Understanding human behaviour role with respect to forest management adaptation to climate change (HUBFORClimate)

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State of art

1. forest modeling has become in the last 40 years an important tool to assess or to forecast the main features of forests Mladenoff and Baker 1999

2. LandClim studies forest dynamic as determined by various driving forces Schumacher and Bugmann, 2006

3. forest management scenarios are an indirect proxy of stakeholder behavior with respect to climate change

4. Economists have studied in details the human behavior regarding the climate change (e.g. Whitmarsh, 2009; Barr et al., 2011; Kant et al., 2009; Macleod and Haygarth, ed., 2010)

5. No assessment of uncertainty on agents' beliefs and resulting behavior (Janssen and de Vries, 1998; Wang and Wilson, 2007)

Scope

Climate change policies, including forest adaptation policies, need to be designed on the basis of real human behavior towards climate change, and not on the basis of behavior assumed by economists, policy-makers or modelers (Kant et al., 2009)

Research questions:

Q1: ? the attitude of the relevant stakeholders with respect to climate change: ignoring? Learning? Proactive? Denying?
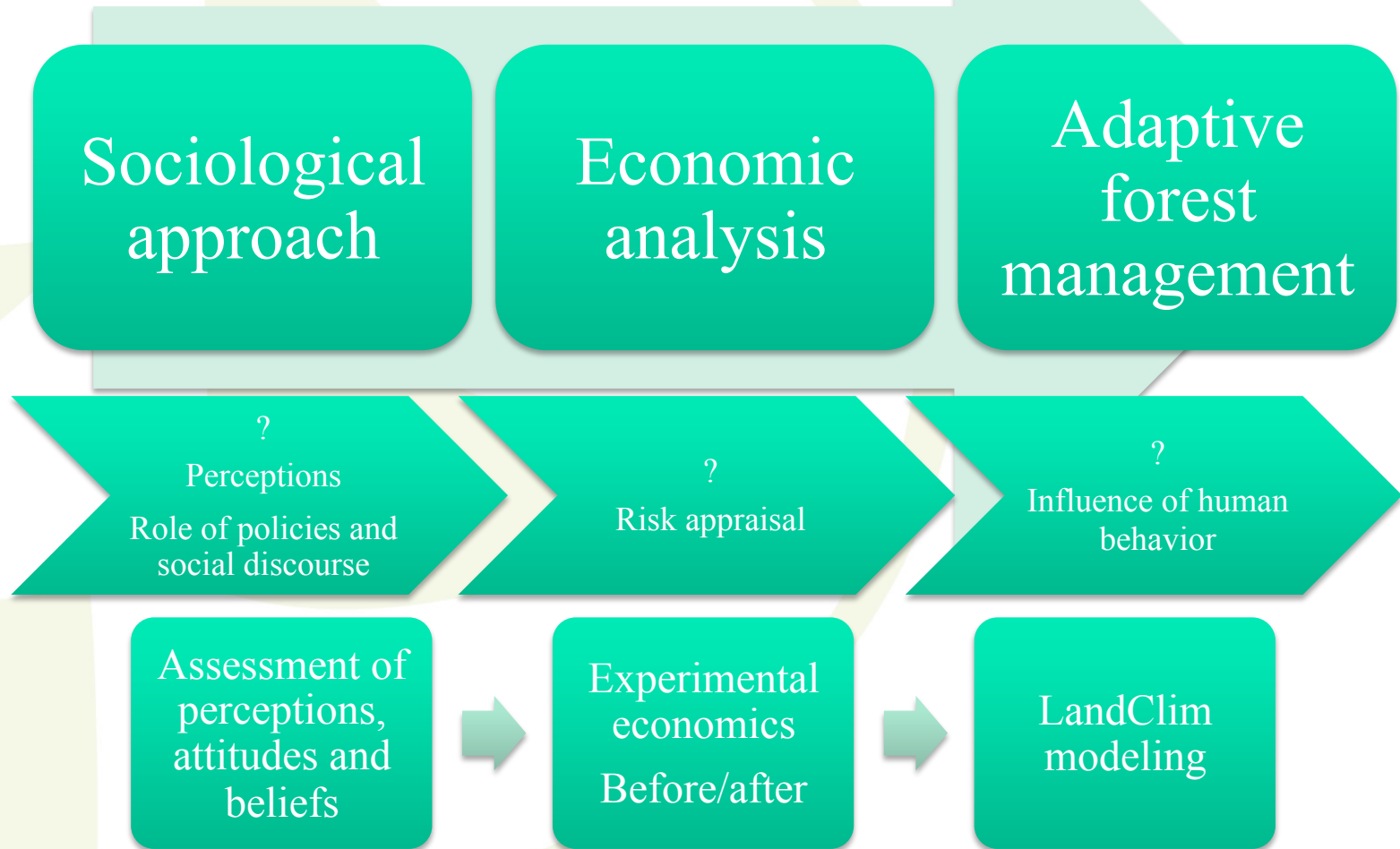Q2: ? this attitude appears /is built up?
Q3: ? to include the stakeholders options and attitudes in the forest modeling and how to estimate the human behavior impact on sustainability of forest management?

