

## COMPREHENSIVE CONSIDERATION OF CONFLICTS IN THE LAND-USE PLANNING PROCESS: A CONCEPTUAL CONTRIBUTION

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**Abstract:** Land-use conflicts are defined as situations in which involved parties or constituents have incompatible interests concerning the use of a certain parcel of land. Such conflicts frequently center on who is to maintain control over the land, who possesses the right to participate in decision making about its management, and on the social and environmental impacts of its development or new use. An aspiration of land-use planning is to coordinate current and future societal needs while minimizing conflicts. Recently, planning has focused mainly on conflict negotiation, focusing for example on communication and community engagement. However, an understanding of an area's possibilities for land-use conflicts has the potential to support sound allocation of social and financial resources to prevent or reduce disagreements. We propose a conceptual contribution for the comprehensive consideration of conflicts in land-use planning process, focusing on anticipation and negotiation. Examples from our research in Switzerland and Romania are used to illustrate how techniques of anticipation and processes of conflict negotiation can address potential land-use conflicts systematically.

**Keywords:** territorial governance; locational conflicts; landscape conflict; land-use conflict; anticipation; negotiation; resolution;

### 1. INTRODUCTION

Land is scarce and becoming more and more so in many places of the world because of population growth, of expanding needs, and growing land consumption per person. Indeed, land is what Bogale and colleagues refer to as the most fundamental resource (Bogale et al., 2006). As a public resource it experiences interventions of public and private individuals. Land is predisposed to conflicts because of contradictory contemporary demands and contrasting visions about future use and management and because of the depletion of resources such as soil fertility (O'Neill & Walsh, 2000). At the core of many conflicts is the fact that land as well as society are in a constant flux. Land-use changes driven by social, institutional, and technological innovations are the most important conflict sources (Brown & Raymond,

2014; Ianos et al., 2012; Torre et al., 2006). The growing concerns about the environment, sustainable development, and urban sprawl as well as concerns about the conditions of human living environments have resulted in more interests about land-use conflicts (Haase et al., 2014; Torre et al., 2014).

Land-use conflicts are defined as situations in which involved parties of constituents have incompatible interests concerning the use of a certain parcel of land (von der Dunk et al., 2011). Often conflicts occur when individuals become involved in either promoting or opposing a project from being realized, but also when people become active because they reevaluate the impacts of an existing facility (Joerin et al., 2010). Most of land-use disputes arise therefore from personal interests. When people advocate that a land use should be located elsewhere because of its real or perceived harmful effects, one

talks about NIMBY (Not In My Back Yard) and LULU (Locally Unwanted Land Uses) conflicts (Dear, 1992; Freudenburg & Pastror, 1992; Johnson & Scicchitano, 2012; Lake, 2001). However, conflicts also arise if ideas about the future development of a region diverge.

Despite competing interests, conflicts are not necessarily violent or even entirely negative. Conflicts can be catalysts for improvements in land governance and for creative politics, as well as questioning and even stopping the bureaucratic routine (Forester, 2013; Griggs et al., 2014; Paoli, 2008). It is important to note that many land-use conflicts pose wicked problems that cannot be solved, but a solution in the sense of good outcomes can be found. Most developed countries are equipped with legal frameworks that regulate land ownership and land use and seek to coordinate uses in a way that minimizes the probability of conflicts (Hersperger et al., 2014). Furthermore, there is considerable research on techniques for managing environmental and natural resource disagreements, including land-use conflicts (Brody et al., 2004). Conflict negotiation, otherwise known as reconciliation or resolution, is conceptualized as the methods and processes involved in facilitating the peaceful ending of conflict often by engaging in collective negotiation.

Most past conflict research has focused on conflict resolution rather than on the analysis of conflict occurrence, impacts, and main characteristics (Torre et al., 2014). Recent exceptions are, for example, Oppio and colleagues who explore the relationship among local conflicts surveyed by the local and national press and territorial vulnerability (Oppio et al., 2015). Therefore, our understanding of land-use conflicts is still relatively weak. Several studies have shown that land-use conflicts and tensions are especially prevalent in periurban and multifunctional landscapes (Cadieux, 2008; Darly & Torre, 2013; Gallent et al., 2006; von der Dunk et al., 2011). In these cases, the competition between various land uses such as settlement, agriculture production, nature protection, tourism, transport, energy, and waste infrastructure are especially acute. The same holds true for protected areas (Schröter et al., 2014; von Ruschkowski & Mayer, 2011).

