



MASSIF

Mapping Regional Vulnerability in the Southern Alps

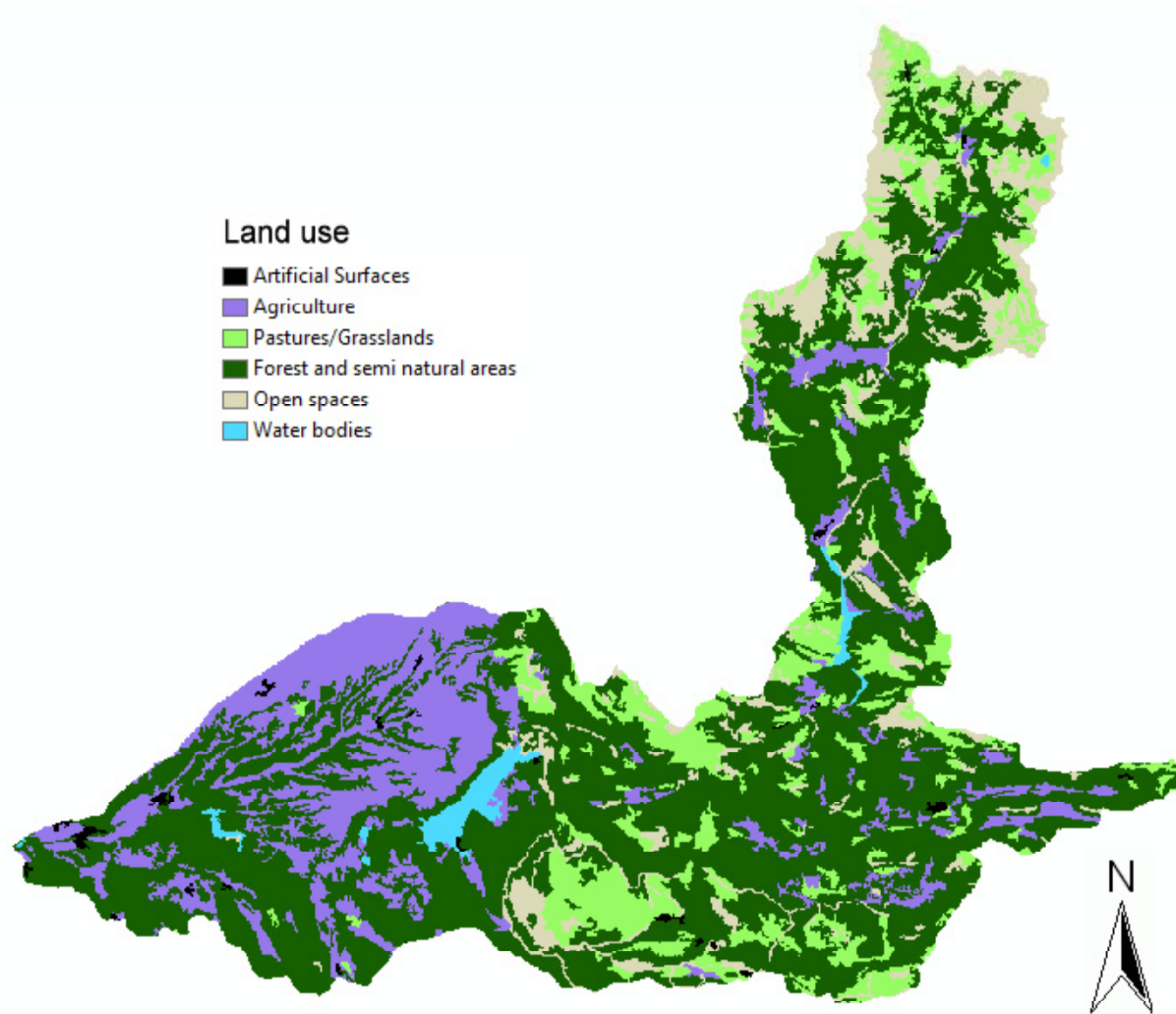
Evaluating Trends and Sustainable Adaptation Strategies for the Verdon
Catchment

