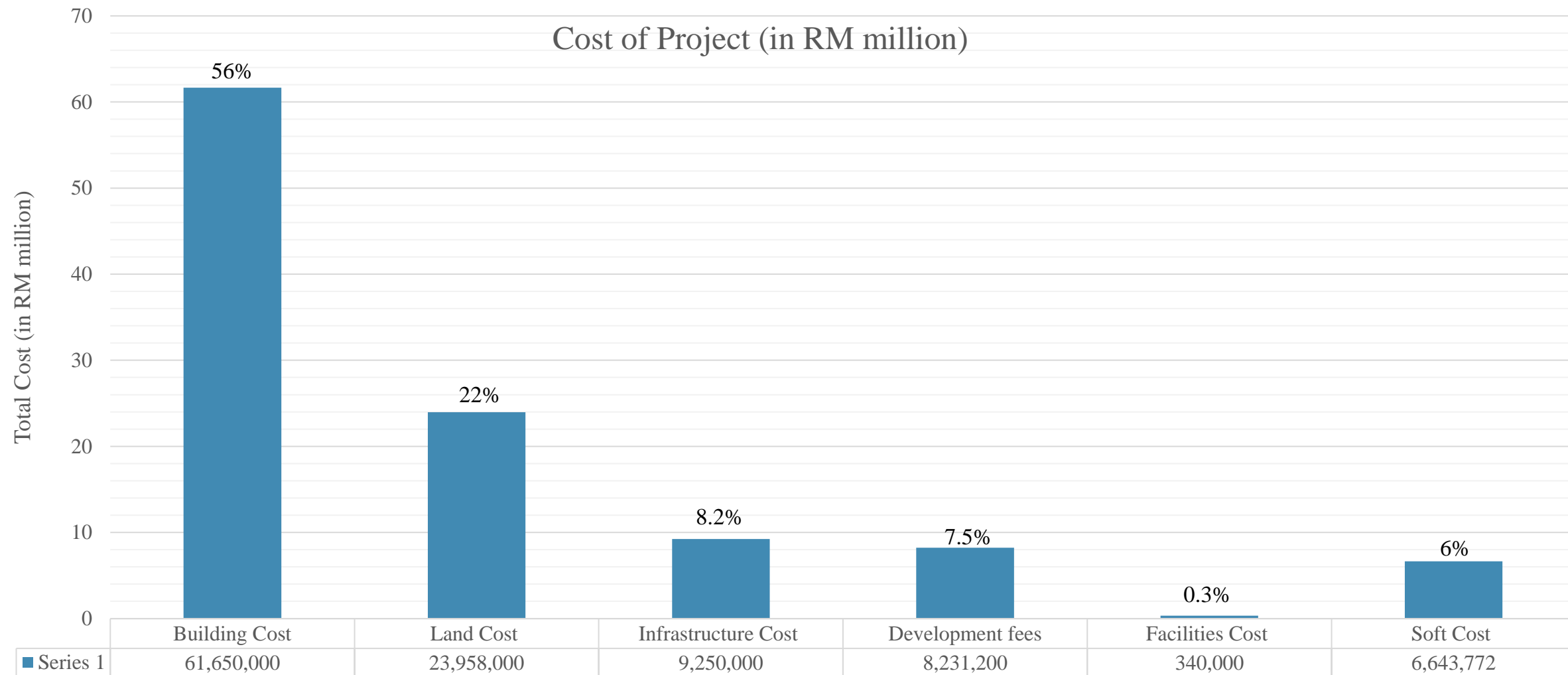
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Objectives

Identifying	Identifying major cost components in affordable housing.
Evaluating	Evaluating scenarios related to cost reduction in 3 critical variables: Land, Construction and development fees.
Analysing	Analysing impact of lower costs to final cost of housing per unit

