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# Project for the Analysis of Land Tenure and Agricultural Productivity in the Republic of Macedonia

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Land Tenure Center

AN INSTITUTE FOR  
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RURAL INSTITUTIONS,  
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**PROJECT FOR THE ANALYSIS OF LAND TENURE  
AND AGRICULTURAL PRODUCTIVITY IN  
THE REPUBLIC OF MACEDONIA**

assembled by

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# TABLE OF CONTENTS

	<u>Page</u>
<b>LIST OF TABLES</b>	vi
<b>ACKNOWLEDGMENTS</b>	viii
<b>I: INTRODUCTION</b>	1
A. Background	1
B. Project activities	3
1. Land-related constraints to increased productivity and profitability of private farms	3
2. Land-related constraints to increased productivity and profitability of socially owned farms	5
3. Legislation, regulations, and institutions affecting land tenure and land use	5
<b>II: THE INSTITUTIONAL FRAMEWORK FOR AGRICULTURAL LAND TENURE AND LAND USE IN THE REPUBLIC OF MACEDONIA</b>	6
A. Constitutional foundation of land policy	6
B. Land policy according to current legislation	6
C. Historical background of land tenure and land use policy	9
1. Transformation of usufruct into ownership	9
2. Historical aspects of the development of landownership in Macedonia	10
D. Analysis of current policy in the agricultural sector	16
1. Private ownership	16
2. Derivative types of ownership	17
3. Common property	18
E. Other legal relations on agricultural land	18
1. Servitude	18
2. Rights of pledge and mortgage	20
3. Rights of neighbor	20
4. Disposal of agricultural land	20
5. Inheritance	21
F. Social ownership and its transformation	21
G. Agricultural land and the law on denationalization	25
H. Cooperative ownership: past and future	25
I. Reallocation of holdings ( <i>arondacija</i> )	29
J. Registration of ownership of agricultural land	30
K. Conclusion	31
<b>III: THE PRIVATE FARM ECONOMY</b>	32
A. Background	32
B. Sample selection and survey design	35
1. Survey instruments	36
C. Results of empirical research for the private agricultural sector	37
1. Demographic results	37
2. Age and education structure	40
D. Land acquisition in the Republic of Macedonia	44
1. Inheritance	44

2. Purchase	46
3. Leasing	47
E. The Market for land	47
1. General characteristics	47
2. Prices	48
F. Land use	49
1. Uncultivated land	50
2. Land use of leased and purchased agricultural land	51
G. Patterns of production in Macedonia's private farm economy	51
1. Orientation of production	51
2. Productivity	56
3. Irrigation	59
H. Evaluating of the extent and effects of fragmentation	59
1. Introduction	59
2. Fragmentation in Macedonia	60
3. Causes of fragmentation	60
4. Advantages and disadvantages of fragmentation	60
5. Degree of fragmentation	61
6. Measurement of fragmentation	62
7. Effect of fragmentation on agricultural productivity	64
I. Agricultural marketing	64
1. Output markets	64
2. Input markets	65
J. Agricultural services	66
K. Conclusions	66
<b>IV: SOCIALLY OWNED AGRICULTURAL ENTERPRISES</b>	69
A. Background	69
B. Sample selection methodology	69
C. Brief description of the surveyed enterprises	70
D. Method of analysis	72
E. Results of the analysis of the sample farms	73
1. Land use	74
2. Mechanization	75
3. Professional and skill structure of the labor force	76
4. Production and productivity	77
F. Conclusions	85
<b>V. A COMPARATIVE REVIEW OF LAND USE AND PRODUCTIVITY ACROSS THE SOCIAL AND PRIVATE SECTORS</b>	87
A. Land use	87
B. Land acquisition	87
C. Resource access	88
D. Relative productivity	88
E. Some problems of comparison	92
F. Conclusion	92

<b>VI: SUMMARY OF RESEARCH FINDINGS AND POLICY RECOMMENDATIONS</b>	94
A. Summary of results	94
1. Comparative productivity and profitability of small farms and <i>agrokombinats</i>	94
2. Effects of fragmentation on productivity and profitability of small private farms	94
3. Economics of the land market	95
4. Legal and institutional constraints to increasing productivity and efficient land market operation	95
5. Market orientation of the private farm sector	96
B. Land policy adjustments to promote the increased productivity and profitability of the agricultural sector	96
1. Land market development	96
2. Linkage to the credit market	97
3. Transactions costs on land sales	97
4. Intrafamily land transfers (inheritance, etc.)	98
5. Protection of agricultural land	99
6. Equity considerations	101
7. Conflict resolution	101
8. Cadastral property registration system	101
9. Consolidation of fragmented private farm holdings	102
10. Social sector restructuring: leasing of publicly owned agricultural land	103
11. Market information and public education	105
C. Summary legislative reform agenda	105
D. Financial and technical assistance to support the development of land markets to promote efficient, sustainable, and equitable increases in agricultural incomes	107
1. Legal reform	107
2. Upgrading the cadastral land registration system	108
3. Reinforcement of public land administration capacity	108
4. Establishment of monitoring and policy analysis capacity to support market-oriented agriculture and land market development	109
5. Consolidation	110
6. Market information and public education	111
<b>APPENDIX 1: PERSONNEL</b>	113
<b>APPENDIX 2: BACKGROUND LITERATURE REFERENCES</b>	114
<b>APPENDIX 3: STRUCTURE OF THE OPTIMAL SAMPLE BY REGION, MUNICIPALITIES, AND VILLAGES</b>	115
<b>APPENDIX 4: HOUSEHOLD LEVEL SURVEY INSTRUMENT</b>	117
<b>APPENDIX 5: VILLAGE LEVEL SURVEY INSTRUMENT</b>	128
<b>APPENDIX 6: LITERATURE REVIEW ON FRAGMENTATION, WITH REFERENCES:</b>	134

## LIST OF TABLES

Table 3.1: Number of farms in the Republic of Macedonia according to the census of 1931	33
Table 3.2: Holding structure of households according to 1981 census	34
Table 3.3: Population and sample farm size structure	36
Table 3.4: Number of rural households and their size	38
Table 3.5: Average size of the private farms, according to the holding size	38
Table 3.6: Some basic socioeconomic indices of the private farms in the regions studied	39
Table 3.7: Landholdings and family size of private farm sector	39
Table 3.8: Labor force utilization on private farms by holding size	40
Table 3.9: Age structure of the head of household by regions	41
Table 3.10: Level of education of the head of the household	41
Table 3.11: Land too fragmented?	42
Table 3.12: Interest in consolidation	43
Table 3.13: Support for government initiated consolidation	43
Table 3.14: Land acquisition strategies by farm size	45
Table 3.15: Average prices of rented land	49
Table 3.16: Land use by crop for the sample population according to the percentage of land area and percentage of parcels	50
Table 3.17: Land use by crop for rented land in the private agricultural sector	51
Table 3.18: Percentage of farmers cultivating specific crops by region	52
Table 3.19: Uses of production by farm size for wheat	53
Table 3.20: Uses of production by farm size for corn	54
Table 3.21: Uses of production by farm size for tomatoes	55
Table 3.22: Output per hectare in kilograms, 1995	56
Table 3.23: Input use and output per hectare of wheat cultivated	58
Table 3.24: Mechanization in the private farm sector	58
Table 3.25: Value of inputs and output by hectare of wheat cultivated	59
Table 3.26: Degree of land fragmentation by farm operation size	62
Table 3.27: Percentage of farmers acquiring seed inputs from various sources	66

Table 4.1: Average parcel size in hectares by category of land use	75
Table 4.2: Tractor power	76
Table 4.3: Arable land per employee and per agronomist	77
Table 4.4: Weighted average of physical indicators in wheat production	79
Table 4.5: Weighted averages of physical indices of barley production	80
Table 4.6: Weighted average of physical indices in alfalfa production	81
Table 4.7: Physical indices in greenhouse tomato production	83
Table 4.8: Physical indices for cow milk production	84
Table 4.9: Physical indexes in lamb meat production	85
Table 4.10: Cost structure of selected products and profitability of production	86
Table 5.1: Output per hectare, 1995	89
Table 5.2: Input use and output per hectare in wheat production	91
Table 5.3: Value of inputs and output by hectare of production of wheat	91



## **ACKNOWLEDGMENTS**

The project dealt with complex issues, requiring the accumulation of detailed data at the individual farm level and in-depth analyses of legal and historical processes. There was no substantial precedent for this kind of analysis in the Republic of Macedonia, and the project needed to be completed in a short period of time. Additionally, there were divergent conceptual perceptions of the problems we addressed and the respective methods of analysis. Therefore, great credit must be given to all those participants in this project who worked diligently and cooperatively to make our endeavor a success. In Appendix 1 we recognize and thank those who contributed.

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# I: INTRODUCTION

## A. BACKGROUND

The agricultural sector in Macedonia is characterized by two very different farm enterprise types: small family farms operating on privately owned land, and large socially owned farms. The latter can be further classified into two types: (1) *agrokombinats*, vertically integrated agribusinesses, which have large landholdings and are engaged in primary production, extensive agro-industrial processing, commercial storage, and marketing services; and (2) socially owned agricultural companies, which have smaller holdings and engage to a much lesser extent in nonprimary production activities. The total arable land in Macedonia is 662,000 hectares, of which 204,000, or about 30 percent, belong to socially owned farms. Most of the balance belong to the private farm sector; the cooperative sector occupies a small percentage of the arable land.<sup>1</sup>

Many farm households derive a significant proportion of their incomes from nonfarm activities; by the official definition, only 14 percent of the population of Macedonia engages in full-time farming. This definition, however, is very strict: if any member of the household, not necessarily the head or spouse, earns income from off-farm employment, the household is considered to be engaged in part-time farming. The definition is clearly inappropriate. Around the world, the numbers of farmers who derive all of their income from farming have steadily declined. Today in most places, farm households which earn some of their income from nonfarm sources (e.g., off-farm wage employment and remittances) are predominant. Future research on the data collected under this project will explore the possibility of alternative distinctions, including the identification of market-oriented farmers, or those who are likely to respond to agricultural policy in a businesslike manner, as contrasted with “hobby” farmers and subsistence farmers, or those who are less likely to respond advantageously to policy change.

There has also been substantial out-migration from regions where farm sizes are small or where agriculture is only marginally profitable. Furthermore, the population engaged in farming contains a high proportion of aging and elderly persons. The family farm sector comprises a wide range of farm operations, but most of them are small: the average farm size is 2.5–2.8 hectares. Some farms have been able to achieve larger sizes through land leasing (until 1988, the legal ownership maximum was 10 hectares<sup>2</sup>). An important characteristic of the family farms is that they are fragmented: a family’s landholding is composed of not one parcel, but rather several (sometimes more than twenty) noncontiguous parcels. The fragmentation is generally due to inheritance

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<sup>1</sup> There are serious discrepancies among data sources even for such fundamental numbers as the cultivated area. As Chapter 3 shows, the *1994 Census* reports that private farms cultivate about half the amount that the Statistics Office reports. There is also imperfect reporting of the subdivisions within the social sector, among the organized social sector (*agrokombinats*), the unorganized social sector (scattered parcels acquired by the state over time), and the cooperative sector.

<sup>2</sup> Currently there is no limit; farm sizes still reflect the historical legacy of inheritance, land scarcity, and social limits on the amount of landholding per family.

practices and a long history of informal land market activity constrained by lack of capital and labor. A major concern of the Ministry of Agriculture is that this fragmentation causes production inefficiency and low output levels. The Ministry has suggested that consolidation is the best solution to fragmentation.

Another major problem facing family farms is the lack of both factor and product markets. Small farms are not able to take advantage of economies of scale in marketing. They have difficulty in obtaining inputs, lack access to agricultural credit and extension services or other information sources, have few market outlets, and get low prices for their products. The socially owned farm sector has acted as both factor and product market for the family farm sector surrounding it. Since many of the *agrokombinats* contained large processing plants, they purchased certain products such as wheat, vegetables, and fruits from the family farms. The *agrokombinats* have also provided family farms with necessary inputs and extension services. Many of these enterprises have greatly reduced their operations, however, because state subsidies have been cut and credit has been practically eliminated. Thus they are no longer able to provide the same level of services to the family farm sector, particularly at attractive prices or on convenient terms. In addition, they are purchasing less of the family farm production and delaying payment for what they do buy. While these tendencies reflect movement toward a more efficient agricultural sector, the development of alternative forms of providing key services is important during the transition to a private economy.

The large enterprises also absorbed surplus labor from private farms in their areas. This important source of employment and wages for land-poor families will continue to shrink considerably with the restructuring of the *agrokombinats* and other socially owned farms. While this reflects downsizing toward more efficient production strategies, in the immediate term it is leading to increasing unemployment, which has driven many toward the already constrained small-scale production for subsistence and perhaps longer-run employment.

Privatization of the *agrokombinats* and socially owned farms is now inevitable, but the government is determined to maintain production levels in agriculture. The government has assumed that the productivity of the large-scale farming enterprise is considerably greater than that of the small-scale, private farming sector due to economies of scale; it therefore insists on maintaining the large fields that typify *agrokombinat* agricultural production. One exception is the land that was expropriated from private owners since the late 1940s (by one estimate, this represents approximately 10 percent of the land used by socially owned enterprises). The previous owners or their heirs will be able to receive their land via a restitution process. Most of the land used by socially owned enterprises, however, has been under state ownership since before World War II and has been rehabilitated by the state through irrigation and drainage projects.

Although the size, land tenure structure, and type of production diverge significantly across the social and private farm sectors, there has been and continues to be a symbiotic relationship between the two sectors.<sup>3</sup> The socially owned enterprises have acted as both factor and product markets for neighboring family farms. The transition period policy agenda, which is being defined

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<sup>3</sup> This project found, however, that the closeness of this relationship varied widely, with some private farmers having no dealings at all with the *agrokombinats* and others entering into formal marketing contracts with them.

for the two sectors, arises out of the fact that the government has significantly modified its policies and priorities with regard to these two types of farming enterprise. State policies previously supported production of the socially owned farm sector, to a large extent neglecting the private farm sector. Legislation and policies currently in development seek to make agricultural production a market-driven activity, abandon agricultural production by the state, and encourage the family farm sector to increase its productivity. This policy shift, together with general economic conditions and other macroeconomic policy changes, means that both the private and the socially owned farm enterprises are experiencing significant changes and facing new challenges. This project's objective was to conduct research whose results would enable the government to develop informed land tenure policy for a future in which the two subsectors will converge.

## **B. PROJECT ACTIVITIES**

The Land Productivity Action Plan developed by the Ministry of Agriculture, with assistance from the team of the Land Markets Project, outlined five tasks to be completed over the six-month term of the project:

- Assess the appropriateness of legislation, regulations, and institutions affecting land tenure and land use.
- Document and assess the land-related constraints to increased productivity and profitability of private farms.
- Document and assess the land-related constraints to increased productivity and profitability of socially owned farms.
- Propose land policy adjustments that would promote increased productivity and profitability of the agricultural sector.
- Identify financial and technical assistance to support the development of land markets that promote efficient, sustainable, and equitable increases in agricultural incomes.

Chapters 2, 3, and 4 report, respectively, the results of the first three tasks. Chapter 5 presents a comparative review of the land tenure and productivity results for both the private and the social sector. This comparison forms a basis for policy dialogue. Chapter 6 concludes with a synopsis of the main observations made in earlier chapters and with a comprehensive discussion of the policy recommendations that stem from our research.

### **1. Land-related constraints to increased productivity and profitability of private farms**

With the transition to a market economy, the government must address several issues with regard to the private sector. At present, the principal constraints to increased productivity and profitability of private farming appear to be related to the great uncertainty about market opportunities, which is aggravated by the current decline and transformation of the socially owned

enterprises and the inadequate development of alternative structures to provide services to the private farm sector.

As the government's agricultural policy begins to confront these problems immediately faced by small farms, it may be constrained by land tenure realities. As noted, farms are small and fragmented, and farming is frequently a part-time occupation of the landowners. There appear to be substantial constraints to the efficient use of land and labor resources due to excessive fragmentation; for example, excessive amounts of cultivable land are wasted on border marking and possible crop damage occurs due to incursion of tractors and persons accessing neighboring plots. The market for agricultural land, other than for seasonal leases, is not active and has historically contributed to fragmentation rather than consolidation.

In order to document the significance of these issues, a large sample of private farm households was selected in four of Macedonia's agroclimatic regions: Western, Skopje-Kumanovo, Pelegonia, and Mediterranean. The Mediterranean region includes the communities of Tito Velas, Svetinikole, Stip, Kocani, Radovis, Vinica, Strumica, Valandovo, Gevgelia, Negotino, and Kavadarci. Due to the climatic influence of the Mediterranean Sea, this region is a prime producer of horticultural crops. It also has substantial areas in which vineyards, wheat, and rice are cultivated as well as significant production of industrial grains such as sunflowers for oil. The Pelegonia region includes Bitola, Prilep, Demirhisar, and Kruchevo. It contains extensive irrigation infrastructure and is the main area for wheat production in addition to industrial crops including sugar beets, sunflowers, and tobacco. The Skopje-Kumanovo region, which includes only Skopje and Kumanovo, is more arid and very windy. Its products include wheat, vineyards, fruits, and some tobacco. The Western region includes Tetovo, Gostivar, Debar, Kicevo, and Makedonski Brod. It is predominantly hilly and mountainous and produces orchard crops and livestock (principally sheep). This area also differs from others in the predominance of farmers of Albanian ethnicity. The samples were drawn from these agroclimatic regions in a manner to include important agroeconomic and sociocultural variation. The Big Lakes and Eastern regions were considered less likely to contain farms with the potential for increased productivity in response to policy reforms and were not included in the sample.<sup>4</sup>

Information was gathered from the selected households by way of formal questionnaire. The questionnaire enabled the team to collect information on:

- demographic composition of the farm household and patterns of migration;
- landholdings (size, number of parcels, land quality, parcel acquisition history);
- land tenure (means of acquisition, disputes, membership in cooperatives, expropriation, documentation, access, ownership rights);
- land market (recent purchases, sales, leases, mortgages, etc.);
- land use (cropping pattern, rotation, perennial, irrigation, grazing); and

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<sup>4</sup> The Eastern region includes Kriva Polanka, Kratovo, Probi Stip, Delcevo, and Berovo. It is also hilly and mountainous land, which produces orchard crops and livestock. Ethnically, the farmers are predominantly Macedonian. Finally, the Big Lakes region incorporates Ohrid, Struga, and Resen and produces mainly orchard crops, especially apples.

- farm management (production by crop, price expected and received, marketing arrangements, capital equipment, labor and other inputs, financing, maintenance).

Research was also conducted via detailed case studies in several villages, with the principal aim of gaining deeper insight into land transactions costs and inheritance practices, and via a village-level survey, with the aim of assessing local variations in infrastructure, market access, and sociodemographic features.

## **2. Land-related constraints to increased productivity and profitability of socially owned farms**

The average size of the arable landholdings of the socially owned farms is about 1,000 hectares, with considerable dispersion between the largest and the smallest (<50 hectares to >5,000 hectares). The current policy is to privatize the business operations of the *agrokombinats* and socially owned agricultural companies yet to retain the agricultural land in state ownership; the land would be leased, according to as-yet-undetermined procedures, to private farmers or successor enterprises of the *agrokombinats*. The government is reluctant to break up the large fields into smaller units suitable for cultivation by individual farmers because it fears loss of economies of scale as well as repetition of the process of fragmentation, which has occurred in the private sector.

The project studied the land use, productivity, and profitability of farming on land currently under the control of the *agrokombinats*. Field-level data were collected from a sample of ten farms and were combined, as far as possible, with disaggregated input and output information in both physical and financial terms. In addition, the research team assembled documentation on worldwide experiences with leasing of publicly owned agricultural land.

## **3. Legislation, regulations, and institutions affecting land tenure and land use**

Macedonia is in a period of considerable change in the legal and administrative environment of the agricultural sector. Several fundamental laws, such as those governing denationalization and privatization, either have recently been enacted or are in advanced stages of legislative action. Others, such as the Land Use Law, are in the process of being drafted. Government agencies such as the Ministry of Agriculture, whose past role was to manage the now-disappearing socialist production and marketing system, and the cadastral land registration system, which cannot now handle transactions such as mortgages and leases, will require significant adjustment in order effectively to support the market economy. The project undertook a comprehensive assessment of the legal and regulatory framework of the agricultural sector and assessed the capability of government institutions to both guide the transition and regulate the private sector activity in the future. Additionally, an assessment was made of the potential constraints to the success of land market development and land consolidation programs due to conflicts from overlapping traditional rules and official regulations such as the impact of inheritance customs and the processing of claims of ex-owners to socially owned land.

## **II: THE INSTITUTIONAL FRAMEWORK FOR AGRICULTURAL LAND TENURE AND LAND USE IN THE REPUBLIC OF MACEDONIA**

### **A. CONSTITUTIONAL FOUNDATION OF LAND POLICY**

Legal protection of ownership rights and the freedom of market and enterprise are emphasized in the Constitution of the Republic of Macedonia of 1991. These constitutional provisions are specified in Article 30, which guarantees ownership rights and inheritance rights, and in Art. 55, which guarantees freedom of the market and entrepreneurship. The Constitution provides that ownership creates both rights and responsibilities; hence it should serve the well-being of both the individual and the community. The Constitution embodies two ideals: it bans the violation of private property rights, and it promotes the social functions of ownership. Accordingly, the rights and liabilities of the owner depend on the nature of the object. In other words, there are differences in the rights and responsibilities of the owners of a pack of cigarettes, a parcel of land, or a form of enterprise. In addition, in guaranteeing ownership rights, the Constitution (Art. 30, paragraph 3) provides that no one can be deprived of his/her ownership rights and no one can restrict the ownership rights of others, except in the case of statutorily defined public interest. Furthermore, in the case of expropriation or restriction of ownership rights due to public interest, the Constitution provides that compensation must be paid in an amount not less than the market value of the object.

Article 55 of the Constitution guarantees freedom of the market and entrepreneurship by providing equality of all legal entities on the market. Therefore, Macedonia should take measures against monopolistic positions and monopolistic behaviors on the market. Freedom of the market and of entrepreneurship can be restricted only in cases of defense of the republic, protection of the environment, and health of the people.

Land is a natural resource and a part of the public wealth of the Republic of Macedonia and, as such, it enjoys special protection. This is stipulated in Art. 56, paragraph 1, of the Constitution of 1991. The Constitution stipulates the manner and the conditions under which one can be granted use rights on public assets (Art. 56, paragraph 3). In addition, Article 8 of the Constitution provides that one of the basic values of the constitutional system is the protection of nature. According to a provision in Art. 57, the republic must provide incentives for economic development, balanced spatial and regional development, and faster economic growth of underdeveloped regions.

### **B. LAND POLICY ACCORDING TO CURRENT LEGISLATION**

The constitutional provision in Article 56, paragraph 3, which pertains to use rights of public assets, is the basis for the regulation of land use. The Republic of Macedonia has retained the practice of having two separate laws governing land use: (1) the Law on Construction Lands (there is currently a proposal for drafting a new version of this law), and (2) the Law on Land Use (drafting a new version of this law is also under way).

The Constitution provides the normative base for the transition from the former socialist society into a society based on private ownership and the market economy. However, there is a shortage of time to establish an adequate legal system. Therefore, by the Constitutional Law for the Implementation of the Constitution, the present Republic of Macedonia has adopted the overall set of regulations from the Socialist Republic of Macedonia, with the condition that former legislation may not contradict the provisions from the new constitution. In other words, laws passed since 1945 are in effect until amended, modified, abolished, or ruled unconstitutional by the Constitutional Court. Thus, during the “transition” there are difficulties in “reading” the old laws through the prism of the new constitution. This is especially true when it concerns socially owned land and, in particular, the constitutional provision on acquired rights to this land. Practical application of this provision is necessary since transformation will introduce new forms of private landownership.

Currently, there are 22 laws within the broad area of agriculture, forestry, livestock breeding, and watershed management that provide major or minor restrictions on ownership. However, if in principle these restrictions have a constitutional basis, each must be justified as having to do with the protection of the public interest. Therefore, a detailed study of each of these laws is necessary.

A major disadvantage of the current legislation relating to land is that in many ways it is incompatible with the new constitution. Specifically, it contains restrictions on land use and disposal of land that are not related to the protection of public interest, and it creates unequal treatment of entities on the market according to type of ownership (i.e., it favors the social over the private sector).

Private ownership in Macedonia was specifically regulated by the Law on Basic Legal Ownership Relations of 1980, which contains a number of serious flaws despite the changes to it after 1990. This law also regulates derivative types of ownership, including common ownership and co-ownership, usufruct, real servitudes, and mortgages, which are important for agricultural land.

The Law on Obligations, adopted in 1978, regulates contracts for sale, lease, pledge, and exchange. This law does not regulate contract for gift. Two types of contract are regulated with the Law on Succession, distribution of the holdings during life and obligation for lifetime support (intestate and testate inheritance), which refer specifically to agricultural land and could be otherwise regulated by the Law on Obligations. The Law on Succession does not need substantial modification since it incorporates the constitutional provisions about the equality of citizens and social protection. The problems in practice are of a social nature due to difficulties in overcoming tradition and the lack of contemporary legal regulations.

In order to respect and to enable transfer of ownership rights on land and immovables, it is necessary to identify the titleholder. Such identification is absolutely necessary, since the transfer of the right is done not by legal action, but rather by transfer of *tapija*<sup>5</sup> and registration in a public land registry. For this reason, the issues of title registration and the land law are so significant in the legal systems of other states. The *tapija* system was never put in practice thoroughly in the Republic of Macedonia, and the system of unified registration introduced by the Law on Land

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<sup>5</sup> The *tapija* were originally issued by the Turkish and Serbian administrations and are still considered powerfully valid title documents proving ownership rights. New ownership documentation is recorded in the local cadastral offices. The cadastral offices issue title documents, called *posedoven list*.



Survey, Cadastre, and Registration of Immovables of 1986, with amendments of 1991, is not yet implemented throughout the country. The question of registration is a separate topic that needs to be addressed further within this report.

The regulation of ownership rights on immovables, mortgage, neighbor's rights, lease, sale, exchange, gift, and inheritance and the registration of immovables with new laws or in a civil code of the Republic of Macedonia will play key roles in determining the new legislative direction for agricultural land. It is important to note that the Ministry of Justice has a project that will resolve the codifying of civil law by means of two options: by codifying all property rights, or by temporary compliance with adjustments and changes in the current legislation. A civil code in any form and the decisions incorporated in it will have serious implications for land tenure and land use policies.

Among those laws that have provisions indirectly related to agricultural land is the Law on Cooperatives. This law brought forth the importance of the cooperatives and cooperative ownership for the Macedonian society and was intended to restore faith in this institution, which is haunted by prior experience with essentially nonvoluntary implementation. Cooperative institutions successfully operate in many aspects of the economy in the West, particularly in agriculture and credit. However, the regulations (Articles 32, 36, and 37 of the Law on Cooperatives) on the restitution of the cooperative property, which were intended to start the transformation in the agricultural sector, were not put in practice. There were estimates that on the basis of these provisions the cooperatives would claim 60,000 hectares of land and around 300 buildings. These regulations were not enforced by any other law (as was done in the Republic of Slovenia); on the other hand, they were not repealed by any other law. Compared to the other former owners, the cooperatives were placed in an inferior position by the Law on Transformation of Enterprises with Social Capital, since only natural persons were able to make claims, not legal persons, such as compared to the other former owners, cooperatives.

An example to illustrate the difficulties of "reading" the current laws through the prism of the new constitution is the Law on Land Use of 1986 with amendments of 1991. Article 44 imposed restrictions on the transfer of agricultural land (potentially slowing down the process of sale for three years) but was amended by Art. 6 of the Law on Amendments of the Law on Protection and Use of Agricultural Land of 1991, which reduced the restrictions regarding to whom land could be offered for sale. Specifically, instead of offering the land to social entities (promoting social ownership), the owner was obliged to offer it to citizens or legal persons from the cadastral area where the land was located. In discussions in 1993, the Constitutional Court decided that Paragraph 1 of Art. 6 creates inequalities among citizens from other cadastral municipalities who own neighboring parcels, because it restricts the right of certain citizens to buy land which is on the market only because they reside in another cadastral municipality. Another provision in Art. 43 of the same law states that "upon inheritance, sale, or gift of agricultural land, the size of the parcels in the cadastral areas cannot be decreased by physical division." In legal theory, it is believed that, though restrictive, this provision is beneficial to the community since it prevents further fragmentation.

Other relevant laws that were enacted after 1991 (in addition to those previously mentioned amendments to old laws) include the Law on Expropriation, the Law on Concessions, some of the provisions of the Law on Family, and particularly the Law on Transformation of Enterprises and Cooperatives That Manage Socially Owned Land. The issues of land policy and property rights on

land is a separate topic according to the draft Law on Denationalization, which is currently under parliamentary discussion.

## C. HISTORICAL BACKGROUND OF LAND TENURE AND LAND USE POLICY

Usufruct as a state related to land has legal significance. It concerns a situation of control and actual power over the land. Usufruct in some legal systems is the right of use, which is not the case in the Macedonian legal system. The legal significance of usufruct is seen in the fact that it can be transformed into ownership, under certain conditions, because it enjoys legal protection together with ownership rights even in cases when it is not legally acquired. Whenever one talks about land rights, usufruct is present. The most basic and most important legal relation related to land is the ownership right. According to legislation in Macedonia, ownership is a subjective complex of rights. It comprises three basic rights: use rights (*jus utendi*), right on collecting fruits (*jus fruendi*), and right of disposal (*jus abutendi*). All of these authorities (rights) are performed by the owner (the titleholder), who also has usufruct on the object of ownership. Civil law systems typically rely on Roman law, where usufruct and ownership are predominant. Legal regulation of the land in the Republic of Macedonia also relies on this system.

### 1. Transformation of usufruct into ownership

Until the First Balkan War in 1912, Macedonia was under the Ottoman Empire and property rights were defined by the *timar-spahija* system. According to this system, all the land was considered to be state owned, that is, property of the Sultan. Some *spahijas* (or feudal lords) had rights over land, which they leased for cultivation to farmers. In that manner, the farmer would acquire use rights (*tesafur*) over the given land. The farmer was required to pay a tax for his land rights (*tapu resmi* or *tapu*, for short). A certificate recording land rights, called *tapu sendi* (now called *tapija*), was then issued to any farmer who had paid this tax. These land rights were transferable, and the transfer of a *tesafur* title was done by mutual agreement of the two parties, a legal action *inter vivos*. Sometimes the original document (*tapija*) was not exchanged; the rights exchanged were simply agreed upon. In all cases, the tax (*tapu*) was paid again, irrespective of whether the transfer of title was done with or without compensation.

In the second half of the nineteenth century, a reform commenced by which usufruct property rights were to be transformed into actual proprietary rights. Two laws are important with regard to this reform: Law on Tapu of 1860, and Emlach Law of 1874. According to these laws, no one was to have *tesafur* over state land or rights over immovables (*mulk*) without *tapija*. The *tapija* was used to prove the *tesafur* rights and the establishment of a mortgage. The Ottoman *tapija* system was a register organized by name of landowners; detail about any piece of land subject to a *tapija* could be located only by searching the register by owner name and, hence, obtaining reference to other information.

The tax, *tapu*, paid for obtaining the *tapija* was registered in the *defter*. The name of the titleholder and the *tapija* itself were registered in Istanbul's registry (*defterhana*). This process of registration had no importance for the legal validity of the issued *tapija*. Despite being registered in the *defterhana*, *tapija* were valid only with the Sultan's monogram and the seal of Istanbul's

*defterhana*. In other words, *tapija* did not have value if it were not written in the *defters*. The Turkish *defters* served only as fiscal cadastre books. The *defters* were public books in which the data for the immovables and the names of the titleholders were registered. Such *defters* are currently kept in the Archives of Macedonia and are occasionally published.

The decline of the Ottoman Empire interrupted the process of transformation of usufruct rights into actual landownership. This process continued in Macedonia and was completed in those countries that divided Macedonia among themselves after the Balkan Wars (Serbia, Bulgaria, and Greece). In the period between the Balkan Wars and post-World War I, the regulatory basis for the transformation of landownership within the territory of Macedonia was the Serbian Civil Code of 1844, which created a *tapija-intabulacija* system (inscription in the property registry). A *tapija* was issued for landownership rights, and the transfer of these rights was made with the transfer of the *tapija*. The mortgage and the deed were established by the *intabulacija*. The *tapija* system in the Kingdom of Yugoslavia was established with Law on Tapu of 1929, and its corrected version passed in 1931. According to these two laws, the *tapija* is a document to prove the right of landownership, and the transfer of that right is made by transfer of the *tapija*. The issuing of the *tapija* and the transfer of *tapija* are registered in the Book of Tapija.

The acceptance of the Serbian *tapija* system has raised some question about the validity of the Turkish *tapija*, since these documents were still in use for a certain period of time after the fall of the Turkish Empire. These Turkish titles still emerge in disputes. Therefore, some people think that the Turkish *tapija* should have the same authority as those issued by the Serbian and Yugoslav authorities. However, from the viewpoint of contemporary Macedonian legal theory, such opinions are unacceptable, especially since they have arisen after the enactment of the first law on issuing *tapija* in 1929. In the post-war period (after 1945), new ownership documents were issued and have been (and still are) recorded in the local cadastral offices. These documents, called *posedoven lists*, are found in cadastral offices. The *posedoven list* contains the name, the size, and the location of the parcel. The cadastral office maintains parcel maps as well.

## **2. Historical aspects of the development of landownership in Macedonia**

During the period of the National Liberation Movement (NOB), from 1941 to 1945, regulations were issued in the Republic of Macedonia that referred to the ownership of land and immovables (Decision for Confiscation of the People's Enemies' and Enemy Collaborators' Estates). However, there were indications of land reform even during the war. The authorities were engaged in taking land of people killed during the war, collaborators, church estates, and owners of large estates. At that point, such taking stemmed primarily from the question of providing food for the soldiers and was not an issue of progressive land tenure policy. In 1945, land reform and colonization became the main objective of Yugoslav Federal Government. The government adopted the principal directives from the KPJ (Yugoslav Communist Party) for the distribution of estates to the villagers with little or no land. After the war (World War II), the issue was raised whether the land taken under the land reform should be nationalized first and distributed afterward, or distributed to the villagers as privately owned land. The final decision was to give all land to the villagers as privately owned land. The main reason for this was the villagers' desire for land and the need to satisfy the impoverished rural population, which was expecting private

ownership over the land. Two main principles governed the land reform: that land belongs to those who cultivate it, and that the land would be given, free of charge, as private property together with the movable and immovable inventories.

The Law on Land Reform and Colonization was enacted in 1945 by the DFJ's (Democratic Federal Yugoslavia) Temporary People's Assembly. The law imposed expropriation of all large estates, larger than 45 hectares, or 25–35 hectares of arable land (for grains, meadows, orchards, and vineyards) that were leased out or farmed with hired labor. Expropriation covered all land owned by banks, enterprises, and share-holding companies (cooperative banks and savings associations, etc.). The land over 10 hectares belonging to the church and other institutions was also confiscated and, in some cases concerning religious buildings of specific historical importance, land over 30 hectares of arable land or forests. Rural and nonrural holdings above the specified maximum were expropriated. For rural agricultural families, the maximum specified was 20–35 hectares, depending on the location, the number of household members, and the types of crops that were grown. For the holdings of part-time farmers<sup>6</sup> that were being leased out and did not fall into the category of large holdings, the maximum size of the holding was between 3 and 5 hectares. In this instance, there was an exception to the maxim that "*the land belongs to those who cultivate it,*" since part-time farmers were allowed to keep a small amount of land.

The republic's legislation also provided that farmers in households comprised of several immediate families in the regions where such families are known as extended families (extended family or "zadruga"), as well as the farmers who live in the regions where the land has lower quality and is cultivated extensively, can have collective ownership rights over the arable land with a total amount of 15 hectares. While the Constitution of 1974 guaranteed ownership rights (private ownership) to the full-time farmers (stating that the land will not be nationalized and forcefully collectivized), part-time farmers had restricted ownership rights under specified conditions that were subject to change, meaning that the right could in due time be abolished.