The goal of land-use planning is to holistically and sustainably manage land and change in a community or region (Steiner, 2008). An aspiration of land-use planning is to meet current and future societal and ecological needs while keeping conflicts bounded and functional (Brown & Raymond, 2014). Planners must therefore continuously balance various competing land uses (Sze & Sovacool, 2013). Thus, planners constantly strive to better understand conflicts (Gallent

et al., 2006).

Particularly in recent years, there has been a significant focus on conflict resolution in planning discourse (Brooks, 2002; Healey, 2006). This is in line with a postmodernist view that recognizes movement away from comprehensibility, predictability, and rationality, and acknowledges the complexity of problems, the elusiveness of solutions to those problems as well as the often chaotic nature of social, economic, and political environments. Postmodernist theories place particular emphasis on communicative aspects of planning practice. Collaborative (communicative) planning centers on conflict resolution through communication and cooperation and refers to how interested groups interact in a face-to-face dialogue to find beneficial outcomes of some issues of common concern (Innes & Booher, 2010; Margerum, 2002). Collaborative (communicative) planning through its participatory nature relies primarily on the practice of mediation and negotiation. These practices are also known as alternative dispute resolution techniques in contrast to conventional conflict resolution methods such as litigation (Andrew, 2001). Conventional methods do not integrate the interested groups into the decision making process and often lead to lengthy and time consuming processes (Sidaway, 2005).

In mediation, a third party helps the interested parties to listen to each other, to collaborate, and to move toward being willing to build consensus. This technique is often faster, less expensive, and brings a higher satisfaction among the interested parties than the conventional methods. Mediation is based on negotiation which refers to a face-to-face communication between the interested parties who succeed to develop joint outcomes from which all participants benefit. Guidance on how these alternative dispute resolution techniques should be carried out as well indications of their strengths and weaknesses are offered by several guidebooks (Maser & Pollio, 2012; Susskind et al., 1999a; Susskind et al., 1999b; Susskind et al., 2000).

Planning procedures to prevent disagreements about land use have received much less systematic attention in recent research than procedures to solve conflicts. Conflict anticipation refers to, in general terms, the identification of potential sources and circumstances of dispute early on, before a hostile situation develops. Conflict anticipation is the first step for dispute prevention or avoidance. Avoiding conflicts is possible in a planning context but it requires anticipatory measures (Wondolleck & Yaffee, 2000). These measures need to be based on an analysis of factors within and beyond the reach of planning (Carr & Zwick, 2007; de Groot, 2006). For example, the goal

of a regional suitability is to ensure that future land uses fit the potentials and the constraints of an area. However, conflict anticipation has not become a well-established element of the planning process.

Conflict anticipation is, though, an accepted basis for land-use regulation. In many countries, zoning and other regulation seek to identify and separate potentially incompatible uses whereas comprehensive plans identify broad future allocations to harmonize expectations (Brown & Raymond, 2014). Potential squabbles can also be regulated by interdictions and restrictions.

Because of the increasing awareness of the prevalence of land-use disputes, it is time for a planning process model that explicitly addresses conflicts and includes aspects of anticipation and negotiation. It is expected that a comprehensive consideration of conflicts throughout the planning process will improve planning process and outcomes. The objective of this research is therefore to present a framework for the comprehensive consideration of conflicts in a land-use planning process model and illustrate it with examples. The overall goal is to enrich land-use planning methods with a conceptual contribution that gives due weight to planning steps before conflict resolution and negotiation. Examples are used to illustrate how techniques can support conflict anticipation in the planning process and how process of negotiation and public participation link conflict thinking and planning process.

## 2. FRAMEWORK

The framework for comprehensive consideration of conflicts in the planning process links conflict thinking with a planning process model. There are many procedural models and methods intended to operationalize the planning process (Ahern, 1999). Regarding land-use and landscape planning, well known examples are Steiner's Ecological Planning Model (Steiner, 2008), Steinitz' Framework for Landscape Planning (Steinitz et al., 2003), and Ahern's Framework Method for Sustainable Ecological Planning (Ahern, 1999).

