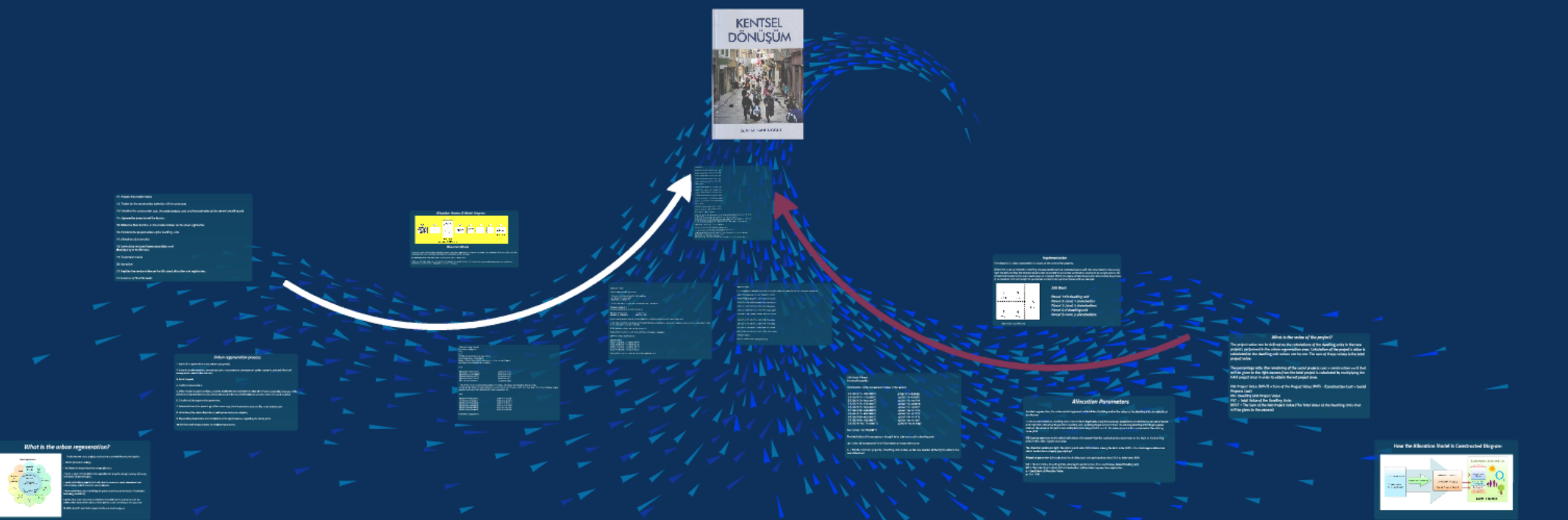
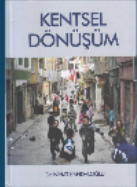




FIG 2018
 Istanbul
 May 9-11, 2018 in Istanbul, Turkey



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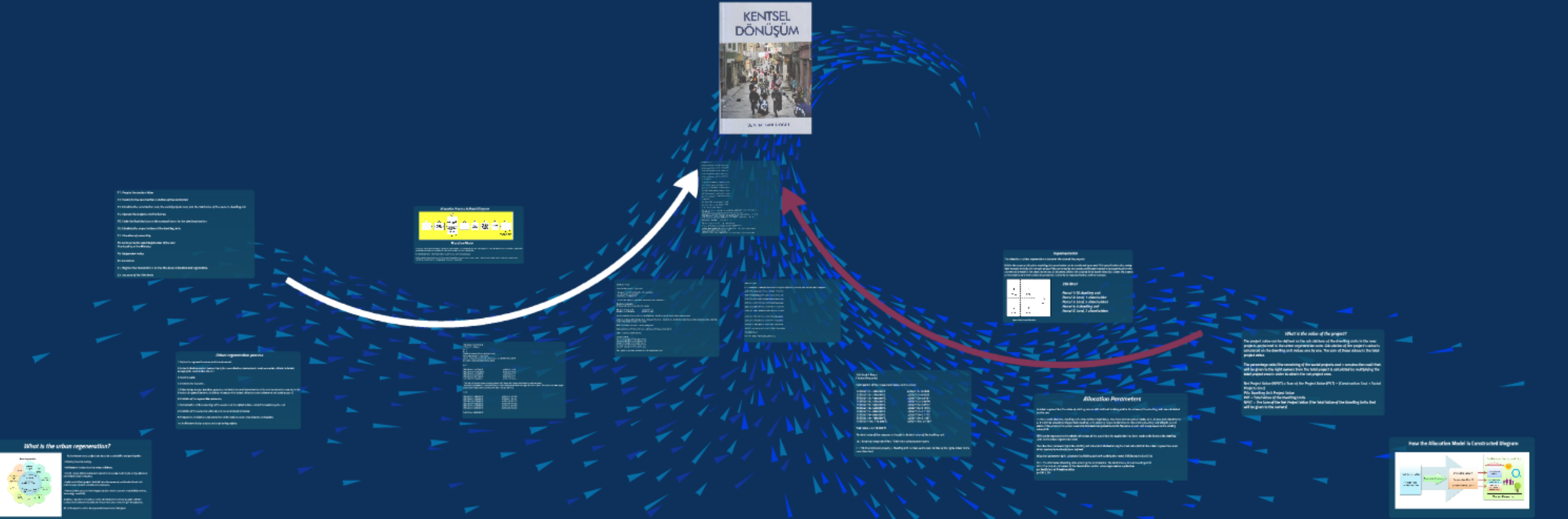
Allocation of Ownership in the Urban Regeneration

