

## **Characteristics of Post-conflict Land Administration with Focus on the Status of Land Records in such Environment**

**Dimo TODOROVSKI, Republic of Macedonia**

**Key words:** Land Administration, conflict, post-conflict, land records

### **SUMMARY**

The causes for armed conflict and widespread violence are many. In some cases land is one of the factors and sometimes land is a major cause for the conflict. The land and land related issues are increasingly recognized by the international community as important element where all conflict activities take place before, during and after the conflict in the period of peace building.

In this study first several definitions and citations for land and Land Administration and its core elements are derived from available literature. Then it continues with identifying causes of the conflict and some post-conflict situation. Land Administration in post-conflict is complex and different in each and every case, but there are often some common characteristics which are identified and deeper explored in this paper. From the available literature on this topic it could be derived that: 'land administration systems can suffer in several ways during the conflict but the most obvious blow follows from a loss of staff and records'.

This study further focuses on the status and availability of the land records in post-conflict Land Administration environment, by exploring their status from several case studies. Land records in such environment can be: damaged stolen, lost, fraud or manipulated by powering parties (groups), partly or fully destroyed, moved in third country or even be a target for violent attack. It is also identified that fully paper based systems are more vulnerable then digital ones because back up of those paper based systems are not established and maintained on second remote and secure location.

At the end this study finalizes with deriving conclusions that causes of conflicts are not only because of the land itself, but they always have a land dimension, and about the status of the land records in post-conflict Land Administration environment it reveals that they are vulnerable subject and always negatively affected during the conflict. Because it is more recognized that land and land records in post-conflict situations are important element in the emergence and early recovery phases of the peace building period this phenomena needs further research.

# **Characteristics of Post-conflict Land Administration with Focus on the Status of Land Records in such Environment**

**Dimo TODOROVSKI, Republic of Macedonia**

## **1. INTRODUCTION**

This study addresses the characteristics of the post-conflict Land Administration (LA) with focus on the status of the land records in such environment. In Chapter 2 land, land related issues and LA are acknowledged, and characteristics of conflicts and post-conflict environment are explored in Chapter 3 based on available literature. An attempt is made to depict how land and conflict correlate each other. In Chapter 4 more specific research is performed to determine what the status and availability of land records in such circumstances. This is done on some already explored and available case studies. In Chapter 5 an overview is made on the status of the land professionals in post-conflict LA situations. At the end conclusions are derived based on these explorations.

## **2. LAND, LAND RELATED ISSUES AND LAND ADMINISTRATION**

The 2005 Humanitarian Response Report identified land as a critical gap in international response capacities. Here follows some definitions and citations from available literature on land, land related issues as well as for LA in general.

### **2.1. Land**

Land is a place of all shelter, in the city, the town, the village, and at home. It is the source of food, of materials for construction and manufacture, of coal, gas and oil, of springs and rivers and other essentials for life. Indestructible, immovable, it is the foundation of all human activities. Houses and factories, forests and farms, river roads and railways, mines, quarries, and reservoirs are all fashioned from the land. It offers endless opportunities for development and discovery. It is a source of all wealth (UN/ECE, 2005).

Recognizing that land is a source of wealth lies at the heart of good government and effective public administration. States that prosper promote widespread and secured private ownership of land as a foundation of social and economic policy (UN/ECE, 2005).

Secure access to land is a crucial factor in the eradication of food insecurity and poverty, and the need to improve access to land remains a pressing issue in many parts of the world. Providing secure access to land is frequently not easy, and it is particularly complex in situations following violent conflicts (Torhonen and Palmer, 2004).

### **2.2 Cadastre**

Cadastres have registered the human terrain for centuries (Batson, 2007).

The cadastre is a methodologically arranged public inventory of data on the properties within a certain country or district based on a survey of their boundaries; such properties are systematically identified by means of some separate decision. The outlines of the property and the parcel identifier are normally shown on large-scale maps (United Nations, 1985).

