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## Success Criteria in Land Consulting Implementation- Isparta Province, Keçiborlu District, Incesu Village, Turkiye Example

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**Abstract** Land consolidation studies are carried out in order to minimize the agricultural problems of the society and to provide high yields from the existing agricultural lands. It has been investigated whether there is a statistical relationship between the perspectives of the producers and some socio-economic factors that are thought to affect this situation, the number and size of parcels after consolidation, road and irrigation connections, agricultural implement irrigation methods. In the land consolidation study, the number of parcels per farms, the average parcel size, the previous and subsequent conditions of the parcel shapes were studied. In this study, success criteria in land consolidation studies are discussed. The data used were obtained from Isparta province and related institutions, and the land consolidation stages and evaluation of Isparta province, Keçiborlu district, Incesu village were obtained by forming the material of the study. In the village of Incesu, a total area of 714.13 hectares was studied. In the study, the road conditions of the parcels were examined. While the proportion of parcels facing the road was 32.5% before the study, it was found to be 100% after land consolidation. With a consolidation rate of 35.84% in the village, the number of parcels decreased from 2182 to 1400, and the average parcel area was increased from 3.34 da to 4.81 da.

**Keywords** Land Consolidation, Good Agricultural Practices, Incesu Village example

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### 1. Introduction

Turkiye's most important source of livelihood is agriculture and agricultural production. Turkiye is a country that ranks first in the field of agriculture and agricultural production when compared to the world. Turkiye is one of the world's most developed countries in the field of wheat and barley production [1].

Soil and water are important for agricultural production. Land consolidation, which forms the basis of regulation in agricultural lands, is one of the most effective practices in the regularization of these factors; the planning and arrangement of agricultural infrastructure and agricultural field roads, water resources and irrigation projects, and improvement studies enable them to continue their activities in this area [2].

If the parcels are accessed after land consolidation and the topographic structure is corrected, the irrigation area will increase. It is aimed to reduce the fragmentation by collecting the lands. Irrigation line and lines such as railway, road and the interruption of these lines will be met from all the lands in the study area, and will be eliminated without expropriation and with a common deduction from everyone [3].

The fact that the farmer has one or more parcels in one or more different places causes the farmer to use a lot of fuel in the works he will carry out. Labor and working expenses are directly proportional to the fact that there is land in different places, and as the number of parcels increases, the land expenses will increase. As the areas of agricultural lands are small and the number of them increases, the working time will increase, causing problems such as not completing the works on time. Constant displacement will also cause loss in time [4].



When the land consolidation is done, the road plans, road widths and the shapes of the lands are rectangular or square, which is of great importance in reducing the expenditures in agricultural mechanization [5].

The collection of scattered lands is a tool aimed at regulation, planning and improvement in rural areas today. In direct proportion to the needs of the societies, it has expanded its field by focusing on physical planning in rural areas and agricultural lands, all the factors that harm the environment, improvements to be made in this area and measures to be taken in this regard. The fact that it is an application that contains more than one factor causes it to be intertwined in every field in the society and to improve social activities [6].

Wu et al. [7] emphasized in their research conducted in 227 enterprises in China that consolidation will contribute to the increase in production by providing comfort in terms of land use and at the same time, it will provide new employment resources for the people of the region. Uçar et al [8] conducted a survey in 5 villages in Burdur province, surveyed 159 business owners about land consolidation and 50.9% of those who participated in the survey reported that they were satisfied with the result of the consolidation and 34.6% were not satisfied. In study conducted by Candemir [9] on the economic results of consolidation in Manisa Saruhanlı-Lütfiye Village, he stated that there was an increase of 25% in gross income and 85% in weighted average income in the project area with 1987 prices. On the other hand, it was determined that there was an increase of 12% in cotton yield, 36.57% in wheat yield, and 10% in tomato yield. In the research conducted by Yeniay [10], the contribution of the land consolidation work carried out in Konya Karatay Şatır District to agricultural infrastructure services was investigated. As a result of the research, after consolidation, the number of parcels decreased from 892 to 5772 and decreased by 35.82%, the average parcel sizes increased by 57% from 36 decars to 56.5 decars, the number of irregular and irregularly shaped parcels decreased from 71% to 11.25%. reported that the number of rectangular parcels increased from 0% to 61.2%.

In this study; The stages and success criteria of the land consolidation carried out in Isparta province, Keçiborlu district, Incesu village were evaluated.

## 2. Materials and Methods

### Location of Incesu Village

The study area is Incesu village of Keçiborlu district of Isparta province. Incesu village is 12 km away from the town it is connected to (Keçiborlu district), which is located at 380 1' 43,0644" North and 300 16' 30,4644" East GPS coordinates. Incesu village is 38 km away from the city centre of Isparta (Figure 1).

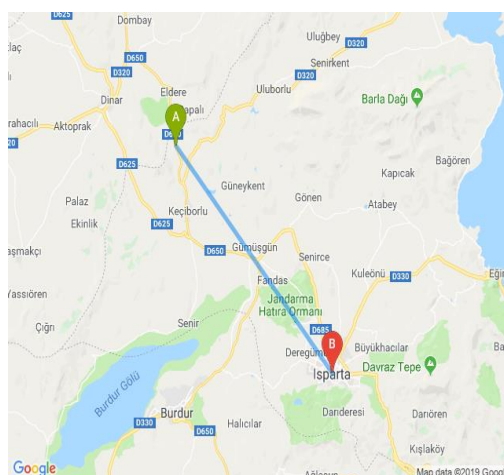


Figure 1. Location of Incesu village [11]

### Soil Survey Study

It is prepared to ensure that land consolidation works can be carried out with the best efficiency, in-field services are planned and performed correctly, and maps showing the characteristics of the soil in the area to be studied are prepared and presented. In addition, to determine the features of the region such as depth, stony, salinity, rocky, texture, slope degree, erosion, calcification, natural productivity, to create storie index maps of the people who work and carry out the work in the merging of agricultural lands while performing the land consolidation



studies, the plot topographic characteristics while creating these maps, knowing its physical and chemical properties, it is carried out both in land consolidation studies and to create the soil mapping base of the country. During the survey, 3 degree UTM (Universal Transverse Mercator) as projection and WGS-84 (World Geodetic System-1984) as DATUM were used to determine the land coordinates and GPRS instruments were used for track recording with hand-held GPS. Geographical Information Systems and Remote Sensing Systems were used in mapping studies, and they were also used in both field work and office work. In the study, 30 was taken for the middle meridian by using 36 zones. As a result, the maps prepared were prepared at a scale of 1/10.000 and were prepared to be used with the maps used today.