Cost Components of Affordable Housing Construction

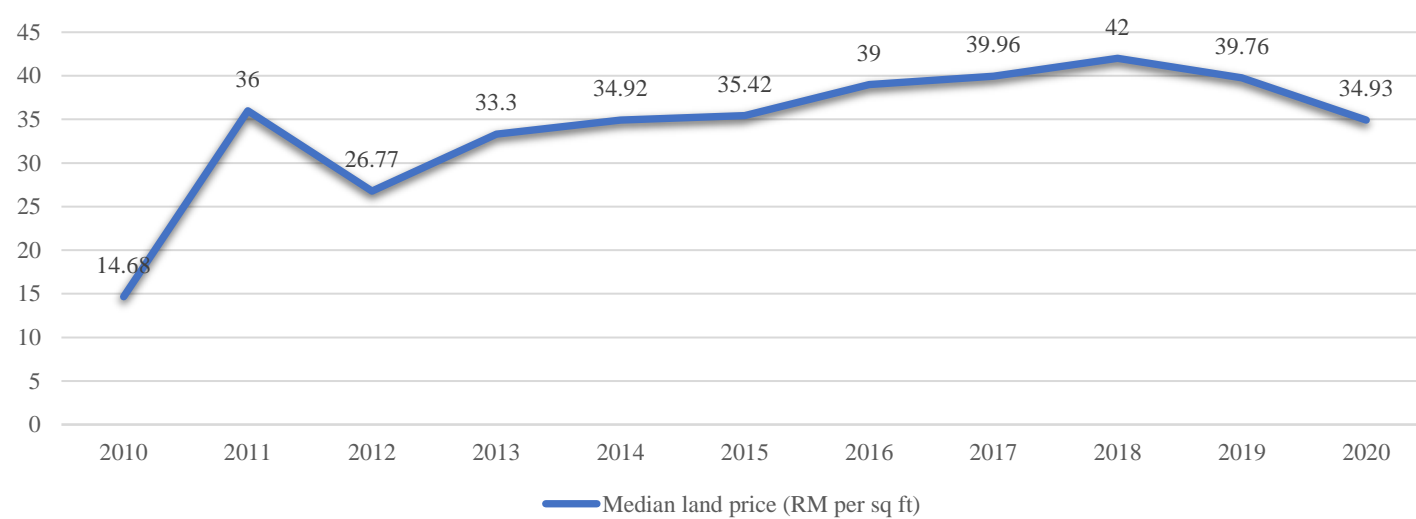


Total Cost of the project: **RM 110,072,472**

Details for all cost components for affordable housing is available at [slide 9](#) and [edgeprop \(2018\)](#)

Land Cost – Median Land Price in Selangor and selected areas

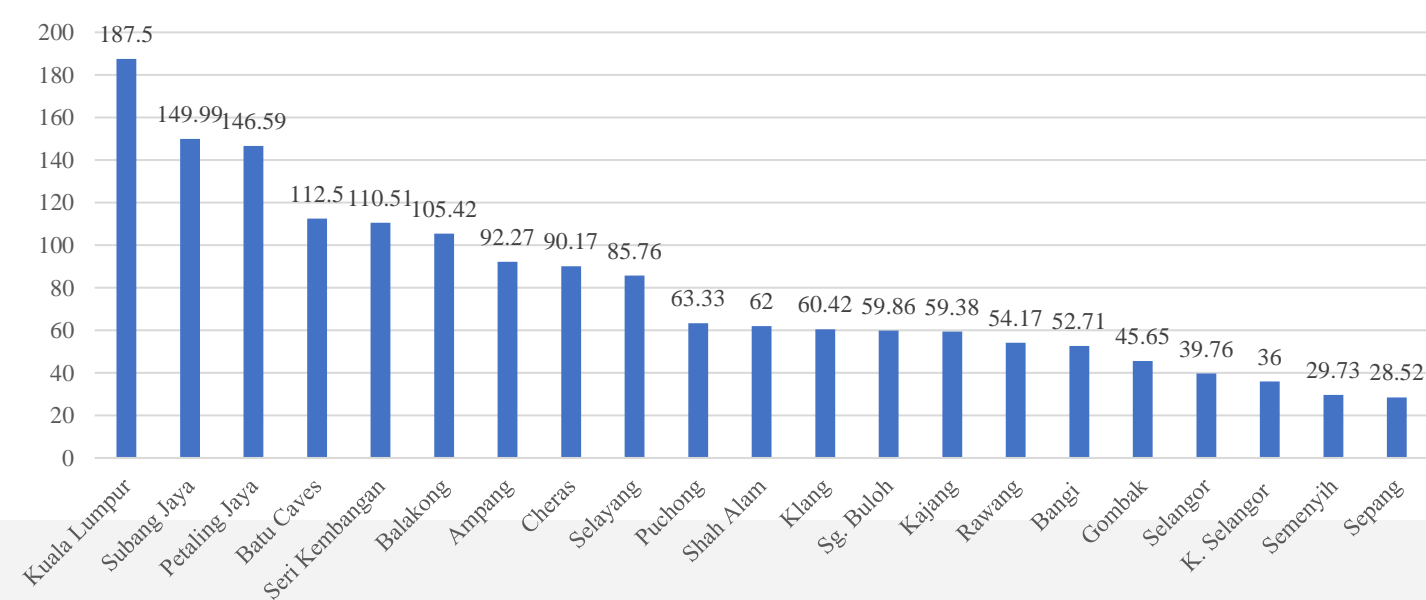
Median land price in Selangor (RM per sq ft)



Factors influencing the land price in Selangor and other areas in Klang Valley

- **Accessibility** – location with access to public transportation are more expensive.
- **Urbanization** – land price at urbanized area is much higher compared to less urbanized or further from urban area
- **Job opportunities** – Mostly located at urban area such as Kuala Lumpur, Subang Jaya and Petaling Jaya.
- **Demand & Supply** – demand outpaces supply at urban areas contributing to significant price increase.