A cadastre is normally a parcel-based, up-to-date land information system containing a record

of interests in land (e.g. rights, restrictions and responsibilities). It usually includes a graphical description of land parcels linked to other records describing the nature of the interest, the ownership or control of those interests, and often the value of the parcel and its improvements. It may be established for fiscal purposes (e.g. valuation and equitable taxation), legal purposes (conveyancing), to assist in the management of land and land use (e.g. for planning and other administrative purposes), and enables sustainable development and environmental protection (FIG, 1995).

The traditional cadastres were by nature rather slow in responding to the changing needs of society (Dale and McLaughlin, 1988).

Because we are living in a dynamic and fast changing societies where Information and Communication Technology (ICT) is more present in every segment of society and human existence, cadastral users increasingly demand: digital, up to date, reliable and legal certainty, complete, rapidly accessible, tailor made and quality assured geo-information. This is the reason that presently many cadastral organizations around the world re-formulate their mission and vision statements, went or presently are going through reforms in order to meet growing user requirements and implement user oriented strategies, in order to be competitive player on the market of geo-information and services.

### **2.3 Land Registration**

Land registration can be described as “the process of recording legally recognized interests (ownership and/or use) in land” (McLaughlin and Nichols, 1989).

Land registration is a process of official recording of rights in land through deeds or titles (on properties). It means there is an official record (the land register) of rights on land or of deeds concerning changes in the legal situation of defined units of land. It gives the answer of the question “who” and “how” (Henssen and Williamson, 1990).

Land registration provides the framework and means for recognizing formalized land ownership rights and for regulating the transfer of these rights (Dale and McLaughlin, 1999).

Land registries document certain interest in the land, including information about nature and spatial extent of these interests and the names of individuals to whom these interests relate (Stuedler 2004).

Experiences elsewhere suggested that the biggest bottleneck for land registration work was the difficulties of mobilization of the landholders. Therefore, the system had to go to the people instead of waiting for them to show up in an office. The holders were only to be bothered once for adjudication, the demarcation and the surveys (Torhonen and Palmer, 2004).

### **2.4 Land Administration**

The importance of effective land administration in support of good governance and economic development is well recognized internationally (Groot and Molen, 2000).

The term *land administration* has been introduced in the 1990's and has probably the first time been given ‘official’ status by the UN-Economic Commission for Europe (UN/ECE) in 1996 by setting up an ad hoc group of experts named ‘Meeting of Officials in Land Administration’ (MOLA) with representatives from 58 countries (Stuedler 2004).

According to the web site UN/ECE, the aim was “to promote land (immovable property)

administration through security of tenure, establishment of real estate markets in countries in transition, and modernization of land registration systems in the advanced economies” (UN/ECE, 2010).

Land Administration is the processes of determining, recording and dissemination information about tenure, value and use of land when implementing land management policies. It is considered to include land registration, cadastral survey and mapping, fiscal, legal and multi-purpose cadastres and land information systems (UN/ECE, 1996).

Land administration is the process of regulating land and property development and the use and conservation of the land; the gathering of revenues from the land through sales, leasing, and taxation; and resolving of conflicts concerning ownership and use of land (Dale and McLaughlin, 1999).

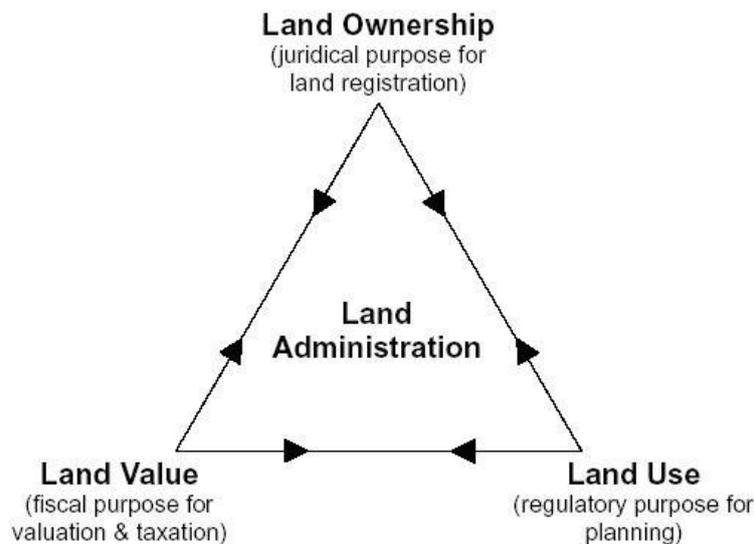


Figure 1: The three key attributes of land administration (Dale and McLaughlin, 1999).