#### **Legal Basis of Land Consolidation Studies**

Land Consolidation implementation services, "Article 24 of the Law on Soil Conservation and Land Use No. 5403 and the Law on Services Carried out by the General Directorate of State Hydraulic Works dated 18/12/1953 and numbered 6200" and "General Directorate of State Hydraulic Works; It continues its work today with the Law No. 3083, 5403 and 6200. The work begins with the decision of the president or the council of ministers.

#### **Land Consolidation Implementation Stages**

Detailed process steps in the implementation of land consolidation projects in our country can be listed as follows [12].

- Taking the decision of the President or the Council of Ministers, and entering into force of the decision,
- Obtaining land registry records and cadastral parcels from the Land Registry and Cadastre Directorates,
- Preparation and reporting of social studies in the declared areas to learn the social structure in the village,
- Taking or providing current maps and current aerial photographs that will reflect the current state of the land,
- Determination of fixed facilities that will prevent the transportation of existing parcels on the land,
- Preparing grading and grading maps by conducting soil surveys and according to surveys,
- Block planning and road network preparation in line with the created base,
- Making distribution, preparing and announcing parcelling plans, taking into account the interviews,
- Receiving objections to the pending parcelling plans and evaluating the objections and renewing them in the parcelling plans,
- Announcement and approval of the parcellation plan after all objections are evaluated and 3 suspensions are made. Checking the title deed information and cadastral areas before registration procedures,
- Delivering the newly formed parcels to the citizens by applying them on the land,
- Registration of new parcels,
- Preparation of new title deeds to be given to citizens and handing over to land owners

### **3. Results & Discussion**

It has been stated that land consolidation is the technical services carried out to increase productivity in agriculture by arranging agricultural lands along with roads, irrigation networks, levelling and settlement areas [13].

Land fragmentation can be defined as the division of an agricultural land into more than one agricultural land or parcels for various reasons day by day. We can list various reasons that may cause the fragmentation of agricultural land as follows [14].

- Differences in usage with cadastral maps.
- Existence of parcels not connected to irrigation and transportation network.
- Inappropriate parcel shapes for agricultural mechanization and irrigation
- Public practices breaking up parcels
- Fragmentation by death and inheritance
- Renting and joint use due to lack of labour and capital



- Encountering with various natural disasters and fragmentation according to geographical locations
- The increase in population in rural areas engaged in agriculture causes fragmentation.

### General Condition of Incesu Village and Recognition of the Land

Incesu Village of Isparta province, Keçiborlu district, within the scope of the research, is a village with 120 households and a total population of 258. The general livelihood of the village is agriculture and animal husbandry. The irrigation needs of the agricultural lands in the village are met by footed canals or wells. When the existing land in Incesu Village is visited, these canals are insufficient, broken and damaged over time, and the land in the village does not meet its existence.

According to the data obtained from the Land Registry and Cadastre Directorate on 21.02.2020 in Incesu village, there are currently 4253 cadastral parcels. Although the existing land of the village is on the plain, it has flat land suitable for good agricultural practices (Figure 2). on the plain, it has flat land suitable for good agricultural practices (Figure 2).

