

# **Value Based Land Partition Model: A case study in Homagama Pradeshiya Sabha Area**

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**Abstract** –This study focus on partition of undivided land among co-owners. Traditionalland partition among co-owners often focuses on dividing the entire land into plots with equal extents. That leads to land plots with equal extents but dissimilar market values where some parties gain higher valued land plots with more benefits whereas others get less-valued ones consequently each parties may not be equally treated based on the value of the lots allocated to them. Simply the traditional practice focuses partition of land with equal extent not on the equal values. By this study, a model is being introduced to address this issue of traditional land partition ensuring the co-owners involved are given land plots with equal values as against the value of the entirety and also ensure sustainabilityof values. A case study in Homagama Pradeshiya Sabha area was used for the development of the model where four co-owners were involved. The subject land was previously subdivided into four lots with similar extents. However, some of the owners were not satisfied the way it has been subdivided claiming the subdivision was not reasonable. Hence, it was needed to subdivide the land with equal and sustainable market values. The methodology used in this study has several stages that flow from collection of land related data to development of the model. Notional sub-division was done in order to find the total Market Value of the land using recent market evidences collected by a comprehensive market survey. Then the land was subdivided among four co-owners adapting per square foot rate and considering the cost of development, developers profit and time value of money. MS Excel and AutoCAD softwares were used for analysing data and developing the model. Accordingly, this already tested model suggest to get a valuer involved in land partition among co-ownersto ensure the divided plots though at dissimilar extents are having equal values on equitable basis.

**Keywords** –Land partition, market value, notional sub-division, equal values

## INTRODUCTION

This study contributes to the fact that the valuer's involvement is needed for a partition of a land in order to ensure that the owners are treated equitably with equal and sustainable values. A case study in Homagama Pradeshiya Sabha areas is used to develop the model of value-based partition which has been already tested and supported by professional real estate and property valuation proficiencies, expertise and knowledge.

In a traditional land subdivision, a large land area is subdivided into smaller land parcels with the purpose of easy development and independent development of one another to increase growth and maximize the use of space. This technique also stimulates the zoning process and selling off of the land. The Standard City Planning Enabling Act (SCPEA, 1928) included the following definition: "Subdivision" means the division of a lot, tract, or parcel of land into two or more lots, plats, sites, or other divisions of land for the purpose, whether immediate or future, of sale or of building development. It includes re-subdivision and, when appropriate to the context, relates to the process of subdividing or to the land or territory subdivided.

When it comes to land partition, according to Keenan (2012), only scenario and procedure are different from traditional land subdivision. Partition of land is applied when there is co-proprietorship to the land. Consent from all owners in order to partition of the land out from the original land title is needed.

However, as discussed by Kaddik & Rydberg (2013) and Cassady (2001), many limitations can be seen in traditional method of land subdivision. Moreover, it is frequently found that the extent is focused rather than the monetary value of the land when proposing traditional subdivisions and partitions where the involved parties are not equally and equitably treated in a satisfied manner in terms of market value.

The project which this study was based on was revolved around a partition of a land in which four parties were involved. Previously a traditional land partition was done to divide the land among the four owners. However, when considering the traditional way partition, it can be said that the values of the lots are different where some parties were given higher valued lands with more benefits. Hence, the parties were not contented with the previous partition and were convinced to get the land partition into four plots with equal market values. The objective of this study is to introduce a model as a method for land partition ensuring the parties involved are given land plots with equal and sustainable values.

## METHODOLOGY

In order to develop the model, the required data were extracted through Survey plan, land value schedules which was constructed using the market evidences found through a market survey in the area. Moreover, when the notional subdivision was done, the planning regulations of the Urban Development Authority (UDA) were considered. In order to analyse the data MS Excel was used and for the development of the notional and final sub-division model, AutoCAD software was used.

## CASE OVERVIEW

The studied case has 10A 03R 21.83P as per the given survey plan and is located within the Homagama Pradeshiya Sabha about 25km away from Colombo fronting Homagama - Diyangama Road. It is a co-owned land with four owners. Two residences with ancillary buildings were standing on the property however disregarded for the notional subdivision of the land in arriving at market value of the entire property based on Residual Method of partition Valuation.

