

## IMPERIA Project

### "Improving Environmental Assessment by Adopting Good Practices and Tools of Multi-Criteria Decision Analysis"

#### Aim to improve quality, effectiveness and cost-efficiency of EIA and SEA with

#### RECOMMENDATIONS REGARDING THE EIA PROCESS

- More active stakeholder involvement
- Emphasis on systematic scoping and focusing the EIA studies on the most relevant issues
- More transparent and structured approaches for impact significance assessment

#### NEW TOOLS

- ARVI tool for supporting impact significance assessment
- Questionnaire templates for map-based information collection tool on the Internet

#### GUIDANCE MATERIAL FOR MAKING ASSESSMENTS AND REPORTING

- Extensive support material for impact significance assessment
- Report on good practices in environmental assessments
- Report on applying MCDA and other structuring tools on EIA

## ARVI tool

- Support for using the impact significance assessment framework (Figure 1)
  - Framework exploits ideas from national and international frameworks
  - Indicative chart for helping the assessment on the basis of magnitude and sensitivity (Figure 2)
- Objectives of the framework to
  - Consider systematically all the various dimensions of the impacts
  - Assure the same assessment principles on each impacts
  - Increase transparency and reasoning of the assessment
- Familiar Excel-based interface for (Figure 3)
  - Facilitating the collection of assessment information from the experts
  - Producing various charts and tables to illustrate the results
- Experiences of using ARVI
  - "Helps to understand and visualize the impacts"
  - "Does not necessarily save time, but increases the quality of the assessment"

### Example procedure for applying ARVI in practice

1. Problem initialized by the project manager
2. Separate Excel forms produced by ARVI are filled by the experts (Figure 4)
3. Experts' assessments are read to ARVI from the filled forms or are directly given in ARVI
4. Collected assessments are analyzed in the main ARVI window (Figure 3)
  - Can be utilized as a background for discussions within the project group
5. Versatile visualization of the results for the EIA report including
  - Tables classifying the impacts of the alternatives (Output 1)
  - Matrices illustrating the formation of the impact significance from sensitivity and magnitude (Output 2)
  - Charts illustrating the impacts (Output 3)
6. The ARVI tool and the assessments can be published on the web or can be sent for the EIA authorities

ARVI is downloadable at [Imperia.jyu.fi](http://Imperia.jyu.fi)

Figure 1. Impact assessment framework.

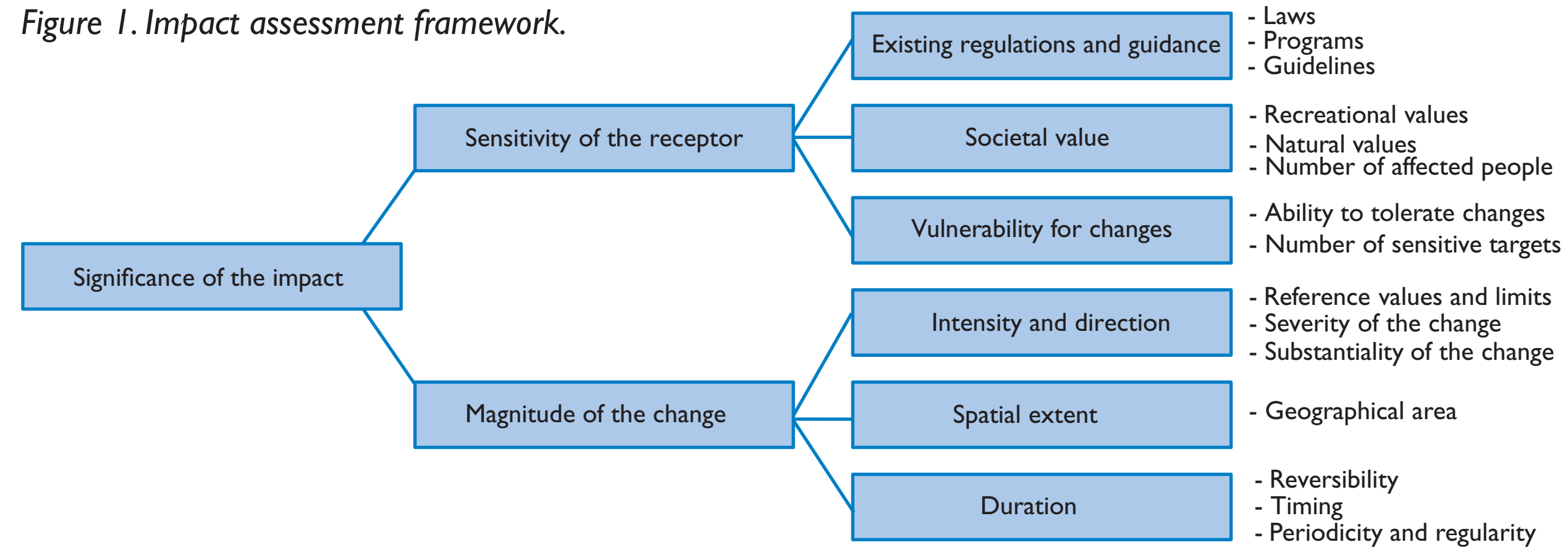


Figure 2. Assessment is based on the sensitivity and magnitude.