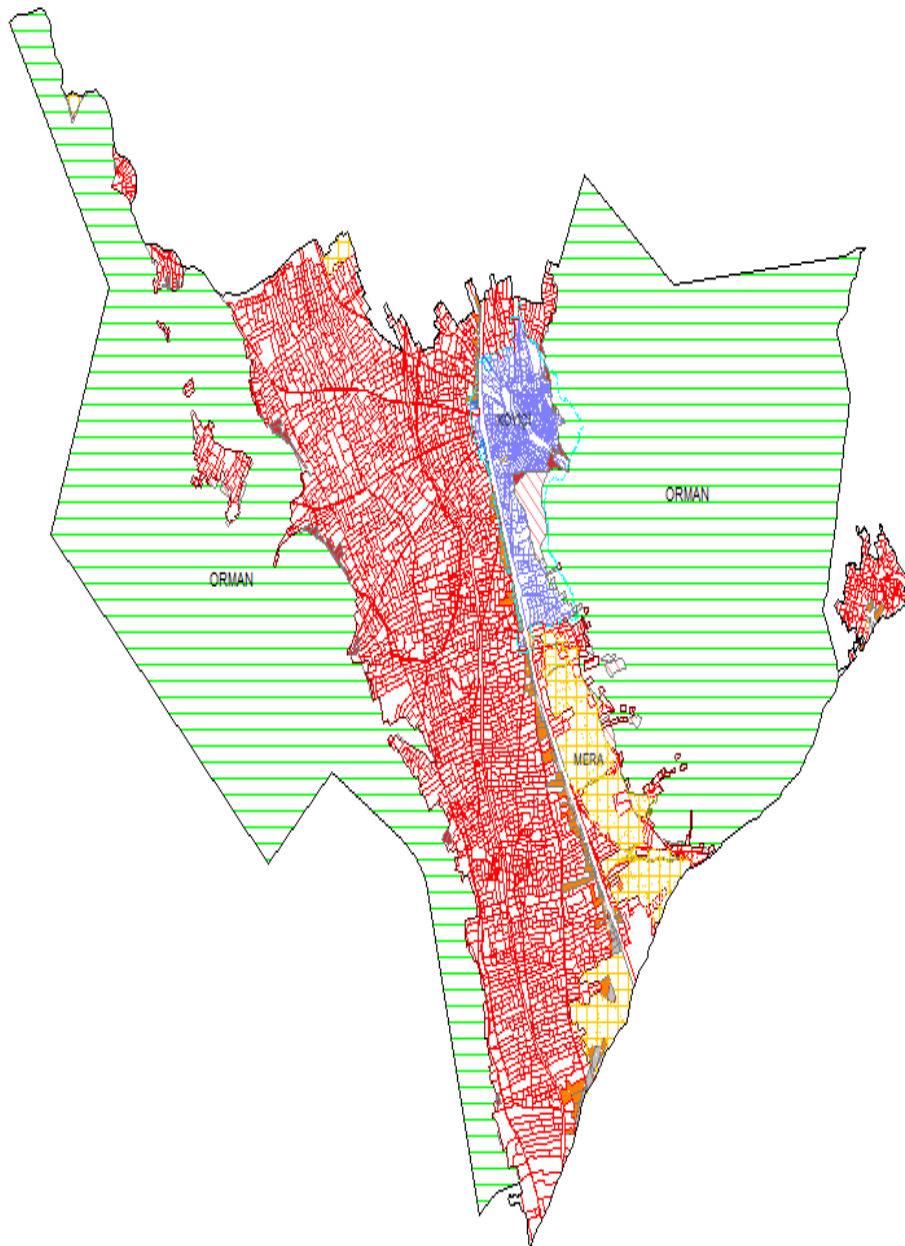


Figure 2. Current cadastral status of Incesu Village



In the studies carried out in the village, it was observed that 91.18% of the lands in the village were between 0-5 da (Table 1). This is an indication of good agricultural practices and difficulties in the use of technology and agricultural tools.

**Table 1.** Distribution percentages of parcels by area

Parcel Groups (da)	Parcel	%	Parcel Groups Areas (da)	%	Parcel Average Size (da)
<b>0 -5</b>	3183	91,18	7.352,0	23,42	2,31
<b>6-10</b>	238	6,82	1.809,91	5,77	7,6
<b>11-20</b>	48	1,37	660,36	2,1	13,76
<b>21-50</b>	13	0,37	389,6	1,24	29,97
<b>51-100</b>	2	0,06	153,38	0,49	76,69
<b>101-500</b>	5	0,14	1.092,45	3,48	218,49
<b>501-1000</b>	0	0	0	0	0
<b>1000&gt;</b>	2	0,06	19.934,87	63,5	9.967,43
<b>Toplam</b>	<b>3.491</b>	<b>100</b>	<b>31.392,97</b>	<b>100</b>	<b>8,99</b>

One of the most affecting agricultural production and yield from this production is the number of parcels belonging to an agricultural enterprise and their scattered distribution. Product losses due to the borders between two fields, waterways, unformed parcels, cadastral roads or non-cadastral roads determined by the farmers themselves, which are formed as a result of the many and scattered lands owned by agricultural enterprises, can be reduced with the land consolidation project. How many parcels the enterprises have and their distribution rates are among the important factors. The number of parcels in the study area and their distribution ratios are shown in Table 2.

**Table 2.** The number of parcels and distribution rates of the *farms* in the project area

Parcel Number	Farm Numbers	%	Number of Shareholders	Parcel Number	Farm Numbers	%	Number of Shareholders
<b>1</b>	331	35,4	331	<b>18</b>	3	0,32	54
<b>2</b>	155	16,58	310	<b>19</b>	4	0,43	76
<b>3</b>	76	8,13	228	<b>20</b>	4	0,43	80
<b>4</b>	76	8,13	304	<b>21</b>	1	0,11	21
<b>5</b>	60	6,42	300	<b>22</b>	2	0,21	44
<b>6</b>	55	5,88	330	<b>23</b>	2	0,21	46
<b>7</b>	23	2,46	161	<b>24</b>	3	0,32	72
<b>8</b>	23	2,46	184	<b>25</b>	1	0,11	25
<b>9</b>	18	1,93	162	<b>26</b>	1	0,11	26
<b>10</b>	18	1,93	180	<b>27</b>	1	0,11	27
<b>11</b>	20	2,14	220	<b>29</b>	1	0,11	29
<b>12</b>	9	0,96	108	<b>30</b>	3	0,32	90
<b>13</b>	13	1,39	169	<b>31</b>	1	0,11	31
<b>14</b>	10	1,07	140	<b>36</b>	1	0,11	36
<b>15</b>	4	0,43	60	<b>55</b>	1	0,11	55
<b>16</b>	5	0,53	80	<b>58</b>	1	0,11	58
<b>17</b>	7	0,75	119	<b>99</b>	1	0,11	99
				<b>119</b>	1	0,11	119

In Incesu village, there are parcels belonging to individuals, pasture and financial treasury. Their distribution is shown in Table 3.



**Table 3.** Ownership status according to the land registry records in the study area

	Number	Area (da)	Amount (%)
<b>Legal Entity Lands</b>	3419	10.067,37	32,07
<b>Treasury Lands</b>	23	20.033,00	63,81
<b>Pasture Lands</b>	49	1.292,60	4,12
<b>Village Legal Entity Arazileri</b>	0	0	0
<b>Total</b>	<b>3491</b>	<b>31.392,97</b>	<b>100</b>

The shareholding status of the parcels plays an important role in agricultural production in our country due to the problems to be experienced with the other shareholders, the problems that arise in the state supports, and the disagreements that arise with the shareholders and relatives. Incesu village parcel shareholding status is shown in Table 4.

**Table 4.** Number of shares of the lands in the study area

Line	Number of Parcels	Number of Shares	Total	Percentage (%)
1	3.164	1	3.164	90,63
2	172	2	344	4,93
3	59	3	177	1,69
4	21	4	84	0,6
5	20	5	100	0,57
6	13	6	78	0,37
7	12	7	84	0,34
8	5	8	40	0,14
9	5	9	45	0,14
10	4	10	40	0,11
11	7	11	77	0,2
12	1	13	13	0,03
13	1	14	14	0,03
14	2	15	30	0,06
15	2	16	32	0,06
16	2	17	34	0,06
17	1	18	18	0,03
<b>Toplam</b>	<b>3.491</b>		<b>4.374</b>	<b>100</b>

In the parcels with triangular, trapezoidal and shapeless plots, planting and agricultural activities are of great importance in terms of being fast and sustainable, and Table 5 shows the distribution of parcel shapes in Incesu village.