Additionally, a certain land maximum was stipulated for the religious communities. The religious community, religious institution, and charitable foundations as civil persons could have land rights to 10 hectares of agricultural land. According to Art. 88 of the Law on Land Reform and Colonization, this maximum could be increased to 30 hectares if it concerned religious communities or institutions (church or monastery) of a greater importance or historical significance (which was determined for each individual case).

According to the data from the Agricultural Committee of (FNRJ) Federal People's Republic of Yugoslavia, of 23 March 1946, 37,886 hectares of the total amount of land incorporated in the Land Reform of (NRM) People's Republic of Macedonia were arable and 39,952 were fallow; also included were 16,000 hectares of forestland and 21,000 hectares of improved pastures.

In 1946, legislation for the development of agricultural cooperatives<sup>7</sup> ("village working cooperatives") similar to the Russian kolkhoz was adopted and such cooperatives were created by

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<sup>6</sup> In the Macedonian context, a "part-time" farming household is any household in which one or more members is engaged in off-farm work.

<sup>7</sup> The first cooperative was established in Macedonia in 1892. Co-ops were formed along conventional lines dealing with honey, handicrafts, etc. No true co-ops were formed after 1941.

villagers pooling their land and livestock. In 1949, purposeful acceleration of the process of establishment of agricultural cooperatives occurred. This reflected the state's perception of a need to increase the supply of agricultural products and of the need to push forward the adjustment of the village to the new socialist environment—thus, state control over the land would become the dominant modus in agriculture just as in industry. The idea was that conditions for planning in the economy could be created and technological backwardness could be overcome only by enlarging the socialist sector of agricultural production. However, in practice the manner of establishment of the agricultural cooperatives abandoned the principle of benevolence, and participation became essentially nonvoluntary.

The number of cooperatives increased in 1949 and stabilized by the beginning of the 1950s. Then, expansion of the socialist sector occurred by means of incorporating more households as members of existing cooperatives. By 1952, the cooperatives possessed 364,220 hectares, of which 225,705 were arable. The cooperatives provided the villagers with food and cash in exchange for working the land. However, even at their “peak,” the cooperatives included less than 15% of the total number of agricultural households and held only 12% of the arable land. Only the very small private and land-poor farmers enrolled while the owners of the larger estates resisted. Private farms remained dominant (holding 80% of the land) even during the period of the most severe pressure for collectivization. The Resolution from the 6th KPJ Congress led to a turning point and the tendency was then directed toward enhancing production through increased productivity and modernization of the production process.

In 1953, the concept of the village workers' cooperatives was abandoned and a new concept of socially owned farms (land and enterprise) was introduced. Most cooperatives were disintegrated and individual families were given back their land in holdings up to 10 hectares (a new, lower limit on holdings of private individuals). The Law on Public<sup>8</sup> Land and Distribution of Land to Workers' Agricultural Organizations was enacted in the spring of 1953. This law regulated the new changes in proprietary relations and set the land maximum of privately owned land at 10 hectares (this is considered as the second land reform). According to this law, if the members of the cooperatives had arable land over 10 hectares, upon leaving the cooperative they would be given only that part, which together with the house plot (the part of land that was not pooled in the cooperative) that totaled 10 hectares. In this manner, social or public land was “created,” and land-poor families were given additional land. Public land was allocated for the establishment of large, socially owned agricultural enterprises (some of the remaining cooperatives were also merged for this purpose). Most of the land thus allocated, however, consists of reclaimed land (marginal land made arable by the state through irrigation or by draining swampland). Village pastureland was also given to the socially owned enterprises (SOE). Social ownership came to mean that all members of an SOE were jointly assigned permanent usufruct rights to the enterprise and its immovables while society at large maintained ownership rights. Documentation of such social ownership in the name of the enterprise was registered with a *posedoven list*. As carriers of high productivity, the SOE were expected to achieve cooperation with the remaining, small-scale private farms and, in that manner, to secure adequate agricultural production for the country.

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<sup>8</sup> “Public”: property of common concern (in the context of the previous system).

Recent legislation implies that social ownership over agricultural land has been transformed to state ownership for the purpose of allowing subsequent denationalization of land and privatization of the agricultural SOE. It is said that some of the *posedoven lists* which recorded social ownership have already been modified such that the landholdings of the socially owned enterprises are the property of the Republic of Macedonia, which assigns use rights to the enterprises. An unknown amount of the land, which was, in one form or another, part of the agrarian reform process just described, will be subject now to a process of denationalization such that former owners who have legal documentation may make claims for their land or for compensation for that land. As privatization of the SOE occurs, the state intends to maintain lands unclaimed in the process of denationalization under state ownership and lease them to users.

The Constitution of the Republic of Macedonia of 1963 rendered the landholding maximum in the private sector as a constitutional provision, whereas the limits and the conditions for determining landownership of part-time farmers, as well as the ownership of other types of land, were left to the legislators. The amendments to the Constitution of 1971 introduced a novelty in relation with the landholding maximum in the hilly and mountainous areas. Considering the low fertility in these areas as opposed to the flat areas, they determined a higher maximum for the former, meaning that the legislature began to abandon the policy of giving strict restraints to private ownership and started to adjust regulations to the actual circumstances in the country.

The ownership rights to agricultural land in this period were regulated by the Basic Law on Land Use (Official Gazette of SFRJ, no. 26/65). The Law on Transfer of Land and Buildings of 1965 enabled free transfer among legal persons, although ownership rights over land were restricted with the *right of first purchase* and the *right of first lease* to agricultural land in favor of the agricultural enterprise that had land in the district. Certain authority regarding land rights was ceded to the municipal governments; it could, for example, prescribe the maximum rental rate for various land uses.

According to the regulations of the Constitution of 1974, grain plots, vegetable beds, orchards, meadows, vineyards, and all lands apt for cultivation are considered as agricultural land. Titleholders of proprietary rights (private ownership) over agricultural land could be farmers and nonfarmers (individuals) as well as legal persons. Farmers were guaranteed private ownership rights over up to 10 hectares of arable land per household. It could be determined by law whether the amount of arable land in the hilly and mountainous regions over which the farmers had ownership rights would be limited to 10 hectares per household. Conditions under which the farmers can have private ownership over other types of land, as well as those under which other citizens can have ownership rights over agricultural and other types of land, were also regulated by law.

In case a person acquired ownership rights to land over the maximum area stipulated by the Constitution and the laws, by means of a separate procedure, the excess land was transferred and adjoined to socially owned land. The treatment differed if the land was acquired by inheritance or contract. If the land was acquired by inheritance and if, together with the land that the owner already had, was over the given landholding maximum, the person was allowed, within the given maximum, to chose the land that he was going to keep and which land was going to be transferred into social ownership (Art. 15 of the Law on Transfer of Land and Buildings and from the Law on Transfer of Real Estate of RM). The owner of land that was acquired by inheritance and was

transferred into social ownership as excess land was compensated according to a rate stated in the given Law on Expropriation from that period.

If land was acquired by legal act (e.g., contract), then the owners had no right to choose which land, up to the given maximum, they was going to keep. The municipal authorities in charge of the land tenure issues decided that this land (over the determined maximum) became socially owned land. In that case the owners were not compensated. Under legal theory of that time, there were opinions that the owners who acquired land over the given maximum should be allowed to alienate the land, that is, to sell it within a given period; if they did not accomplish that, the excess land was to be transferred into social ownership without compensation. The owners of the land had the right to use it and dispose of it within the legal regulations. However, according to Art. 85 of the Constitution of 1974, the land was labeled as a good of public interest and as such was protected and used under conditions and in a manner that was stipulated by law; thus the owners were obliged to execute their rights in their own as well as in the social interest. Therefore, the Basic Provisions from the Constitution of 1974 stipulated, that by having land rights, the farmers were obliged to use the land and improve the private farm in their own interest and in the interest of the socialist community. Due to its importance for the economy, the free disposition of the land used by the farmers was restricted by the emphasis on the social interest expressed through the rights and obligations imposed on the owners for executing their land rights. Article 86, paragraph 1, of the Constitution of 1974 stated that “land, forests, waters, springs and mining resources have to be used under legal, regulated conditions that provide for their optimal use and other social interests.” The legislation from that period, after the 1974 Constitution, contains a series of regulations that determine land rights.

After the land reform and the liquidation of rural estates over 10 hectares in size, there was no interference with the private ownership of the farmers. Nevertheless, the community was interested in the types of land use, because the land was viewed as a public commodity which supports the life of all of its members. The first regulations relating to the use of agricultural land were published in 1945. After the Law on Land Reform and Colonization, of 23 August 1945, an Order for Obligatory Cultivation and Seeding of the land was issued; it applied to state-controlled land as well as private. The owners of the land that was covered by this land reform had to cultivate the land as before. If they failed to do so, the seeding and cultivation were to be done by the People’s Board. The purpose of this measure was to plant all available areas to prevent endangering the food security of the population.

Restriction of private ownership, i.e., restriction of the free disposal of real estate, was contained in the Law for Cultivation of Barren Land of 25 February 1957, Art. 1. From this law, there was an implied obligation for all owners or users of arable land to cultivate their land in at least the manner and on the same level as the norm in the given area. People’s Boards in the municipalities were to provide for the implementation of this obligation. The arable land that was not cultivated within a year from the last harvest, unless fallow, was temporarily taken from the owners for a period of 1 to 3 years and was given for use to the cooperatives and, if that was not possible, then to the private farmers.

The obligation of the owners of agricultural land for *positive action* was clearly defined in the Basic Law on Land Use of 2 June 1965 (amended text of the same Law of 1959). Since the issuance of this law, there are claims that all the land, whether in private or social ownership, has to be cultivated in accordance with the conditions of production that are most suitable for the

given natural conditions in the economy. For the lands of the agricultural enterprises, it was stressed that to enable optimal land use cultivation should be based on the most modern and contemporary principles. Municipal assemblies were authorized to stipulate a minimum of agrotechnical measures or reclamation measures that needed to be applied when cultivating the land. These measures were applicable to all owners and users of agricultural land. The private owners had to use the land for agricultural production; they were not allowed to voluntarily change the purpose of the land use, for example, to designate it as construction land in order to avoid the obligation to cultivate.

Because it was often the case that the land was used by another person and not the owners themselves, the term “user” was often applied (referring to renters, etc.) in the regulations from this period. The legislature was not interested in who the owners of the land were or if the land was privately or socially owned. It was interested in an optimal cultivation of the land. Due to this, in order to avoid the sanctions that were stipulated in the law persons who were not capable of cultivating their land could transfer their use rights to a cooperative or agricultural enterprise or to other private persons. The lessees were thereby obliged to cultivate the land under the same conditions under which they were cultivating their own land; the lessees, not the owners (the lessors), were responsible for the cultivation of the land that they leased.

Each enterprise managing a water system (reservoir) in an area made a *basic plan* for land use for the whole district. All owners were obliged to use their land according to the basic plan. There was a possibility of issuing new agrotechnical and forestry measures for the erosive areas, imposing a temporary or permanent ban on plowing of meadows and pasturelands and converting them into fields with one-season crops, and requiring an obligatory change of the crop pattern with one-season and perennial crops. If the owners themselves were not in a position to make agrotechnical improvements due to lack of technical equipment, they could enter into an agreement with an agricultural enterprise that would ensure the application of these measures. In case they did not succeed in making this agreement, the conditions for application of agrotechnical measures were determined by a committee of the municipal assembly. The basic plan covered all land in the area of the water system, irrespective of whether the land was privately or socially owned. All users were obliged to use the land in accordance with the basic plan or they were placed under *forceful management*, from 5 to 10 years. Because the water systems required large investments, all users of these systems were obliged to pay compensation for use.

In the period between 1974 and 1988, in addition to the question of the landholding maximum, the issue of the minimum parcel size was important because of fragmentation of the land and corresponding constraints to increased farm productivity. This attitude was expressed in the Law on Protection and Use of Agricultural Land of 1986, according to which the cadastral parcels could not be physically divided by inheritance, sale, or gift (Art. 43, paragraph 1). This law clearly stipulated that “land of the first to fourth class cannot be used for other purposes than agricultural ones, unless otherwise determined in the spatial plan, that is, the urban plan” (Art. 13). The law imposed high compensation fees for permanent change of land use (Art. 180 refers to retaining the land for agricultural use). The law authorized the municipality to take steps toward optimal land use, to put barren and fallow land into use, to identify land use, and to distinguish between different types of land according to its use (Art. 22). It specifically emphasized that the municipalities determine the land for perennials (Art. 24). It is apparent that these regulations on



the part of the municipalities restrict the execution of land rights. However, these are actions that fall into the category of special legal requirements for commodities of public interest, among which is agricultural land. Hence, that law, too, included the option for taking the land and giving it to other persons (physical persons) for use in case of failure to cultivate (Art. 29, paragraph 3).

One of the land rights of the owner is the right to lease. The law permits leasing within the “social sector” and between sectors. The owner of socially owned land in the area of a municipality (Art. 40, paragraph 4) has the right to lease land that is not privately owned. With respect to the lease right, the law allowed acquisition over the landholding maximum. Hence, if a person would lease land in the hilly and mountainous regions, there was no limit as to size, the only requirement being cultivation of the land. If the land was in flat areas, the land maximum was extended by 20% (Art. 41). Despite the fact that this regulation was not entirely constitutional and legal, the legislature hoped to induce cultivation of agricultural land.

The right to dispose of agricultural land was also limited by the right of purchase by the social sector. In this sense, the Law on Protection and Land Use made it difficult to transfer privately owned land. Apart from the former obligatory offer for sale of land to the social enterprise in the district or in the municipality where the land was located, the law considered the municipality itself to have the right to purchase during the period of the first year. If the municipality refused, then the land was offered to the social enterprise (social legal person) of the neighboring district. If the neighboring socially owned enterprise likewise refused, then, after three years, the owner had the right to sell the land to a fellow farmer, either a physical or a legal person. This three-year period caused difficulties in the transfer of land and inconveniences in the cultivation of the land. The provision has been canceled with the decisions of the Constitutional Court of RM of 1994 and 1995.

In order to protect social assets, the Law on Protection and Use of Agricultural Land of 1986 provided for the seller of agricultural land to pay, to the social funds, the profit that was equal to the increased value of the land as a result of the social assets (Art. 44).

The amendments of 1988, which increased the land maximum to 30 hectares per household, were inadequate, for all other quantitative restrictions for the private ownership had been repealed.

## **D. ANALYSIS OF CURRENT POLICY IN THE AGRICULTURAL SECTOR**

Considering the constitutional and legal framework just discussed, in this section we talk about different types of ownership of agricultural land that exist in the Republic of Macedonia. These include derivative types of ownership (co-ownership and common ownership) as well as basic legal relations that occur in conjunction with agricultural land, that is, disposal of agricultural land (sale, transactions, gift, lease, mortgage, etc.).

### **1. Private ownership**

Every natural person and certain legal persons can be holders of the right of private ownership. *Natural persons* are citizens of the Republic whose property rights as well as basic economic rights are guaranteed by the Constitution of the Republic of Macedonia (Art. 30, paragraph 1).

Natural persons can be landowners, farmers, and part-time farmers. *Legal persons* can be enterprises with assets in private ownership, including the following forms: stock-holding companies, limited liability companies, partnership companies and general partnerships, stores, agricultural enterprises, unions, associations of citizens, parties, religious affiliations and institutions, private educational institutions, and others. According to the Constitution, foreign natural and legal persons can be holders of private ownership of land but will be regulated by a special law.

## **2. Derivative types of ownership**

The derivative types of ownership which appear in the legislation of the Republic of Macedonia are co-ownership and common ownership. Co-ownership appears when several entities have the rights to a specific parcel of agricultural land. If the co-owned parts are not marked or specified, it is assumed that they are equal. Co-ownership can be simple and mixed. In co-ownership, each holder is entitled to use and dispose of land together with the other co-owners proportionally to their shares without violating the rights of the other co-owners. Each individual owner has such rights; still, co-ownership requires that co-owners always take into account the interests of the other co-owners in the association when exercising land rights. The co-owners have the land in common ownership and they can agree in a certain period of time to transfer the usufruct of the land from one to another owner. The co-owners exercise their use rights proportionally to their shares; therefore, the using of the land by each owner should not be a disadvantage to the other co-owners. Each co-owner can exercise the right of disposal without previous agreement with the other co-owners. This right implies the possibility of selling the share of one co-owner, except for the part of real and personal servitude (use), by putting a pledge or mortgage on the land. When the co-owner exercises the right of disposal of his share, the other co-owners have the right of priority purchase, a special characteristic of the use rights that the co-owners exercise jointly, unless otherwise stipulated by an agreement or the decision of the majority of co-owners or of a court. The co-owners would use the rights in the same manner; otherwise, if maintenance of the land is necessary and one of the co-owners violates his use rights, the court will preside. On the other hand, for a change of use, a lease, or a mortgage (Art. 15, paragraph 4, of the Law on Basic Legal Ownership Relation), it is necessary to have agreement of all co-owners. The right of land management can be entrusted to one or several co-owners or to another entity. The co-owners bear the costs for exercising use rights and the right of disposal and other pledges proportionally to their shares. The right of disposal is expressed in the right of each co-owner to require division of the land if it is in agreement with the law. The co-owner may withdraw the right to require a division of the land and the agreement in that sense is invalid with the possibility to agree upon not dividing the land in a certain period of time. The court decides in case the co-owners do not agree contractually on the division of the land. The court decides whether the division will be made by sale if the physical division of the land cannot take place. The other co-owners guarantee the material and legal properties of the land that they own in common within the value of their shares for the part that is granted to one of the co-owner after the division.

### **3. Common property**

Common ownership occurs when several entities have property rights on undivided agricultural land, whose shares are not determined. It differs from the co-ownership by the fact that the undivided land does not belong to separate entities by parts, but it belongs to all partners. Hence, the property right is on the whole land and partners are unable to dispose of their parts (shares).

There are several types of common ownership: (1) common ownership of a family cooperative (*zadruga*); (2) common ownership by spouses; (3) common ownership by heirs; and (4) ownership of residences without the land underneath. Common ownership, as well as co-ownership, can be simple and mixed with the same meaning. Common ownership of a family cooperative (*zadruga*) exists upon all the property of co-owners who are blood related. The co-owners have no ownership over other objects outside the family. That type of ownership on the land still exists in some villages (especially among the ethnic Albanian families).

Common ownership by spouses exists on the object that they acquired within the marital period. That object (the land) is included in the property of the spouses (their common property—Art. 205 of the Law on Families of the Republic of Macedonia of 1992). It should be pointed out that there is also a common ownership of divorced spouses over the object that they have acquired during their marital period. The rights of common ownership are executed by the spouses jointly and by agreement; one spouse cannot execute the right of disposal of a common property independently. The execution of these rights can be entrusted to one of the spouses. Such agreement cannot be broken unless it violates the rights of the other spouse. After divorce, either the former spouses can agree upon division of the common object or the court will decide. The court, taking in consideration the fact that the object can be divided in equal parts, will make the decision about determining of the parts of the object. One of the spouses can claim a bigger part of the common object if only he/she can prove that his/her contribution in the share of the object is larger than that of the other spouse. If a common object is used to perform a handicraft, activity, or was personally used by one of the spouses, it will belong to him/her. In some particular cases, the object will be divided. The spouse can acquire rights over such an object under the condition that he/she is properly compensated by the other spouse or under an agreement to exchange that object for another. If, upon the division of the common object, it is determined that one of the spouses receives a substantially smaller part, the court will determine, upon the request of one of the spouses, that part is compensated in money.

## **E. OTHER LEGAL RELATIONS ON AGRICULTURAL LAND**

### **1. Servitude**

The right of servitude is divided in two basic groups: real servitude and personal servitude. Real servitude derives from a legal relationship in which the partners are owners of two immovable objects. Personal servitude is always related to the person of the titleholder. The right of servitude is different from the neighboring rights and the contract for lease or any similar contract.

A real servitude is the right of the owner of an immovable property to perform certain activities on the immovable property of another owner (servant property) or to request from the owner of servant property to restrain from activities that he/she is otherwise entitled to perform on his/her own immovable property (Art. 42 paragraph in the Law on Basic Ownership Relations).

From the referenced legal regulations, it seems that servitude embodies a legal relation between immovables, where one owner has ownership rights on a dominant immovable whereas the other titleholder has ownership rights on a subservient immovable. The Law on Basic Ownership Relations (Art. 49, paragraph 2) recognizes the division of the temporary and the occasional real servitude. The temporary servitude is established for a certain period of time.

Republic laws on public roads, water, forests, and others, especially the Law on Expropriation, incorporate a series of servitudes, such as the right of installation of water pipes, sewage systems, electricity, telephone and other lines, which are not defined, but can be commonly called public utility servitudes. The Law on Basic Ownership Relations abolishes certain real servitudes and retains others such as the right of crossing the land 10 meters from the fishing area for sport's fishermen (Art. 30 from the Law on Fisheries of the Republic of Macedonia).

The content of the real servitude depends on the type of servitude. What all of these servitudes have in common is the right of use of a subservient immovable to a certain extent and in a certain manner. The owner of that servitude holds this right. In case it is necessary to use a device or undertake certain activity which involves costs, the titleholder of the dominant object will cover those costs. If the use of the device or the undertaken activity serves the interest of owner of the subservient property, the costs will be covered proportionally by both owners of the dominant and subservient property. (Art. 50, paragraph 2 and 3, Law on Basic Ownership Relations).

Personal servitude is the right of one entity (possessor of the fruits) to entirely use the object of the owner (other person's property). A personal servitude differs from a real servitude in the fact that there is only one object—which can be movable or immovable. It is related to the personality of the owner and can last until his death. The personal servitude can appear in two types: collection of fruits, and use.

The collection of the fruits as a use right on another person's property is similar to use rights on one's own property; therefore, the possessor of the fruits is exercising his/her rights in the same way as an owner. The possessor of the fruits is obliged to exercise his/her right on the other person's property by certain civil standards—as a good owner (landlord), that is, to protect the rights of the owner from violation on the part of the possessor. The possessor of the fruits has the right to collect the fruits of the object and by separating the fruits from the object he/she becomes their owner. The normal costs are the expense of the possessor, whereas the extra costs, for instance, the investment for maintenance of the object, are the expense of the owner of the object. In case the possessor uses the object contrary to given standards, the owner can request the court to deprive the possessor of the object and entrust it to a third person, with the costs of maintenance to be covered by the possessor. The possessor can transfer his/her rights to another entity by legal action.

## **2. Rights of pledge and mortgage**

The right of mortgage is a subjective real right, which entitles the owner to dispose of another person's property by which his/her loan has been secured. There are several types of rights of pledge. According to the nature of the collateral, the right of pledge can be on movable or immovable things, in other words, manual pledge or mortgage. The Law on Basic Ownership Relations (Art. 61) and the Law on Obligations (Arts. 989–996) regulate the right of pledge on the loan. Due to the problems with registration, transformation, and the process of denationalization in the Republic of Macedonia there were few possibilities to place land under mortgage for obtaining certain credits.

## **3. Rights of neighbor**

A neighbor's right is a legal restriction on the right of use of two contiguous immovables. These restrictions can be mutual or one sided. Due to this, the neighbor's right is a heterogeneous right that mainly appears in three forms: (1) a tree on the border or close to the borders of two immovable properties; (2) markers on borders, and (3) operations on one's land. The tree that grows on the border of two contiguous parcels belongs to the owners of that land and each owner can pick the fruits from the branches that fall on his/her side or cut the branches that are sprouting on his/her side. Cutting of the tree can be done only by the decision of the owner of the tree. Markers and border signs (fences, ditches, and the like) are shared equally between the owners of contiguous parcels and both owners are obliged to maintain the marker and the border sign even though these may belong to the other of them.

While exercising the right of use on his/her immovable property, the owner is obliged to refrain from certain activities which will cause a disadvantage to the use of the other immovables (emission of smoke, odors, heat, quake, noise, outflow of sewage waters, etc.).

Neighbor rights differ from contracts for lease or similar legal obligations in the fact that the latter's effectiveness is toward the contractual parties of these legal obligations whereas the neighbor's right is effective toward all entities of civil law.

## **4. Disposal of agricultural land**

The transfer of agricultural land held in private ownership is also regulated with the Law on Land Use from 1986. But we must mention that the provisions of that law were and are not respected in practice, including those provisions which are in accordance with the new Constitution and the policy for consolidation of land (which we documented with a survey of the lawyers in certain areas of the Republic of Macedonia). The restriction of the transfer of land and its registration are the high taxes paid involving the transfer of agricultural land. This tax has now been reduced to 3% of the market value of the immovable. The lawyers are recording an increase in the rate of transfers (sales, gift) in recent years due to the repeal of the provisions for compulsory offer and obligatory purchase and the reduction in the taxes, which contributed to regulation of the land transactions which were not previously registered.

The leasing of agricultural land is regulated with a Law on Land Use and by the general provisions for lease from the Law on Obligations. All rights and liabilities of the lessor are transferred to the lessee (e.g., liabilities on reclamation systems, land cultivation, and so on). Agricultural enterprises that manage socially owned land usually sign contracts for cooperation with the private farmers instead of entering a classical contract on lease. In this way, the limits on the land maximum for the private owners, which were valid during the lease, were avoided; some of the ban was incorporated in other laws which permitted leasing of socially owned land. Agricultural enterprises have tended to lease land from the private farmers without a contractual basis.

## **5. Inheritance**

Inheritance in the Republic of Macedonia is regulated by the Law on Succession of 1973. A person can inherit on the basis of law and will (this law contains a provision that property without heirs becomes socially owned property). The law provides for the legal heirs and the successor chain. The owner can dispose of the inheritance intestate. The part of the inheritance that belongs to the closest heirs is one-half of the part that each heir will receive according to the legal way of succession, irrespective of the fact that some of the heirs may give up their part of the inheritance. The means of disposal of agricultural land before death are the contract for lifetime support and the contract for distribution of property during life (testate and intestate inheritance are regulated by provisions 120–126 and provisions 109–119 of the Law on Succession, respectively).

The Ministry of Justice has proposed enactment of a new Law on Succession. The novelties in the new law will respect the fundamental values of the Constitution, that is, equality of the citizens, equality of the spouses, and equality between legitimate and illegitimate children. According to this draft law, inheritance will be legal. Gifts received 90 days before the person was deceased are not accounted in the total value of the inheritance. With respect to inheritance rights of foreign persons, they have the same right as Macedonian citizens under the condition that the principle of reciprocity applies to their state.

## **F. SOCIAL OWNERSHIP AND ITS TRANSFORMATION**

Prior to 1993, “social-ownership” was used to label property which belonged to everyone and yet to no one in particular. The state, as representative of its citizenry, assigned usufruct rights over its property to specific groups of persons organized as socially owned enterprises. These enterprises were expected to use the land to contribute to the development and protection of the society at large. In the Macedonian constitutions (under Yugoslavia) of 1946, 1963, and 1974, land was treated variously. According to the Constitution of 1946, “the land belongs to those that cultivate it” (Art. 18, paragraph 1), whereas “all Earth’s mine resources, including the mineral waters, spas and natural resources are common people’s property” (Art. 13, paragraph 2, of NRM’s Constitution, People’s Republic of Macedonia). The Constitution of the Socialistic Republic of Macedonia determined that “the land is considered as a good of common concern,” and therefore that each landed property had to be used in compliance with the law regulating conditions for rational land use and other common concerns, including mining and other natural resources, and that land is considered as held under social ownership. Similarly, according to the

Constitution of 1974, “land and other natural resources are goods of common concern,” have special protection, and are used under conditions governed by the law.

Constitutionally and legally, social ownership has been defined in the provisions of the Constitution of SFRJ, that is, SRM of 1974, together with the Law on Associated Labor of 1976, the Constitutional amendments of the above in 1988, and the Law on Enterprises of 1988 and its amendments in 1989. Hence, it can be concluded that these provisions define the most current legal conception of social ownership. Accordingly, it is provided that the means of production, other means of associated labor, the products of associated labor, the income generated by associated labor, social consumer needs, natural resources, and public property are socially owned. Furthermore, it is provided that no one can acquire ownership rights over social means of production in a basic organization of associated labor or on the assets of self-managing communities of interest and other socially owned enterprises.

According to these laws, it is provided that agricultural and construction land, forests and forest land, natural resources and public property cannot be alienated from social ownership unless otherwise stipulated by law.

According to the amendments to the Constitution of SFRJ and SRM of 1988(9-37), which refer to property rights, a line between commercial and social businesses in the sector of the social ownership was drawn. Hence, workers in the associated labor can exchange products on the market or by free exchange of labor. Therefore, the assessment of the results of workers’ labor in the organization of associated labor that is engaged in economic activity are achieved on the basis of market forces, whereas for the workers of the same organizations that are engaged in social activities (e.g., education, science, culture, health, social care, and others) results are acquired by free exchange of labor. Recognition of market forces as a constitutional solution is a new qualitative change in the current legal physiognomy of the social ownership. Considering the fact that social ownership represents the system of socioeconomic relations where market forces, among other things, play a substantial role in disposing with social assets, in this way social ownership has been drawn closer to private ownership rights; and in the area of economy, there is a tendency of abandoning the nonproprietary concept of social ownership and the appearance of several types of social ownership by building pluralistic concepts about its legal nature, taking into consideration its social functions.

The Law on Enterprises abandons the concept of organizations of associated labor where relations among workers were established on the basis of the operation of social assets, in other words, associating labor and self-management (self-managing enterprise). Instead of this type enterprise, a new enterprise type was introduced as an entity of a market economy, that is, the enterprise as a basic form of organization and production of goods or services for the market (market enterprise). This law introduces some formerly abandoned legal categories like social capital, property, and rights of the enterprise. The principle that labor is the basis of management, in other words, that labor and capital are equal bases for acquiring rights in the sense of management and acquisition, is abandoned. The citizens can invest private capital into the enterprise on the basis of which they can acquire a certain compensation not according to their labor share but according to their proprietary monopoly (share-holding ownership). The enterprise as a legal entity is founded on the basis of property. The property of the enterprise, like with any other legal person, is a guarantee for its participation in the turnover of goods (trade). It seems that the process of extinction of social ownership, that is, its transformation to a

proprietary type of ownership, began with the aforementioned constitutional amendments and the Law on Enterprises. During the process of transformation of enterprises with social capital of 1993, privatization should take place, that is, transformation of social ownership into private should be completed, within the next seven years, or five years, depending on the extent to which the assets (capital) of the large, medium, or a small enterprise are currently socially owned.

However, the above-mentioned law does not provide for transformation, that is, privatization of certain types of enterprise that have assets in social ownership (total of 388 enterprises). These are the enterprises that manage the waters, forests, land, and other public property, residential and business spaces, the national lottery, and other enterprises that have monopolistic position. The banks, financial organizations, insurance companies, and the co-operatives will not be transformed, that is, privatized. Around 50% of the total business assets of the enterprises with socially owned assets are concentrated in these enterprises. The rights and liabilities of social legal entities in the transfer of social assets are provided in Art. 196 of the Law on Enterprises of 1988, with changes of 1989, whereas the right to use social asset (which is part of the real subjective right and is restricted by obligations of public character) is part 6 of the famous Law on Associated Labor (Arts. 113–183).

The right to dispose of social assets which represents alienation of these assets by the holder of that right (state, private, co-operative ownership), their transfer to another social legal person, and their exchange is also restricted by public and legal obligations. Therefore, the social means of production and other means of common expenditure cannot be alienated without compensation.

The agricultural and construction land, forests and forest land could not be alienated as they were protected social assets. Hence, social ownership as a legal relation contains characteristics that make it differ from the other types of ownership. The land in social ownership could not be alienated except in cases stipulated by law. Such cases were provided by three laws. The Law on Transfer of Land and Buildings permits land transfer between social legal entities; this transfer does not change anything since the land is still in social ownership. There were exceptions in two cases: (a) exchange with privately owned land (Art. 18), and (b) sale, when the land is transferred into private ownership, with the obligation that the money acquired from the transaction by the agricultural enterprise was used for purchase of another tract of land (Law on Land Transfer, Art. 30). In both cases the amount of land under social ownership did not decrease. Land exchange was also provided for in the cases of consolidation and reallocation of holdings (*arondacija*). Also, the Law on Expropriation stipulated that socially owned agricultural land can be given by the agricultural enterprise (which is the user of the expropriation) as compensation for expropriated privately owned land. Although the agricultural land in social ownership was transferred, this transfer was controlled and conditional.

The social sector covers a relatively small part of the land, around 15–20%. Yet, considering the facts that (1) the sector controlling the socially owned land has a share of nearly 50% in the total marketing of production and is the locus of the concentration of capital and of labor force, (2) by virtue of well-known reasons it had a monopolistic position on the market, and (3) it has the characteristic of underutilization of resources, it is clear that the problem of transformation of such land will entail substantial changes.

The privatization of the social sector in agriculture faces two major problems. First, due to the large size of the social enterprises it is impossible to transform them to a more rational size in a



quick fashion, without immense changes in the employment of human resources and a potential loss of use of high technology capital that is available in some of the AIK. Second, the increased mobility of resources will lead to an increase of the offer of land on the limited and still not institutionalized market, which, speaking in real terms, will lead to a serious depreciation of the value of the land. Third, there is still strong political resistance to change. An approach which is based on gradation seems likely to be the only possible alternative in this case.

Currently, concepts of ownership are once again being redefined in Macedonia as the former socialist state is transformed toward a market economy. The constitution now does not even recognize the term social ownership as a legitimate property rights category. The question thus has arisen as to whom the former “social” property belongs—the well-defined group of former member-workers (management and salaried workers) who dedicated their careers to stewardship of social property, sometimes reinvesting earnings, or the state via authority vested in a particular ministry. In 1993, the Government of Macedonia opted for the latter in the case of agricultural land, as is implied in the Law on Transformation of Enterprises with Socially Owned Capital interpreted together with the Constitution of the Republic of Macedonia. According to this law, privatization represents a change of the status of the enterprise, so that the enterprise with social capital becomes an enterprise with private capital. The transformation is made by the sale of the social capital or of all the assets of the enterprise. Transformation under this law exempted enterprises that operate for a public interest and have a status of a public enterprise or public service. Specifically relevant is Art. 6, paragraph 1, which stipulates that immovable assets (construction) on agricultural land would be exempted from the total estimate of the value of the enterprise. Art. 6, paragraph 2, provides that these enterprises would continue to use and manage construction and agricultural land until the issuance of a valid decision of denationalization.

The Law for the Transformation of Enterprises which Manage Agricultural Land makes explicit the decision to hold such land in state ownership. This law was enacted in April 1996, and provides for the transformation of the agricultural landholding enterprises and cooperatives through transformation into stock companies and limited liability companies. All land used by these enterprises, however, is defined as state-owned and conditions for obtaining contracts for lease of the land, by current users, are delineated in the text of this law.

Thus, rights over the land held by “socially owned enterprises” (which are now being privatized) are being transferred to the Republic of Macedonia and are to be administered<sup>9</sup> by the Ministry of Agriculture under terms favorable to the former users, i.e., state ownership. The state views this choice as correct even in instances in which private mechanisms such as purchase of land from private owners is being induced, either directly or indirectly, by state policy and financial assistance for the well-being of the society. State ownership is also justified from the perspective that agricultural land is still defined as a good of public interest<sup>10</sup> which the state must

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<sup>9</sup> The Ministry of Agriculture and Water Resources will manage the leasing of state-owned agricultural land and will regulate its use as per a new land use law which is currently being drafted.

<sup>10</sup> Goods of public interest are all natural resources, the flora and fauna, goods of common use, and objects of cultural and historical importance governed by law (Article 56, paragraph 1, of the Constitution of the Republic of Macedonia). The same situation is true of land which was categorized as “construction land” explicit prior to 1991, whether constructed or not.

constitutionally protect. Finally, the strategy of nationalizing “socially owned” land is viewed by many as protecting the rights of the former owners whose land was expropriated forcefully until the enactment of the Law on Denationalization. Until a law on state ownership (currently in draft) is enacted, there will be discrepancies in the regulation of the rights of state ownership, most importantly, whether it can ever be sold to private entities, i.e., privatized.

