

## DYNAMICS OF LAND-USE AND LAND-COVER CHANGE IN ALBANIA: ENVIRONMENTAL CONSEQUENCES AND POLICY RESPONSE

### DINAMIKA E NDRYSHIMEVE TE PERDORIMIT TE TOKES DHE MBULESES BIMORE NE SHQIPERI: KONSEGUCENCAT MJEDISORE DHE REAGIMET POLITIKE

Fatbardh SALLAKU<sup>1</sup>, Bujar HUQI<sup>2</sup>, Odeta TOTA<sup>3</sup>, Mitat MEMA<sup>3</sup>,  
Shkelqim FORTUZI<sup>3</sup>, Etleva JOJIC<sup>2</sup>

1. Agricultural University of Tirana, Albania,

2. Agricultural University of Tirana, Albania

3. Aleksander Moisiu University of Durrësi, Albania

E-Mail: sallaku@albmail.com

**Abstract:** Albania has perhaps moved further than any other country in the region to introduce sweeping land reform as a necessary precursor to the development of land markets. As a result of this reform, the rural landscape has been dramatically transformed since 1990 with all collective farms disbanded, and approximately 98 percent of agricultural land distributed to smallholders. This has transformed crop farming from a collectivized, command structure to a fully private sector with smallholder families farming small and fragmented plots for their own consumption and for the market. Pasture land and forests have mostly not been part of the privatization process. Only recently has state ownership been transferred to communities and private persons. The legislation currently in place provides an adequate legal and regulatory framework to support a functioning land market. This paper tries to identify the relationship between land reforms, land tenure in the dynamics of land-use and land-cover change in Albania in the framework of the environmental consequences and policy response. The paper provides a conceptual framework for understanding the relationship between land tenure, land use and land reform in the environmental consequences in Albania during the post socialist period.

**Permbledhje:** Shqipëria ndoshta ka levizuar më shumë se sa ndonjë vend tjetër në rajon në futjen dhe aplikimin e reformave të tokës si kushti kryesor për zhvillimin e tregut të tokës. Si rezultat i kësaj reforme, peisazhi rural është transferuar ndjeshëm që nga viti 1990, ky kishim të gjithë fermat e kolektivizuara dhe ku sot afërsisht 98 përqind e tokës bujqësore është ndare tek fermeret privat. Ky proces e ka transferuar sistemin bujqësor nga një strukturë e komanduar e kolektivizuar në një sektor të plotë privat me familje fermere të vogla dhe parcelat e fragmentarizuara për konsumin e tyre dhe për treg. Legjislacioni aktual siguron kuadrin e nevojshëm rregullues për mbështetjen dhe funksionimin e tregut të tokës. Ky artikull siguron mardhëniet ndërmjet reformës së tokës në dinamikën e ndryshimeve të perdorimit të tokës dhe mbuleses bimore në Shqipëri në kuadrin e konsekuencave mjedisore dhe reagimeve të politikave të ndryshme. Artikulli siguron një kuadrin konceptual në drejtim të kuptuarit të mardhënive ndërmjet reformës së tokës dhe nderlidhjeve të saj impaktin mjedisor në Shqipëri gjatë periudhës postsocialiste.

**Key words:** land cover, land use, environmental impact, land reform

**Fjalë kyçe:** mbulesë tokësore, perdorim toke, impakt mjedisor, reforme toke

#### INTRODUCTION

Post-socialist transitions in Eastern Europe have focused on the establishment of private property rights as the cornerstone of a market economy, often to the exclusion of other aspects of rural livelihoods. Upon the demise of socialism in 1991 Albania implanted a radical land reform, redistributing formerly collective land on an equal per capita basis, leading to drastic changes in land use. The Albanian case is illustrative, due to the nature of land reform,