**Table 5.** Parcel shapes

Shape	Number	%
<b>Triangle</b>	126	3.61
<b>Square</b>	250	7.16
<b>Rectangle</b>	1056	30.25
<b>Trapezoid</b>	1219	34.92
<b>Shapeless</b>	840	24.06
<b>Total</b>	3491	100



The distance of the farms to the village centre is approximately 1-6 km. In the area determined as a consolidation area in Incesu village, 39% of the 2,182 parcels included in the study are between 1-2 km, 30% between 2-3 km, 26% between 3-4 km and 5% more than 4 kilometres. located at a distance.

The water source is groundwater. The irrigation system planned by DSI is available but insufficient. Agricultural lands are irrigated sequentially among the villagers. This is insufficient for agricultural lands. Agricultural lands consist of insufficient irrigated and non-irrigated areas (Figure 3).

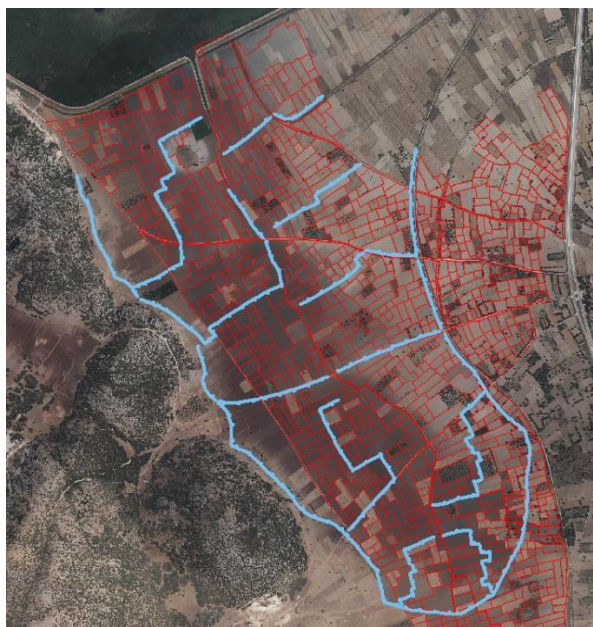


Figure 3. Condition of existing irrigation canals in Incesu village

### **Isparta Keçiborlu Incesu Village Land Consolidation and On-Land development services Study Social Studies in Incesu Village**

Social Studies; The study is prepared to learn the situation of the land, to know the socio-economic status of the people living in the village, to inform the farmer before starting the work, to prevent the problems that may be encountered, to eliminate the question marks in the minds of the villagers and to take the necessary measures for the problems that may arise.

#### **Application Area Announcement**

After the land consolidation is first surveyed and surveyed, the regions that are found suitable are announced as "State Hydraulic Works Application Area" by the relevant institutions and published in the Official Gazette without preparing the consolidation project.

In Isparta Province, Keçiborlu district, Incesu village, it has been declared as "Area of Implementation" with the decision number 2017/10917 in the official newspaper and a compulsory consolidation area with the Decision of the Council of Ministers.

#### **Detection of Fixed Facilities**

After the Land Consolidation area is announced in the official newspaper, the study area is visited and the facilities that cannot be moved such as vineyards, orchards, wells, buildings, barns, houses, rose gardens and lavender gardens are determined. A total of 72 orchards, 24 rose gardens, 8 lavender gardens and 18 wells were identified in the study area. Necessary land measurements are made in order to plan the parcels that are established in the future distribution and subdivision stages of the study so that they remain within the facility and to prevent the citizens from being victimized.

#### **Creation of Property Information from Cadastre and Land Registry**

The cadastral information of the villages in the land consolidation project implementation area are obtained from the relevant cadastral directorate and the samples of the title deeds are obtained from the relevant Land Registry Directorates



### Current Land Use

According to the data received from the 18th Regional Directorate of State Hydraulic Works; Keçiborlu District, Incesu Village total project area is approximately 759.6 hectares. Approximately 361.3 hectares of this has been determined as irrigated land suitable for irrigated agriculture. Wheat is cultivated in 70% of the agricultural areas.

There are 30.2 da pasture in the study area. Pasture areas are occupied by the farmers in the village and wheat is planted.

### Land Grading and Preparation of Grading Maps

While the lands are consolidating, grading studies are carried out in order to ensure that the parcels receive lands equal to their former status in the merging of the fragmented and shared lands.

In our country, grading procedures in Land Consolidation studies are prepared in accordance with the technical instruction within the scope of Law No. 3083 and 5403, which has come into force until today.

A total of 10 profiles and 120 sample probes were drilled in the first stage in Incesu village. 240 sampled probes were identified as control probes (Figure 4). After evaluation according to field observations and analysis results, calculations were made by State Hydraulic Works personnel based on the technical instruction on Soil Classification