Objectives that land administrations serves, namely land registration, land valuation and land-use planning (Stuedler 2004).

Land administration deals with ownership, use and value of land (Zevenbergen, 2002).

e-Land Administration is only possible with political support and a context of national information policy resulting in new laws (legal frameworks) and arrangements of the public administration. Evidence has to be given of the benefit in terms of economic justification and customer satisfaction (Lemmen et al., 2004).

Land registration and cadastres make up an important part of Land Administration (Zevenbergen, 2002).

## 2.5 Land Administration Systems

Land administration systems and in particular their central cadastral components are essential parts of countries national infrastructures (UN/FIG, 1999). They are mainly concerned with administrative and operational processes dealing with land records and information about the tenure, value and use of land (Stuedler, 2004).

## 3. CONFLICTS AND POST-CONFLICT LAND ADMINISTRATION

In this Chapter several causes of the conflict and post-conflict situation are identified based on available case studies. Because the land and land related issues are increasingly recognized by international community as important element where all conflict activities take place before, during and after the conflict in the period of peace building, a number of post-conflict LA situations are explored with attempt to depict how land and conflict correlate each other.

### **3.1 Causes/Types of Conflicts**

Throughout history, conflicts have been waged over land. Many of those conflicts have direct effect on the control over land and the rights of people relating to land and cause innumerable denials of Housing Land and Properties (HLP) rights (Tibajuka, 2007).

Land issues are often root causes of armed conflict, yet often go unaddressed (UN-HABITAT, 2009).

Access to land and related resources is nearly always an issue during and shortly after a major conflict. Sometimes difficulty with access to land and related resources is one of the causes of the conflict, in other cases it is more a side-effect of the conflict (Zevenbergen and Burns, 2010).

It must be recognized that land and natural resources play a complicated role in the political economy of armed conflict (UN-HABITAT, 2009).

Land is often a significant factor in a widespread violence and is also a critical element in peace building and economic reconstruction in post-conflict situations (Batson, 2007).

The causes of conflicts and violence are many. For example ethnic envy, nationalistic tendencies, opposing interests, class conflicts, dispute frontiers, expansion action or economic interests. During such conflict people are killed, buildings are physical infrastructure are destroyed, legal frameworks are set aside, public registers are destroyed markets don't function any more, properties are taken, and lands are occupied (Molen and Lemmen, 2004).

People have fought over land since the beginning of recorded history. Land is often a significant factor for widespread violence and also a critical element in peace-building and economic reconstruction in post-conflict situations (USAID, 2004).

Conflicts often occur in poor countries where much of the population is rural: poor countries have the characteristics of a relatively low level of urbanization and relatively high percentage of a labor force working in agriculture (FAO, 2005).

There are different reasons for these conflicts or wars. One of the reasons of these conflicts is the violation in ownership. In the countries in which conflicts happens the property relations were aggravate even more (Meha, 2004).

Today, however, the nature of conflict has changed. Rarely do armies square off across borders. Since the end of the Cold War, conflict has moved inside national boundaries; civil wars and insurgencies are much more common today than wars between states (Zevenbergen and Burns, 2010).

Most violent conflicts are not "caused" by conflicts over land per se, but almost every major eruption of violent conflict has had a land dimension. It is essential to look anew at how institutional arrangements and patterns of political organization determine when land becomes an object of violent conflict. If this is not done then programmes that may be intended to promote participation or good governance may in fact contribute to aggravating conflict in fragile states (Putzel, 2009).