and the preponderance of rural poverty. After the collapse of socialism, Albania instigated a radical and unique land reform in July 1991 by redistributing virtually all agricultural plots on an equal per capita basis to former farm workers in the collective system. Each family received an allotment of land proportional to their household size, including the elderly and small children. Before the transition, Albania was primarily an agricultural country; one third of gross domestic product (GDP) came from agricultural production during the nineties (World Bank 2006), and 55 percent of the population was employed in agriculture (FAO 2006). The immediate consequence of the transition was a sharp economic recession in 1991 followed by a slow recovery. The main objective of the proposed paper is to identify the relationship between land reforms, land tenure in the dynamics of land-use and land-cover change in Albania in the framework of the environmental consequences and policy response. The paper provides a conceptual framework for understanding the relationship between land tenure, land use and land reform in the environmental consequences in Albania during the post socialist period. A systems approach is used to describe land use changes in Albania, addressing the complex and dynamic nature of the relationships among the subject matter areas. Analysis of property relationships therefore includes attention to various kinds of social actors recognized to take part in property relationships; material and cultural goods considered as valuable; and, different types of relationships, often expressed in terms of rights and obligations.

#### Current Land Administration and Management Activities in Albania

Rural Albania is more dependent on agriculture than most European nations and has poorly developed manufacturing and service activities. The modernization of farming will reduce employment opportunities in farming and one of the key elements of rural development is therefore to diversify economic activities. Albania has carried out land and property administration reforms since 1991 and substantial progress has been made in ownership transfer and recognition of property rights. Land privatization, registration of ownership rights and land use planning has been incrementally addressed by the government. During the last 17 years, substantial progress has been made in carrying forward the civil law reforms and the programs of ownership transfer. The government has successfully privatized and issued property rights to most rural properties and about 25% of urban properties. Transfer of state land to municipality control has already started, and the process of compensation and restitution was initiated. The government also started the process of regularization of informal settlements and illegally constructed buildings. The reform programs, creating private property rights, the state property inventories and the illegal actions of citizens dividing and building on land without legal authorization, have sub-divided Albania into 4.5 million land parcels and separately-owned immovable property units. The categories and volume of properties are shown in the below table.

Table 1.

Status of Land and Property Holdings by Category, 2007

Category of Properties	Est. Number of Units	Comments
Total Units of all Types	4,500,000	
Rural properties	3,300,000	579,000 hectares
- Agricultural fields	1,900,000	568,000 hectares given to 420,000 households under law 7501
- Village plots and houses	400,000	Owned prior to 1990 as "personal property"
- State-owned forest, pasture and protected lands	1,000,000	Subject to inventory and division with communes
Urban properties	900,000	
- Dwelling units (built before 1990)	237,700	Primarily apartments, sold to citizens under Law 7652
- Individual houses (built before 1990)		Owned prior to 1990 as "personal property"
- New legal dwelling units (1991-2004)	45,000	Built with permits
- Non-housing premises		Privatized by law 7512
- State/municipal	180,000	Subject to inventory
Illegal properties	90,000	In urban informal zones
Property Claims by Former Owners	42,000	30,000 claims decided; 12,000 claims pending

In the Albania of today land fragmentation remains one of the most significant constraints which impede the development of rural areas in Albania with the agriculture sector most affected. The shift from centrally-planned to a market-oriented economy has profound implications for the prevailing social and economic system and the development of a democratic society in Albania. This is especially true in rural areas. The dismantling of the state and its institutions as exclusive providers of services left large sections of the population, mostly engaged in agriculture and related activities, deprived of their main source of income. During decades of central planning, rural areas have been considered exclusively as a geographic space to allocate industrial conglomerates and large-scale state farms and cooperatives. Social infrastructure was neglected to the benefit of investment in industries and other productive sectors of the economy. After adopting market economy principles and the withdrawal of the State most of these industries are now facing bankruptcy. The critical economic and social situations in the countryside require significant efforts by all stakeholders involved with the obligation for governmental entities to assume a leading role in providing the necessary political, institutional and conceptual framework. Despite this progress, land management in Albania continues to face significant challenges. Firstly, land and property rights are not fully secure. As of today, there are still about 600,000 urban and around 300,000 rural parcels not yet registered. The registration process has been particularly slow in valuable urban and coastal areas. Secondly the slow pace of resolution of restitution and compensation claims have undermined the security of property rights and slowed down the registration of property rights, especially in the high value coastal areas. The government has enacted several laws and established the compensation/restitution commission to deal with this complex issue. Thirdly, large numbers of illegal land subdivisions and construction projects have taken place, primarily on peri-urban areas and in tourism zones. Significant urbanization occurred since the demise of the socialist regime in 1991 when the restrictions on internal migration have been removed. Most of this development took place in peri-urban areas, often with no property rights, nor adequate zoning or building permit procedures.

