Appendix 2

Detailed questionnaire

Overview

Purpose	Phenomena addressed
Software	
Type of SES	
Type of dynamics of the ecological system	

I. Questions concerning Governance

Questions	Responses
To which theoretical governance framework does the article refer?	
How is governance represented in the model?	Agent-based modelling Variable-based modelling
Questions following if variable-based modelling	
How is governance implemented?	Informal institutions Formal institutions Modes of governance → Market-based → Private-social partnerships → Community-based → Co-management → Public-private partnerships → State-based: Information/Command-and-control/Economic instruments
Does governance change over time?	Yes → and it is exogenous → and it is endogenous No
The objectives of governance are to...	Agents Ecological system Both Other
To achieve its objectives, it takes into account factors....	Agents Ecological system Both Other
It acts on (process)....	Agents Ecological system Both Other

Questions following if agent-based modelling	
How is governance implemented?	Informal institutions Formal institutions Modes of governance → Market-based → Private-social partnerships → Community-based → Co-management → Publi-private partnerships → State-based: Information/Command-and-control/Economic instruments
How is construct the decision-making process ?	Rational choice Socio-psychological theories Bounded rationality Participatory modelling From primary data From secondary data
What are the objectives of agent ?	Economic Ecological Social Risk management Preserve the spatial characteristics of the environment Other
Which factors are involved in decision ?	Financial Human infrastructure Ecological system resource The others individually The others collectively Risk Other
Where do the data for decision making parameters come from?	Literature Survey Assumed
Decision-making algorithm	Optimization Other (Threshold; Heuristics; Probabilistic after calculation; Calculation and better choice) Utility function
Memory ?	Yes/No
Learning ?	Yes/No
Are there interactions between governance agent(s) and individual agents?	Yes/No
What type(s) of interactions are there between the governance agent(s) and other agents?	No Exchange Behavioural observations Environmental observations Observation of characteristics Through the ecosystem

II. Questions concerning actors

We define a type of agents as a set of agents having the same possibility of actions.

Dimension	Questions	Responses
Agent diversity	Are they different types of actors?	Yes/No
	Number of types of agents	
	What are the difference between agents inter-types?	No difference Local environmental conditions Allocation of factors of production Internal ("intangible factors" such as surname, knowledge) Same decision process but different decision parameters Different decision-making processes
	Are there interactions between agents inter-types?	Yes/No
	What type(s) of interactions are they inter-types?	No Exchange Behavioural observations Environmental observations Observation of characteristics Through the ecosystem
	How are inter-types social interactions structured?	No network Random → Uniform Based on characteristics → Geographical → Other Complete network
	Is it possible to change of types ?	Yes No
Following questions are repeating for each types		
General	How is construct the decision-making process ?	From a theory → Rational choice → Socio-psychological theories → Bounded rationality → Other, specify Empirically → Participatory modelling → From primary data → From secondary data
	Abstraction level	Aggregation
	What are the objectives of agent ?	Economic Ecological Social Risk management

		Preserve the spatial characteristics of the environment Other
Algorithm	Which factors are involved in decision ?	Financial Human infrastructure Ecological system resource The others individually The others collectively Risk Other
	Where do the data for decision making parameters come from?	Literature Survey Assumed
	Decision-making algorithm	Optimization Other (Threshold; Heuristics; Probabilistic after calculation; Calculation and better choice) Utility function
Various aspects of agent decision making	Memory ?	Yes/No
	Learning ?	Yes/No
Diversity intra-types	What are the difference between agents intra-types?	No difference Local environmental conditions Allocation of factors of production Internal ("intangible factors" such as surname, knowledge) Same decision process but different decision parameters Different decision-making processes
Interactions intra-types	Type of interactions intra-types	No Exchange Behavioural observations Environmental observations Observation of characteristics Through the ecosystem
	How are intra-types social interactions structured?	No network Random → Uniform Based on characteristics → Geographical → Other Complete network

III. Questions concerning links between systems

Questions	Responses
In wich direction are the links between the ecological system (ES) and the governance system (GS) ?	ES → GS GS → ES ES ↔ GS No link
What are the nature of these links ?	
In wich direction are the links between the ecological system (ES) and actors (A) ?	ES → A A → ES ES ↔ A No link
What are the nature of these links ?	
In wich direction are the links between actors (A) and the governance system (GS) ?	A → GS GS → A A ↔ GS No link
What are the nature of these links ?	