We chose the Steiner's Ecological Planning Model with its roots in the McHarg tradition (McHarg, 1969) as a basis for the framework. This model is based on an understanding that planning uses scientific, technical, and other organized knowledge to provide options for decision making as well as it is a process for considering and reaching consensus on a range of choices (Steiner, 2008). We developed this model as a circle because it is particularly clear and simple and includes all relevant steps giving due weight to implementation and administration as well as to

participation. This method has originally been developed as a procedure for studying the biophysical and socioeconomic systems of a place to reveal where specific land uses may be best practiced. It is designed to address social equity and ecological parity. The model consists of eleven interacting steps (Fig. 1).

Throughout systematic citizen participation (involvement and education) effort occurs. As a result, participation is located in the center of the diagram. First, an issue or groups of related issues are identified. These issues are problematic or present an opportunity for the development of the people and/or their environment. Goals are then established to address these issues. In the next steps, regional and local level inventories and analyses of biophysical and sociocultural processes are conducted. Then detailed studies are made to link the inventory and analysis information to the problems and goals. The next step involves the development of concepts and options for the area. Subsequently, a landscape or land/use plan is derived. Detailed designs are explored that are specific at the individual land-use or site level. The designs are subsequently implemented, administrated and plan implementation as well as landscape changes are continuously evaluated.

Conflict anticipation and negotiation are integrated into this model as shown in figure 1. Conflict anticipation needs to be a key focus in the first part of the planning process: Regional, local and detailed studies (Fig. 1) are the primary places for analyses that facilitate the anticipation of dissension. Many regional and local level inventories and analyses implicitly address issues of potential schisms. The overall goal of the focus on conflict anticipation is 1) to develop sound plans and planning concepts that react to anticipated disagreements and 2) to highlight the remaining potential quarrels to facilitate transparent negotiation processes.

Conflict mediation facilitates implementation and needs to be the focus of the following planning steps: developing planning concepts, detailed designs, and the final plan as well as administration. Negotiations are necessary so that planning concepts and detailed designs are supported by the various constituents. Negotiations are certainly a focus of implementation and ongoing administration, often together with land owners and local officials.

The steps regarding problem and opportunity identification as well as goal development are not directly related to the focus on conflict anticipation and resolution. They are, therefore, situated at the top the diagram, in-between conflict anticipation and resolution. Of course, conflicts can also develop in the course of these activities, especially so in the process of defining and ranking goals.