Median Price of land per sq ft in Klang Valley (in RM per sq ft)



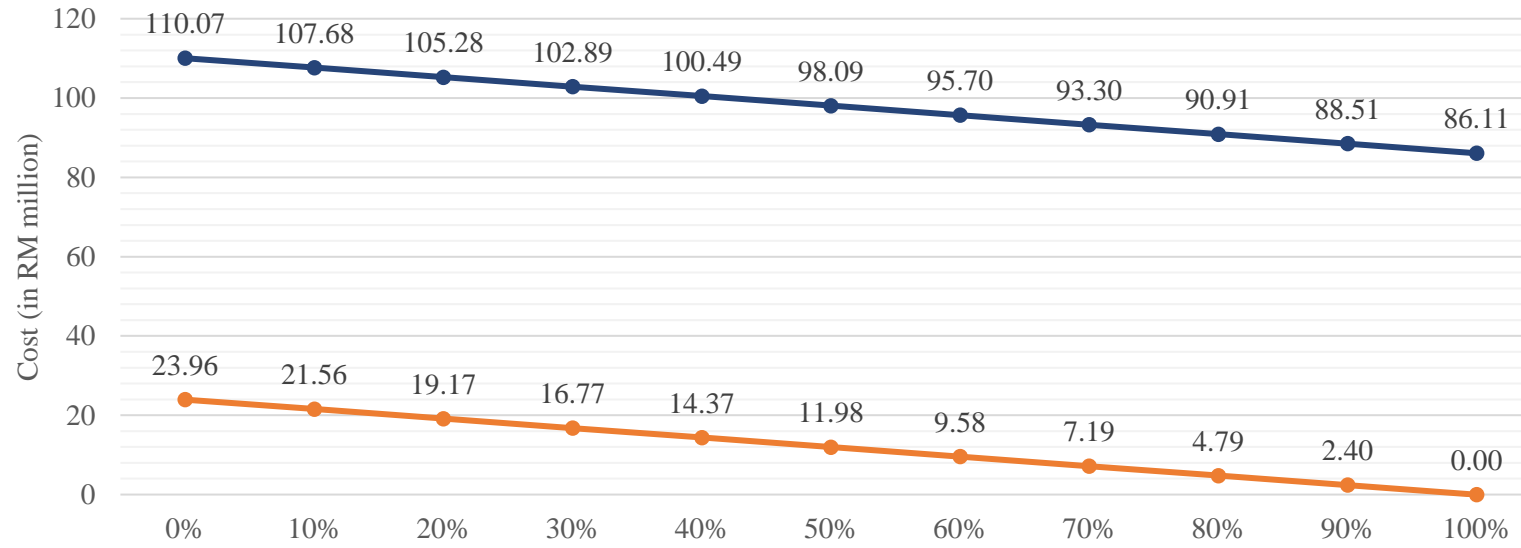
If the price per unit is capped at RM 250k per unit, the developers will achieve a lower profit margin

Median land price (RM Per sq ft) in Selangor 2010 2018 & other selected areas

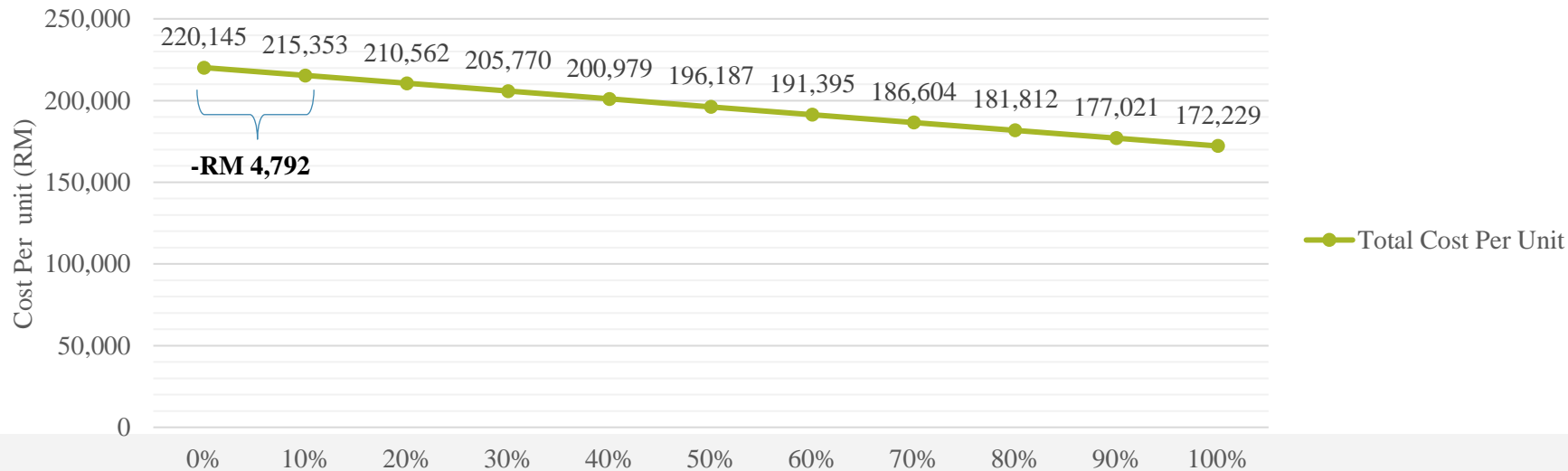
Source: [iproperly](#) (2019) and [Brickz](#) (2020)

1. Impact of Reducing Land Cost

Land Cost (in RM million)