Impact significance	Magnitude of change									
	Very high	High	Moderate	Low	No change	Low	Moderate	High	Very high	
Sensitivity of the receptor	Low	High*	Moderate*	Low	Low	No impact	Low	Low	Moderate*	High*
	Moderate	High	High*	Moderate	Low	No impact	Moderate	Moderate	High*	High
	Very high	Very high	Very high	High	High*	No impact	Moderate*	High*	High	Very high

\* Especially in these cases, significance might get a lower estimate, if sensitivity or magnitude is near the lower bound of the classification

Figure 3. Main display of the ARVI tool.

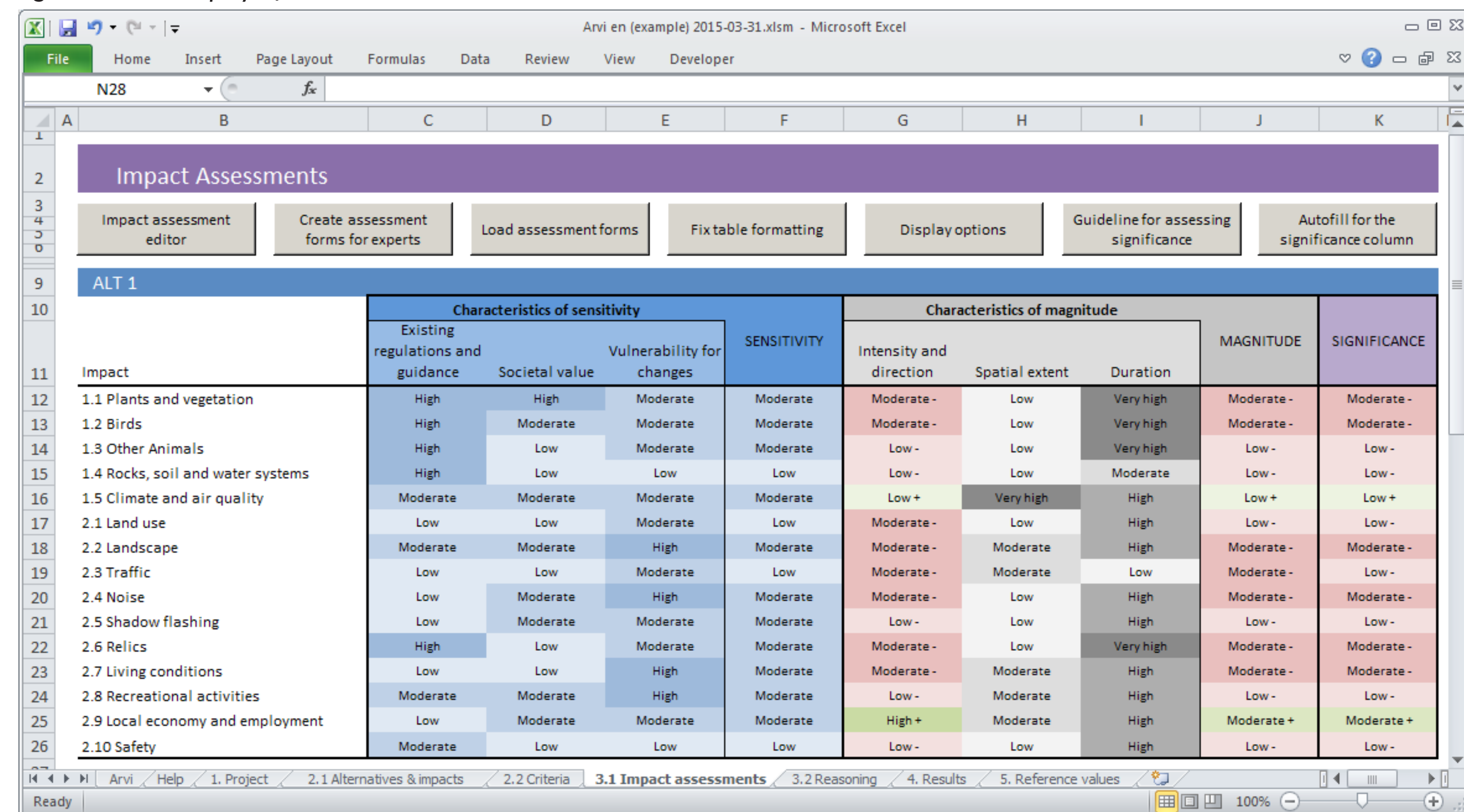
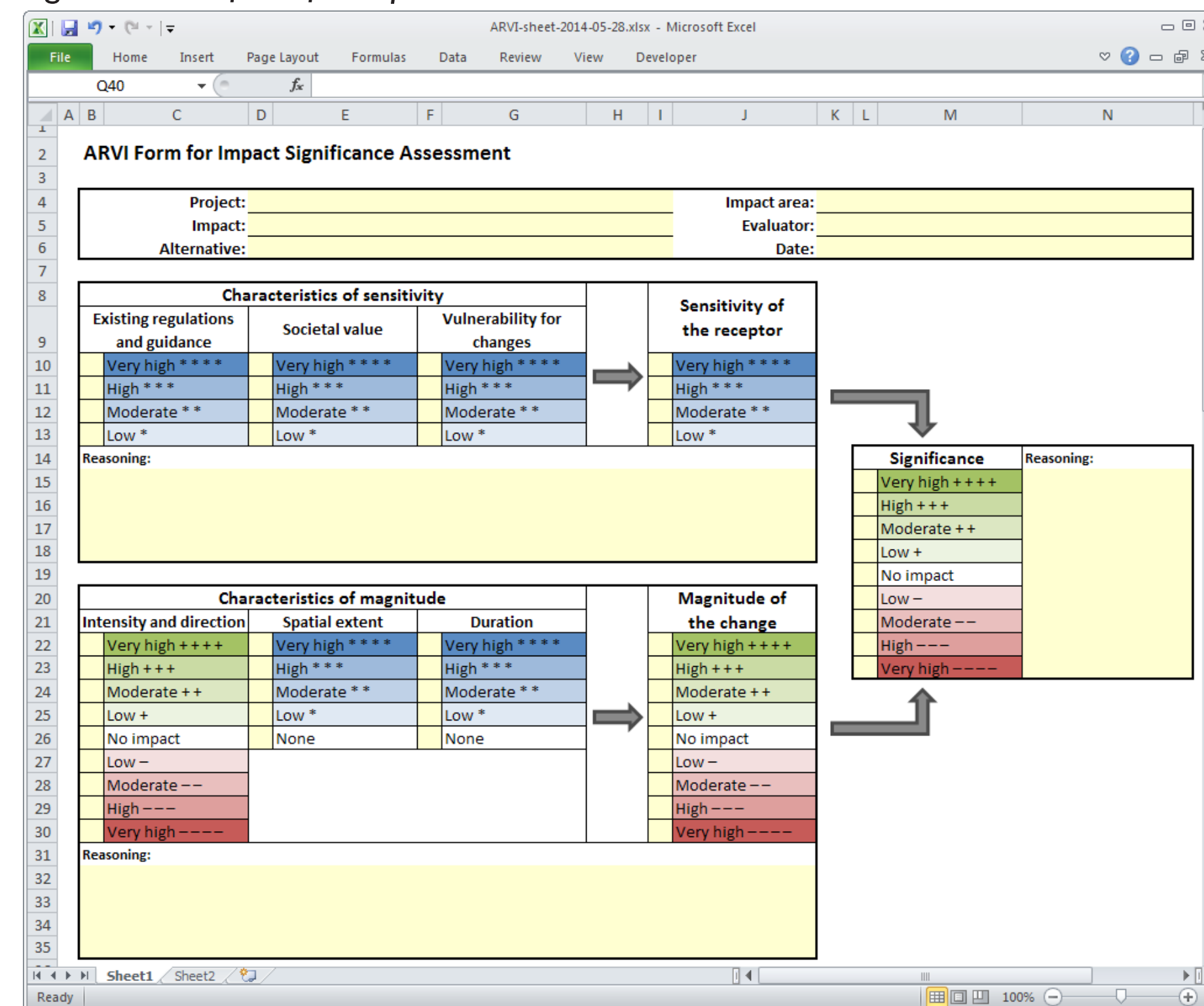


Figure 4. ARVI form for experts.



Output 2. Formation of impact significance.

