CERTIFIED FUTURE

A STRATEGY FOR SUSTAINABLE & RESILIENT AGRICULTURE IN TUSCANY

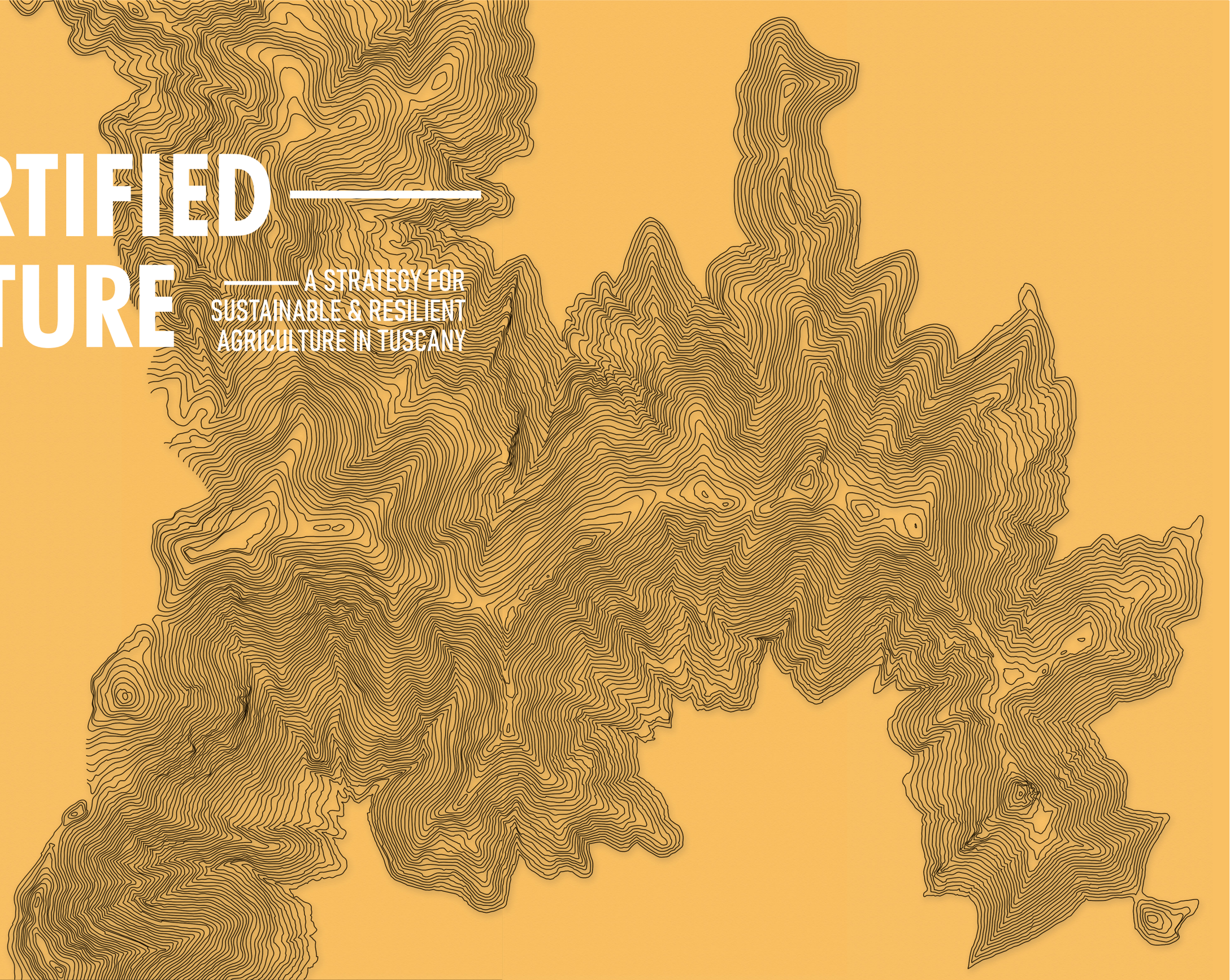

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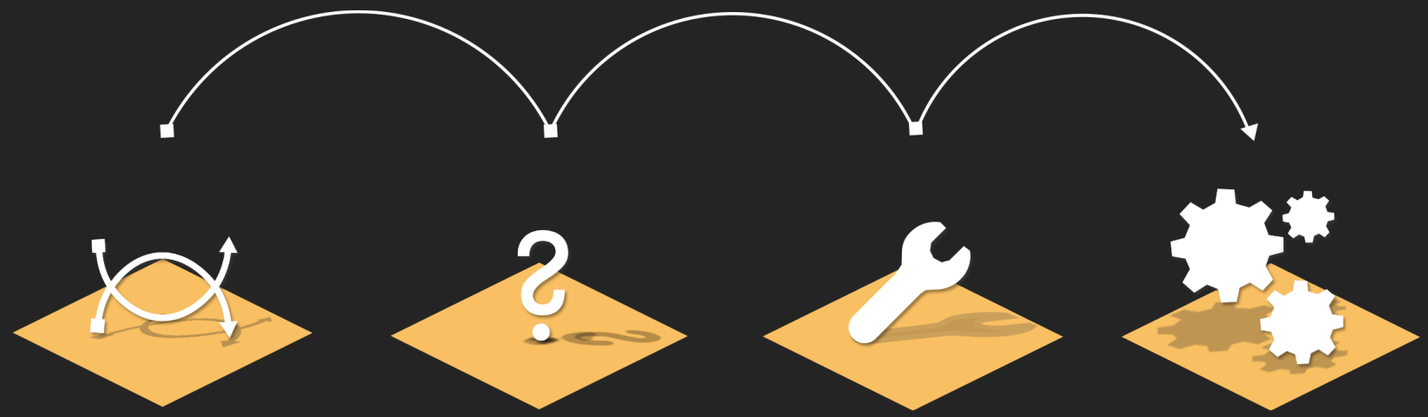
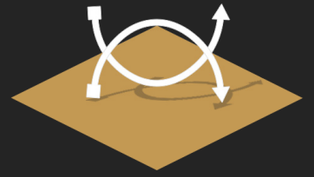
TABLE OF CONTENT

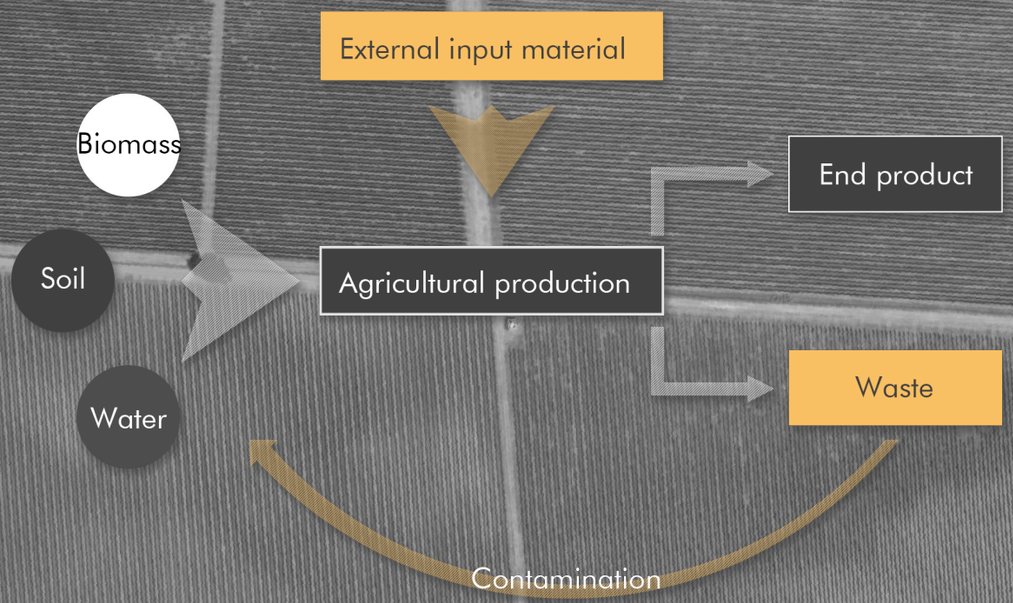


CONCEPTUAL FRAMEWORK



Problem field

THE GLOBAL AGRI-FOOD SYSTEM IS UNSUSTAINABLE AND VULNERABLE TO CLIMATE CHANGE EFFECTS.



THE SO-CALLED ‘CONVENTIONAL FARMING PRACTICES’ RELY ON A LINEAR SYSTEM.

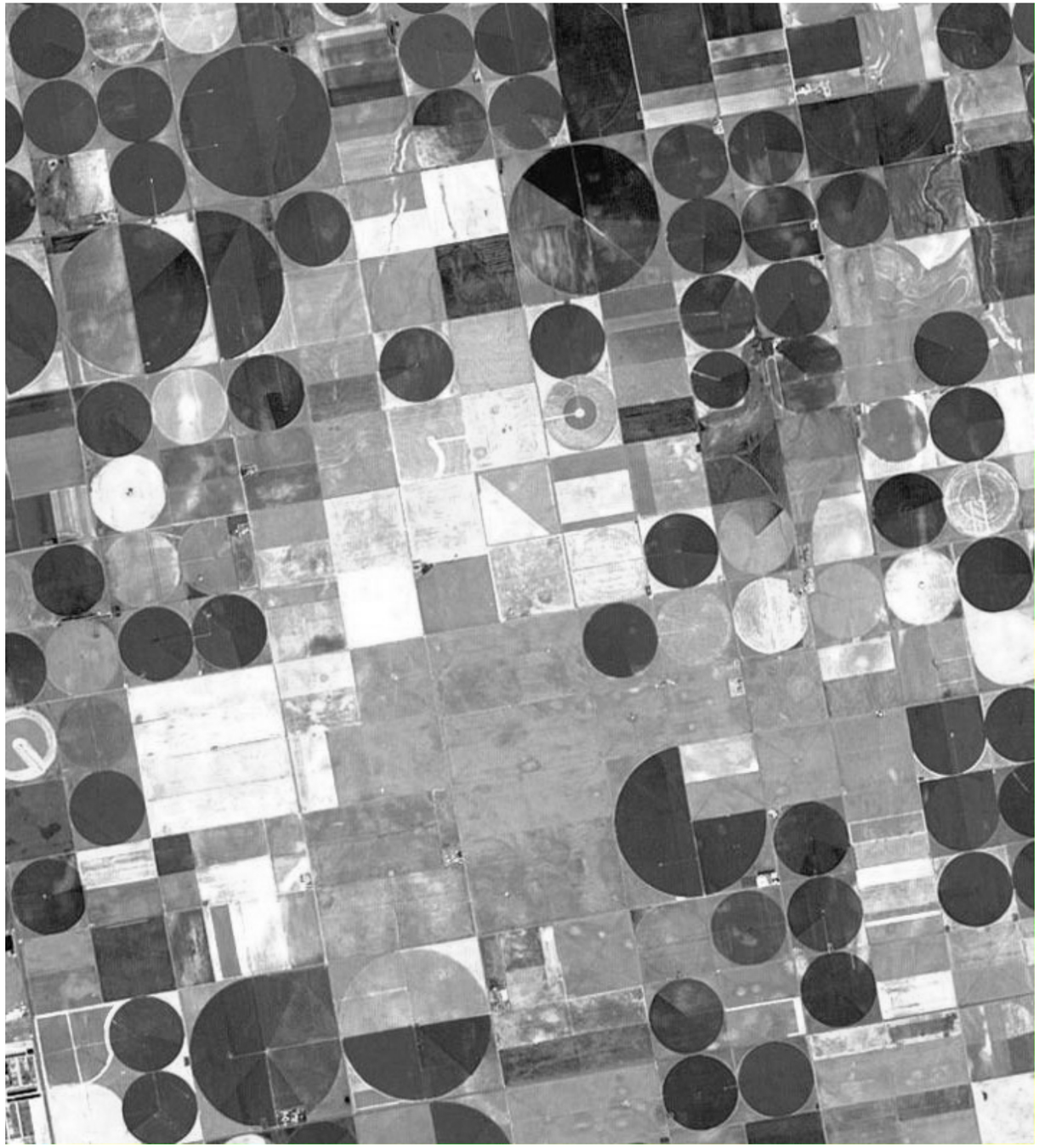


Figure 02 -Author: U.S. Geological Survey

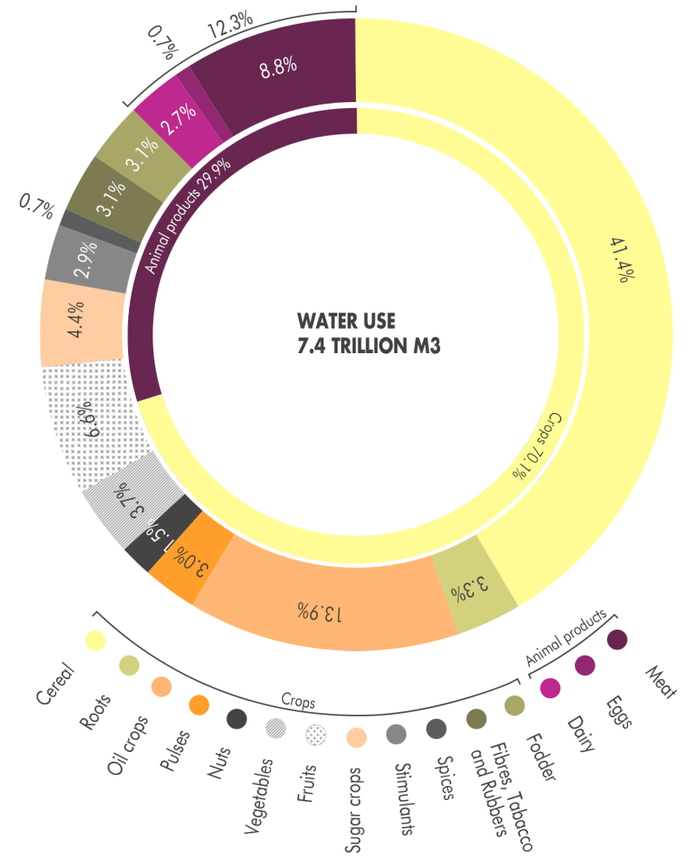


Figure 01 -Water inputs per major food type on a global scale. (FAO, 2015b; Mekonnen & Hoekstra, 2011).

THE EXTENSIVE USE OF LOCAL WATER RESOURCES FOR IRRIGATION...

Figure 03 -U.S. Department of Agriculture

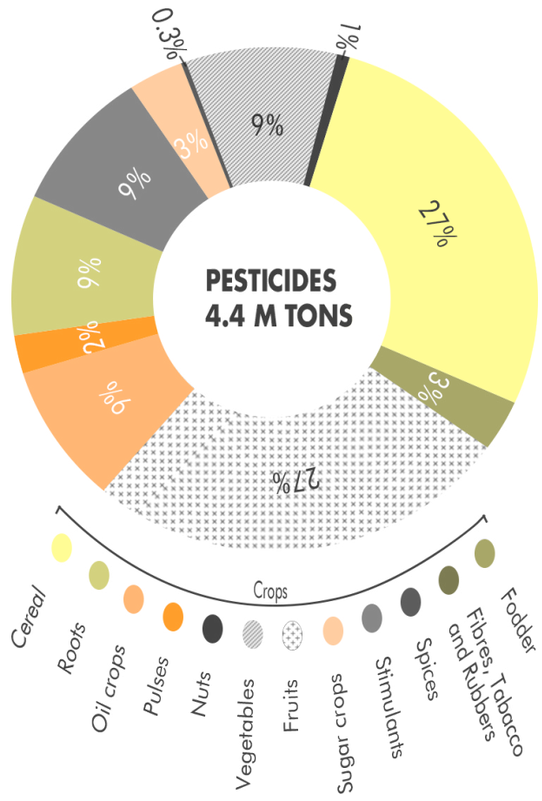
Figure 04 -U.S. Department of Agriculture

...AND THE

INTENSIVE USE

OF PRODUCTIVE SOILS...

Figure 06 -U.S. Department of Agriculture



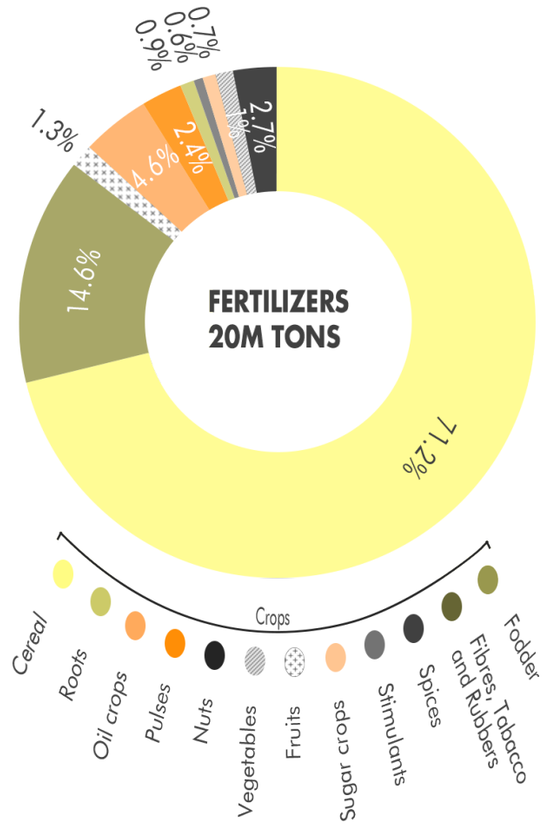


Figure 05 -Pesticide and fertilizer inputs per major food type on a global scale. (FAO, 2015b; Mekonnen & Hoekstra, 2011).

...ARE DECREASING CAPACITY OF AGRI-FOOD SYSTEMS TO ABSORB EXTERNAL INPUTS...

Present underground water conditions

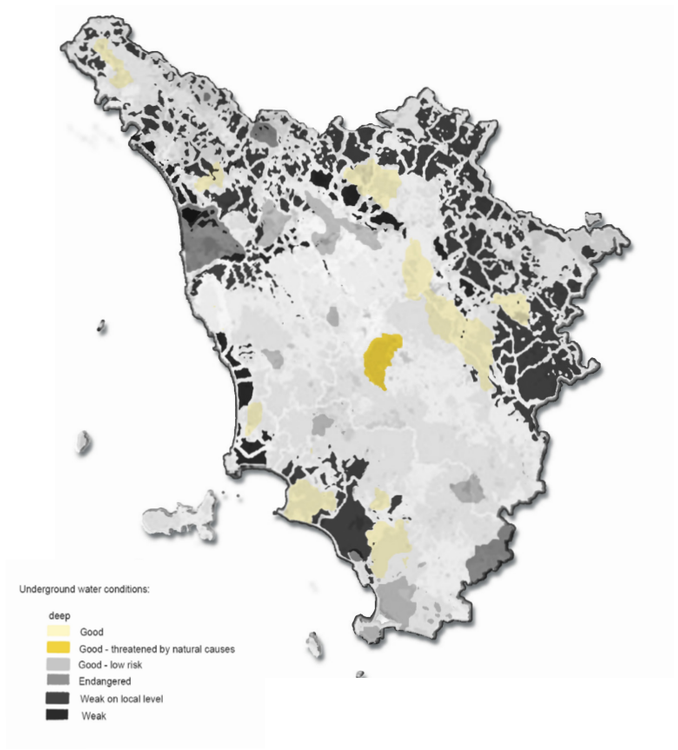


Figure 07 - source ARPAT (Agenzia Regionale per la Protezione Ambientale della Toscana, 2015)

Desertification risks for fertile soils

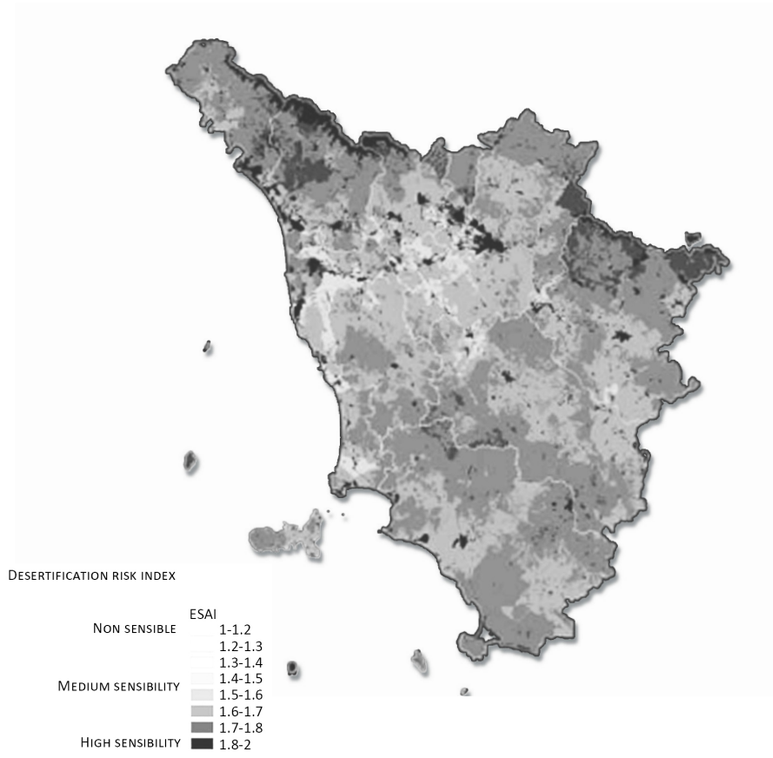


Figure 08 -Magno R.; Analisi multiscala del rischio desertificazione per gli agroecositemi. Istituto di Biometeorologia, CNR, Firenze, Italia.