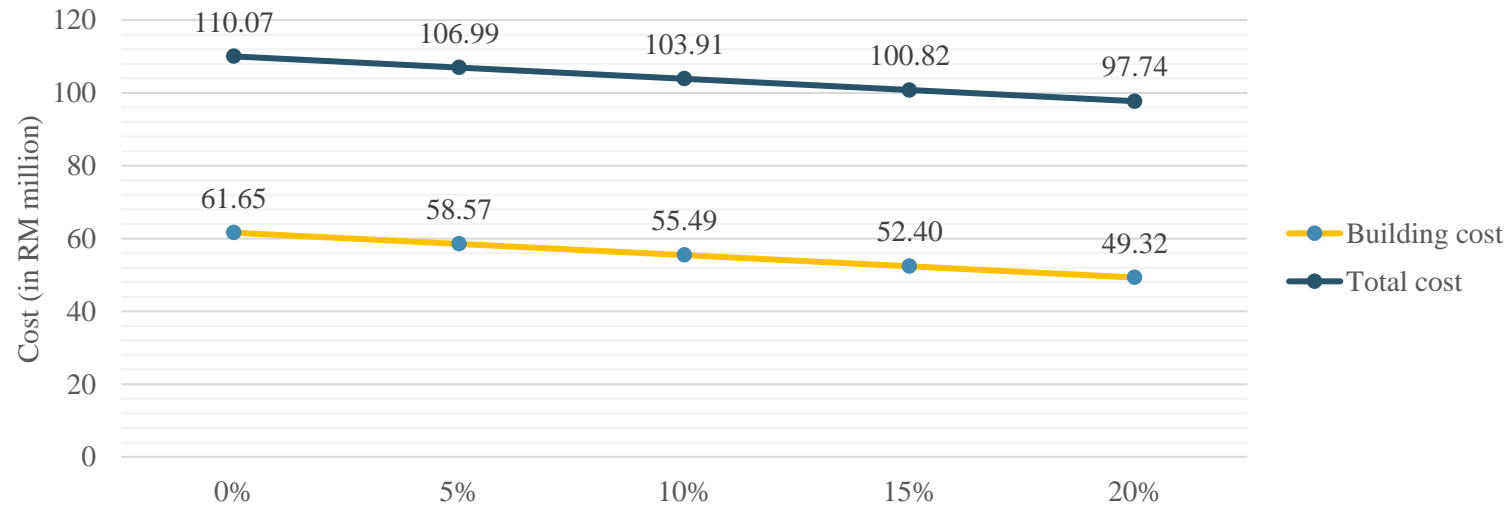
Total Cost Per Housing Unit (in RM)



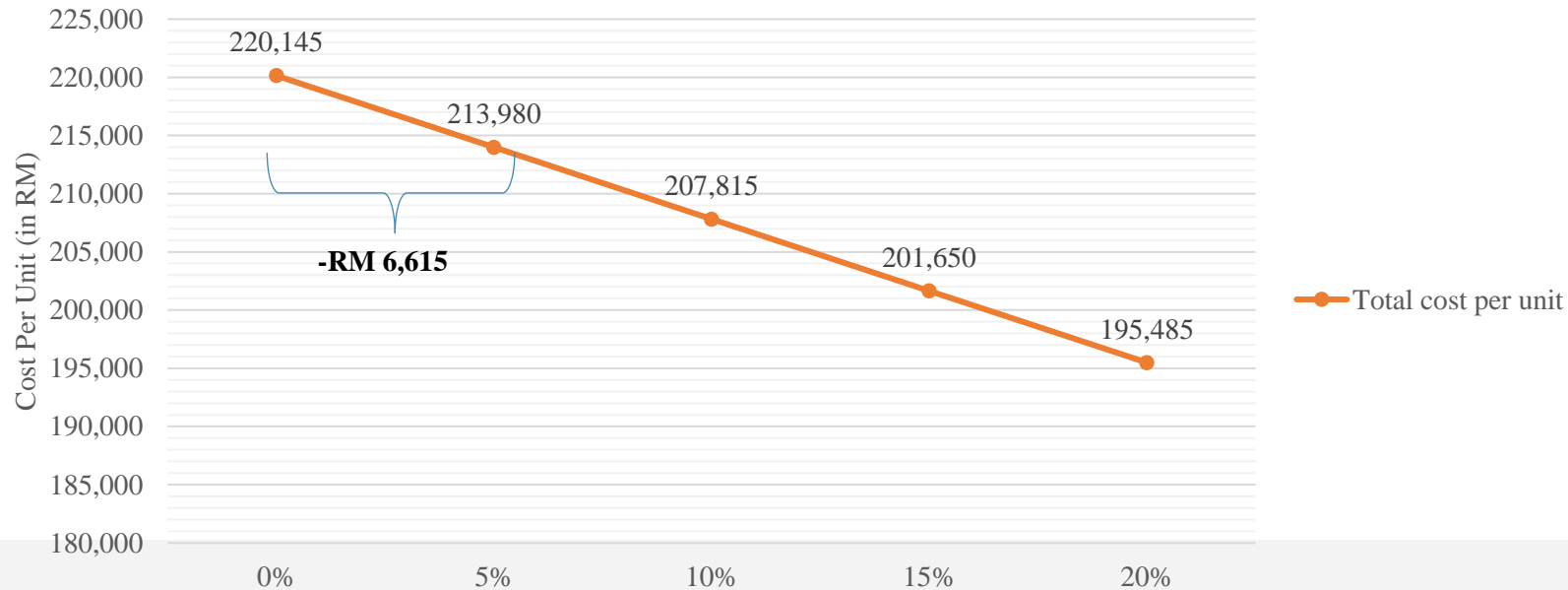
- The chart shows the cost structure of an affordable housing **with reduction in land costs**. The graph shows changes in **total cost of building with every reduction of land cost by 10%**.
- The total reduction in land costs which can be achieved through **donation of land by government or philanthropists** results in a reduction of **RM 23,958,001** to the total costs.
- Reduction of land price would lower total price per unit significantly
- **Every 10% of reduction of land cost reduces the cost per unit by RM 4,792 or 2.2% from the total cost per housing unit**
- Reduction of land price is possible if land is subsidized by the government or others.
- **Land price contributed 22% from the total cost of project**