## **G. AGRICULTURAL LAND AND THE LAW ON DENATIONALIZATION**

Article 21 of the draft Law on Denationalization regulates the restitution of agricultural land to the former owners. Paragraph 1 of this article provides that agricultural land, pastures, uncultivated village land, and forests which are considered a natural scarcity will not be restituted. It appears that the restitution of scarce resources should not be disputable but the state should provide a special system of using the land. The basic decision (Art. 21) incorporates protection of the interests of extant large agribusiness complexes by suggesting that if a parcel is to be restituted as a part of the property of a former owner, that owner can be compensated by a parcel of the same quality of land and same quantity of yields in another location.

An alternative solution for the treatment of the land in denationalization is that the parcel would stay in the block of current use with the former owner becoming a co-owner with shared economic benefit. Yet, the former owner would be deprived of the right of disposal. The former owner would not be able to make transactions with his/her parcel; instead the state would maintain that right. Under a transfer, the former owner would have to be compensated for any damages to his/her interests. Another problem which will be regulated by the law is the co-ownership relation between the private person and the state.

Another alternative found in Art. 21 is more restrictive and does not comply with the constitutional provision for protection of private ownership, providing that land not be restituted if it is part of a large block with a minimum of 20 hectares of constructed infrastructure (permanent plantings, seedlings, explicit and buildings). In this case, the former owners will receive indemnity with another parcel or acquisition of rights of shares and stocks in the enterprise managing the land for the value of the land that is claimed under denationalization. The state cannot afford to compensate the damages in money.

## **H. COOPERATIVE OWNERSHIP: PAST AND FUTURE**

Cooperative ownership, as a legal relationship, has the same meaning as the other forms of ownership. Bearers of cooperative ownership rights are from all types of groups: agricultural, handicraft, residential, youth and other cooperatives, enterprises in cooperative ownership, and cooperative associations. Property subject to cooperative ownership can be grouped from any type of property except for objects under state ownership. Bearers of the rights of cooperative ownership over movable and immovable objects serve the common interest of the cooperative members, that is, the common interest of the cooperative organizations (Art. 11 on the Law of Basic Ownership Relations).

Cooperative ownership consists of the rights which are present in other types of ownership: to possess, to use, to dispose of, and to manage the property which is the object of the right of cooperative ownership, in which each member of the cooperative on the basis of his share in the assets of the cooperative participates. This share entitles the cooperative member to one vote in the decision of the meetings of the assembly as the highest collective body comprising all cooperative members.

It should be pointed out that the cooperative members or the members of the cooperative enterprise are entitled to share the profit according to criteria determined by themselves.

These rights are based on the principle of majority voting in the collective bodies of the cooperatives; the cooperative organizations are directed toward fulfilling the common interest of cooperative members. However, this could be against the interest of the individual cooperative members. In that case, the cooperative members can renounce their membership in the cooperative or cooperative organization and can claim restitution of the share in money, which will lead to decreasing of the assets of the cooperative. It should be emphasized that in the legal system in the former Republic of Macedonia, cooperative ownership existed, but it has gradually vanished in practice as one of the types of ownership.

With the amendments in the Constitution of SFRJ and SRM of 1974, which were adopted in 1988, the cooperative movement was again organized on the classical principles which are well known in the world. Membership was regulated as was members' position in the cooperatives. The Constitution determines the objective of grouping the farmers and the main means of doing so. Also, the distribution of income of the cooperative was regulated as was the right of the cooperative members in case of leaving the cooperative; this was not a case of constitutional regulation before the constitutional changes.

In regulating the issue of ownership of land, means of production, and other means which the farmers contributed to the cooperatives, there were some novelties. The possibility of retaining the right of ownership on all the objects which were contributed to the cooperative was the basic rule, but it was not possible to transfer these means to joint or social ownership. With the previous constitutional provision (1974), the farmers could keep their ownership right to the objects they contributed to the cooperatives or could determine a means of getting them back according to the contract or the statute of the cooperative.

There is no special law for cooperatives in the Republic of Macedonia. In legal terms, the cooperatives are regulated with the federal Law on Cooperatives of 1990, which reaffirmed all the cooperative principles and the cooperative movement. This law was adopted in RM without any changes. According to this law, there is no requirement that the government approve the establishment of a cooperative. By registering, a cooperative gains legal standing. Three business entities are needed for establishing a cooperative (it is not noted whether they have to be physical, legal, foreign, or domestic entities or whether it is necessary for them to be fully capable of business management). The cooperative founding act is the basic and constitutive act of the cooperative. Management of the cooperative is based on the principle of one cooperative member, one vote. But it is possible for the cooperative members to regulate the cooperative in a different way. There should be a managing board and a supervisory board in the cooperative and also be a business board for guidance. It is determined that the holding of the cooperative consists of objects, assets, and rights. Cooperative ownership consists of the stakes/share of the cooperative

members, assets obtained as a result of its operation, and assets obtained by other means, while the land and other socially owned assets can be transferred to the cooperative as assets in social ownership.

According to this law, the property of the cooperative can be in the following forms of ownership: (1) private ownership of the cooperative member; (2) common ownership of the cooperative members; (3) cooperative ownership; and (4) social ownership. According to Art. 20, it is noted that with the dissolution of the cooperative, the assets in cooperative ownership, after payment of liabilities to the creditors, are distributed among the cooperative members and are transferred into private ownership of the cooperative members unless it is otherwise noted in the cooperative statute. Because the statute is enacted by cooperative members, they are the only subjects that decide about the cooperative ownership after the dissolution of the cooperative.

With the Federal Law for Cooperatives enacted in 1990, there was a possibility that the property, which on the basis of the provisions from 1953 and 1954 was transferred into social ownership and was transferred to other users without compensation (Art. 37), should be restituted to the legitimate holders. It was deemed that a holding acquired by the formation of a cooperative after 1 July 1953, that was transferred to the other users without compensation, on the basis of the documented claims, would be given back to the cooperatives, i.e., to their legal successors in a manner and under terms established with the law. Also in this Law it is noted that the business and housing property which were in the cooperative associations' ownership from 1 July 1953, until 21 December 1965, and were transferred to the other users without compensation, on the basis of a documented claim, would be given back to the associations in a manner and under terms determined within the law.

But the enforcement of the provisions, which were a type of denationalization or giving back the cooperative holding to the cooperatives and cooperatives' associations, was not implemented (unlike some other republics, like Serbia and Slovenia, where these provisions were realized with republic laws). According to the laws discussed above, today in the Republic of Macedonia there are three types of ownership in cooperatives: private ownership, cooperative ownership, and social ownership. These are the only types of ownership that can undergo the process of transformation.

There are problems in several areas: (1) how and whether cooperative and private capital can be exactly identified and differentiated from socially owned capital in order that something that is already privately owned is not to be transformed; (2) how to provide a clear relation of the new law with the provisions of the Law for Cooperatives, which implied a possibility for giving back the cooperative holdings on the basis of denationalization, especially when it is taken into consideration that, with the Law for Denationalization, cooperatives are not considered as claimants; and (3) how to find a way to identify the real cooperatives in RM and to differentiate them from the enterprises that use the legal form of cooperatives but are not organized on cooperative principles. The priority task is for all of these issues to be solved with a modern law for cooperatives which, above all, will have to take into consideration the need for flexibility when it comes to cooperative organization and principles and the needs of the potential cooperative members.

During the 15th Congress of the International Cooperative Association, held in London in 1934, the following authentic principles were determined: (1) democratic management; (2) free entry and

exit of the cooperative based on voluntary principles; (3) distribution of profit according to share of the cooperative member in the cooperative; (4) limited liability; (5) principle of neutrality; (6) payment in cash; and (7) cooperative education.

The legal nature of cooperative ownership in the countries with developed market economies is indisputable—it is private ownership. In ex-socialist countries, there were some disputes about the legal nature of this form of ownership. There are two groups of opinion. In the first group, cooperative ownership is seen as a lower form of state ownership with a tendency to make it totally equal with the state holding of common concern (USSR and Bulgaria). In the second group, cooperative ownership is considered as a form of collective (group) private ownership whose titleholder is the cooperative as a legal entity (Czechoslovakia).

At the World Congress of Cooperative Members, held in Brussels in 1987, the expressed attitude was that because of the character of cooperative ownership, cooperative membership is neither a part of the capitalist economic structure nor a part of the state social structure in socialist countries. In the scientific theories of the western countries, the attitudes toward the cooperative movement are toward “the third sector of the capitalist economy as an alternative of the private and state public sector.”

What are the bases of cooperative ownership in the Republic of Macedonia according to the current legal framework?

1. Cooperative ownership is a democratic basis for managing the cooperative which is characterized with equal relations among cooperative members and cooperative management regardless of their share, race, and social background.
2. The titleholder of the cooperative ownership is the cooperative as a legal entity and the personnel should comprise cooperative members only.
3. The object of the cooperative ownership comprises the shares of the cooperative members and other assets acquired by the functioning of the cooperative.
4. The content of the cooperative ownership comprises not only the classical use and disposal rights but also the liabilities, that is, the assets in cooperative ownership should be renewed, increased, protected, and orderly used, which are not liabilities regulated with a law, but coming out of the nature of a viable entity working with assets in private ownership.
5. Cooperative ownership is a basis for the proprietary independence of the cooperative and its independent liabilities toward third persons.
6. Cooperative ownership in its legal nature is a group form of a private ownership.

If the attitude that cooperative ownership in its legal nature is a form of private ownership is accepted, the difficulties about the methodological process for its transformation into an individual form of a private ownership should be less problematic than those in relation to the privatization of the state and social ownership.

In the Republic of Macedonia, we are facing the above-mentioned difficulty that, although the cooperatives transformed their statutes according to the Law in 1990, they did not transform their ownership according to this law, for the republican law for enforcement of the statutes in terms of restoring the cooperative holdings to the cooperative members has not been enacted.

The second difficulty during the transformation will be the fact that after the enactment of the Law in 1990, many of the cooperatives enumerated only their members on their cooperative lists. So the transformation might raise the issue of cooperative employees: whether they will stay or will be considered as “employees” and conclude employment contracts, or to what extent their number will be reduced.

No one can talk about the privatization of cooperatives in which the capital assets are in private ownership, or rather joint ownership. Privatization of the cooperatives can only be achieved if the cooperatives operate with assets which are in social ownership. We can talk about cooperative ownership only conditionally because it is a collective form of private ownership in its legal nature whose titleholder is the cooperative as a legal entity and a form of collectivity which belongs only and exclusively to the cooperative members; in other words “privatization” in this case is a procedure that leads toward transferring collective organized titleholder into individual bearers of private ownership without any changes in its content, which can be achieved with individualization of its bearer. Also, if traditional cooperative principles are not taken into consideration, if we bear in mind the fact that many of the cooperatives in Macedonia are not cooperatives in the real meaning of the word, and if the employees are considered as cooperative members, it will be normal if some of the cooperatives convert into limited liability companies, especially when that possibility is given in the Law of 1996.

## **I. REALLOCATION OF HOLDINGS (*ARONDACIJA*)**

*Arondacija* is type of land consolidation (agricultural land, forests, forestry land) for the purpose of achieving optimal land use, mechanizing the process of production, carrying out reclamation and erosion prevention actions, viable production units, planting of perennials, planting of forest trees, and afforestation. This was a typical agropolitical measure that served to create larger blocks of arable land (previously in social ownership). The decision for *arondacija* is issued by a committee appointed by one or several municipal assemblies. The owner (either full-time or part-time farmer) of the land that was consolidated by means of *arondacija* received compensation in money or in land with the same cadastral class, crop, and possibly same location by the user. In case a different land class is given, larger parcels were given to adjust fairly. Part-time farmers received compensation in money according to the regulations in power (also for expropriated land). The mortgages would lose their legal validity and were erased from the registries, with the option for entering the erased pledges on the land that was given in compensation.

*Arondacija* is a combination of expropriation and appropriation. The user submits a proposal for *arondacija*, and municipal bodies were to carry out the *arondacija*. Since 1946 this measure has been regulated by numerous acts during different periods, such as federal and sublegal enactments: Law on Land Reform and Colonization of 1945, Basic Law on Cooperatives of 1946, Regulation for Arondacija of State Goods of Common Concern of 1946, Statute for Arondacija of 1947, Law on Expropriation of 1947, Basic Law on Cooperatives 1949, Statute for Arondacija of Agricultural Products and Village Cooperatives of 1951, and Law on Land Use of 1959. As a means of acquiring state (social) ownership over land, *arondacija* can still be considered as a forceful measure, together with other forms of consolidation. The land acquired by means of these measures will not be subject to nationalization, but it still will be considered, since there are cases

without actual agreement where compensation was carried out according to the regulations for expropriation, but where equitable compensation was not introduced.

## **J. REGISTRATION OF OWNERSHIP OF AGRICULTURAL LAND**

Concerning the transfer of ownership rights on immovable to other persons, it is necessary to identify the titleholder. This identification is absolutely necessary, since the transfer of the right is not done by court action. It is necessary to transfer the *tapija* or *posedoven* list and register the transaction in the public registry. Until 1986, the registration of the immovables was done by the means of the *tapija* system. The *tapija* system in Yugoslavia was established with the Law on *Tapija* of 1931. According to this law *tapija* is the document which proves the ownership rights on land, and the transfer of that right is a transfer of *tapija*. The mortgage and the servitudes are based on the *intabulacija* system. The issuance of the *tapija* and the transfer of the *tapija* are registered in the book of *tapija*. *Intabulacija* is recorded in the book of *intabulacija*. Since 1986, the Law on Land Survey, Cadastre and Registration of the Rights on Immovables has been in force. By this law the registration of the rights on immovables is made in the land registry book, or cadastre. Currently, the establishment of certain cadastral municipalities in the Republic of Macedonia is being carried out. According to the new law, the rights on immovables (ownership, mortgage, and servitude) will be acquired by registration in the cadastre. The law was subject to amendments in 1991 (*Off. Gazette of the Republic of Macedonia*, no. 17/91). The law is in its initial implementation for the land survey and registration.

The regulations by which the land (and other immovables) was transformed into social ownership characteristically always insisted on registering the changes in the ownership, on issuance of *tapija*, and sometimes against the legal regulations of the *tapija* law. All these regulations provide official obligations of the courts and authorities as well as the responsibilities of the titleholders on socially owned movables for official registration of the transactions and the rights on the socially owned land. However, in practice this obligation has been neglected.

Before the enactment of the new regulations in 1947, when *tapijas* were issued, registration was also done on the following kinds of property: state property of FNRJ, property of NRM, property of peoples' committees, state property, state institutions, state business enterprises, and property of the former self-governing bodies (Art. 5 from the Act on Registration of the Ownership Right on the State-Owned Immovable Property). Since 1947, subenactments have been adopted, the first one dating from 1965: Act on Registration of the Ownership Right on the State-Owned Immovable Property (*Off. Gazette of FNRJ*, no. 58/47); instructions for the manner of registration of ownership rights on buildings constructed on public (social) property in the land registry books (*Off. Gazette of FNRJ*, no. 44/51), instruction for land registries of the nationalized buildings and construction land (*Off. Gazette of SFRJ*, no. 49/59), and Law on Registration on Immovables in Social Ownership (*Off. Gazette of SFRJ*, no. 12/65).

The Law of 1965 as well as other regulations provide registration only for ownership and the registration of the use rights is only considered as a note (registration of a lower rank which records relevant circumstances). According to the law under which the land was registered, the land registry books for the socially owned land are managed by the municipal assembly, according to Art. 14 of the Law. Paragraph 2 of the quoted provision provides the registration of the use

rights for the agricultural enterprise. The registration of the social ownership is made at the request of the authorities in charge of land tenure issues, whereas the registration of use rights is made on request of the agricultural enterprise.

## **K. CONCLUSION**

The above discussion of the legal framework as it affects landownership and land use was conducted to present the institutional context in which the entire agricultural sector operates. A historical review of the origin of laws and regulations which influence landownership and land use is crucial to determine the scope and direction of potential reforms. During the current transition toward a market economy in the Republic of Macedonia, the legal and regulatory framework has been under critical review and revision. As Macedonia is in the midst of the daunting task of legislative and regulatory reform, many ambiguities, confusions, and potential contradictions exist. The complexities of transforming social ownership, for example, involve issues that require much time and consideration for any reform to be beneficial to the common concern. This review has presented the background from which current reforms can be interpreted and assessed. Such a review needs to continue as the process of legislative and regulatory reform progresses. Our suggestions concerning the legislative reform agenda are made in Chapter 6.

*Note: This chapter was originally written in Macedonian by Jadranka Dabovic Anastasovska. It has been translated by our team of translators and edited by the LTC team. The complexity of the web of laws and of legal language combined to make the task of generating this English-language version rather daunting. We hope that this effort, albeit imperfect, will serve those expatriates involved in technical assistance to Macedonia as a base for untangling the legal web in which Macedonian agriculture is enmeshed.*



### III: THE PRIVATE FARM ECONOMY

#### A. BACKGROUND<sup>11</sup>

In comparison to the other regions of former Federal Yugoslav Republic, individual farms were established much later in the Republic of Macedonia. Feudal relations were dominant in the territory of today's Republic of Macedonia until 1912, in addition to the existence of free peasants, *chivchian*, who occupied about 30% of the total number of the villages, most of them gravitating to rivers and plains and the mountains villages which consisted of *chivchian* and feudal holdings. As an illustration, Skopje's valley consisted of 622 villages; 222 of them were with free peasants, and the others with *chivchii* or mixed villages. The free peasants had smallholdings of land property. Seventy-five percent of all free peasants owned less than 5 hectares of land.

In 1931 an obvious concentration of the number of farms with smallholdings of land was evident, with a corresponding concentration of land within farms with larger holdings. For example, 22% of the total number of farms in the category with holdings smaller than 2 hectares owned only 2.6% of the total land area. Farms with holdings over 50 hectares comprised only 0.2% of the total number of farms and they owned about 9% of the total land area. In comparison to the other republics of former Yugoslavia, the Republic of Macedonia had the relatively largest number of small farms. For the period of 1931 to 1941 there are no statistical data on the farm size distribution, so the dynamics of the landholding structure cannot be followed. Meanwhile, it was projected (P. Markovic 1970, p. 109) that the tendency of land fragmentation was continuing; i.e., the number of smallholding farms increased to 27% .

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<sup>11</sup> Chapter 2 contains a thorough historical background to the development of the contemporary farm economy in Macedonia. In this section, more detail is presented regarding the changing agrarian structure and patterns of land fragmentation.

**Table 3.1: Number of farms in the Republic of Macedonia according to the census of 1931**

	Number of farms		Agricultural landholding	
	n	%	n	%
Total	127,596	100.0	572,597	100.0
< 1 ha	28,076	27.0	15,031	2.6
1–2 ha	23,878	18.7	36,573	6.4
2–5 ha	42,790	33.5	144,041	25.2
5–10 ha	22,341	17.5	157,322	27.5
10–20 ha	8,260	6.5	112,564	19.6
20–50 ha	1,968	1.5	55,139	9.6
> 50 ha	283	0.2	51,927	9.1

Sources: Republic Statistic Office, Skopje. Census of population and households, 1931.

After World War II, many factors (administrative, political, and economic) had an effect on the agrarian structure. In the pre-war years, farming was an almost the exclusive source of income for the agricultural population. After liberation, many farm households started to rely also on family income earned off the farm. In comparison to 1931, in 1941 the number of individual farms with property of less than 2 hectares had increased to 37%, occupying 68% of the total land area. The dynamic of landholding structure was significantly affected by the enforcement of the Law on Agricultural Reform (25 August 1945) and the Law on Agricultural Land (27 May 1953) as explained in Chapter 2.

With the worldwide process of demographic urbanization ongoing, the share of the population involved in agriculture decreased dramatically, leaving farming as a minority occupation in 1991. Accordingly, changes were expected within privately owned holdings in Macedonia; i.e., the number of holdings should have declined while the average size of the holding should have increased. Unfortunately, these changes did not occur in Macedonia. Thus, for an example in 1960, the number of individual farms was 156,676 while in 1981 it reached 176,296—an increase of 12.5%.

**Table 3.2: Holding structure of households according to 1981 census**

	Number	%
<b>Total</b>	<b>176,296</b>	<b>100.0</b>
Nonlandowner	2,354	1.3
1 ha	78,735	44.6
1.01–2.00 ha	38,879	22.1
2.01–3.00 ha	22,170	12.6
3.01–5.00 ha	19,743	11.2
5.01–8.00 ha	9,380	5.3
> 8.01 ha	5,035	2.9

Sources: Republic Statistic Office, Skopje. Census of population and households, 1981.

As the number of farms increased during this time period, the average parcel size decreased and landholdings became even more fragmented. From 1981 figures, the average number of parcels per holding was 7.7 with average parcel size of 0.14 hectares. In twenty years (1960–1981), the number of farms with less than 2 hectares increased by 50,649 farms or by 76%. Most of them were formed by inheritance and by division, and a smaller portion by the purchasing of land.

Out of a total 1,752 inhabited areas in the Republic in comparison to 1948, an increase of inhabitants was evidenced in 648 villages, i.e. one-third (36.9%), and 1,017 settlements (58.1%) experienced a decrease in population, and 87 or 5% of settlements were left totally uninhabited. Due to many socioeconomic circumstances, agriculture was not attractive as a source of income and prosperity for the younger generations. Still, a very interesting phenomenon in the Republic of Macedonia is the significant persistence of households to keep their privately owned holdings even when they do not use them. According to the 1981 census, 38.5% of the total number of households that owned a private farm did not have any farmers in the household. Many of those households are living in the cities or have only elderly members (no working labor). Sometimes, the farm is managed by the owner's descendants, who do not always live in country.

It should also be mentioned that in a large number of households, the active members are not farmers, i.e., they work in some nonagricultural activity. The research results show that just over 10% of the total number of private farm households make a living only by working on their own farm. Today's social and economic patterns are changing in favor of the nonagricultural sector with a reduction of the pure agriculture holdings—full-time farmers, by certain definitions. The reason for this phenomenon, besides the lack of appropriate agricultural policy, is the extensive development of nonagricultural activities. However, the industrialization in Macedonia offered only low productivity, low wage employment so that migrants needed to maintain their land to secure an adequate standard of living, despite the small size of the holdings and the trend of urbanization. Depending on contemporary economic conditions, the agricultural households are

oriented more toward the market or more toward fulfilling their own needs, regardless their members' professional orientation to nonagricultural activities.

As stated in the introductory chapter, the main objectives of this research were to document current patterns in agrarian structure and, more importantly, link these patterns to patterns of productivity and draw conclusions about land-related constraints to the developing market economy. Section 2 describes the methodology used to obtain the information needed to achieve these goals. The results of analyzing the information gathered are presented in Section 3.

## **B. SAMPLE SELECTION AND SURVEY DESIGN**

As discussed in Chapter 1, the research plan involved the selection of a large sample distributed across 4 of Macedonia's 6 agricultural regions. These 4 regions encompass 22 municipalities. A sample of 48 villages was selected from across these municipalities. The villages were stratified and chosen to include topographic variation (flat, hilly, and mixed villages; high mountain villages were excluded as there is little crop cultivation in these areas) and to include a range of socioeconomic conditions. A sample of 820 individual farm households was selected using stratified random sampling procedures. Stratification was according to farm size category as explained below and random selection of household was conducted from property registry books held by the municipal cadastral offices.

The farm size categories used are a simplification of the stratification scheme used by the National Statistical Office. Farms are grouped as follows: <1.00 ha, 1.01–2.00 ha, 2.01–5.00 ha, and >5.01 ha. Table 3.3 presents the population distribution of farms across this structure according to 1981 census data as well as the distribution of the sample. The number of the individual farms smaller than 1 ha was reduced 30% in the sample and the number of farms larger than 2 ha was accordingly increased. This was done to ensure adequate presence of larger farms in the sample to be able to address issues pertaining to size effects on productivity. During the analysis, the results are weighted to account for this distortion from the population distribution. Also, farmers without land are excluded from the sample. Appendix 3 presents the complete distribution of farms across regions, municipalities, villages, and farm-size groups.

**Table 3.3: Population and sample farm size structure**

Criteria	Number of individual farms		Percentage distribution	
	Total population <sup>12</sup>	Observations sampled	% of structure	% by sample
<b>Size of the holding</b>				
< 1.00 ha	78,735	265	45.3	32.7
1.01–2.00 ha	38,879	185	22.3	22.6
2.01–5.00 ha	41,913	288	24.1	35.1
>5. 01 ha	14,415	78	8.3	9.6
<b>Total</b>	173,942	820	100.0	100.0

Sources: Republic Statistic office, Skopje. Census of population and households, 1981.

## 1. Survey instruments

In Macedonia, secondary data sources on the private farm economy are very scant, especially those with the level of detail and desegregation needed to accomplish the tasks set forth in the project's plan. Therefore, two survey instruments were developed and applied via personal interview to the president of each selected village and to the sample of households selected within each village. The questionnaires (village and farmer) contained open-ended opinion questions, multiple choice questions as well as several quantitative tables to be filled in during the interview. A copy of each instrument is included in Appendix 3 and Appendix 4 and the content of each is briefly described below.

The village-level questionnaire was used to collect all the basic information about the village: population structure, production capacity, infrastructural development, economic activity of the rural population, levels of animal stock and machinery inventory, and other general questions concerning the level of development of the village and the perceptions about the future of agriculture.

The individual farm household questionnaire consists of four major segments. The first segment pertains to the demographic and social characteristics of the head of the household, spouse, and other family members. The goal of these series of questions was to gather information on the

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<sup>12</sup> These data are taken from the Census of Population in 1981. According to the census, farms are defined as follows: a) every family with landholdings of at least 10 square *are* which can be used for agriculture; or b) a family with land smaller than 10 square *are* if it has at least: 1 cow and calf or sheep and lamb, or 1 cow and 2 grown head of small cattle, or 5 grown sheep, or 5 grown pigs, or 4 grown sheep and pigs together, or 50 head of grown poultry, or 20 bee hives. Agricultural landholdings of individuals consist of land that is owned by the members of the family as well as the land that is owned by other entities but was used by the family during the time of the census.

demographic features and patterns which might impact on the problems of land fragmentation and agricultural productivity. Of particular importance are the age, gender, ethnicity, and migration variables. The second segment of the questionnaire pertains to the land acquisition and land use history of the individual farm. Data on agricultural production (including input and output data, capital stock and animal stocks) and agricultural marketing are the subjects of the final two segments of this questionnaire. In addition a few open-ended, opinion questions were included to capture the farmer's individual perspective on the future of agriculture and the policy agenda. The questionnaires were subject to several rounds of pre-testing and revision before they were implemented for the selected sample.

These questionnaires were applied by a group of trained enumerators. The enumerators were selected because they had prior experience in agriculture or sociological surveys and because they reside in the municipalities to which they were assigned. This latter criteria for enumerator selection assures better quality responses as there is substantial language, dialect, and cultural variation across Macedonia. The enumerators were brought to Skopje in small groups for intensive classroom training about the project and the questionnaires and were then taken in very small groups by the project staff to the field for field-level training (practice interviews with farm households not selected for the sample).

## **C. RESULTS OF EMPIRICAL RESEARCH FOR THE PRIVATE AGRICULTURAL SECTOR**

### **1. Demographic results**

In the last few decades, the socioeconomic transition in the Republic of Macedonia, among other things, has changed the agricultural household structure. There has been an increase in the number of agricultural households as well as a decline in their size; i.e., the average number of household members has decreased. The reasons for these changes are embedded in the overall process of social development, including economic factors which have affected population dynamics.

Under the influence of industrialization and urbanization, traditional households as production-consumption units are falling apart due to off-farm employment opportunities and migration to the cities. These factors contribute to the increase in the number of the households and the decrease in their size. The following table illustrates this phenomenon.

**Table 3.4: Number of rural households and their size**

Year	Number	Average number of household members
1953	147, 588	6.01
1961	148, 401	5.82
1971	155, 207	5.44
1981	175, 100	4.89

Source: Statistical survey, num.65,126,129. Statistic Office of Republic of Macedonia, Skopje.

Between 1960 and 1981, there was a tendency toward a decrease in the average number of the members per household. In addition, as Table 3.5 shows, the average number of household members is smaller in the private farms with smaller holdings than in those with larger holdings. Virtually all the decrease in average household size between 1960 and 1981 occurs in the two largest farm-size groups. This implies that the process of transformation in the private farms with smaller holdings is more or less stabilized. It should be pointed out that the average size of private farm households is directly tied to the economic base of the household, at least for full-time farmers. Thus with the declining number of private farm household members, the influence of economic factors (size of landholding, land quality, number of livestock, mechanical power, market orientation, migration, etc.) will be increasingly important.

**Table 3.5: Average size of the private farms, according to the holding size**

Size category	1960	1981
<b>Total</b>	<b>6.05</b>	<b>5.04</b>
Less than 1 ha	4.61	4.64
1.01–2.00 ha	5.40	5.28
2.01–5.00	6.37	5.43
> 5.00 ha	7.53	5.21

Source: Basic statistic data for private farms in Republic of Macedonia, 1960, and internal material, 1981 census of population and households, Republic Statistic Office, Skopje, 1971 and 1981.

The private farm survey data show (Table 3.6) that the largest average number of members per household, 6.04, is in the Western region and the smallest average number, 3.78 household members, is in the Pelagonian region. As the case studies reported separately indicate, the

variation in household size is mainly determined by ethnic origin, with ethnic Albanian households being considerably greater.

**Table 3.6: Some basic socioeconomic indices of the private farms in the regions studied**

Region	Average size of holding	Average number of parcels	Average number of members
1.Mediterranean	2.30 ha	8.3	4.42
2.Pelagonian	2.91 ha	9.2	3.78
3.Western	1.79 ha.	5.7	6.04
4.Skopje/Kumanovo	2.65 ha	5.5	4.84

Source: Project for the Analysis of Land Tenure and Agricultural Productivity in Macedonia (PALTAP) Skopje, 1996.

**Table 3.7: Landholdings and family size of private farm sector**

Region	Average holdings size (ha.)	Average number of parcels	Average parcel size (ha.)	Average number of family members	Average land per family member (ha.)
1.Mediterranean	2.30	8.3	0.277	4.42	8.30325
2.Pelagonian	2.91	9.2	0.316	3.78	9.20886
3.Western	1.79	5.7	0.314	6.04	5.70064
4.Skopje/Kumanovo	2.65	5.5	0.482	4.84	5.49793

Source: project survey results

Further analysis of the empirical data shows that households with a larger number of members have larger numbers of employed members (active in holdings). The Western region's households have the largest number of family members employed on the farm (2.26 members). The Skopje/Kumanovo region follows with 1.82 members employed on the farm, the Mediterranean region average is 1.75, and the smallest average number is in the Pelagonian region with 1.47 members.



**Table 3.8: Labor force utilization on private farms by holding size**

<b>Share of household labor force permanently employed on the holding</b>		
<b>Size of holding</b>	<b>1960</b>	<b>1981</b>
Total	40.47%	21.26%
< 0.5 ha	22.45	7.78
0.51–1.00 ha.	31.17	15.81
1.01–2.00 ha	31.97	23.65
2.01–3.00 ha.	42.29	28.74
3.01–4.00 ha.	44.57	32.92
4.01–5.00 ha.	47.67	34.82
5.01–8.00 ha.	46.66	36.37
> 8.01 ha.	47.15	38.60

Source: Statistical review, Basic statistical data of the private farms in the Republic of Macedonia, 1960 and Internal data, Census of population, households 1981, Statistic Office of Republic of Macedonia, Skopje.

The statistical data in Table 3.8 indicate a different structure of labor force in different farm size groups: on the smaller private farms, the share of permanently employed members on the farm is smaller than that in the larger farms. This leads us to the conclusion that the size of a private farm holding is a determining factor of the employment of the members of the households. But the household labor force employed on the household's holdings has been decreasing. This is true for all farm sizes, but the greatest proportional decrease has occurred within the smallest farm sizes.

## **2. Age and education structure**

Because of the decreasing birth rate and substantial employment of younger workers in nonagricultural activities, there is an increase in the share of older age groups in the total agricultural population; i.e., there exists the process of an aging population involved in agricultural production.

Thus, for example, in 1971 the average age of the total agricultural population in the Republic was 28.7 years and that of the active agricultural population was 37.1 years. According to the 1981 Census the average age has increased to 33.8 years for the total agricultural population and to 47.8 years for the active agricultural population. The share of the agricultural population between the ages of 50–64 years increased from 17.22% in 1971 to 25.13% in 1981, and the age group of 65 and more from 7.92% to 13.35%. The results of the empirical research of the age of the head of the household are the following:

**Table 3.9: Age structure of the head of household by regions (%)**

Regions	<27	28–49	50–59	60–64	>65
<b>1.Mediterranean</b>	0.6	39.2	29.0	16.7	14.5
<b>2.Pelagonian</b>	0.7	15.6	24.5	18.4	40.8
<b>3.Western</b>	-	23.5	24.2	17.1	35.2
<b>4.Skopje/Kumanovo</b>	0.6	22.9	26.5	14.7	35.3

Source: PALTAP, 1995.

The data shown in Table 3.9 indicate the age structure of a head of a household in different natural and socioeconomic environments, revealing varying age structures. For private farm households in the Mediterranean region, the age structure of heads of household is considerably different from that of the other three regions, in that more private farms are managed by younger people. At the other extreme, two-fifths of farms in the Pelagonian region are managed by people over 65 years of age.

In all activities involved with agricultural production, the education of the labor force is one of the essential factors conducive to intensive and rational production. It is clear that illiterate farmers cannot get a driver's license for a tractor and cannot read the instructions for the application of insecticides or pesticides in agricultural production. They cannot use the popular literature for introduction of modern technological methods in crop and livestock production. According to the 1981 census of population in Republic of Macedonia, the share of noneducated population and the population that had not finished primary school was more than 75%. In the 1995 sample survey, the results on education level of farm household heads are the following:

**Table 3.10: Level of education of the head of the household**

Region	Total	Illiterate	4th grade	8th grade	High school	University
<b>Mediterranean</b>	100.0	2.4	18.1	48.4	26.8	4.2
<b>Pelagonian</b>	100.0	3.4	13.7	63.0	18.5	1.4
<b>Western</b>	100.0	8.2	16.4	53.3	18.1	4.1
<b>Skopje-Kumanovo</b>	100.0	4.2	9.5	62.5	21.4	2.4

Source: 1995 PALTAP.

The data reveal that in general the educational attainment of heads of household in the 1995 survey is somewhat better than that of the total agricultural population in 1981: a larger percentage of the interviewed population had completed primary school. From the data we can see that the educational attainment of heads of household is especially satisfactory in the Mediterranean region.

The attitude of the agricultural population toward land fragmentation is a significant indicator of the land tenure situation. For the question, “Is the land in your opinion too fragmented?”, we received the following answers:

**Table 3.11: Land too fragmented?**

Region	Total	Yes	No
Mediterranean	100.0	90.2	9.8
Pelagonian	100.0	78.1	21.9
Western	100.0	82.8	17.2
Skopje-Kumanovo	100.0	79.2	20.8

Source: PALTAP, 1995.

Overall, the answer of the majority of the private farmers is: “The land is too fragmented.” This opinion is most evident in the Mediterranean region (90.2%). Differences in attitudes and evaluation to the given question appear to be related to the age of the head of household. Referring to the age of the head of household, fewer older people than younger ones in the interviewed sample declared that the land is very fragmented. By contrast, there is no such variation in opinions about fragmentation according to level of education.

A follow-up question was asked to establish the farmers’ opinions concerning land consolidation. The question was: “Do you want to consolidate your land in order to have a smaller number of parcels?” The general answers to this question are shown in Table 3.12.

**Table 3.12: Interest in consolidation**

<b>Region</b>	<b>Total</b>	<b>Yes</b>	<b>No</b>
Mediterranean	100.0	85.9	14.1
Pelagonian	100.0	84.7	15.3
Western	100.0	83.8	16.2
Skopje-Kumanovo	100.0	72.3	27.7

Source: PALTAP, 1995.

The opinion of the large majority of those interviewed is that the land should be consolidated. Differences in the answers to this question appear to depend on the age of the head of the household and the level of education. There is a smaller number of positive answers for consolidation of the parcels among older farmers and those with lower levels of education.

Respondents were then asked whether the government should have an active program to promote consolidation. For the question: “Would you support a consolidation program initiated by the government?”, we obtained the following distribution of answers:

**Table 3.13: Support for government initiated consolidation**

<b>Regions</b>	<b>Yes</b>	<b>No</b>
1.) Mediterranean	85.3	14.7
2.) Pelagonian	73.6	26.4
3.) Western	66.9	33.1
4.) Skopje-Kumanovo	67.9	32.1

Source: PALTAP, 1995.