...AND INCREASING THE CONTAMINATION OF LOCAL NATURAL RESOURCES...

overall capacity to adapt to climate change

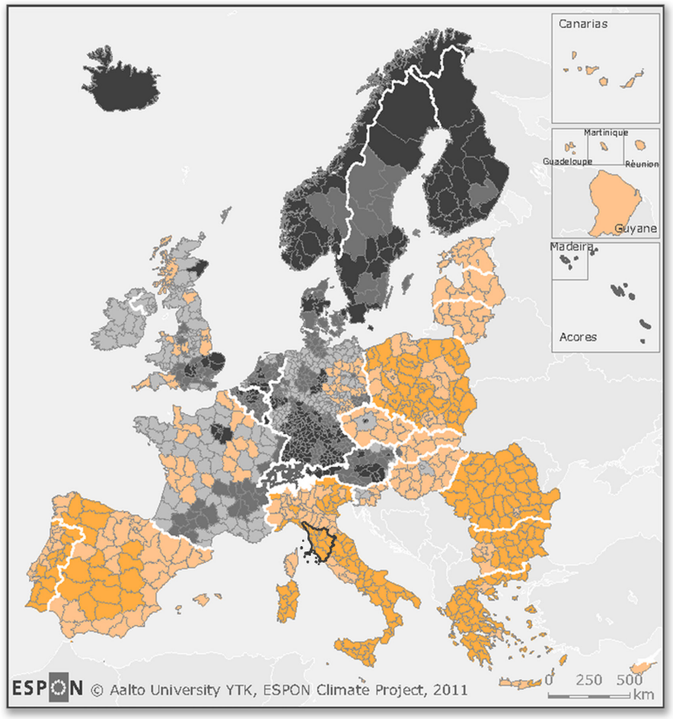


Figure 09 -Potential aggregate impact, adaptive capacity and vulnerability. (Technische Universität Dortmund, Institute of Spatial Planning (IRPUD), 2012).

potential vulnerability to climate change

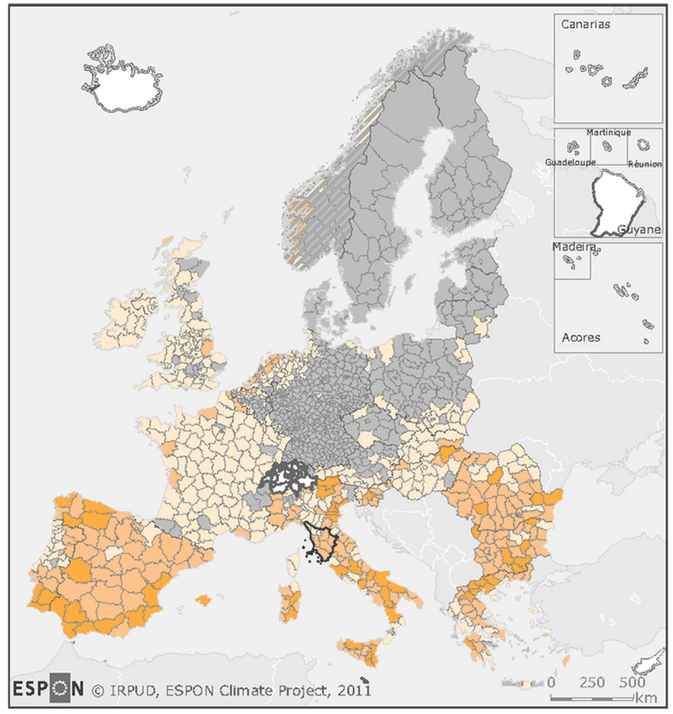
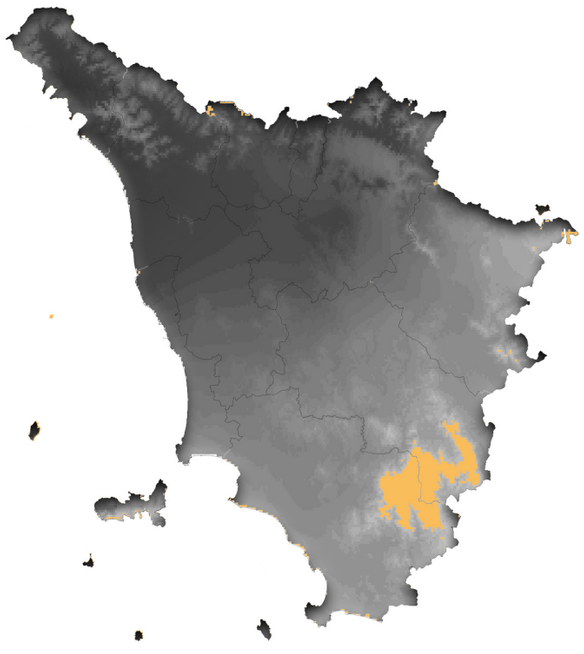


Figure 10 -Potential aggregate impact, adaptive capacity and vulnerability. (Technische Universität Dortmund, Institute of Spatial Planning (IRPUD), 2012).

...CONTAMINATED NATURAL RESOURCES
DECREASE ADAPTIVE CAPACITY
OF THE AGRI-FOOD SYSTEM...

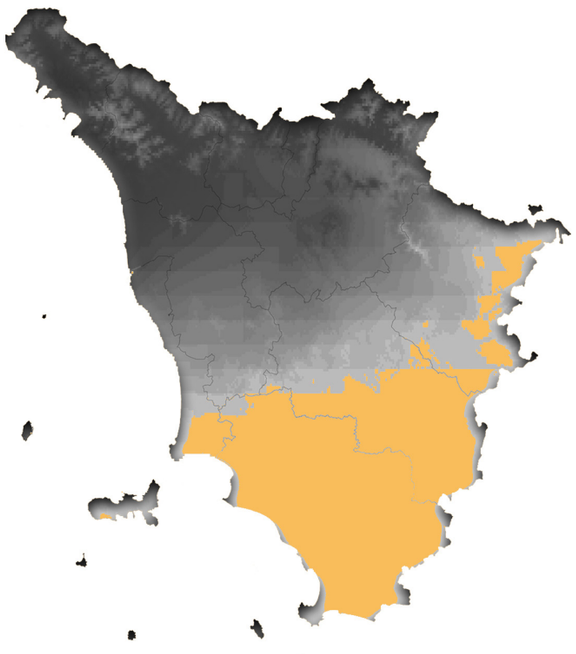
Current condition - yearly average rainfalls



Annual water precipitation (mm)

Present situation	Future (business as usua scenario
454	411
674	628
728	683
776	733
813	770
840	800
863	825
888	852
913	878
1032	1000

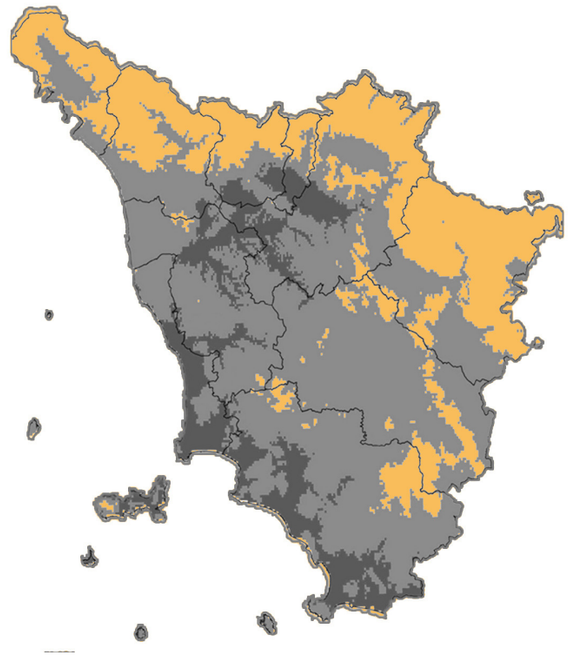
Business as usual 2050 Scenario

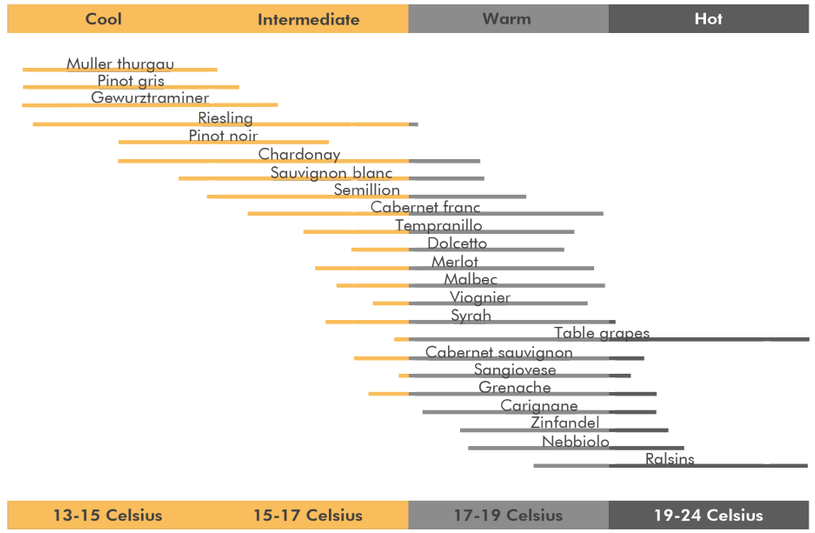


...LOWER RAINFALLS

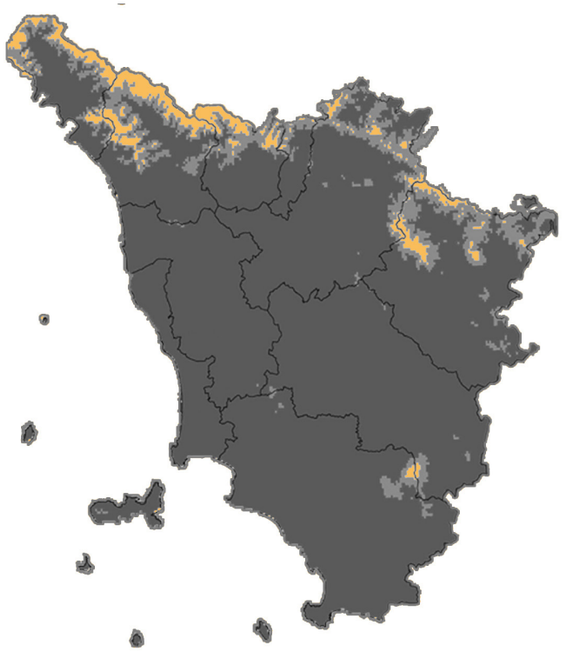
AND LONGER DROUGHTS INCREASE THE USE OF UNDERGROUND WATER RESOURCES...

Current conditions - avarage yearly temperatures

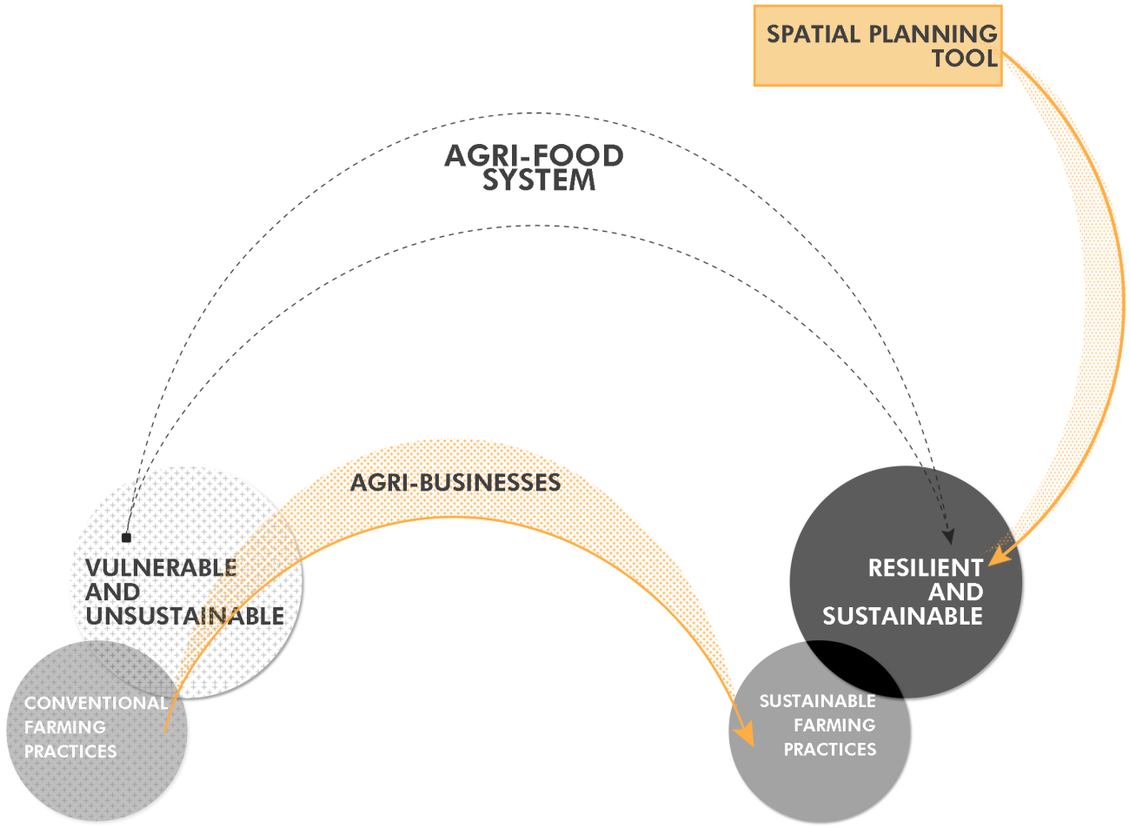




Business as usual 2050 Scenario



...HIGHER TEMPERATURES WILL DIRECTLY AFFECT CROP DIVERSIFICATION...



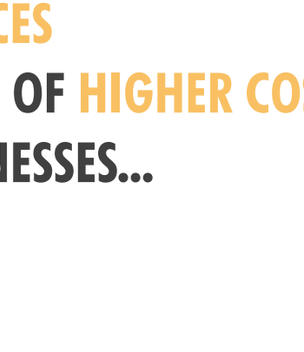
...NEW TOOLS ARE NEEDED TO INDUCE FARMERS TO USE SUSTAINABLE PRACTICES...

...THESE PRACTICES IMPLICATE A SET OF HIGHER COSTS FOR AGRI-BUSINESSES...

LOWER PRODUCTION CAPACITY

CONVENTIONAL FARMING

SUSTAINABLE FARMING



HIGHER MAINTENANCE COSTS

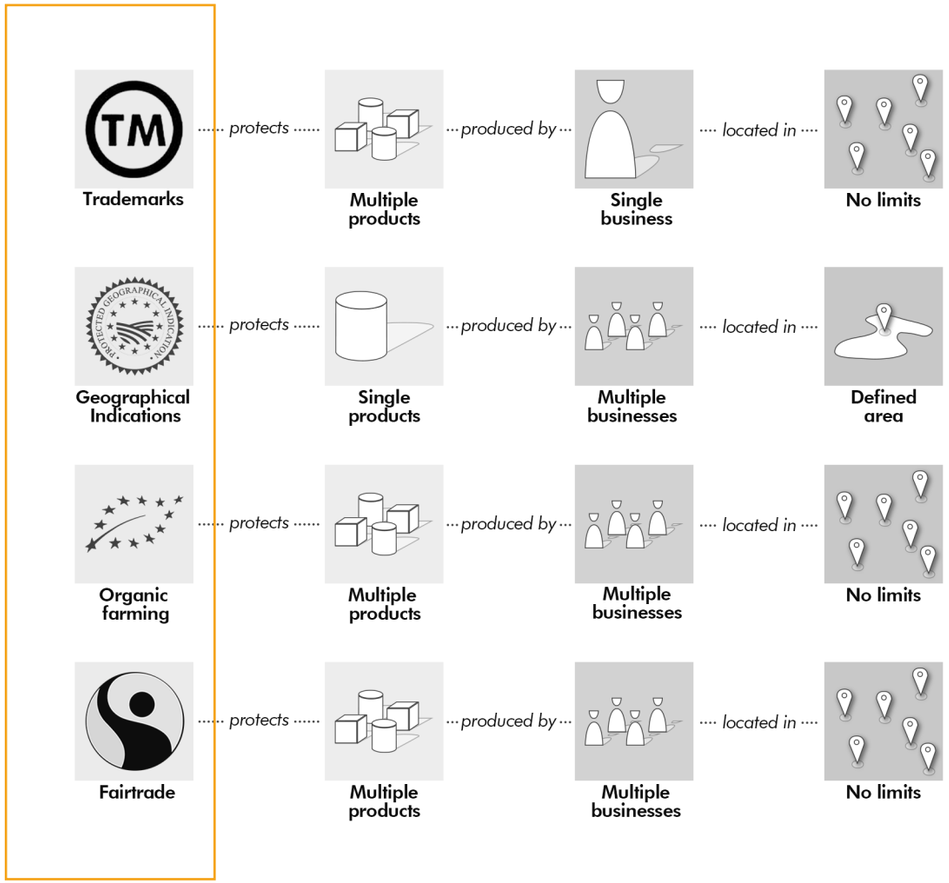
CONVENTIONAL FARMING

SUSTAINABLE FARMING

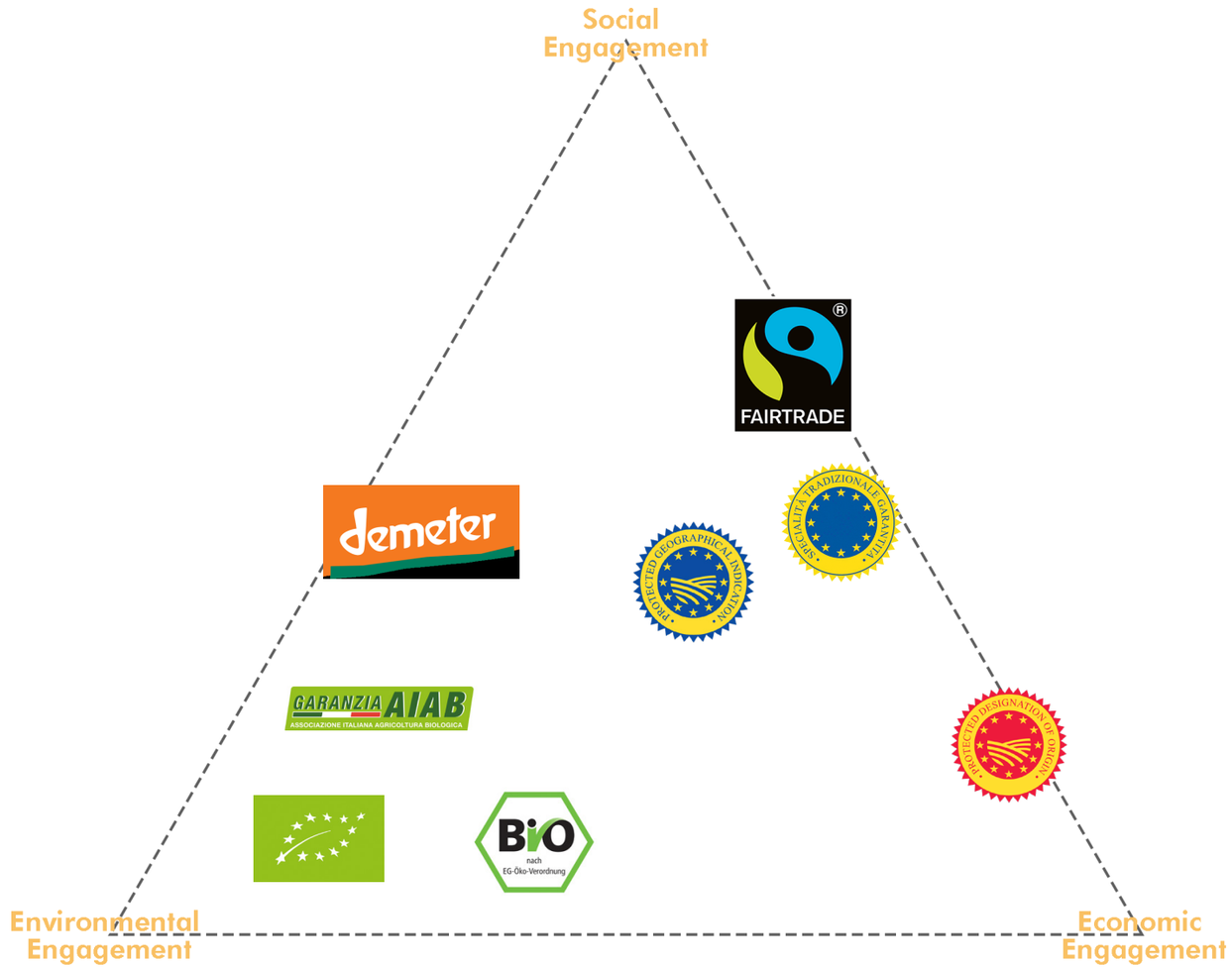
HIGHER INSPECTION FREQUENCY

CONVENTIONAL FARMING

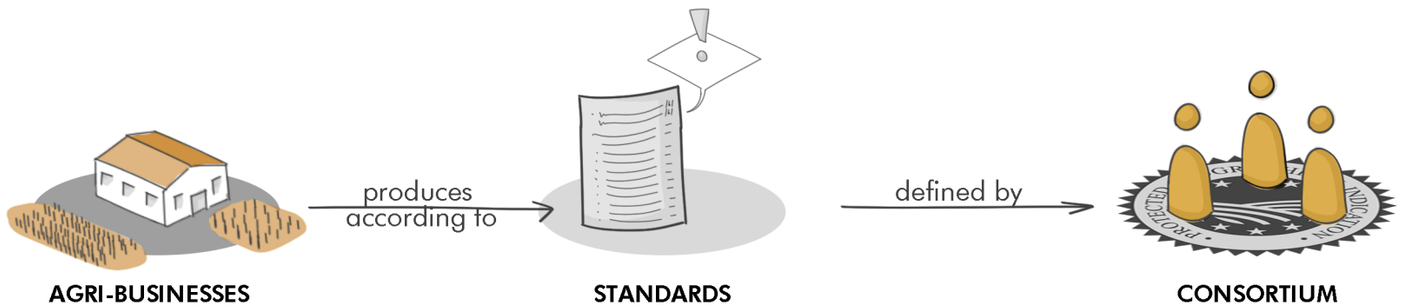
SUSTAINABLE FARMING



...THEREFORE, FARMERS MAKE USE OF FOOD QUALITY CERTIFICATIONS TO JUSTIFY HIGHER PRICES...