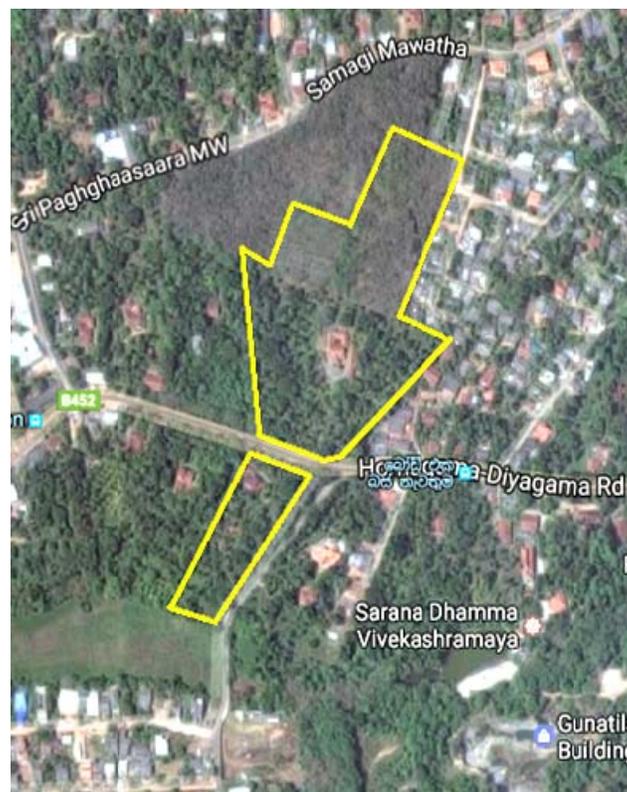


Figure 01: Location and the boundaries of the Subject Property

Through the development of the value-based subdivision model, the entire land was divided into four sections with equal values of each. It ensures the equality and sustainability of the values of land tracts given for each party.

### PHASES OF THE MODELBUILDING

The model development procedure includes eight steps. It flows from Collection of land related data to development of the model.

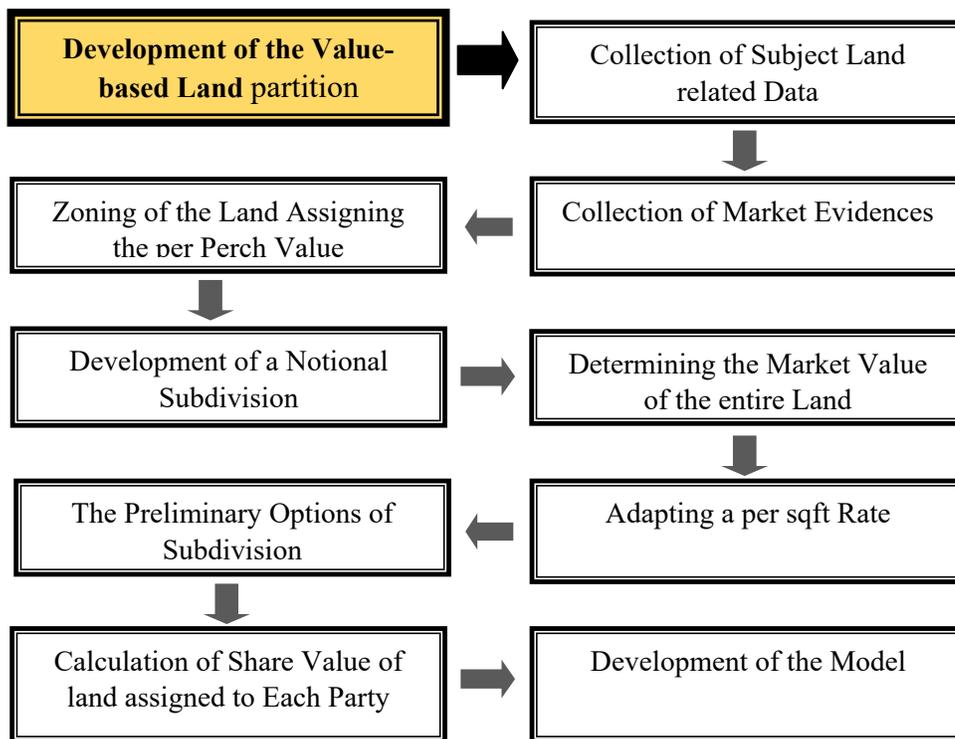


Figure 02: Steps of the Model Development Procedure

#### Collection of Land Related Data

The data were extracted through survey plan and the surveyor's AutoCAD drawing of the land and the other documents.