Table 3.13 shows that the majority of household heads included in the survey would give their support to a program for land consolidation prepared by the government. There is some regional variation, with those from the Mediterranean region giving the greatest support to such a program (85.3%). It is believed that the high overall level of support for government initiative is determined by the fact that the government has always been the source of such initiatives to restructure or reorganize the agricultural sector. That is to say, despite market conditions, farmers are still dependent on the government for information and incentives.

The age of the head of household is a significant determinant of attitudes toward such programs: almost 100% of the younger household members are in favor of a consolidation program prepared by the government. Similarly, a majority of all educational groups supported government-sponsored consolidation, but 100% of those with university education do.

The following empirical results examine the conditions of land tenure in more detail.

## **D. LAND ACQUISITION IN THE REPUBLIC OF MACEDONIA**

### **1. Inheritance**

Land acquisition strategy in Macedonia is dominated by inheritance, although land is also acquired through gift, purchase, lease, trade, and the granting of use rights. Land acquisition by gift is a common means of receiving title to land in the Mediterranean and Western regions, although the majority of the land that was received as a gift came from the father—implying that this type of land acquisition may be considered a form of inheritance. In several cases, inherited land is purchased. In all regions and most farm size groups, the average parcel size that is inherited is smaller than the average parcel size that is purchased or leased. This evidence supports the claims that inheritance practices are the primary contributing cause to the high degree of fragmentation in Macedonia, although this relationship has not been empirically tested here. Inheritance is known to divide an agricultural holding, although it should not be assumed to imply the actual division of individual parcels. In practice, some parcels continue to be subdivided because of variations in quality and location.

The descriptive data, combined with field experiences and case studies, suggest that inheritance is an institution that can both determine farm size and structure while providing a flexible means of distributing land and employment opportunities in an economically and socially acceptable manner. For example, land that is inherited equally amongst family members may be redistributed through gift, purchase, lease, trade, or the granting of use rights. Also, joint management of farms is a documented method of reducing the effects of inheritance practices on the fragmentation of agricultural land. Joint management of farms was most common in the Western region, with 11.3% of farms operated in this manner. Jointly managed operations accounted for 4.3% of farms in the Mediterranean region, 6.8% in the Pelagonian region, and 7.6% of farms in the Skopje-Kumanovo region. The land acquisition strategies, according to region and farm size, are presented in the following tables.

**Table 3.14: Land acquisition strategies by farm size**

<b>3.14a Mediterranean region</b>							
<b>Farm structure by size</b>	<b>No. of farms</b>	<b>% of operation inherited<sup>1</sup></b>	<b>Mean inherited plot size</b>	<b>% of operation purchased</b>	<b>Mean purchased plot size</b>	<b>% of operation leased</b>	<b>Mean leased plot size</b>
< 1 ha	85	(64%)	0.166	(18%)	0.199	(16%)	0.291
1.0–2.0ha	81	(78%)	0.210	(10%)	0.244	(6%)	0.316
2.01–5.0 ha	112	(73%)	0.257	(13%)	0.320	(4%)	0.318
>5 ha	28	(67%)	0.541	(22%)	0.339	(6%)	0.604
<b>TOTAL<sup>2</sup></b>	<b>306</b>	<b>70%</b>	<b>0.229 ha</b>	<b>15%</b>	<b>0.250 ha</b>	<b>6%</b>	<b>0.351 ha</b>

<sup>1</sup> In the Mediterranean region, the acquisition of land by “gift” also accounts for 5% of the land acquired across all size categories. (All percentages do not total 100% as land acquired by gift is not included in the tables.)

<sup>2</sup> All totals are weighted averages according to the population distribution across farm sizes.

<b>3.14b Pelagonian region</b>							
<b>Farm structure by size</b>	<b>No. of farms</b>	<b>% of operation inherited</b>	<b>Mean inherited plot size</b>	<b>% of operation purchased</b>	<b>Mean purchased plot size</b>	<b>% of operation leased</b>	<b>Mean leased plot size</b>
< 1 ha	23	(66%)	0.196	(15%)	0.164	(15%)	0.383
1.0–2.0ha	39	(84%)	0.255	(9%)	0.397	(7%)	0.417
2.01–5.0 ha	60	(89%)	0.280	(9%)	0.329	(1%)	0.326
>5 ha	26	(77%)	0.385	(9%)	0.774	(14%)	0.907
<b>TOTAL</b>	<b>148</b>	<b>78%</b>	<b>0.262 ha</b>	<b>11%</b>	<b>0.381 ha</b>	<b>9%</b>	<b>0.455 ha</b>

<b>1.14c Western region</b>							
<b>Farm structure by size</b>	<b>No. of farms</b>	<b>% of operation inherited<sup>3</sup></b>	<b>Mean inherited plot size</b>	<b>% of operation purchased</b>	<b>Mean purchased plot size</b>	<b>% of operation leased</b>	<b>Mean leased plot size</b>
< 1 ha	31	(72%)	0.162	(24%)	0.214	(4%)	0.165
1.0–2.0ha	52	(84%)	0.224	(11%)	0.240	(5%)	0.458
2.01–5.0 ha	43	(75%)	0.369	(19%)	0.509	(2%)	0.290
>5 ha	5	(74%)	0.677	(21%)	0.667	(4%)	0.600
<b>TOTAL</b>	<b>131</b>	<b>77%</b>	<b>0.257</b>	<b>18%</b>	<b>0.313</b>	<b>4%</b>	<b>0.325</b>

<sup>3</sup>In the Western region, land acquired by “gift” also accounts for 2% of all land acquired.

<b>Table 3.14d Skopje-Kumanovo region</b>							
<b>Farm structure by size</b>	<b>No. of farms</b>	<b>% of operation inherited</b>	<b>Mean inherited plot size</b>	<b>% of operation purchased</b>	<b>Mean purchased plot size</b>	<b>% of operation leased</b>	<b>Mean leased plot size</b>
< 1 ha	32	(94%)	0.173	(5%)	-	(1%)	-
1.0–2.0ha	50	(87%)	0.252	(10%)	0.468	(3%)	0.383
2.01–5.0 ha	62	(92%)	0.456	(5%)	0.710	(1%)	0.490
>5 ha	24	(71%)	0.818	(21%)	1.530	(8%)	1.444
<b>TOTAL</b>	<b>168</b>	<b>89%</b>	<b>0.356</b>	<b>8%</b>	<b>0.744</b>	<b>3%</b>	<b>0.599</b>

## **2. Purchase**

In general, the purchasing of land is most prevalent among the largest group of farms (over 5 ha), although the smallest farms (less than 1 ha) have also acquired up to 24% of their land by purchase (see above tables). The purchasing of land is most common in the Mediterranean and Western regions where 15% and 18% (respectively) of the total amount of land in each region is acquired by purchase. As mentioned, the total weighted average size of purchased parcels is larger than that of inherited parcels in every region. Also, without exception, the average size of purchased parcels is largest amongst the group of farms operating with over 5 hectares. As the average size of purchased parcels is greater than the average parcel size of the original holding, the purchasing of land has *partially* reduced the rate of fragmentation in Macedonia. (This entire effect is offset by the addition of a new parcel to the holding.) The majority of purchases of

agricultural land are made from other farmers, although in the Western region, 29% of the purchase transactions were made with the father.

These purchases are also distributed over time, with recorded purchases from the sample dating back to 1936. The purchasing of land in Macedonia has been quite frequent during certain periods of time. Notably, however, the purchasing of land has considerably declined in recent years. Considering the difficulties faced by the private agricultural sector, this reduction in purchases may be attributable to a lack of interest in investing in agriculture and not necessarily a failure of the land market. The land market in Macedonia will be given more consideration below.

### **3. Leasing**

Leasing accounts for only 3% to 9% of agricultural land acquired as part of the farm operation in the four regions, although leasing is still a significant form of acquisition for all categories of household. As with purchased land, the average parcel size of leased land is greater than that of inherited land, with the group of farmers operating with more than 5 hectares leasing in the largest parcels. Leasing is most common in the Mediterranean and Pelagonian regions, with 25% and 22% of all farmers leasing in land. The leasing of land can also be examined over time. Long-term leasing is relatively rare, as the majority of leasing arrangements recorded from the sample were initiated in 1995. This suggests the prevalence of year-to-year leasing, although time series data are not available to investigate this possibility in greater detail. Most of these leases are arranged by form of contract, some of which are informal in nature and include oral agreements. In all of the regions surveyed, land was most frequently leased from other farmers. In the Mediterranean, Pelagonian, and Skopje-Kumanovo regions, slightly more than 10% of leased land was leased from an *agrokombinat*. In the Western region, no land was reported to have been leased from an *agrokombinat*. Despite the small area of land leased relative to the farm operation size, and the short-term nature of leases, roughly 50% of farmers in all regions are interested in leasing more land. The constraint most frequently cited which inhibited farmers' ability to lease land was access to credit. The lack of land was cited as a constraint among a small percentage of farmers, although other information indicates the possibility of land shortages amongst private farmers in certain regions. This possibility and information on land use will be discussed further below.

## **E. THE MARKET FOR LAND**

### **1. General characteristics**

Due to the private ownership of agricultural land, land transactions are facilitated to a certain degree. The data regarding the purchase and lease of agricultural land in the four sampled regions in Macedonia suggest that a land market does exist; however, activity is relatively unstable. Purchases have declined sharply over the past several years, and long-term leasing is relatively rare. Pending private claims to socially owned agricultural land, lack of credit and difficult political and marketing conditions are all possible contributing factors to the low interest in land-type investments. Current legislation and legal processes also make the sale and purchase of land



somewhat complex. Transactions costs, as a result, are reported to be quite high as the procedures for selling and purchasing land usually require a lawyer and involve approval from numerous agents. According to existing regulations, an individual interested in selling land must first, usually through a lawyer, obtain the following documentation:

- contract for purchase to register the contract;
- certificate from the cooperative and/or *agrokombinat* in the cadastral area stating that it is not interested in purchasing the land;
- statements from the owners of neighboring plots, stating that they are not interested in purchasing the land;
- certificate from the Municipal Office of the Ministry of Civil Engineering, stating that the land is not part of construction land; and
- certificate from the Municipal Office of the Ministry of Finance stating that the land has not been nationalized.

The legal aspects of the land tenure situation in Macedonia are discussed in greater detail in Chapter 2 of this report.

## **2. Prices**

At the time of the writing of this report, the prices of purchased agricultural land have not been converted to reflect current values. Due to the introduction of new currency in Macedonia in 1992, inflation, and the use of foreign currencies, the standardization of these prices is somewhat complicated. An initial examination of the price data, however, reveals that there appear to be great variations in agricultural land prices across regions. This variation in price is believed to be the result of the relative scarcity of land across micro-regions, the source of the land, land quality factors including irrigation, and micro-regional access to market opportunities. These hypotheses need to be followed up in more detail, perhaps from a larger sample. Rental prices are easier to evaluate as the majority of the transactions are current. Average rental prices for agricultural land in the four regions are presented below. These figures should be interpreted only as rough guidelines due to the low number of transactions recorded. Some rental prices are also paid in kind by a pre-determined percentage of the crop yield.

**Table 3.15: Average prices of rented land, DM/dekar**

	<b>Mediterranean</b>	<b>Pelagonian</b>	<b>Western</b>	<b>Skopje-Kumanovo</b>
DM/dekar	46.43	26.37	58.0	41.88
Transactions*	106 (6%)	52 (9%)	16 (4%)	16 (3%)

\* These are parcel-level transactions, and only represent 3–9% of total land acquired in the four regions.

## **F. LAND USE**

Private agricultural land use in Macedonia is dominated by the production of grains in all regions. Wheat is the predominant grain cultivated, followed by barley, corn, rye, and rice. Land use is highly dependent on market opportunities despite the lack of information required to make important crop planning decisions. As a result, according to MAFWE in their January 1996 report, “Strategy for the Development of Agriculture, Forestry and Water Economy in Macedonia,” there is overproduction in both grains and vegetables, with farmers unable to market the excess production. Land use according to crop type is summarized in Table 3.15 for the four regions in the sample. There is little variation between “% of land” and “% of parcels” allocated to a specific crop because of the uniformity in parcel size across types of land use. If the percentage of land is greater than the percent of parcels for a particular crop, it is implied, on average, that the larger parcels are used for that crop.

**Table 3.16: Land use by crop for the sample population according to the percentage of land area and percentage of parcels**

<b>Region</b>	<b>Mediterranean</b>		<b>Pelagonian</b>		<b>Western</b>		<b>Skopje-Kumanovo</b>	
<b>Type of Land Use</b>	<b>% of Land</b>	<b>% of Parcels</b>	<b>% of Land</b>	<b>% of Parcels</b>	<b>% of Land</b>	<b>% of Parcels</b>	<b>% of Land</b>	<b>% of Parcels</b>
Grains	64.4	65.1	70.7	65.0	52.9	44.5	62.2	56.9
Vegetables	7.6	8.6	5.9	8.3	4.7	6.1	10.3	16.3
Meadows	1.2	1.1	7.9	10.7	17.7	23.8	2.3	4.4
Pasture	3.3	2.3	1.0	1.3	4.4	5.9	0.5	1.2
Fodder crops	2.9	3.9	0.8	1.1	8.6	6.3	6.1	8.0
Orchards	2.2	2.2	2.9	2.6	0.8	1.4	0.9	1.3
Vineyards	8.0	7.1	0.4	1.0	1.0	0.9	1.3	4.0
Indust. crops	1.5	1.0	0.2	0.2	-	-	1.0	0.6
Forest	1.5	0.7	0.2	0.6	1.5	1.7	2.0	2.6
Uncultivated	5.3	5.4	6.4	8.7	4.0	5.8	3.4	4.8
<b>TOTALS<sup>1</sup></b>	<b>97.9</b>	<b>97.4</b>	<b>96.4</b>	<b>99.5</b>	<b>95.6</b>	<b>96.4</b>	<b>90.0</b>	<b>100</b>

<sup>1</sup> Totals do not equal 100% because of land allocated to the house and yard, and due to the existence of missing values for the land use variable.

## 1. Uncultivated land

According to the average of the sample, no more than 5% of the agricultural land in the private sector is left uncultivated. While fallowing the land is a common agricultural practice, other reasons for not cultivating the land cited by the respondents include low revenues from agricultural production and the poor quality or fertility of the land. Old age and the lack of interest of the younger generation in farming are also contributing factors to existing levels of uncultivated land. Still, the amount of land left fallow in the private sector is much less than that from the sample of the socially owned operations where an average of 24% of the land was uncultivated. Outside of the sample, however, exist numerous abandoned or semi-occupied villages where large amounts of privately owned land are left uncultivated. Contributing factors to this phenomenon

include lack of infrastructure, lack of capital to fund improvements,<sup>13</sup> the out-migration of the younger generations, and an aging population. Poor market conditions exacerbate the situation.

## 2. Land use of leased and purchased agricultural land

In all four regions, land which has been purchased and is thus a permanent component of the agricultural operation shows similarly diverse patterns of land use as presented in the above table. Land use of leased land, however, reveals a concentration toward cash crops—those crops which provide the highest potential of monetary return. Table 3.17 presents the type of land use for rented parcels. Again, the type of land use is dependent on perceived market opportunities, which will be discussed further below.

**Table 3.17: Land use by crop for rented land in the private agricultural sector**

<b>Region</b>	<b>Mediterranean</b>		<b>Pelagonian</b>		<b>Western</b>		<b>Skopje-Kumanovo</b>	
<b>Type of land use</b>	<b>% of land</b>	<b>% of parcels</b>	<b>% of land</b>	<b>% of parcels</b>	<b>% of land</b>	<b>% of parcels</b>	<b>% of land</b>	<b>% of parcels</b>
Grains	75.7	78.2	92.0	81.2	78.0	83.2	74.2	52.3
Vegetables	16.5	12.6	4.4	12.5	3.1	5.6	11.0	19.0
Vineyards	3.6	4.2	-	-	-	-	-	-
Meadows	1.6	0.8	1.2	2.0	9.4	5.6	2.8	4.8
Indust. crops	1.7	2.5	2.3	4.1	-	-	2.3	4.8
Fodder crops	0.5	0.8	-	-	9.4	5.6	6.8	14.3
Orchards	0.1	0.8	-	-	-	-	2.8	4.8
<b>TOTALS</b>	<b>99.7%</b>	<b>99.9%</b>	<b>99.9%</b>	<b>99.8%</b>	<b>99.9%</b>	<b>100%</b>	<b>99.9%</b>	<b>100%</b>

## G. PATTERNS OF PRODUCTION IN MACEDONIA'S PRIVATE FARM ECONOMY

### 1. Orientation of production

Of the four regions sampled, the Western region has the lowest percentage of land under the cultivation of grains (52.9%) as alfalfa and other fodder crops combine to account for 30.5% of land use in that region. The most commonly cultivated grain in the Western region is corn, again

<sup>13</sup> In certain villages, farmers reported to have lost their livestock during the collectivization process and the formation of cooperatives. Although they regained their land, they reportedly have been unable to reaccumulate capital in the form of livestock .

signifying the importance of fodder crops in this region. In the other regions, wheat is the most substantial grain that is cultivated, although in the Pelagonian and Skopje-Kumanovo regions, barley and corn production are also important. In the Mediterranean region, land use for vineyards and vegetables follows land use for grains in terms of the percentage of land used. As such, the Mediterranean region has the highest percentage of farmers engaged in the production of grapes and a wide variety of vegetables (including early vegetables). In the Skopje-Kumanovo region, land use for vegetables is most significant following grains, in terms of land use. The Skopje-Kumanovo region also produces a significant amount of alfalfa and other fodder crops. Frequency of crop-specific cultivation is presented below.

**Table 3.18: Percentage of farmers cultivating specific crops by region**

<b>CROP</b>	<b>Mediterranean</b>	<b>Pelagonian</b>	<b>Western</b>	<b>Skopje-Kumanovo</b>
WHEAT	66%	80%	73%	85%
CORN	35%	17%	93%	65%
BARLEY	32%	31%	2%	44%
RICE	7%	0%	0%	0%
TOMATO	20%	24%	2%	6%
GRAPES	31%	4%	0%	17%
ALFALFA	9%	4%	21%	13%

What uses are made of the output of these crops? Tables 3.19, 3.20, and 3.21 below illustrate some interesting variation among crops, farm size strata, and regions. From Table 3.19, observe the direct relationship between farm size stratum and percent of wheat sold on the market (and, conversely, the inverse relationship between farm size stratum and percent of crop consumed by the farm family). The difference in percent of wheat sold between the farms under 1 hectare and the farms over 5 hectares is most pronounced in the Western region where the smallest farms market only 2% of output while the largest farms market 60%. The gap is least pronounced in the Skopje/Kumanovo sample. In addition to market and consumption, up to one-third of the wheat produced is destined for animal fodder while approximately 5% is kept for seeding in the following season. Tomato is also produced significantly for the market, especially in the Mediterranean and Skopje/Kumanovo regions. The same pattern prevails with respect to farm size—the bigger the farm size stratum, the more “market-oriented” the farm production. The column labeled “other” is of interest in Table 3.20 particularly. This category captures overproduction or waste crop which was not used for any purpose.

**Table 3.19: Uses of production by farm size for wheat (weighted regional averages)**

<b>Mediterranean region-wheat</b>						
<b>Size</b>	<b>Sold</b>	<b>Seed</b>	<b>Fodder</b>	<b>Domestic consumption</b>	<b>Storage</b>	<b>Other</b>
< 1 ha.	11.1%	4.6%	35.8%	49.3%	0.0%	0.0%
1–2 ha.	22.9%	4.0%	20.1%	50.8%	1.0%	1.3%
2.01–5 ha	32.8%	5.5%	14.1%	42.8%	1.6%	3.2%
> 5 ha.	42.4%	6.3%	21.5%	24.4%	0.3%	5.2%
Entire pop.	24.1%	4.9%	23.4%	45.4%	0.8%	1.5%
<b>Pelagonian Region – Wheat</b>						
<b>Size</b>	<b>Sold</b>	<b>Seed</b>	<b>Fodder</b>	<b>Domestic consumption</b>	<b>Storage</b>	<b>Other</b>
< 1 ha.	19.6%	5.0%	33.0%	38.7%	3.6%	0.0%
1–2 ha.	43.9%	5.4%	27.7%	21.4%	1.0%	0.6%
2.01–5 ha	46.4%	9.4%	20.4%	15.9%	5.8%	2.1%
> 5 ha.	65.4%	3.4%	16.7%	11.2%	1.1%	2.1%
Entire pop.	42.3%	6.3%	24.5%	21.9%	3.2%	1.8%
<b>Western Region – Wheat</b>						
<b>Size</b>	<b>Sold</b>	<b>Seed</b>	<b>Fodder</b>	<b>Domestic consumption</b>	<b>Storage</b>	<b>Other</b>
< 1 ha.	2.1%	6.5%	33.7%	57.7%	0.0%	0.0%
1–2 ha.	6.7%	2.6%	9.6%	78.3%	2.7%	0.0%
2.01–5 ha	21.6%	6.2%	16.6%	50.5%	4.1%	0.9%
> 5 ha.	59.6%	0.0%	23.8%	14.7%	0.0%	1.9%
Entire pop.	11.1%	4.8%	19.3%	62.2%	2.3%	0.3%
<b>Skopje/ Kumanovo-Wheat</b>						
<b>Size</b>	<b>Sold</b>	<b>Seed</b>	<b>Fodder</b>	<b>Domestic consumption</b>	<b>Storage</b>	<b>Other</b>
< 1 ha.	9.5%	3.4%	5.2%	78.8%	3.2%	0.0%
1–2 ha.	29.3%	3.2%	3.2%	62.3%	2.1%	0.0%
2.01–5 ha	34.9%	3.9%	2.7%	55.7%	0.0%	2.8%
> 5 ha.	33.5%	3.7%	15.1%	47.7%	0.0%	0.0%
Entire pop.	26.2%	3.5%	4.8%	63.1%	1.5%	0.9%

**Table 3.20: Uses of production by farm size for corn (weighted regional averages)**

<b>Mediterranean-Corn</b>						
<b>Size</b>	<b>Sold</b>	<b>Seed</b>	<b>Fodder</b>	<b>Domestic consumption</b>	<b>Storage</b>	<b>Other</b>
< 1 ha.	8.00%	0.90%	87.70%	3.40%	0.00%	0.00%
1–2 ha.	0.00%	3.20%	91.40%	5.10%	0.00%	0.30%
2.01–5 ha	3.40%	3.60%	82.70%	5.40%	0.00%	5.00%
> 5 ha.	18.20%	0.40%	63.60%	8.50%	0.30%	9.10%
Entire pop.	5.10%	2.30%	85.50%	4.80%	0.00%	2.20%
<b>Pelagonian-Corn</b>						
<b>Size</b>	<b>Sold</b>	<b>Seed</b>	<b>Fodder</b>	<b>Domestic consumption</b>	<b>Storage</b>	<b>Other</b>
< 1 ha.	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%
1–2 ha.	0.00%	0.00%	100.00%	0.00%	0.00%	0.00%
2.01–5 ha	3.10%	3.10%	87.50%	0.00%	0.00%	6.20%
> 5 ha.	0.00%	2.80%	91.70%	5.60%	0.00%	0.00%
Entire pop.	1.20%	1.90%	93.00%	1.50%	0.00%	2.40%
<b>Western-Corn</b>						
<b>Size</b>	<b>Sold</b>	<b>Seed</b>	<b>Fodder</b>	<b>Domestic consumption</b>	<b>Storage</b>	<b>Other</b>
< 1 ha.	0.50%	0.90%	78.30%	12.40%	1.80%	6.10%
1–2 ha.	2.20%	0.80%	80.70%	15.30%	0.90%	0.00%
2.01–5 ha	7.10%	1.30%	73.60%	15.30%	2.80%	0.00%
> 5 ha.	6.30%	0.60%	89.00%	4.20%	0.00%	0.00%
Entire pop.	2.90%	1.00%	78.30%	14.10%	1.60%	2.20%
<b>Skopje\Kumanovo-Corn</b>						
<b>Size</b>	<b>Sold</b>	<b>Seed</b>	<b>Fodder</b>	<b>Domestic consump.</b>	<b>Storage</b>	<b>Other</b>
<1ha.	0.00%	0.00%	91.48%	7.29%	0.30%	0.93%
1–2 ha.	0.32%	0.00%	88%	3.70%	4.84%	2.91%
2.01–5 ha.	11.45%	0.51%	88%	0.42%	0.00%	0.00%
>5 ha.	6.81%	0.00%	89.89%	3.30%	0.00%	0.00%
Entire pop.	4.35%	0.15%	89.25%	3.97%	1.40%	0.88%

**Table 3.21: Uses of production by farm size for tomatoes (weighted regional averages)**

<b>Mediterranean-Tomatoes</b>						
<b>Size</b>	<b>Sold</b>	<b>Seed</b>	<b>Fodder</b>	<b>Domestic consump.</b>	<b>Storage</b>	<b>Other</b>
< 1 ha.	51.0%	0.0%	1.2%	40.0%	0.0%	7.8%
1–2 ha.	58.8%	0.0%	0.0%	31.2%	0.0%	10.1%
2.01–5 ha	48.2%	0.0%	0.0%	42.3%	0.0%	9.5%
> 5 ha.	71.4%	0.0%	0.0%	28.6%	0.0%	0.0%
Entire pop.	53.7%	0.0%	4.6%	37.3%	0.0%	4.4%
<b>Pelagonian-Tomatoes</b>						
<b>Size</b>	<b>Sold</b>	<b>Seed</b>	<b>Fodder</b>	<b>Domestic consump.</b>	<b>Storage</b>	<b>Other</b>
< 1 ha.	20.0%	0.0%	0.0%	80.0%	0.0%	0.0%
1–2 ha.	18.1%	1.4%	1.4%	76.6%	0.0%	2.6%
2.01–5 ha	27.3%	0.0%	0.0%	70.0%	0.0%	2.7%
> 5 ha.	68.2%	0.0%	0.0%	31.8%	0.0%	0.0%
Entire Population	32.0%	0.3%	0.3%	65.7%	0.0%	1.6%
<b>Western-Tomatoes</b>						
<b>Size</b>	<b>Sold</b>	<b>Seed</b>	<b>Fodder</b>	<b>Domestic consump.</b>	<b>Storage</b>	<b>Other</b>
< 1 ha.	6.7%	0.0%	0.0%	73.3%	0.0%	20.0%
1–2 ha.	12.5%	0.0%	0.0%	87.5%	0.0%	0.0%
2.01–5 ha	0.0%	0.0%	0.0%	100.0%	0.0%	0.0%
> 5 ha.	na	na	na	na	na	na
Entire pop.	8.2%	0.0%	0.0%	79.7%	0.0%	12.2%
<b>Skopje\Kumanovo-Tomatoes</b>						
<b>Size</b>	<b>Sold</b>	<b>Seed</b>	<b>Fodder</b>	<b>Domestic consump.</b>	<b>Storage</b>	<b>Other</b>
< 1 ha.	50%	0%	0%	50%	0%	0%
1–2 ha.	85%	0%	0%	15%	0%	0%
2.01–5 ha.	50%	0%	0%	50%	0%	0%
> 5 ha.	100%	0%	0%	0%	0%	0%
Entire pop.	73.37%	0%	0%	26.63%	0%	0.00%



Although no tables have yet been constructed for other vegetable crops, our impression from the field work is that there was a notable amount of waste, suggesting a gap between market and producer. For corn, barley, and alfalfa the predominant use in all regions and farm size categories is for animal fodder. Small fractions of corn and barley are marketed by the larger farms in the sample, while no alfalfa is marketed.

## 2. Productivity<sup>14</sup>

Table 3.22 presents the average productivity of land for the principal crops listed in Table 3.18. These yields reflect a high intensity of land use, e.g., relatively high yields of wheat, and regional agroclimatic differences, e.g., variation in tomato yields. There are no significant variations in yields across the range of farm sizes in our sample. Further discussion of the relative productivity of land will be presented in Chapter 5, which compares the social sector farms with the private sector farms.

**Table 3.22: Output per hectare in kilograms, 1995 (weighted average)**

<b>Crop</b>	<b>Mediterranean</b>	<b>Pelagonian</b>	<b>Western</b>	<b>Skopje-Kumanovo</b>
<b>Wheat</b>	3,153 n= 200	3,412 n= 109	3,176 n=90	3,155 n=141
<b>Corn</b>	4,139 n=125	5,604 n=26	3,554 n=108	3,812 n=104
<b>Barley</b>	2,538 n=119	3,138 n=48	0 n=0	3,079 n=75
<b>Rice</b>	5,843 n=14	0 n=0	0 n=0	0 n=0
<b>Tomato</b>	29,159 n=96	22,111 n=30	2,505 n=10	10,838 n=13
<b>Wine</b>	10,571	0	0	0
<b>Grapes</b>	n=108	n=0	n=0	n=0
<b>Alfalfa</b>	5,611 n=48	4,374 n=13	4,661 n=42	5,548 n=33

<sup>14</sup> The figures presented in this section are the sample-wide average ratios rather than the simple means of individual farm ratio values.

Table 3.23 presents the intensity of input use per hectare for wheat production. Wheat is chosen as an example because it is grown by the majority of the farmers. (Time constraints limit us to this example only; however, the data are sufficient to allow us to construct these tables for the rest of the crops discussed above at a later date.) The mixture of modern and traditional approaches to farming is apparent to the casual observer in the Macedonian countryside. Thus, it is not surprising that the data show family labor and commercial inputs being used intensively. Across the sample, hired labor is only between 5% (Western region) and 25% (Pelagonian region). Yet, the vast majority of the farmers apply chemical fertilizers and pesticides and use purchased seed. Also, the data suggest a high intensity of machine use relative to the size of parcels. This is partially a manifestation of fragmented farms as the figures presented include use of tractors as means of transportation. The intensity of land use is substantially greater in the Western region than in other regions. Table 3.24 indicates that approximately half of all the farmers in the sample have some type of tractor (the tractor/farmer ratio is 0.55 on average across the sample), that the sector is equipped with assorted other types of farm machinery, and that access to mechanization is spread via an active rental market. Combining the data on the number of tractors owned by the sample to the number of hectares which these farmers cultivate suggests that there are between 2.5 and 4 hectares per tractor. Finally, Table 3.25 presents a preliminary financial analysis of the production of wheat in the sample. These data must be used for illustration only as there are a number of issues which make such financial calculations difficult. First, it is known that there is a substantial barter economy underneath the “market” in Macedonia, so that produce is often exchanged for refined product (e.g., flour) or for chemical inputs. Second, it is always difficult to determine which wage should be used to value the work of nonremunerated family labor, and some peculiarities of our data collection efforts renders it difficult to derive a wage rate from the stated costs of labor which include field labor as well as payments for tractor services. We have, for the time being, used a market wage rate determined through personal conversation with only a few farmers. This rate is 500 denars per day plus breakfast and lunch, or approximately 63 denars/hour + food. (Our social sector data, which will be presented later, suggest that permanent employees earn 85 denars per hour for agricultural labor activities and seasonal employees earn 40 denars per hour.) Therefore, we have presented total costs and profits per hectare both with and without the imputed value of family labor. Caveats considered, our data suggest that wheat is a profitable endeavor despite the small parcel sizes on which it is cultivated. There are some size-related patterns of interest which appear when the data in both Table 3.23 and Table 3.25 are disaggregated by farm size. For example, in both the Pelagonian and the Mediterranean region, the number of hours worked by the farm household head increases significantly with size of farm. This may be suggestive of a difference in “seriousness” of the farming operation (full-time versus part-time). Also, in several instances, the ratio of seed, fertilizer, and tractor use decreases with farm size. The combined effect is that there is a notable increase in the profit margin from the smallest category to the largest category in some of the regions. Finally, the value of land used should also be deducted from profits, but, again, in the absence of a developed land market it is not easy to assign a value to land. If one uses the rental prices listed in a previous section of the report, the profit margin is still large in the Pelagonian region, substantially decreased in the Mediterranean and Skopje/Kumanovo regions, and negative in the Western region where land prices reflect nonproductive values most strongly.

**Table 3.23: Input use and output per hectare of wheat cultivated (weighted averages)\***

	<b>Pelagonian</b>	<b>Western</b>	<b>Skopje/Kumanovo</b>	<b>Mediterranean</b>
<b>Inputs(kg/ha)</b>	n=103	n=96	n=112	n=106
<b>Seed</b>	280.8	360.2	295.1	294.3
<b>Fertilizer</b>	335.8	369.5	354.4	374.0
<b>Pesticide (liter/ha)</b>	1.9	3.9	4.2	1.4
<b>Labor hours</b>	34.2	181.6	46.7	52.4
<b>Machine hours</b>	23.9	33.4	20.9	22.8
<b>Yield</b>	3189	3318	3041	2902

**Table 3.24: Mechanization in the private farm sector**

	<b>Pelagonian</b>	<b>Western</b>	<b>Skopje-Kumanovo</b>	<b>Mediterranean</b>
<b>Number of tractors and % of farmers with at least one</b>				
<b>Tractor:</b>				
<b>up to 35KC</b>	40 27.7%	21 17.1%	38 23.6%	97 32.2%
<b>36-60KC</b>	22 15.3%	45 37%	68 42.3%	68 22.6 %
<b>&gt; 60KC</b>	3 2.1%	3 2.1%	2 4.0%	4 0.3%
<b>Combine</b>	5 .5 %	4 3.4%	6 3.8%	6 6.9%
<b>Rototiller</b>	19 13.7%	29 23.8%	42 26.4%	42 16.9%
<b>Plow</b>	56 40.7%	63 51%	88 54.3%	88 49.9%
<b>Seeder</b>	15 10.2%	2 1.9%	13 7.8%	13 3.2%
<b>Harvester</b>	5 3.8%	19 15.4%	15 9.1%	15 4.7%
<b>Miller</b>	4 3.2%	36 30.1%	28 17.4%	28 6.6%
<b>Bailer</b>	3 2.2%	0 0.0%	2 1.1%	2 0.6%
<b>Rent machinery</b>	85.5%	49.2%	80.8%	67%

**Table 3.25: Value of inputs and output by hectare of wheat cultivated (weighted averages)\***

Value of Inputs (d/ha)	Pelagonian	Western	Skopje/Kumanovo	Mediterranean
Seed	4903.0	7965.7	5817.5	4863
Fertilizer	3651.0	3942.4	4073.3	4488.3
Pesticides	666.1	1878	2339.4	2349.0
<b>Total cost/ha</b>	14327.8 <i>15995.4*</i>	18128 <i>27934</i>	15439.8 <i>17926.0</i>	13954 <i>16690</i>
<b>Total rev/ha</b>	32464	33777	30957	29542
<b>Net rev/ha</b>	19108.6 <i>17478</i>	15496 <i>5442</i>	15566 <i>13005</i>	15585 <i>12849</i>

\*Italicized values include an imputed value for nonremunerated family labor which values family labor at an average/approximate market wage rate which such labor could earn working on another private farm in the Skopje/Kumanovo area; it is consistent with the wage rate implied for field labor in our sample social enterprises. In future efforts, it will be necessary to use more precise, region-specific wage rates.

### 3. Irrigation

Information on the existence of agricultural irrigation networks was gathered at both the village and parcel level. In interviews with the village president in each village, 21 (47%) cases reported that there was *some* type of agricultural irrigation network in the village. The types of these irrigation facilities range from hand-dug wells to hand-dug canals to concrete canals. As such, the source of water also varies. In each village, a varying percentage of farmers had access to these facilities. The parcel level data on irrigation indicates varying availability of irrigation across regions as well. Irrigation fees varied according to access and the level of organization of the irrigation source. In the Western region, 50% of the land covered in the sample was irrigated, with grain crops and meadows receiving the most attention. In the Mediterranean region, 47% of the agricultural land covered in the sample was irrigated, with grains and vegetables being to most irrigated crops. Grains and vegetables are also the most commonly irrigated crops in the Pelagonian and Skopje-Kumanovo regions, where 15% and 26% of the agricultural land in the sample is irrigated, respectively. Considering the dispersion of irrigation systems and irrigation users across Macedonia, these results should not be interpreted to infer national averages.