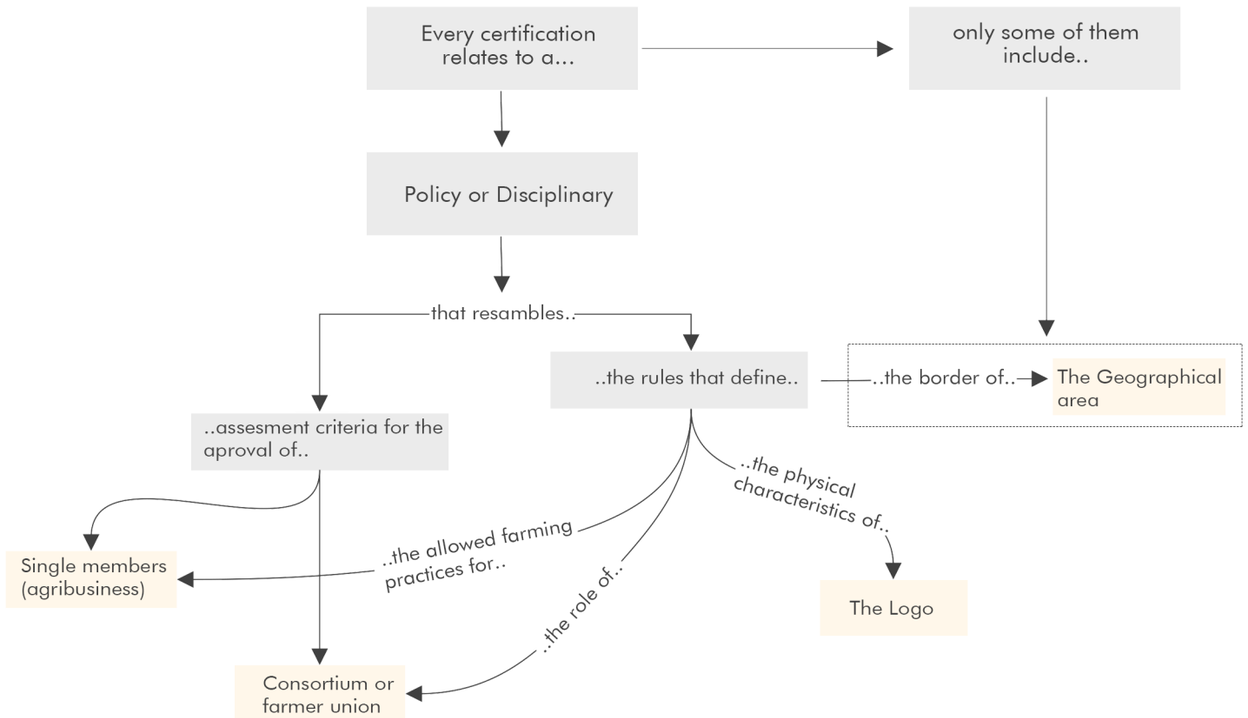


...THESE CERTIFICATES FOLLOW DIFFERENT PRINCIPLES, BUT THEY ALL SHARE THE COMMON GOAL OF DEFENDING THE MARKET PLACEMENT OF CERTIFIED PRODUCTS...



...THROUGH THE LABEL,
CERTIFICATIONS COMMUNICATE TO CONSUMERS THAT
THE FARMER FOLLOWED SPECIFIC QUALITATIVE STANDARDS
DURING PRODUCTION.

EACH CERTIFICATE IS DEFINED BY A POLICY WHICH GENERALLY CONTAINS..

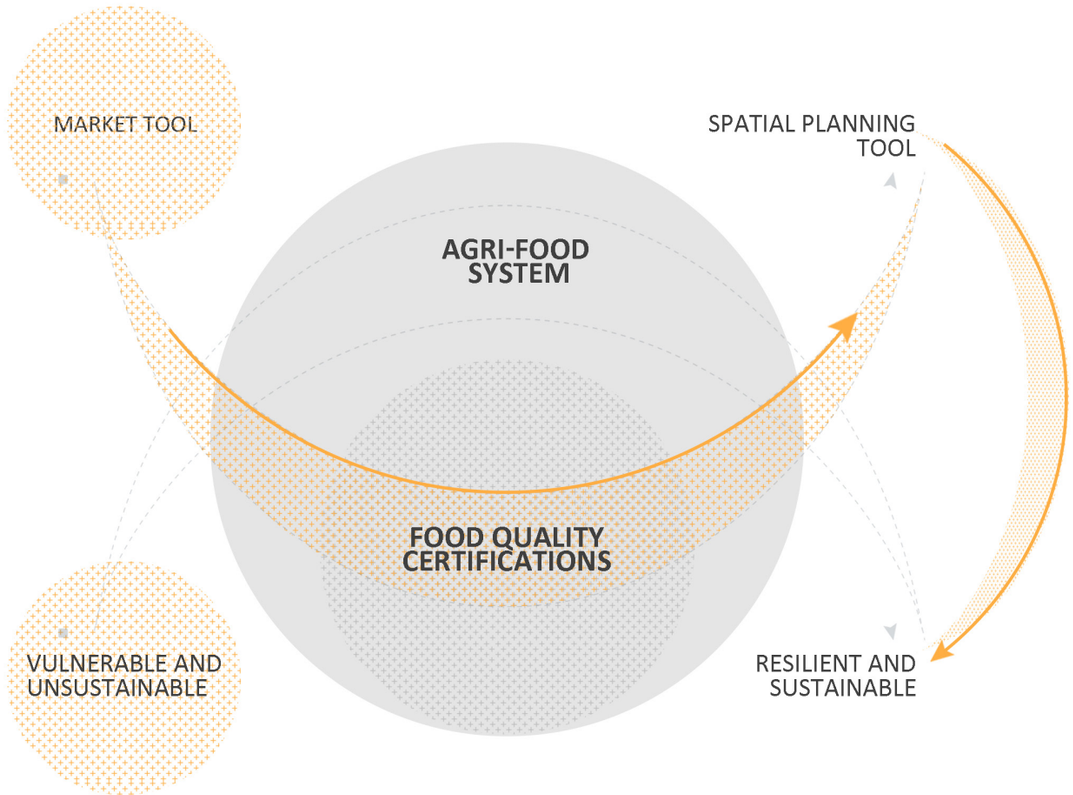


..SOME ADDITIONALLY CONTAIN RESTRICTIONS ON THE PRODUCTION SITE SUCH AS GEOGRAPHICAL INDICATIONS..

GEOGRAPHICAL INDICATIONS

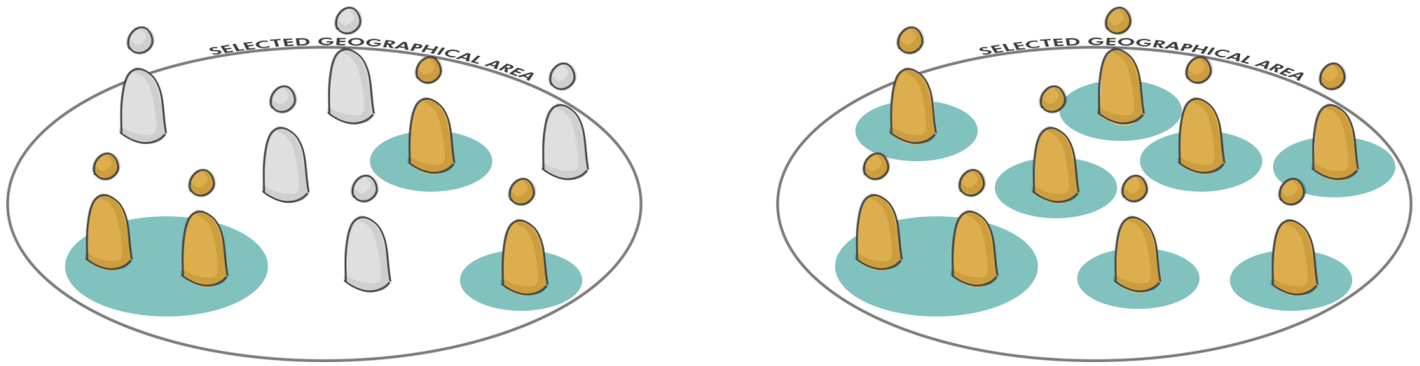
ESTABLISH INTELLECTUAL PROPERTY RIGHTS FOR SPECIFIC PRODUCTS, WHOSE QUALITIES ARE SPECIFICALLY LINKED TO THE AREA OF PRODUCTION.

THE RESEARCH AIMS TO TRANSFORM CERTIFICATIONS SUCH AS GIS INTO SPATIAL PLANNING TOOLS...



...TOOLS THAT STIMULATE THE CREATION OF NEW LOCAL LEAD STRATEGIES FOR SUSTAINABLE DEVELOPMENT.

HOW TO
TRANSFORM FOOD QUALITY CERTIFICATIONS
INTO SPATIAL PLANNING INSTRUMENTS
WITH POSITIVE EFFECTS ON SUSTAINABILITY
OF LOCAL AGRI-FOOD SYSTEMS?

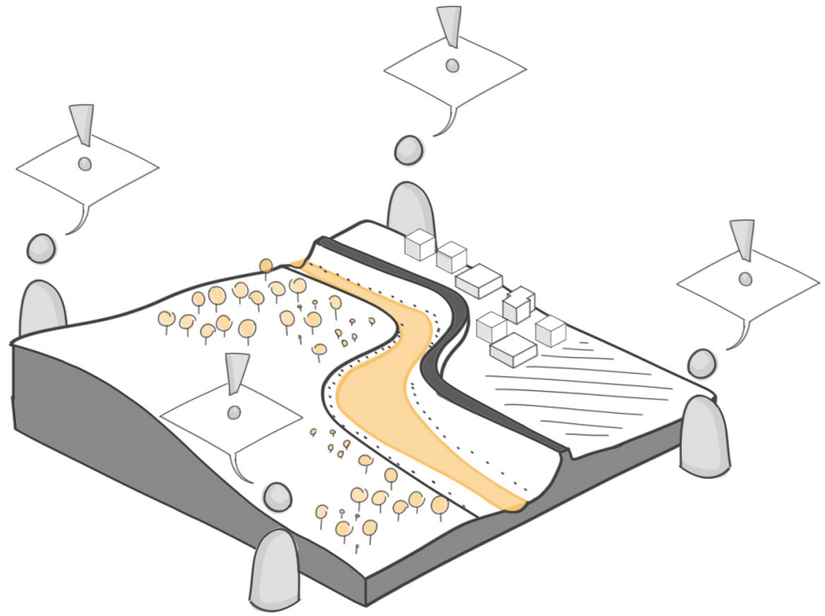


Non-mandatory certifications

Full potential of non-mandatory certifications

TO ANSWER THE MAIN RESEARCH QUESTION THE FULL POTENTIAL OF EXISTING CERTIFICATIONS HAS TO BE EVALUATED...

STANDARD MAXIMIZATION METHOD

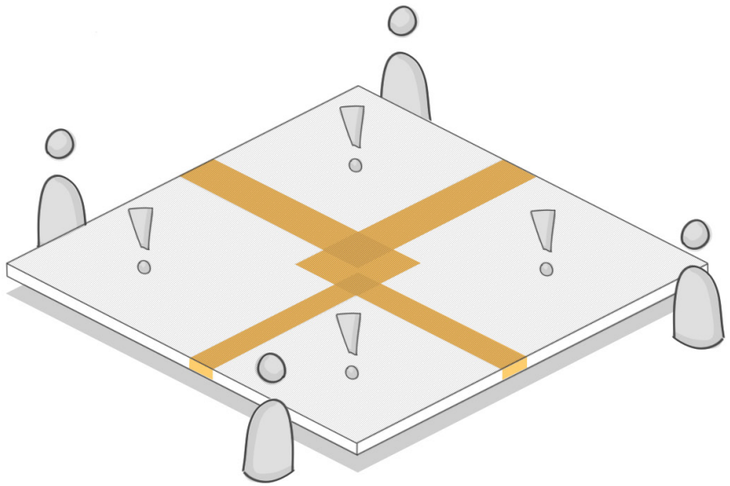


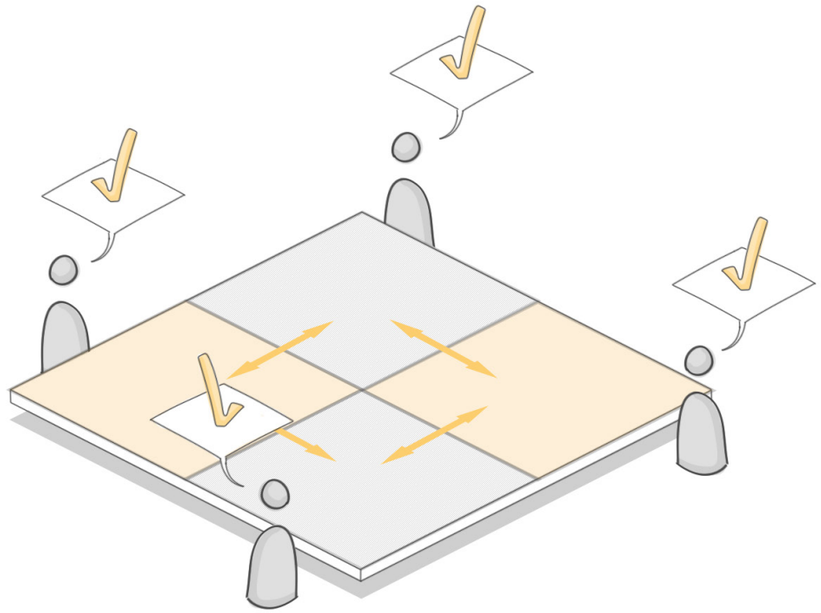
phase 1 - maximization

each involved stakeholder expresses it ideal situation for the development of a site.

FOR THIS PURPOUSE THE MAXIMIZATION METHOD IS USED.

STANDARD MAXIMIZATION METHOD

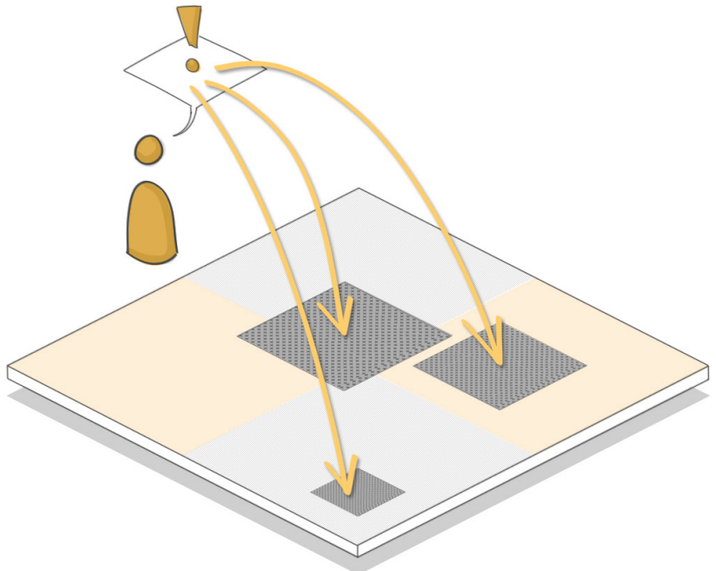




phase 2 - Optimization

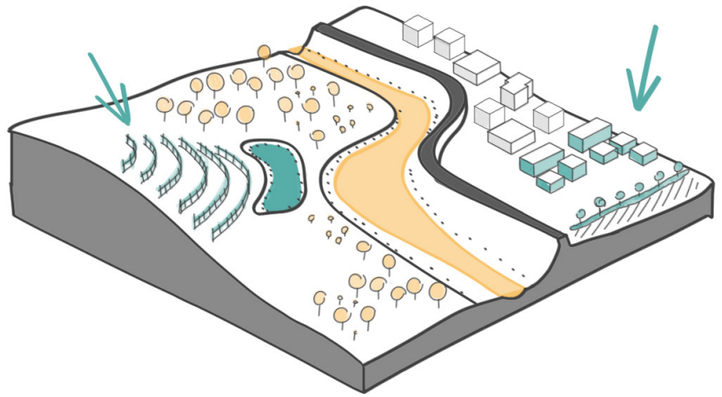
The maximization outcomes are compared and conflicts are identified and resolved.

STANDARD MAXIMIZATION METHOD



phase 3 - Integration

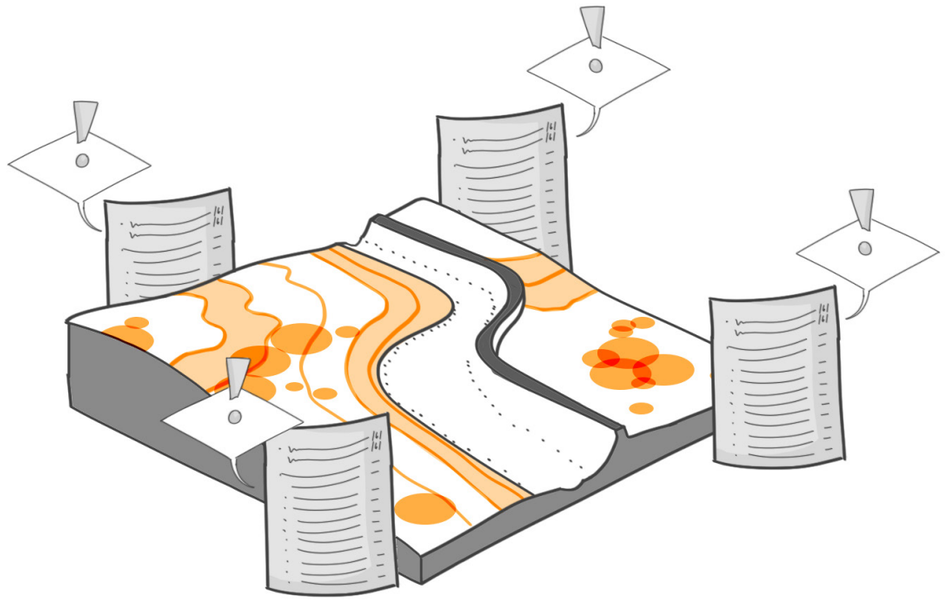
The planner “integrates” pre-established goals of the plan.



phase 4 - Draft plan

The final results are considered as a draft plan.