2. Impact of Reducing Construction Costs

Construction Cost (in RM million)



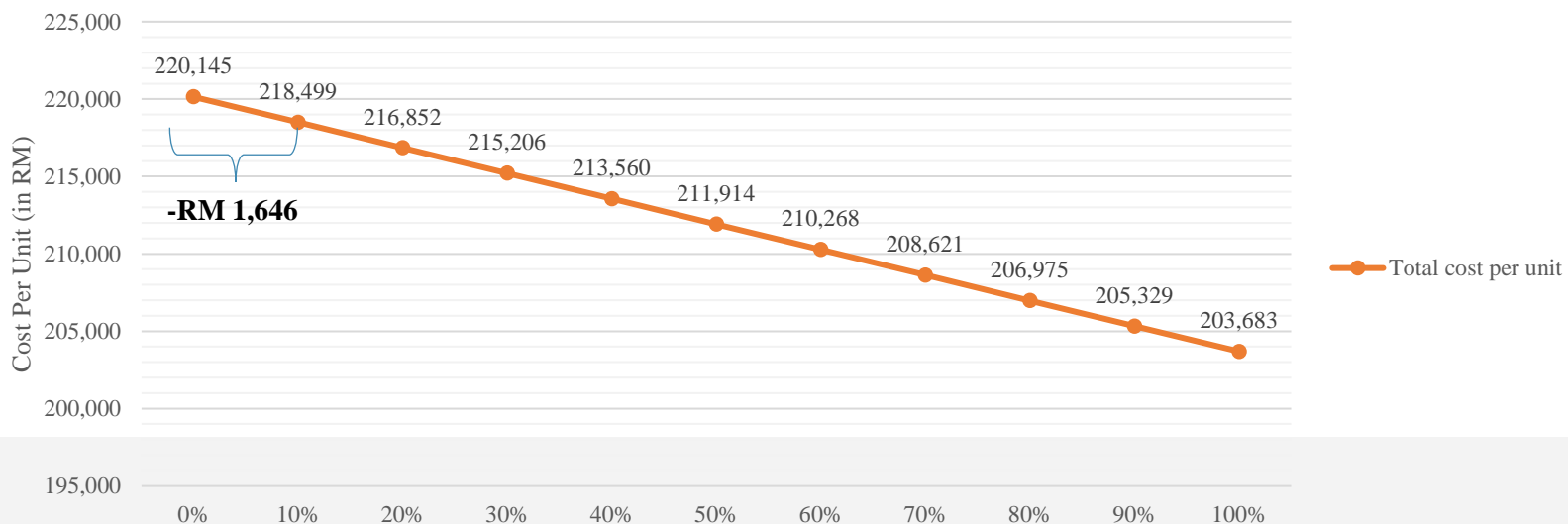
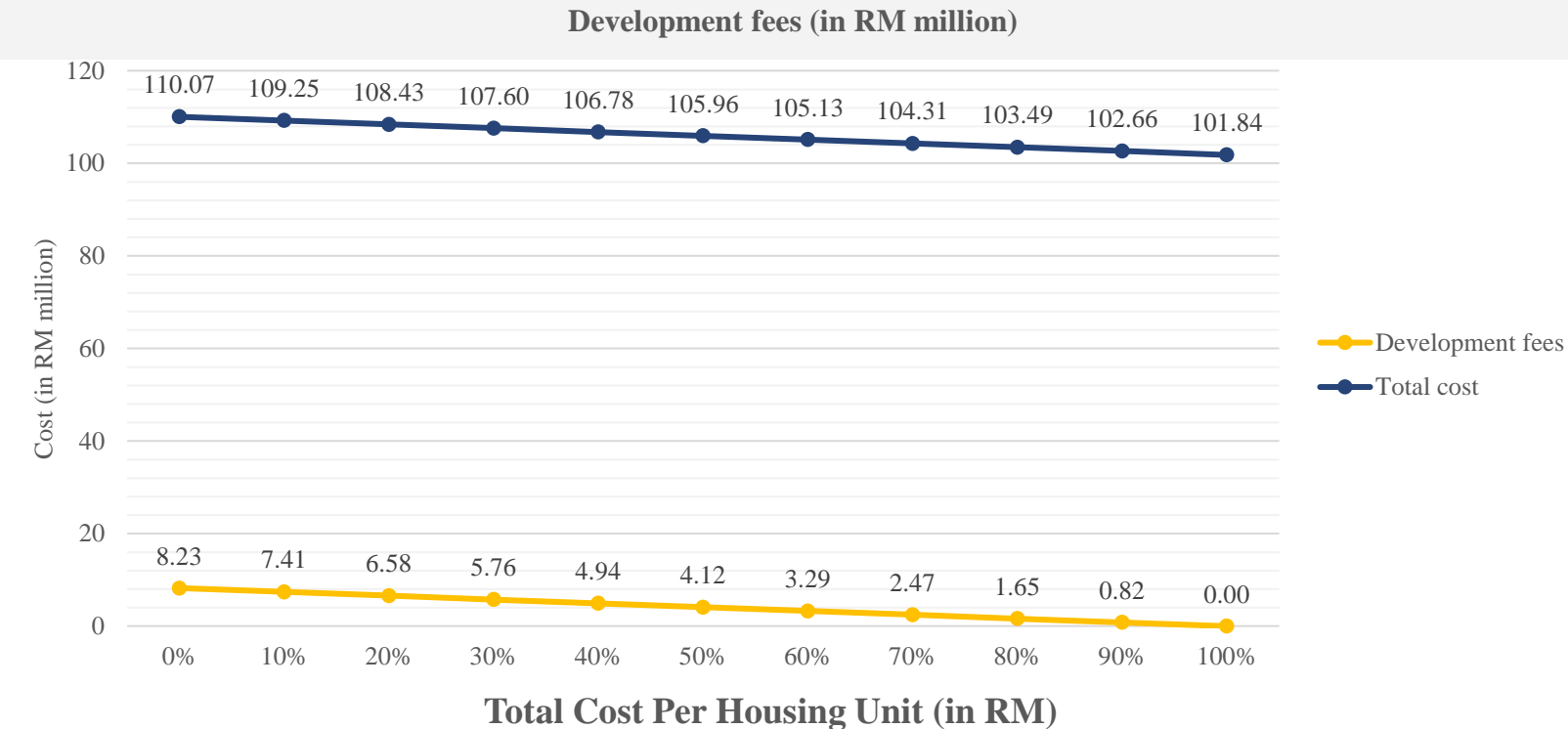
Total Cost Per Housing Unit (in RM)