## H. EVALUATING OF THE EXTENT AND EFFECTS OF FRAGMENTATION

### 1. Introduction

Few generalizations can be made concerning the fragmentation issue due to the heterogeneity of agricultural systems and agricultural environments. This is certainly true in the Macedonian context which is characterized by regional agroclimatic variation and high diversification of agricultural production. The extent, benefits, and costs of fragmentation need to be assessed and considered against the potential benefits and costs of consolidation efforts when formulating

agrarian strategy. A complete literature review of the fragmentation issue is presented in Appendix 6.

## **2. Fragmentation in Macedonia**

Fragmentation has been defined as the phenomenon of agricultural land distributed in undersized holdings as well as holdings that consist of noncontiguous and spatially dispersed plots of land. Both types of fragmentation exist in Macedonia. In general, farmers are operating on very smallholdings which are composed of numerous, spatially dispersed parcels.

## **3. Causes of fragmentation**

In Macedonia, the major causes of fragmentation are cited as being partial inheritance, land shortage (in certain regions), and political and historical legacy. The political and historical origins of land tenure arrangements in Macedonia are discussed in the introductory component of this report. Traditional inheritance practices of transferring property equally to all children (or at least to all sons) in each generation has, over time, divided land in Macedonia into increasingly smaller holdings. The extent to which inheritance has fragmented actual parcels is difficult to determine as the division of a holding does not necessarily imply the division of individual parcels. The Land Use Law of 1986 prohibits the subdivision of parcels under 6 *dekars*, but this provision has since been declared unconstitutional. The division of parcels continues in practice due to differences in land quality and location. The influence of inheritance on fragmentation has been reduced by the joint operation of separately inherited holdings, the redistribution of land among families by gift, lease, or purchase, and land market transactions with other farmers.

The sources of fragmentation which are somewhat influenced by historical and political legacy relate to the collectivization process and the formation of cooperative farms after World War II. During this period (described in detail in Chapter 2 and earlier in this chapter), land in excess of the 10 hectare limit to private ownership became part of the area's cooperative farm. Although this legal limit to landholdings is no longer in effect, it has made a significant impact on the size structure of family farms. The extent to which fragmentation *continues* to exist as a result of land shortage is also difficult to determine due to relatively low levels of land market activity. While the origin of fragmentation will vary and is often disputed, the advantages and disadvantages of fragmentation may be analyzed independently of the source of fragmentation (Simmons 1987).

## **4. Advantages and disadvantages of fragmentation**

### **Disadvantages:**

In the small-scale private agricultural sector in Macedonia, the most common and frequently cited disadvantages of fragmentation include increased labor costs, increased transportation time and cost, land lost to border markings and access roads, and difficulty in accessing the parcels. High levels of fragmentation also have the effect of limiting access to irrigation networks and reducing the effectiveness of mechanization. The potential public costs of fragmentation in Macedonia include low levels of production and difficulty in organizing regional agricultural strategy. For the

purposes of this report, the negative effect of fragmentation has been evaluated in terms of its effect on agricultural productivity in the small-scale private farm sector. These results are presented separately in this chapter.

### **Advantages:**

The advantages of fragmentation in Macedonia are related to the ability of farmers to disperse risk by cultivating a diverse variety of crops on numerous plots, each with distinct characteristics. The wide variety of agricultural environments and microclimates in Macedonia allows for a high diversification of production, with approximately 50 different varieties of fruits, vegetables, grains, and industrial crops being cultivated. This diversity of production is directly related to variations in agricultural microclimates, and fragmentation is a mechanism which allows farmers to benefit from these variations. For example, in Ciflik, in the municipality of Kochani, farmers are able to cultivate wheat on the north side of the village, and rice on the south side of the village where a network of irrigation canals exists. By owning parcels which are located on either side of the village, farmers are able to reduce the risk of crop failure, crop damage, and market disruptions.

In terms of crop scheduling, fragmentation allows farmers to grow a variety of crops, including crops that mature and ripen at different times. Such a form of crop scheduling allows farmers to concentrate their labor on different plots, at different times, thereby avoiding household labor bottlenecks. Farmers in Macedonia appear to benefit from these variations as nearly 90% of farmers in the sample reported that they plan their crops according to variations in parcel characteristics. Farmers interviewed have also mentioned a reduction in weather damage to crops on account of their ability to plant different (or the same) crops in different places. These advantages reduce some of the costs of fragmentation, although the additional time and costs of transportation are always present.

In addition to risk management and reduction through crop diversification, fragmentation may offer social (noneconomic) benefits. Inheritance, which is noted as being a cause of fragmentation, has social goals in addition to those of maximizing production. This is evident in the Macedonian context by the existence of civil code which allows for three types of land transfer during life: gift contract, lifetime support contract, and contract for the distribution of property during lifetime. From this perspective, inheritance does not imply fragmentation. Inheritance in all of its forms can be interpreted as an institution which allows farmers to meet the economic as well as the social goals of the agricultural system.

## **5. Degree of fragmentation**

There are six parameters used to identify the degree of fragmentation: farm size (total holdings), plot number, plot size, plot shape, spatial distribution of plots, and the size distribution of the plots. Four of these parameters were used to assess the degree of fragmentation among the private small-scale farm sector in Macedonia: farm operation size (including rented land), plot size, plot number, and distance.

## 6. Measurement of fragmentation

The index used to evaluate the extent of fragmentation in Macedonia was developed by Januszewski (1964). This index divides the square root of the total farm area by the sum of the square roots of the plot sizes. This index ranges between 0 and 1, with a value of 1 indicating a farm operation with one contiguous parcel. This index has three properties: fragmentation increases (the value of the index decreases) as the number of plots increases, fragmentation increases when the range of plot sizes is small, and fragmentation decreases when the area of large plots increases and that of small plots decreases (Burton and King 1982). This index ( $K$ ), with ( $a$ ) representing parcel size, is defined as:

$$K = \frac{\sqrt{\sum a}}{\sum \sqrt{a}}$$

For the current study, land that was rented (leased in) was included in the total farm area, and this “operational farm size” was used to calculate the fragmentation index. The degree of fragmentation is summarized in the following tables by region:

**Table 3.26: Degree of land fragmentation by farm operation size**

<b>Mediterranean region</b>							
Farm structure by size in ha	No. of farms	Mean plot size in ha	Mean no. of plots	Mean of Januszewski's fragmentation index	Mean distance to farthest parcel	Mean distance to nearest parcel	Believe land is too fragmented (% of group)
<1 ha	85	0.214	3.76	.53	2.8 km	.98 km	89%
1.01-2 ha	81	0.274	6.80	.45	3.05	.92	91
2.01-5 ha	112	0.390	11.48	.35	3.14	.60	90
>5 ha	28	0.629	13.17	.36	4.03	.44	93
<b>Totals<sup>1</sup></b>	<b>306</b>	<b>.305</b>	<b>7.16</b>	<b>.45</b>	<b>3.05</b>	<b>.83</b>	<b>90.1%</b>

<sup>1</sup> All totals are weighted averages according to the population distribution across farm sizes.

**Pelagonian region**

Farm structure by size in ha	No. of farms	Mean plot size in ha	Mean no. of plots	Mean of Januszewski's fragmentation index	Mean distance to farthest parcel	Mean distance to nearest parcel	Believe land is too fragmented (% of group)
<1 ha	23	.247	3.00	.63	1.75km	.52 km	68%
1.01-2 ha	39	.321	5.07	.48	2.06	.40	72
2.01-5 ha	60	.328	11.35	.33	2.52	.45	83
>5 ha	26	.519	16.32	.30	3.06	.53	85
<b>TOTALS</b>	<b>148</b>	<b>.329</b>	<b>7.84</b>	<b>.46</b>	<b>2.24</b>	<b>.47</b>	<b>78.2%</b>

**Western region**

Farm structure by size in ha	No. of farms	Mean plot size in ha	Mean no. of plots	Mean of Januszewski's index	Mean distance to farthest parcel	Mean distance to nearest parcel	Believe land is too fragmented (% of group)
<1 ha	31	.217	3.48	.55	2.21km	.91km	76%
1.01-2 ha	52	.273	5.60	.46	3.00	.74	88
2.01-5 ha	43	.456	7.12	.43	3.24	.85	86
>5 ha	5	1.03	8.40	.42	2.90	.27	-
<b>TOTALS</b>	<b>131</b>	<b>.328</b>	<b>5.36</b>	<b>.48</b>	<b>2.79</b>	<b>.80</b>	<b>83.2%</b>

**Skopje-Kumanovo region**

Farm structure by size in ha	No. of farms	Mean plot size in ha	Mean no. of plots	Mean of Januszewski's index	Mean distance to farthest parcel	Mean distance to nearest parcel	Believe land is too fragmented (% of group)
<1 ha	32	0.238	3.66	.59	1.73 km	.65 km	85%
1.01-2 ha	50	0.374	4.92	.53	2.78	.88	86
2.01-5 ha	62	0.777	6.66	.48	2.64	.53	77
>5 ha	24	1.281	6.58	.45	4.92	.72	61
<b>TOTALS</b>	<b>168</b>	<b>.626</b>	<b>5.55</b>	<b>.51</b>	<b>2.83</b>	<b>.69</b>	<b>79.2%</b>



Farms are categorized by size consistent with the methodology used to draw the sample. Most importantly, according to the fragmentation index, all holdings in all regions and in all ranges of farm sizes are considerably fragmented. As the Januszewski index does not account for distance, the above tables include the average distance to the farthest and nearest parcels. The evidence suggests that the distance parameter further contributes to the high degree of fragmentation as the average one-way distance to the farthest parcel is over 2 kilometers for each of the regions sampled. Farmer opinion also coincides with these results as approximately 84% of all farmers interviewed in Macedonia believe that the land is too fragmented.

The average (mean) plot size is increasing as the size of the farm operation increases, and this increase is statistically significant between most farm size groups for all of the regions. However, the level of fragmentation is also significantly increasing from the smallest to the largest holding categories across all regions. Thus, any reduction in the level of fragmentation from the increase in average parcel size for the farms over 5 hectares is offset by the addition of noncontiguous parcels to the holding. These results are important as they reveal that the largest farms, those with the highest level of agricultural output (both produced and marketed), are operating under the greatest degree of fragmentation. In the Pelagonian region, fragmentation among the largest farms is most severe; the average parcel size is just over .5 hectares with farmers operating on an average of over 16 parcels. Nonetheless, the weighted average of the fragmentation index does not vary much across regions.

## **7. Effect of fragmentation on agricultural productivity**

Strictly as a first attempt to evaluate the impact of fragmentation of production, simple correlation coefficients were estimated between the fragmentation index and yield and the per hectare costs and per hectare profits in wheat production. It is essential that further work be done to link the fragmentation to overall enterprise productivity and not just that of a single crop. In the Pelagonian and Mediterranean regions, no significant correlation was observed. In the Western region, the index of fragmentation is negatively and significantly correlated with wheat yields and per hectare production costs. In the Skopje-Kumanovo region, the index correlates significantly but positively with costs of production and negatively with profits. This could reflect the combination of the positive relation between farm size and index, on one hand, and a possible qualitative change in the package of inputs used in the larger farms.

# **I. AGRICULTURAL MARKETING**

## **1. Output markets**

In conversation, most farmers made great emphasis on the lack of a market for their agricultural output. From the entire sample, 90% of the farmers responded that the purchase of agricultural products has been irregular in recent years. For most farmers, a “market” implies organized purchases (preferably by contract) for guaranteed prices. Marketing problems cited by farmers include a lack of buyers, low prices, and late payments. In previous years, the *agrokombinats* have served as an outlet for much of the private sector production of grains, vegetables, fruits, and

industrial crops including sugar beet, tobacco, and sunflower. This relationship has deteriorated as a result of the privatization and transformation process, and current purchases are characterized by barter and late payment. Export opportunities have also suffered as the result of recent regional political events. Although the current forces of transition are expected to bring new market opportunities, most farmers appear to be operating with great uncertainty regarding their ability to market their output. Also, despite the move toward the privatization of the agricultural sector, the majority of the farmers interviewed continue to believe that the government of Macedonia should be responsible for the organization of agricultural marketing.

In the Mediterranean and Pelagonian regions, slightly over 20% of all wheat sales were made under contract with an *agrokombinat*. The majority of wheat sales in all regions were made with an *agrokombinat* without a contract. The Western region recorded the highest percentage of wheat sales on the open market and with private traders when compared to other regions. Crop sales with a contract were almost nonexistent in the Western and Skopje-Kumanovo regions with the exception of some tobacco sales in the Skopje area. Nearly all of the tobacco sales in the Mediterranean and Pelagonian regions were made under contract, although reportedly with delayed payment. The majority of vegetable production in all regions is sold on the open market, with the exception of the Pelagonian region, where just over half the tomato sales were made under contract with an *agrokombinat*.

Regardless of the type of sales transaction, the frequency of the transactions was very low for the 1995 season. For example, in the Pelagonian region, only 60% of the farmers producing wheat actually sold it on the market. In the Skopje-Kumanovo and Western regions, only 35% and 20% of producers sold wheat on the market in 1995, respectively. Sales were more infrequent for the other grains. In the Mediterranean and Skopje-Kumanovo regions, a high percentage of vegetable production was marketed, although again with few transactions recorded. The marketing of vegetables is very low in the Western region. "Specialty" crops such as watermelon and strawberries in the Mediterranean and Skopje-Kumanovo regions, although somewhat uncertain investments, are marketed highly (on the open market), by their nature.

The low level of marketing opportunities has forced most households to rely on nonagricultural sources of income, and many households produce mainly for domestic consumption. As a result, the majority of the households in the sample are considered part-time farming households by most definitions. Nonetheless, the private farms which market the highest percentage of their production seem to share characteristics which set them apart from subsistence or "hobby" farmers. These characteristics will be identified in further analysis intended to reclassify and examine household structure according to market orientation.

## **2. Input markets**

The previous relationship between the private sector and the socially owned agricultural enterprises also allowed for the provision of seed and fertilizer inputs by sale or trade, or free under production contract. Many private farmers have considered these terms to be unfavorable, and new private seed, pesticide, and fertilizer suppliers are beginning to emerge. The private traders also seem to rely on a considerable level of barter as form of payment. Accordingly, supplies and prices of key inputs continue to vary widely throughout Macedonia. A considerable

number of farmers also use a portion of their own production for seed. Natural fertilizer is also used as a substitute or a complement to chemical varieties. The following table presents the percentage of farmers receiving seed inputs from various sources.

**Table 3.27: Percentage of farmers acquiring seed inputs from various sources**

Source	Mediterranean	Pelagonian	Western	Skopje-Kumanovo
On-farm production	46.5%	52.7%	41.0%	29.3%
Socially owned enterprise	40.7	54.7	39.7	62.6
Another farmer	7.2	8.3	9.11	13.3
Other <sup>1</sup>	29.9	6.8	5.9	21.3

<sup>1</sup> Includes private trading companies, research institutes, and the extension service. Totals exceed 100% do to the possibility of multiple responses, i.e., multiple sources of seed inputs.

## J. AGRICULTURAL SERVICES

The Extension Service, which is financed by the Ministry of Agriculture, has offices at the municipal level throughout Macedonia. Cooperation between farmers and the Extension Service exists to varying degrees, as it is the responsibility of the farmer to initiate the relationship. Sources within the Extension Service report that “advanced” farmers have more contact. The primary functions of the extension service are to provide experimental seeds, information and advice concerning pest control, livestock breeding assistance, and announcements to the media concerning agricultural policy. The Extension Service is not intended to provide marketing assistance, although some crop planning assistance is provided. According to the results of the private farm sector survey, a very small percentage of farmers actively receive services from the Extension Service. In the Pelagonian region, participation is highest with 11.6% of farmers reporting having received services in 1995. Seed inputs was the most frequently cited service received followed by breeding and crop planning assistance. In the Skopje-Kumanovo region, 10.2% collaborated with the Extension Service, primarily for the provision of seed inputs. Participation was 8.6% in the Western region with services including the provision of seed inputs and breeding assistance. In the Mediterranean region, only 5.4% of farmers in the sample reported to have received any services from the Extension Service in 1995. This participation was limited to the provision of seed inputs.

## K. CONCLUSIONS

There is a lot of data presented in this text and still much more to be analyzed as a result of our efforts to conduct a comprehensive survey of small private farms, and, to thereby provide

information to feed the contemporary agrarian policy debates. Without disregard for the importance of many of the specific details discussed above, conclusions from our analysis can be packaged into three basic points:

(The policy content of these conclusions will be discussed in greater detail in Chapter 6).

- Fragmentation is not the primary constraint to private production in Macedonia and is not best addressed by regulation.
- The distinction between part-time and full-time farming (or, between consumption oriented production versus market/business oriented farming) needs to be clearly defined and public support targeted to the latter group.
- The small private farm sector is productive but suffers from lack of access to key markets.

*Fragmentation is not the primary constraint to private production in Macedonia and is not best addressed by regulation.*

While we have documented a relatively extreme degree of fragmentation, we have also demonstrated that fragmentation is not uniform in origin nor in impact. Therefore, the attempt to solve fragmentation by the use of national legislation which does not account for a variety of situations will not likely work, as it has not in the past in Macedonia. It is also important to highlight the difference between farmers' stated perceptions of fragmentation as a problem (the vast majority list fragmentation as a prime concern) and their actions toward achieving consolidation. In the absence of market imperfections and/or cultural barriers, one would expect farmers to move toward consolidation if the costs of fragmentation are so high. With the development of land markets and some form of decentralized initiative to assist in the process of reallocation of property, consolidation might occur. Also, some of the demographic trends discussed earlier, suggest that there should be a change in the land/man ratio in the farm sector within a generation, especially in the Pelagonian region but less so in the Western region.

The distinction between part-time and full-time farming (or between consumption-oriented production versus market/business-oriented farming) needs to be clearly defined and public support targeted to the latter group:

By the technical definition of part-time farming used in Macedonia, part-time farmers make up virtually the whole sector. We think that a more constructive definition can be used to distinguish "serious" farmers from gardeners and hobby farmers. The basic notion is that there seems to be a group of competitive, market-oriented farmers who might flourish as land, credit, and product market imperfection are diminished. These farmers should be the subject of government efforts to stimulate production and productivity in the agricultural sector. The large number of smaller farmers, on the other hand, which seem to cultivate primarily to help the family (extended family) economy, might not be a major concern from the perspective of agrarian policy. Note that such a statement does not deny that this group is extremely important as a safety valve during the transition (and possibly after) for dampening the impact of macroeconomic instability, in particular food price inflation and unemployment

The small private farm sector is productive but suffers from lack of access to key markets:

The capacity of the small farmers is constrained by lack of access to land, markets or marketing, and credit. The land market is not well developed due to historical legacy and to extant legal

fetters. Most farmers also have limited access to medium- and long-term credit which could be used to finance land purchase in the absence of other sources of finance such as remittances from abroad. The legal and institutional constraints to the availability of such credit are discussed at various other points in this report. Some farmers also suggest that short-term credit for working capital prevents them from entering rental contracts, but more frequently noted is the absence of an adequate supply of land for sale or lease. Finally, it is clear that market access and marketing are problematic. Farmers are not oriented toward producing as the market demands, do not have access to information that would signal them to make appropriate choices, and, like Macedonia's economy in general, suffer from the impact of political problems involved in the break-up of Yugoslavia and from the impact of irrational macroeconomic policies.

## **IV: SOCIALLY OWNED<sup>15</sup> AGRICULTURAL ENTERPRISES**

### **A. BACKGROUND**

There are over 200 socially owned enterprises which engage in agricultural production activities in all regions of the country. These farms span a wide-range of landholding sizes, with 42 having less than 50 hectares and 30 having greater than 5,000 hectares of land. These farms have been the focus of almost all the prior research efforts of the Economics Department at the Faculty of Agriculture of the University of Sts. Cyril and Methodius. Generally, this prior research reports very broad indices of productivity for specific crops and/or for specific socially owned enterprises. Therefore, the results of these studies do not yield much information that can contribute to the contemporary policy debate. The general characteristics of the socially owned farm sector as presented by the official data sources (Statistical Office and the Ministry of Agriculture) were presented earlier in this report. In this chapter, the methodology used for our investigation of a sample of socially owned enterprises and their primary production activities is detailed and the results are presented. Reflection on the context of the investigation and the analysis of the data are provided as a conclusion. Policy recommendations are built into the final chapter of this report.

### **B. SAMPLE SELECTION METHODOLOGY**

For our purposes, as delineated in the introduction to this report, ten enterprises were selected to include varying agronomic, climatic, organizational, and economic conditions. Particularly significant factors in the choice of enterprises which we analyzed were the size of the agricultural and arable area landholdings, the farm's location, crop patterns, as well as the status of the records maintained within the enterprises (such written records were used for collecting data and achieving the objectives of the research). Because access to social sector data is difficult and because of the complex and uncertain situation surrounding these enterprises currently, we chose to follow a case-study approach for a representative group of enterprises rather than using random sampling.<sup>16</sup>

Based on these criteria, we selected the following ten enterprises which are stratified into three size categories:

Small agricultural enterprises (with land area up to 1,000 hectares):

1. Limited Liability Company "Vardar"-Tetovo
2. Stockholding Company "Agroplod"-Resen
3. Stockholding Company "Malina"-Kriva Palanka

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<sup>15</sup> We continue to use this term because at the time of analysis these farms were known as such even though technically they have become state owned and will soon be privatized.

<sup>16</sup> It should be noted that a factor for selection of the enterprises was also the existence of prior contact with the enterprise via prior research or otherwise. Despite this fact, the data were objectively reported to the extent that objective data existed in the farm's records.

Medium agricultural enterprises (with land area of 1,000–5,000 hectares):

4. Agricultural enterprise “Dubrovo”-Negotino
5. AIK “Malesh”-Berovo
6. AIK “Topolchani”-Prilep
7. Agricultural Cooperative “Mosha Pijade”-Kochani

Large agricultural enterprises (with land area over 5,000 hectares):

8. AIK “Kumanovo”-Kumanovo
9. AK “Lozar”-Veles
10. AIK “Strumica”-Strumica

The location of these agricultural enterprises is determined by region. Each region has its own characteristics (described in the introductory chapter to this report) which were taken into consideration while making the choice of the representative sample.

Each enterprise was visited on multiple occasions. The first visit set the stage for implementation of the survey and to gather general enterprise descriptions. On the second visit, a detailed questionnaire regarding the enterprises land acquisition history and its 1995 land use and production activities was delivered (questionnaire forms are appended to the document). A person from the farm’s technical managerial staff was selected to provide the responses to the questions. Further visits for review and assistance in completion of the questionnaires were conducted as needed according to the case.

### **C. BRIEF DESCRIPTION OF THE SURVEYED ENTERPRISES**

The ten agricultural enterprises in the sample are dispersed over the whole territory of the Republic of Macedonia. The chosen companies differ in many characteristics (their location, size, production mix, economic results, etc.). Every company has agriculture as a substantial part of its vocation and all of them farm on public land. This section presents a very brief outline of each enterprise in the sample, highlighting some of its unique features:

1. “ZIK-D.O.O. Bardar-Brvenica.” The headquarters of this company is in the village Brvenica-Tetovo. The basic activity of the company is orchards. The company was formed in 1946 by combining three smaller agricultural firms; it started out using 250 hectares of land. Over its existence, the company had several changes of status; in the period from 1967 through the beginning of 1995, the company was managed by another company “Z.I.K Tetovo-Tetovo.” Today, the company has 261 hectares of land available, of which 70 hectares were purchased from individual farmers in the past. There are 69 workers employed in the company.
2. “Agroplod A.D.” for production, processing, marketing, and export-import. The center of the company is in Resen. Of all of the analyzed companies, this one is unique because the production of industrial food products is its biggest source of earnings. It was formed in 1967

as a new company. At that time it did not have land, but with time some other agricultural farms were merged with the company and introduced agricultural land; the company now owns 889 hectares. The company has completed the ownership transformation of the assets excluding land under the Law for Transition of Companies Working with Public Assets; it is 74.2% in private hands.

3. “A.D. Malina”-Kriva Palanka. Agricultural production and animal breeding are the basic activities of this company. It was formed in 1967 with 150 hectares of land. The enterprise’s current structure was created by the combination of three enterprises in the Kriva Palanka municipality. Today the company has 1,057 hectares of land, of which 764 were purchased from private farmers.
4. “Dubrovo”-Negotino. This an agricultural trade and production enterprise. It was formed out of the dissolution of the former “Z.I.K. Povardarie” in 1991. The company owns 2,105 hectares of land.
5. “Males”-Berovo. In spite of its unfavorable location, the primary activity of this enterprise is agricultural production. It was formed in 1969 with the approval of the administration of the Municipality of Berovo, with 50 hectares of land provided by the state. From formation until now, three other agricultural enterprises were merged into “Males” with all their agricultural and other assets. Today the company has 700 hectares of land, mostly fields and gardens. Some 150 hectares of their land are subject to unclear property rights, given that some matters were not fully settled during consolidation efforts in the past. This company has had several transformations of status to date. Today the company is in the process of bankruptcy.
6. “POS ZIK Topolcani”-Prilep. This enterprise was formed in 1991 with the dissolution of “ZIK Prilep.” The company has 3,879 hectares of land, 3,721 of which are suitable for agriculture. The primary activities of the company are agricultural production (wheat, barley, sunflower), vineyards, and animal husbandry (cow and sheep milk). This enterprise has no processing facilities. Cooperation with the private farm sector is based on the purchase of lamb and supplying of cattle feed.
7. “Mosa Pijade”-Polog-Kocani. This agricultural enterprise was formed from several smaller farms in 1947. It is a classic example of a “cooperative” which is no different from an agro-industrial *kombinat*. It has 355 hectares of agricultural land. This enterprise has developed contract farming relations with a large number of individual farmers, especially with farmers growing rice seeds. The enterprise owns a factory for processing rice and for producing rice seedlings. Some other significant sources of income besides the rice-processing factory include machinery for post-processing and packing of granular products (e.g., sugar, spices, coffee), greenhouse production (6 hectares), and a dairy farm (94 cows). Greenhouse products from this enterprise are known by their quality because of the modern technology of production, a technology based on using the natural hot waters of the area for heating the greenhouses, and biological protection from insect damage.
8. “ZIK Kumanovo”-Kumanovo. Kumanovo is one of the largest agricultural organizations in the Republic of Macedonia, representative of those which include all activities of the agricultural sector from primary agricultural production to processing, post-processing, and sale of the final products on domestic and foreign markets. This enterprise was formed in 1960 with the integration of several agricultural farms and separate processing capacities. It



has 8,723 hectares of land, 6,794 hectares of which are suitable for field crop production. The enterprise owns a winery for processing grapes, with an annual capacity of 16,500,000 kilograms. It also owns a slaughterhouse with a capacity of 12,000 head of cattle, 50,000 pigs, and 200,000 lamb and sheep; a dairy which can produce 6,000,000 liters of milk; a section for processing fruits and vegetables (freezing, drying, and canning) and making juices; and a refrigerator storage center with 6,500,000 kg capacity.

9. “Lozar”-Titov Veles. This enterprise was formed in 1953 with the integration of many smaller public agricultural companies and farms. The enterprise has 8,891 hectares of agricultural land, of which 2,280 hectares were purchased, 1,338 hectares were obtained via expropriation or confiscation, and the rest were “given” by the community, i.e., inherited from integration with the development of the enterprise.
10. “ZIK Strumica”-Strumica. This is the third huge enterprise in the sample. It has 6,711 hectares of land, 3,915 of which are suitable for agriculture. The largest part of the land is in the lower part of the “Strumica Field” and is characterized by its extremely small size of parcels, which is atypical of the other big agricultural enterprises. The primary products of the enterprise are greenhouse tomatoes and cucumbers, wine, grapes, wheat, milk, peaches, and apricots.

#### **D. METHOD OF ANALYSIS**

The analysis of 1995 production on the sampled farms was disaggregated by the land-use categories employed by the Republic Statistical Office. Analysis was done for nonirrigated as well as for irrigated land, noting the number and the size of parcels by the main categories of land.<sup>17</sup> The following key crops were analyzed: wheat, barley, sunflower, alfalfa, fodder peas, greenhouse tomatoes, grapes, apples, cow milk, and lamb meat.

The analysis of the survey information includes both physical indicators (e.g., area, yield) and financial data (total revenue, market value of output, total costs, net revenue). The values are calculated per hectare and per kilogram. Such data are presented for each of the three size categories of enterprises as well as for the complete sample. In order to make a complete analysis of the costs of production, a cost-accounting calculation is applied which incorporates the direct and indirect material costs, management costs, and depreciation into the cost of production for each crop.

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<sup>17</sup>The Macedonian government defines land according to the “appropriate” land uses from a agronomic point of view.

Using the data collected, the following indices were calculated:

- 1) Labor productivity in physical terms = 
$$\frac{\text{Production in kg. per ha.}}{\text{Manual working hours per ha.}}$$
- 2) Labor productivity in value terms = 
$$\frac{\text{Market value per ha. (gross income)}}{\text{Labor costs per ha.}}$$
- 3) Ratio of output to input value = 
$$\frac{\text{Market value per ha. (gross income)}}{\text{Total costs per ha. ("cost price")}}$$

Our detailed input/output data cover on average 63.0% of the total arable land of the each enterprise. For each enterprise separately, the percent coverage is as follows:

1. "Vardar"-Tetovo	30.9%
2. "Agroplod"-Resen	65.3%
3. "Malina"-Kriva Palanka	87.2%
4. "Dubrovo"-Negotino	9.4%
5. "Malesh"-Berovo	11.1%
6. "Topolchani"-Prilep	70.4%
7. "Mosha Pijade"-Kochani	11.6%
8. "Kumanovo"-Kumanovo	90.3%
9. "Lozar"-Veles	66.4%
10. "Strumica"-Strumica	41.1%

The lower percentages are explained by the fact that some enterprises, such as Malesh and Berovo, left a substantial portion of their land uncultivated, and also by our inability to obtain the kind of disaggregated data we sought from several enterprises.

## **E. RESULTS OF THE ANALYSIS OF THE SAMPLE FARMS**

The results from the 1995 data are presented in the tables below. In interpreting these results, it is important to consider that the context of production in 1995. The outcomes reflect the following factors: land quality variations across the sample, unfavorable weather conditions, water

insufficiency in the vegetative period,<sup>18</sup> and inefficient organization and irregularities within the enterprises. Additionally, the following conditions had a impact on the performance of Macedonian agriculture in 1995: closed markets, high transport costs, poorly organized marketing of agricultural products in both domestic and foreign markets, as well as a shortage of legal instruments for quick and efficient marketing of agricultural products.

## 1. Land use

In the group of small enterprises, the data show that in 1995 the land in grains and vegetables amounted to 60.8% of parcels and 66.1% of the total area. Orchards covered 19.6% of the parcels and 15.2% of the land. In the medium-size enterprises, land cultivated with grains and vegetables is 40.9% of parcels and 81.8% of arable land. In large enterprises, land in grains and vegetables cover 81.7% of the arable land.

Wheat is produced in all 10 enterprises on a total area of 10,132 hectares, and on average occupies 32.5% of the total arable area, with a range from 6.4% to 38.4%. Barley is grown on 4,834 hectares, and on average occupies 15.5% out of the total arable area; like wheat, there is considerable variation, from 3.9% to 29.6%, of the arable area. Sunflower covers 1,226 hectares, and occupies on average 3.9% of the total arable area of the enterprises. Alfalfa is grown on 344 hectares, and on average occupies 1.1% of the arable land with little variation across enterprises. Fodder peas are very minor, covering only 202 hectares, and on average only 0.7% of the total arable area. Perennial vineyards account for 2,654 hectares of the sample's land, or 8.5% of the total arable area.

One of the objectives of this research was to ascertain the average size of parcels by category of use in order to investigate the hypothesis that land privatization could not be done without significant fragmentation of the current fields. The parcel size varies with the size of the enterprise, its location, and technical and organizational planning. The average parcel size across the three size groups for arable land used for grains and vegetables is 12.2 hectares; for all agricultural area, 10.2 hectares; and for the overall farm area, 10.3 hectares. The average size of parcels by land use category is given in Table 4.1. These results do not support the hypothesis that parcel size is a serious constraint to privatization of land; in many cases, it appears that current field boundaries and irrigation networks are of a scale which is within the reach of commercially oriented private farmers.

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<sup>18</sup> These first three factors should also qualify the results in the small farm sector, since there is no particular difference across sectors in average soil quality and the samples are spread across the same regions of Macedonia.

**Table 4.1: Average parcel size in hectares by category of land use**

	Small enterprises	Medium enterprises	Large enterprises	Average
1. Grains and vegetables	18.4	36.1	9.9	12.2
2. Greenhouses	na	1.5	2.4	2.2
3. Vineyards				
3.1. Wine grapes		4.3	12.8	9.1
3.2. Grapes	na	2.1	11.7	9.5
4. Orchards	13.8	7.5	21.4	15.0
5. Nurseries	na	na	10.0	10.0
6. Meadows	3.5	7.5	4.5	6.5
7. Total arable land (1–6)	16.1	19.1	10.2	11.7
8. Pastureland	52.0	10.9	4.1	4.5
9. Wetlands and reeds	13.0		32.5	26.0
10. Agricultural area (7–9)	16.8	18.7	8.8	10.2
11. Forests	1.0	4.4	18.9	17.6
12. Barren land	33.4	7.3	6.5	8.0
13. Total area (10-12)	17.8	18.1	9.0	10.3

## 2. Mechanization

Successful production and economic results in agriculture, in addition to other factors, substantially depend on the availability of mechanization, its technical quality, and its rational use. The data show that the average number of hectares of arable land per tractor is 42 for all enterprises; the small enterprises have the most machines relative to land: 34 hectares per tractor. There are 38 hectares per tractor in the large enterprises and 65 hectares per tractor in the medium enterprises. As Table 4.2 shows, a similar pattern is observed in the ratio of tractor power in kilowatts per hectare. The small enterprises have 1.36 kilowatts/hectare, the large enterprises have 1.33 kilowatts/hectare, and the medium enterprises have 1.00 kilowatts/hectare. The average tractor power is 1.28 kilowatts/hectare of arable land. In comparison with the national averages, the surveyed enterprises are much better equipped with tractor power.

**Table 4.2: Tractor power (kilowatts)**

Enterprises	Total tractor power by tractor size				Arable land (ha.)	KW per ha.
	Light	Medium	Heavy	Total		
1	2	3	4	5=2+3+4	6	7 = 5 / 6
Small	604	1,343	525	2,472	1,516	1.63
Medium	2,162	3,448	489	6,099	6,093	1.00
Large	3,690	13,175	9,296	26,161	19,599	1.33
Total	6,456	17,966	10,310	34,732	27,208	1.28

### 3. Professional and skill structure of the labor force

The 1995 labor force of the sample enterprises, engaged in both primary agricultural production and processing of a portion of the production, consisted of a total of 5,465 permanent employees and 576 seasonal workers who engaged principally in carrying out of the field tasks, especially those connected with labor-intensive production.

Table 4.3 shows the ratios of arable land to the total number of employees and to specialist agronomists. Small enterprises, in which labor-intensive fruit production (e.g., apples) is dominant, have 47.4 hectares per agronomist and 1.8 hectare per employee. In the medium enterprises, on average, there are 152.3 hectares of arable land and 5.8 hectares per employee. The available area per agronomist in large enterprises is 95.1 hectares and 4.7 hectares per employee. These averages conceal quite substantial variations between enterprises in each size category, however.

**Table 4.3: Arable land per employee and per agronomist**

Enterprise	Ha per agronomist	Ha per employee
1. "Vardar"-Tetovo	86.3	3.8
2. "Agroplod"-Resen	20.0	0.8
3. "Malina"-Kriva Palanka	189.0	7.8
Total - small enterprises	47.4	1.8
4. "Dubrovo"-Negotino	188.1	7.4
5. "Malesh"-Berovo	50.0	4.0
6. "Topolchani"-Prilep	338.3	11.1
7. "Mosha Pijade"-Kochani	44.4	1.0
Total - medium enterprises	152.3	5.8
8. ZIK "Kumanovo"-Kumanovo	93.1	4.5
9. AD "Lozar"-Titov Veles	161.7	7.0
10. ZIK "Strumica"-Strumica	50.2	2.8
Total - large enterprises	95.1	4.7
Total - all enterprises	97.9	4.5

#### 4. Production and productivity

There is substantial variation in inputs per unit of area and per head of livestock. With the arrival of market forces, enterprises are increasingly oriented toward increasing the yield per unit of area (intensification of the production process) and toward making investments. These investments are reflected in the production costs per hectare, which are not equal for all the enterprises. The variation in costs can be partially explained by variations in agroclimatic conditions. However, there are large differences in inputs even for those agricultural enterprises which have approximately the same conditions for agricultural production. Some of the sampled enterprises did not achieve the results they had expected because of unfavorable weather conditions during the period of land preparation. Thus actual yields differed from planned yields. The following pages of this chapter present physical and financial analyses of the key crops produced by the sample in 1995.