NON MANDATORY POLICY MAXIMIZATION



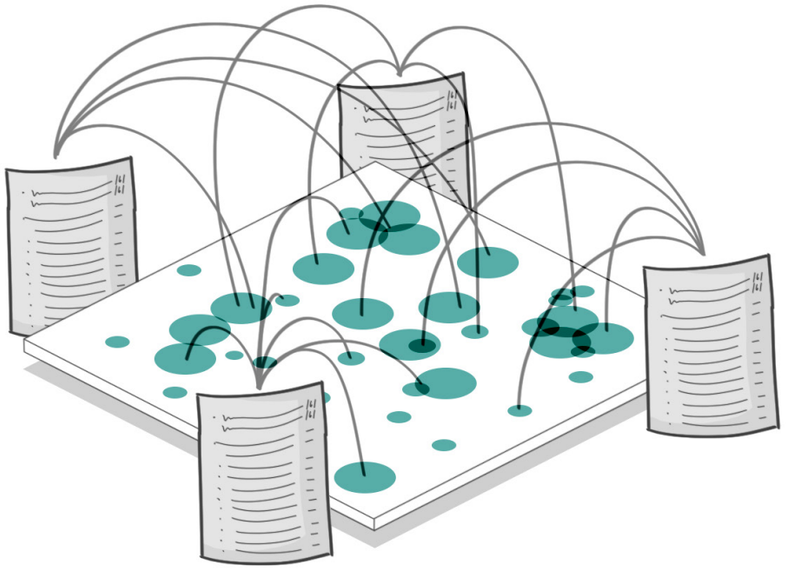
phase 1 - maximization

The different non-mandatory policies replace the stakeholders.

The policies are then maximized, meaning that they are extended to all farmers in the selected location.

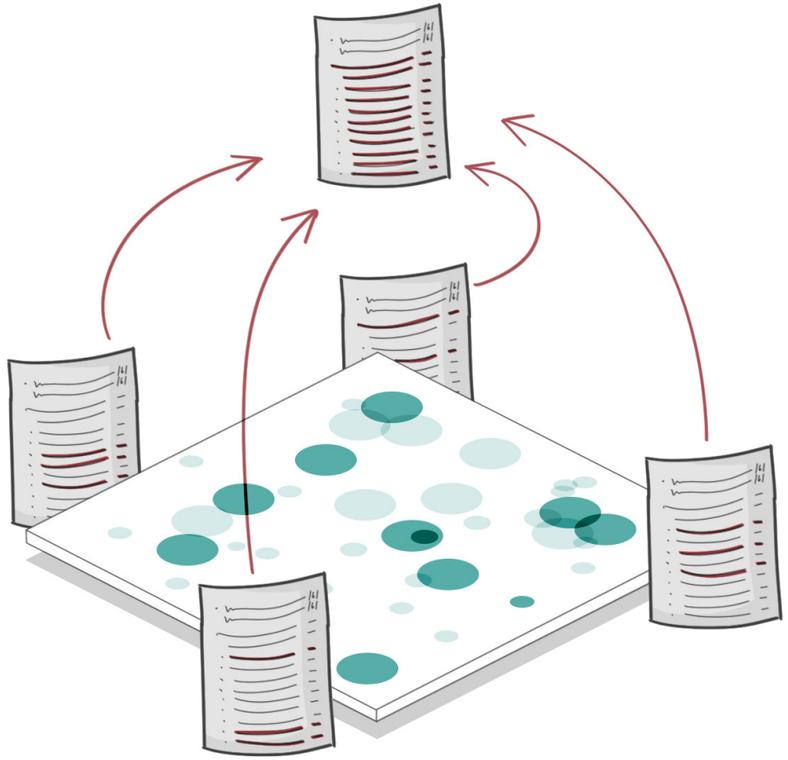
THE RESEARCH USES THE STANDARD STRUCTURE OF THE METHOD BUT CHANGES THE INVOLVED ACTORS.

NON MANDATORY POLICY MAXIMIZATION



phase 2 - Optimization

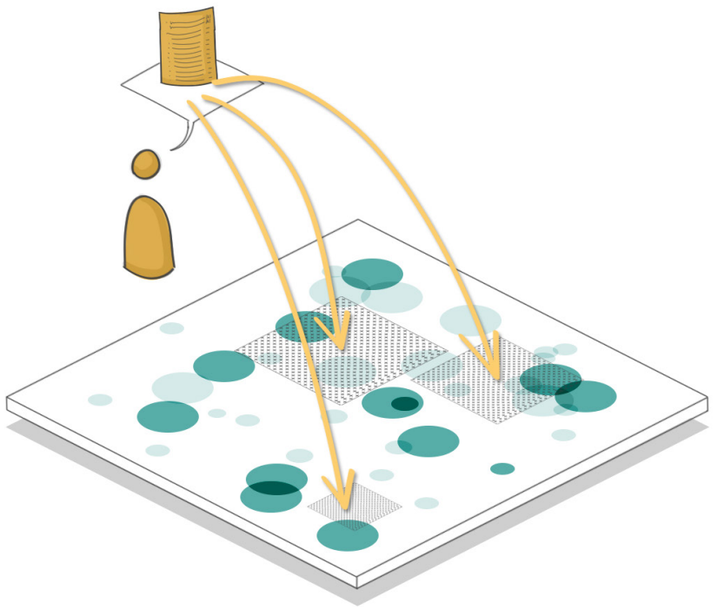
The mitigation of spatial criticalities of each maximized policy is assessed.



phase 2 - Optimization

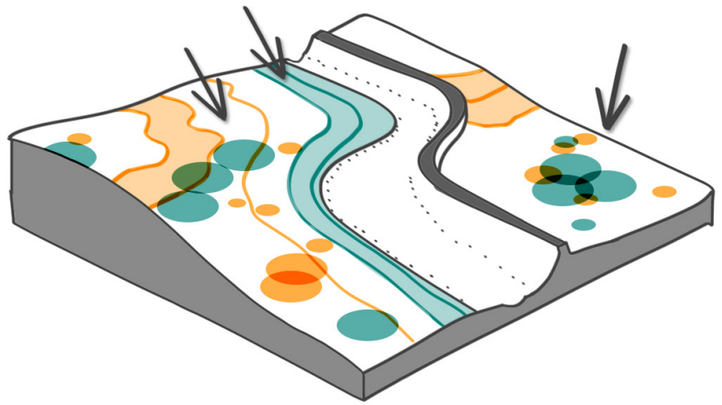
Only the best scoring rules from each policy are integrated into the optimization policy.

NON MANDATORY POLICY MAXIMIZATION



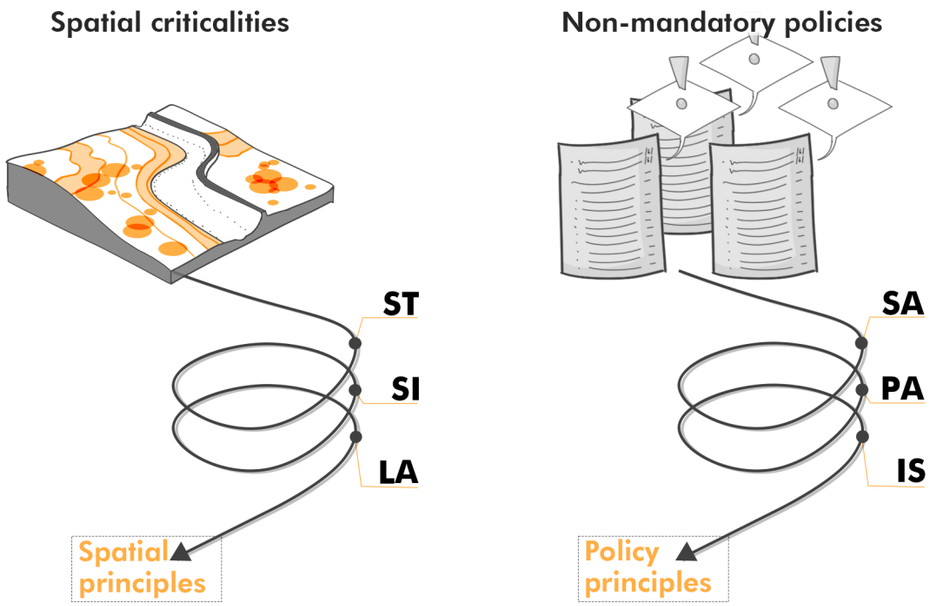
phase 3 - Integration

The planner “integrates” pre-established goals of the plan.
In this case spatial and policy principles.



phase 4 - Draft plan

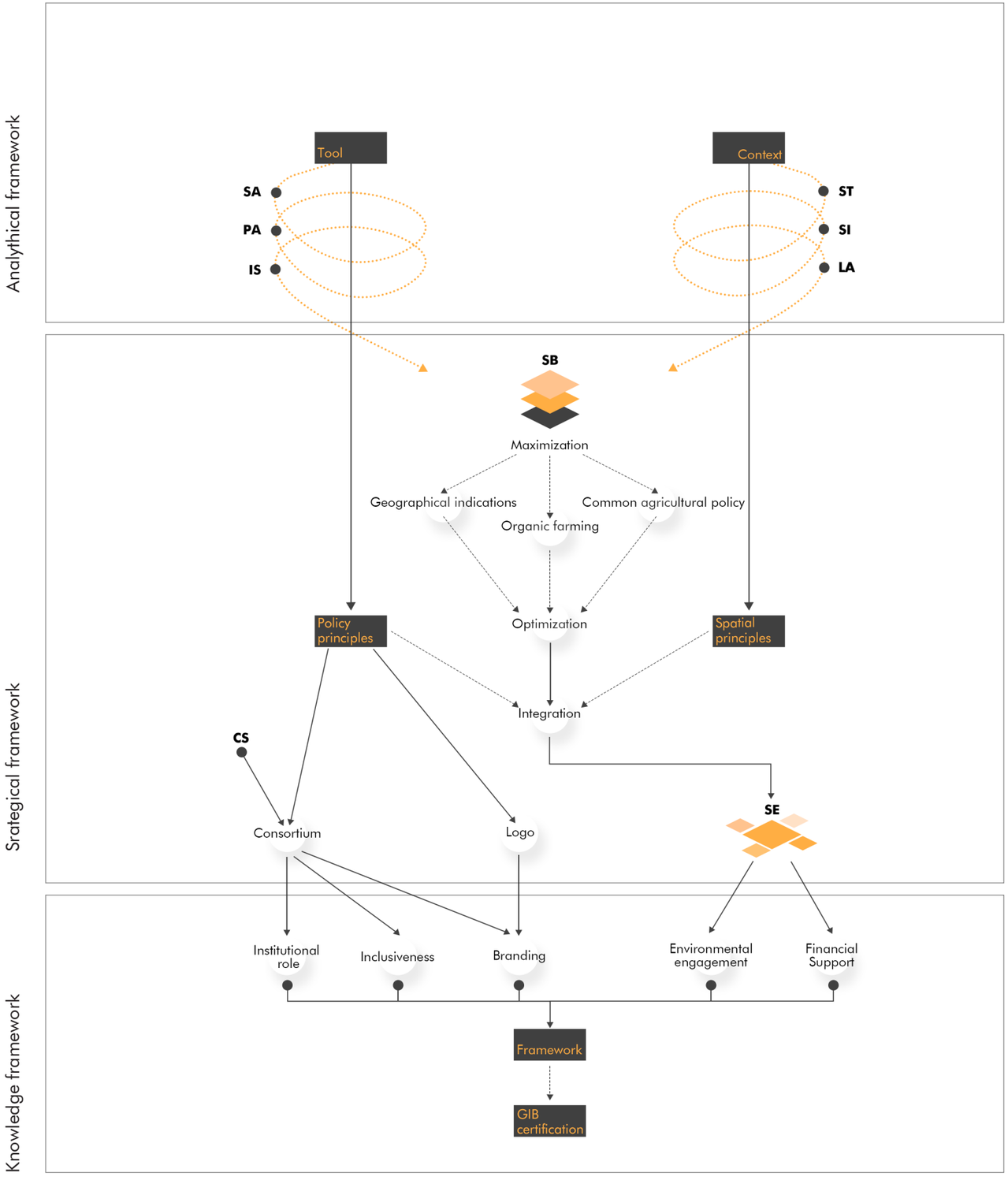
The final results are considered as a draft framework for the policy.



ST: Statistical analysis
SI: Spatial investigation
LA: Layer approach

SA: Stakeholder analysis
PA: Policy analysis
IS: Interviews and surveys

BEFORE THE RESEARCH CAN ASSES THE MAXIMIZATION METHOD, SECONDARY METHODS ARE USED TO DEVELOP THE NEEDED KNOWLEDGE.



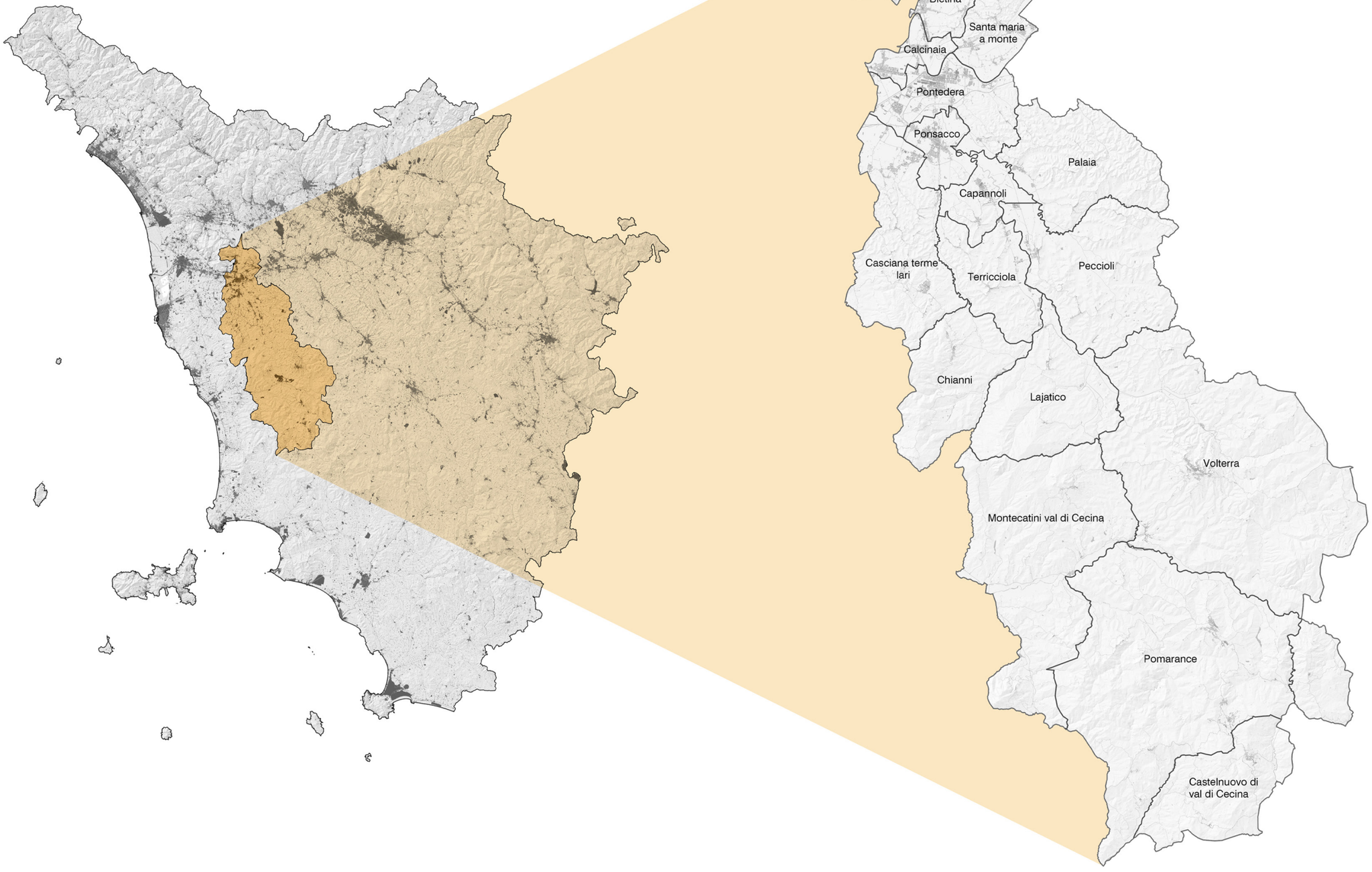
The conclusions from the analytical framework are needed to build the maximization scenario.

But they also are essential guidelines for the decision-making process to establish the governance of the certification.

METHODOLOGICAL FRAMEWORK.

SPATIAL CONTEXT

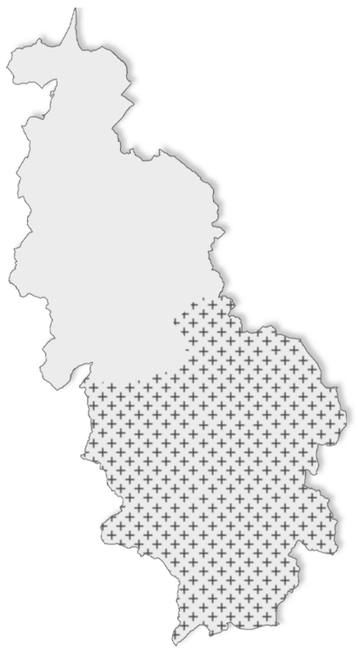
How do threats to natural resources translate spatially?



SELECTED AGRI-FOOD SYSTEM.

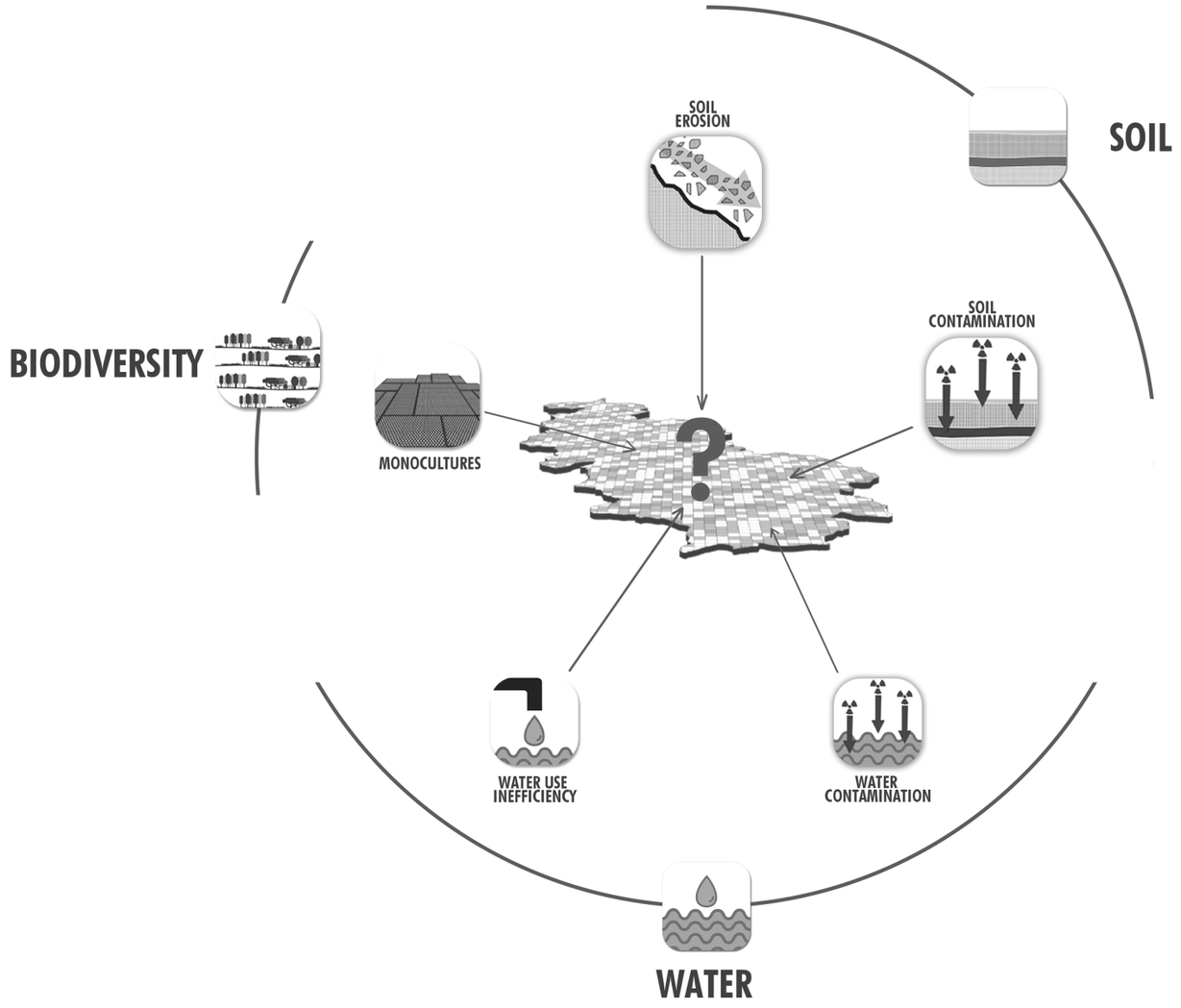
The River Arno sub system

The River Era sub system



The River Cecina sub system

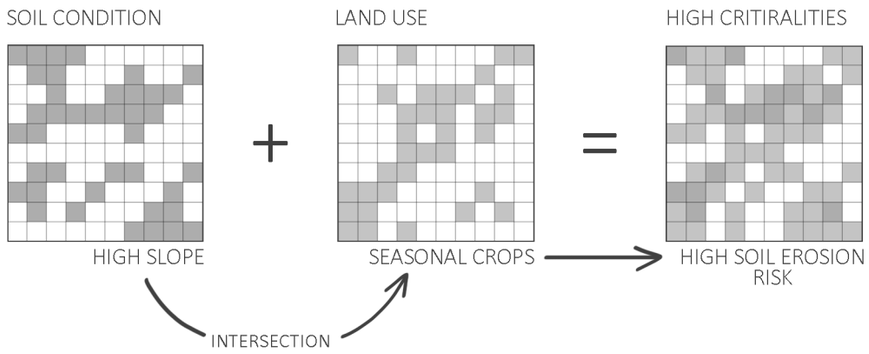
SELECTED AGRI-FOOD SYSTEM.