Agriculture

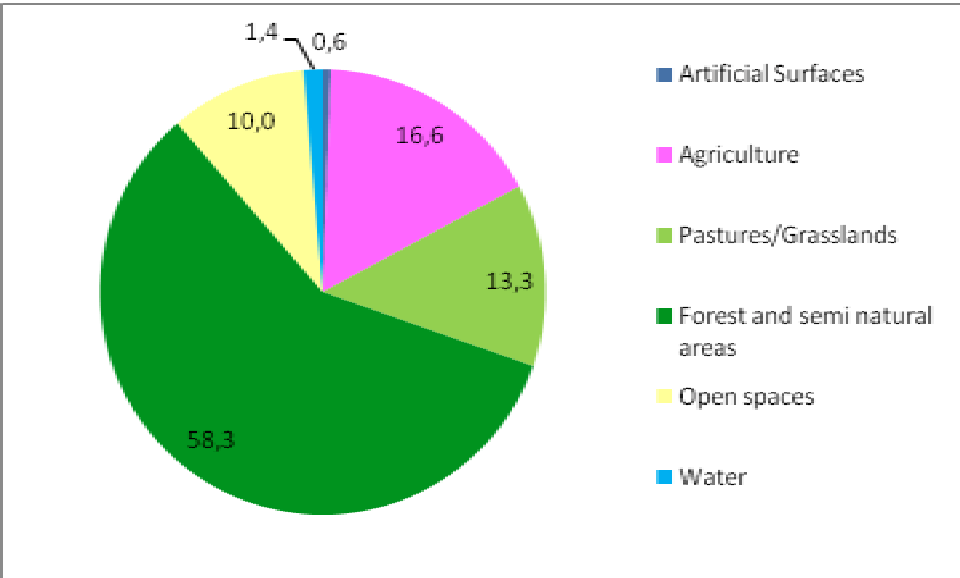
Ulrike Anders (*Germany*), Christopher Andrews (*United Kingdom*), Pénélope Lamarque (*France*), Catriona Morrison (*United Kingdom*), Florinita Oana Musceleanu (*Romania*), Sandra Öberg (*Norway*), Carlos MGL Teixeira (*Portugal*), Caspar Verwer (*The Netherlands*).

Scientific advisor: Martin Wildenberg (*Austria*)

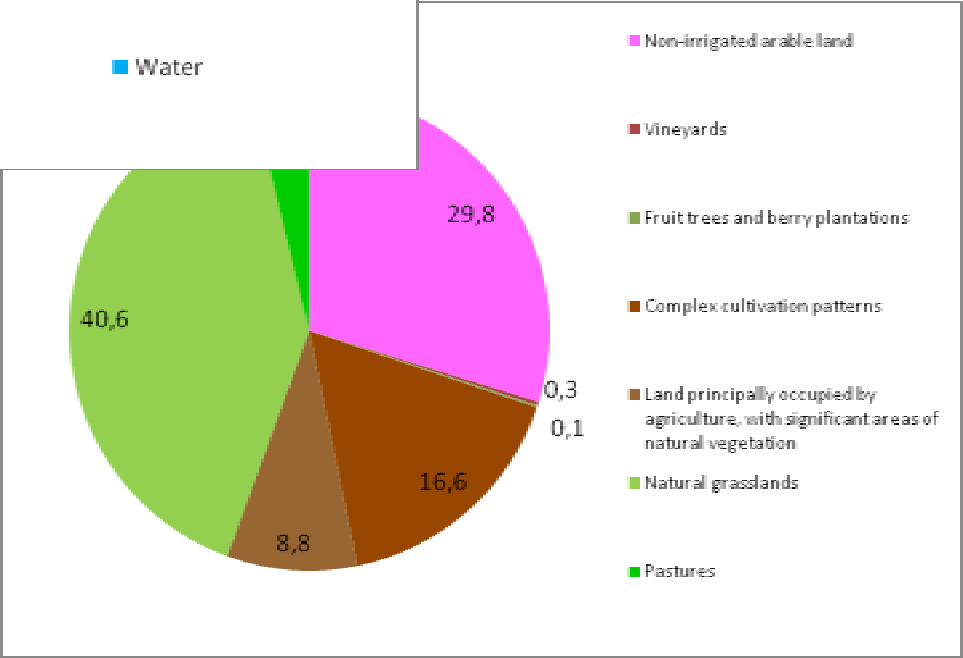
Land use map of the Verdon Catchment Area.



