



About guidelines

Methodological guidelines for territorial planning in flooding territories

One of the main components in LIFE + Project “Riga Against Flood” is the development of “Methodological Guidelines for Territorial Planning in Flooding Territories” (further in text Guidelines). Work on the guidelines was started in August, 2010 and was completed in June, 2012.

Significance of this kind of document lies in the fact that such guidelines have never before been developed in the Baltic States. The rationale behind this document is to aggregate the most important steps for sustainable development of the territory and planning in flooding territories and on waterfronts. The guidelines provide basic principles on how to start planning on waterfronts or in flooding territories, in order to achieve balanced development, by creating safe, organized and aesthetical environment so that both - the people behind the project and the territory - would benefit from it.

Flood has to be perceived as a natural process.

The guidelines are devised for specialists (territorial planners, employees of municipalities and others), whose work is related to flood risk, flooding territories, et cetera. The information in the guidelines will help specialists in developing a territorial plan, in starting the development of a construction project, in developing a plan for civil protection, in making political decisions, supporting and evaluating various projects, etc.

The guidelines can be used for producing territorial development planning documents, for example, territorial plans or thematic plans, as well as for developing water bodies (coast/ bank, access, etc.) in any municipality of Latvia, region or town with major water bodies and flood risk.

In assessing the flood threat, the causes for flood, existing in Latvia, and their possible combinations were considered. Factors and especially their combinations that cause flooding in territories should be evaluated. These combinations alter as a result of climate change. It is possible to detect certain flood risks; however, combinations of different weather conditions as well as their consequences are unpredictable.

The most significant part of the Guidelines is territorial planning principles in flooding territories and on waterfronts. The Guidelines describe flooding risks and use of likelihoods, principles and the method. The guidelines consist of the following chapters:

- Methodology for territorial planning;
- Riga’s example, including the research by PAIC, ltd. “Study of hydrological processes connected with climate changes and forecasting in Riga City and development of recommendations for protection of Riga City”;
- Basic mapping principles for flooding territories and requirements for the content of the maps;
- Overview of laws and regulations;
- Recommendations for territorial planning and amendments to the regulations;
- Appendices (The best examples of Europe and others).

Water is very often associated with a borderline not with an element connecting space. Frequently, territories that are covered with water are a burden from both physical and legislative perspectives. The current world’s practice in waterfront development is like a conceptual approach to changing space with special public significance and culture historical biography, where impressive projects are being carried out from the point of view of architecture, city planning and funding. In territories and countries where flood threat is a part of everyday life or

where it has great likelihood of occurrence and may cause great loss, the necessary investments are extraordinary.

Methodology comprises:

- Exploration of the territory;
- Territorial planning in waterfronts. Aims and objects;
- Schematic transverse profiles of waterfronts;
- Flood prevention plan;
- Insurance.

It is crucial for the flood forecasts to be accurate and trustworthy, which allows to prepare for flood beforehand, to inform the inhabitants if necessary and solve the problem ahead of time, thus preventing economic and moral loss. The involved institutions should be prepared for possible flood and appropriate response. Provision of information is important in flood risk assessment: what is the acceptable level of risk, how much effort and funding has to be invested to reduce this risk.

Methodology for territorial planning

The aim of territorial planning in waterfronts is to take into account the changing parameters of water in the suggestions for coastal development, including flood. Also the necessity for the use of water ways, public access to the coastline as well as planning the river cross-section should be taken into consideration.

Planning of flooding territories has to start with a detailed inventory of waterfronts, including flood-related information, update on the available data, site visits, inspections of historical coast strengthening as well as interviews with inhabitants and experts. The idea of the Project should be evaluated from the perspective of its future use – water-dependant object or water-independent object, where the preference is given to a water-dependant object. A water-dependant object is an infrastructure object designed for daily use, as well as an architectural object or object, with water as an indispensable part of its architecture (aquitecture).

In built-up flooding territories, flood protection possibilities should be considered and economically grounded. In most cases owners have to solve the problem of protecting buildings from flood on their own. For the development of such territories, a possibility of including flood prevention measures should be considered when constructing new buildings. The new constructions should be appropriately designed and should protect the existing constructions (for instance, an access road serving as a dam).

In the process of planning, working on the territorial (development and other) plan, special attention should be given to melioration and rainwater drainage systems, their collection capacity, ensuring the effectiveness of these systems, which balances overground and underground water levels.

The main factor in planning is sufficient inclusion of territory and impact assessment also for the adjacent territories, since water objects are linked in a common system (hydrographical net). In planning new construction, the observation of rational transverse profiles is important, that includes both 1% flooding highest water level and 98% guaranteed lowest water level, which is obtained from sufficiently accurate calculations and measurements.

In the planning process special attention should be given to transverse profiles of newly designed streets, where the space for rainwater and melioration system is allocated. It has been proposed to allot the street transverse profiles an open rainwater drainage system to divert the water to an infiltration reservoir and only then into the drainage system. This approach, obviously, requires additional territories; nevertheless, they could be used as landscape elements in the conceptions of constructions. An ideal water management system allows absorbing and accumulating water at its place of origin. The current trend in designing rainwater drainage systems is linked to city and landscape planning, bringing it nearer to the natural cycle.

Another significant part of methodology is insurance – flood risk insurance would positively influence all: the owners and other interested parties, enhancing implementation of flood prevention measures. Presence of an insurer in the development planning processes would be desirable to prevent situations that occurred with the development of real estate market (around Year 2000) when new residential areas were built in alluvial lands and in flooding territories.

Riga's example

In case of Riga city many various data, research, maps etc. are available, giving a better understanding about the current situation – hydrographical biography, flood risks, existing flood prevention measures, data of water level measurements, relief model etc. These, above-mentioned, components provide a more accurate insight into what the city already has and what needs to be improved. It illustrates to other municipalities what sort of data might be used in planning flooding territories and waterfronts.

Basic mapping principles for flooding territories and requirements for the content of the maps

Flood maps are created with the aim to obtain more detailed information about floods, flooding territories, threat to the buildings, infrastructure, risk objects, protected nature territories etc. It is essential to ensure that in case of flood the people involved (living or working in territories under flood risk) could act accordingly.

EXCIMAP manual for flood mapping was chosen as basis for this section, which was developed on the basis of Flood Directive 2007/60/EK (October 23, 2007) and the requirements included in it. EXCIMAP manual has aggregated Europe's experience and knowledge in flood mapping. For mapping methodology the results of PAIC, Ltd. research "Study of hydrological processes connected with climate changes and forecasting in Riga City and development of recommendations for protection of Riga City" were used.

A unified system for creating flood maps in Latvia has been proposed. It is important that topographical names and their graphic representation coincide. In creating a unified system it is essential to act in compliance with "Protection Zone Law" and regulations No. 406 "The methodology to determine overground water object protection zones" (03.06.2008.).

Recommendations for territorial planning and amendments to the regulations

One of the significant components of the Guidelines is recommendations for territorial planning (for binding regulations, development plan (for Riga) etc.) and amendments for regulations. The recommendations are divided in the following groups that refer to:

- laws and regulations;
- territorial planning, planning in flooding territories (on waterfronts).

The most significant recommendations for amending regulations are for the following documents– "Protection Zone Law" and regulations No. 406 "The methodology to determine overground water object protection zones" (03.06.2008.).

Recommendations propose a clear division of the functions between the state and municipality in flood management, planning, provision and maintenance of flood prevention constructions, clearly determining the course of development for the waterfronts.

Recommendations for territorial planning suggest observing the most significant, in designing new plans, as well as improving the existing constructions that are connected with waterfronts.