Factors influencing Construction Costs

- Based on the current price of building materials and method of construction.
- This cost is sensitive to a complex supply chain domestically and internationally. Besides, it also can be influenced by the size of the buildings. In our case, we will build 500 units of apartment on 5 acres of land.
- The graph shows **changes in total cost of building with every reduction of building cost by 5%.**
- **The total reduction in building cost results in a reduction of RM 3,082,500 for every 5% reduction.**
- **For every 5% reduction of construction cost the unit cost reduces by RM 6,615 or 3% of the total cost per housing unit**
- Reduction of construction cost is possible with better decision-making process and use of technology such as IBS, which is cost effective for major construction.
- The Construction cost **contributes to about 56% of the total cost of project**

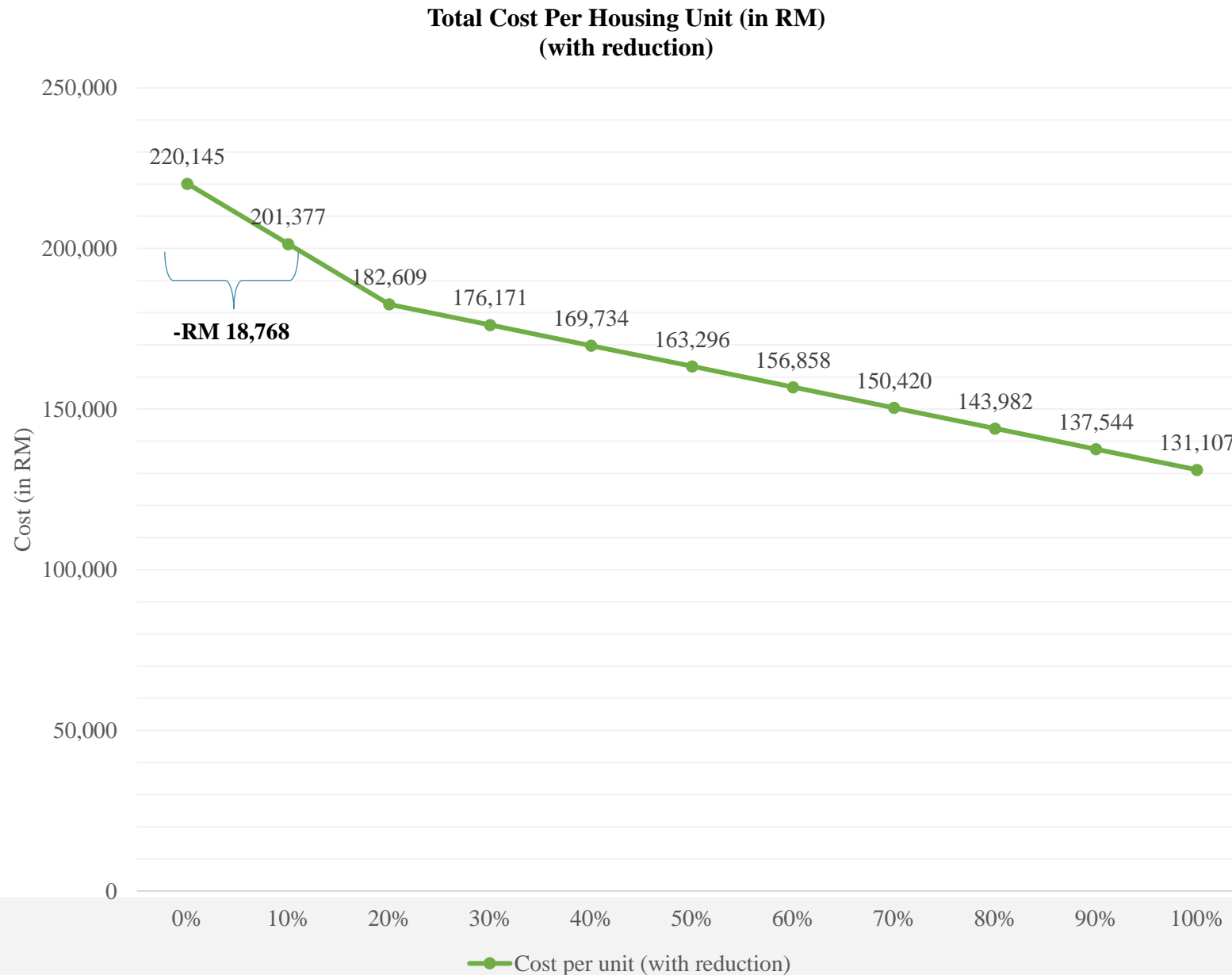
3. Impact of Lower Development Fees



- The developers' fee is the required fee that needs to be paid before or after construction to the authorities. The fees can be from government agencies such as TNB, Syabas and also from service such as land surveying.
- **Based on our proposed project, 6.6% or RM 8,23m the RM 125m comes from the developers' fee.**
- Developers' fee **contributes to 7.5% of the total cost of project**
- The graph shows **changes in total cost of building with every reduction of developers' fee by 10%.**
- The total reduction in development fees which can be achieved through government incentive or waiver with a **maximum reduction of RM 8.23m to the total costing.**
- **For every 10% reduction in the developers' fees we will reduce the cost per unit by RM 1,646 or 0.7% of the total cost per housing unit**
- However, reduction in developers' fee is possible from government subsidy or waiver.

Compliance Cost
Source: *EdgeProp* (2018)

Overall Impact of Reduction of Land, Development Fees & Construction Costs



- Reduction of land price has significant impact on house pricing per unit compared to other reductions in variable costs - **RM 4,792 every 10% reduction of land price**
- Reduction of construction cost has greater impact of reduction for total cost per unit. With every 5% reduction of construction cost the price reduces by **RM 6,615**
- Reduction in developers' fee reduces **total cost per unit by RM 1,646**
- **Reduction of these variables has significant impact on cost of housing per unit with total reduction of RM 18,768 or about 9% of the total cost per housing unit**