Land uses of the Verdon Catchment



Common land uses

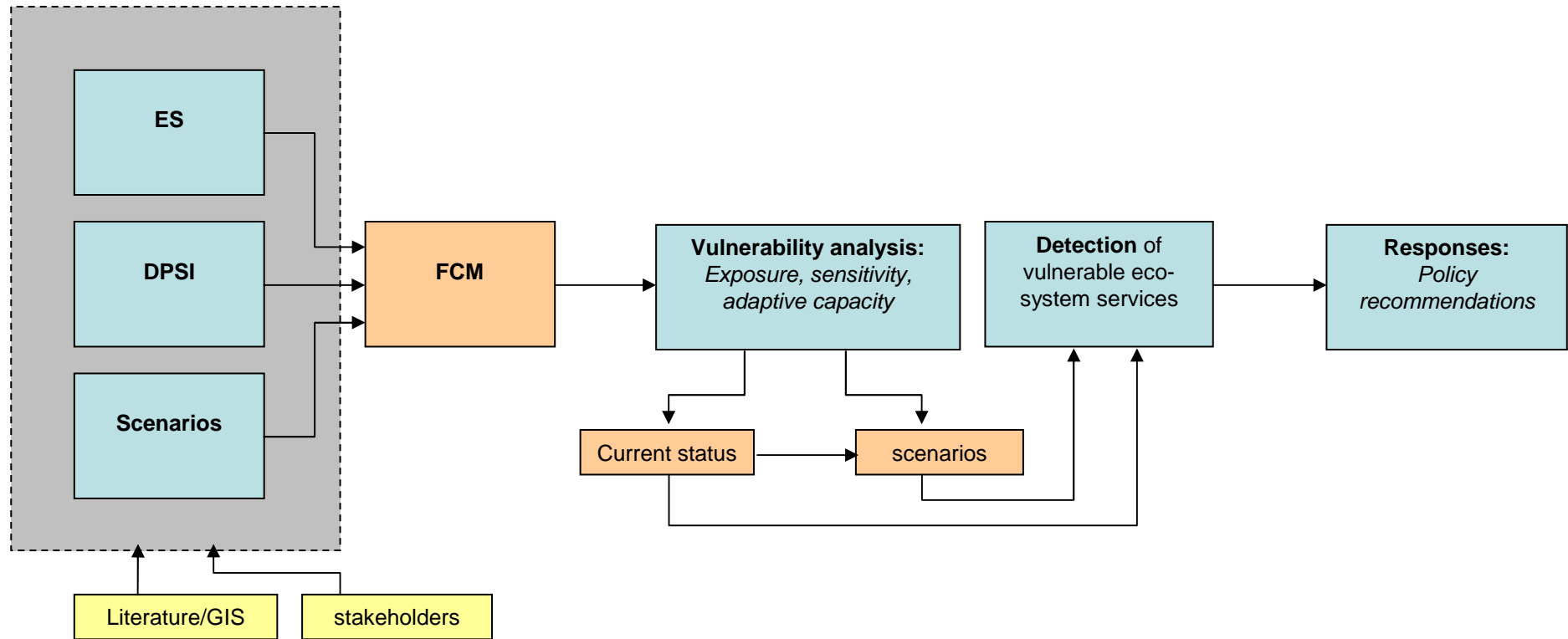


Agricultural land uses

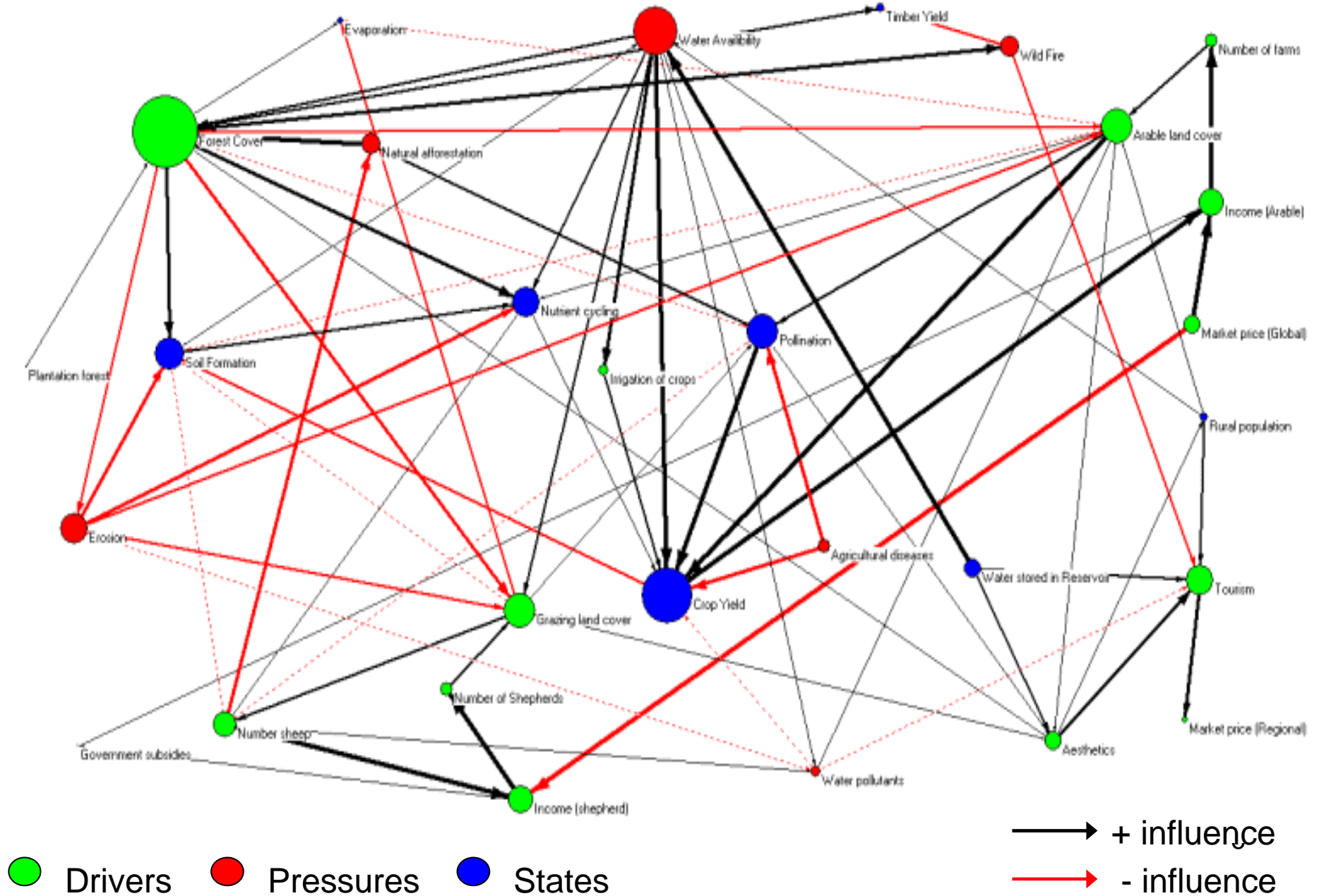
Objective

- Develop adaptation strategies to sustain ecosystem services in the Verdon Catchment under two future scenarios, derived from the Millennium Ecosystem Assessment (MA 2005).