#### Collection of Market Evidences

A comprehensive market survey was done to identify the market values ranging in the area. Accordingly, zoning of the land was done adapting per perch rates varying from Rs. 700,000/- to Rs. 400,000/-.

## Zoning Using the Per Perch Value

As per the Royal Institute of Chartered Surveyors (RICS), zoning is a standard method of measuring retail premises to calculate and compare their value. It is used by both public and private sector surveyors. There are different methods to do the subdivision. Shop or retail premises are divided into a number of zones each of a depth of 6.1 metres - or 20 feet. Accordingly in this study when zoning is done, through the professional experience and knowledge, the land was divided into five zones where the lands fronting main road claim higher values and lesser values per perch for the rear plots.

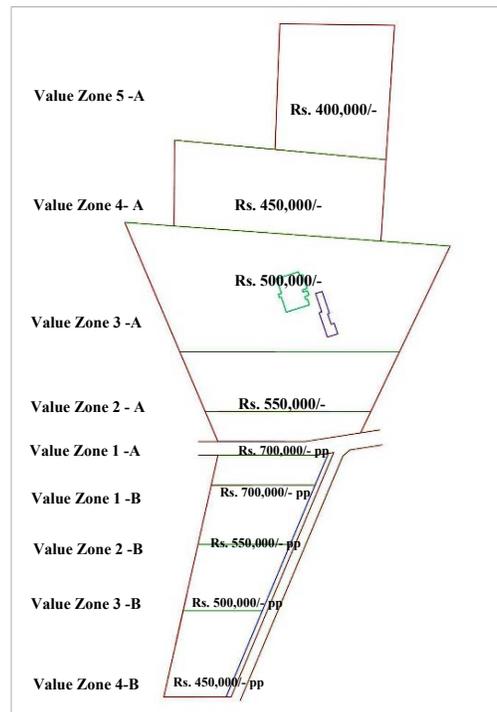


Figure03: Zoning of the Land as per Perch Value

## Developing a Notional Sub-Division

In order to subdivide the land into tracts with equal values, it is needed to estimate the total Market Value of the land. According to Leelananda (2012), notional subdivision plan was developed by considering all the planning and development regulations imposed by the UDA. Open space, road lengths & widths, tuning circles, no of plots were done accordingly. Further, the entire land was subdivided into 113 plots with extents ranging from 8P to 15P.

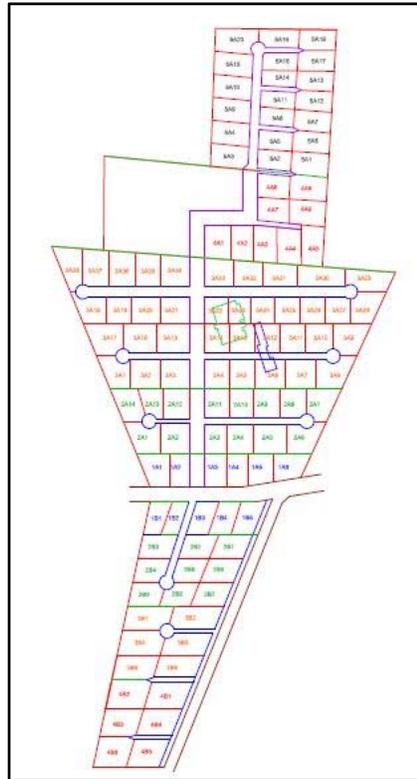


Figure 04: Map of the Notional Subdivision

### Determining the Market Value of the Land

Adopting per perch value in each zone, the Total Market Value of the land was estimated as Rs. 733.3 million. Moreover, share value per party was calculated as follows,