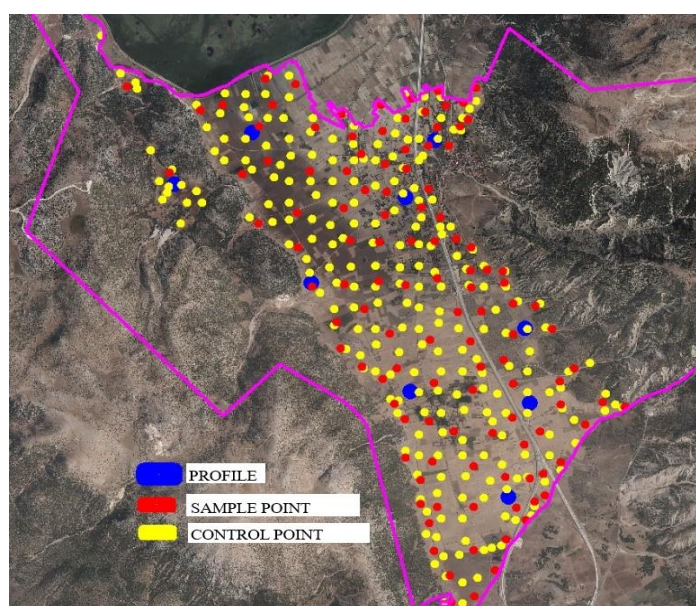


Figure 4. Drilled soil profile and probes

Survey: Physical and chemical properties of the soil in the area in order to determine the productivity status in order to establish the infrastructure for the in-field services to be carried out within the framework of the “Law on the Organization and Duties of the General Directorate of State Hydraulic Works No. 6200” and the Implementation Regulation and to direct the consolidation project to be carried out in the survey area; The study was conducted to examine and evaluate these features and to determine the use of the land, capability classes and subclasses and their degrees according to the stories index.

### Determination of Soil Index

Soil Index; soil grading process. Soil grading is done according to the Storie Index, depending on 4 different factors. These; soil profile group, topsoil texture, slope of the land and other features such as drainage, alkalinity and acidity. Soil, index formula is shown below.

$$\dot{I} = \mathbf{A} \times \mathbf{B} \times \mathbf{C} \times \mathbf{X} \quad (3.1)$$

$\dot{i}$  = Soil index,  $\mathbf{A}$  = Soil profile group value,  $\mathbf{B}$  = Topsoil texture value,  $\mathbf{C}$  = Land slope value,  $\mathbf{X}$  = Other soil properties value





**Soil Profile Group (A);** t is the combination of soil profile properties such as the formation of the soil, the form of accumulation, the climate and vegetation, the age of the soil material, the type of the parent material, and all the physiographic properties of the soil other than the upper structure.

**Topsoil Structure (B);** It is the proportions of sand, silt and clay, 20-30 cm thick from the top of the soil. Boron and stony ratios of the soil also affect its structure.

**Land Slope (C);** It is the slope ratio of the land. The slope of the lands; farmer's field mechanization, soil and soil properties do not lose their value, vegetables, seedlings, etc. is an important factor for the adaptation of products. In soil surveys, the slope is shown as a percentage.

**Evaluation of Other Properties (X):** In this section, grading is made by looking at the presence of nutrients such as salinity, drainage, erosion, alkalinity. These factors are called variable or changeable factors when land management can be corrected or their severity mitigated.

#### **Making the study compatible with 1/5000 scale cadastral maps**

While preparing the land consolidation rating maps, 60% soil index score is applied in the parcel index calculation, 40% (such as commission and location score), which will be given by taking into account location and other characteristics. Land groups with index scores close to each other can be combined by the rating commission (5403 Rating Instruction).

#### **Calculation of Rating Score Calculation**

Rating Score Calculation; Rating Score is the value obtained by adding 60% of the storie index obtained according to soil surveys and 40% of the location and other features.

$$RS = (0,60 \times SI) + (PI + OF) \quad (3.2)$$

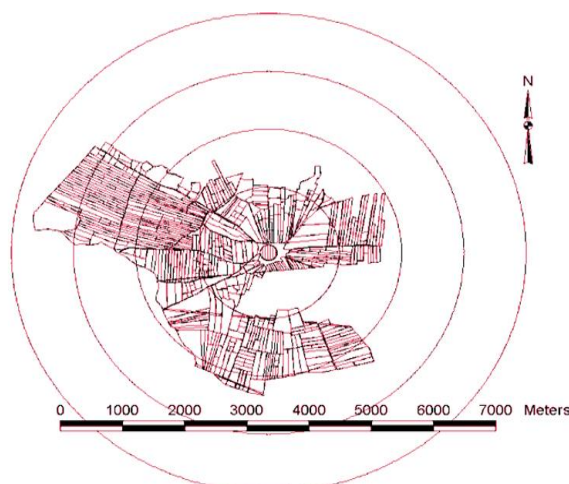
RS = Rating Score, SI = Storie Index, PI = Position Index, OF = Other Features (Commission Points)

While grading maps are being prepared, parcels are scored according to their proximity to the road. While determining the proximity of the parcels to the road, there are score ranges according to the usage status of the road. These score ranges are shown in Table 6.

**Table 6.** Proximity to the road scores

<b>Double road</b>	0 -250 m	15 point
<b>City, town road</b>	0 -150 m	12 point
<b>The main road between the villages the</b>	0 -100 m	10 point
<b>Other important considerations</b>	0 -100 m	8 point

While preparing the rating maps, the parcels are scored according to their proximity to the village settlement as well as their proximity to the road. While determining the proximity of the parcels to the village (settlement), the score ranges are determined according to the distance they are located. These score ranges are shown in Figure 5 and Table 7.



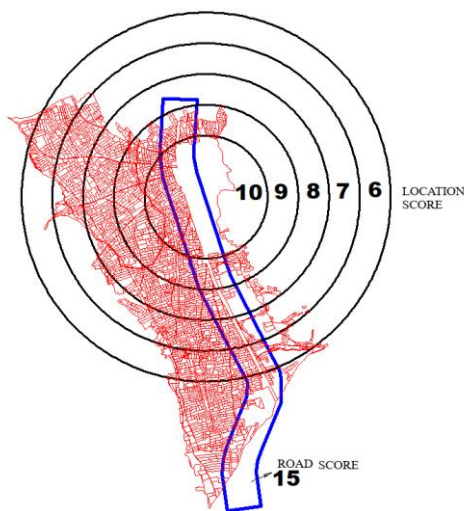
*Figure 5. Location index*



While preparing the Incesu village rating maps, the scoring and the score indices of the parcels according to their road and location conditions are shown in Figure 6 and table 7.