#### **MATERIAL AND METHODS**

Changes in land cover were measured using time series of remotely sensed satellite data. Visual on-screen interpretation was used to derive land-cover information for the years 1988 (Landsat Thematic Mapper [TM]), 1996 (TM), and 2003 (TM and the Terra Advanced Spaceborne Thermal Emission and Reflection Radiometer [ASTER]). Protection of natural resources and nature as a whole has been for decades an important argument for the whole civilized world. This is proved by the large number of Conventions/agreements signed by most of the countries including Albania. Albania faces many of the same environmental issues with which other countries in Eastern Europe are being confronted. Both air and water pollution is serious issues as a result of the lack of facilities and controls. Most of the environmental damage that occurred in rural areas during the socialist period has not been repaired. Large-scale cultivation destroyed field roads, water courses, vegetation belts and other landscape features suitable for individual farming. Environmental degradation has sometimes increased during the transition period, for example through deforestation of valuable species, inappropriate tillage of soils and a failure to maintain a balance of nutrients in the topsoil. The degradation of natural resources in Albania is an important long-term constraint to sector development. The main problems include: uncontrolled deforestation, large livestock numbers and consequent overgrazing of pasture land, particularly in mountain areas, soil erosion and degradation through production on marginal land, especially on steeply sloping land in hill and mountain areas and before the collapse of the old regime, loss of scarce and productive arable

land through rapid urbanization, depletion of marine fishing resources, degradation of water resources and watersheds and increased vulnerability to flood damage.

## RESULTS AND DISCUSSION

### Land cover changes

Land cover shows a very dynamic behaviour in the different areas in Albania between 1990 and 2007. In the Figure 1, the land use structure in Albania today is shown.

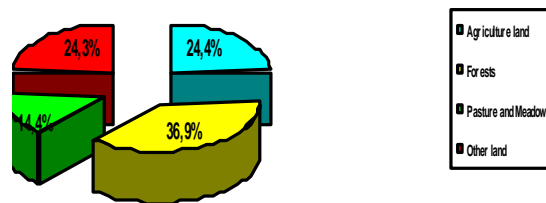


Figure 1. Land use structure

The main changes in land cover are forest regeneration, deforestation, and cropland abandonment which lead to a substantial reorganization of the landscape. Land change is highly heterogeneous across the four districts and across villages. A large share of the heterogeneity, particularly in shrub and grassland cover, cannot be explained by the variables hypothesized to influence land use. Nationwide land use in Albania changed little since the distribution of agricultural land to farm households in 1991. According to the MoAF (2007) the broad categories of arable land (24%), forests (36%), pastures and meadows (15%) and of other land (25%) remained stable between 1991 and 2006. According to preliminary results of the Albanian National Forest Inventory (ANFI), the first nationwide analysis of remote sensing data for the years 1991 and 2006, broad land-cover categories indeed changed relatively little. ANFI results for 2006 show cultivated area at 21% and forests cover at 32% (figure 2).

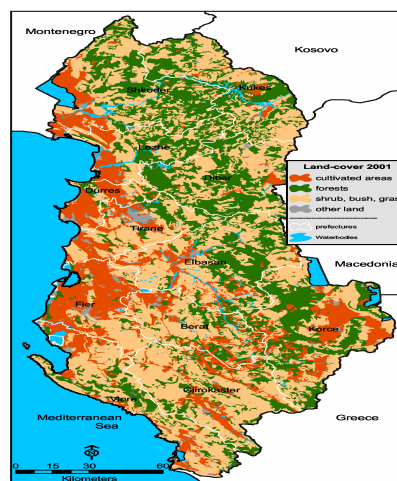


Figure 2. Major land-cover modification, 1991, 2001, 2006

However, a significant amount of land-cover modifications are observed as manifested in a change from forest to woodland of 2.8% and from forest and woodland into bush, shrubs, and grassland of 1.4%. This amounts to a significant degradation of forest cover of 4.2% between 1991 and 2006 with a corresponding decrease in tree density. The spatial representation of selected major land-cover modification show a significant decrease and degradation of forest in the Northern mountainous areas and to a lesser extent, in the Southeast (figure 3).