##### Physical and financial indices for wheat

Wheat data were collected in all 10 enterprises for a total area of 10,132 hectares; data on physical inputs and output are reported in summary form in Table 4.4. Average yield for all enterprises was 2,463 kg/ha with a range from 1,657 kg/ha to 4,995 kg/ha. Seed density for wheat ranged between 250–310 kg/ha with an average of 283.8 kg/ha. Only one enterprise used manure;

this input is not regularly used in the production of wheat. There is a large range in the quantity of artificial fertilizer applied, going from 97.8 kg/ha to 700 kg/ha, with an average of 278.4 kg/ha; all but three enterprises used between 200 and 500 kg./ha.<sup>19</sup> Interviews with farm managers revealed that some of the enterprises reduced the quantity of artificial fertilizer below optimal levels in 1995 as a means of reducing costs in a time of financial stress, while others used the same quantity of fertilizer as in previous years.

Mechanization is a very significant input in the production of wheat; wheat is “the most mechanized” crop. Almost all the enterprises use medium-size tractors for all their agricultural production activities. The average use of medium tractors is 8.8 hours/ha, and for all types of machinery, the average is 14.7 hours/ha. The labor force engaged in the production of wheat is also significant, with an average of 39.8 hours/ha including 36.9 hours/ha worked by permanent employees. The labor productivity index, in physical terms, shows that on average across all 10 enterprises, 61.9 kg/working hour are produced. As is typical, larger enterprises have the highest level of labor productivity (80.6 kg/ha). The smallest enterprises are more labor and machine intensive in the cultivation of wheat.

The financial indicators for wheat production in 1995 for the sample suggest that half of the enterprises made a small loss per hectare of wheat produced; the analysis shows that the market price of wheat covers only 98.2% of the cost of the wheat per hectare. Large enterprises show positive economic results although the average yield per hectare is highest in the small enterprises. The percentage share of some input values in total costs are: seed costs, 19.8%; tractor services (medium tractors), 13.1%; labor costs (direct wages), 11.3%; chemical fertilizer costs, 9.0%; costs of interest on invested assets, 8.7%; and management costs, 8.3%. Other inputs are minor.

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<sup>19</sup> One cannot exclude the possibility of data collection errors in the cases of the two enterprises with extreme values. It is useful to note, however, that the enterprise using the most fertilizer also reported the highest wheat yield. This example demonstrates the point that physical yield comparisons are insufficient in discussing the advantages of one sector or another; one can nearly always achieve higher yields by applying greater input doses, but generally with an important negative impact on profitability.

**Table 4.4: Weighted average of physical indicators in wheat production (by the size of enterprise)**

Index	Small	Medium	Large	Average
1. Seed kg/ha	284.3	297.6	280.9	283.8
2. Manure in kg/ha	0.0	0.0	15.3	11.8
3. Mineral fertilizer in kg/ha	477.9	126.4	292.4	278.4
4. Pesticides in kg.	1.7	7.7	5.0	5.2
5. Tractor hours/ha-light tractors	0.0	0.0	1.1	0.9
6. Tractor hours/ha-medium tractors	15.1	3.4	9.4	8.8
7. Tractor hours/ha-heavy tractors	4.6	0.0	3.4	3.0
8. Combine hours/ha	2.3	1.5	2.1	2.0
12. Working hours/ha	61.7	75.6	30.6	39.8
12.1. Permanently employees (hours/ha)	61.5	71.6	27.6	36.9
12.2. Seasonal employees (hours/ha)	0.0	4.0	2.9	2.9
12.3. Temporary employees (hours/ha)	0.2	0.0	0.0	0.0
Area in ha	675	1608	7849	10132
Average yield kg/ha	2789	2324	2463	2463
Total production in tons	1880.9	3736.6	19,334.6	24,952.1
Labor Productivity Index	45.21	30.72	80.63	61.92

### Physical and financial indices for barley production

Barley data were collected for 7 of the enterprises, for a total area of 4834 hectares, and physical indices are given in Table 4.5. Average yield for these enterprises was 3135 kg/ha with a range from 650 kg/ha to 3554 kg/ha. Seed density for wheat ranged between 176-287 kg/ha with an average of 226 kg/ha. None of the enterprises used manure in the production of barley. The application of artificial fertilizers ranges from 0 to 410 kg/ha, with an average of 255 kg/ha. Mechanization is also a significant input in the production of barley. Like for wheat, medium-size tractors are the most prevalent. The average use of medium tractors is 10.7 hours/ha, and for all types of machinery, the average is 13.6 hours/ha. The labor force engaged in the production of wheat is also significant, with an average of 33.8 hours/ha including 33.3 hours/ha worked by permanent employees. The labor productivity index, in physical terms, shows that on average across the enterprises, 92.8 kg/working hour are produced. There is a substantial gap between this index value for the large enterprises (124.9) and the small enterprises (38.3). The smallest enterprises are more machine intensive but not markedly more labor intensive in the cultivation of barley.



The financial indicators for barley production in 1995 and are summarized as follows. The results indicate that most of the surveyed enterprises made a loss per hectare of barley produced, and that the market price of barley covers only 88.6% of the cost price of the barley per ha. Large enterprises show the smallest losses. The percentage share of some input values in total costs are: seed costs:13.8%, tractor services (medium tractors): 14.5%, labor costs (direct wages): 10%, other material costs: 10.7%, and costs of interest on invested assets: 11.9%.

**Table 4.5: Weighted averages of physical indices of barley production (by the size of the enterprises)**

Index	Small	Medium	Large	Average
1. Seed input in kg/ha	177.6	233.4	226.2	226.0
2. Manure in kg/ha	0.0	0.0	0.0	0.0
3. Mineral fertilizer in kg/ha	383.9	42.6	295.8	255.3
4. Pesticides in kg/ha	2.0	0.0	4.2	3.4
5. Tractor hours-light tractors	0.0	0.2	0.0	0.1
6. Tractor hours-medium tractors	22.2	3.7	11.7	10.7
7. Tractor hours-heavy tractors	4.5	0.2	2.4	2.1
8. Combine hours	1.8	1.5	1.7	1.7
12. Working hours	39.6	64.8	26.9	33.8
12.1. Permanent employees (hours)	39.0	64.8	26.4	33.3
12.2. Season employees (hours)	0.0	0.0	0.5	0.4
12.3. Temporary employees (hours)	0.7	0.0	0.0	0.0
Area in ha	143	822	3869	4834
Average yield kg/ha	1522	2321	3367	3135
Total production in tons	217.6	1,908.0	13,026.8	15,152.4
PRODUCTIVITY	38.39	35.80	124.96	92.84

### Physical and financial indices for fodder pea production

Fodder Pea data is available for 4 of the ten enterprises and for a total of 202 hectares of land. The average yield for these enterprises was 6805 kg/ha with a wide range from 2,489 kg/ha (Topolcani) to 25,000kg/ha (Strumica). Seed density was relatively constant across the enterprises with an average of 199.8 kg/ha. Fertilizer was only applied by one enterprise which used 249.1 kg/ha. Again, medium tractors dominated the machine use with an average of 7.3 hours/ha; all machinery combined had an intensity of 8.7 hours/ha. Exclusively permanent labor

was employed in fodder pea production with an average of 23.1 hours per hectare. This crop is less input-intensive and therefore had better financial results. Two of the four enterprises made profits on fodder peas in 1995. The market price covers the costs of production by 105.5% on average.

### Physical and financial indices for alfalfa production

Alfalfa was produced in 1995 in 5 of the 10 sample enterprises. One of these, Strumica, had three producing units for alfalfa. The total area cultivated was 344 hectares which yielded on average 11,778 kg/ha, with yields ranging from 4,800 kg/ha to 22,122 kg/ha. Alfalfa production was very labor intensive, using 109.1 hours/ha on average. Mineral fertilizers were also a major input, with an average of 82 kg/ha applied. The behavior of large and small enterprises is very different in the production of alfalfa. The larger enterprises use more labor and seed per hectare and obtain higher yields, while the small enterprises used more fertilizer and machinery and obtained low yields. Alfalfa was produced profitably in 1995, with the sales value being 204% of the costs of production. However, it needs to be mentioned that alfalfa production is directly linked to livestock operations and so financial accounting is complicated.

**Table 4.6: Weighted average of physical indices in alfalfa production (by the size of the enterprises)**

Index	Small and medium	Large	Average
1. Seed kg/ha	3.3	10.5	8.7
2. Manure kg/ha	0.0	0.0	0.0
3. Mineral fertilizer kg/ha	111.1	72.1	81.8
4. Pesticides in kg/ha	0.0	0.5	0.4
5. Tractor hours/ha-light tractors	0.0	0.9	0.6
6. Tractor hours/ha-medium tractors	19.1	16.6	17.3
7. Tractor hours/ha-heavy tractors	0.6	24.6	18.6
8. Combine hours/ha	0.5	0.0	0.1
12. Working hours	43.2	130.9	109.1
12.1. Permanent employees(hours/ha)	35.1	115.6	95.6
12.2. Seasonal employees (hours/ha)	8.1	15.3	13.5
Area in ha	86	258	344
Average yield kg/ha	6,830	13,418	11,778
Total production in tones	583,960	3,461,771	4,045,731
Labor Productivity Index	158.17	102.51	108.00

### **Physical and financial indices for sunflower production**

Sunflower data are available for only two of the enterprises - AIK "Kumanovo" and AIK "Topolchani," Prilep. The total area of cultivation is 1,226 hectares from which 926 hectares are in Kumanovo and 300 hectares in Prilep. The yields are substantially different in the two cases with a low of 817 kg/ha in Prilep compared to a high of 1,514 kg/ha in Kumanovo. The average labor productivity is 38.2 kg per working hour. Seed input on average was 7.2 kg/ha with a big difference between the two enterprises. The amount of seed used in Prilep is 11.0 kg/ha whereas almost half of that amount was used in Kumanovo i.e., 6.0 kg/ha. Mineral fertilizer was not used in the sunflower production in Prilep and in Kumanovo 201.9 kg/ha were applied. Machine hours totaled 17 hours per hectare in Kumanovo and only 2.4 in Prilep. Labor hours were more consistent across the two enterprises and averaged 35.2 per hectare. The end result was that Prilep made a loss on sunflower production while Kumanovo made a profit.

### **Physical and financial indices for greenhouse tomatoes**

Greenhouse tomatoes production is analyzed in three enterprises, one of which has three separate producing units. The total area cultivated was 25.8 hectares in 1995. The average yield for all enterprises is 97,541 kg/ha with a range of 28,980 to 144,132 kg/ha and an average labor productivity index of 5.2 kg/working hour. This is a labor-intensive crop which employed on average of 18,679 hours/ha. For fertilization, 78 tones of manure were used per hectare on average. The rest of the details of input use are presented in Table 4.7 below. The end result was that only one of the enterprises showed a profit for tomato production in 1995. Some factors which contributed to such losses were the restrictive monetary policy, stagnating export levels and low domestic prices due to lack of purchasing power in the local population and, perhaps, to oversupply of the market. Also, the interest component allocated to greenhouse investments was very high).

**Table 4.7: Physical indices in greenhouse tomato production**

Index	M.Pijade	Lozar	AIK "Strumica"			Average
	Kochani	Veles	Bansko	Hamz.	Hamz.-2	
1. Seed kg/ha	0.17	0.19	0.23	0.14	0.36	0.19
2. Manure kg/ha	0	66,794	64,516	114,286	66,667	78,226
3. Mineral fertilizer kg/ha	133	2587	1677	3517	2883	2660
4. Pesticides kg/ha	0	418	708	319	113	311
5. Tractor hours/ha-light tractors	0	0	0	0	0	0
6. Tractor hours/ha-medium tractors	610	194	28	262	229	264
7. Tractor hours/ha-heavy tractors	0	0	0	0	0	0
8. Working hours	26,537	28,147	20,709	11,953	9,012	18,679
8.1. Permanent employees(hours/ha)	26,537	28,147	11,748	10,451	5,860	17,160
8.2. Seasonal employees(hours/ha)	0	0	8,961	1501	3,151	1,519
8.3. Temporary employees(hours/ha)	0	0	0	0	0	0
Area in ha	3.0	7.7	1.6	10.5	3.0	25.8
Average yield kg/ha	65,500	82,450	51,608	144,132	28,980	97,541
Total production in tons	196.5	634.9	80.0	1,513.3	86.9	2,511.7
Labor Productivity Index	2.47	2.93	2.49	12.06	3.22	5.22

### Physical and financial results of fruit production

**Grapes.** Total area under grape vines in the sample for 1995 was 2,654 hectares. The average yield was 9,170 kg/ha but was extremely variable with a low of 1,465 kg/ha to a high of 17,500 kg/ha. The average labor productivity index was 12.1 kg/hour. The use of fertilizer and pesticides in grape production in 1995 was limited because of insufficient working capital in the enterprises. They did not have their own working capital and the banks did not show any interest in providing credit to them. The government has decreased its support in this regard during the transformation period. In 1995, only "Lozar," Veles, recorded positive profit per hectare and kilogram of grape production. The reasons for poor production and economic situation are high costs, low price on the domestic market which can not consume the whole production while export markets are blocked.

**Apples.** Apple production is analyzed on 271 hectares which, on average, yielded 23,178 kg/ha for the four producing enterprises. The yield range was from 7,312 kg/ha to 34,270 kg/ha. The average labor productivity was 30.0 kg/working hour. Small profits were made in apple

production with the sales value per hectare being only 2.1% above the per hectare cost price. Data from the private sector suggest better financial results.

### Physical and financial indices for cow milk production

Data for cow milk production is available for five enterprises. The total number of head (cows) was 1,289 in 1995. Average milk production per cow across all enterprises was 3,236 liters with a range of 2,225 to 3,843 liters. Average labor productivity for all the enterprises was 36.3 liters/working hour. The usage of material inputs varies greatly across the enterprises which suggests that there is a lack of consistent technical information on dairy production. The variation can be seen in Table 4.8 below.

From the financial data it can be said that production costs are very high. Market price only covers 69% of costs. All the enterprises suffered losses per head and per liter. In part, this high losses can be attributed to the high price of alfalfa shown earlier. This demonstrates the imperfections of price signals in vertically-integrated farming operations; the internally-determined pricing of alfalfa and fodder peas makes them appear to be highly profitable, and contributes to the apparent unprofitability of milk, whose price is determined outside the firm.

**Table 4.8: Physical indices for cow milk production**

Index	Dubrovo	Topol-chani	Mosha Pijade	Kumanovo	Strumica	Weighted average
1. Silage corn (per ha)	522.5	2,837.7	3,723.4	4,181.8	1,990.6	2,240.2
2. Hay (per ha)	639.8	415.0	1159.6	1507.6	922.7	799.8
3. Concentrate (per ha)	1,292.4	975.3	946.8	2,962.1	3,258.3	2,004.0
4. Other types of fodder (per ha)	996.9	2,869.5	56.4	4,795.5	8,433.0	4,284.7
5. Bedding (per ha)	484.4	637.2	638.3		583.8	520.1
6. Tractor hours/ha	5.5	5.8			26.9	11.7
7. Manual working hours/ha	36.3	202.8			80.2	89.3
Number of heads	289	347	94	132	427	128.9
Liters per cow	3,843	2,225	2,900	3,350	3,688	3,236.833
Total production in liters	1,110,627	772,075	272,600	442,200	1,574,776	4,172,278

### Physical and financial results of lamb production

Data are available for a total of 7,972 lambs with an average weight of 13.6 kg. per head. Input usage is described in Table 4.9 below. Like milk production, in 1995, lamb meat was not profitable. All the enterprises recorded losses as a result of high input costs and low market value for the product (only covering 54% of cost).

**Table 4.9: Physical indexes in lamb meat production**

Index	Malina	Topolchani	Lozar	Weighted average
1.Silage corn	0.0	0.0	1.5	0.6
2.Hay	74.2	61.5	29.7	29.1
3.Concentrate	9.5	31.1	0.8	2.5
4.Other types of fodder	33.0	10.2	40.9	24.1
5.Beddings	0.0	8.6	0.0	0.0
6.Tractor hours	0.0	0.02	0.1	0.1
7.Manual working hours	9.5	25.4	25.0	12.2
Number of lambs	1844	2928	3200	7972
Average weight of a lamb in kg.	11.12	13.49	15.00	13.55
Total production of lamb meat in kg	20,500	39,488	48,000	107,988
PRODUCTIVITY	1.17	0.53	0.60	1.11

## F. CONCLUSIONS

Table 4.10 below summarizes the results across all crops showing the percentage breakdown of each input as a share of total costs and the profit (loss) margin.

We have described the primary production activities of the ten sampled firms and shown that 1995 was not a good economic year for these enterprises. Losses were experienced by most enterprises in most of their primary production activities. Unfortunately, national statistical information (Statistics Office) for 1995 is not yet available for comparison of the sampled firms to the nation as a whole.

**Table 4.10: Cost structure of selected products and profitability of production (in %)**

Indicator	Wheat	Barley	Sun-flower	Fodder peas	Alfalfa	Tomatoes	Grapes	Apples
Seeds	19.79	13.83	5.07	36.92	2.89	3.80	/	/
Fertilizer	9.06	8.12	8.06	3.61	2.31	2.80	1.86	2.61
Protective measures	5.40	4.25	8.76	0.00	0.45	2.79	14.58	13.37
Mechanical services	25.72	25.35	25.68	25.47	27.80	2.79	6.52	10.00
Depreciation	1.74	0.89	0.81	3.75	2.30	13.79	7.94	13.13
Salaries and wages	11.28	9.96	19.28	4.98	13.72	24.35	26.33	20.27
Insurance	3.27	4.22	5.43	0.42	0.29	3.52	9.36	11.26
Management costs	8.18	8.32	7.14	12.45	26.87	17.93	24.84	6.98
Interest costs	8.73	11.90	5.51	4.05	2.59	0.00	0.48	2.04
Costs of sales	1.85	1.45	1.85	1.77	0.28	0.00	0.35	10.07
Other costs	4.98	11.71	12.41	6.58	20.50	28.23	7.74	10.27
<b>Total</b>	100.00	100.00	100.00	100.00	100.00	100.00	100.00	100.00
Profit	-1.77	-11.38	-10.49	5.52	103.48	-2.34	-10.64	2.08

As was said earlier, the bleak picture presented for agriculture production in the social sector must be considered within the context of a bleak economy in general. More specifically, the following factors were mentioned: water scarcity; reduction below local technical standards in the use of material inputs, especially agrochemical, due to lack of financial resources; deterioration in the internal organization of the enterprises; external market limitations; high transport costs to available export markets as alternative routes around the neighboring conflicts were used; and lack of quality control in packaging and marketing. Therefore, we suggest that some of the negative results may be temporary; in other instances, however, there may be real inefficiency.

Another factor that should be considered is that we have not looked at the enterprises as a whole; we have looked separately at each primary production activity. In the future, the intermediary processing and other types of activities e.g., land rental, marketing services, that these enterprises engage in should be analyzed as well. In this study, however, the focus was on land use and productivity.

## **V: A COMPARATIVE REVIEW OF LAND USE AND PRODUCTIVITY ACROSS THE SOCIAL AND PRIVATE SECTORS**

This study is comprised of separate investigations of the social and private sector farms, yet our objectives as set out in the introductory chapter clearly express the need to formulate a consistent legal and policy framework for the development of *the entire* agricultural sector. Therefore, an attempt is made here to draw some comparison across the two sub-sectors of producers, who historically have been addressed separately from one another. The historical and still prevalent view is that the social sector is the source of livelihood for agricultural development and for the economy. The private sector was addressed primarily from a sociological perspective. Because of these differences in historical participation in the economy and also simply due to drastic structural difference between farms in each sector, such a comparison is plagued with difficulties. We will thus, present a limited and qualified comparison.

### **A. LAND USE**

There is substantial overlap in land use patterns in each sector. Both sectors dedicate substantial portions of their landholdings to cultivation of grains. Also, cultivation of fodder crops and intensive vegetable beds are important components of the production in both sectors, with expected regional variations in extent of cultivation. Fruits (grapes, apples, cherries) are also produced in both sectors, but are more dominant in the crop mix of the social sector farms. The same is true of several industrial crops and high tech vegetable production, like greenhouse tomatoes and cucumbers, which are exclusive to the social sector. Tobacco is produced almost exclusively by small farmers but only with permission and contract from the social sector which has a created monopoly in the processing and marketing of tobacco. Fallow and idle arable land exists in both sectors as is to be expected at any point in time. However, there is a substantial difference between the percent left unused in each sector. Recall that the average amount of fallow land in the private sample in 1995 was around 5%. Data available from nine of the ten social sector enterprises interviewed suggest that the percent of arable land left fallow or unused ranges from 5% to 64% and averages 24%. This suggests that there is a substantial amount of idle land due to reasons other than fallowing as a productive part of strategy of soil management.<sup>20</sup> Especially in today's environment of reduced government support, many of the social sector farms do not have the resources to cultivate the land which they hold. The sum total land idle from these enterprises is 3203 hectares of arable land (and these are only 5% of all the social sector farms).

### **B. LAND ACQUISITION**

As was explained in earlier parts of this report, there are quite obvious differences across the sectors in land acquisition histories. Less well known, however, is the active participation of the

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<sup>20</sup> This amount of fallow land is in addition to land which is categorized as barren in the previous chapter of our report.



social sector farms in the land market. Most have some amount of land which was acquired via direct market exchange with private farmers (even though the resources available for such investments and the supply of land on the market can be largely attributed to various government interventions in the rural economy in the 1960s). For example, Zik Kumanovo holds 3575 hectares of purchased land (41% of its total land). The other farms in the social sector sample for which we have land purchase data purchased from 3% to 64% of the land they currently manage. Also, several of these farms, as well as other socially owned enterprises which we visited, have some amount of land rented to private farmers and a few rent land from private farmers. Rental contracts are typically annual and for small parcels (1 - 2 hectares), although there are examples of private farmers renting from 10 to more than 100 hectares of land from the social sector.

A surprising aspect of our comparative analysis is that the gap in average parcel size across the sectors was not as big as anticipated with the average parcel size in the social sector being 10-12 hectares. This amount of land is huge compared to the average parcel size of 0.2xx hectares in our small farm sample; however, from the vantage point of European agriculture, this is just about the size of the average farm (14 hectares on average, typically divided into 5-6 parcels). One can infer that at least a portion of the fields currently managed by the social sector are of sizes manageable by private producers.

## **C. RESOURCE ACCESS**

The idea of creating the socially owned enterprises was to develop large-scale, modern agriculture by pooling the resources of the society for the benefit of the society. This meant that land resources for private individuals were limited. While the social sector farms were allowed to and assisted in expanding from their initial appropriations of land. Likewise, nonland resources were concentrated in the social sector and made available to the private sector principally through the social sector farms. Such targeting of development efforts was manifest in the concentration of technology (irrigation systems, greenhouses, technical information), the abundance of agronomists and other skilled professionals in the workforce, the control of input and output marketing, the access to the state e.g., the extension service and the ministry of agriculture, and preferential access to subsidized inputs and credit. All of these aspects of favoring the social sector are no longer feasible nor constitutional and are, perhaps, beginning to change. Change comes slowly, however, and farmers in *both* sectors still maintain a view of the world based on this past.

## **D. RELATIVE PRODUCTIVITY**

Table 5.1 provides the weighted average yields for seven crops which are of importance in the farm economy in Macedonia. The yields are given by region for each regional sample of private farms and for the social sector farm sample (column headed 'AIK'). Of note is that the yield of wheat is significantly higher in the private sector (although there is a wide variance of yield across individual farms/fields in both sectors). For barley, there is no clear advantage of one sector over the other, only that the yield of barley production in the Mediterranean region is significantly lower than the other values. For tomato production, there is a gigantic gap between the highest private sector yield in the Mediterranean region and the social sector yield. This gap is easily

explained, as the social sector yield is for greenhouse tomatoes. Such investment as high-tech greenhouses is one of the major contributions of the experience with socialized agriculture in the former Yugoslavia. In wine grape production, the yield in the Mediterranean region private farms exceeds the yield from averaging across the social sector farms in all regions; our sample provides too few observations on grape production in the other regions to enable comparison. The social sector yield for alfalfa is substantially higher than the yield for private production in any region, however, this mean is largely influenced by the weight of highly productive, irrigated alfalfa production at Zik Kumanovo. Without Kumanovo's production of alfalfa in the sample, the social sector sample yield is still bigger than the private sector sample yield but the gap is substantially narrowed.

**Table 5.1: Output per hectare, 1995 (weighted average)**

<b>CROP</b>	<b>Mediterranean</b>	<b>Pelagonian</b>	<b>Western</b>	<b>Skopje-Kumanovo</b>	<b>AIK</b>
<b>Wheat</b>	3153 n= 200	3412 n= 109	3176 n=90	3155 n=141	2463 n=10
<b>Corn</b>	4139 n=125	5604 n=26	3554 n=108	3812 n=104	na
<b>Barley</b>	2538 n=119	3138 n=48	0 n=0	3079 n=75	3135 n=7
<b>Rice</b>	5843 n=14	0 n=0	0 n=0	0 n=0	na
<b>Tomato</b>	29159 n=96	22111 n=30	2505 n=10	10838 n=13	97541 n=5
<b>Wine grapes</b>	10571 n=108	0 n=0	0 n=0	0 n=0	9170* n=8
<b>Alfalfa</b>	5611 n=48	4374 n=13	4661 n=42	5548 n=33	11778* n=5

Output per hectare is not a sufficient indicator to make conclusions about productivity, as it does not account for the quantity of nonland inputs used to generate that yield. Therefore, Table 5.2 presents detailed input-output information for the production of wheat in each region from the private farm sample and for the social sector sample overall and the small farm subgroup of social sector enterprises. First, recall from Chapter 4 that the Western region stands apart from the other three regions as an area of high intensity of resource use and low relative profitability of wheat production. Therefore, general conclusions will be drawn only from comparison of the other three regions' private samples to the social sector sample.

The data indicate the following. Seed use is similar across sectors although the cost per hectare for seed is slightly greater in the social sector. This might be explained by differences in quality of seed or by the fact that the social sector often serves as the distributor of seed, selling at a mark-up over its acquisition costs. Also, in both sectors, some of the farms use their own seed and the valuation they give it may not be adequate. Private farmers apply more fertilizer per hectare than does the social sector sample, although the three small social sector farms in the sample use substantially more fertilizer per hectare than did the small private farmers sampled. Perhaps there is a declining use of fertilizers in the social sector as a result of decreased subsidization and the financial crisis which faces many of the larger social sector farms. It might also be suggested that the small farmers overuse chemicals to try to maximize the yield of their very limited landholdings. The application of pesticides was substantially higher in the social sector sample than the average from each of the regional private farm samples. However, again, the small social sector farm subsample ratio of pesticide to unit of land is much more similar to the private sector ratio. There is a big discrepancy in the relative amounts used and the relative costs for acquisition of pesticides across the sectors with the social sector using far more liters per hectare and paying substantially less. Perhaps this reflects the biases of subsidies and in access mentioned before.

Comparing the overall social sector average labor/land and machine/land ratios suggests that the small private farms are both more labor intensive and more machine intensive in their cultivation. This matches the view held by many Macedonians that the private sector inefficiently applies machine technology. However, if one again looks at the average values for only the small social sector farms, the numbers are relatively similar across sectors. In fact, the number of labor hours is higher in that group. This is surprising from the point of view of the stereotype of peasant exploitation of family labor but not so surprising given the use of the social sector farms as a net for underemployment (surplus employment). From the latter perspective, it should also be noted that the social sector labor force is differently composed, having a higher ratio of management to field labor and having a much more educated and technically trained labor force.

**Table 5.2: Input use and output per hectare in wheat production (weighted averages)**

Inputs (kg/ha)	Pelagonian	Western	Skopje/Kumanovo	Mediterranean	Social sector sample	
	n=103	n=96	n=112	n=106	all n=10	small n=3
<b>Seed</b>	280.8	360.2	295.1	294.3	283.8	284.3
<b>Fertilizer</b>	335.8	369.5	354.4	374.0	278.4	477.9
<b>Pesticide</b> (liter/ha)	1.9	3.9	4.2	1.4	5.2	1.7
<b>Labor hours</b>	34.2	181.6	46.7	52.4	39.8	61.7
<b>Machine hours</b>	23.9	33.4	20.9	22.8	14.7	22
<b>Yield</b>	3189	3318	3041	2902	2463	2789

**Table 5.3: Value of inputs and output by hectare of production of wheat (weighted ave.)**

Value of inputs (d/ha)	Pelagonian	Western	Skopje/ Kumanovo	Mediterranean	Social sector sample
<b>Seed</b>	4903.0	7965.7	5817.5	4863	5826
<b>Fertilizer</b>	3651.0	3942.4	4073.3	4488.3	2654
<b>Pesticides</b>	666.1	1878	2339.4	2349.0	1589
<b>Total cost/ha</b>	14327.8	18128	15439.8	13954	29432
	<i>15995.4*</i>	<i>27934</i>	<i>17926.0</i>	<i>16690</i>	
<b>Total rev/ha</b>	32464	33777	30957	29542	28910
<b>Net rev/ha</b>	19108.6	15496	15566	15585	-522
	<i>17478</i>	<i>5442</i>	<i>13005</i>	<i>12849</i>	

\*Italicized values include an imputed value for nonremunerated family labor which values family labor at an average/approximate market wage rate which such labor could earn working on another private farm in the Skopje/Kumanovo area; it is consistent with the wage rate implied for field labor in our sample social enterprises. In future, it will be necessary to use more precise, region-specific wage rates.

The wheat yields included in Table 5.2 are for a slightly smaller sample than those presented in Table 5.1 (those farms for which complete input/output data were collected for wheat production) but the same conclusion is shown; the private sector sample yields are higher. For the relative parity of input usage across the two sectors, the large gap by which total cost per hectare for

production of wheat in the social sector exceeds the private sector ratio may be surprising. On the other hand, it should be no surprise that the cost figures for the social sector incorporate a number of costs which are irrelevant or not calculated in the small farm sector, such as management, overhead, depreciation, insurance and interest costs. Nonetheless, the bottom line is that wheat production yields positive net revenue in the private sector in our 1995 sample while the same year, the social sector farm data show a small net loss. These figures, in both cases, abstract from the other activities of the farm family or firm and, therefore, must be interpreted accordingly.

## **E. SOME PROBLEMS OF COMPARISON**

At this point it is necessary to mention a gamut of difficulties with the comparison across the sectors of private and social farm enterprises which should qualify the use of the description provided above. First, there is substantial difference in the sampling methodology and the method of data collection used to generate the data presented. For both sectors, the samples were chosen to include a range of sizes and of agroclimatic regions. However, the social sector sample was picked selectively according to prior information and contacts with the firms. Attempt was made to include firms with a range of financial conditions and a diversity of historical circumstance. The result is a nonrandom sample of a small number of highly varied social sector farm enterprises. The sample covers 4% of the population but is representative in an illustrative sense. For the private sector, the sampling strategy was stratified random sampling; stratifying only by region and farm size. The sample includes 820 farms covering 0.5% of the population. It is more homogeneous and is suited to statistical analysis. The main difference in the method of data collection for the sampled farms is that the social sector data comes from written records maintained by each enterprise whereas the small farm data rely on farmer recall in a lengthy and detailed interview with trained enumerators. Each method has weaknesses and it would be useful in the future to employ a method of tracking farms over a year with the research team participating in and monitoring the collection of physical and financial records.

As already mentioned the macro environments in which the sampled farms operate within are very different (although both sectors suffer from overvalued exchange rates, inflation and political instability in the region). The resultant differential in qualities and quantities of resources (labor, seed, fertilizer, land, and capital) available for production are not easy to account for in evaluating the relative productivity of the sectors. Furthermore, there exist noncomparable aspects of the input set (insurance, overhead, debt). Finally, there is a serious problem of accurate valuation of both inputs and outputs stemming from a history of planned/controlled prices and the existence of a substantial barter economy which both sectors participate in. Thus, conclusions about relative resource/factor productivity in the production of individual crops must be used with caution. Even more problematic to generate are comparative statements about total factor productivity or efficiency of agricultural enterprises.

## **F. CONCLUSION**

Despite the above caveats, a fair conclusion is that despite many disadvantages, the small farmers are producing profitably; and, in spite of many advantages, the social sector is not. The data and

analysis presented herein challenge some prevailing stereotypes. For example, it is said that the social sector farms can not be privatized nor their land restructured for several reasons. First, because the social sector is, and has always been, more productive—from a smaller land base, 20% of the nation's arable land, 50% of the nation's agricultural product is generated. Second, the social sector farms produce at a scale and level of technology which small farmers can not manage. Third, the small farmers are backward and unproductive. Our data have challenged these stereotypical images and instead presented a much more varied picture. For example, our report dampens the impact of the statement about the relative productivity based on the percent of land/percent of output comparison. We have noted the following qualifications to such comparison: the concentration of marketing capacity in the social sector, the favorable access to inputs that the social sector farms historically had, the relatively good private sector yields for certain crops, and the discrepancy in how much land is under the management of private farmers as reported in the census and the amount of land the official statistics includes under the category of private sector. Next, while there are certain clear achievements in the social sector which might not have been accomplished from the pre-socialist private farm sector (such as investments in extensive greenhouses and processing facilities), the private sector is beginning to demonstrate an ability to enter the processing side of agriculture e.g. some private dairies doing well, a private rice mill in Kocani and private input suppliers are emerging. Also, it we pointed to the fact that the average parcel size farmed in the social sector is not beyond the scope of individual farmer or small, private agricultural enterprise management. Finally, we provide some evidence of productivity in the sector of small, private farms.

Our conclusion, is therefore, that restructuring in the sector is needed so that the mismatch in allocation of land and labor resources are eliminated, i.e., the underutilization of land in social sector, the over-skilled and -sized workforce in the social sector combined with the converse conditions in the private farm economy farm sector. As long as an appropriate framework for restructuring is created and the legal and institutional bases of a market economy are developed , restructuring should yield a rationalization of enterprise and production strategies. This will occur as incentive-based decisions lead to eliminating diseconomies of scope which characterize the huge, complex social sector farm enterprises, and to the guiding of land to its most productive uses and users. These uses and users will be diverse and will include in some instances a continuation of the present management of land and in other instances will entail reallocation.

## VI: SUMMARY OF RESEARCH FINDINGS AND POLICY RECOMMENDATIONS

### A. SUMMARY OF RESULTS

The results of the research conducted on the two subsectors and the legal environment in which they operate are given in detail in the preceding chapters of this report. In Section A, our results are summarized in order to provide justification for the policy recommendations made in Section B. In Section C, a list of specific legal reforms is proposed as an agenda for the developing market economy in agriculture. Section D discusses financial and technical assistance needs flowing from the policy and legislative agenda proposed herein.

#### 1. Comparative productivity and profitability of small farms and *agrokombinats*<sup>21</sup>

- For some crops, including wheat and barley, the productivity of small private farms, as measured by yields per hectare, is as great as or greater than that of the *agrokombinats*. For others, such as tomatoes and alfalfa, the *agrokombinats* achieve significantly greater yields.
- *Agrokombinats* did not produce any crops profitably except for alfalfa and fodder peas, both intermediate goods whose profitability may have been artificially determined by high internal transfer prices.<sup>22</sup> By contrast, private farmers achieved profitability on many crops, even when family labor was valued at the market wage. A major explanation for the unprofitability of *agrokombinat* production was the high level of overhead costs (management expenses, interest on debt, etc.).
- The macroeconomic situation (overvalued exchange rate, inflation, unemployment) and political difficulties (border closures) have had negative effects on the performance of both subsectors, as both export and domestic markets have declined.