For the three main natural resources....

...five different threats were identified as potential spatial criticalities.

SELECTED CRITICALITIES

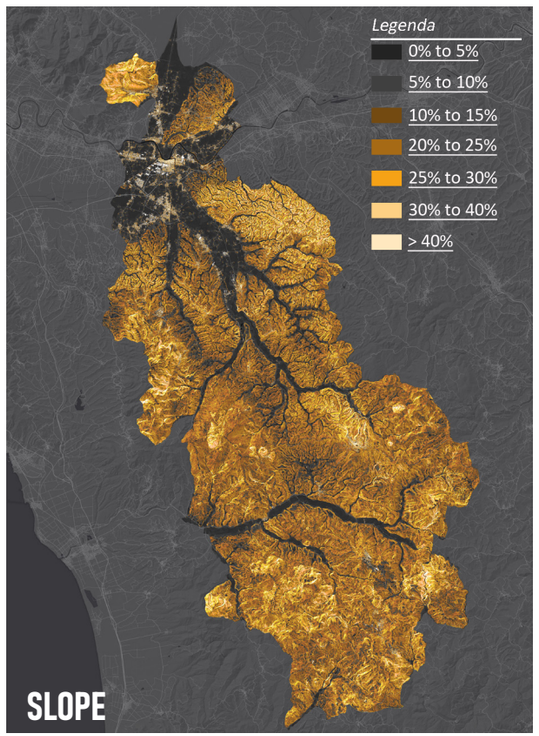


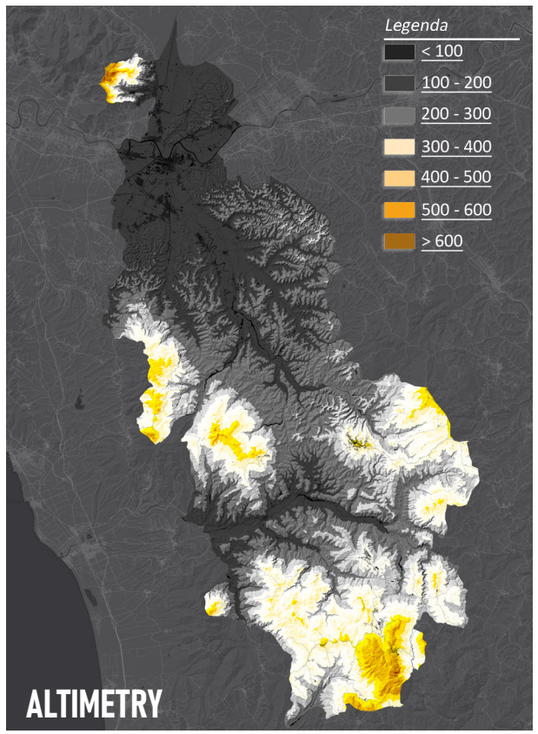
Through the layer approach, different conditions of soil composition and land use that increase one or more of the selected threats are overlayed.

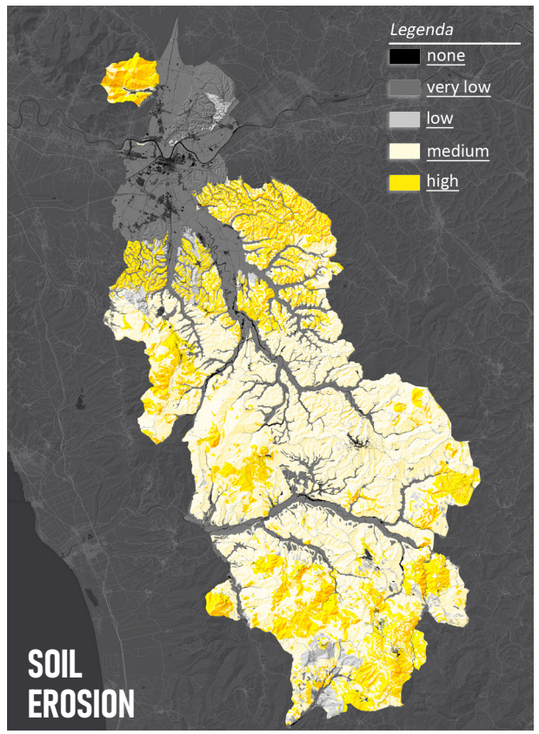
This way, it is possible to spatially indicate the area of highest risk for each environmental threat.

CHOSEN METHODOLOGY - THE LAYER APPROACH

SOIL CONDITION MAPS

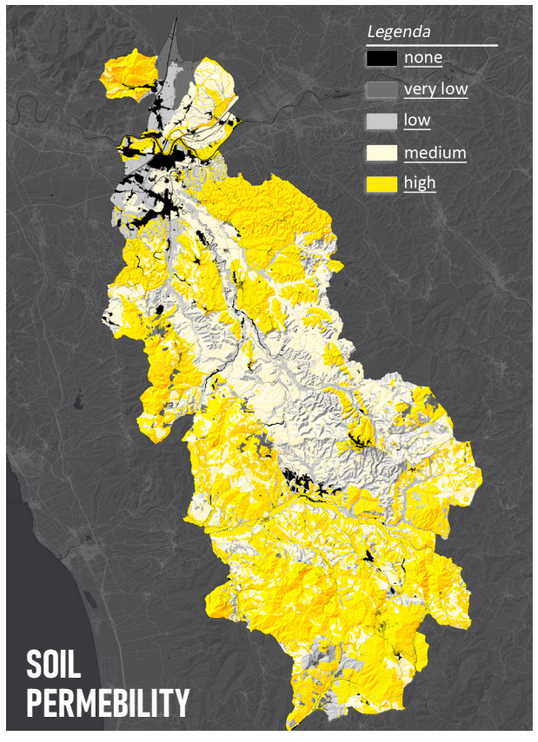


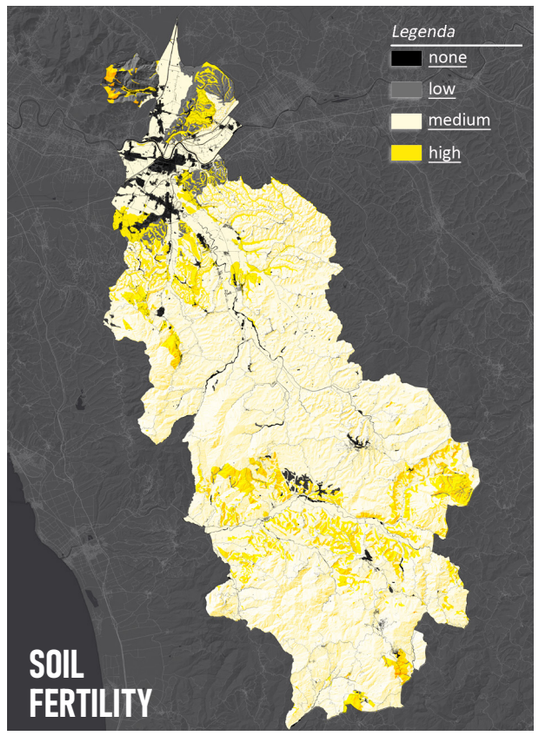


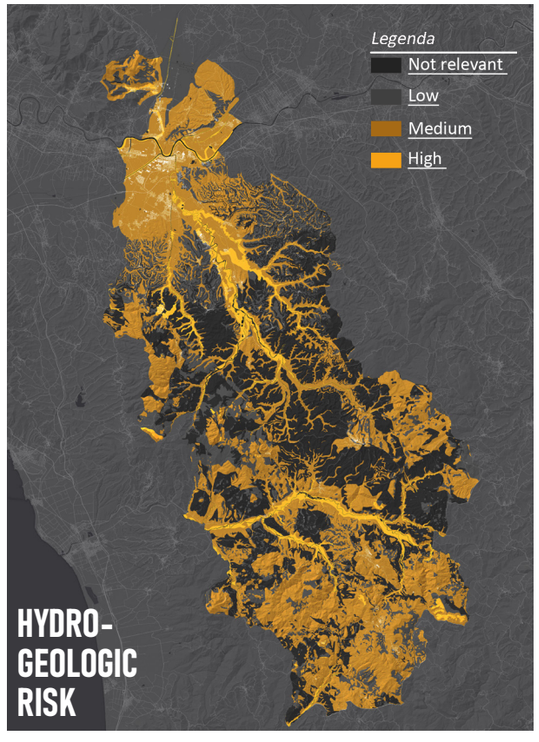


The collected geomorphological data shows a system with high slope surfaces which increase soil erosion.

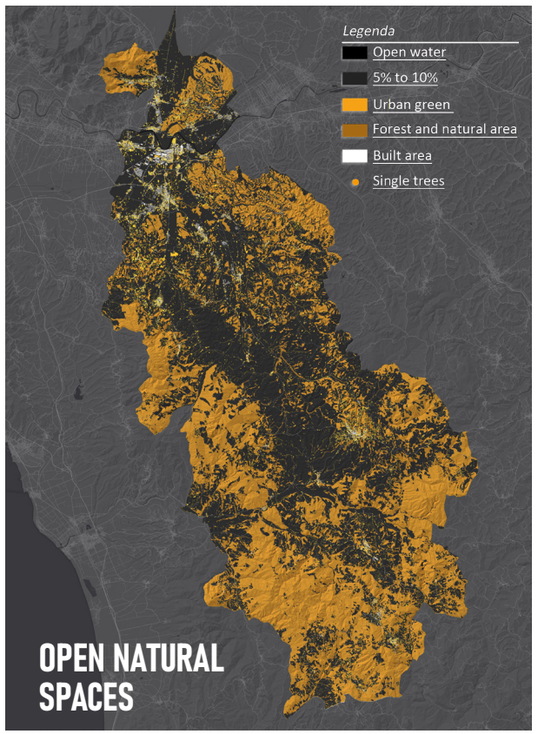
An average high fertility value but also a high risk of exposure to water contamination due to permeability.

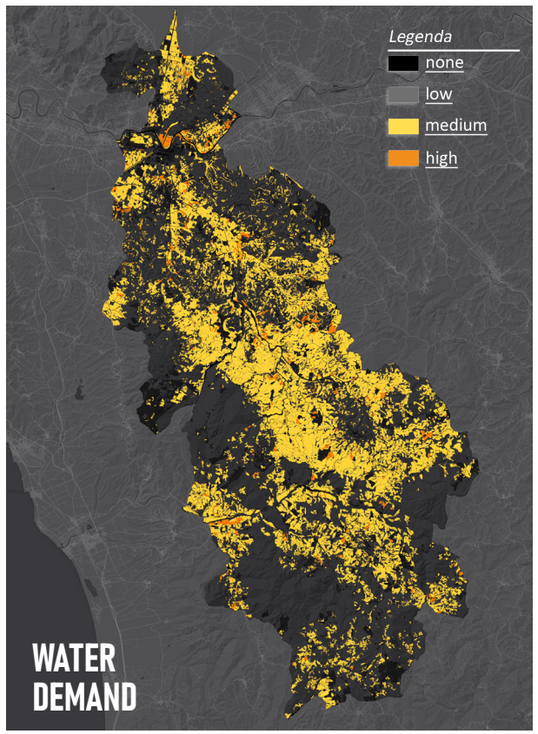


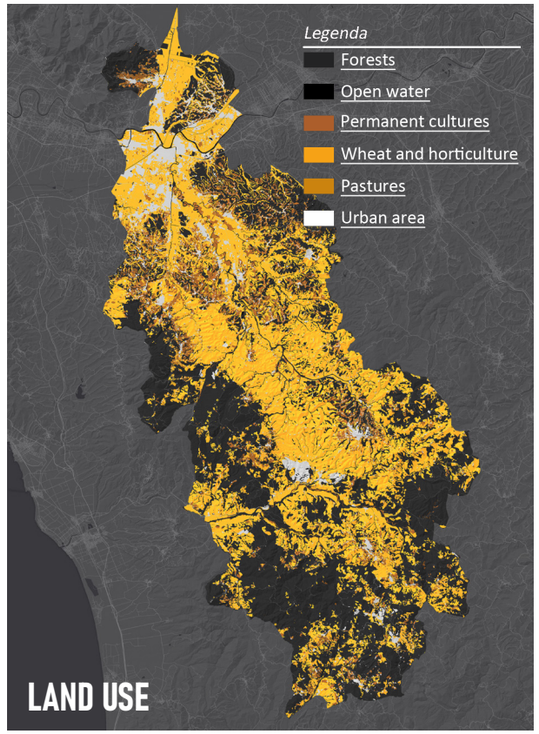


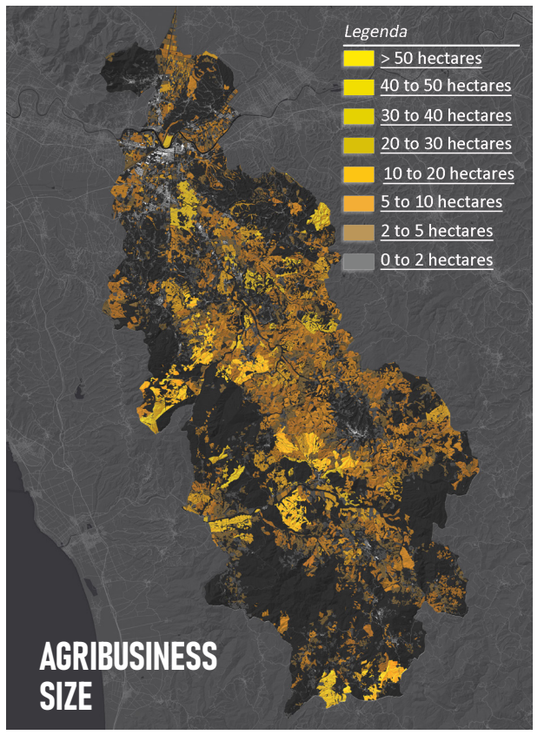


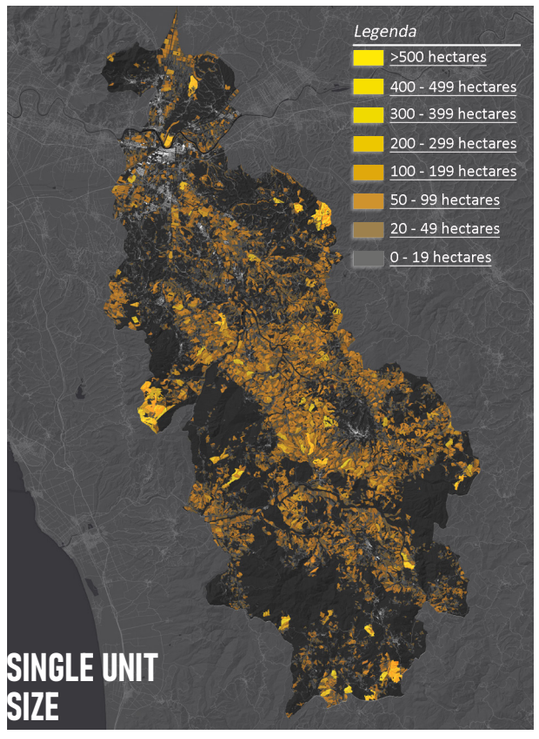
LAND USE , LAND PROPERTY AND FARMING PRACTICES.