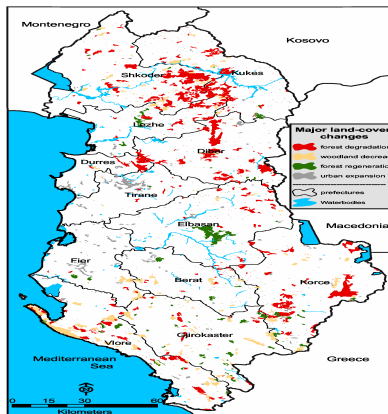


Figure 3. Major land-cover modifications, 1991 to 2006

### Forest degradation

Forests and pastures make up a heritage with values not only for Albania but also for the whole region. This heritage should be protected and managed in that way so that to secure a higher growth development in the future by contributing to the decrease of poverty level without destroying the natural and biotical balance. In the past, including even the transition years, forests have especially been estimated for their economic importance, by underestimating their multiple functional aspect. Their harvesting doesn't lead to profits only but to losses (when they are not harvested properly) as those of capabilities for future development which is a result of the degradation and desertification of forestry and pastoral environment. Forests, pastures, agricultural land and coastal areas are undergoing degradation due to poorly defined private responsibility and a lack of public oversight and enforcement.

The emphasis on privatization of property has neglected the need to define the responsibilities of private owners, particularly concerning the protection of and resources. Forest resources are comprised of State, local and private forests. Local forests are those under the state ownership but allocated to villages for common use by the permanent residents thereof who have the right to take from the local forest a surface area from 0.4 up to 1 hectare per family. Private forests include all groups of trees and forests that are created or exist within the boundaries of private immoveable property. The current situation is characterized by rapid deforestation (or harvesting) of standing timber stocks and degradation in the productive potential of the forest and pastoral ecosystems. Forest resources have decreased significantly over the last 10 years as a consequence of the country's transition to a market economy. In some areas, the total forest cover has decreased by an average of 15 percent over a period of five years, with varying degrees of reduction in the different forest types (Figure 6). Total forest cover remained stable between Changing Rural Landscapes in Albania during the period 1988 and 2006<sup>7</sup>. However, 6 percent of the natural, old-growth forest of 1988 was cleared by

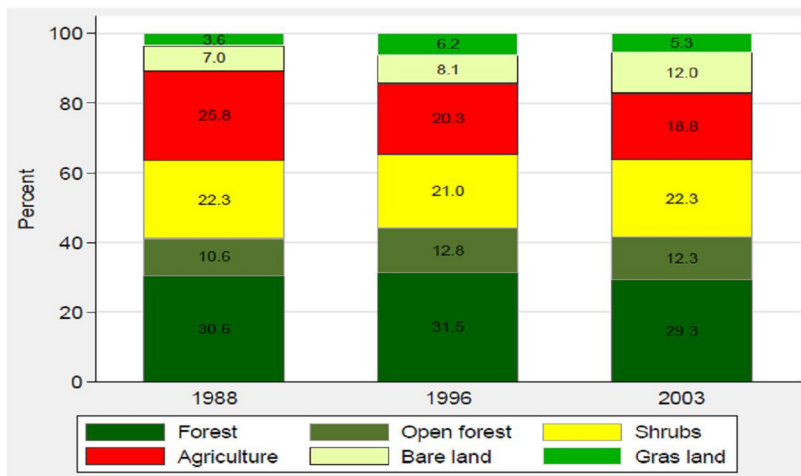
2006, and both old-growth and secondary forest regenerated on former bush and grassland, as well as on 94 km<sup>2</sup> of abandoned cropland. About 40 percent of the landscape was forested in 1988; 202 km<sup>2</sup> or roughly 14 percent of the land that was forest in 1988 was cleared by 2006. Substantial changes in forest integrity stem from the continuing reliance on forest biomass for heating and cooking. In addition, forests and other communal resources can suffer greatly when collective systems are replaced with market-based ones due to new collective action problems that arise in transitional periods.