#### 2. Effects of fragmentation on productivity and profitability of small private farms

- Fragmentation of private farmers' landholdings has costs in terms of travel time and difficulty of using efficient cultivation techniques, but it also has benefits in terms of spreading the risk,

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<sup>21</sup> There is no evidence of systematic bias in reporting by private farms as compared to social-sector farms. If there were such a bias, however, the Macedonian members of the research team suggest that private farmers would tend to underestimate their yields and social-sector farms to overestimate theirs.

<sup>22</sup> Evidence for this is that lamb meat and cow's milk, for the production of which alfalfa and peas are important intermediate goods, are among the least profitable outputs of the *agrokombinats*.

crop diversification, and equitable sharing of available land resources (e.g., subdivision of each parcel via inheritance).

- There is not a systematic, significant relationship between fragmentation and the productivity of small farms. In other words, fragmentation does not appear to be a generalized problem. In certain regions and for certain crops, however, productivity might be increased if parcels were larger.
- Many farmers, especially the younger ones, consider fragmentation to be a problem and express willingness to participate in consolidation programs.
- Land market activity of private farmers—purchasing and leasing—increases the operational size of holdings and has a positive impact on measures of fragmentation.

### **3. Economics of the land market**

- There is a significant potential demand for agricultural land from private farmers who desire to increase the size of their holdings.
- There is a significant potential supply of agricultural land from older farmers and those who would prefer nonagricultural employment.
- Land markets are less active in rural Macedonia now than they were in the past. This is due at least in part to increased perceptions of risk due to macroeconomic, sectoral, and political factors: inflation, overvalued exchange rates, removal or revision of subsidies, and closed national borders. A return to higher levels of transactions will await the resolution of macroeconomic and sectoral problems, as well as the removal of significant legal impediments.

### **4. Legal and institutional constraints to increasing productivity and efficient land market operation**

- A large number of laws currently in force concerning land and related agrarian issues have provisions that are in violation of the Constitution, especially its guarantee of private property rights.
- The recently passed Law on Transformation, with its provision to lease the land currently held by *agrokombinats* to the privatized successor enterprises without rental payments for five years, will create perverse incentives that will reduce the prospects for increased productivity and profitability.
- The current transitional legal situation, which has been prolonged by delays in the enactment of the Law on Denationalization, has increased uncertainty and has likely contributed to a marked decline in purchases and sales of agricultural land since independence.
- Transactions costs such as legal fees, number of approvals required, and time are a significant deterrent to purchase, sale, leases, mortgages, and inheritance transfers of private land.
- Inheritance practice, unlike inheritance law, systematically discriminates against the land rights of female heirs, who “voluntarily” renounce their rights in favor of their brothers or sons.



## 5. Market orientation of the private farm sector

- In spite of small farm size, fragmentation, and market problems, there are a substantial number of “serious” farmers who will respond positively to appropriate incentives for increased agricultural production.
- Many small farmers market substantial proportions of their output of many crops; this is especially true of the larger of the small farmers—those with 2–3 hectares or more.
- Land market participants, especially renters, specialize in cash crops on newly acquired land, suggesting good prospects for nonsale transactions (including leasing of *agrokombinat* land).

### B. LAND POLICY ADJUSTMENTS TO PROMOTE THE INCREASED PRODUCTIVITY AND PROFITABILITY OF THE AGRICULTURAL SECTOR

This section discusses the policy themes that must be addressed to enable market forces to generate appropriate incentives for landholders to optimize the use of their land. It concludes with a summary of the legislation that will be required to support the policies adopted.

#### 1. Land market development

Land markets are less active in rural Macedonia now than they were in the past. This is due at least in part to increased perceptions of risk due to macroeconomic, sectoral, and political factors: inflation, overvalued exchange rates, removal or revision of subsidies, and closed national borders. The stagnant period in the demand for land is likely to end soon. The demand for land for residential purposes on what has hitherto been agricultural land is increasing rapidly. The economic constraints on the supply and demand for land through market transactions have been reinforced in the past by macroeconomic changes as well as sectoral policies influencing the profitability of agriculture; both are now under revision and should pose fewer difficulties in the future. Finally, Macedonia in 1996 has open borders on all sides for the first time in many years.

There are many potential participants on both demand and supply sides of the land market. In addition to private farmers and entrepreneurs, potential purchasers or lessors include *agrokombinat* administrators, technicians, spouses employed full-time off the farm, and perhaps foreign investors. However, unregulated land markets can create problems; there can be inequalities created as those with capital accumulate land and those without capital are forced to sell, and there can also be serious land degradation if new owners misuse their land through ignorance of good conservation practices or through inappropriately short-term perspectives. The creation of dynamic land markets which are also accessible to wide sectors of the population and which preserve the land base for future generations is a difficult challenge.

There are many legal and institutional impediments to land market operation. These are detailed in subsequent sections.

## 2. Linkage to the credit market

To mobilize the often substantial capital required for the acquisition of immovable properties, people can draw on their savings or on loans from family and friends, or they can apply to financial institutions for the needed capital. Typically in transition countries the restructuring of financial institutions goes through a stage of instability; often financial institutions are bankrupt in a context of high inflation. During this stage, capital for long-term loans typically is greatly limited and/or interest rates are very high. Temporary measures are required, such as mobilizing remittances from abroad, and long-term institutional innovations are needed (financial sector reforms, secure and all-encompassing immovable property registration system, and simplified procedures for mortgaging immovable properties).

In mature market economies, a significant proportion of medium- and long-term lending is secured by using immovable property as collateral. Institutional support for this relationship has to be created, including legal procedures for registering mortgages and for enabling foreclosure upon nonpayment of loans, general public knowledge of such arrangements and acceptance of their legality, and protection of the rights of the borrowers against arbitrary foreclosures.

## 3. Transactions costs on land sales

The transaction of buying and selling agricultural land is still quite bureaucratized. In Tetovo, for example, a seller has to obtain the following documentation, usually through a lawyer, in order to sell agricultural land legally:

- contract for purchase (to register the transaction);
- certificate from the cooperative and/or *agrokombinat* in the area, stating that it is not interested in purchasing the land;
- statements from people owning the neighboring plots, saying that they are not interested in purchasing the plot;
- certificate from the Tetovo office of the Ministry of Civil Engineering, saying that the land is not part of construction land; and
- certificate from the Tetovo office of the Ministry of Finance, stating that it is not land that has been nationalized.

Lawyers estimate that the paperwork for a land sale can be done in about 5 days at a cost of 300 to 500 DM in lawyer's fees, but the time estimate does not include possible—and even likely—delays in obtaining the various certificates. In addition, there is a transfer fee of 3 % of the declared purchase value.<sup>23</sup> The buyer pays that fee and the lawyer's fee. The buyer and seller normally use the same lawyer. The seller pays the fees for the various certificates but they are very small and this is taken out of the money the seller receives.

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<sup>23</sup> The fee was recently reduced from 20% of declared sales value, a level at which avoidance and underreporting were undoubtedly severe.

The procedures are burdensome and the costs are fairly high. Legal fees represent approximately as much as the transfer fee in a typical transaction on agricultural land; an average parcel of 3 dekaras (0.3 ha) might be worth 15,000 DM, so that the legal fees would amount to about 2–3% of the sales price. This is higher than in countries like the United States, known for its high transactions costs on land because of its outmoded deeds registration system, where typical legal fees and other costs (such as title insurance) amount to at most 1% of the purchase price.

It is essential for land market development that transactions costs be reduced. The most important of these are not the monetary fees, but rather the certifications required from government, *agrokombinats*, and neighbors, which ensure that a transaction involves many more actors than just the buyer and seller. This may have a chilling effect on transfers in many cases.

#### **4. Intrafamily land transfers (inheritance, etc.)**

The Constitution assures equality of Macedonian citizens regardless of gender or race. According to Macedonian Family Law, legal heirs include both legitimate and illegitimate children. In actual practice, in rural areas most daughters, particularly ethnic Albanian daughters, renounce their legal rights to inherit from their parents, leaving property in the estate to their brothers to distribute among themselves. There are cases in which a daughter will legally inherit land because she is under 18 years of age (heirs under 18 years of age cannot give up their inheritance rights). However, she and the family actually allocate that land to brothers or other male relatives who use and manage the land as if it is theirs. Thus, although a daughter may have legally inherited and legally accepted property and is the formal owner of it, she is not the effective owner.

The Law on the Family specifies that a widow should receive half of the property a couple have accumulated and the children the other half. If the husband contributed more to the estate than the wife, she get less than 50% of the estate. If there are disputes, people go to court and provide evidence on the contribution of the spouses to the estate. Among ethnic Macedonian families, a widow will sometimes claim all or part of her inheritance right, particularly if the children are young or if she feels that she cannot rely on her children's looking after her and she needs to ensure her livelihood. In Albanian families, however, widows do not inherit any property when their spouses die; the eldest male in the family is generally the heir rather than the widow, or the brother of the deceased if there is no son.

The law provides options for parents to transfer real property to their offspring while they are still living as well as after death. There are three types of transfer during life: (1) gift contract, (2) lifetime support contract, and (3) contract for distribution of property during lifetime. These transfers are governed by the 1872 Serbian Civil Code; they are not regulated by the Law on Obligations. They are considered "practical" because they eliminate or reduce land transfer fees: first-generation heirs are exempt from paying the transfer fees on a gift or other lifetime transfer.

The law can do little to change people's behavior in cases like the inheritance rights of women. If law contradicts custom and there is neither a means nor a will to enforce the law, customary practices will prevail. As in most societies, however, nonlegal phenomena such as an increase in the educational attainment of women will eventually lead to changes in custom.

## **5. Protection of agricultural land**

The issue of conserving the quality and quantity of agricultural land was not part of the Land Productivity Action Plan per se. It is advisable, however, to anticipate future problems in land degradation (quality) and conversion to other uses (quantity) as part of an overall strategy of land market development. The detail given here for the protection from environmental degradation is the nucleus of a future “land protection action plan.”

### **Protection from inappropriate conversion to other uses**

Within the zone of economic influence of cities and towns, an unregulated land market will inevitably lead to the conversion of prime agricultural land to other uses: residential, commercial, or infrastructure; this threatens the capacity of the country to feed itself and to generate an exportable agricultural surplus. This is one of the principal areas within a market economy where regulation by government is justified. Attention should be given to the development of a land use planning and zoning system that is responsive to both present economic pressures for conversion and future national needs for productive agricultural land.

The government’s current approach to land use planning is manifest in the Land Use Law, a new version of which is being drafted, and in regulations on “construction land,” land reserved for buildings in the future even if the current use is agricultural. The Land Use Law, and apparently also its successor, is very restrictive and authoritarian. For example, it contains a provision requiring that all agricultural land be cultivated; if the land is not used for two years, the owner must offer it for sale. The construction land provisions are important, since construction land is formally owned by the state and therefore is not subject to purchase or sale, although any buildings on it are.

Future land use planning and zoning must be conducted not by government officials from Skopje, but rather via a participatory process at the municipality or village level. Local variations in the demand for housing and the productivity of agricultural land are large, and local authorities and communities are more likely to understand and have vested interest in locally appropriate land-use planning. The legislation on land use should be harmonized with constitutional principles, should replace prohibitions with incentives, and should permit local governance.

### **Protection from environmental degradation**

Future generations have the right of access to immovable property within a sustainable environment; the design of immovable property market institutions must reflect this right. While markets may be the optimal institutions for allocation of resources in the short run, they may fail to give proper weight to long-run considerations such as future productive capacity. Some buyers of immovable properties may have very short time horizons, intending to recoup their investments rapidly. This can lead to destructive land use practices. Buyers have to be made aware of socially desirable limitations on their use of the land, and these limitations have to be real rather than just legal expressions of empty desires.

The degradation of land resources is a serious impediment to the welfare of the current population as well as that of future generations. Soil erosion is a key problem that relates not only to environmental quality but also to food security. In addition, the potential for catastrophic flooding is great in many

transition countries because of widespread deforestation, loss of soil through erosion, and sedimentation in reservoirs that reduces the storage capacity. The lower plains are susceptible to flooding. The pollution of soil, water, and air by agriculture and industry directly affect health and welfare.

There are several steps that can be taken that will complement market forces to ensure sustainability:

- Document land degradation problems, identifying the nature, extent, and geographical location of the land degradation, with special attention to high-risk areas.
- Conduct research on land degradation: air, soil, and water quality should be monitored on a routine basis. Applied research that is needed to improve the productivity of agricultural ecosystems include: (1) study of alternatives to gravity irrigation systems, (2) ways to maintain drainage channels in reclaimed areas of the plains, and (3) farming systems approaches to avoiding soil erosion. Applied research is also needed to clearly identify and map the high-quality agricultural land surrounding urban areas as well as the location of the urban boundaries.
- Design educational programs to inform farmers and the general public about the types of land degradation, their causes, the extent of the problems, their effects on the welfare, health, and safety of all people, and methods for prevention and protection of the environment. The general public should be educated on the prevention of land degradation because public support is necessary for an effective land protection program.
- Examine existing legislation for adequacy in a land protection program. It is likely that there is a need for developing a Soil and Water Conservation Law that includes provisions for controlling soil erosion on the land and preventing surface and ground water pollution from sedimentation, nutrients, and pesticides resulting from soil erosion. Such a law should involve both national and local governments in soil erosion and water pollution control programs, with responsibilities assigned to both levels.
- Public resources will be needed to address the different types of land degradation by sharing the costs with owners of land or enterprises. It will also be necessary for those owners of land or enterprises where degradation is most severe to share in the costs of correcting the deficiencies.
- Implement a land information system to monitor different types of land degradation. Detailed resource mapping is usually available in transition countries concerning natural resources. However, few of the data have been digitized, and few reproducible maps have been prepared to depict the potential and actual extent of land degradation, particularly the high-risk areas. Many of the data presently are stored in notebooks that survived the initial shocks of government reform. Accordingly, it is essential that these data be archived on computer, at a minimum to show the geographic distribution of various forms of land degradation, especially in areas of high risk.
- Another component of this strategy is the clear and active consideration of what land should be exempted from normal market activities, such as greenbelts around cities and lands where environmental conditions are fragile or biological diversity is seriously threatened. In such areas the “development rights” of private owners will have to be limited, but in ways perceived as fair and not as confiscation of private ownership rights. This structure for the appropriate limitation of development rights should be rapidly considered, while people are learning what private ownership means for property in which they have not invested much personal, private capital.

## **6. Equity considerations**

For land and other immovable property markets to work properly, there have to be many participants on both the demand and the supply side. Market participants must also have access to reliable, up-to-date information on property availability, prices, and conditions. Moreover, in order to avoid tensions due to the polarization of society the immovable property market has to be open to all the people, those with initial capital and those without, to women as well as men, to people of different ethnic backgrounds. Examples of programs which are needed include:

- publicly accessible information on property prices and availability;
- special programs for young people and/or people without capital to assist their competing for land and immovable properties (mortgage guarantees, subsidized loans for beginning farmers, local government land-bank programs);
- removal of biases against certain social groups' rights to buy and rent properties;
- protection of the rights of family members, especially spouses, to participate in transactions to avoid irresponsible behavior of family heads;
- simple rules for family management of immovable properties when the family head is absent; and
- clear and simple rules applicable to all social groups for the transfer of ownership, for leasing and renting, for inheritances, and for mortgaging of immovable property.

## **7. Conflict resolution**

Privatization and denationalization of land inevitably engenders disagreements among recipients and between recipients and the government. Sometimes this is inherent in the process: most Central and Eastern European countries restituted some, but rarely all, land to the previous owners; in other countries, such as Albania, ex-owners are generally being compensated in money instead of land. In neither situation can everyone be accommodated completely. In addition, boundary conflicts and inheritance disputes will gradually arise as land is more clearly perceived as a valuable asset. Not all of these disputes will be able to be handled at the local level, and the civil court system is likely to be inadequate to handle the volume of litigation, especially because its responsibilities unrelated to land have also increased during the transition. In some countries a special administrative tribunal has been created to relieve the pressures on the courts by the very numerous conflicts among people concerning the facts of ownership and use of land. Such a tribunal would operate with more flexible rules of evidence and would include both lawyers and nonlawyer land specialists as members of the tribunal.

## **8. Cadastral property registration system**

Potential buyers, lessees, renters, and mortgagors will not readily offer to acquire the ownership or use of properties unless they are able to identify the true owner or use-right holder and be confident that the rights are securely held. The public identification of the true users and owners of immovable properties is one of the main functions of an immovable property registration system.

The current cadastral land registration system is in the process of modernization, with updating of maps and storage techniques as well as verification of current land titles. The system has two serious flaws, however:

- The only registered interest contained in the cadastre is ownership. Such interests as mortgages, leases, tax liens, and so forth are not included in the registry. The problem with this is that potential purchasers or lenders cannot learn whether the title to a parcel is free and clear, and therefore must devote considerable effort to title search, and even then must face risks. This has not been a problem in the past, when interests other than ownership were trivial in Macedonia, but will be in the future when transactions become more frequent.
- Many transactions have been unregistered in the cadastre although they have been registered in the court system. This is partly due to the high level of the former transfer fee; there is some evidence that since the fee was reduced and people are registering prior transactions, the current volume of registrations is an overestimate of the current volume of transactions.

There is ample regional experience with the development of immovable property registration systems that could be brought to bear in Macedonia. Most countries, following the lead of nearly all industrial nations, have adopted the principle of a unified system, with all types of land and other immovable property entering into the same system. In other words, the cadastre covers not only agricultural land owned by private farmers but also land owned by the state and given in use or lease to the social sector or others, as well as land used for residential, commercial, pasture, forests, protected areas, roads, administrations, etc. Thus every square meter of land in the country is in an identifiable parcel, with all relevant interests in land recorded.

The advantages of a unified title registration system are numerous. First, it reduces transactions costs because the information is all in one place; persons interested in a parcel would save time and money (for example, if the parcel were on construction land that information would be included). Second, it is much easier to use the information for planning; a single database would be sufficient to construct a comprehensive cadastral map for any one of a number of purposes, e.g., siting of utilities, determining appropriate urbanization districts, or identifying alternative consolidation patterns.

It is extremely important that the registration system be accessible to all users, both those registering their interests in land and those desiring to obtain information about parcels. This implies that the registration process should be as streamlined and low-cost as possible (full cost recovery is possible, as experience in other countries shows) and that anyone be able to consult the records on short notice. In other words, the registration system should be a public service rather than an administrative agency.

## **9. Consolidation of fragmented private farm holdings**

The experience with administrative efforts to promote consolidation of fragmented farm holdings is not promising, in either Macedonia or elsewhere. Benefits of successful consolidation are not as large or as widespread in practice as they are in theory, as the LTC survey research shows; parcel size and comprehensive indexes of fragmentation do not show a strong negative relationship with productivity. Furthermore, costs of consolidation programs are high, farmers are reluctant, and frequently there is reversion to old boundaries once the formal exercise is complete. In Hungary,

for example, an expensive, donor-supported program using computer-graphical techniques to demonstrate the equivalence in productive potential of rationalized parcels has been completely unable to convince key local decision-makers to agree to participate.

While it is preferable for market forces to play a major role in determining appropriate farm sizes and levels of fragmentation, in the early stages of market operation such forces may not give sufficiently clear signals. Therefore, it will be necessary to develop a system of targeted incentives to encourage farmers to seek means of consolidation, by entering into agreements with relatives and neighbors to exchange parcels, to increase farm size or increase the average size of their parcels by other means. The incentives could consist of tax credits, differential access to credit, or other government-supported initiatives, or could be tied to other programs such as access to leasing of state-owned land or technical support from the extension service. However the program is structured, it should be preceded by serious efforts to understand the entire set of constraints to consolidation and also by a campaign of public information about the goals and mechanisms of the consolidation program.

## **10. Social sector restructuring: leasing of publicly owned agricultural land**

It is clear now that the *agrokombinats* will be privatized in some manner over the next few years. To some extent, current employees and managers have a privileged view of their enterprises, and they are therefore essential participants in the restructuring process. On the other hand, they should not have complete decision-making power, because the enterprises were developed and supported by state resources (i.e., resources of the entire population). Since national interests are involved, representatives of those interests—both government and nongovernment—should be included in the design of restructuring. The Land Markets Project is concerned not with the overall privatization process of the *agrokombinats*, but only with the productive use of the land they now hold. The current government strategy is not to privatize that land, but to retain it in state ownership and to lease it out to private users on a long-term basis.

The land resources currently held by the *agrokombinats* are to be made available to private users, both the successor enterprises and individuals. The provision in the Law on Transformation permitting the privatized successors to have exclusive use of the land, rent-free, for five years is a violation of both the principles embodied in the Constitution and the national interest in the development of a land market that encourages land to move toward its most productive use. Rent-free land, as a “free good,” will be insulated from market forces; the enterprises will have no incentive to consider it a scarce resource. Justifications given for the provision vary; the most compelling are that the *agrokombinats* have made investments in the land that should be compensated by forgiveness of rent, and that the current debt burden of the *agrokombinats* does not permit them to pay rent. The former is inconsistent with government policy that prevented the *agrokombinats* from owning “privately” the land they have purchased; furthermore, the *agrokombinats* have had the land rent-free for years already, which is adequate compensation for investments. The burden of the debt is evident, but there are better ways to deal with the problem, such as rescheduling or assumption of the debt by the state.

If the law cannot be amended to remove the provision granting land rent-free to the privatized successors of the *agrokombinats*, regulations should be drafted to distinguish among different



types of land. There are two dimensions: the mode of acquisition, and the current use of *agrokombinat* land:

### **Mode of acquisition**

- acquired from the state via nationalization since World War II;
- acquired from the state via reclamation, other investments, or simply by appropriation of commons; and
- acquired via purchase from private farmers.

### **Current use**

- farmed productively by the *agrokombinat*;
- leased to private farmers; and
- unused by the *agrokombinat*.

The six categories clearly should not be treated equally in terms of determining rents. It would be seriously counterproductive for unused land to be leased rent-free, and according the same benefit land currently leased to private farmers would be a pure gift to the new enterprises. Similarly, there is a public interest in the land given to the *agrokombinats* by the state (except for that subject to denationalization) which implies that a lease should not be rent-free. The only type of land where a serious argument for rent forgiveness can be made is land that was purchased by the *agrokombinat* and is currently used productively by it. It should be possible to develop language in the contract to be signed within thirty days of privatization between the government and the privatized successor enterprises that requires the enterprise to use the land productively, or pay market rents, and possibly also to distinguish between land it purchases and land it is granted by the state.<sup>24</sup>

Assuming that at least a portion of the land currently held by *agrokombinats* will be publicly available for lease (and eventually purchase, according to planned legal change), it is important to formulate policies about the terms of the leases. The principal factors to be considered are:

- allocation rules: who is eligible (existing farms, current employees, anyone)? how to allocate (auction; lottery; entitlements)?
- rental fees: what criteria (market value; fixed rate nationally; free, or nominal)?
- length of the lease: longer term may encourage investment and conservation but reduce potential for reallocation in case of inefficient use;
- renewability and inheritability;
- compensation for investments made during the lease term;
- conditionalities: what land use is acceptable (cropping controls, environmental protection)?
- administration: what government structures are required to manage leaseholds?

A related issue concerns other state land with productive potential. Substantial portions of the forests and communal grazing land are retained in formal public ownership, but are used by private people and companies under different arrangements with different entities of public administration. It is

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<sup>24</sup> Care must be taken to avoid excessive supervision requirements and unenforceable land use requirements, however. The distinction between productive fallow and objective abandonment can probably be made.

necessary to find new ways to empower local communities, whose members themselves have interests in using these resources, to benefit from and monitor the private concessions, leases, or rentals of publicly owned pastures and forests.

## **11. Market information and public education**

One of the most dramatic changes in the last few years has been the collapse of the marketing system for most agricultural products. Unless private farmers are able to secure contracts with *agrokombinats* for their output, which they are less able to do than before, they have no sources of market information upon which to make cropping decisions. Their response has generally been either to diversify in order to increase the likelihood that at least one of their products will be marketable (the “lottery strategy,” as one farmer put it) or to concentrate on the few crops, such as wheat and tobacco, for which there is a fairly certain outlet.

It is essential to develop mechanisms by which farmers can get market information so they can make production decisions rationally. One possibility is to assign this task to the extension service, which now concentrates its limited resources on improved seeds, plant protection, and livestock production; or to a university research institute; or to the print and electronic media. Another possibility is to encourage the development of nongovernmental organizations, both nonprofit and for-profit, which could provide market information. One appropriate type of organization is a marketing association, whose performance would be enhanced if its potential clients were aware of market conditions. Such associations could therefore serve as information intermediaries as well as suppliers of inputs and/or purchasers of outputs.

There is also a need for more general information about the impact on people’s lives of the market economy, the reduced role of the state, and the transformation of the social sector. In the sample survey, private farmers expressed astonishing confidence that the government would again be the source of support to their livelihoods, once the unpleasant transition passes. They must be disabused of this notion. They must be made to realize that in the future they will have to rely more on themselves and more on nongovernmental intermediaries. A public education campaign is needed that outlines the legal and structural changes in the relationship between the government and the private economy, as well as more practical information such as how to prepare applications for credit and the existence of emerging opportunities for private initiative.

Finally, the overall agricultural information system requires a major overhaul. Inconsistencies between reporting sources are substantial (see footnote 1) and there are very limited data available on the private farm sector. Now that the government is committed to encouraging private initiative in agriculture, it must have the information available for it to fulfill its new role.

## **C. SUMMARY LEGISLATIVE REFORM AGENDA**

Much legal work is required, but legislation must be drafted in a manner that fits the policy context rather than the legal theory alone. If laws are too prescriptive, they will be unable to adapt as the socioeconomic realities change. If they are too general, they lose all practical meaning. The legislation most likely to succeed in achieving its purpose sets a framework within which government and the private sector understand the rules with certainty and can act rationally in

response to market incentives. The following legislative initiatives should be given priority in order to achieve the goal of secure and marketable titles to private properties.

- Analyze all relevant legislation to ensure that it is in harmony with the constitutional guarantee of the right to private property; amend or replace where necessary; and identify gaps to be filled and legal uncertainties to be clarified. In the perspective of association with the European Union, also verify conformity of the legislation to EU principles.<sup>25</sup>
- Verify the validity of existing titles to private land and buildings. (The Cadastral Office is undertaking a program of modernization, due to be completed in 2001. However, bureaucratic delays are common, as are disputes among the recipients of properties.)
- Modify legislation on land registration to enable the cadastral offices to register other interests on land, such as leases, mortgages, and tax liens.
- Develop legislation on private immovable property services, such as surveyors, real estate brokers, and valuers/appraisers, to ensure efficient, low-cost transactions.
- Modify legislation on mortgages and use of immovable properties as collateral in order to integrate the land and credit markets more fully.
- Adapt land use legislation to incorporate a transparent system for the leasing of state-owned agricultural land and an equally transparent system for its eventual sale. In addition, remove from legislation the restrictive and authoritarian provisions that mandate the productive use of land.
- Clarify the restitution provisions of the draft Law on Denationalization, concerning agricultural land as well as pastures and village land.
- Amend or replace the current legislation on consolidation of agricultural holdings, replacing compulsory elements with incentives and enabling consolidation to be tied to other programs such as the leasing of state land, differential access to credit or extension services, or denationalization.
- Clarify the ownership, management, and use of communal lands, such as pastures and forests close to villages (it is not necessary to privatize these, but only to ensure that owners, managers and users have transparent and equitable relationships).
- Clarify the ownership and use rights to dwelling units and surrounding land through modifications in the legislation on construction land.
- Modify legislation on resolution of conflicts over land due to inheritance and boundary disputes, envisioning the possibility of establishing a special land tribunal.
- Develop and implement condominium legislation and assist in the organization of associations to manage common areas of buildings (governments have been anxious to privatize state-owned dwelling units, but have neglected to establish the condominium arrangements for managing common areas in apartment buildings).

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<sup>25</sup> Report 3 outlines the corpus of relevant legislation and points out many of the important contradictions, but much more work is needed, especially because of the need to adhere to European Union principles and because of the continuing work of the Constitutional Court.

- Define the rights of the constituent members of the various types of associations and commercial companies which will own and lease land. Privatization of land often means that not just individuals or families become the owners of rights, but that partnerships composed of several families hold those rights to land. The rights of the members to the assets of the collective are often inadequately defined; this has led to the gradual bankrupting of the collective.
- Clarify and legalize the easements on private or privately used parcels of land, both rural and urban. The breakup of large fields into smaller parcels often overlooks the question of access to parcels not bordering on access roads or water sources.

## **D. FINANCIAL AND TECHNICAL ASSISTANCE TO SUPPORT THE DEVELOPMENT OF LAND MARKETS TO PROMOTE EFFICIENT, SUSTAINABLE, AND EQUITABLE INCREASES IN AGRICULTURAL INCOMES**

On the basis of the research results and their policy implications, the Land Markets Project team proposes a series of follow-on activities which will enhance the prospect for successful development of land markets and the consequent improvements in agricultural productivity and profitability. Six themes are identified: (1) legal reform; (2) upgrading the cadastral land registration system; (3) improving public land administration capacity; (4) establishing monitoring and policy analysis capacity; (5) consolidation; and (6) market information and public education. International donor assistance will be required for all of these activities, to varying degrees; they are not necessarily independent “projects,” but could be easily combined in some manner.

### **1. Legal reform**

The Republic of Macedonia has a good number of well-trained attorneys to analyze and draft legislation. Their exposure to market-oriented, democratically based legal concepts and legislative processes is, however, limited. Furthermore, the best legislation is grounded in an understanding of political, economic, social, and technical realities that are rarely part of the typical legal education. There is a need for technical assistance from Europe or North America to assist the appropriate government agencies in undertaking the substantial amount of legislative work detailed above.

Based on experiences in other countries, the technical assistance should consist of a mix of long-term and short-term support. At a minimum, there should be one broadly trained expatriate legal advisor, housed in the Ministry of Justice;<sup>26</sup> it would be preferable to have another advisor in the Ministry of Agriculture, either an economist with ample experience in legal reform or a lawyer

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<sup>26</sup> For legal development it is essential that the advisors be closely connected to the Ministry of Justice, because that is the agency responsible for guiding the legislation through the process from drafting to enactment. If the principal advisor is in the Ministry of Agriculture or any other sectoral ministry, draft laws and regulations tend to receive lower priority by the government and the Parliament.

with solid understanding of agricultural economics.<sup>27</sup> The long-term assistance should be complemented by a cadre of legal, economic, and social consultants who would address specific issues at the recommendation of the long-term advisors.

It is estimated that this legal reform program could be accomplished in two to three years, thus requiring four to six person-years of long-term expatriate technical assistance and approximately thirty-six person-months of short-term expatriate technical assistance. An equivalent amount of Macedonian technical assistance would be needed. Material assistance should include adequate office equipment.

## **2. Upgrading the cadastral land registration system**

The current project of the Geodetic Administration to update all cadastral maps and title registers is due to be completed by 2001. That project will need to be complemented by a broadening of the content of the registry to supplement the current information on ownership with other interests in land, such as leases, mortgages, and tax liens. In addition, the registry offices will have to be reorganized so that they can provide the public service required by an active land market: inexpensive and open access to information on land parcels. A new title document must be developed, new administrative procedures defined, and information systems designed and equipped.

Technical and financial assistance to this effort will complement the substantial Macedonian capacity in land titling and registration. Experience from other countries with unified title registration systems will be brought to bear. It is estimated that this program would require one to two person-years of long-term expatriate assistance in the initial stages of a project whose life would be approximately five years, together with short-term assistance in information management and registry procedures and substantial support to office reconstruction and computerization.

## **3. Reinforcement of public land administration capacity**

Whether the government persists in its determination to retain the ownership of substantial agricultural land or instead decides on eventual privatization, it will retain ownership of a large area of productive land, both rural and urban, and also will continue to have an interest in productive use of private land. In the market context it must develop a streamlined land administration system, both to determine the most appropriate use of the land and to receive income from land, its most valuable single asset. There are three elements of public land administration that need to be addressed, apart from the immovable property registration system detailed above: (1) land taxation, (2) administration of leases and other forms of land use permits, and (3) land use planning and zoning.

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<sup>27</sup> Depending on the extent to which parliamentary processes are a constraint to timely legislative reform, it might also be desirable to have a long-term advisor to the appropriate committees of Parliament.

1. Development of an appropriate land taxation system is important not only because its proceeds could contribute substantially to the revenues of local governments, but also because it could give incentives to landowners to use their land appropriately. Assistance from countries where property taxation is a major source of revenue and is used as an active land-use policy tool will be highly useful. An expatriate advisor with expertise in property valuation in transition countries, housed in the Ministry of Finance, could assist the government in the creation of such a system within two years. The advisor should have access to short-term consultant resources in legal issues and database management.

2. The Ministry of Agriculture is currently responsible for land management for several hundred socially owned agricultural enterprises as well as for leases of small, scattered parcels of “unorganized” social sector land. In the future, the number of enterprises using state land will be greater. In addition, it is likely that pastures and forests will be managed under leasehold or other types of permits granted to private land users. A completely new administrative structure will be required. That structure will have to maintain records on applications for land use, current leases and permits, rental payments, and renewal documents. It must also determine procedures to allocate land access among competing applicants, set the appropriate rental rates, adopt mechanisms to enforce timely payment, and develop criteria and procedures for the eventual sale of some of the state’s land assets once this becomes legally possible.

International experience in leasing publicly owned agricultural land is limited, but sufficient expertise exists to assist Macedonia in developing an efficient and transparent system. Agencies such as the US Bureau of Land Management (BLM) or its Western European equivalents could provide expertise in establishing the initial conditions for leasing, and monitoring and policy analysts (see D., below) could gather and analyze the information required to assess the performance of leaseholders, and could recommend adjustments in lease terms if required.

3. In order to manage the inevitable expansion of towns and cities and the concomitant depopulation of villages, it is important for the government to develop serious land-use planning and zoning capabilities. The procedures should be participatory and decentralized, and should take account of both the need for increases in residential and commercial land use and the preservation of high-quality agricultural land.

A possible project would involve pilot work in several municipalities with varying degrees of pressure for conversion of land use. Given the lack of experience with decentralized decision-making in Macedonia, external assistance will be required. Expertise in participatory decision-making, graphical and other techniques of spatial planning, and land economics would be available from Western consultancy firms, nonprofit organizations, or academic institutions.

#### **4. Establishment of monitoring and policy analysis capacity to support market-oriented agriculture and land market development**

The Ministry of Agriculture and the research and educational establishments concerned with agriculture have historically concentrated their efforts on the management of social-sector farms. There is little understanding of the process of policy analysis and formulation. There is no experience and no capacity for support to, or understanding of, the problems of private agriculture. There are few private entrepreneurs with the background required to provide essential

services to the private farm sector. This is true both in the specific case of land issues and in the more general case of agricultural development.

The Ministry of Agriculture and the Extension Service must convert their staffs from their current administrative vocation to policy development for, support to, and assessment of private agriculture. This will require substantial retraining of existing employees and recruitment of new, well-trained employees. It will also require equipment, means of transportation, and nonnegligible operating costs.

The Macedonian educational system's capacity for training and retraining is inadequate. A substantial effort is required for development of new degree programs at the University of Cyril and Methodius and perhaps other secondary and higher educational institutions as well as numerous nondegree courses for mid-career training. The program outlined here includes not only elements directly tied to land, but also those which are closely complementary. The subjects should include technical content and policy formulation and research methodology in the following areas:

- agricultural economics: production analysis; farm management; farming systems research; land, labor, and credit market analysis; marketing; natural resource economics;
- rural sociology: household division of labor, community resource management, migration;
- agrarian law: European Union agricultural law, comparative agrarian law, property rights, transactions, inheritance; and
- geographical information systems / land information systems: database management, graphical representation of spatial data, electronic surveying techniques, remote sensing

International assistance to this program should be provided by a Western European or North American educational institution (such as CIRAD in France, Wageningen in the Netherlands, University of Wisconsin or Michigan State University in the United States) with significant experience in the development of educational and research capacities in developing countries. An institutional contract between such an institution and the Ministry of Education, for a minimum duration of five years and preferably seven to ten, would comprise:

- curriculum development and production of appropriate educational materials in the Macedonian language;
- degree and nondegree training abroad for current research and instructional staff of Macedonian educational institutions to enable them to train current and future Ministry of Agriculture staff;
- courses taught by expatriate educators while current Macedonian staff are in training abroad;
- upgrading of research capability via collaborative research programs and improved equipment; and
- support to retraining programs for government officials and training programs for private land market intermediaries

## **5. Consolidation**

It is not recommended that there be a major program to re-engineer the private agricultural sector via consolidation. There are, however, possible approaches that may accelerate a consolidation

process that the land market would eventually achieve. Incentives can be developed, either directly via tax policy or differential access to credit or indirectly via linking participation in other programs to participation in consolidation. For example, private farmers wishing to lease state land might be encouraged to trade or sell parcels distant from their residences. Any program should be preceded by serious efforts to understand the entire set of constraints to consolidation and also by campaigns of public information about the goals and mechanisms of the consolidation program.