**Table 1: Calculation of per share value**

		Rs.
Market Value of the Land		733.3 mil
Total Extent of Saleable Lots	1459.15P	
Total Extent of Roads-13%	249.29P	
Open Space	<u>164.66P</u>	
<b>Total Extent of land</b>	<b>1873.10</b>	
<b>Add- Value of Open Space</b> 44,168.07 sq.ft X 1,652.89 per sq.ft (162.23 P X Rs. 450,000/-)		<b><u>73 mil</u></b>
<b>Total Value of the Land</b>		<b>806.3 mil</b>
<b>Deduct- Cost of development , developers profit and time value of money – 37%</b>		<b><u>298.3 mil</u></b>
<b>Market Value of the Land</b>		<b>508 mil</b>
<b>No. of parties involved</b>	<b>04</b>	
<b>Share per party (Rs. 508 /04)</b>		<b>127 mil</b>

**Adapting a per Sqft Rate**

With the intention of calculating the amount of share in each zone for each party, per sqft rate was adapted. This was calculated by dividing total zone value by the extent of the zone.

**Table 2: Calculated per sqft value of each zone**

<b>Average rate persq.ft.</b>			
	<b>A</b>	<b>B</b>	<b>Average</b>
<b>Zone 01</b>	2,361.35	2,205.68	2,290.74
<b>Zone 02</b>	1,716.84	1,735.16	1,723.75
<b>Zone 03</b>	1,481.11	1,573.73	1,495.54
<b>Zone 04</b>	1,422.37	1,506.54	1,442.51
<b>Zone 05</b>	1,353.93		1,353.93
<b>Average</b>			1,562.49

**The Preliminary Option of Subdivision**

This has been basically determined by considering the concerns of the parties involved in this case and GDV of lots to allocate the spatial arrangement and to determine the cost of development.

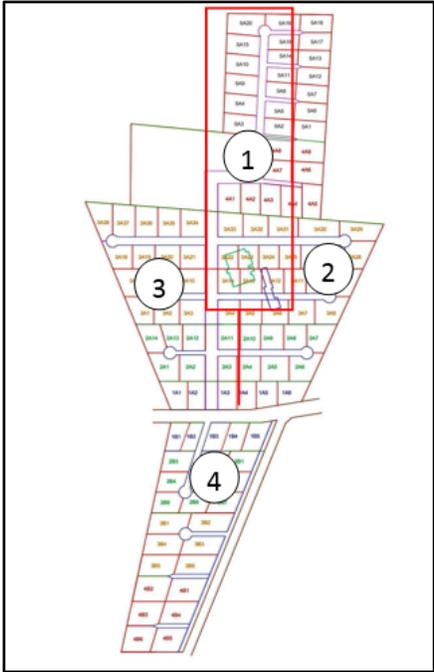


Figure05: Initial Arrangement of the Subdivision

### Calculation of Share Value of Each Party

The cost of development has been estimated based on the shape, topography, location of the land and degree of improvement required for residential use.

**Table 03: Calculation of per share value with development costs**

	Party 01	Party 02	Party 03	Party 04	Total
Market Value (million)	127	127	127	127	508
Cost of development, developers profit and time value of money	0.4	0.35	0.35	0.378	0.37
% of net value	0.6	0.65	0.65	0.622	0.63
<b>GDV (million)</b>	<b>211.7</b>	<b>195.4</b>	<b>195.4</b>	<b>204.8</b>	<b>806.6</b>