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INTERNATIONAL FEDERATION
OF SURVEYORS

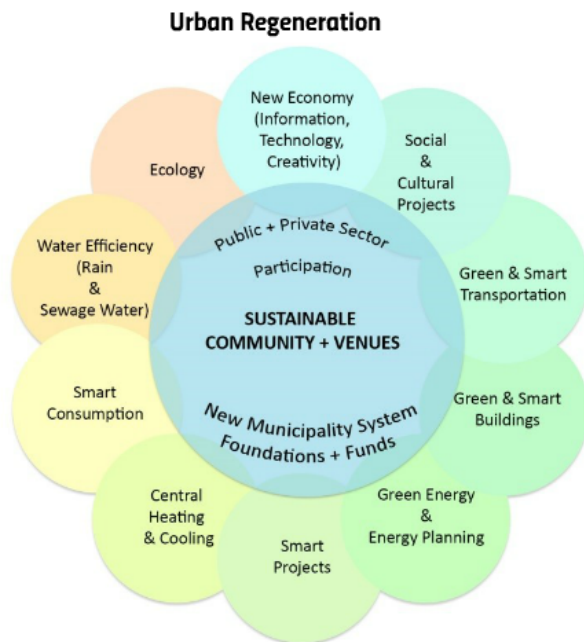
FIG
2018
ISTANBUL



TMMOB HARİTA VE KADASTRO
MÜHENDİSLERİ ODASI



What is the urban regeneration?



In shantytown areas, projects are based on sustainability and participation;

- Planning based on ecology,
- Architectural designs based on energy efficiency,
- Smart + green infrastructure and superstructure projects aiming to energy efficiency and reduce carbon emissions,
- Social and cultural projects that will raise the economic, social educational and cultural levels of local residents and employees,
- New economic projects that integrate global current economic models (information, technology, creativity),

A plethora of actors and sectors need to be included into these projects with the collaboration between the state and the private sector remaining in the epicenter.

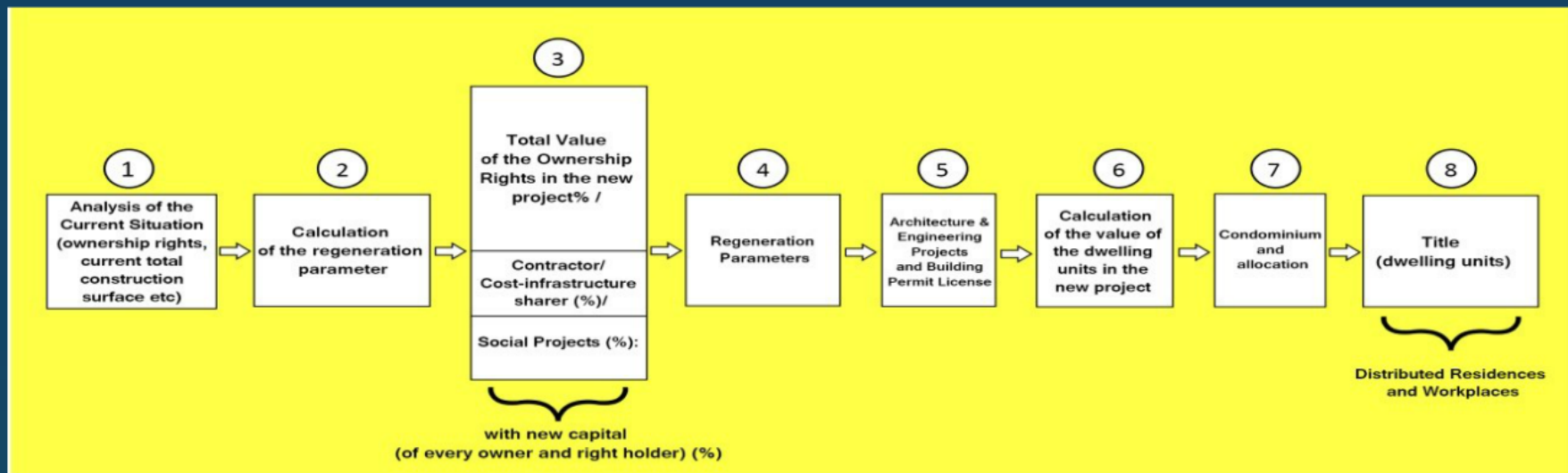
All of the projects need to be ergonomically and smart designed.