Modern graphical techniques such as Geographical Information Systems (GIS) can be of assistance in designing more rational landholding patterns, especially in zones where land is of roughly equal quality from parcel to parcel. Despite the lack of success of the Hungarian example cited above, GIS techniques can be powerful contributors to a transparent and participatory process that demonstrates understanding of the historical and economic processes that have led to fragmentation.

The extension service, in spite of its limitations, is the most relevant government agency to catalyze any consolidation efforts or farmer initiatives. It should initiate pilot programs, perhaps based on an assessment of the Land Markets Project database, to identify areas where fragmentation is a problem, where farmers recognize it to be a problem, and where they express willingness to participate in consolidation.

## **6. Market information and public education**

Macedonia must reconstruct its information gathering and delivery infrastructure. The government must play a central role by reorienting the Office of Statistics and the Ministry of Agriculture toward the collection and dissemination of information that is useful to agricultural enterprises and by developing a public information strategy that educates market participants about the implications of the market economy for the relative responsibilities of individuals, enterprises, communities, and the state. On the other hand, the government is not necessarily the appropriate entity to determine either what information is required or by what means it should be made available to the public.

The most appropriate way to begin work on this theme is to conduct an assessment of current statistics and market information, alternative dissemination sources, and potential demand, and to formulate a strategy for improvement. An expatriate team, composed of a media specialist, an expert in agricultural market statistics (perhaps from the US Department of Agriculture's Economic Research Service), and a rural sociologist and/or agricultural economist could provide important technical assistance to this assessment.



## **APPENDIX 1: PERSONNEL**

### **Research team:**

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Recognition is also due to others who contributed their efforts to our work in many ways. Among these are Mr. Arben Abdullahu (interpreter and computer consultant), Ms. Mimoza Abdullahu (interpreter), Ms. Elizabet Kicevska (research assistant, economics), Mr. Isak Sinani (research assistant, economics), Ms. Viki Vecevska (data entry), and Ms. Vesna Dokuzovska (data entry).

## **APPENDIX 2: BACKGROUND LITERATURE REFERENCES**

- 1: Jorde Jakimovski : Cooperative movement in Republic of Macedonia, Skopje, 1995, p. 192.
2. Jorde Jakimovski: Status and perspectives of policy and managing of rural areas.  
A Yearbook of the Institute of Sociological, Political and Juridical Research, 1994, pp. 211–229.
3. J. Jakimovski: Some socioeconomical changes in private farm structure.  
A Yearbook of the Institute of Sociological, Political and Juridical Research, 1987, pp. 165–182.
4. P. Markovik: Socioeconomic changes in Republic of Macedonia, Institute of Sociological, Political and Juridical Research, Skopje, 1970, p.169.

### APPENDIX 3: STRUCTURE OF THE OPTIMAL SAMPLE BY REGION, MUNICIPALITIES, AND VILLAGES

<b>Mediterranean region</b>						
Municipality	Village	< 1.0 ha	1.01–2 ha	2.01–5 ha	>5.01	Total
1.Valandovo	1.Pirava	5	3	4	0	12
2.Gevgelia	1.Prdejci	4	3	4	1	12
	2.Miravci	7	4	4	1	16
3.Kavadarci	1.Rosoman	8	3	6	1	18
	2.Drenovo	7	4	4	1	16
4.Kocani	1.Ciflik	4	4	6	2	16
	2.Ularci	4	5	6	1	16
5.Negotino	1.Pepeliste	8	4	6	2	20
6.Sv.Nikole	1.Lozovo	6	2	6	4	18
7.Strumica	1.Veljusa	4	5	7	0	16
	2.Murtino	5	6	6	0	17
	3.Piperovo	4	5	7	0	16
	4.Kolesino	5	5	6	1	17
8.T.Veles	1.Ivankovci	7	2	6	3	18
	2.Teovo	7	2	5	2	16
9.Stip	1.Tarinci	8	2	7	1	10
10.Vinica	2.Istibanje	6	5	6	1	18
11.Radovish	1.Injevo	4	3	5	2	14
	2.Kalugerica	5	2	5	2	14
<b>Totals</b>	<b>19</b>	<b>109</b>	<b>68</b>	<b>104</b>	<b>29</b>	<b>310</b>
<b>Pelagonian region</b>						
Municipality	Village	< 1.0 ha	1.01–2 ha	2.01–5 ha	>5.01	Total
1.Bitola	1.Novaci	4	3	7	2	16
	2.Kukurecani	4	3	7	3	17
	3.Bistrica	4	4	7	3	18
2.Prilep	1.Krivogastani	7	2	6	2	17
	2.Ropotovo	7	3	7	3	20
	3.M.Konjari	7	2	6	2	17
	4.Topolcani	6	3	7	2	18
3.Krusevo	1.Bucin	3	4	5	0	12
4.D.Hisar	1.Strugovo	3	3	7	2	15
<b>Totals</b>	<b>9</b>	<b>45</b>	<b>27</b>	<b>59</b>	<b>19</b>	<b>150</b>

<b>Western region</b>						
Municipality	Village	< 1.0 ha	1.01–2 ha	2.01–5 ha	>5.01	Total
1.Brod	1.Plasnica	3	4	5	1	13
2.Gostivar	1.Cegrane	7	4	5	0	16
	2.G.Banica	7	4	5	1	17
	3.Zubovce	8	4	5	1	18
3.Debar	1.G.Papradnik	4	3	3	2	12
4.Kicevo	1.Gresnica	6	4	5	1	16
	2.Srbjani	5	5	5	1	16
5.Tetovo	1.Kamenjane	7	6	7	1	21
	2.Celopek	6	7	6	1	20
	3.Tearce	7	7	6	0	20
	4.Siricino	7	7	6	1	21
<b>Total</b>	<b>11</b>	<b>67</b>	<b>55</b>	<b>58</b>	<b>10</b>	<b>190</b>
<b>Skopje-Kumanovo region</b>						
Municipality	Village	< 1.0 ha	1.01–2 ha	2.01–5 ha	>5.01	Total
1.Skopje	1.Ljubanci	7	4	7	2	20
	2.Iinden	7	5	7	1	10
	3.Petrovec	8	4	7	1	20
	4.Studenicani	7	4	7	2	10
	5.Laskarci	7	4	7	2	20
2.Kumanovo	1.Ljubodrag	2	3	8	3	16
	2.Lopate	2	3	8	3	16
	3.Tromege	3	4	8	3	18
	4.Klecevice	4	4	8	4	20
<b>Total:</b>	<b>9</b>	<b>47</b>	<b>35</b>	<b>67</b>	<b>21</b>	<b>170</b>

## APPENDIX 4: HOUSEHOLD LEVEL SURVEY INSTRUMENT

Land Tenure Center–Skopje

### Project for the Analysis of Land Tenure and Agricultural Productivity in the Republic of Macedonia

#### PRIVATE SMALL-SCALE FARM SECTOR SURVEY

Questionnaire No. \_\_\_\_\_

Municipality:

Enumerator name:

Village:

Date:

Farm:

#### **I. Demographic questions for head of household, spouse, and other household members.**

1.) Are you the head of the household?

1. YES
2. NO

2.) Are you the sole manager of the farm, or do you co-manage the farm?

1. Sole manager
2. Co-manager with \_\_\_\_\_(relation)

3.) In what year did you begin to manage (or co-manage) the farm? \_\_\_\_\_

4.) What is your ethnicity? \_\_\_\_\_

5.) What is your religion? \_\_\_\_\_

6.) Please complete this table for all family members (including children) currently residing in your household.

No	Relationship to head of household.	SEX M=1 F=2	AGE	Education Level	Occupation	Full (1) or Part-time (2) on farm? No work on farm = (0)
1.	Household Head					
2.	Spouse					
3.						
4.						

No	Relationship to head of household.	SEX M=1 F=2	AGE	Education Level	Occupation	Full (1) or Part-time (2) on farm? No work on farm = (0)
5.						
6.						
7.						
8.						
9.						
10.						
11.						

7.) Have any members of your immediate family left the household in the past ten years (since 1985)?

1. YES
2. NO

7a.) If “YES”, please complete the following table for any member of your immediate family that once resided in your home, but currently no longer resides in your household.

No.	Relation to HH Head	SEX M=1 F=2	AGE	DATE LEFT	Current residence	Reason for leaving

**II. Information on land acquisition.**

- 8.) How many hectares comprise your holding? \_\_\_\_\_ ha
- 9.) How many noncontiguous parcels of land comprise your holding? \_\_\_\_\_
- 10.) Can you make a diagram showing your farm and all of its parcels? (*Attached diagram - include location of farmstead and parcels in relation to village.*)
- 11.) From your home, what is the distance to:
  - a.) Your farthest parcel. \_\_\_\_\_ km
  - b.) Your nearest parcel \_\_\_\_\_ m/km



13.) Have you sold or permanently transferred any of your holdings to other farmers in the past ten years?

1. YES
2. NO

13a.) If “YES”, please complete this table for all parcels which you have sold or permanently transferred to other users.

Land Acquisition Table Part B:

Parcel in Dekars	Year originally acquired	Form of Acq'tion	Year of transfer	Form of transfer	Document used	Price	Trans. costs	Reason
		<i>inherit=1</i>			<i>pos. list=1</i>			
		<i>purchase=2</i>			<i>tapija=2</i>			
		<i>gift=3</i>			<i>Serb tapija=3</i>			
		<i>lease=4</i>						

14.) If you inherited your holding, did you inherit the *entire* holding of your parents?

1. YES
2. NO

14a.) If “NO”, how was your parent’s original holding divided?

<u>RELATION</u>	<u>SIZE OF HOLDING INHERITED</u>
self	_____dekars
_____	_____dekars
_____	_____dekars
_____	_____dekars



- 15.) Have you leased in land in 1995?
1. YES
  2. NO
- 16.) If “YES”;
- a.) how much? \_\_\_\_\_dekar(s)
  - b.) how many parcels comprise the dekar(s) in part “a.”? \_\_\_\_\_
  - c.) at what price? \_\_\_\_\_DEM/dekar
  - d.) how long have you leased this land? \_\_\_\_\_
- 17.) From whom did you lease the land ?
- a.) From a Social Agricultural Enterprise. \_\_\_\_\_ha
  - b.) From a private farmer. \_\_\_\_\_ha
  - c.) Other \_\_\_\_\_ ha
- 18.) Would you like to own or lease more land?
1. YES
  2. NO
- 18a.) If “YES”, what constrained you from buying or leasing more land?
1. Lack of credit
  2. Lack of available land
  3. Legal constraints
  4. Other
- 19.) Have you leased out land in 1995?
1. YES
  2. NO
- 20.) If “YES”:
- a.) how much? \_\_\_\_\_dekar(s)
  - b.) how many parcels comprise the dekar(s) in part “a.)”? \_\_\_\_\_
  - c.) at what price? \_\_\_\_\_DEM/dekar
  - d.) how long have you rented out this land? \_\_\_\_\_
- 21.) To whom have you leased land ?
- a.) To a Social Agricultural Enterprise. \_\_\_\_\_ha
  - b.) To a private farmer. \_\_\_\_\_ha
  - c.) Other \_\_\_\_\_ ha

### III. Information on farm structure and land use.

22.) Did you cultivate/seed the total area of overall *arable* holdings in 1995?

1. YES
2. NO

23.) If "NO", what is the total amount of arable land that was not cultivated in 1995?

\_\_\_\_\_hectares/dekars (*circle one*)

24.) What are the reasons for not cultivating this land? (*Circle all that apply*)

- a.) Machine cultivation is not possible because of steep elevation of the land.
- b.) Machine cultivation is not possible due to the fragmentation of the holding.
- c.) Due to the poor quality/ fertility of the land.
- d.) Due to the distance or the arable plot from the farmstead.
- e.) Due to employment of the members of the household off the farm .
- f.) Due to old age.
- g.) Due to unorganized purchase of agricultural products and low purchase prices.
- h.) The young people are not interested in farming.
- i.) For the needs of my household, it is not necessary to cultivate the entire area of holding.
- j.) The revenues from agriculture are too low.
- k.) Lack of credit.
- l.) Inability to hire labor.
- m.) Other reasons \_\_\_\_\_.
- n.) Cultivated all of the land

25.) What is/are the principal crop(s) that you produce?

- a.) \_\_\_\_\_
- b.) \_\_\_\_\_
- c.) \_\_\_\_\_
- d.) \_\_\_\_\_
- e.) \_\_\_\_\_

26.) Go to *Aggregate Production Table*.

27.) Do you plan your crop pattern and rotation according to variations in parcel characteristics?

1. YES
2. NO

28.) Go to *Principal Crop Table* for input/output data.

**IV. Marketing Information**

29.) Is there a socially owned agricultural enterprise or cooperative in your municipality?

- 1. YES
- 2. NO

29a.) If “YES”, does this agricultural enterprise/cooperative purchase any of your output?

- 1. YES
- 2. NO

30.) How do you acquire your seed inputs? (circle all that apply)

- a.) On farm production.
- b.) Social Agriculture Enterprise
- c.) Private farmer
- d.) Other: \_\_\_\_\_

31.) How, do you arrange to sell your surplus of agricultural products? (circle letter)

a.) A previously agreed upon contract with an agricultural enterprise, processing plant or cooperative.

List products: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

b.) Sales to agricultural enterprise, processing plant or cooperative *without* contract.

List products: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

c.) On the free market to individual consumers.

List products: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

d.) Free negotiation with private trading companies.

List products: \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

e). If someone else, then whom? \_\_\_\_\_

List products: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

32.) Has the purchase of agricultural goods been irregular in recent years?

1. YES

2. NO

32a.) If "YES", in what year did the purchases became irregular? \_\_\_\_\_

32b.) If "YES", which difficulties, according to you exist? (circle all that apply)

1. Late payment

2. Low prices

3. Delivery problems

4. Few buyers

5. Other \_\_\_\_\_

33.) Who should resolve these problems and how?

34.) Who should organize the marketing of the agricultural products?

35.) Under what terms should such marketing be organized?

#### **V. Livestock and other capital holdings.**

36.) What were your livestock holdings for the year 1995?

A. Number of oxen and cattle:

1.) calves \_\_\_\_\_

2.)bull calves \_\_\_\_\_

3.)mature oxen \_\_\_\_\_

4.)heifers \_\_\_\_\_

5.)milking cows \_\_\_\_\_

TOTAL \_\_\_\_\_

B. Swine/Hogs

1.) sucklings \_\_\_\_\_

2.) skinny pigs \_\_\_\_\_

3.) meat pigs \_\_\_\_\_

TOTAL \_\_\_\_\_

C. Sheep and goats

1.) lambs \_\_\_\_\_

2.) sheep \_\_\_\_\_

3.) baby goat \_\_\_\_\_

4.) goats \_\_\_\_\_

TOTAL \_\_\_\_\_

- D. Horses and asses \_\_\_\_\_
- E. Poultry \_\_\_\_\_
- F. Milk production in liters: \_\_\_\_\_
- G. Egg production: \_\_\_\_\_

37.) How has this stock varied over the last 5 to 10 years?

- 1. Stock has been reduced
- 2. Stock has been increased
- 3. Stock has stayed the same

38.) Do you use livestock (oxen or horses) for farm work? (circle all that apply)

- 1. Traction
- 2. Transportation
- 3. No livestock used for farm work

39.) Which type of mechanization do you own, and how many pieces?

- |                       |                |             |
|-----------------------|----------------|-------------|
| a.) Tractors          | <u>NUMBER:</u> | <u>AGE:</u> |
| 1. Up to 35 HP        | _____          | _____       |
| 2. 36-60 HP           | _____          | _____       |
| 3. Over 60            | _____          | _____       |
| b.) Rototiller        | _____          | _____       |
| c.) Combine           | _____          | _____       |
| d.) Additional parts  |                |             |
| 1. Plows              | _____          | _____       |
| 2. Seeder             | _____          | _____       |
| 3. Harvester          | _____          | _____       |
| 4. Topper             | _____          | _____       |
| 5. Bailer             | _____          | _____       |
| 6. Miller             | _____          | _____       |
| 7. Trailer            | _____          | _____       |
| 8. Other              | _____          | _____       |
| 9. Other              | _____          | _____       |
| e.) Animal traction   |                |             |
| 1. Horses             | _____          | _____       |
| 2. Oxen               | _____          | _____       |
| 3. Additional hitches | _____          | _____       |

40.) Do you rent or borrow equipment?

- 1. YES
- 2. NO

40a.) If “YES”

- a.) What type: \_\_\_\_\_
- b.) From whom: \_\_\_\_\_
- c.) At what price: \_\_\_\_\_

## **VI. Farm Planning**

41.) Have you made any improvements and/or changes to your land? (Circle all that apply)

- a.) Improved irrigation
- b.) Improved drainage
- c.) Improved borders
- d.) Planted trees
- e.) Buildings
- f.) Fences
- g.) No improvements

42.) How did you finance these improvements?

- a.) Credit
- b.) Savings
- c.) Other \_\_\_\_\_

43.) Do you currently have access to credit?

- 1. YES
- 2. NO

43a.) If “YES”, from whom do you borrow? \_\_\_\_\_

43b.) If “YES”, at what interest rate? \_\_\_\_\_

44.) Do you have access to services provided by the Extension Service?

- 1. YES
- 2. NO

44a.) If “YES”, what type? (Circle all that apply)

- 1. Seed inputs
- 2. Breeding
- 3. Marketing information
- 4. Crop planning information
- 5. Government agricultural policy information
- 6. Other \_\_\_\_\_

45.) Are there other agricultural services that you receive from the public sector?

46.) Where do you get the information that enables you to plan your crop pattern? (Circle all that apply)

- a. Socially owned agricultural enterprise or cooperative
- b. Extension service
- c. Private traders
- d. Fellow farmers
- e. Family tradition
- f. Own marketing experience
- g. God
- h. Mass media
- i. Other \_\_\_\_\_

47.) In your opinion, is the land too fragmented?

- 1. YES
- 2. NO

48.) If "YES", would you like to consolidate your holdings into a smaller number of plots?

- 1. YES
- 2. NO

49.) If "YES", what prevents you from consolidating your land? (Check all that apply)

- 1. Can't purchase the plots I want
- 2. Can't sell the plots I own
- 3. Equity problems with swapping land
- 4. Legal constraints to swapping land
- 5. Other \_\_\_\_\_

50.) Would you support a consolidation program initiated by the government?

- 1. YES
- 2. NO

51.) What other means might be used to solve the problem of overly fragmented land?

52.) What do you consider to be the most significant constraint(s) to your farm operation?

53.) Is there anything else that you would like to add?

## APPENDIX 5: VILLAGE LEVEL SURVEY INSTRUMENT

Land Tenure Center - Skopje

### Project for the Analysis of Land Tenure and Agricultural Productivity in the Republic of Macedonia

#### QUESTIONNAIRE FOR VILLAGE LEVEL DATA COLLECTION

Region \_\_\_\_\_

Municipality \_\_\_\_\_

Surveyed village \_\_\_\_\_

No. of form \_\_\_\_\_

Date of survey \_\_\_\_\_

Enumerator \_\_\_\_\_

#### I. BASIC DATA ON THE VILLAGE, POPULATION AND PRODUCTION FACILITIES

1. The distance of the village from the municipality centre \_\_\_\_\_ km.

2. Elevation of the village \_\_\_\_\_ m.

2a. Topography

1. Flat

2. Hilly

3. Mountainous

4. Mixed (describe) \_\_\_\_\_

2b. Percentage of land by class<sup>28</sup>:

<u>CLASS</u>	<u>% or HA</u>
1	_____
2	_____
3	_____
4	_____
5-8	_____

---

<sup>28</sup> Information for questions 2b. and 8-12 are obtained from the Municipality Cadastral Office.



3. Type of village \_\_\_\_\_
- Condensed
  - Semi-condensed
  - Scattered
4. Population number (at the time of the survey). \_\_\_\_\_
5. No. of households \_\_\_\_\_
- Of these:
- full-time farmers \_\_\_\_\_
  - part-time farmers \_\_\_\_\_
  - Non farming households \_\_\_\_\_
6. No. of inhabited households \_\_\_\_\_.
7. No. of deserted households \_\_\_\_\_.
8. Size of the holdings:
- arable land (grains) and vegetable beds \_\_\_\_\_ ha
  - orchards \_\_\_\_\_ ha
  - vineyards \_\_\_\_\_ ha
  - Meadows \_\_\_\_\_ ha
  - TOTAL ARABLE LAND \_\_\_\_\_ ha
  - Pasture land \_\_\_\_\_ ha
  - Forests \_\_\_\_\_ ha
  - Fallow land \_\_\_\_\_ ha
  - Total land \_\_\_\_\_ ha
9. Arable land
- Private sector \_\_\_\_\_ ha
  - Social sector \_\_\_\_\_ ha
10. Total land
- Private sector \_\_\_\_\_ ha
  - Social sector \_\_\_\_\_ ha
11. The share of the principal crops in the planted land in percentage.
- | Type of crop | %     |
|--------------|-------|
| _____        | _____ |
| _____        | _____ |
| _____        | _____ |
| _____        | _____ |
| _____        | _____ |

12. The share of the fruit production in percentage.

Type of crop	%
_____	_____
_____	_____
_____	_____

13. Livestock in the village

	PRIVATE	SOCIAL
a. Oxen (total no.)	_____	_____
of which dairy cows	_____	_____
b. Sheep	_____	_____
c. Goats	_____	_____
d. Swine	_____	_____
e. Poultry	_____	_____
f. Other	_____	_____

14. Capital holdings of the private farms in the village

	No.
a. Tractors	_____
b. Combine	_____
c. Seeder	_____
d. Plow	_____
e. Other	_____

## II VILLAGE INFRASTRUCTURE

15. Road network

- a. Asphalt road and cobble roads \_\_\_\_\_ km
- b. Macadam (sand and stone) \_\_\_\_\_ km
- c. Dirt road \_\_\_\_\_ km
- d. there are no streets

16. Water pipe network

- a. Water pipe network installation in the houses
- b. Taps/spigot in the farm yards (from the water network)
- c. Public faucets (from the water network)
- d. Village faucets
- e. Village spring (*kladenec*)
- f. Agricultural irrigation network serving \_\_\_\_\_ farmers.

17. Is there a sewage system

- a. Yes
- b. No

18. Communications (telephone):

- a. The village has no telephone lines
- b. The village has telephone lines, with few telephone lines installed.
- c. The village has a network of telephone lines (almost in every household)

19. PTT services:

- 1. there is a PTT office
- 2. there is no PTT office, it is situated \_\_\_\_\_ km. away.

20. Primary school from grade IV to VIII (circle all that apply)

- 1. primary - four grade school
- 2. primary eight grade school
- 3. no school
- 4. the nearest primary four grade school is \_\_\_\_\_ km. away
- 5. the nearest eight grade school is \_\_\_\_\_ km. away

21. Is there a library in the village - reading classroom

- 1. yes
- 2. no

22. Religious premises

- 1. yes
- 2. no

22a.) If "YES", list by type:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**III. INDUSTRIAL FACILITIES IN THE VILLAGE/MUNICIPALITY**

23. The number of industrial enterprises \_\_\_\_\_ with no. of employees \_\_\_\_\_

List industries by type:

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

24. The number socially owned agricultural enterprises \_\_\_\_\_ with no of employees \_\_\_\_\_

List agricultural enterprises by type:      List products purchased in village:

_____	_____
_____	_____
_____	_____
_____	_____

25. Number of Agricultural Cooperatives \_\_\_\_\_ with no. of employees \_\_\_\_\_.

List Cooperative by type:      List products purchased:

_____	_____
_____	_____
_____	_____
_____	_____

26. Number of small businesses (hotel industry, handicraft trade) \_\_\_\_\_

26a.) with no of employees \_\_\_\_\_

27. What type of services do the farmers in this village receive from the extension service?

1. Seed inputs
2. Market information
3. Livestock breeding assistance
4. Crop planning
5. Pest control information
6. No services

28. Persons working outside the village \_\_\_\_\_

## **V. SOCIO - DEMOGRAPHIC AND ECONOMIC FEATURES**

29. Number of households that have ceased to exist in the period 1991 to 1995 \_\_\_\_\_

30. Number of households with only elderly people (over 60 years of age) \_\_\_\_\_

31. Number of households which have left the village in the period 1991 to 1995 \_\_\_\_\_

32. What are the main reasons for leaving the village? (Circle all that apply)

1. Agriculture is no longer profitable
2. Lack of employment opportunities in the village
3. Lack of land necessary to earn a living
4. Employment opportunities in the city

33. Households that have moved to the village in the period 1991 to 1995 \_\_\_\_\_.

34. The directions of the migration from the village?
  - a. At the municipality center
  - b. To another village
  - c. To another municipality/town.
  - d. To the capital of the Republic (Skopje)
  - e. Abroad
35. Compile opinions and attitudes of the youngsters toward the farming as a future vocation.
36. What are your attitudes or opinions about the future of the agriculture and the village?

## **APPENDIX 6: LITERATURE REVIEW ON FRAGMENTATION, WITH REFERENCES:**

### **Introduction:**

The literature on fragmentation that has emerged in recent years reflects a significant shift in the perception of the effects of fragmentation on agricultural productivity. Previous literature has predominantly focused on the negative aspects of fragmentation (in terms of productivity), thus supporting consolidation programs. Recent literature, supported by substantial research, has also highlighted the advantages of fragmented holdings. Recent literature has also taken better note of the costs of consolidation and has benefited from an examination of worldwide consolidation experiences, including successes and failures. For certain, few generalizations can be made concerning the issue due to the heterogeneity of agricultural systems and agricultural environments. For each specific agricultural region or subregion, substantial research is required in order to assess and weigh the advantages and disadvantages of fragmentation against the costs and benefits of consolidation. The following summary of the literature on fragmentation establishes the background from which an examination of the fragmentation issue in the Macedonian context may be realized.

### **Definition:**

The literature notes two distinct interpretations of fragmentation. In one sense, fragmentation is meant to imply the subdivision of farm property into undersized units which are too small for rational (efficient) cultivation. This sense of fragmentation refers to undersized farms as a result of overpopulation and land shortage. The second type of fragmentation refers to the spatial dispersion of farmers' plots over a wide area. This sense of fragmentation implies that the plots are noncontiguous but are intermixed with plots operated by other farmers (Burton and King 1982). Both types of fragmentation commonly coexist. Defined as such, fragmentation is a phenomenon that affects farming systems of all types and all sizes throughout the world. The 1970 Food and Agriculture Organization's (FAO) World Census on Agriculture estimates that 80% of the world's farmland is fragmented (Simmons 1987).

### **Causes of fragmentation:**

The causes of fragmentation fall into two broad categories. First, fragmentation might be an exogenous imposition on farmers. This is often referred to as a "supply side" explanation and is most commonly related to population pressure and land scarcity. Exogenously determined fragmentation levels can also be the result of public policies and/or existing institutions. Second, fragmentation might be the result of choices taken by the farmer. This is referred to as a "demand side" explanation and presumes that the private benefits of fragmentation exceed the private costs (Blarel et al. 1992). Specifically, the major causes of fragmentation are cited as being partial inheritance, overpopulation, land shortage, and political and historical legacy. It is mentioned that

certain causes of fragmentation might be adaptive. For example, inheritance practices may be a means of distributing land in socially and environmentally adaptive ways. It is also noted, however, that field structures that once were adaptive may no longer be effective due to changes in technology. For example, small and oddly shaped plots are unsuitable for efficient cultivation by tractor. While the origin of fragmentation will vary, the advantages and disadvantages of fragmentation may be analyzed independently of the source of fragmentation (Simmons 1987).

### **Advantages and disadvantages of fragmentation:**

#### **I. DISADVANTAGES:**

The disadvantages associated with high levels of fragmentation are identified by the inefficient allocation of resources (labor and capital) and the resulting increased costs of agricultural production.

The disadvantages of fragmentation are provided in a concise form by Simmons (1987) in the following table:

##### A. Physical Problems

- Labor time
- Land loss (border marking, access roads)
- Fencing/border construction cost
- Transportation cost
- Limitations on access

##### B. Operational Difficulties

- Equipment
- Farming techniques and systems
- Management and supervision (of labor)
- Pest control
- Plot abandonment

##### C. Forgone Improvements

- Irrigation
- Drainage
- Conservation

##### D. Social Externalities

- Road and Irrigation Systems
- Regional Agricultural Planning
- National Output

The final category of problems associated with fragmentation refers to the inefficiencies that are shifted onto a society in its entirety as a result of fragmentation. Low levels of productivity and relatively high food prices are examples of the costs that are shifted onto the consumer as a result of fragmentation. As these “costs” to the consumer are not considered in the operation strategy of the farmer, the optimal level of fragmentation for private farmers may be higher than the social optimum. Again it must be noted that each agricultural system and environment is unique, and

that these factors must be carefully considered for each situation in order to guide research and inform policy.

## **II. ADVANTAGES**

Fragmentation allows farmers with scattered plots to benefit from risk management through the use of multiple ecozones and the practice of crop scheduling (Bentley 1987). The advantages of fragmentation are related to the diversity of crop production that the fragmentation provides, although there are also advantages for farmers growing the same crop on several different plots. In general, fragmentation allows farmers to disperse and reduce risk by using a variety of soils and other microclimatic and microenvironmental variations. These variations include differences in soil type, moisture level, altitude, wind, and degree of sunlight. In terms of crop scheduling, fragmentation allows farmers to grow a variety of crops, including crops that mature and ripen at different times. Such a form of crop scheduling allows farmers to concentrate their labor on different plots at different times, thereby avoiding household labor bottlenecks.

In addition to risk management and reduction through crop diversification, fragmentation may offer social (noneconomic) benefits. Inheritance, which is noted as being a cause of fragmentation, has social goals in addition to those of maximizing production. The goal of preserving a farm large enough to support a family is often seen to conflict with the goal of making an equitable distribution of that land to ones heirs. But land is often combined through marriage or from the acquisition of land from noncultivating family members. In practice, inheritance can be interpreted as an institution which allows farmers to meet the economic as well as the social goals of the agricultural system.

### **Degree of fragmentation:**

While fragmentation may be a common phenomenon, the extent of fragmentation varies greatly from country to country, and from farm to farm. The literature identifies six main parameters which may be used to measure the extent of fragmentation. These are; farm size (total holdings), plot number, plot size, plot shape, spatial distribution of plots, and the size distribution of the plots. Of these parameters, size and distance are often considered to be most significant. The size distribution of the plots captures both of these aspects, as it takes into account the location of the larger fields (closer to, or farther from the farmstead). The shape of the plots is an important parameter as mechanization is introduced into an agricultural system. That is to say, farm machinery is most efficient on rectangular plots.

### **Measurement of fragmentation:**

Numerous indices exist to measure the extent of fragmentation at the farm level. The index introduced by Dovring (1960) is somewhat arbitrary and is summarized here only as a point of reference. The Janusworski (1964) index is more empirically sound and is used commonly to evaluate levels of fragmentation in contemporary agricultural systems. These indices are summarized as follows.



### **Dovring (1960)**

In an analysis of early twentieth century land reform in Europe, Dovring claimed that “excessive” fragmentation existed if the number of plots in a farm exceeded its size in hectares. Thus, a 10-hectare farm would suffer from excessive fragmentation if it were divided into more than 10 plots. This number seems to be somewhat arbitrary, and Dovring did not explain how he determined this “excessive” threshold. Dovring attempted to quantify the distance factor by measuring the total distance which the farmer would make by visiting all of his plots, returning to his farmstead after each visit. This calculation has numerous weaknesses, including an assumption about the farmer’s routine and the assumption of uniform field size (Gandle 1994).

### **Januszewski (1964)**

The index developed by Januszewski is commonly used in the analysis of fragmentation in farming systems around the world. This index divides the square root of the total farm area by the sum of the square roots of the plot sizes. This index also ranges between 0 and 1. This index has three properties: fragmentation increases (the value of the index decreases) as the number of plots increases, fragmentation increases when the range of plot sizes is small, and fragmentation decreases when the area of large plots increases and that of small plots decreases (Burton and King 1982). This index ( $K$ ), with ( $a$ ) representing parcel size, is defined as:

$$K = \frac{\sqrt{\sum a}}{\sum \sqrt{a}}$$

Specifically, Januszewski’s index measures the number of plots and the size distribution of the plots. Again, this index fails to account for distance. As most of the indices do not account for distance, this parameter can be included by the use of descriptive information when evaluating the extent of fragmentation.

### **Consolidation:**

Consolidation is, according to its proponents, the solution to fragmentation. Burton and King (1983) identify consolidation as a spatial problem-solving technique, whereby landowners are obliged or compelled to surrender their scattered plots in order to receive an equivalent area or value of land in fewer and larger plots. Broadly defined, consolidation schemes and policies may include new roads, irrigation systems, settlement schemes, and related services. The political, legal, and logistical requirements of implementing a consolidation program are quite extensive. Nonetheless, consolidation experiences reveal varying degrees of administrative and farmer-level participation. For example, in Austria, the decision to consolidate requires a minimum vote of 33% of the landowners holding at least 50% of the land. Consolidation procedures in Spain are preceded by a considerable publicity campaign including meetings, films, news releases, radio broadcasts, demonstration visits, and interviews with farmers. In other instances, consolidation may be initiated directly from a specially created decision-making agency. In Europe and the Mediterranean region, countries with consolidation legislation recently or currently in operation include: Finland, Sweden, Norway, Denmark, United Kingdom, Ireland, France, West Germany, Switzerland, Austria, Spain, Portugal, Italy, Greece, Turkey, and Cyprus (Burton and King 1983).

An alternative approach to consolidation is to use government resources to relax some of the constraints which inhibit private consolidation. Simmons (1986) notes that by improving the economic environment of farmers, farmer behavior may lead naturally toward consolidation. Improved access to credit, agricultural markets, and related agricultural infrastructure such as transportation and irrigation all improve the production incentives of farmers. By incorporating policies and legislation which improve the quantity and quality of information concerning land and land transactions, land markets will be strengthened. Thus, by pursuing agricultural development policies and objectives, private consolidation can be achieved simultaneously without the introduction of additional inefficiencies.

Evaluating the success of consolidation experiences is somewhat complicated. There is a noticeable lack of empirical evidence on the subject due to the difficulties of comparing consolidated areas with previous holdings or having an appropriate control. Often the evaluation of consolidation projects highlights the organizational properties of the scheme while assuming that economic and social benefits automatically occur. While the statistical measurement of the benefits of land consolidation are probably impossible (Oldenburg 1990), it is possible to speak of the benefits and costs of consolidation in general terms.

Consolidation has benefits and costs which are both public and private in nature. The private benefits of consolidation are most obvious to the extent that they address the disadvantages of fragmentation. These benefits include locating all of one's landholdings in one place, obtaining plots with straight-line boundaries and a rectangular shape, and gaining better access to roads, water channels, and other infrastructure. The public benefits may include increased production and national income, including export earnings. The public costs for consolidation programs, however, are very high. For situations where there is a lack of a land market and a subsequent lack of information necessary to place a relative value on land, the technical and administrative costs (surveying, mapping) can be quite excessive (Johnson 1970). Private farmers often bear the indirect costs of consolidation. The consolidation process can disrupt the crop cycle for two to three years (Burton and King 1982) and the ecological benefits of fragmentation are also disrupted. It is also documented that large farms tend to benefit at the expense of small farms (Dovring 1965; King and Burton 1983; Bentley 1987). This is primarily due to the lower labor-to-land ratio of large farmers. That is to say, farmers with large holdings achieve larger relative reductions in transportation costs as a result of consolidating their holdings.

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