### Proposed Sub-Division Model

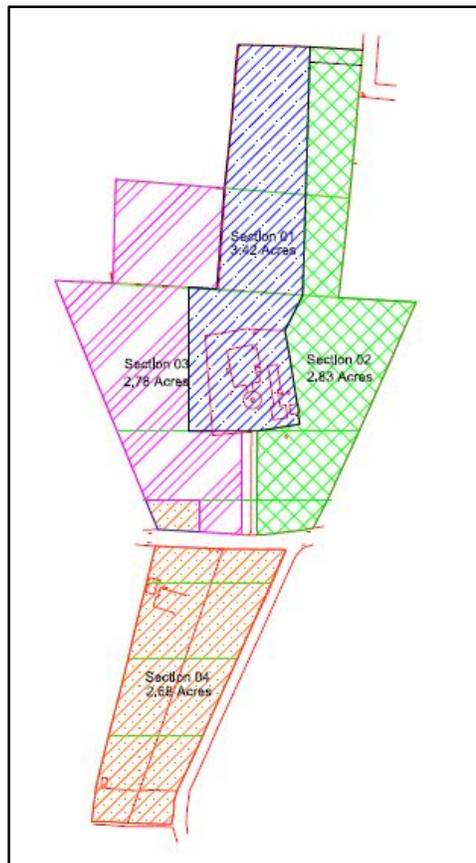


Figure06: The Proposed Value-based Subdivision Model

### Allocation of Land Value out of Each Zone to each Party

The following model has been used for the calculation of allocated share value per party.

$$V = \sum [(E_i \times R_i \dots + E_n \times R_n) + (X_i \times Z_i \dots + X_n \times Z_n) \times 1 - C]$$

V= Value of the land section allocated for the relevant party

E= Allocated extent in Section "A"

X = Allocated extent in Section "B"

R= Average rate per sqft in Section "A"

Z = Average rate per sqft in Section "B"

C = Percentage of Cost of development, developers profit and time value of money

i =Zone

n = n<sup>th</sup> Zone

The method of calculating the share amount Party 01 is mentioned below. Similarly, the other party share values were calculated using the per sqft rate as per the above model.

**Table 04: Calculation of per share value using per sqft rate**

Party 01				
	Extent	Average rate per sqft- Rs.		Value- Rs. (million)
		A	B	
<b>Zone 01</b>		2624.00	2205.68	-
<b>Zone 02</b>		1850.22	1735.16	-
<b>Zone 03</b>	44,809.70 sq.ft (164.5 P)	1481.11	1573.73	66.4
<b>Zone 04</b>	60,865.95 sq.ft (223.6 P)	1422.37	1506.54	86.6
<b>Zone 05</b>	43,366.56 sq.ft (159.3 P)	1353.93		58.6
	<b>149,042.21 sq.ft (547.40 P) (3.42 A)</b>		<b>GDV</b>	<b>211.6</b>
	<b>Cost of development , developers profit and time value of money - 40%</b>			<b>84.7</b>
		<b>MV/NDV</b>		<b>127</b>

As per the above model value given for Party 01 is calculated as follows.

$$V = \sum [(E_i \times R_i \dots + E_n \times R_n) + (X_i \times Z_i \dots + X_n \times Z_n) \times 1 - C]$$

$$V = \sum [(44,809.7 \times 1481.11 + 60,865.95 \times 1422.37 + 43,366.56 \times 1353.93) + (0 \times 0) \times 1 - 0.4]$$

