A multi-method approach to assess the potential of non-wood forest products for small-scale forest owners

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Rowan (Sorbus aucuparia) **Stone pine** (Pinus cembra) **Mushrooms** (Boletus pinophilus) **Cork** (Quercus suber) **Chestnut** (Castanea sativa) **Honey** (Apis mellifera)

1. Introduction

Non-wood forest products (NWFPs), i.e. *products of biological origin other than wood derived from forests, other wooded land and trees outside forests* (FAO, 1999) are an integral element of sustainable forest management in Europe. In the wake of contemporary international policies NWFPs are being considered as important means for business diversification and income generation, particularly in regions where wood is not the most profitable product. In the most recent State of Europe´s forests report, the total economic value of NWFPs in the Forest Europe region accounted for 2,7 billion €. Thus there seems to be high latent potential to strengthen the economic viability of rural economies.

In this context we **aim** to:

- support people who give advice to forest owners (e.g. forest extension services, forest owner associations, forestry consultants) to
    - attract forest owners to engage in new NWFP businesses and
    - foster the sustainable management of forest resources
- support small-scale forest owners as regards the co-production of wood and non-wood forest products in order to
    - diversify their product portfolio
    - distribute related socio-economic risks
    - contribute to biodiversity conservation

2. Analytic Hierarchy Process (AHP)

The AHP consists of a goal „**identify the most promising NWFP for a single forest management unit (FMU) in the region xxx**" (xxx = i.e. North Karelia, Styria and expresses the spatial dimension of the analysis) and two levels of indicators:

1. Criteria
2. Sub- Criteria
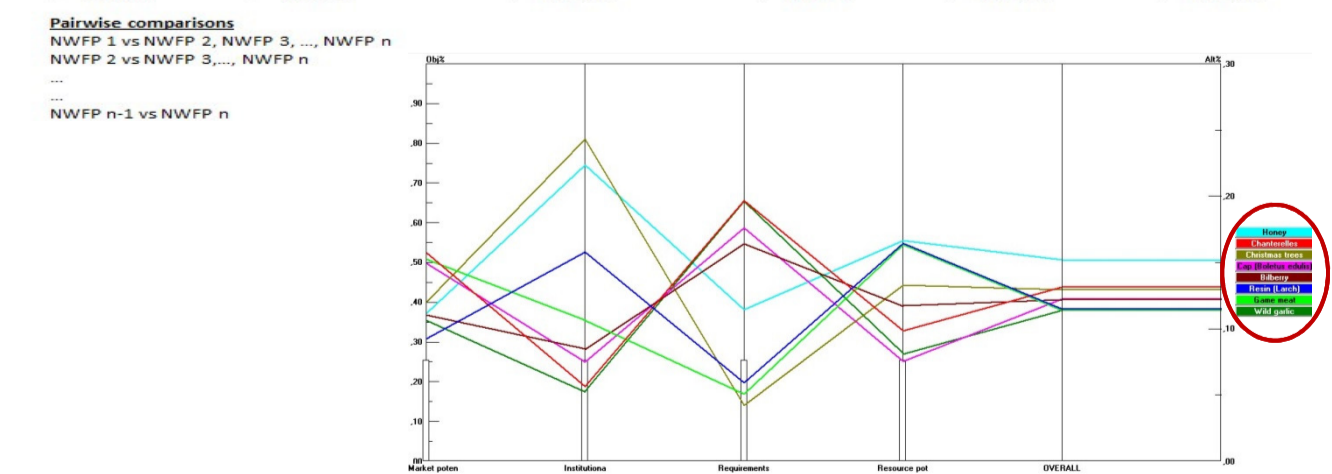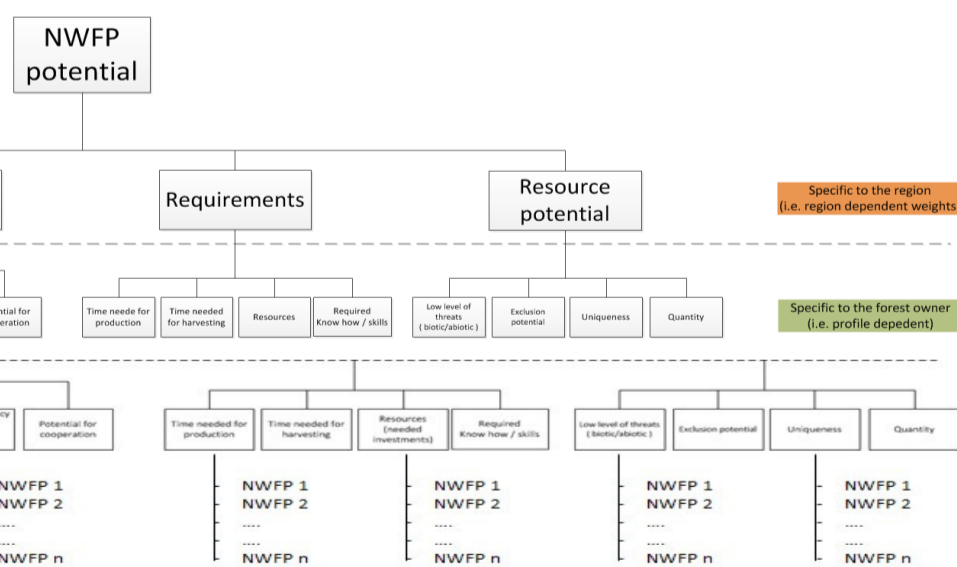
3. Bayesian Belief Network (BBN)