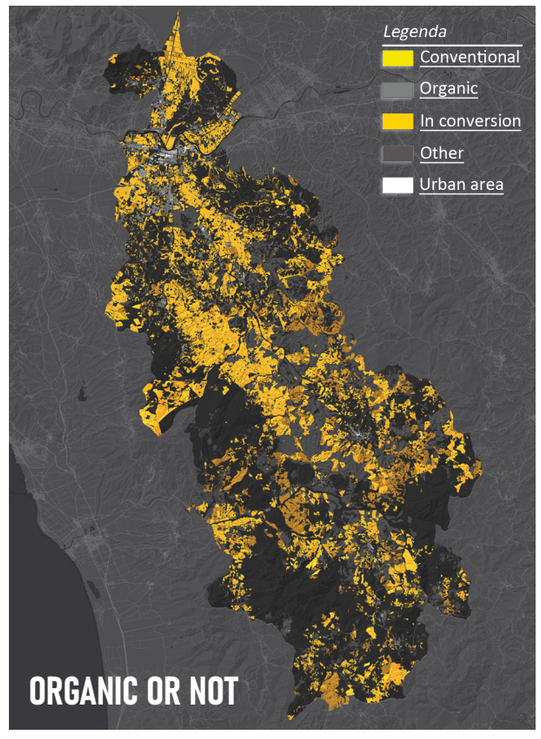




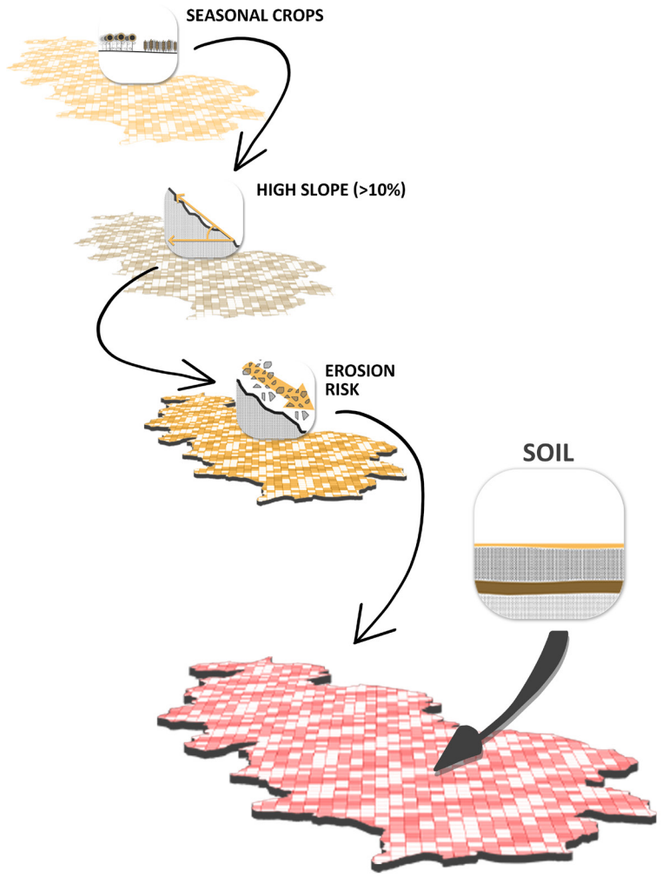


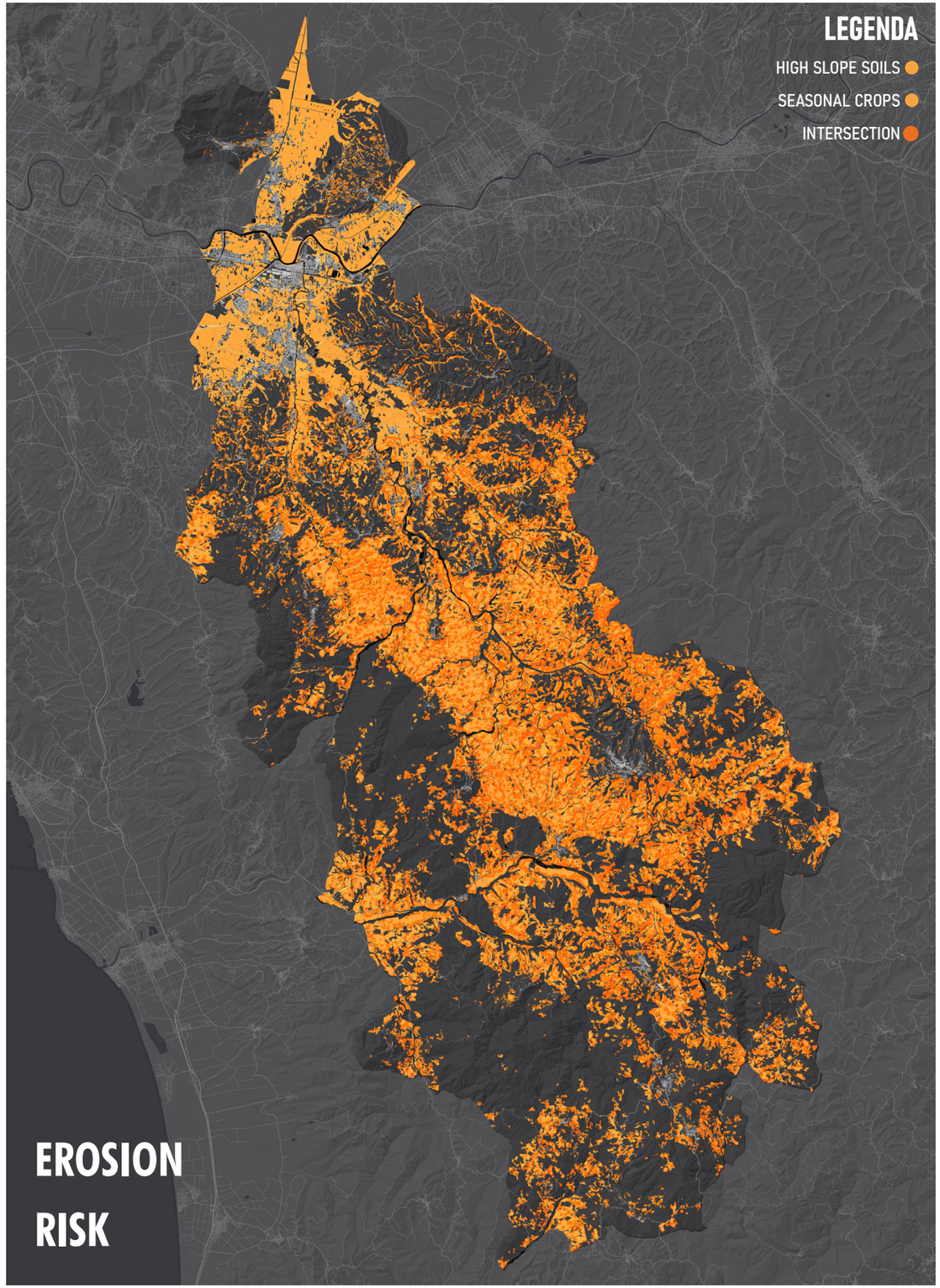




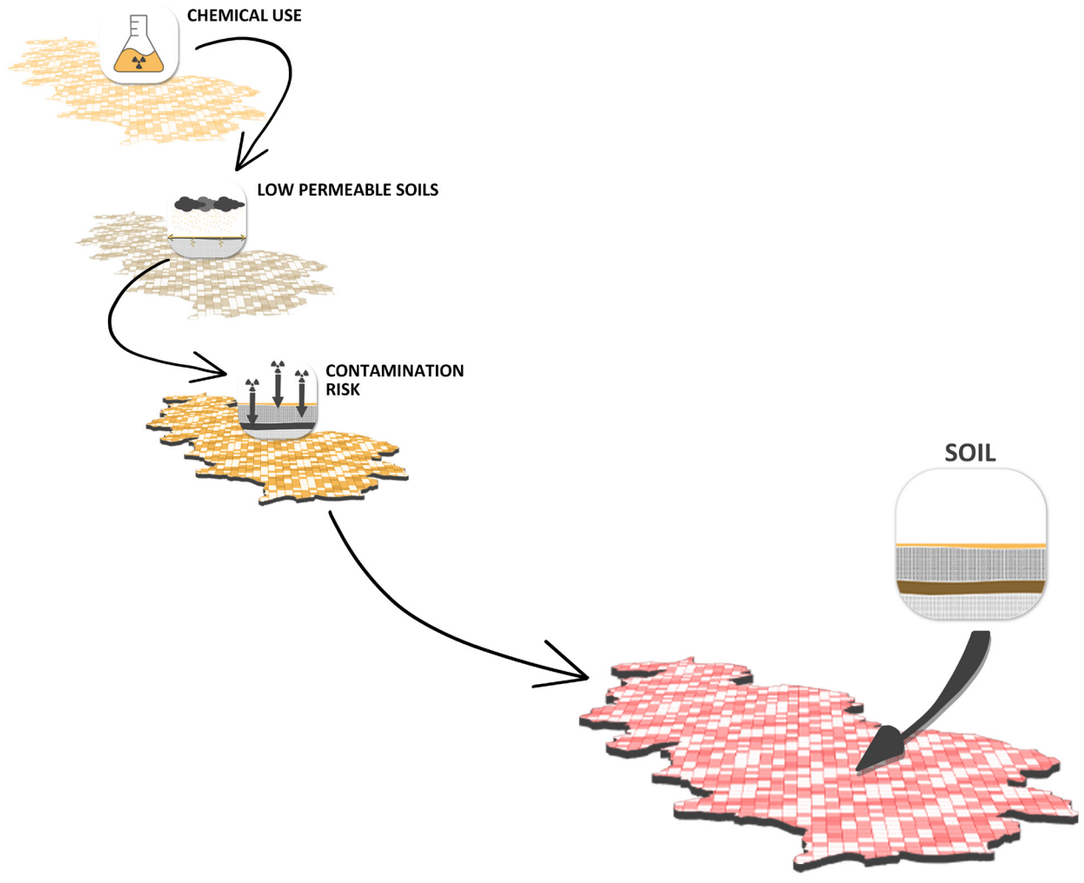


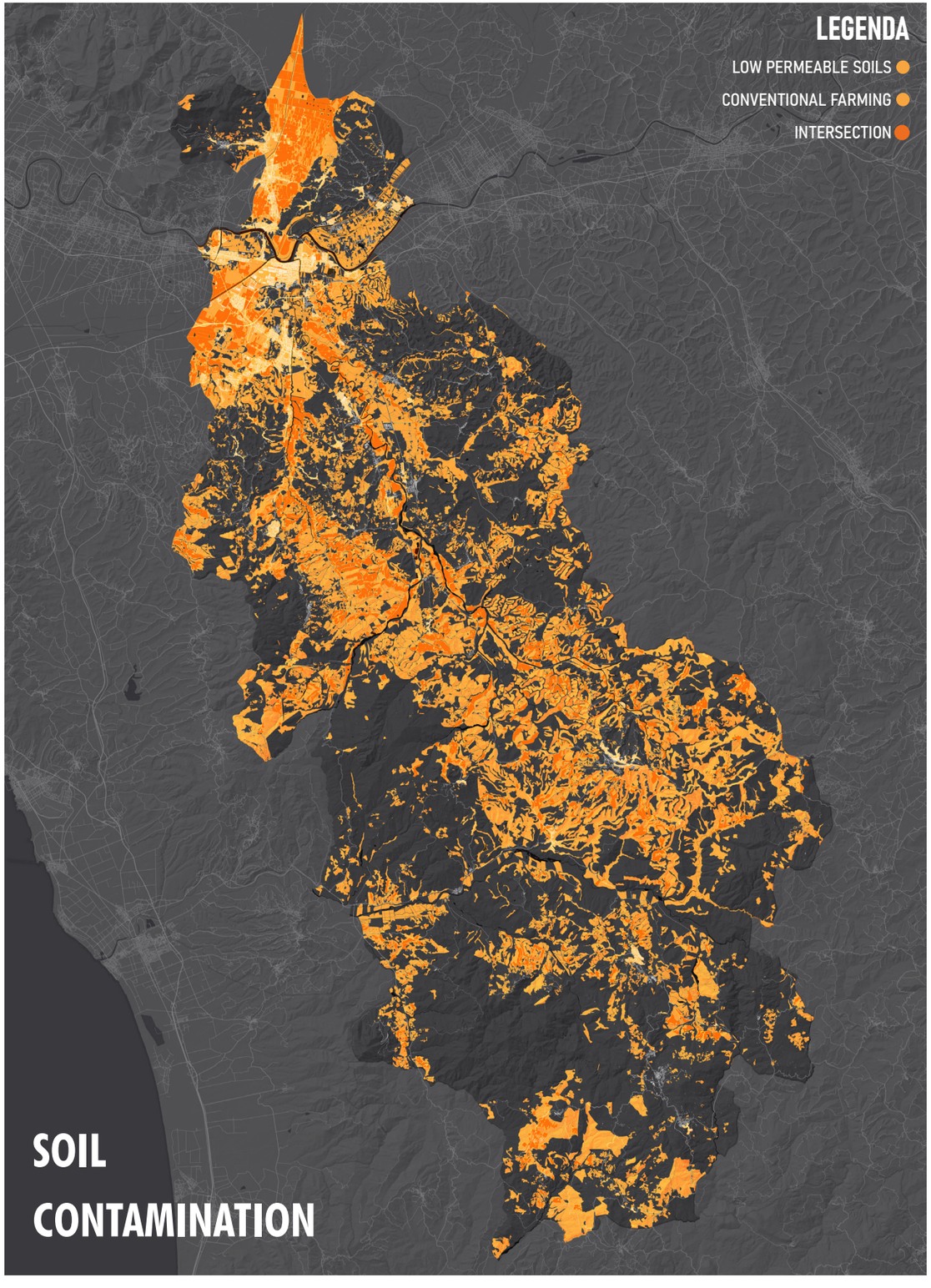
The production of seasonal crops on high slope areas decreases the retainment capacity for soils and increases soil erosion.





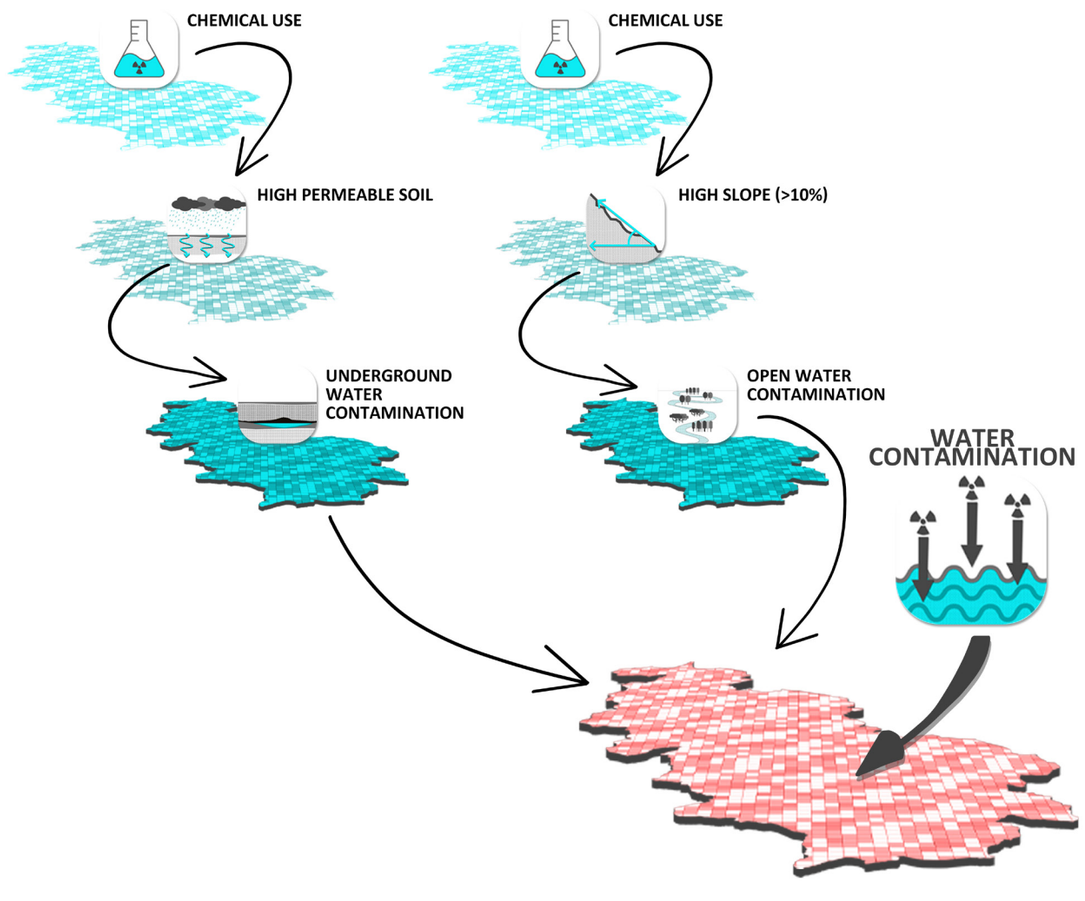
Direct use of chemical products on low permeable soils increases the risk of contamination and saturation of these soils.

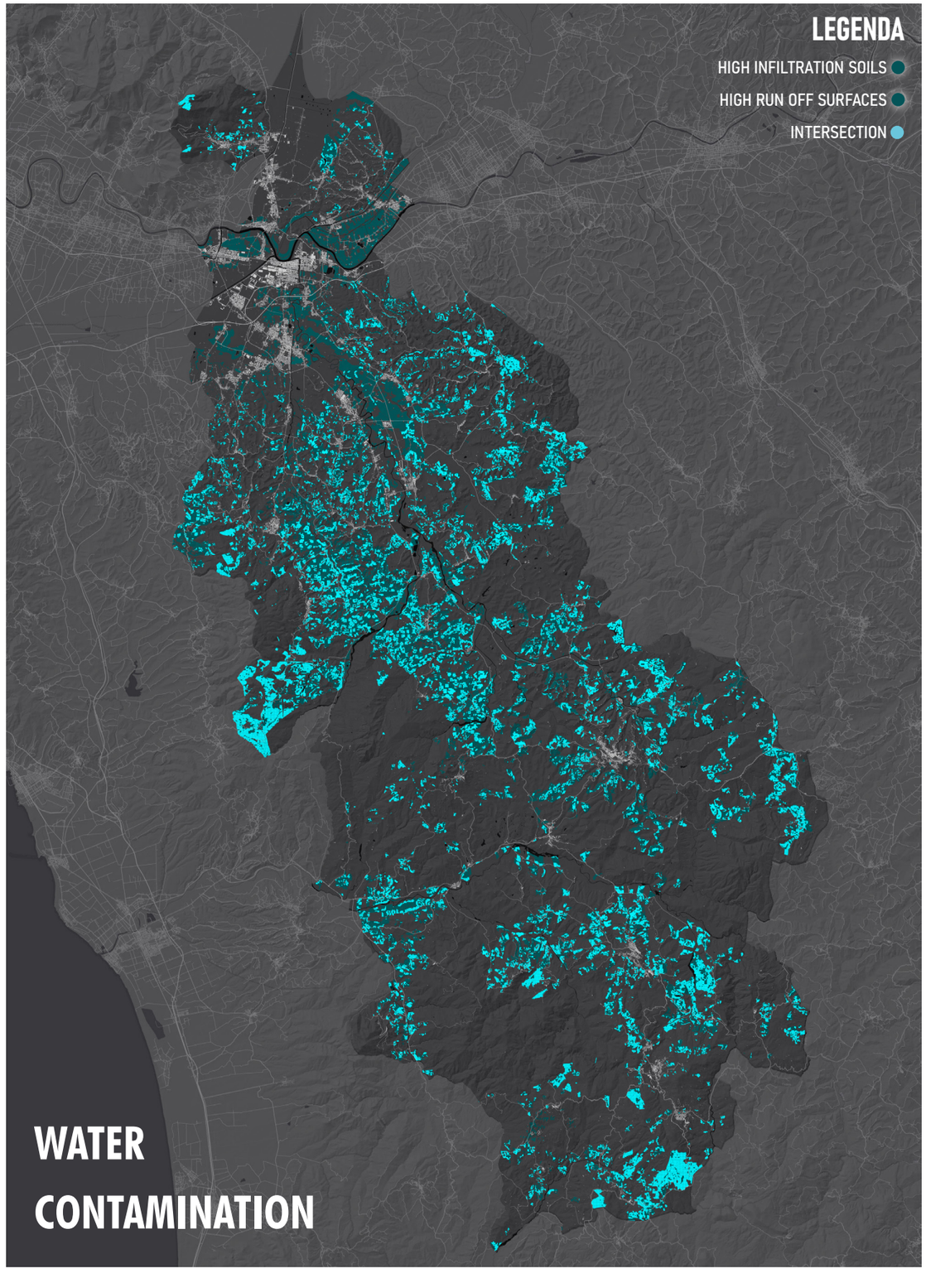




Direct use of chemical products in highly permeable soils increases the contamination of underground waters;

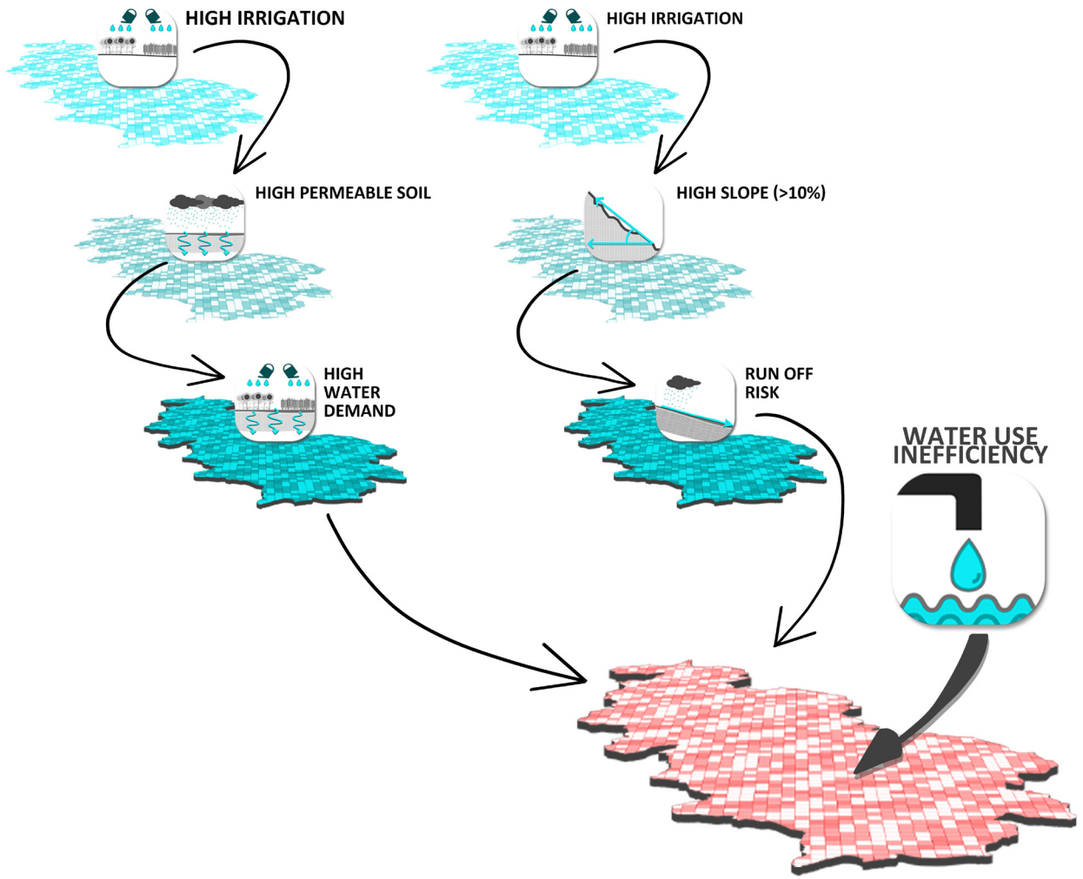
Direct use of chemical products on high-slope surfaces increases the runoff risk and contamination of open water bodies.