Urban regeneration process

- 1. Define the regeneration areas and announcement,**
- 2. Current situation analysis (ownership rights, reconstruction, development, social, economic, cultural, historical, demographic, construction site etc.)**
- 3. Social projects**
- 4. Create a new economy ,**
- 5. Urban design (project functions, property, residential size and determination of the total construction area etc. in the direction of regional dynamics by taking into account the actual utilization construction area and social projects)**
- 6. Calculate of the regeneration parameter,**
- 7. Determination of the percentage of the owner cost, the infrastructure cost and the social projects cost**
- 8. Calculate of the ownership value of each person and each company,**
- 9. Preparation, finalization, and completion of the legal processes regarding the zoning plans**
- 10. Architectural design projects and engineering projects,**

- 11. Prepare the condominium**
- 12. Tender for the construction (selection of the contractor)**
- 13. Calculate the construction cost, the social projects cost, and the total value of the owner's dwelling unit**
- 14. Approve the projects and the license,**
- 15. Make the final decision on the condominiums for the deed registration**
- 16. Calculate the project values of the dwelling units**
- 17. Allocation of ownership**
- 18. Controls by the Land Registration Office and Municipality or the Ministry**
- 19. Suspension notice**
- 20. Correction**
- 21. Register the condominium on the title deed, allocation and registration,**
- 22. Issuance of the title deeds**