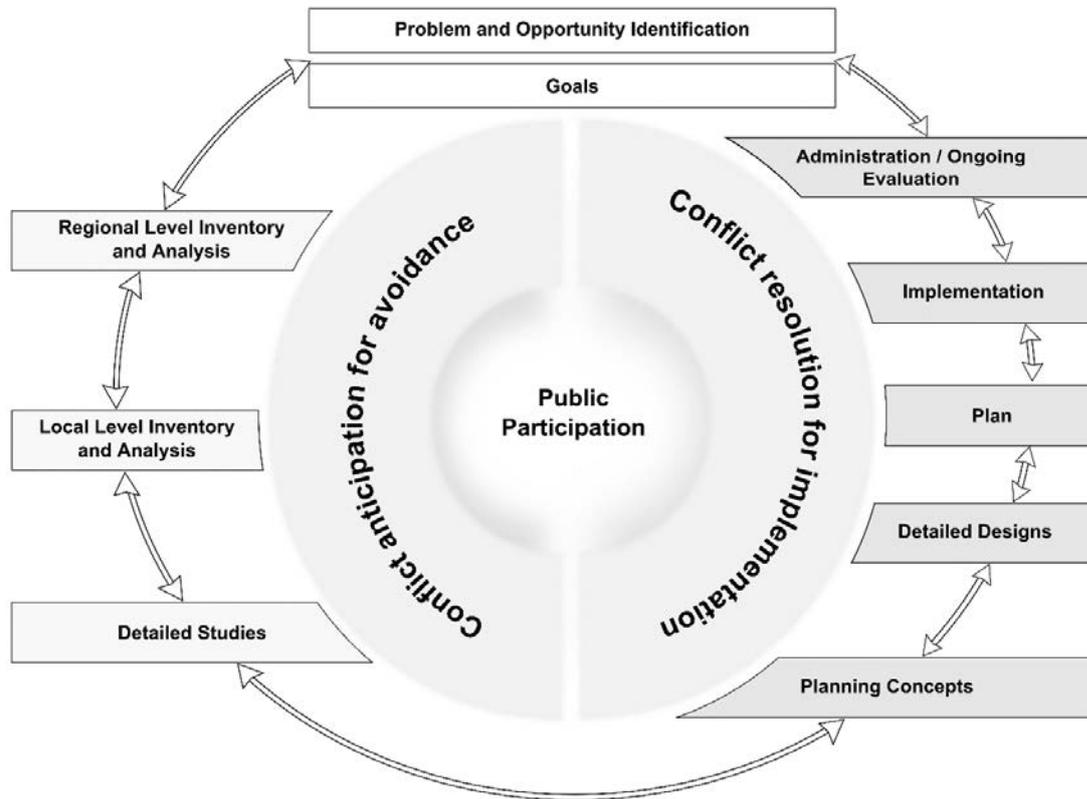


Figure 1. Framework for comprehensive consideration of conflicts in the planning process. The planning process is adapted from the ecological planning model of Steiner (2008). The ten steps are displayed as rectangles

### 3. CONFLICT ANTICIPATION IN THE PLANNING PROCESS

Conflict anticipation is situated in the analysis steps of the planning process, specifically in the regional and local level inventories and the analyses of biophysical and sociocultural processes as well as detailed studies. Three main conceptual approaches can be distinguished for analyses to anticipate conflicts: analyzing factors contributing to dissension, assessing conflicting land-use relationships and spatial arrangements, and mapping dispute potential. We illustrate the approaches with examples from research literature and discuss the relevance for the planning process.

#### 3.1. Analyzing factors contributing to conflictuality

Surprisingly few studies have focused on locational variables and their interaction explaining the occurrence of conflicts. Most of these few studies focus on conflicts in urban environments and find many clashes in areas characterized by short-term residency and high proportion of well-educated residents (Ley & Mercer, 1980); the level of

education correlated with the distribution of conflicts (Joerin et al., 2005), and house values correlated with resistance to development (Taylor, 2013). In a study in a peri-urban landscape of Switzerland, conflict data were collected through a content analysis of the regional print media (von der Dunk, 2011). A decision trees reveals that the proportion of rented accommodations, the steepness of the terrain, population growth, and the proportion of commuters are associated with the occurrence of land-use conflicts.

Each land-use conflict is distinct and emerges from specific local social, economic, and environmental interactions (Bryant et al., 1982). Knowledge about socio-demographic and environmental variables that correlate with the dispute occurrence, combined with data on the spatial distribution of socio-demographic and environmental characteristics in space, is useful for theory building. Such knowledge can also stimulate discussions about where land-use conflicts are most likely to occur and can feed into modelling (see below). Furthermore, Rapoport already in 1974, suggested that research and knowledge about struggle causes can enrich methods for conflict resolution (Rapoport, 1974). Pelletier and colleagues

explicitly expect that knowledge about spatially explicit variables that are associated with the occurrence of land-use conflicts can lead to more informed planning decisions (Pelletier et al., 2011).

### **3.2. Understanding conflicting land-use relationships and spatial arrangements**

Many studies document negative effects that result from converting one land use to another (Forman et al., (2002)). However, it is difficult to establish general rules for land-use compatibility or incompatibility because these are usually locally constructed and vary according to the political past, the social and legal framework as well as technical regulations (Tudor, 2014). For example, an increased probability of negative perception regarding a cemetery location next to residential uses is found for those people who are older, who live within eyesight to a cemetery, who hold jobs requiring less education, and who are aware of several nuisances generated by the cemetery (Tudor et al., 2013). In land-use relationship assessments by lay people and experts (Tudor, 2014), spatial arrangements that offer immediate benefits such as a park are considered compatible by lay people and arrangements where people experience negative effects from a certain land use (such as a factory that is noisy or smelly) are considered incompatible. In contrast, experts were more likely to assess land-use relationships overall more negatively.