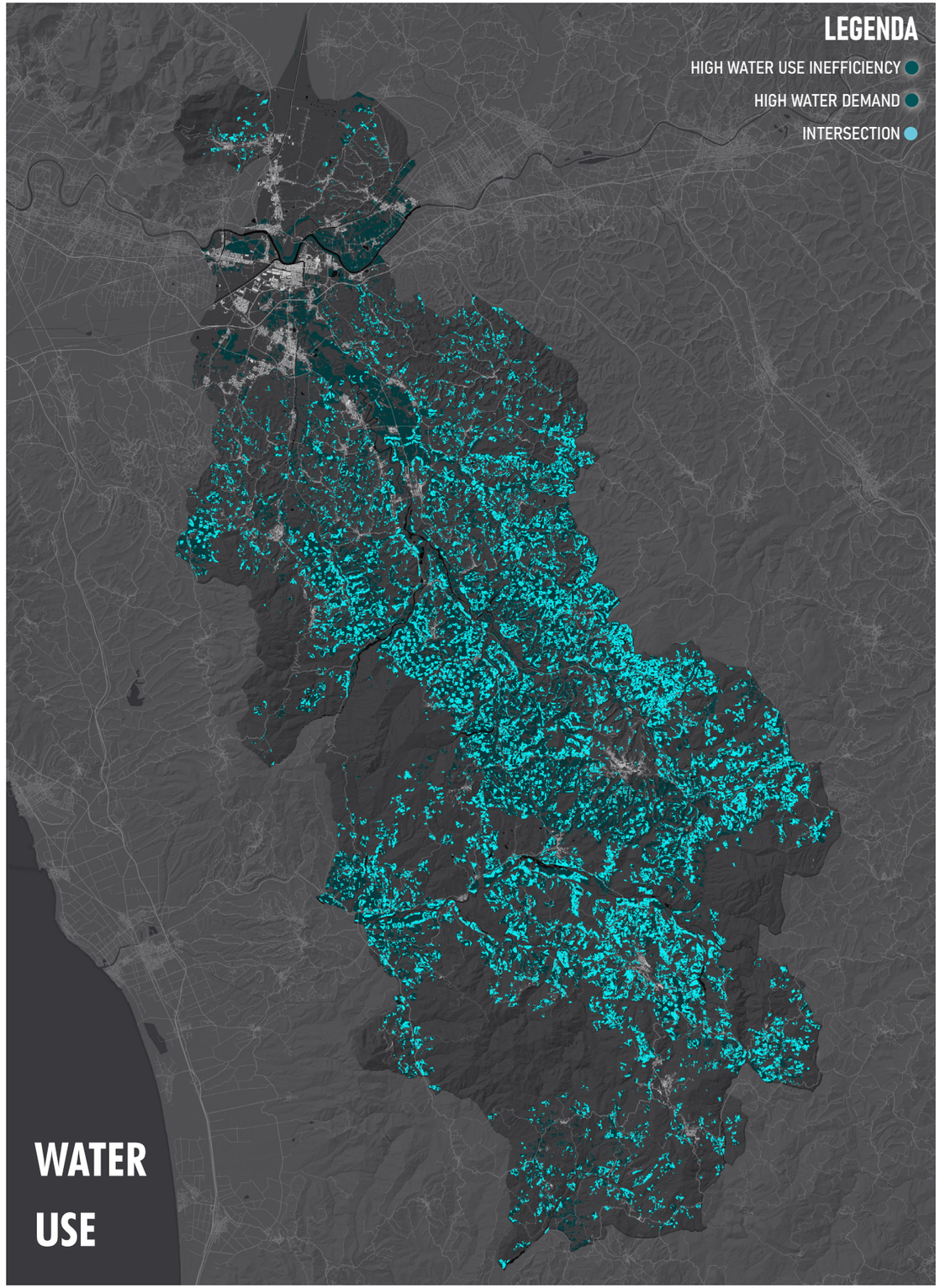




The use of crops with high irrigation needs on high permeable soils increases water demand;

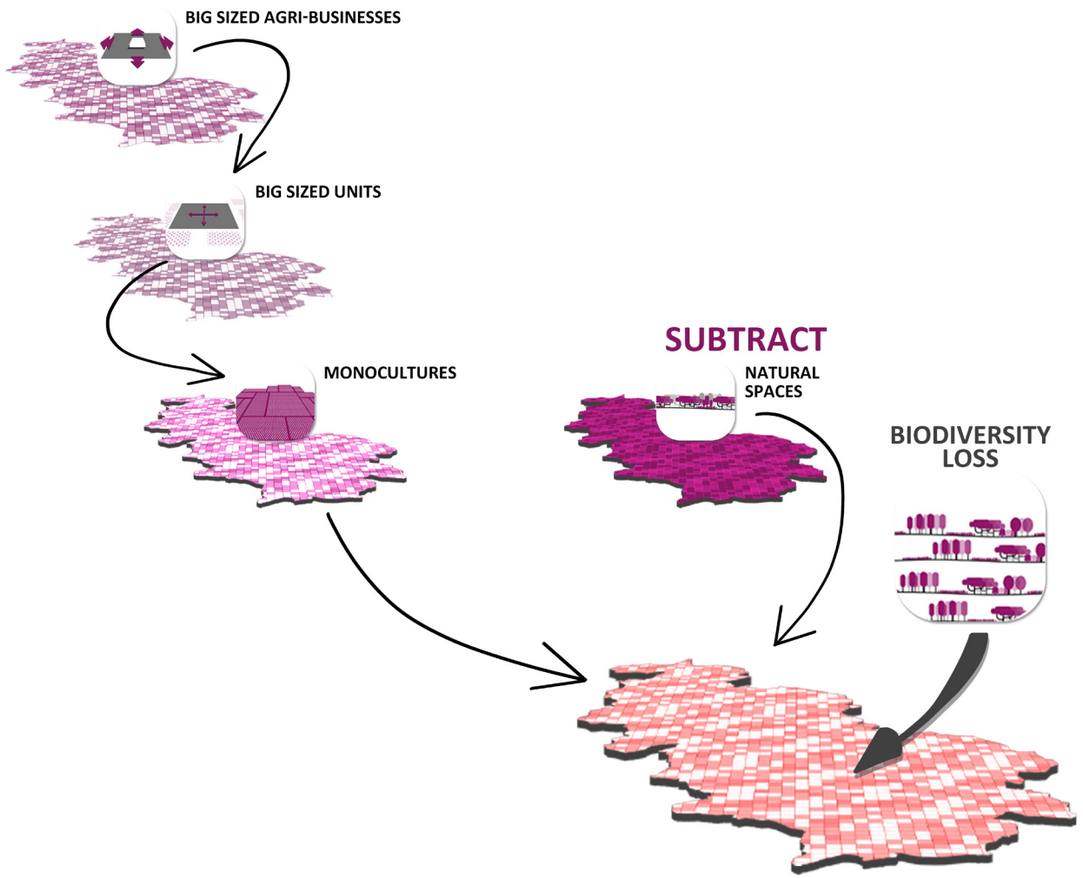
The use of crops with high irrigation on high slope surfaces increases the amount of lost water to run off phenomena.

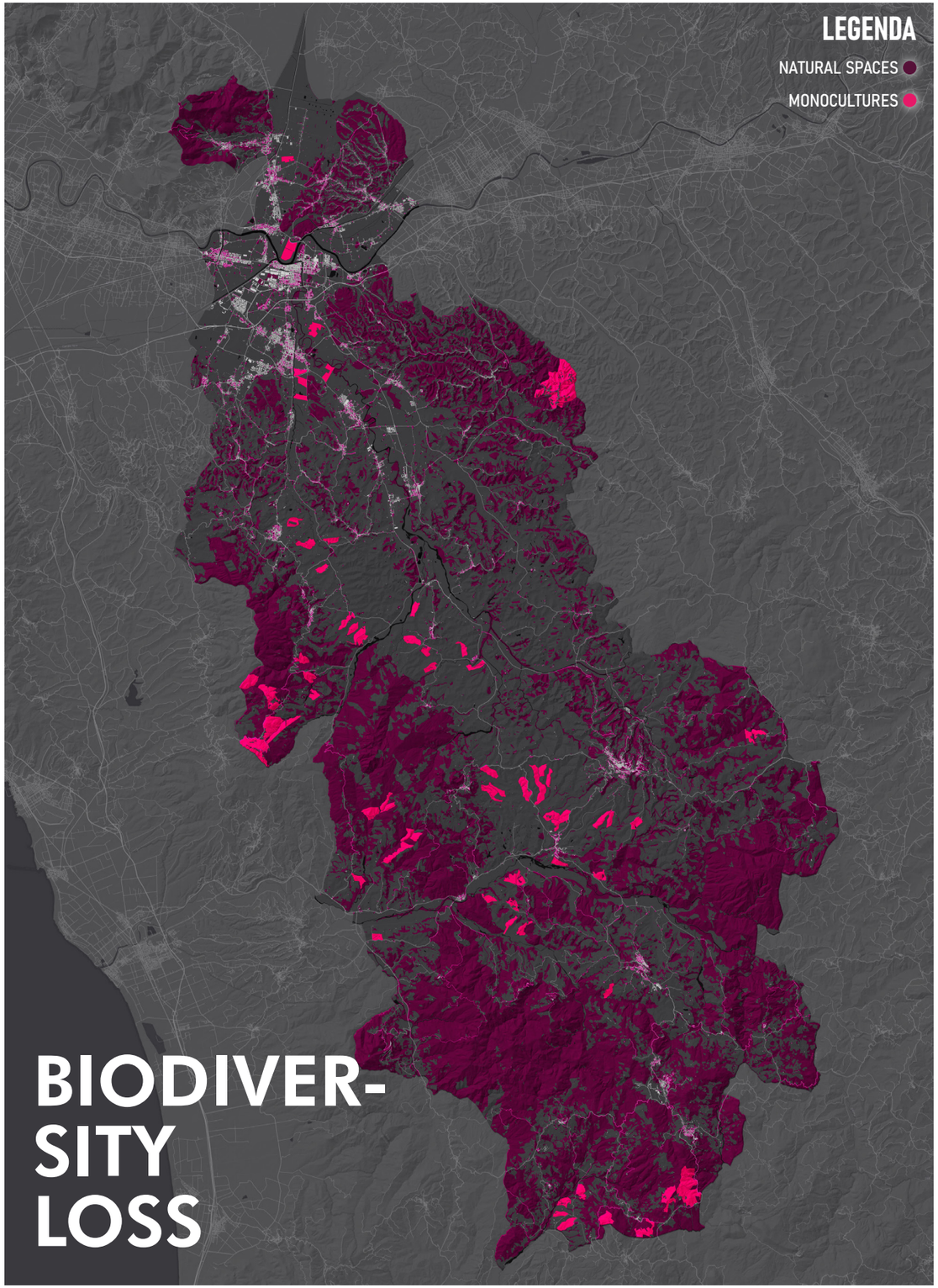




The combination of big sized units and big sized agri-business indicates clusters of monocultures;

The presence of important natural spaces decreases the risk of monocultures for biodiversity.



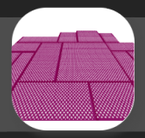


SPATIAL CRITICALITIES MAP

The map identifies all areas where farming practices potentially threaten natural resources.

LEGENDA

- SOIL EROSION
- WATER USE INEFFICIENCY
- SOIL CONTAMINATION
- WATER CONTAMINATION
- BIODIVERSITY LOSS

Topic		Area (he)	Percentage (%)			SPATIAL PRINCIPLES
Soil erosion		Slope above 10%	131,103.00	100		
		Seasonal crops on high slope	**25,779.10**	**19.66**	1 - *Soil erosion*	- ***Decrease*** the amount of ***seasonal crops on high slope*** areas by ***minimum 50%***
Soil contamiantion		Low permeability soil	28,245.30	100		
		Conventional farming on low permeability	**14,951.30**	**52.93**	2 - *Soil contamination*	- ***Decrease*** the amount of ***chemical use on low permeable*** areas by ***minimum 50%***
Water contamiantion		High permerability soils	106,222.00	100		
		Conventional farming on high permeability	**37,866.60**	**35.67**	3 - *Water contamination*	- ***Decrease*** the amount of ***chemical use on high permeable*** areas by ***minimum 50%***
		Slope above 10%	131,103.00	100		- ***Decrease*** the amount of ***chemical use on high slope*** areas by ***minimum 25%***
		Conventional farming on high slope	**15,939.80**	**12.16**		
Water use		High permeability	106,222.00	100		
		High irrigation on high permeability	**58,166.60**	**54.75**	4 - *Water use*	- ***Decrease*** the amount of ***high irrigation crops on high permeable soils by 50%***
		Slope above 10%	131,103.00	100		- ***Decrease*** the amount of ***high irrigation crops on high slope*** areas by ***minimum 25%***
		High irrigation crops on high slope	**25,944.00**	**19.79**		
Biodiversity		Big size businesses	43,173.20	100		
		Big size units oned by big businesses	**3,311.98**	**7.67**	5 - *Biodiversity loss*	- ***Increase*** the covered surface for ***natural spaces to 50%*** or higher
						- ***Decrease*** the area for ***monocultural treaths to 5%*** or less

TOOL - CERTIFICATIONS

to what extent are current food quality certifications contributing to environmental engagement and natural resources protection?

NON-MANDATORY POLICIES

CERTIFICATIONS

FINANCIAL AIDS

ORGANIC (BIO)

Policie concerning the specific indications of what organic farming practices are. These practices have to be followed only by registered members.

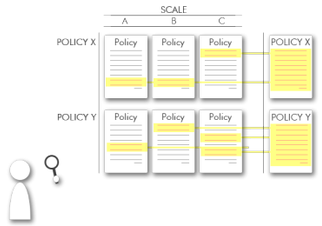
GEOGRAPHICAL INDICATIONS (GI)

Policies concerning the specific indications of what Geographical indications are and how they function. The included practices have to be followed only by registered members.

COMMON AGRICULTURAL POLICY

Policies concerning the specific indications of Sustainable agricultural practices involved in the CAP. The included practices have to be followed only by registered members.

IN THE POLICY ANALYSIS THE THREE MOST USED TOOLS FOR THE SUPPORT OF SUSTAINABLE AGRICULTURAL FARMING WERE ANALYSED.



The analysis of these policies on multiple scales leads to the identification of the rules that have a direct or indirect effect on spatial criticalities.

POLICIES ENGAGEMENT FOR ENVIRONMENTAL SUSTAINABILITY

MANDATORY POLICIES | NON-MANDATORY POLICIES

(1) EUROPEAN SCALE

FERTILISERS - FERT.RE UE 2019/2009	PESTICIDES - RE. CE N.1107/2009	BIOLOGIC RE. UE 2018/848.	PDO & PGI RE.EU N.510/2006	CAP RE.UE N.1306/2013
A - B - C	A - B - C - E - F - H	A - B - C - D - E	B - D - E	A - B - D - E - F - G - H - I - L - M - Q

(2) NATIONAL SCALE

FERTILISERS - FERT.DM. N.5046/2016	PESTICIDES - PEST.DL N.150/2012	PSRN 2014-2022
A - B - C - D - E	B - C - E	M - N - O - P - Q - R - S - T - U - V

(3) REGIONAL SCALE

FERTILISERS - FERT.RE. N.802/2010	PESTICIDES - PEST.RE. N.42/2018	DOC/DOP DM. 1151/2012
A - B - C - D	A - B - C - D	B - C - D - E - F

RULES WITH EFFECTS ON SPATIAL CRITICALITIES

MANDATORY FERTILISERS POLICIY	MANDATORY PESTICIDES POLICIY	ORGANIC FARMING POLICY	GEOGRAPHICAL INDICATIONS	COMMON AGRICULTURAL POLICY
1B - 1C - 2E - 3D	1B - 1C - 3A	1A - 1B	1E - 3C - 3D - 3E	1A - 1C - 1D - 1E - 1G - 1L

RULES WITH EFFECTS ON SPATIAL CRITICALITIES

ORGANIC FARMING POLICY

1A - Grassing in the high-risk months on grasslands and other seasonal crops. Grassing between the rows of permacultures. Resting period every two years for each agricultural land unit. The whole agribusiness is convicted to the rules for organic production and must fulfil a 3-year resting cycle before the approval.
1B - Only the use of non-chemical products is allowed (they can be chemically processed have to be made of natural ingredients)
The forced resting period for land units influences Indirectly the size of land units and the diversification of production.

GEOGRAPHICAL INDICATIONS

1E - The typology: only a set of specific animals or crops has to be used. Most of them are indigenous species.
3C - Land use limitations on altitude. Land use limitations on slope.
3D - Land use: limitations on soil composition.
3E - Nourishment: how much can be fed to the animals, how much can fields be irrigated. The Costs: High costs assessment force smaller business to merge into assosiations or abandon productive land.

COMMON AGRICULTURAL POLICY

1A - Protection of water from pollution caused by nitrates from agricultural sources.
1C - Making the use of water in agriculture more efficient.
1D - Protection of groundwater from pollution: prohibition of direct discharge into groundwater and measures to prevent indirect pollution.
1E - Minimum soil cover for highly erosive soils.
1G - Maintain soil organic matter levels through appropriate practices, including a ban on stubble burning, except for plant health reasons
1L - Maintenance of landscape features, including, where appropriate, hedges, ponds, ditches, trees in rows, in groups or isolated, field edges and terraces.

THESE RULES REPRESENT THE "ENGAGEMENT FOR ENVIRONMENTAL SUSTAINABILITY" FOR EACH POLICY.

ELEMENTS THAT INFLUENCE EFFICIENCY

ENGAGEMENT FOR SUSTAINABILITY -
The policy provides clear indication on sustainable farming practices.

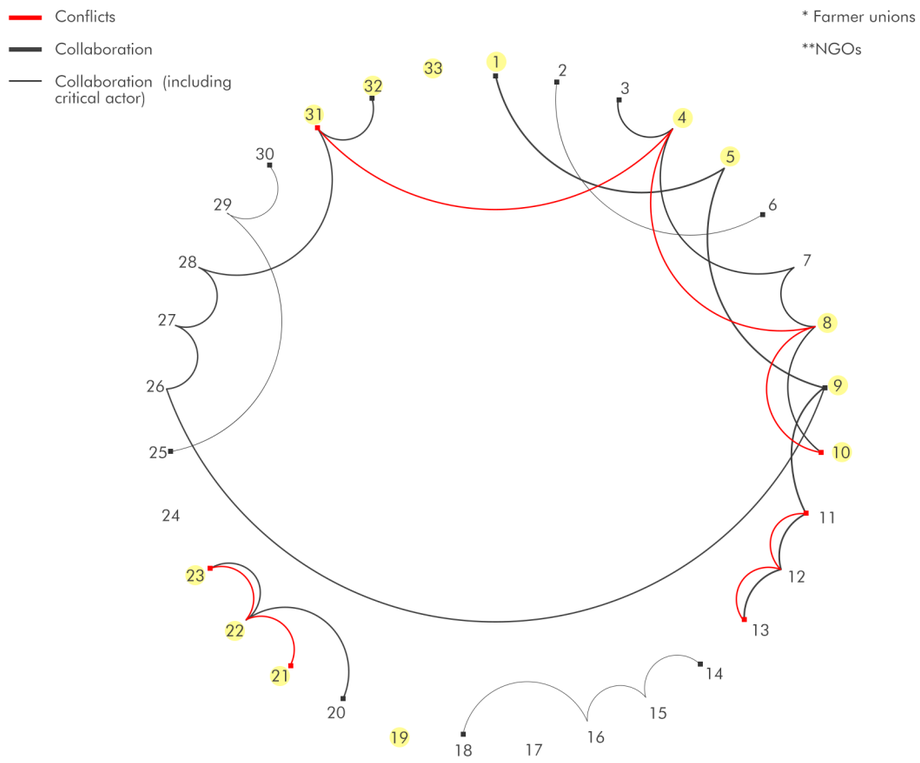
INCLUSIVENESS AND ACCESSIBILITY -
Affordable application costs, trasparent governance and strategies for parteci-pation.

PRODUCT BRANDING -
The policy should inglude a strategy for marketing actions to promote the brand.

FINANCIAL SUPPORT -
The policy provides finanical aids to farmers in form of loans and direct payments.

INSTITUTIONAL ROLE -
The policy should clearly define the involved institutions and their role in governance.

THE EFFICIENCY OF NON-MANDATORY POLICIES DEPENDS ENTIRELY ON PARTICIPATION. THEREFORE THE POLICY MUST GUARANTEE A SET OF SOCIOECONOMIC BENEFITS FOR MEMBERS OF THE CERTIFICATION.



INSTITUTIONS

1 EU Agricultural directory
2 EU Health directory
3 EU Tourism directory
4 EU Natura2000
5 MIPAAF (ministry for agricultural policies)
6 Ministry of health
7 Ministry of tourism
8 Ministry for environmental protection
9 Regione Toscana
10 ARPAT (Regional office for environmental protection)
11 Provinces
12 Municipal unions
13 Municipalities

PRIVATE

14 Transport companies
15 Food wholesalers
16 Pesticides manufacturers
17 Seed suppliers
18 Fertilizers manufacturers
19 Landowners
20 Local retailers
21 Conventional farmers
22 Organic farmers
23 GIs certified farmers

PUBLIC

24 Consumers
25 HELP**
26 Confagricoltura*
27 Coldiretti*
28 CIA*
29 Verde Chiaro**
30 Lipu Onlus**
31 GIs Consortiums
32 Biodistretto
33 Rural residents

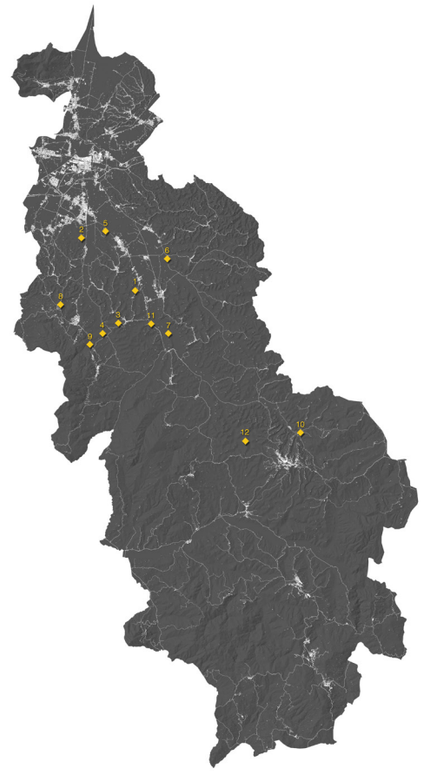
Critical stakeholders

Non critical stakeholders

THROUGH INTERWIES WITH LOCAL AGRI-BUSINESSES, THE RESEARCH AIMS TO UNDERSTAND TO WHAT EXTENT THE POLICIES ARE EFFICIENT.