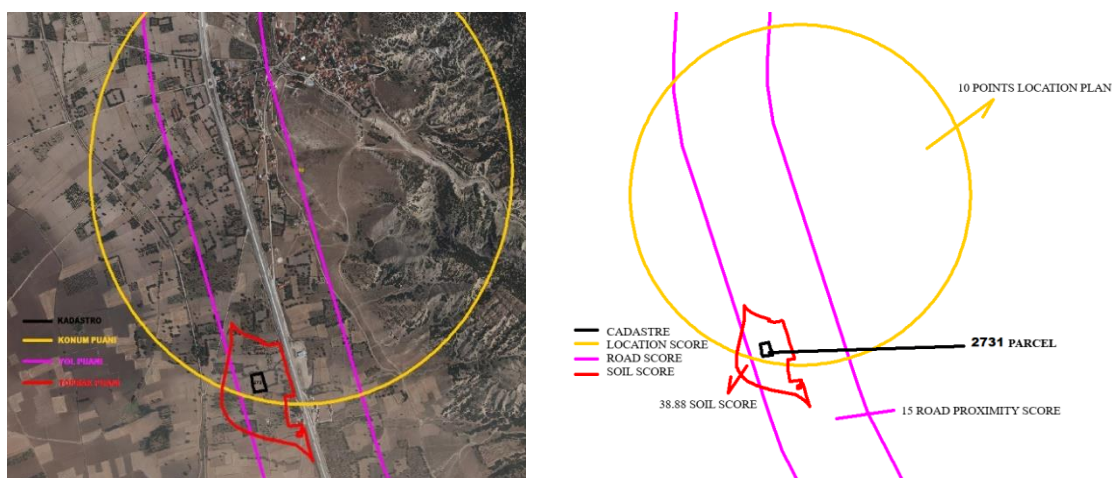
**Table 7.** Distance scores to the village settlement area

<b>0 - 1.000 m</b>	10 score
<b>1.001 - 1.500 m</b>	9 score
<b>1.501 - 2.000 m</b>	8 score
<b>2.001 - 2.500 m</b>	7 score
<b>2.501 - 3.000 m</b>	6 score
<b>3.001 m &lt;</b>	5 score



*Figure 6. Incesu village map showing location and road points*

If we examine how many grades and how many points the 2731 parcels in Incesu village got when grading, it can be seen in Figure 7 and Table 8. The 2731 parcel land score is 38.38, and the 60% value of this value was taken as 23.33 while the rating maps were being prepared. The parcel received 15 points as road points, 10 points as location points and received 5 points with the decision of the commission. The parcel average score was 53.33, and the parcel grade was determined as 5th Degree.

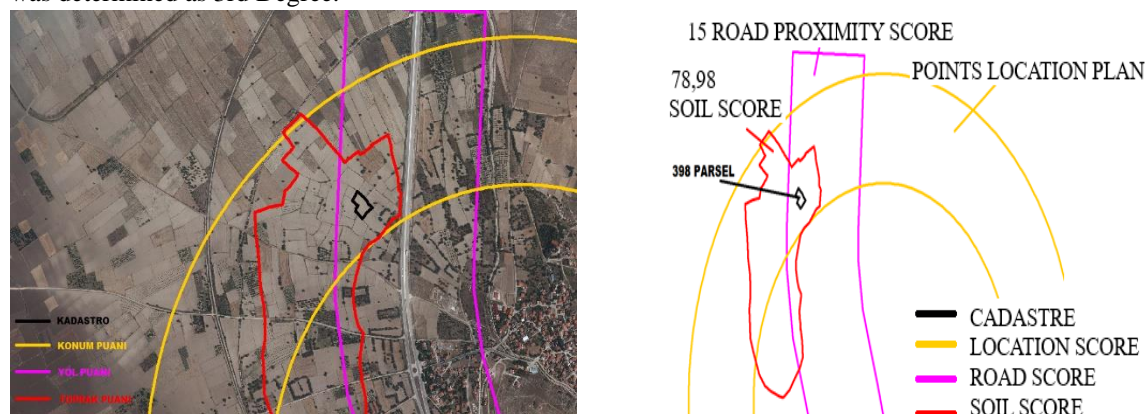


*Figure 7. Incesu village 2731 parcel satellite image rating scores*

**Table 8.** 2731 Parcel rating map scores

Parcel No	Account Area	Land Area	Soil Points	Settlement Score	Road Score	Commission Points	Parcel Average Score	Degree Group
2731	4.103.48	4.107.00	23,33	10	15	5	53,33	5

We can see in Figure 8 and Table 9 if we examine how many degrees and how many points the parcel no. The land score of the parcel no. 398 is 78.98, and the 60% value of this value was taken as 47.39 while the rating maps were being prepared. The parcel received 15 points as road points, 9 points as location points, and received 5 points with the decision of the commission. The parcel average score was 76.39, and the parcel grade was determined as 3rd Degree.

*Figure 8.* Incesu village 398 parcel satellite image rating scores**Table 9.** 398 Parcel rating map scores

Parcel No	Account Area	Land Area	Soil Points	Settlement Score	Road Score	Commission Points	Parcel Average Score	Degree Group
398	3.479.88	3.475.00	47,39	9	15	5	76,39	3

Isparta province, Keçiborlu district, Incesu village, while the grading processes are carried out, the presence of fixed facilities, irrigation lines, etc. on the land. It has been seen that the elements are not given importance, and it has been seen that the grading process is done by looking at the soil classes in the places where land acquisition is considered by making improvement studies in the stream bed, road and in places where there are broken footed canals that are not currently used (Figure 9).



