



ASSESSMENT OF FOREST MANAGEMENT RISK

All forest owners are recommended to have Forest Management Plan (FMP) to ensure sustainable use of resources, and fulfilment of other targets. Usually it consists of three sections- aims, baseline data and economic orders. Most common forest management planning aims are: efficient and sustainable use of timber resources, revenue maximization, conservation of biodiversity and expanded reproduction of recreation resources. Second FMP section is baseline data that describes a variety of quantitative and qualitative characteristics of forest. It includes both geographic information and inventory data. Economic orders characterizes a set of actions that must be performed to achieve stated objectives.

In simple terms FMP development is process that starts with objective statement and baseline data collection, and ends with the preparation of the economic order. Unfortunately, it may be impossible to realize such a simplified FMP version in practice, as any human intervention in natural processes of forest growth or failure to act can lead to a variety of unplanned changes, that may interfere in the achievement of the stated objectives. Therefore the forest owner must be aware of the risks factors that have undermined his property and where possible, he should be able to reduce or eliminate the impact by taking appropriate preventative measures.

FMP risk can be defined as the possibility of failing to meet stated objectives, as well it can be assumed that there is only one risk with different scenarios, and that each scenario has a certain probability, consequences, cost, mitigation options, factors and their interactions set. Probability indicates the likelihood of the risk occurring at the selected scenario, consequences characterizes changes that will take place, or reality deviations from the plan.

Mitigation options are a set of measures designed to reduce the likelihood of the risk occurring. For example, the mitigation options for risk scenario of wind damage are: evolution and selection of potential planting sites for low wind conditions, species selection, planting aged cuttings to reduce sail area, correcting toppling, avoiding late heavy thinning, avoiding excessive edge effects, normalising age class distribution, utilizing timely, avoiding clearfelling exposure.

Two major obstacles is preventing from the practical implementation of risk analysis in FMP. First - researchers engaged in the study of FMP risk must describe the factors and interactions between them in the way that it's possible to carry out a systematic selection of eventually affected stands and to perform an automatic risk probability estimation. The second obstacle is related to the source of data - part of the information is available in the standard inventory database or obtained by previously developed methods of data processing, however, many important factors that characterize stand must be collected separately. Last figure outlines main steps of FMP risk assessment approach - risk scenario definition, compartment selection, definition of objectives and risk scenario evolution.