Objectives

1) identifying of the actual knowledge, beliefs, perceptions, attitudes and expectations of the stakeholders

2) anticipating the changes of the attitudes/behavior face to different climate scenarios and events

3) linking the stakeholder behavior to actual measures or effects on forest management.
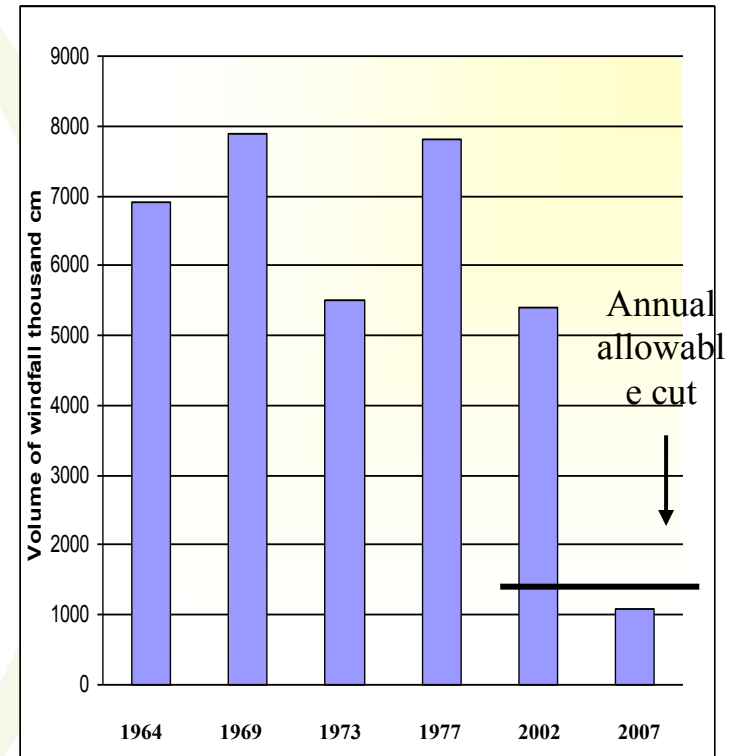
Interdisciplinar Methodology

Sociological approach	Economic analysis	Adaptive forest management

? Perceptions Role of policies and social discourse	? Risk appraisal	? Influence of human behavior

Assessment of perceptions, attitudes and beliefs	→	Experimental economics Before/after	→	LandClim modeling

Ongoing (jan-jun 2013)

- Questionnaire forest managers done in on-line survey (N sending: 1100; secong reminding ongoing)
- Questionnaire for the forest owners re-fined
- Preparing the Survey in the field for forest owners perception in preparation (forecast August-September)
- Field inventory in private forests ongoing
- Compiling Data bases for modelling in the other two forest districts
- Modeling forests dynamics under present legal rules