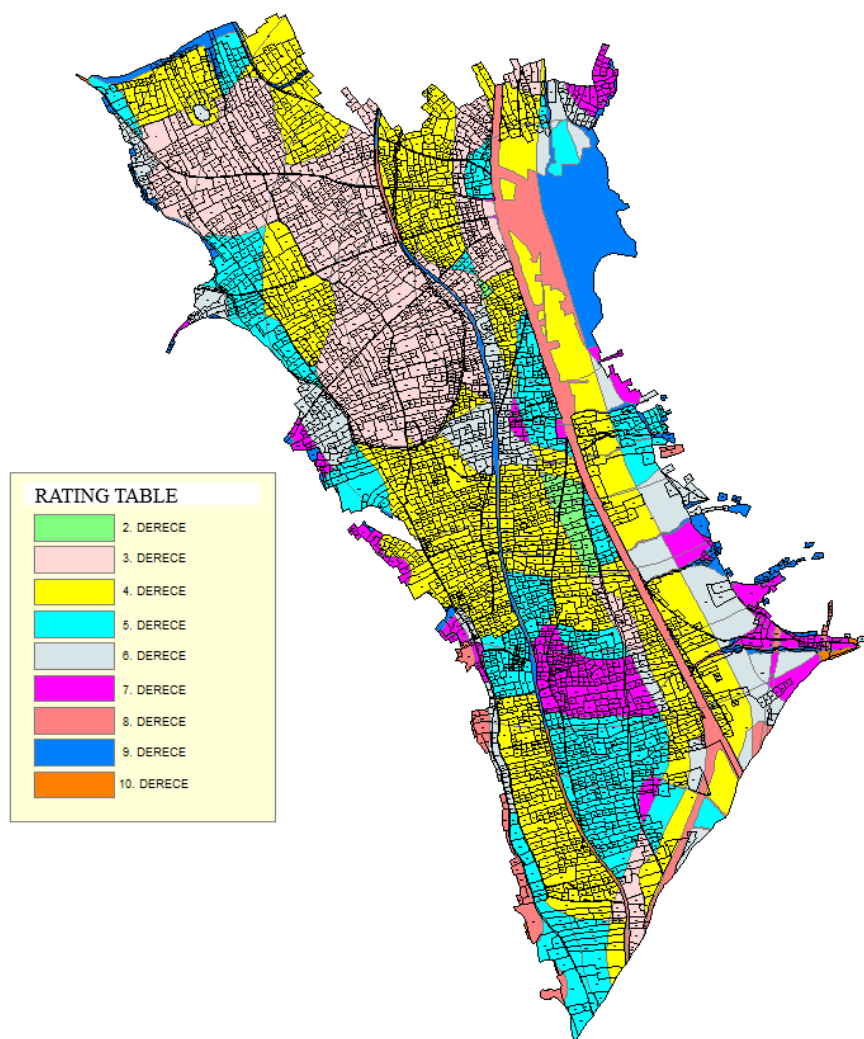


Figure 9. Incesu village rating map

#### Determination of Blocks and Road Network for New Parcels

In the consolidation area; In order to enable access to agricultural lands, facilitate the work to be done in the field, and minimize labor, cost and time, “block plans” are prepared that will be directly connected to the irrigation network.

While planning the block in Incesu Village, surface evacuations, precipitation amounts according to years, the direction of the water that will flow after precipitation and irrigation, irrigation from institutions and organizations, road, electric line, railway, natural gas pipelines, etc. It has been prepared taking into account the existence of projects for the public benefit.

After the studies carried out in the village of Incesu, the village has a road and a railway, there are wells and hydrants belonging to the State Hydraulic Works, the Tumulus, which are designated as protected areas, and the fixed facility orchard, well, rose pot, house, barn, etc. areas (Figure 10).



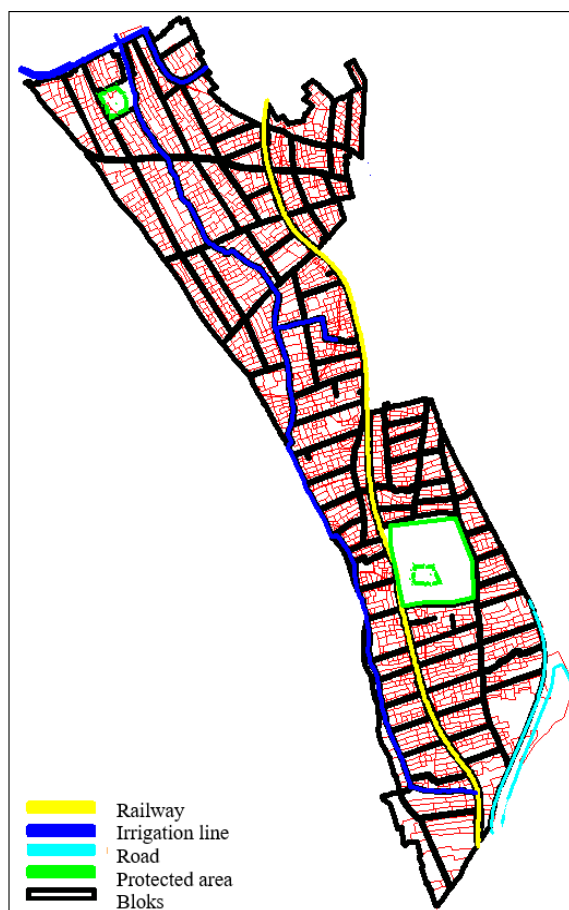


Figure 10. Map showing the effects of different applications on block plans

- After the blocks are created in the village; The blocks were numbered and these numbers were numbered between 138 and 231 in a clockwise direction, starting with one more number than the parcel numbers of Incesu village obtained from the Land Registry and Cadastre Directorate in order to avoid confusion with the parcel numbers. A total of 94 blocks were created in the village of Incesu.
- Land Condition and Road Network Analysis According to Block Numbers; The shapes of the blocks were planned on the basis of existing cultural structures such as lakes, mounds, irrigation canals, railway lines, roads and cemeteries.
- Obtaining the Preferences of Farmers and Land Owners and Filling the Interview Forms: Preference purchases are made in order to learn the individual wishes of the citizens, to see their perspectives on land consolidation, to know which parcels they want to combine while the parcelling plan is being prepared, to learn the consent partition and land use status, to know the people they want to be neighbours according to their kinship relations, and to remove any question marks in their minds. Interview forms were prepared in accordance with the regulation numbered 30679, which shows the preferences and wishes of the enterprises in the project area and their existing land. During the interviews held in Incesu village, 248 people were reached, the interview form was filled and their requests were learned.
- Preparation of Parcelling Plans and Announcement by Making Suspension Work: While making the new parcellation plan in Incesu village, all parcels were prepared to benefit from the road, taking into account the wishes of the farmers and land owners, the topography of the land, the company sizes, the preferences of the enterprises, the preferences of the farmers, the fixed facility status, the current land use and the rating, the parcel ownership.