Figure 4. Forest Degradation during the period 1991-2006



Figure 5. Urban expansion



Source: Satellite image interpretation by Ylli Hoxha and Daniel Müller

Figure 6. Land cover changes during the period 1991/2007

The loss of cropland and forest cover in Albania indicates that the transition and the associated macroeconomic recession led to dramatic changes in the landscape. Declining revenues from agriculture were accompanied by new livelihood strategies in a rapidly globalizing world. This sparked demographic changes and pushed people into other sectors of the economy, leaving large tracts of cropland idle. The resulting land-use changes are associated with interesting patterns such as the persistence of land fragmentation and the

realignment of agricultural production as, over time, predominantly more remote and less productive areas fall out of cultivation. Forests have been threatened by the transition because a new delineation of rights to forest uses remains to be implemented. In addition, many households still rely on forest resources. This resources degradation, which includes uncontrolled woodcutting and overgrazing, is particularly intense in areas near villages and communities, making human pressure in forest resources the major cause of their deterioration. In parallel with degradation of forests and pastures, investments in forest management diminished considerable after mid 1980s and were eventually discontinued in the 1990 due to dwindling resources allocated to the forest administration. Since the early years of the transition period, considerable quantities of wood have been illegally harvested. Forest health is a concern for local livelihoods that strongly depend on forest resources in the absence of other energy sources. Sustainable management of forestry and pasture resources should be focused in a good management and utilization of resources in a way which restores and secures biodiversity, production, regenerative capacities, forestry vitality and potential and for now and in the future it meets the ecological economic and social functions in local, national and global level without causing damages on other ecosystem.

#### **Environmental Consequences**

Soil loss studies using watershed sediment assessment methods indicate that the river network transports in a year about 60 million tons of fine and coarse sediment, 1.2 million tons of organic materials and 170 thousand tons of N, P, and K salts. The environmental consequences of cropland abandonment are largely unknown. Nevertheless, research from other parts of Europe suggests that land abandonment can lower soil fertility, decrease biodiversity levels, degrade water ecosystems, and lead to a loss of cultural landscapes. An initial increase in landscape heterogeneity may be followed by later homogenization due to the decrease of the aging population. Such a homogenization affects both the biological and scenic diversity of the land.

The statistical data shows that agricultural abandonment in Albania is strongly mediated by both the biogeophysical environment and transportation infrastructure. District level effects provide some evidence that abandonment is more likely in some regions than others, but were most likely in relatively remote areas, or in the presence of other economic opportunities, such as tourism. Interestingly, the importance of remittance income was not a significant correlate of cropland abandonment, perhaps because a low share of remittance income is channelled into agricultural investments. Forest-cover loss was highly sensitive to the time period. Forest clearing tended to shift from subsistence orientation in the first years after the collapse of socialism to more commercial extraction in later stages. Effects on biodiversity are of global significance as the research area is located within the Mediterranean Basin, which is recognized as a global biodiversity hotspot in terms of endemic flora and fauna species. On the other hand, land abandonment may also lead to increases in biomass, e.g., through an expansion of woodland and a regeneration of forest land, with positive effects on global carbon cycles and local hydrological cycles.