In our application, the BBN is applied in order to shed light on a FMU´s potential to integrate one or more of regionally available NWFPs in its forest management concept. BBNs consist of two structural components:

i.   a causal network (directed acyclic graph), and

ii.   conditional probability tables (quantify the relations in the network)

i. Causal network

ii. Conditional probability table

CPT calculation

Model walkthrough
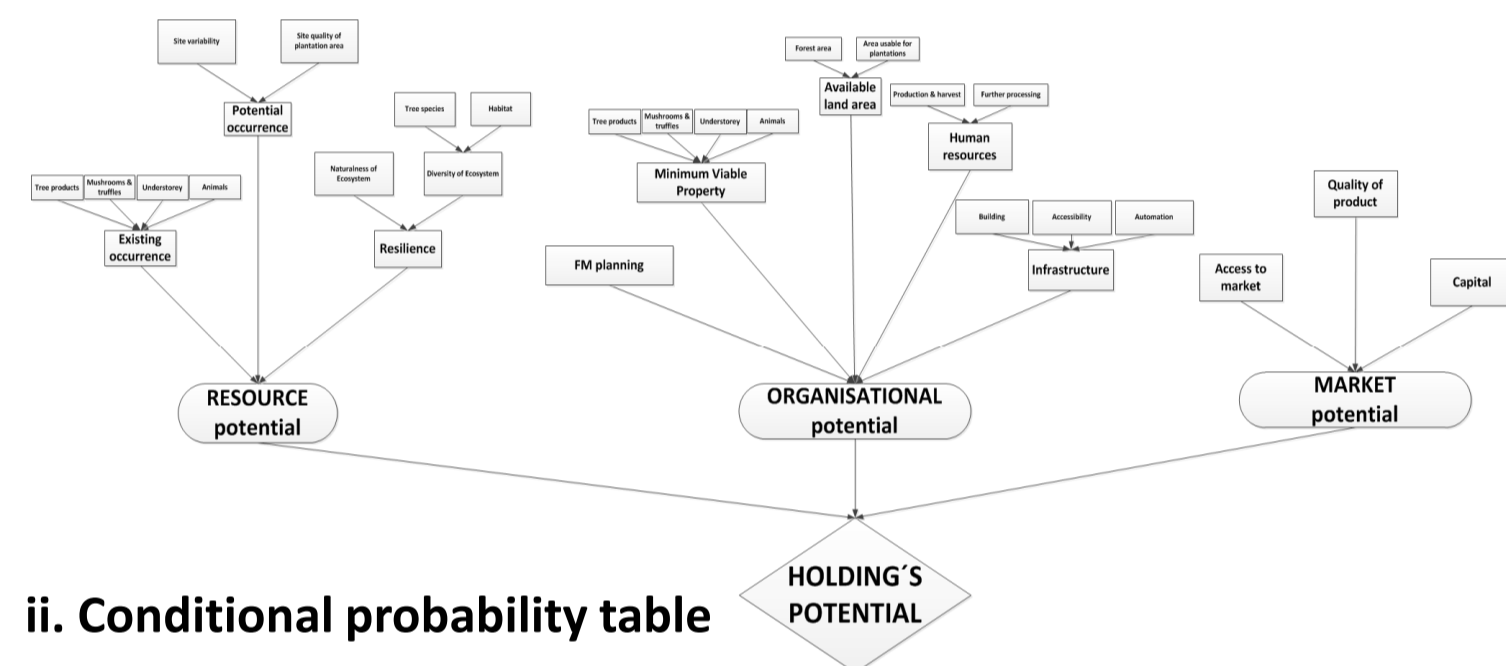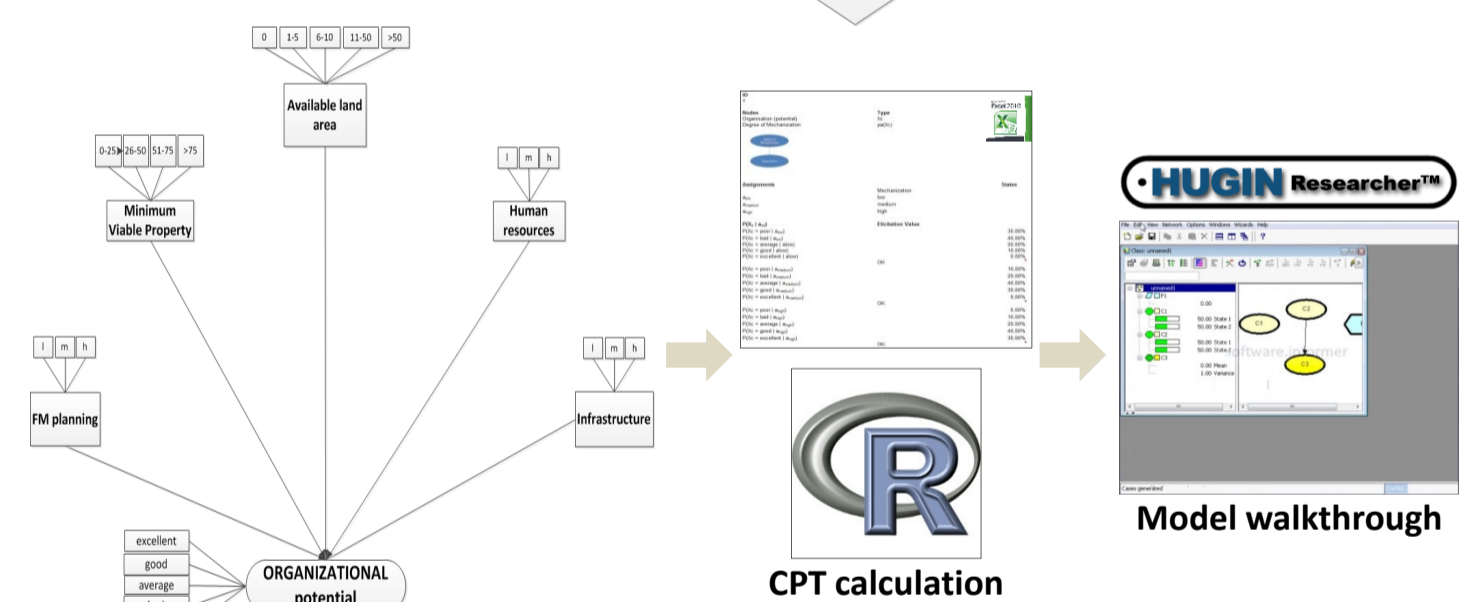
4. STSM purpose and progress

The STSM was hosted by the Natural Resources Institute Finland (Luke) and targeted at the further development of the multi-method approach. The main focus of the working visit was **to advance the two major components that constitute the expert model** (i.e. AHP, BBN). The following tasks could be elaborated in detail:

- AHP criteria (discussion and finalization)
- Stakeholder interaction (to derive at regionally explicit weightings for the AHP)
- Forest owner profiles (description and method)
- Expert consultation (as regards the AHP for N-Karelia)
- BBN (network refinement and description of states)
- Paper proposals (brief outline of possible publications)

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