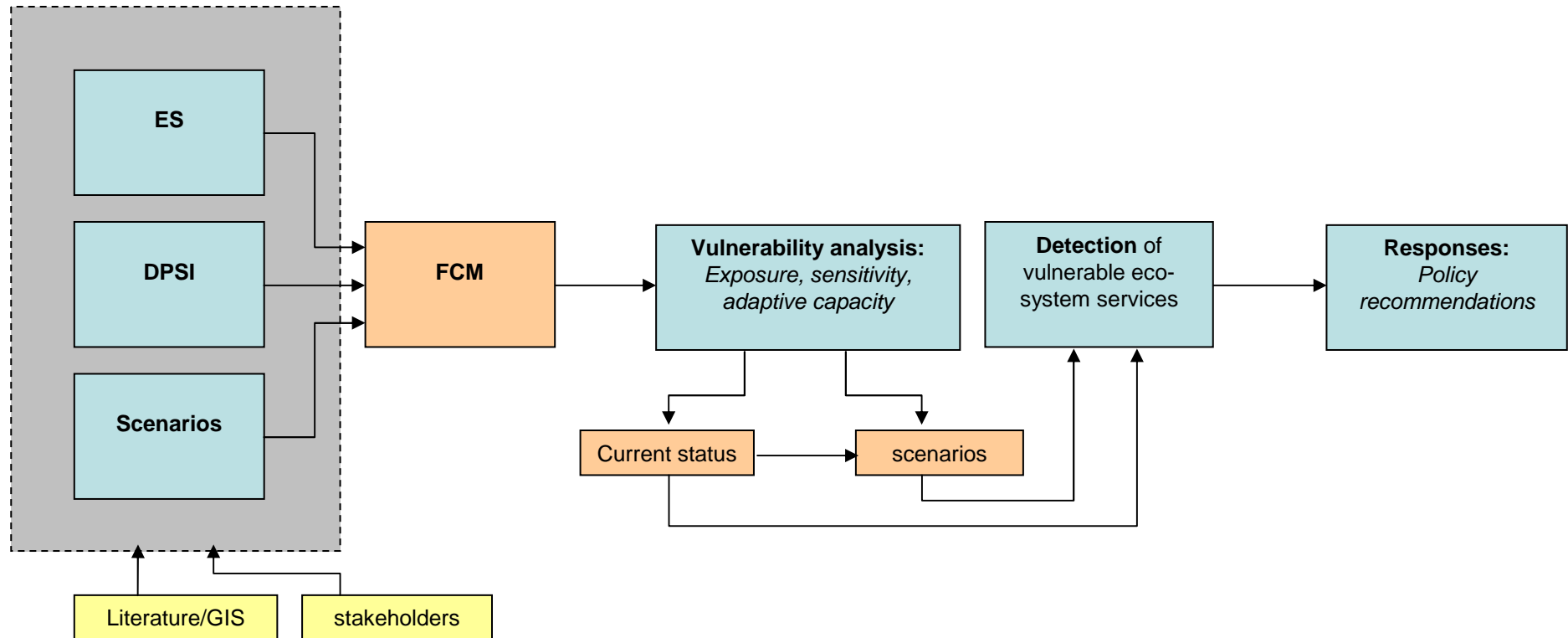
Approach



Current state of Drivers, pressures, states, and feedback



Approach



Ecosystem Services

Ecosystem Services			
Provisioning	Regulating	Cultural	Supporting
<ul style="list-style-type: none">▪ Crops▪ Water provision▪ Timber	<ul style="list-style-type: none">▪ Water regulation▪ Fire regulation▪ Pollination▪ Pest control	<ul style="list-style-type: none">▪ Aesthetics▪ Recreational	<ul style="list-style-type: none">▪ Nutrient cycling▪ Soil formation▪ Primary production

Example of vulnerability analysis

Type of Ecosystem service	Ecosystem services	Vulnerability:	Current status	Global Orchestration	Adaptive Mosaic
Provisioning	Crop yield	Exposure	7	7	7
Provisioning	Crop yield	Sensitivity	3.7	4.7	4.2
Provisioning	Crop yield	Adaptive capacity	0.6	0.3	0.4

Scenarios vulnerability

Type of Ecosystem service	Ecosystem services	Global Orchestration	Adaptive Mosaic
Provisioning	Crop yield	decrease	decrease
Provisioning	Sheep products	decrease	increase
Provisioning	Timber	decrease	decrease
Provisioning	Water provision	Decrease	Decrease
Regulating	Water regulation	increase	decrease
Regulating	Fire regulation	increase	decrease
Regulating	Pollination	decrease	decrease
Cultural	Aesthetics	increase	decrease
Cultural	Recreational	increase	decrease

Vulnerable ecosystem services

Global Orchestration

Ecosystem service:	Responses:	Policy :
Crop yield	<ul style="list-style-type: none"> - Regionalised production through extensification - New technologies are mindful to their impact on biodiversity 	<ul style="list-style-type: none"> - Provide payment for ES for production at regional level - Subsidies to conservation measures - Machines should be replaced by
Sheep products	<ul style="list-style-type: none"> - Extensify sheep farming - Diversify income - Regulate market 	<ul style="list-style-type: none"> - Provide payment for ES - Tax imported meat - Support income diversification.
Fire regulation	<ul style="list-style-type: none"> - Fire corridors - Controlled burns - Harvesting trees - Regulate the spread of alien species and single species 	<ul style="list-style-type: none"> - Implement a forest management body
Pollination	<ul style="list-style-type: none"> - Not using chemicals - Reducing habitat fragmentation. 	<ul style="list-style-type: none"> - Organic farming and extensification. - Intercropping

Vulnerable ecosystem services

Adaptive Mosaic

Ecosystem service:	Responses:	Policy :
Crop yield	<ul style="list-style-type: none"> - Increase organic farming - Creates products of higher value 	None.
Water regulation	<ul style="list-style-type: none"> - Using local natural water reservoirs - Increase infiltration rate - Build new wells. - Maintains current farming practices and biodiversity 	Education of public. Introducing water retention techniques.
Recreation	<ul style="list-style-type: none"> - Create local markets - Diversify farming incomes - Giving power from tourism back to the locals - Local labelling - Enhance the distribution of products. 	Work with tourism industry. Trademark an 'ecolabel' for products.

Merci!!!