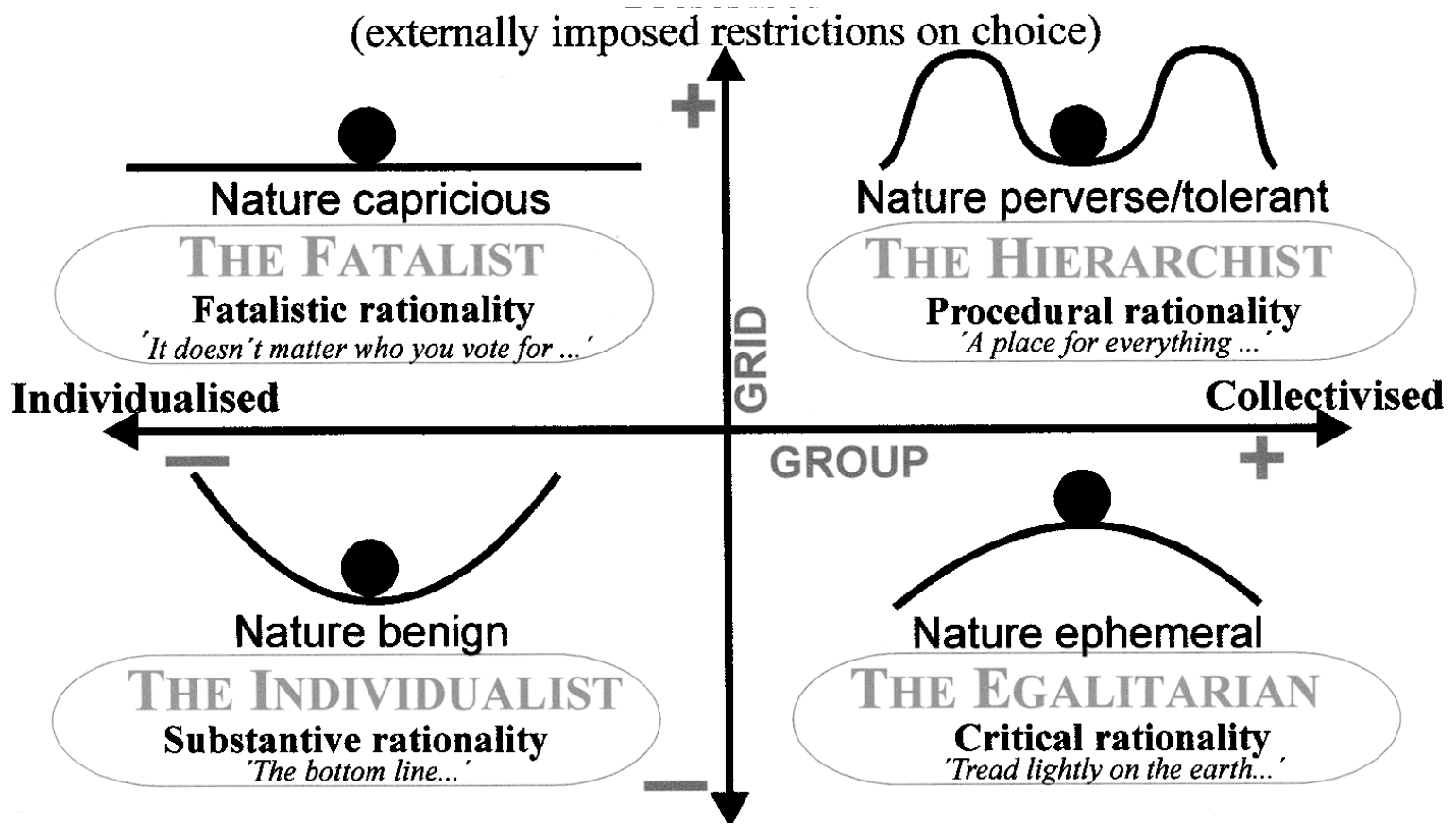# Process model of private proactive adaptation to climate change (MPPACC)

Hypothesis H1: human behavior a social construct that may be influenced by various factors, including adaptation policies to climate change or professional background

Hypothesis H2: human-induced changes in the forest management are likely to have a greater influence on forest growth and productivity than the climate change itself.