- **Land and construction cost contributes 19.2% and 43.9% respectively. So, any reduction from those cost would give much impact to total cost per unit**
- This reduction in selected variable costs can also influence the profit margin to developers.

Appendix

Cost model of AH

What is cost structure of affordable housing?

Compliance cost impact on property prices

Example:

Conversion Agriculture to Residential land in Klang Valley

- 500 units of 900 sq ft
- Price at RM250,000
- 5-acre with density of 100 units per acre.

Total compliance costs and capital contributions of the apartment project is estimated at **RM8.23 million**, or about **6.6%** of the RM125 million GDV of the project (Table on the right).

ITEM	NUMBER OF APARTMENTS TO BE BUILT	COST PER UNIT	TOTAL GDV	
Gross development value (GDV)	500 units	RM250,000	RM125,000,000	
COST COMPONENT		COSTING		TOTAL COST
				COST TO GDV
Total building cost			RM61,650,000	49.3%
Apartments	450,000 sq ft (500 x 900 sq ft)	*RM95 psf	RM42,750,000	
Car park podium	1,050 bays	*RM18,000 per bay	RM18,900,000	
Total land cost	5 acres of land	*RM110 psf	RM23,958,000	19.2%
Total infrastructure cost			RM9,250,000	7.4%
Road, drainage and road services	5 acres of land	*RM1,000,000 per acre	RM5,000,000	
Landscaping	5 acres of land	*RM650,000 per acre	RM3,250,000	
Upgrading cost for traffic disbursement	-	-	*RM1,000,000	
Total capital contributions & compliance costs			RM8,231,200	6.6%
Land conversion premium (agriculture to residential)	-	15% of the land value	RM3,593,700	
Development order/planning fees	500 units of apartments	RM50	RM25,000	
Building plan and infrastructure fees	500 units of apartments	RM150	RM75,000	
Survey fees	5 acres of land	RM5,000	RM25,000	
Strata title application	500 units of apartments	RM1,200	RM600,000	
ISF contribution – road	450,000 sq ft (500 x 900 sq ft)	RM500 for every 1,000 sq ft	RM225,000	
ISF contribution – drainage	5 acres of land	RM5,000	RM25,000	
Development charges	-	1.5% of GDV	RM1,875,000	
Contribution to TNB	500 units of apartments	RM450	RM225,000	
Contribution to IWK	-	1% of GDV	RM1,250,000	
Contribution to SYABAS – residential project	-	0.25% of GDV	RM312,500	
Total facilities cost			RM340,000	0.3%
TNB sub-station	1 unit	*RM150,000	RM150,000	
Refuse chamber	1 unit	*RM80,000	RM80,000	
Surau	1 unit	*RM50,000	RM50,000	
Guard house	1 unit	*RM60,000	RM60,000	
Total of other soft costs			RM6,643,272	5.3%
Professional fees		* About 6% of construction** cost	RM4,768,272	
Sales and marketing and administration cost		*1.5% of GDV	RM1,875,000	
Developer's pre-tax profit margins (net profit margin 7.7% + tax 4.2%)				11.9%
Total cost to GDV				100%