Reviewing the statements in this Chapter we could conclude that causes of conflicts are not only because of the land only, but they always have a land dimension. Land and conflicts are bond in a complex relationship.

### **3.2 Post-Conflict Situations**

The post-conflict environment in regards to HLP is highly complex and multidimensional and it is not possible to develop guidelines for all aspects for all countries and scenarios simultaneously (UN-HABITAT, 2007)

Some of the land-related challenges that arise in post-conflict situations include: loss or destruction of property, secondary occupation, landlessness, insecure use or mobility rights and lack of clarity regarding ownership or use rights (Zevenbergen and Burns, 2010).

In past decade has been witness to a growing understanding of the vital importance and addressing HLP rights concerns within the context of post-conflict peace building. A range of issues have been highlight in this respect, including restitution rights for returning refugees and displaced persons; the rights of woman in post-conflict settings; emergency shelter provision and housing repair and reconstruction; the linkage between broader peace building initiatives and HLP questions and many others (UN-HABITAT, 2007).

Almost by definition, recovery from a violent conflict is hugely difficult. The mass dispersal of people from their lands, widespread death and injury within the population, destruction of critical infrastructure, collapse of a legal system, loss of records and expertise, continued fear and threat of violence; these factors in combination would overwhelm almost any country. As almost all countries emerging from conflict were already poor before their spiral downwards into violence, the need for external assistance is crucial (Torhonen and Palmer, 2004).

While every conflict situation is likely to be different, they nevertheless share a number of characteristics (Torhonen and Palmer, 2004).

It is recognized by the international community that HLP rights are critical element in post-conflict peace building is steadily on the rise, even though much remains to be done to ensure that those concerns are built into peace operations from the beginning of the peace building process (York Charter, 1991)

Most publications on post-conflict peace building, for instance, still ignore questions relating to HLP rights, and more specifically, land administration (UN-HABITAT, 2007).

### **3.3 Phases of Post-Conflict Situations**

A post-conflict period starts when the main hostilities have ceased to the point that international assistance can be provided for emergency activities, recovery and reconstruction (FAO, 2005).

The Handbook (UN-HABITAT, 2009) generally distinguishes between steps that can be taken to address land issues in the emergency response phase and those that are more appropriate.

A post-conflict period generally consists of three periods (FAO, 2005):

A period immediately after the conflict, (first year) vulnerable period because other conflicts are very easy to emerge (Daniel Lewis) – secondary conflict due resolution of land and property disputes...Or another way around it could be a catalyst for secondary conflict.

In both emergency and early recovery settings, humanitarian actors are generally advised to

seek the advice of land tenure experts wherever necessary (UN-HABITAT, 2009). The post-conflict situation can also provide a momentum for change (Torhonen and Palmer, 2004).

The post-conflict period starts when the main hostilities have ceased, some kind of peace treaty documents are signed and international assistance can be provided for emergency and recovery activities. The post-conflict period generally could be observed in three time phases: emergency, early recovery and reconstruction period.

### **3.4 Land Administration in Post-Conflict Situations**

There is a growing recognition of the importance of addressing land issues early and effectively at all stages of humanitarian response to post-conflict situations (Zevenbergen and Burns, 2010).

The 2005 Humanitarian Response Report identified land as a critical gap in international response capacities (UN-HABITAT, 2009).

The relationship to land administration and land policy is relevant and should be recognized in peace treaties. Parties involved in formulation of peace agreements and/or strategic action plans should mention land registration not as isolated objective but rather embed in such plans a wider development and land policy (Molen and Lemmen, 2004).

Post-conflict situations are typically complex and fluid. Addressing land administration is critical to reconstruction and peace building in the wake of conflict (Tibajuka, 2007).

While land remains a central driver of conflict, the relationship between land and conflict is growing more complicated (Zevenbergen and Burns, 2010).

Land administration in post-conflict areas obviously is difficult matter that requires an approach that copes with the local situation (Molen and Lemmen, 2004).