#### **CONCLUSIONS**

Although Albania is faced with political, economic and social problems, important steps have been achieved. The commitment by the Albanians to abandon five decades of state ownership and control and the steady progress made in completing substantive and procedural privatization laws are laudable. In this paper, we analyzed the impacts of heterogeneous land-use incentives on land cover which allow us to examine evolving land-cover transitions following the large-scale policy shifts immediately following the transition and the subsequent realignment of land-use incentives due to land reform. The agricultural abandonment in

Albania is strongly mediated by both the biogeophysical environment and transportation infrastructure. District level effects provide some evidence that abandonment is more likely in some regions than others, but were most likely in relatively remote areas, or in the presence of other economic opportunities, such as tourism. Forest-cover loss was highly sensitive to the time period. Forest clearing tended to shift from subsistence orientation in the first years after the collapse of socialism to more commercial extraction in later stages. The abandonment of large areas of cropland partly reflects the adjustment of the rural sector to the evolving market conditions and leads to a concentration of cultivation on more productive areas. In Albania, further abandonment of cropland may continue as returns from internal and international migration will become the most important livelihood strategy for the younger generation and as many of the remaining elderly farmers decrease. Future abandonment in Albania may be aggravated by the projected reductions in crop productivity caused by high temperatures and drought in a region already vulnerable to climate variability. The impact of the successional vegetation on biodiversity, soil conditions, or the carbon sequestration potential depends on the prevailing natural conditions and will therefore vary across regions. Rural landscapes will continue to evolve and change. Land reforms, particularly the establishment of private property rights, are based on the logic that efficiency gains in agricultural production will occur as a result. Nevertheless, impediments to a fully functioning land market remain. Issues such as restitution and compensation, illegal occupation of land and other land disputes continue to cloud legal title. Rural condition throughout the region in Albania, have deteriorated during the transition period. There is growing inequality between rural and urban areas, with most of the poor now living in rural areas. These areas are characterized by declining populations that are increasingly represented by women and the elderly. Rural infrastructure has often deteriorated considerably and many rural roads, irrigation systems and erosion control measures are in poor condition. An effective incentive to production and conservation of land and water resources in Albania is the right to secure tenure to land and other natural resources. Security of tenure is a major concern of the land user in deciding whether or not to invest in measures to promote conservation or sustainable production on a long-term basis. Land rights must be robust, allowing the user effective control over the resource, and the right to exclude others who might adversely affect its management. An important part of Albanian government policy should be to reduce disparities between urban and rural areas by improving the rural situation.

#### **BIBLIOGRAPHY**

1. BLOCH, P. 1998 - Picking up the pieces: Consolidation of Albania's radical land reform. In *Land reform in the former Soviet Union and Eastern Europe*, ed. S. K. Wegren, 189- 207.
2. CIVICI, A. 1994 - La question fonciere dans la restructuration de l'economie albanaise
3. CUNGU, A., AND J. F. M. SWINNEN. 1999 - Albania's radical agrarian reform. *Economic Development and Cultural Change* 47 (3): 605–20.
4. DE SOTO, H., P. GORDON, I. GEDESHI, AND Z. SINOIMERI. 2002 - Poverty in Albania—A qualitative assessment. World Bank Technical Paper No. 520. Washington, DC: The World Bank.
5. KING, R. L. 2005 - Albania as a laboratory for the study of migration and development. *Journal of Southern Europe and the Balkans* 7 (2): 133–55.
6. KELM K. 2000 - Immovable Property Privatization, Registration and Disputes in Albania. Land Tenure Center, University of Wisconsin-Madison
7. MINISTRY OF AGRICULTURE AND FOOD. 2002 - Annual report 2002. Tirana, Albania: Ministry of Agriculture and Food.
8. MINISTRY OF AGRICULTURE AND FOOD, Statistical Year-Book, 2006, 2007.
9. MULLER, D., AND T. SIKOR. 2006 - Effects of postsocialist reforms on land cover and land use in south-eastern Albania. *Applied Geography* 26 (3–4): 175–91.



10. MULLER, D., AND M. ZELLER. 2002 - Land use dynamics in the central highlands of Vietnam: A spatial model combining village survey data and satellite imagery interpretation. *Agricultural Economics* 27 (3): 333-54.
11. STANFIELD, D., AND A. KUKELI. 1995 - Consolidation of the Albanian agricultural land reform through a program
12. WORLD BANK. 2003 - Albania poverty assessment. Washington, DC: The World Bank 2006a. Status of the land reform and real property markets in Albania. Tirana, Albania: TheWorld Bank Office, Tirana.