Allocation Process & Model Diagram



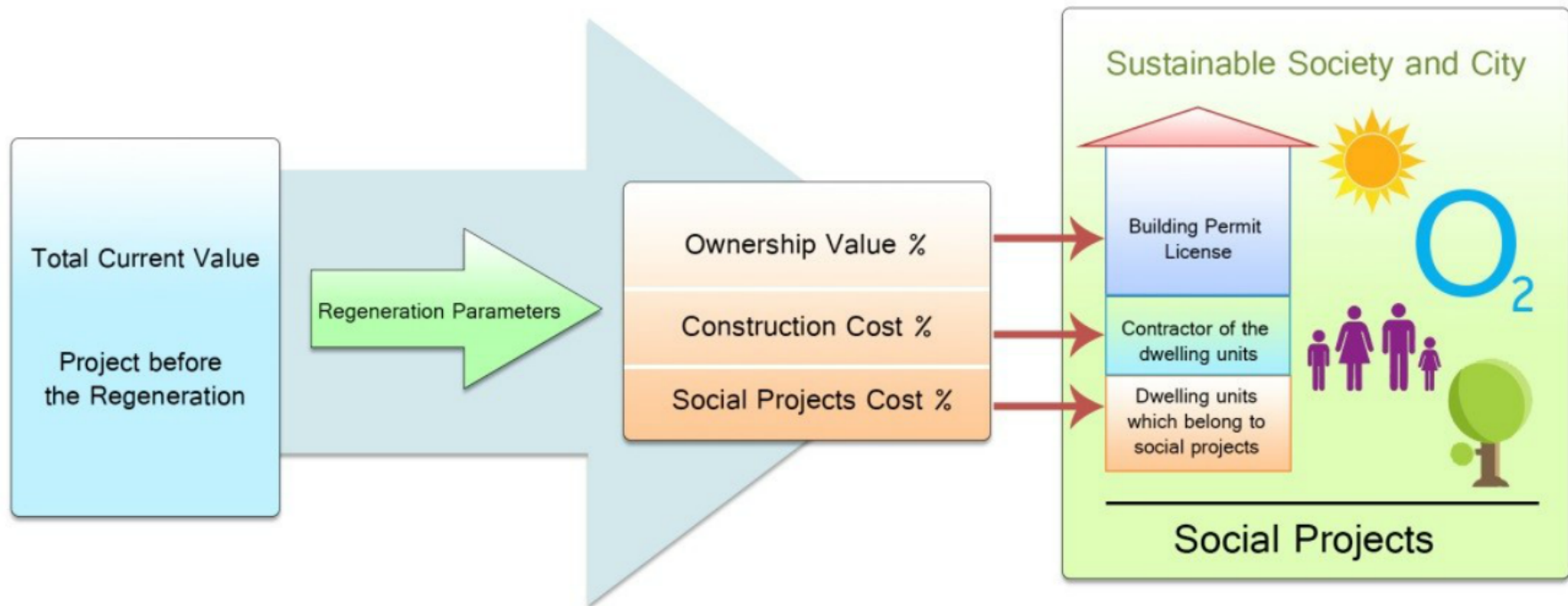
Allocation Model

According to a mathematical model, we calculate the current value of the property properties in an urban regeneration area and allocate it to the new dwelling units which are the new urban regeneration projects. Allocation is the sharing of the remaining net value.

$$\text{Net Total Project Value} = \text{Total Project value} - (\text{Social Projects Cost} + \text{Construction Cost})$$

In this model, the rights holders cannot be transferred to any other area on arbitrary reasons. However, transfers can be made in water basin areas, coastal areas, landslide areas, and areas where inappropriate settlement is not possible.

How the Allocation Model is Constructed Diagram



What is the value of the project?

The project value can be defined as the calculations of the dwelling units in the new projects performed in the urban regeneration area. Calculation of the project's value is calculated on the dwelling unit values one by one. The sum of these values is the total project value.

The percentage ratio (the remaining of the social projects cost + construction cost) that will be given to the right owners from the total project is calculated by multiplying the total project area in order to obtain the net project area.

Net Project Value (NPVT) = Sum of the Project Value (PVT) – (Construction Cost + Social Projects Cost)

PV= Dwelling Unit Project Value

PVT = Total Value of the Dwelling Units

NPVT = The Sum of the Net Project Value (The Total Value of the Dwelling Units that will be given to the owners)

Allocation Parameters

In urban regeneration, the value of existing parcels with/without building and/or the values of the dwelling units are calculated one by one.

In the current situation, dwelling units may not have legal basis, may have contrary actual status to its license and attachments or it might be completely illegal. Each dwelling units (existing illegal condominium), the existing dwelling unit (illegal), parcel share or the whole of the parcel ownership has been recognized as a unit. The value of each unit is expressed as the existing value (EVi).

(EVi) can be expressed as the whole unit values of the parcel that the application has been made or the block or the dwelling units in the urban regeneration area.

The allocation parameter (q) is the existing unit value (EVi) divided among the total value (EVt) in the urban regeneration area which borders have already been defined.

Allocation parameter (q) is calculated by dividing each unit participation value (EVi) by total value (EVt).

EVi = The Unit Value (Dwelling Units entering the participation, The Land Shares, Actual Dwelling unit)

EVt = The sum of unit values of the shareholders within urban regeneration application

q = Coefficient of Allocation Value

$q = EVi / EVt$

Implementation

The allocation in urban regeneration is based on the value of the property.

Within the scope of allocation modeling, the securitisation can be mentioned up as well. This securitization also zoning right transfer and also the transfer of securities converted to real estate certification treated to be bought-sold on the market and treated in the stock market can be achieved. Within the scope of block based allocation model, the process of securitisation and real certificate production is tried to be explained below with an example.