Many post-conflict countries do not have good land registration and cadastral coverage, requiring other approaches (UN-HABITAT, 2007).

Land administration in post-conflict areas was complicated; land was a conflict issue. Land might not always be a direct cause of a conflict but it is related (Molen and Lemmen, 2004).

An array of issues has to be faced when the land administration functions are being reactivated in a post-conflict areas (Zevenbergen and Van der Molen, 2004).

Work leading to an improvement in methods of land administration within post-conflict environment, therefore, can make a valuable contribution to the enjoyment of human rights within the context of peacebuilding (UN-HABITAT, 2007)

There are many reasons why land administration needs to be addressed following conflict, with perhaps the most obvious being the fact that every conflict – no matter how small or limited in time and scope – negatively affects the processes and prospects of land administration (UN-HABITAT, 2007).

Historically, land administration issues have not been figured prominently in UN emergency and peacebuilding operations. While some UN missions (including cases when UN exercised transitional governing functions, such as those in Kosovo and East Timor) developing capacities for addressing land administration problems in post-conflict areas, most such missions either did not address these issues at all, or if attention was paid, this was generally *ad hoc*, limited in nature (UN-HABITAT, 2007).

Indeed, of 17 UN peace operations currently in place, few if any, have the human and

financial resources in place to effectively address land administration concerns in comprehensive manner (UN-HABITAT, 2007).

Addressing these fundamental challenges, land administration in post-conflict situations, is no longer a choice by the UN, but core responsibility of effective peacebuilding (UN-HABITAT, 2007).

In Kofi Annan's *In Largest freedom* the then Secretary General outlined what he sees as the six key functions of the Peacebuilding Commission. Each of these six objectives form a solid basics for justifying the systematic inclusion of HLP rights in future UN peacebuilding initiatives as a matter of common sense (UN-HABITAT, 2007).

Once it is understood that HLP issues may trigger secondary or tertiary conflict, it is important for peacebuilding missions to become aware that proposals related to land management in post-conflict situations are an integral part of efforts to restore peace and stability (UN-HABITAT, 2007).

Land Administration in post-conflict areas is the main issue for stabilization of human and social relations (Meha, 2004).

A part of a problem that are likely to be encountered are not specific to post-conflict areas, but can be found in many developing and/or transition countries. However, in dealing with them in post-conflict situation, one should clearly keep the special post-conflict issues constantly in mind (Zevenbergen and Molen, 2004).

As violent conflicts affect every segment of human existence and normal functions of one society, it also has effects on the LA in the particular case, higher written citations are underling that. That's why it is important to make an overall assessment and brief analyses of the LA status in the post-conflict environment in order to have a solid initial data and information to enter the post-conflict phases and properly tackle LA issues. Experiences showed that these assessments, among others, should have a special attention on the status of the land records and land professionals.

LA in post-conflict situations is a difficult to (re)establish and it requires approaches that deals with the circumstances of the local situation. Knowing the basic principles of LA and having appropriate knowledge and expertise in the domain of post-conflict LA used in the emergency and recovery phases could contribute in not repeating some mistakes from the past and use of the lessons learned to better and faster recovery from the armed conflict. Adequately developed land policies implemented via land administration systems could stabilize the situation and reduce the chances for emerging the armed conflict.

#### **4. LAND RECORDS IN POST-CONFLICT LAND ADMINISTRATION**

Land administration systems can suffer in several ways during a conflict. The most obvious blow follows from the loss of staff and records (Zevenbergen and Burns, 2010).

Conflict sensitive approaches to land dispute may vary based on factors such as the effectiveness of local and national land administration systems, the quality of land records, and the capacity of local administrators and adjudicators (UN-HABITAT, 2009).

##### **4.1 Land Records in Post-Conflict Land Administration Situations**

During conflicts and immediately thereafter land records face a number of threats. They run the risk of being damaged or even lost due the hostilities, due the random violence directed at government offices or even targeted violence to land offices (like in 1999 in Timor Leste). Fully paper based systems are even more vulnerable since no formal back ups usually exists (Zevenbergen and Burns, 2010).