Annual allowable cut

Volume of windfall overcrossed at least once in the decade the annual allowable cut in Suceava region

FIGURE 2 (Pokorny and Schantz, Society and Natural Resources, 16:887–908, 2003): The types of social relationships (fatalist, hierarchist, individualist, egalitarian) associated with political cultures (here as shown by the underlying rationality: fatalistic, procedural, substantive, critical) and the ''myths of nature'' (nature capricious, nature perverse=tolerant, nature benign, nature ephemeral) (modified from Schwarz and Thompson 1990).
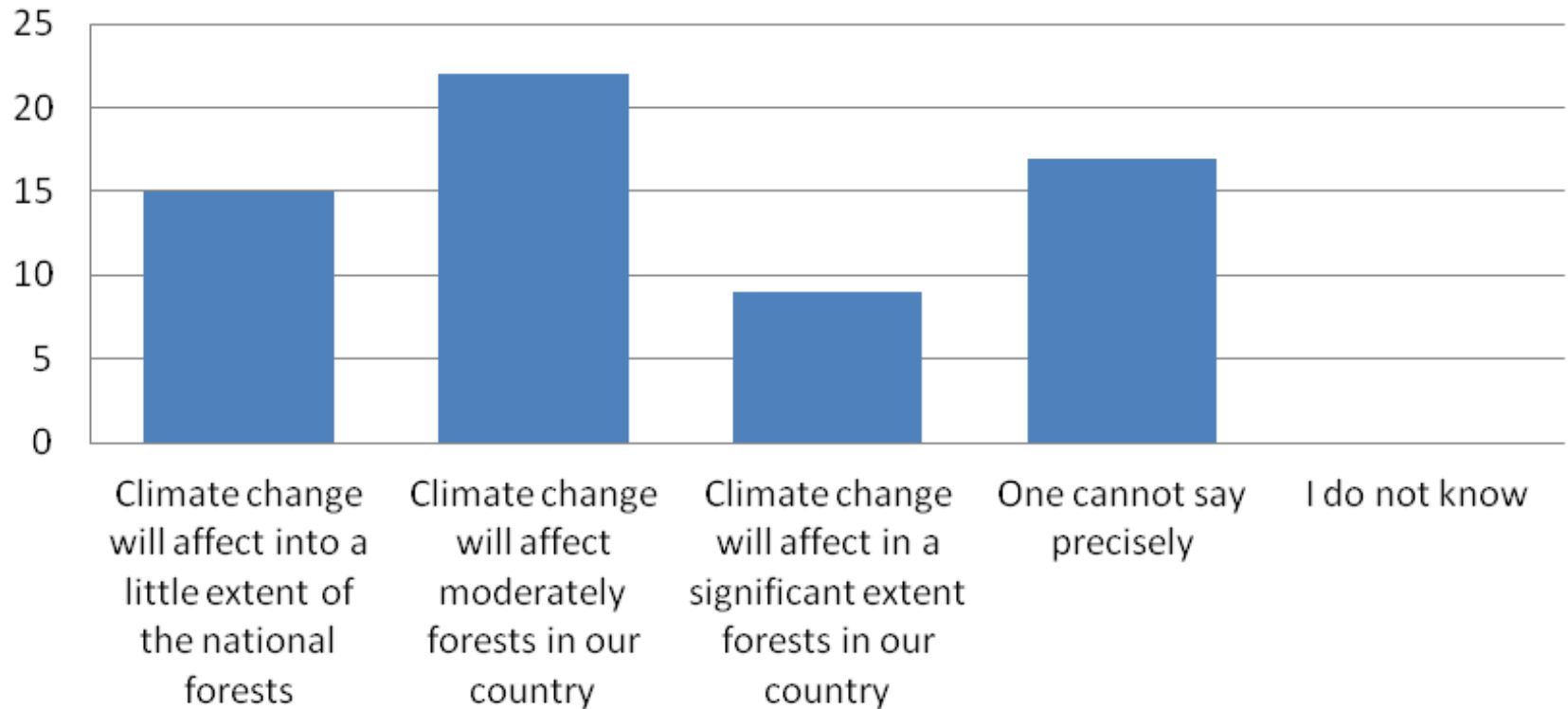
Perceptions assessed