1 n=10	3 n=5	5 n=2
2 n=1	4 n=6	

256 Block

Parcel 1: 10 dwelling unit

Parcel 2: Land, 1 shareholder

Parcel 3: Land, 5 shareholders

Parcel 4: 6 dwelling unit

Parcel 5: Land, 2 shareholders

Figure : Block based Allocation

**256 Block 1 Parcel
(10 dwelling units)**

Participation of the independent values in this parcel:

$E\dot{V}_{256/1/1} = 300.000$ TL	$q_{256/1/1} = 0.0586$
$E\dot{V}_{256/1/2} = 310.000$ TL	$q_{256/1/2} = 0.0605$
$E\dot{V}_{256/1/3} = 400.000$ TL	$q_{256/1/3} = 0.0781$
$E\dot{V}_{256/1/4} = 450.000$ TL	$q_{256/1/4} = 0.0879$
$E\dot{V}_{256/1/5} = 500.000$ TL	$q_{256/1/5} = 0.0977$
$E\dot{V}_{256/1/6} = 550.000$ TL	$q_{256/1/6} = 0.1074$
$E\dot{V}_{256/1/7} = 600.000$ TL	$q_{256/1/7} = 0.1172$
$E\dot{V}_{256/1/8} = 600.000$ TL	$q_{256/1/8} = 0.1172$
$E\dot{V}_{256/1/9} = 700.000$ TL	$q_{256/1/9} = 0.1367$
$E\dot{V}_{256/1/10} = 710.000$ TL	$q_{256/1/10} = 0.1387$

Total value = 5,120,000 TL

The total value of the company is thought to be total value of the dwelling unit.

$q_i = \text{Value Of Independent Part} / \text{Total value of Independent parts}$

$n. = 10$ (the minimum property + Dwelling unit number, so the new number of the rights holder in the new allocation)

256 Block 2 Parcel (Land)

$EVi_{256/2} = 3 \text{ Milyon TL}$

$n = 1$

$q = 1$

256 Block 3 Parcel (5 shareholders' land)

Parcel Total Value = 3.750.000 TL

Owner 1 = Deed share x Parcel value = $0.25 \times 3.750.000 = 937.500 \text{ TL}$

qi = Shares rates (Land deed shares rates)

$n = 5$

$EVi_{256/3/1} = 937.500 \text{ TL}$

$q_{256/3/1} = 0.25$

$EVi_{256/3/2} = 1.350.000 \text{ TL}$

$q_{256/3/2} = 0.36$

$EVi_{256/3/3} = 525.000 \text{ TL}$

$q_{256/3/3} = 0.14$

$EVi_{256/3/4} = 637.500 \text{ TL}$

$q_{256/3/4} = 0.17$

$EVi_{256/3/5} = 300000 \text{ TL}$

$q_{256/3/5} = 0.08$

256 Block 4 Parcels In current zoning status, it is 5 floors, but 3 floors and 6 dwelling units are made.

So unused "precedents" is mentioned here. In current zoning status they have rights for 2 more floors. This 2 floors has been project evaluated and added to the dwelling units value in proportion to q .

$n = 6$

$EVi_{256/4/1} = 500.000 \text{ TL}$

$q_{256/4/1} = 0.1295$

$EVi_{256/4/2} = 510.000 \text{ TL}$

$q_{256/4/2} = 0.1321$

$EVi_{256/4/3} = 570.000 \text{ TL}$

$q_{256/4/3} = 0.1477$

$EVi_{256/4/4} = 580.000 \text{ TL}$

$q_{256/4/4} = 0.1503$

$EVi_{256/4/5} = 850.000 \text{ TL}$

$q_{256/4/5} = 0.2202$

$EVi_{256/4/6} = 850.000 \text{ TL}$

$q_{256/4/6} = 0.2202$

Total Value = 3.860.000 TL

256 Block 5 Parcels

Parcel number 5 remains a green area.

This approach should be standardized with regulations

$n= 2$ (parcel has 2 shareholders)

Parcel Value= 4.8 Millions TL

The value that will go the adjustment= $4.800.000 \times 0.35= 1.680.000$ TL

$EV_{256/5}= 1.680.000$ TL

q = Shares Ratios (Deed shares ratios in the lands)

$EV_{256/5/1}= 588.000$ TL

$q_{256/5/1}= 0.35$

$EV_{256/5/2}= 1.092.000$ TL

$q_{256/5/2}= 0.65$

Parcels Partnerships share calculation in Block (Application Area) (Share of each parcel in the arrangement area):

Arrangement area should be a single parcel. In this parcel, the shares of landlords are calculated or merged into one single company, landlords partnership shares in the merged company are calculated.