In all cases there is however no (easy) access to the records. Land records can be simply ransacked or partly destroyed (Zevenbergen and Burns, 2010).

Land records are evidence of ownership and use rights. Land records are typically associated with formal land administration systems. In countries where land is administered through customary bodies, including where formal legal systems are not accessible to significant part of the population, records through simple sales contracts, witness statements or local knowledge and attribution. Incomplete, out of date or contested land records can pose a threat to tenure security that is heightened in setting characterized by legal pluralism where statutory law does not recognize the existence of any other valid system of rights (UN-HABITAT, 2009).

According (UN-HABITAT, 2009) the issues about land record in post-conflict situations that require appropriate attention are: inadequate land records; fragmented responsibility for land records; lost, stolen or fraudulent land records; and women and child's property and inheritance rights.

Powerful (groups) might manipulate land records outright (Zevenbergen and Burns, 2010).

Some scientists do not consider a post-conflict period a good time to introduce title registration (Zevenbergen and Molen, 2004) and on a contrary others consider systematic first registration with modern legal, technical and social standards can be feasible in a post-conflict areas (Torhonen and Palmer, 2004).

Some of the issues that need attention are finding and securing the land records that are (still) available and preventing illegal occupation and construction on the other land (Zevenbergen and Molen, 2004).

Encouraging the competent authorities or mandated international actors to secure land records at risk of destruction, removal or tempering (UN-HABITAT, 2009).

#### **4.2 Examples of status of land records in post-conflict LA situations:**

*Kosovo:* Land records can be taken away by retreating powers when they are forced to leave an area, or be hidden with good or bad intentions. Kosovo is a case in point. The retreating Serb Army took part of the land records from Kosovo with them, whereas some other parts of the records were hidden in Orthodox monasteries (Zevenbergen and Burns, 2010).

All the records which are removed in Serbia have to bring back immediately (Meha, 2004).

*Palestine:* a copy of Ottoman records of Palestine state rests in the UN building in New York (Zevenbergen and Burns, 2010).

*Cambodia:* Land ownership is the main problem post-conflict due to the destruction of all cadastral records during the civil conflict (UN-HABITAT, 2009).

*Somalia:* Overlapping and dysfunctional land administration systems (secular, Islamic and customary) was a problem (UN-HABITAT, 2009).

*Timor:* In Timor Leste, NRC (Norwegian Refugee Council) is currently attempting to

implement projects for providing transition housing to IDP's facing re-integration problems in their original communities. A major obstacle involves difficulties identifying appropriate tracts of land for housing (UN-HABITAT, 2009).

The (Indonesian) head of the Dili land office took main books into safety during the violence in Timor Leste (Zevenbergen and Burns, 2010).

*Burundi:* Many arrived to their villages of origin only to find their land and houses occupied by those they saw as responsible for the genocide and their exile. Such persons had no reliable formal or informal system to regain their homes and lands and most were forced to return to the entry points at the border, where they were no longer eligible for food aid and household items, as they had not managed to establish themselves in their villages of origin (UN-HABITAT, 2009).

In this Chapter an attempt is made to depict the situation with the land records in post-conflict LA environment. From the statements and the overview of some of cases about the status of the land records in post-conflict LA environment reveals that they are vulnerable subject and always negatively affected during the conflict. Fully paper based systems are even more vulnerable than digital ones.

Because of the importance of appropriate usage of available land records to better organize the emergency and early recovery phases of the post-conflict, but also for the future to (re)establish a functional LA in one post-conflict environment it is required to adequately assess and analyze the status of the available land records in such circumstances.

## **5. STATUS OF THE LAND PROFESSIONALS IN LA SITUATIONS**

Since it was already identified from the available literature that '...the most obvious blow follows from the loss of staff and records.' in this Chapter overview is made on the status of the land professionals in post-conflict LA situations.