The reasons for objecting to the parcellation plan in Incesu Village can be listed as follows.

- Request to obtain an independent title deed
- Desire to remain as joint title deed
- Parcel shapes
- Relocation of the parcel
- Not Collecting Lands
- Neighbourhood relations
- Desire to stay in the same place one to one
- Making purchases and sales
- Presence of fixed facilities
- Deduction amount
- Other objections (Similarity of names, the fact that the front length of those with more road frontage does not decrease, those who do not fulfill their own wishes, objections that others are granted privileges)
- Renewal of parcels according to the objectionable issues

On-Farm Development Services: In land consolidation projects, drill projects are prepared in order to approve the road network and carry out on-farm development projects. As a result of the projects prepared, according to the work items determined by the institutions at the beginning, tree removal, border correction, and excavation with the machine are started.

#### **4. Conclusion**

The methods applied in land consolidation projects, the data obtained by close examinations in Incesu village, and some economic, cultural, social and demographic behaviors of the farmers resulting from the examination of these data, where there are deficiencies in the regulations, but to reduce the existence of fragmented land in land consolidation projects, to solve the farmer's road problem, if there is an irrigation project It has been seen that if there is no irrigation, it makes the implementation of irrigation projects easier and is extremely effective in solving social problems in rural areas.

As a result of the meetings held with the farmers in Isparta province, Keçiborlu district, Incesu village and the joint studies (railway line, irrigation line, roads, etc.) with the relevant institutions and organizations, 2182 parcels were included in the study, and as a result of land consolidation studies, it was reduced to 1400 parcels. The cadastral base of the village has been cleared, and it has been planned to be converted into a full title deed for those who have a share in the inheritance group and want to leave their other shareholders for various reasons.

The arrangement partnership share in the study area was determined as 5,3703 and 35.84% consolidation was made in the village. While the proportion of parcels facing the road was 32.5% before the study, 100% success was achieved after land consolidation. While the rate of shapeless parcels was 62.59% before the study, this rate decreased to 7.8% after land consolidation. Irrigation projects could not be implemented during the working phases, but it was desired to create a ground as an infrastructure and 2 m gaps were left for the irrigation line on the side of the newly planned roads. There are no undisturbed parcels in the study area (Figure 11).



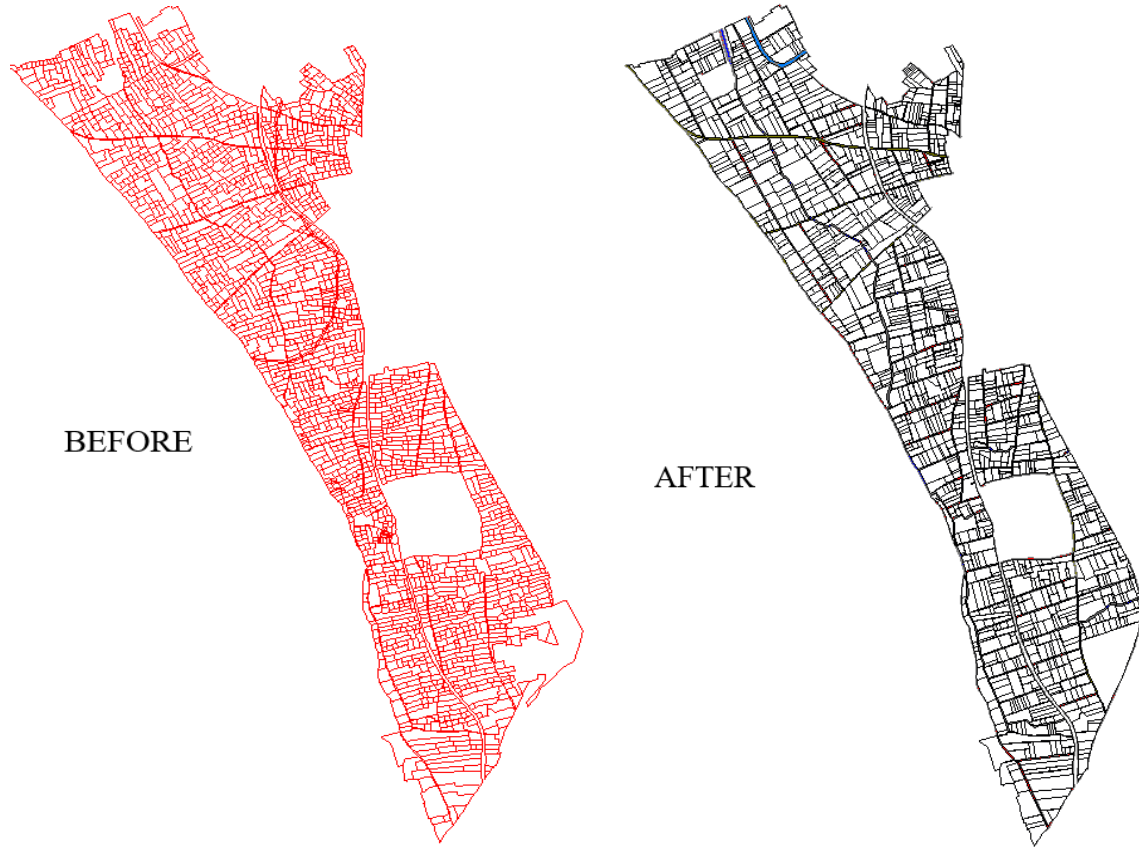


Figure 11. Parcel status before and after Incesu Village land consolidation

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