← GDV 100% at RM125 mil (RM277 psf)

← Building cost 49.3% at RM61.7 mil

← Land cost 19.2% at RM24 mil (RM110 psf)

Infrastructure cost 7.4% at RM9.25 mil

← Capital contribution 6.6% at RM8.23 mil and compliance cost

← Soft cost 5.3% at RM6.43 mil

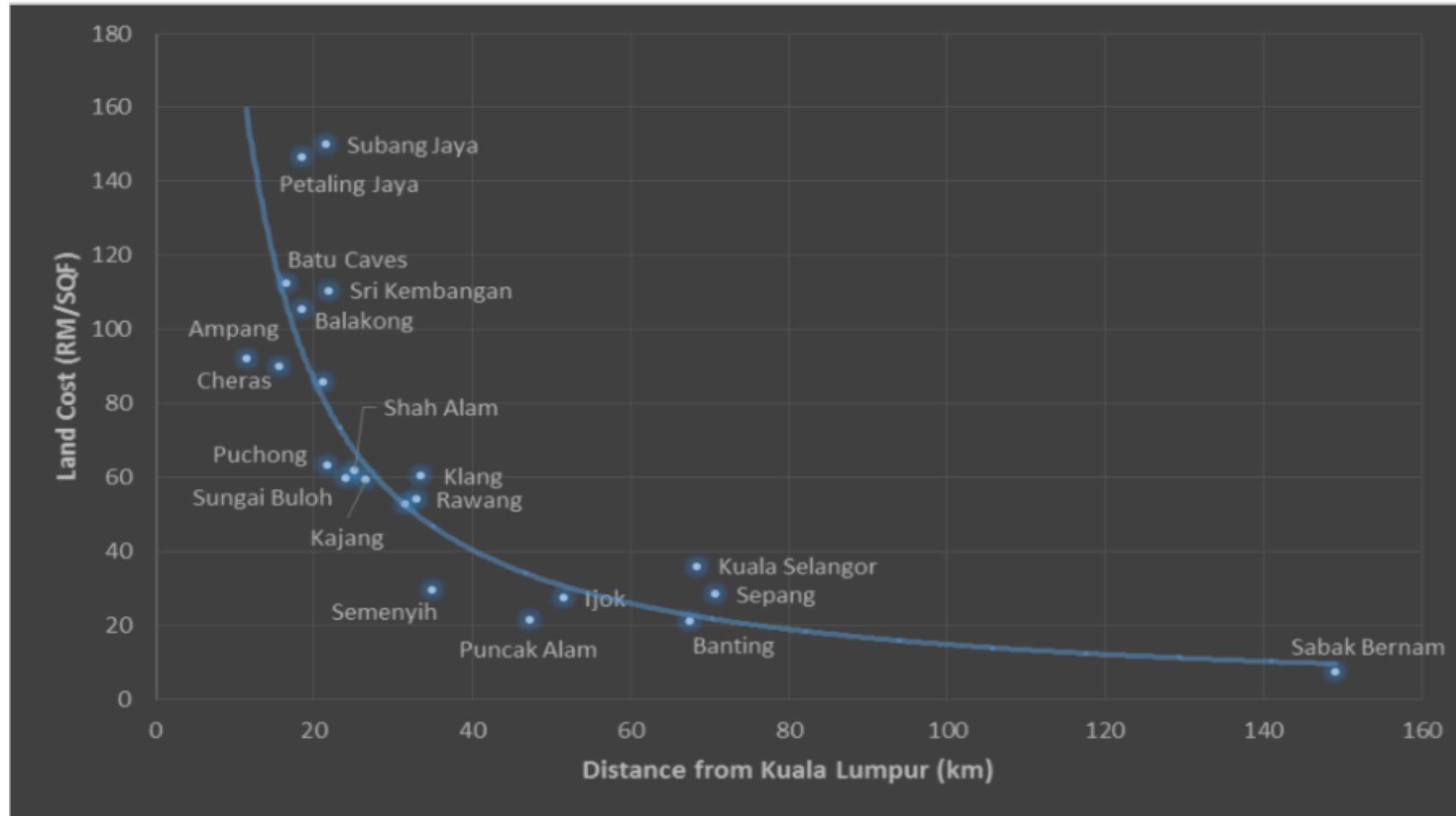
← Net profit margin cost 7.7%

<https://www.edgeprop.my/content/1454158/compliance-cost-and-what-it-means>



Appendix

Land cost (RM/ft²) vs. distance from Kuala Lumpur.



Source: [iproperty](#) (2019)