$$= \underline{\underline{\text{Rs. 127 million}}}$$

## FINDINGS AND FINAL OUTCOME

**Table 05: Summary of the Calculation of the values**

		<b>Party 01</b>	<b>Party 02</b>	<b>Party 03</b>	<b>Party 04</b>		
		<b>Side A</b>	<b>Side A</b>	<b>Side A</b>	<b>Side A</b>	<b>Side B</b>	<b>Total</b>
<b>Zone 01</b> 700,000/-	<b>Sqft</b>		7,722	5,393	5,639	17,301	36,055
	<b>Perches</b>		28.36	19.81	20.71	63.55	132.44
	<b>Value</b>		<b>20.2</b>	<b>14.1</b>	<b>52.9</b>		
<b>Zone 02</b> 550,000/-	<b>Sqft</b>		23,002	29,538		34,292	86,832
	<b>Perches</b>		84.49	108.50		125.96	318.94
	<b>Value</b>		<b>42.5</b>	<b>54.6</b>		<b>59.5</b>	
<b>Zone 03</b> 500,000/-	<b>Sqft</b>	44,809	49,162	58,246		30,264	194,175
	<b>Perches</b>	164.5	180.58	213.95		111.17	713.22
	<b>Value</b>	<b>66.3</b>	<b>72.8</b>	<b>86.2</b>		<b>47.6</b>	
<b>Zone 04</b> 450,000/-	<b>Sqft</b>	60,865	15,517	28,316		29,099	121,624
	<b>Perches</b>	223.6	57	104.01		106.89	446.74
	<b>Value</b>	<b>86.6</b>	<b>22.1</b>	<b>40.3</b>		<b>43.8</b>	
<b>Zone 05</b> 400,000/-	<b>Sqft</b>	43,366	27,820				71,187
	<b>Perches</b>	159.3	102.19				261.48
	<b>Value</b>	<b>58.7</b>	<b>37.7</b>				
	<b>Total</b>	<b>211.6</b>	<b>195.4</b>	<b>195.3</b>	<b>203.9</b>		
	<b>Cost</b>	<b>40%</b>	<b>35%</b>	<b>35%</b>	<b>37.8%</b>		
		<b>84.6</b>	<b>68.4</b>	<b>68.4</b>	<b>77.1</b>		
	<b>Value</b>	<b>127</b>	<b>127</b>	<b>127</b>	<b>127</b>		
	<b>Acres</b>	<b>3.42</b>	<b>2.83</b>	<b>2.78</b>	<b>2.68</b>		
		<b>Extent divided to parties (Perches)</b>					<b>1,872.82</b>
		<b>Extent of road (Perches)</b>					<b>22.65</b>
		<b>Total (Perches)</b>					<b><u>1,895.47</u></b>

With reference to the above table, total value of the land was subdivided among the co-owners with dissimilar extents and the final subdivision model is as follows.

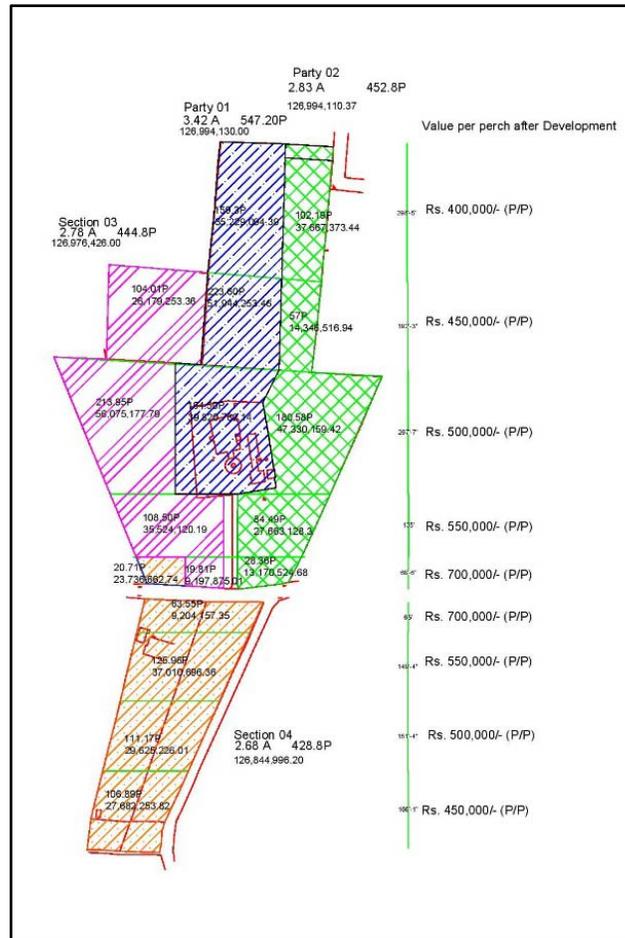


Figure07: Final Value-based Land Sub-division Model

## CONCLUSION AND RECOMMENDATION

It can be concluded that the partition of undivided land among co-owners must ensure that each party must be received plot with equal value as against the entirety therefore it must be focused on value based partition rather than the extent based. To get value based partition, a professional valuer involvement is a must in the process of land partition. Therefore it is recommended to get involved a professional valuer in the process of land partition to overcome disadvantages of traditional land subdivision and partition methods while certifying complete contentment of the co-owners involved.

## **LIMITATIONS**

When deciding the location of each section, the preferences of the co-owners had to be considered as there were some existing improvements on the land which were occupied by the co-owners. Hence, the sub-division process was confined as per their requirements. Otherwise, the arrangement of the sections could be different and more effective.

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