A. Perceptions about climate change in general

B. Perceptions about climate change impact on forest ecosystems

C. Public trust in measures to prevent negative effects of climate change – implementation

D. Perceptions about adapting forest management to vulnerabilities and risks
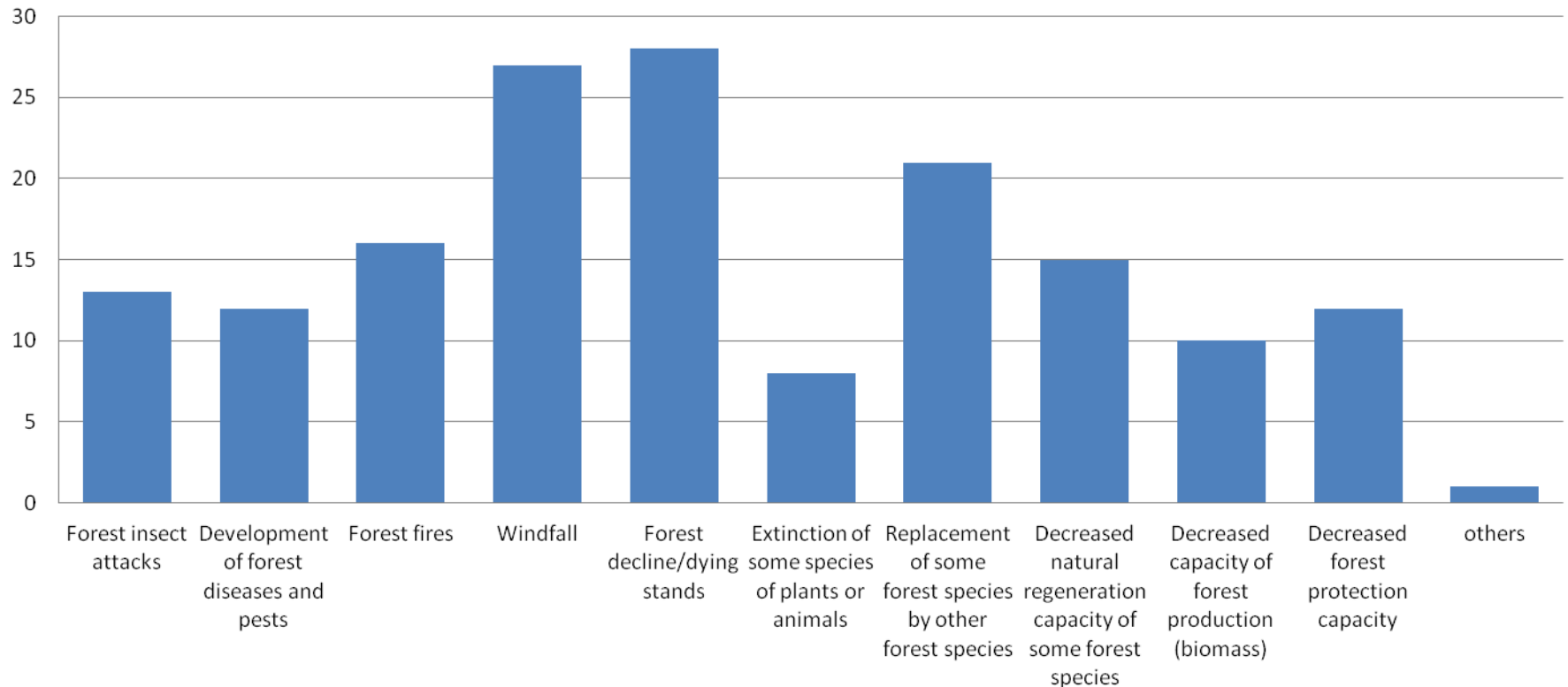
E. Complementary data
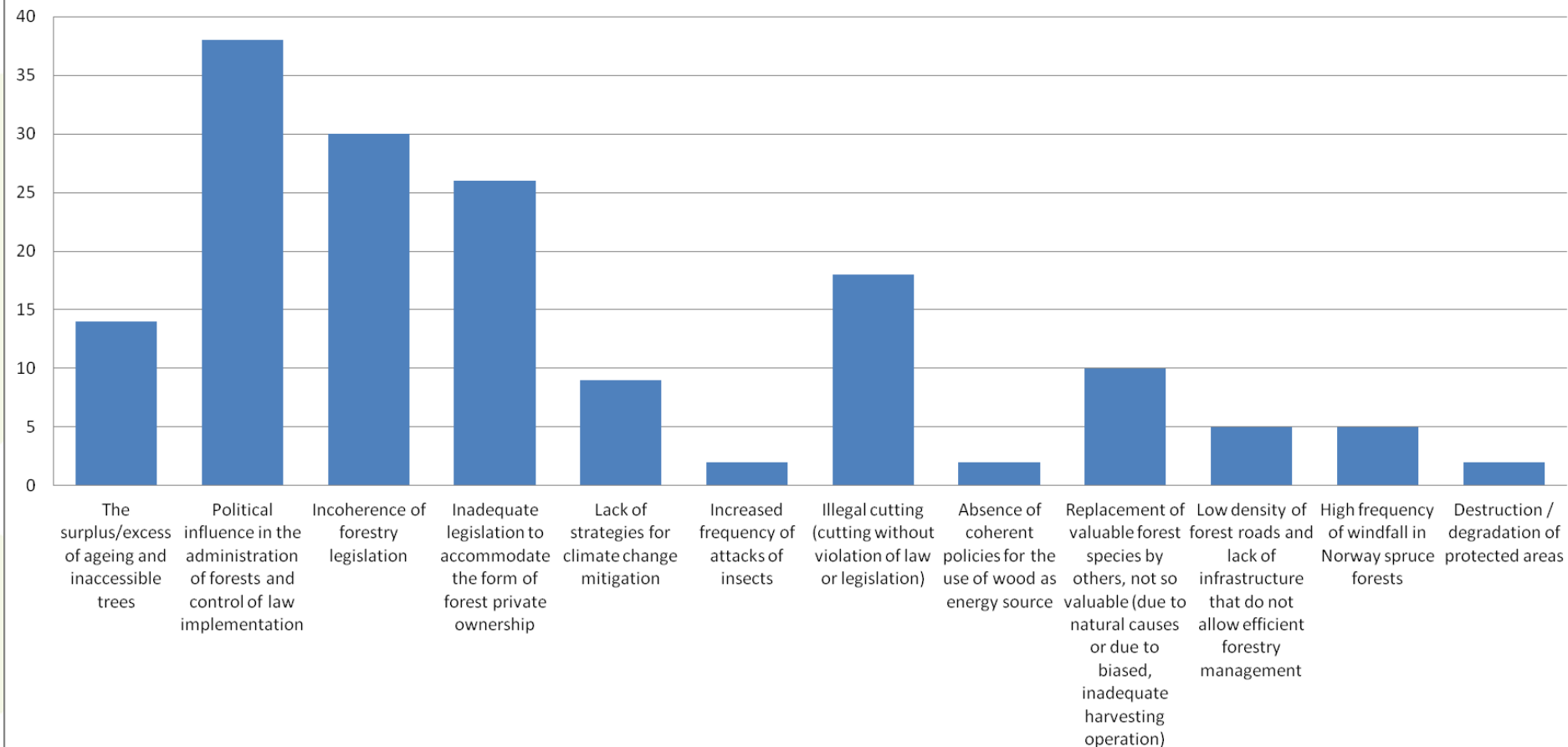
Preliminary results of the survey

H1: Climate change is not perceived as having a significant impact on forest ecosystems, from forest engineers perceptions

In your perception, which of the following vulnerabilities and risks may manifest themselves more strongly in the context of climate change on forests in our country?

H2: The main perceived vulnerabilities are related to the existing problems that forest engineers face in their current forest management

According to your opinion, which of the following items from the list below represents a serious threat for the stability of national forest ecosystems?

H3: Adaptations strategies are context dependent:

political influence in administration, incoherence of forest legislation, inadequate legislation for private forest management, illegal logging

Future research needs

Human behaviour (owners, managers) are likely to influence in a greater extent forest management than climate itself

What they know

How they perceive

How they think to adapt (Process model of private proactive adaptation to climate change)

How to translate this social driver in model input

How to induce adaptive behaviour