In the planning context, spatial arrangements are regarded as amenities or as nuisances. Good spatial arrangements of land-use types and land-use intensities consider the effects that one land use exerts on to others (Hersperger, 2006). Planners can reduce spatial conflicts and enhance the quality of socio-economic and ecological systems. Thus, land-use planning needs approaches for addressing adjacencies and interactions in spatial arrangements.

### **3.3. Mapping conflict potential**

In the past decade, researchers have begun to develop tools and procedures building on the concepts and methods of multiple criteria decision-making and spatial decision support systems to map conflict potential. For instance, early work was conducted by Brody and colleagues (Brody et al., 2006; Brody et al., 2004) in Matagorda Bay, Texas. They mapped hotspots of potential conflicts for four management scenarios by overlaying multiple values associated with a range of constituents across space and identified spatially explicit potential conflicts associated with oil and gas production activities in

the costal margin of Texas. More recently, Carr and Zwick (Carr & Zwick, 2007), develop a Geographic Information System-based land-use conflict identification strategy (LUCIS) for three land-use categories (urban, agriculture, and conservation) in a North-American context. The resulting maps depict areas of potential land-use conflicts, with disagreement areas suggesting lands where future use is most likely to be disputed. Carr and Zwick point out that LUCIS is particularly interesting as a starting point for future land-use scenarios (Carr & Zwick, 2007). Ioja and colleagues (Ioja et al., 2014) developed a method based on multi criteria analysis and indicators, such as percent of built up areas and population growth, and expert opinions to identify areas with a high propensity to land-use conflicts for Bucharest Metropolitan area. The authors argue that the indicators and the tool are useful to develop planning strategies, increase social awareness for land-use dissensions well as for economic projections. Mapping conflict potentials has also been found useful in the context of competing landscape services, specifically between the production of renewable energy and cultural as well as biodiversity services (Kienast et al., 2014).

## **4. CONFLICT NEGOTIATION IN THE PLANNING PROCESS**

In the context of land-use planning, conflict negotiation can be defined as a process of finding a mutually acceptable resolution for the issue at stake (Tudor et al., 2014). This process can be structured according the following eight fundamental steps following Weeks (Weeks, 1992): conflict recognition by all parties; development of knowledge about the conflict; clarification of parties' personal and shared needs; positive approach to resolution process by all parties; awareness of conflict history to meet future challenges; outlining of viable options by all parties to deal with the conflict; parties working together for successful agreements; and decisions for mutual benefits.

As outlined above, conflict negotiation plays a key role in collaborative planning theory where resolutions to conflicts are found through communication and cooperation (e.g. Healey (2006)). Negotiation is essential to joint decision making as it can address the parties' interests, generate mutual gains, and produce relevant information for a successful planning process (Shmueli et al., 2008). Collaborative planning can be challenging in the context of project development and siting. However, it is especially demanding in

comprehensive land-use planning since the entire local to regional population is affected by decisions about the future development of the region. This calls for public participation processes with large groups, ideally not only in consulting steps but also in decision making and implementation.

Recent research has developed a number of excellent case studies that unravel how conflict negotiation works. Most insightful for land-use planning are, for example, Innes and Booher's (Innes & Booher, 2010) account of the state comprehensive planning process of New Jersey, the growth management process of the San Francisco bay region, and the military base conversions in the San Francisco bay region. These cases illustrate the dynamics of the actual deliberations, the structure of the process, who the participants were, and the methods by which conclusions are reached. Similarly, Forester (Forester, 2013) presents intriguing practice stories of conflict resolution about improving Albuquerque's North Fourth Street Corridor and a Light Rail Transit case in Edmonton and the Vancouver Island regional process of the commission of Resources and the Environment, a land-use and resource allocation process. Although these case studies are insightful, they are less useful to illustrate how the negotiation process is intertwined with the planning process steps outlined in Figure 1. The following examples from our own research are presented to clarify these links.

