



Urban Planning in a Hungarian Town after the Red Sludge Disaster

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Abstract: The research aims to contribute to urban planning for disaster recovery by evaluating a specific disaster recovery planning model. It examines how urban planning has adapted to the situation resulting from the red sludge disaster in a Hungarian town. The results in this paper are based on content analysis on planning documents. The possibility of the disaster was not part of the urban planning before the disaster happened, so stages of prevention and preparedness was not part of the urban planning. With regard to urban planning, Devecser chose not to change the development directions, which were determined before the disaster. This is due to the recovery process took place in a short period and disaster and the recovery had not affect significantly on the problems and opportunities of the settlement.

Keywords: industrial disaster; disaster recovery; urban planning

1. Introduction

Urban planning literature offers several opportunities and tools for natural and industrial disaster prevention and examples of applied urban planning models for disaster recovery. In disaster recovery urban planning, planners have to deal with a particular, often unexpected situation and keep the development path in the previous direction or find a new way of sustainable development (Figure 1).

The research contributes to the discourse on urban planning for disaster recovery by evaluating a specific disaster recovery planning model. It examines how urban planning has adapted to the situation resulting from the red sludge disaster in a Hungarian town. The possibility of industrial disaster is always a hazard in settlements with significant industrial activities. Therefore, analyzing examples of disaster prevention and, in this case, recovery planning and its consequences is crucial for future planning, especially since numerous European settlements do not currently have plans for similar cases.

2. Urban Planning for Post-Disaster Recovery

In settlements where significant industrial activities are carried out, there is always a hazard of an industrial disaster. In the case of natural disasters, two dimensions of the disaster can be distinguished: time and predictability. The disaster can occur in a short or a long period and can be predictable or unpredictable. In the case of industrial disasters, the level of predictability is much higher, and the period is also more limited [1]. Nonetheless, many European cities do deal with this possibility in urban planning.

There are four ways of urban planning to deal with industrial (and natural) disasters (Figure 1): prevention, preparedness, response, recovery. When the disaster occurs, planners have to support the residents to reduce the damages (response). The next phase is the recovery process [2]. This phase usually takes years, depending on the damages and

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the resources for rebuilding [3,4]. After the disaster striking, the recovery activity aims to reduce the damages and provide instant help to the victims.

Due to the urgency to act immediately, these short-term actions are without a thorough planning process and sometimes are against the long-term goals [5,6]. In contrast, the settlement rebuilding process demands a deep and detailed planning process [7] with the following stages: analysing the impacts of the disaster, identifying the problems and opportunities; setting goals; planning; analysing the possible consequences of the planned developments; implementation of developments; monitoring [8,9].

Recovery planning usually aims to restore pre-disaster conditions as far as possible. However, urban planning after a disaster has the opportunity to develop the settlement in a new way. Therefore, it is an important question if the decision-makers use the situation to accomplish development which had not been able to do before [10].

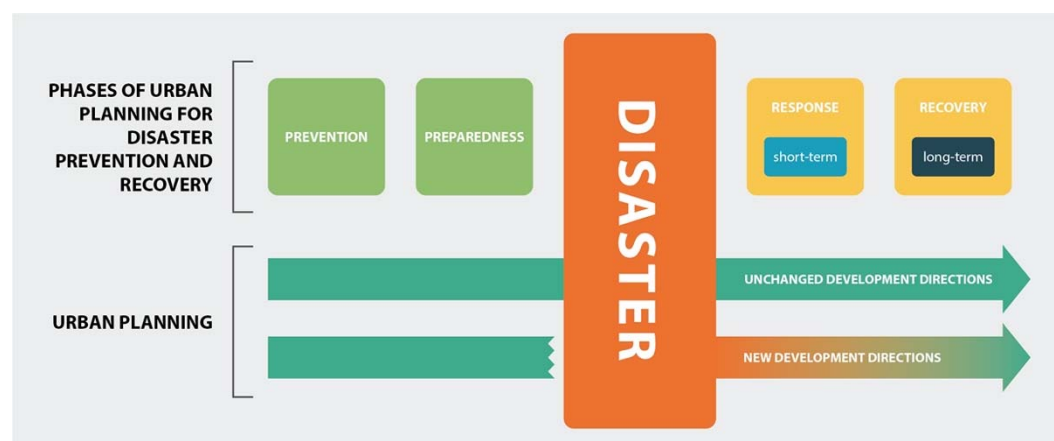


Figure 1. Theoretical model of urban planning and planning for disaster prevention and recovery

3. The Red Sludge Disaster

The red sludge disaster (2010) has been the most prominent industrial disaster in Hungarian history. The dam of the red sludge depot of the Ajka alumina plant broke, and approximately one million cubic meters of liquid waste were released from a reservoir. The sludge caused damages in surrounding settlements, of which Devecser was most affected. This town did not have a plan to prevent or recover the settlement in case of a disaster. Therefore the disaster had serious economic, environmental and social consequences. Even before the catastrophe, Devecser was affected by a number of social problems, and the local economic performance was low. Thus, the town had to face those problems and the consequences of the disaster at the same time [11].

The state established the Hungarian Remediation Fund one week after the disaster occurred. The Fund managed the distribution of the incoming donations. The Fund the foundation was in operation until December 2012. Devecser received enough subsidy to fast recovery process in relation to the physical and partly the natural environment [11].

4. Methodology

The results in this paper are based on content analysis on planning documents. In this paper three development plan was analysed, which were made in 2002 (the last one before the disaster), in 2012, in 2018. The focus is on the similarities and differences between the period before and after the disaster in the main goals and the fields for development, and in addition, on how the disaster appear in the developments plans in 2012 and 2018.

5. Results

The possibility of the disaster was not part of the urban planning before the disaster happened. Although a disaster is always difficult to predict, due to the characteristics of the industrial activities and the storage of hazardous and toxic liquid waste, the town could have made preliminary plans and measures to prevent or deal with such a disaster. At the same time, the red sludge depot is located in another settlement, so even with the presumed release of the red sludge, it would have been difficult to predict the location where it was causing damages. Furthermore, disaster planning should probably have taken place in cooperation with the neighbouring settlements and not at the settlement level. It would have required the cooperation of the surrounding settlements and adequate financial resources.

Stages of prevention and preparedness was not part of the urban planning (Figure 2). The response phase uniquely took place, as many developments and rebuildings were financed from a fund created by the state. There has never been an industrial disaster of this magnitude in Hungary before. However, in the case of natural disasters (most often floods), not a single settlement has received such a subsidy. Because of the significant subsidy, after the response phase, the recovery process took place in a short period. The town soon (2012) made a new development plan that could already respond to the previous general problems of the settlement and not the red sludge disaster.



Figure 2. Urban planning and planning for disaster prevention and recovery in Devceser

With regard to urban planning, Devceser chose not to change the development directions, which were determined before the disaster (Figure 2). It is partly due to the fact that the disaster and the recovery had not affect significantly on the problems and opportunities of the settlement. In addition, Devceser could not or did not want to use the disaster to change the spatial and social structure of the settlement.

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