EV_{iTP} = Total values of the parcels entering arrangement

$EV_{iTP}= EV_{256/1} + EV_{256/2} + EV_{256/3} + EV_{256/4} + EV_{256/5}= 17.410.000$ TL

$QDTP$ = Parcel Value/Total Parcel Value

$Q_i= EV_{iP} / EV_{iTP}$

$Q_{256/1}= 5.120.000 / 17.410.000= 0.2941$

$Q_{256/2}= 3.000.000 / 17.410.000= 0.1723$

$Q_{256/3}= 3.750.000 / 17.410.000= 0.2154$

$Q_{256/4}= 3.860.000 / 17.410.000= 0.2217$

$Q_{256/5}= 1.680.000 / 17.410.000= 0.0965$

Each rightholder new shares calculation in the block (application area)

256 Block 1 Parcel

In the arrangement, independent area number 1's weighted coefficient or partnership share ratio in the whole arrangement

$$q_{256/1/1} = 0.0586 \quad Q_{265/1} = 0.2941 \quad H_{256/1/1} = 0.0172$$

$$q_{256/1/2} = 0.0605 \quad Q_{265/1} = 0.2941 \quad H_{256/1/2} = 0.0178$$

$$q_{256/1/3} = 0.0781 \quad Q_{265/1} = 0.2941 \quad H_{256/1/3} = 0.0230$$

$$q_{256/1/4} = 0.0879 \quad Q_{265/1} = 0.2941 \quad H_{256/1/4} = 0.0259$$

$$q_{256/1/5} = 0.0977 \quad Q_{265/1} = 0.2941 \quad H_{256/1/5} = 0.0287$$

$$q_{256/1/6} = 0.1074 \quad Q_{265/1} = 0.2941 \quad H_{256/1/6} = 0.0316$$

$$q_{256/1/7} = 0.1172 \quad Q_{265/1} = 0.2941 \quad H_{256/1/7} = 0.0345$$

$$q_{256/1/8} = 0.1172 \quad Q_{265/1} = 0.2941 \quad H_{256/1/8} = 0.0345$$

$$q_{256/1/9} = 0.1367 \quad Q_{265/1} = 0.2941 \quad H_{256/1/9} = 0.0402$$

$$q_{256/1/10} = 0.1387 \quad Q_{265/1} = 0.2941 \quad H_{256/1/10} = 0.0408$$

256 Block 2 Parcel

$$q_{256/2} = 1 \quad Q_{265/2} = 0.1723 \quad H_{265/2} = 0.1723$$

256 Block 3 Parcel

q256/3/1= 0.25 Q265/3= 0.2941 H265/3/1= 0.0539

q256/3/2= 0.36 Q265/3= 0.2941 H265/3/2= 0.0775

q256/3/3= 0.14 Q265/3= 0.2941 H265/3/3= 0.0302

q256/3/4= 0.17 Q265/3= 0.2941 H265/3/4= 0.0366

q256/3/5= 0.08 Q265/3= 0.2941 H265/3/5= 0.0172

256 Block 4 Parcel

q256/4/1= 0.1295 Q265/4= 0.2217 H265/4/1= 0.0287

q256/4/2= 0.1321 Q265/4= 0.2217 H265/4/2= 0.0293

q256/4/3= 0.1477 Q265/4= 0.2217 H265/4/3= 0.0327

q256/4/4= 0.1503 Q265/4= 0.2217 H265/4/4= 0.0333

q256/4/5= 0.2202 Q265/4= 0.2217 H265/4/5= 0.0488

q256/4/6= 0.2202 Q265/4= 0.2217 H265/4/6= 0.0488

256 Block 5 Parcel

q256/5/1= 0.35 Q265/5= 0.0965 H265/5/1= 0.0338

q256/5/2= 0.65 Q265/5= 0.0965 H265/5/2= 0.0627

$$H_i = \sum_{(j=1)}^m \sum_{(l=1)}^n Q_{(l)} \times q_{(j)} *$$

Hi= Each independent landlord partnership share, each right owner, each shares in the arrangement area (can be Block)

m= Parcel number

n= Right owner number (shares, right owner, total number of independent area landlord)

Q = Total value of each parcel in partnership in the implementation of the share ratio or as a single parcel of shares ratio

q= dwelling unit owner's share rates, right owner, shares in terms of parcel

dwelling unit value that each right owner will receive from the net Project value (PVi) = Net Project value x Hi

Net Project value = Area total value – (Costs + Social Projects)

Right owner deserved value = Total Project value x Right owner share

Thus we can find the value that the right holder should take in the application area.

An dwelling unit in the property areas will be given to the right owner in accordance to the value found. Example;

Number 256/4/1 dwelling unit share = H256/4/1 = 0.0287

If we take the Total Net Project Value \$20,000,000;

\$20,000,000 x 0.0287 = \$574,000 worth of independent area from the Project in the old area should be given.