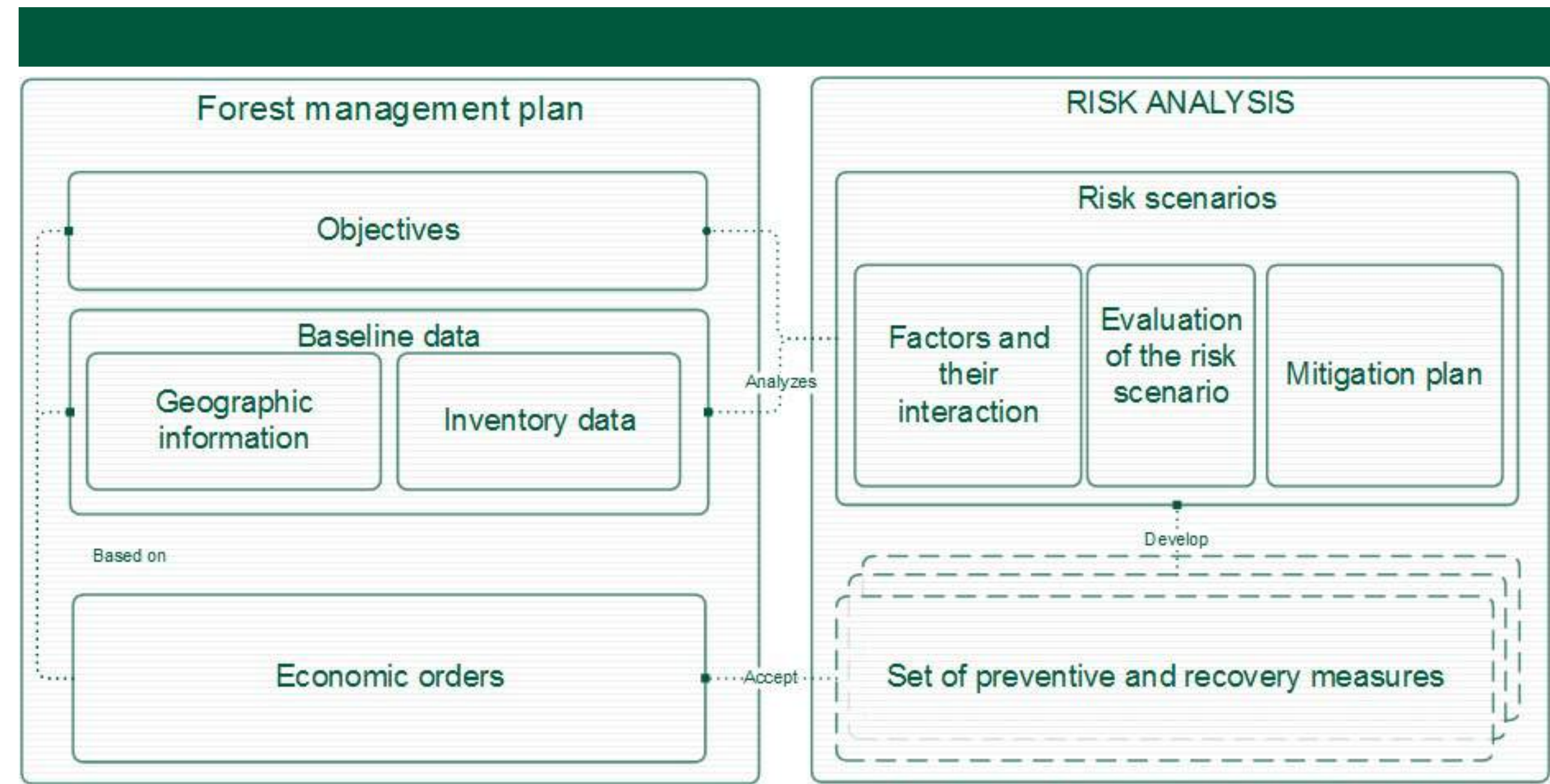


Figure 1: FMP structure with risk management

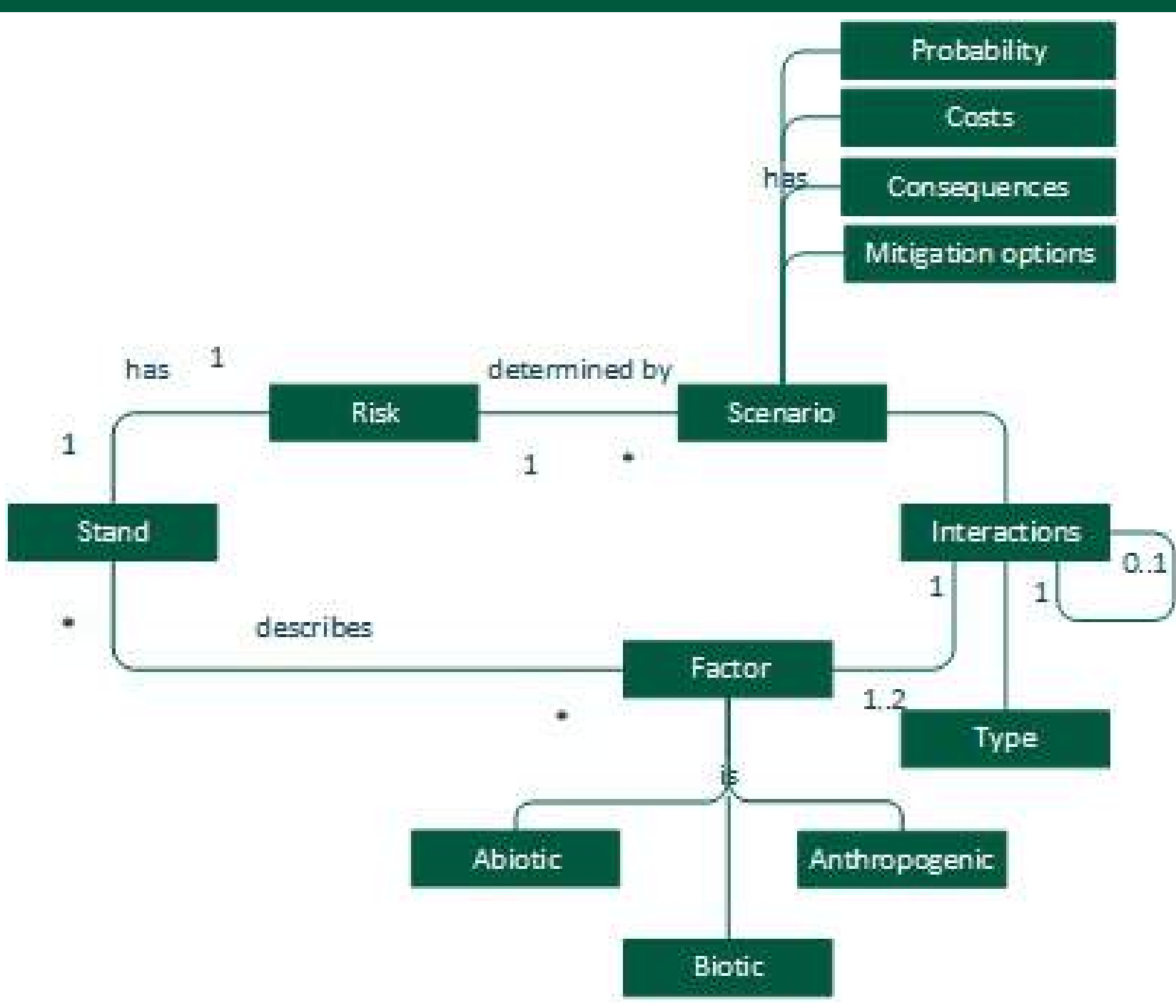


Figure 2: Conceptual model of FMP risk management

1. RISK SCENARIO DESCRIPTION

2. COMPARTMENT SELECTION AND DEFINITION OF OBJECTIVES

3. RISK SCENARIO EVOLUTION.