Staff can be killed, (forced to) leave the area or not be able or willing to return to their jobs within LAS. In all cases it is important to quickly identify available experienced staff and try to get them back to work as soon as possible. Most land administration staff are professionals with specific expertise, and except from (top) managers their position should not be political, but this depends much on local circumstances (Zevenbergen and Burns, 2010).

Individuals involved in first response and early recovery of post-conflict situations, need to look at a broad scope of issues and typically do not have a background in land issues. On the other hand land professionals have a little experience with and capacity for adequately providing assistance in post-conflict situations. The variety of experience needed to cover all key issues and the tight time frames typically involved presents significant challenges (Zevenbergen and Burns, 2010).

When – at the end of a day – a land registrar writes down a name of an owner in a land book, and a land surveyor draws a boundary line on a cadastral map, it could be either the start of a prosperous economic development, or overture to a new conflict (Molen and Lemmen, 2004). In Kosovo for instance, in years before the violent conflict, many Kosovar staff disappeared from their offices, but were able to return in the post-conflict era. Serb staff in general had left

the area by the time the conflict had ended and except for a few regional offices would not have been in a position to regain public trust (Zevenbergen and Burns, 2010).

Local professionals staff was away from cadastre by force from Serbs government (Meha, 2004).

In a post-conflict environment it is nearly inevitable that not enough of the needed staff levels will be available. Therefore capacity building is an immediate concern (Zevenbergen and Burns, 2010).

## 6. CONCLUSIONS

We can conclude that causes of conflicts are not only because of the land itself, but they always have a land dimension. Nowadays the nature of conflict has changed, conflicts have moved inside national boundaries. Civil wars and insurgencies are much more common today than wars between states.

Almost by definition, recovery from a violent conflict is sensitive, complicated and highly difficult and it is not possible to develop guidelines for all aspects for all countries and scenarios simultaneously. That's why it is required to perform further explorations and research on those typical situations in order to gather more knowledge to tackle the challenging issues related to land and Land Administration.

The post-conflict period starts when the main hostilities have ceased, some kind of peace treaty documents are signed and international assistance can be provided for emergency and recovery activities. The post-conflict period generally could be observed in three time phases: emergency, early recovery and reconstruction period.

Land administration in post-conflict situations is a difficult to (re)establish and it requires approaches that deals with the circumstances of the local situation. Knowing the basic principles of LA and having appropriate knowledge and expertise in the domain of post-conflict LA used in the emergency and recovery phases could contribute in not repeating some mistakes from the past and use of the lessons learned to better and faster recovery from the armed conflict. Adequately developed land policies implemented via land administration systems could stabilize the situation and reduce the chances for emerging the armed conflict.

Land records in post-conflict LA environment can be: damaged stolen, lost, fraud or manipulated by powering parties (groups), partly or fully destroyed, moved in third country or even be a target for violent attack. It is also identified that fully paper based systems are more vulnerable than digital ones because back up of those paper based systems are not established and maintained on second remote and secure location. Land records in post-conflict Land Administration environment are vulnerable subject and always negatively affected during the conflict.

Because it is more recognized that land and land records are important element in the emergence and early recovery phases of peace building period this phenomena needs further research

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## **BIOGRAPHICAL NOTES**

**Dimo Todorovski** holds a diploma as a surveying engineer from the University of Kiril and Metodij, R. Macedonia and obtains MSc degree in Geo-Information Management at International Institute for Geo-Information Sciences and Earth Observation ITC, the Netherlands in 2006. He is a head of the unit for International Cooperation and European Integrations, at the Agency for real estate cadastre, R. Macedonia, and has a practical experience in fields of land surveying and digital mapping, digitizing of analog cadastral maps, cadastral information systems development, ICT and ICT Strategies, and feasibility study for Digital map production. He is a Macedonian delegate of FIG Commission 7 and from September 2008 President of Mak Holl Nuffic Alumni Association, association of Macedonian students which studied in the Netherlands.

His research interest focuses on land management/administration, analyses of users/system requirements, cadastral systems, system modeling and presently he is doing research on specifics of post-conflict Land Administration and development of National Spatial Data Infrastructures.

## **CONTACTS**

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