**Significance of plants and vegetation**

Sensitivity	Magnitude			
	Low	Moderate	High	Very high
Low	B			
Moderate		A		
High				
Very high				

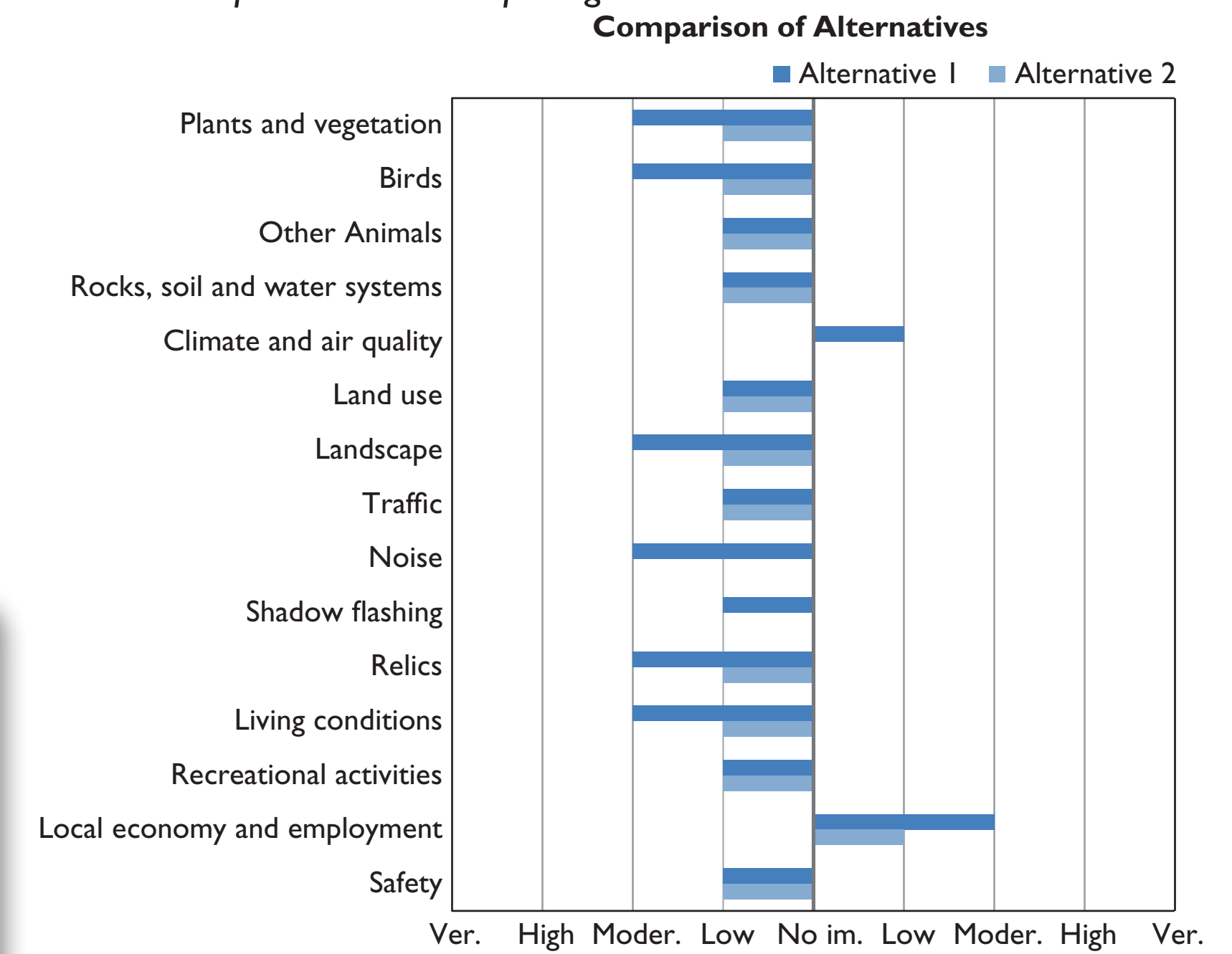
Scale for significance:  
 = Low (lightest shade)  
 = Moderate (light shade)  
 = High (medium shade)  
 = Very high (darkest shade)

A = Alternative 1  
B = Alternative 2

Output 1. Classification of impacts by significance.

Significance	Alternative 1	Alternative 2
Very high		
High		
Moderate	- Local economy and employment	
Low	- Climate and air quality	- Local economy and employment
No impact		
Low	- Other Animals	- Plants and vegetation
	- Rocks, soil and water systems	- Birds
	- Land use	- Rocks, soil and water systems
	- Traffic	- Climate and air quality
	- Shadow flashing	- Land use
	- Recreational activities	- Traffic
Moderate	- Safety	- Shadow flashing
		- Relics
		- Living conditions
High	- Plants and vegetation	- Recreational activities
	- Birds	- Safety
Very high		

Output 3. Chart comparing the alternatives.



Further information at IMPERIA website: [www.imperia.jyu.fi/English](http://www.imperia.jyu.fi/English)