#### **4.1. Plan design and implementation intertwined with conflict resolution**

The process of comprehensive local land-use plan revision of Horgen, Switzerland illustrates how conflict negotiation during three phases was integrated into a planning procedure similar to the one shown in Figure 1. Horgen is a town of roughly 20,000 inhabitants, 9,000 jobs, and an area of 2,110 ha in the agglomeration of Zurich. The land-use plan and its respective regulations underwent a comprehensive revision in 2009- 2011. All land-use issues were considered though a special thematic focus was given to building density. The revision was managed by the town council and the administrative staff of Horgen with the support of the planning firm Suter + von Känel + Wild AG, Zurich. The planning process was organized in six sometimes overlapping phases: Background analyses (January/2009 – Mai/2009); Goal formulation (4/2009-7/2009); drafting of proposal (6/2009-3/2010); participation and consultation (4/2010-10/2010); revision of proposal (8/2010-11/2010 and 1/2011-3/2011); public presentation

and hearing (10/2010-12/2010); and decision making and approval (4/2011 – 12/2011) (Suter & Camenzind, 2010).

The participation and consultation phase started with a public workshop to inform citizens about the process. Then, two study groups were organized. One group worked on the proposed regulations for placing new buildings into the existing fabric and the other one on the proposed regulations regarding settlement quality. Both study groups met twice and developed suggestions which were then presented at a second overall workshop. Based on the suggestions from the study groups, this overall workshop formulated requests for submission to the local town council. Decisions in workshops and study groups were always taken by majority vote and detailed protocols of the discussions and decisions were made and sent to the participants. During this process, many conflicts regarding the overall planning concept, the plan, and detailed designs were negotiated. This process resulted in a revised, proposed local land-use plan. The proposed plan was displayed in the municipal building for two months. Within this period, anyone could submit specific objections. Of the 12 objections that were raised, three were approved and lead to an improved plan. Meanwhile, the other nine were rejected for various reasons. The plan was finally approved after some discussion and minor changes in the general municipal assembly in September 2011. Because of the extensive public participation opportunities, no major conflicts emerged in the implementation and administration phase as of now. Overall, conflict negotiation was an integral part of this revision process, i.e. of the development of the overall approach and detailed regulations as well as implementation.

Conflict negotiation was also an essential part in protecting a wildlife corridor from development expansion in Putna-Vrancea Natural Park, Romania. The conflict started when the park's scientific council rejected several requests by the local municipality to build holiday homes and tourist facilities in an area which provides important access for wildlife to water resources. After several negotiation sessions a compromise was reached. In a first meeting among the Scientific Council, the landowners and the municipality, the landowners asked to change zoning of the area from sustainable management to sustainable development and to include it in the built-up area. Even though the municipality supported these requests, the Scientific Council rejected them and appointed a commission to analyze the situation. This commission consisted of representatives of the local municipality, the

landowners, the park administration, and the county's environmental protection agency. During the negotiations among the members of the commission a compromise was proposed: to expand the area for sustainable development in other locations provided that the wildlife corridor be protected. Some landowners were not satisfied with this compromise since this meant that they could use their land in future only as pastures. However, they accepted the agreement since they were not supported anymore by the municipality. The contested area was then designated as an ecological corridor in the area for sustainable management in the park's management plan (PVNP Administration, 2014). Currently, this management plan has to be approved by the Ministry of Environment. Moreover, the General Urban Plan of the municipality is pending approval. It complies with the management plan and does not allow any urban development in the wildlife corridor. Overall, the negotiation process was successful for the protection of the area.

## 5. CONCLUSION

This conceptual contribution aims to present a framework for a comprehensive integration of conflict thinking into a planning process model. Based on an acknowledgement of the strong focus on conflict negotiation and resolution in current planning theory and practice, we advocate an equally strong integration of conflict anticipation in the planning process. A focus on conflict anticipation and negotiation is important to develop proposals that are acceptable but also avoid potential future harm and disputes. Mitigation is not the preferred strategy since mitigation, by definition, recognizes that something has been developed in a problematic area and means are needed to protect it against subsequent events (Kendig, 2014).

More research is needed to develop tools to support conflict anticipation. This research would be facilitated with empirical data about land-use struggles. However, data about land-use dissension are scarce and often incomplete. Standardized data collections such as the *Conflicts* © data base (Torre et al., 2014) or the Observatoire des conflits urbains et périurbains (<http://www.observatoireconflits.org>) are promising approaches to fill the gap. Data from such collections would allow systematic studies analyzing factors contributing to dissension, understanding conflicting land-use relationships, and developing indicators for mapping the potentials for disputes.

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