LEADING QUESTIONS FOR INTERVIEWS OF..

	AGRI-BUSINESSES	CONSORTIUMS
General questions	- Hectares of the agri-business... - Hectares of productive land... - Number of employees... - Produced crops... - Produced capacity... - Use of fertilizers and pesticides... - Provenience of used materials... - Water use for irrigation...	- Why is the consortium founded ? - When is the consortium founded ?
Inclusiveness	- What are the main reasons you have chosen to apply for a certification? - Have you participated in decision-making in the disciplinary? - How high were the assessment costs for application to the certificate? - What were the structural changes you had to execute?	- How does the registration procedure for a consortium work? - How long does it take to register for members? - How does it differ from registering for the certification itself? - Is there a quote the agri-businesses must pay to participate? - How high is the fee, and how is it established?
Institutional role	- Is the consortium responsible for solving the conflicts of interest between members and non-members? - Does the consortium establish market prices for the certified product?	- What is the role of the consortium? - Who are the members? - Who does administrate the consortium? - What is the juridical nature of consortiums?
Financial support	- Did you perceive financial support for the conversion to a certification? - At what stage of the process did you receive them? - Are these financial aids adequate? Is there a financial support program to cope with climatic change adversities?	- Do registered farmers benefit economically from the registra- - tion? In what form do financial benefits express?
Product branding	- Did the certification increase the market value of your product? - Did the market demand for your product increase? - Was it enough to cover the expenses for conversion?	- What are the possible promotion strategies? - What are the possible measures that the consortium can take against fraud? - How often are quality checks needed? - Who is in charge of quality checks?



Interviewed agri-businesses

WINE
- 1. Podere la chiesa - Organic, DOC, IGT
- 2. Podere spazzavento - Organic, DOC, IGT
- 3. Azienda agricola castelvecchio - Organic, DOC, IGT
- 11. Fattoria fibbiano - Organic, DOC, IGT

OIL
- 8. Azienda agricola verdoliva - Organic, IGT
- 9. Azienda agricola di Nenna Guido - Organic
- 10. Oleificio cooperativo volterra -

WHEAT
- 4. La collina del pane -
- 5. Marchese di camugnano - Organic

DAIRY
- 7. Il Poggione s.s. - Organic
- 12. Fattoria Lischeto - Organic, DOP
- 6. Casa ilaria badia di carigi - Organic

THEREFORE,

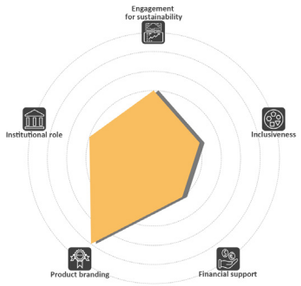
THE "ELEMENTS THAT INFLUENCE EFFICIENCY"

WERE USED AS KEY TOPICS

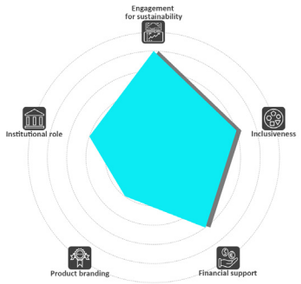
TO LEAD THE INTERVIEW

	Strenghts	Weaknesses
GIs	EN- Restricts the use of water, fodder, and intensity of production. EN- Most of the crops, especially permanent crops such as wine and oil, are also certified as biologic. BR- GIs guarantee for stable market value. BR- GIs give an identity to their region, this increases the interest and demand for the product.	EN- Gis do not restrict the use of chemical pesticides or fertilisers. BR- Smaller GIs do not improve market value of the products. IN- GIs must go through several authorisations to be approved. IN- Gis have long application times for farmers. EN- The tool is not mandatory for all farmers within the borders of a GI. FS- High costs for yearly chemical examination made by certified examination centres. FS- No governmental funding is provided for the conversion to GIs. IN- The costs for maintaining a GI are higher than the profits for most farmers. IN- Many agri-businesses had to conform to the GI only to maintain the geographical name on the label. IN- Small realities practice according to GI rules but do not want to work through the bureaucracy. EN- Successful GIs can lead to an excessive specialization of the region. IN- GI attracts big investors and favours monopolization of the market niche. EN- There is no limit to the size of certified businesses. IS- Consumers' mistrust the institutions in charge of the quality control. IS- Most farmers do not believe in GIs and the consortium.
Consortium	BR- The consortium promotes and protects the certificate's name. IS- It proposes changes in the laws concerning it. FS- The consortium facilitates bank loans for members of the consortium.	IN- Agri-businesses that pay a higher quote have more influence on consortiums' decision-making. IN- This makes it easy for big businesses to propose changes in the disciplinary. IS- The "Consorzio" is not necessarily created with the creation of the GI. IS- Most GIs that represent smaller realities do not have an active Consorzio. IN- Farmers can be certified but are forced to participate in the Consorzio IN- Only certified farmers can become members of the consorzio. IN- An additional quote member must pay to the consortium based on size and production of the agri-business. IS- The borders of the GI do rarely match with the provincial or municipal border.
Organic	EN- The law concerning Organic farming does restrict the use of chemical pesticides or fertilizers. EN- The time for conversion to biologic is three Years. IN- It does not cover a specific product as for the Gis. FS- More and more farmers are switching from GIs to Organic. FS- It provides financial supports for conversion.	FS- For seasonal crops, the resting time imposed by law decreases production drastically. FS- Main costs are determined by the conversion time. BR- The market price of Bioproducts and conventionally produced ones is quite close. IN- Farmers can access funding once they have converted to organic farming.
Bio district	IS- Includes the participation of local municipalities and technical offices. IN- Participation is open to all farmers, but only active members have the right to decide following initiatives. IN- Farmers pay a quote for registration, but this does not determine their influence on decision-making. EN- Only agri-businesses that have converted all their land use to organic can register. IN- It focuses on promoting organic products and involving local communities. EN- It aims to create a network of organic farmers within the borders. IS- It aims to simplify policy and bureaucratic procedures.	BR- Does not guarantee market engagement and product branding. IN- Includes a participation fee. BR- Does not have a distinctive certification label. IS- The bio-district relies on territorial borders that do not match institutional ones.
CAP		IN- Difficult to access for small farming realities. IN- Restrict the field of action of the farmers to much. FS- They do assess slowly to the rising cost for production unexpected causalities. IS- CAP farmers are not represented by a specific farmer union. IS- They fall under the representation of general provincial associations.

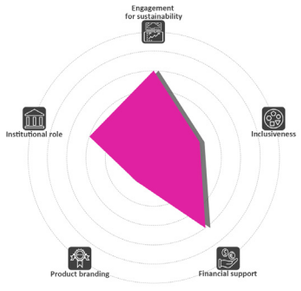
EN = Engagement for sustainability IN = Inclusiveness FS = Financial support BR = Financial support IS = Institutions



1. Lack of inclusiveness for non-members
2. Lack of accessibility for non-members due to high costs.
3. Lack of financial support programs for non-members that want to apply.
4. Lack of direct financial support for members.
5. Environmental effects remain indirect casualties.



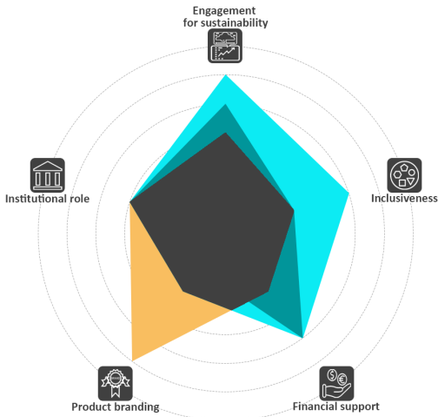
1. Lack of branding strategies
2. Lack of territorial identification for organic production.
3. Lack of financial support programs for non-members that want to apply.
4. Lack of representation, the role of the consortium is not clearly defined.



1. Lackof branding strategies
2. Lack of distinctive logo for market placement
3. Lack of inclusiveness for small farmers.

THE CONCLUSIONS WERE CATEGORIZED, AND THE COMPLEX EFFICIENCY OF THE POLICIES WAS CALCULATED.

THE EFFICIENCY EVALUATION OF THE DIFFERENT SELECTED POLICIES DEMONSTRATES THEIR EXCESSIVE SPECIALIZATION



THE COLLECTED KNOWLEDGE IS USED TO DEFINE THE POLICY PRINCIPLES TO USE IN THE DEVELOPMENT OF THE NEW FRAMEWORK.

SPATIAL PRINCIPLES

1 - Engagement for sustainability

(a) The policy engages in banning chemical pesticides and fertilizers.
(b) The policy and consortium engage in the protection and regulation of the use of local water resources.
(c) The policy and consortium engage in protecting fertile soil from erosion and eutrophication.
(d) The policy and consortium engage in the protection of biodiversity and preservation of natural spaces.
(e) The policy engages in preserving crop diversity and landscape quality.

2 - Inclusiveness

(a) The application costs for single members should be affordable and proportional to the size of the agri-business.
(b) The bureaucracy for the application procedure of single members should be simplified.
(c) The activities of the consortiums should allow the participation of non-members.
(d) The membership for consortiums should be extended to not only agri-businesses but also local residents, retailers, and field specialists.
(e) Power in decision-making should be equal for all associated producers.

3 - Institutional role

(a) The policy defines the active participation and the role of local municipalities in the governance of the certification.
(b) The policy contains a framework for assessing and creating new certifications.
(c) The policy guarantees the creation of a consortium for each certification and previous to the creation of the certification itself.
(d) The policy defines the role and composition of the consortium.
(e) Involved institutions and the consortium are responsible for strategy development to increase participation.

4 - Financial support

(a) The policy provides financial support to farmers in different stages of the transition.
(b) The policy financial support is proportional to the different assessments the agri-business has to fulfil.
(c) The available funding system of the policy favours small agri-businesses.
(d) The consortium simplifies the accessibility to loans for the farmers that apply for the certification.
(e) The consortium has the role of an intermediary between associates and wholesalers for input materials to obtain better prices.

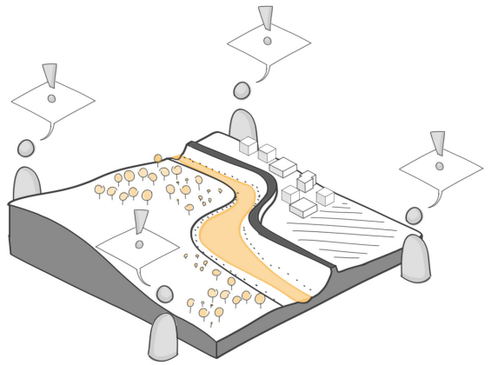
5 - Product branding

(a) The logo communicates the specific quality of the product and guarantees that specific sustainable agricultural practices were used during the production steps.
(b) The logo indicates the geographical area of provenience of the certified products.
(c) The logo includes the denomination of the designated geographical area.
(d) The consortium provides a marketing strategy for the certification.
(e) The consortium is in charge of the governance of the monitoring system to guarantee quality and law compliance.

POLICY FRAMEWORK

What strategies are needed to transform food quality certificates into spatial planning instruments?

MAXIMIZING THE POLICY'S POTENTIAL



RULES WITH EFFECTS ON SPATIAL CRITICALITIES

ORGANIC FARMING POLICY

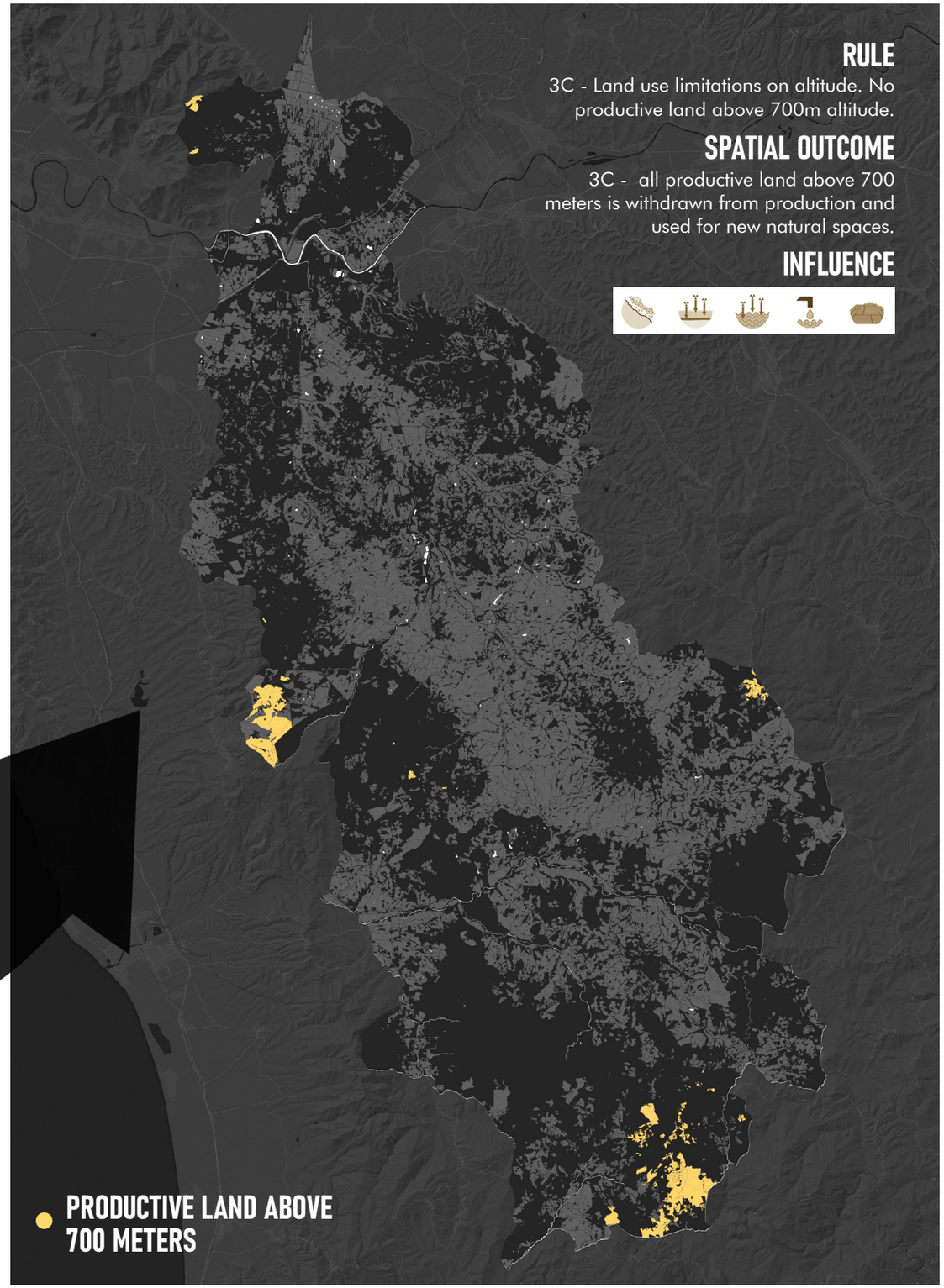
1A - *Grassing in the high-risk months on grasslands and other seasonal crops. Grassing between the rows of permacultures. Resting period every two years for each agricultural land unit. The whole agribusiness is convicted to the rules for organic production and must fulfil a 3-year resting cycle before the approval.*
1B - *Only the use of non-chemical products is allowed (they can be chemically processed have to be made of natural ingredients)*
The forced resting period for land units influences Indirectly the size of land units and the diversification of production.

GEOGRAPHICAL INDICATIONS

1E - *The typology: only a set of specific animals or crops has to be used. Most of them are indigenous species.*
3C - Land use limitations on altitude. Land use limitations on slope.
3D - Land use: limitations on soil composition.
3E - *Nourishment: how much can be fed to the animals, how much can fields be irrigated. The Costs: High costs assessment force smaller business to merge into associations or abandon productive land.*

COMMON AGRICULTURAL POLICY

1A - *Protection of water from pollution caused by nitrates from agricultural sources.*
1C - *Making the use of water in agriculture more efficient.*
1D - *Protection of groundwater from pollution: prohibition of direct discharge into groundwater and measures to prevent indirect pollution.*
1E - *Minimum soil cover for highly erosive soils.*
1G - *Maintain soil organic matter levels through appropriate practices, including a ban on stubble burning, except for plant health reasons*
1L - *Maintenance of landscape features, including, where appropriate, hedges, ponds, ditches, trees in rows, in groups or isolated, field edges and terraces.*

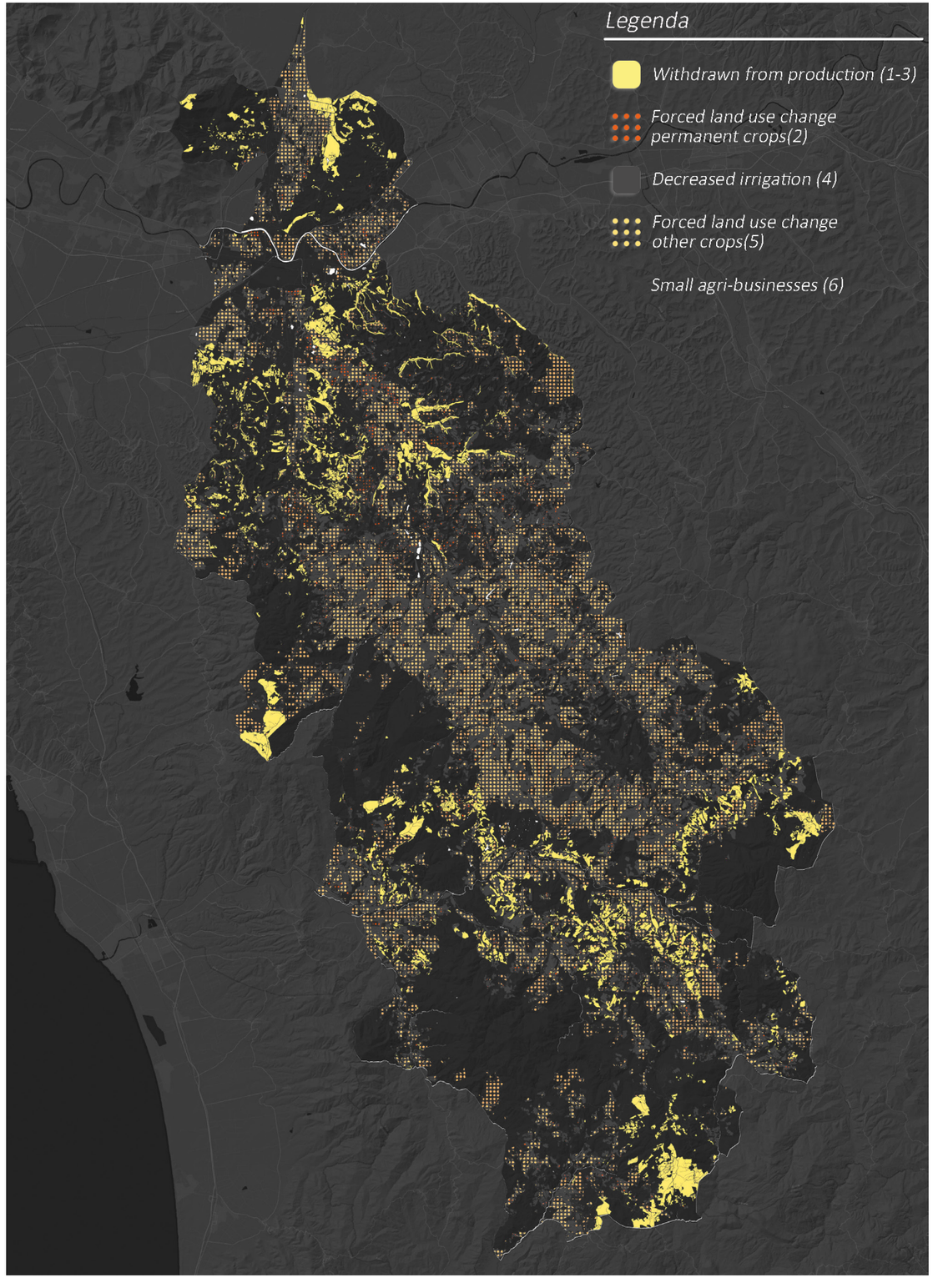


MAXIMIZED GIS

The only one of the three policies that include measures for land withdrawal for low-productivity lands.

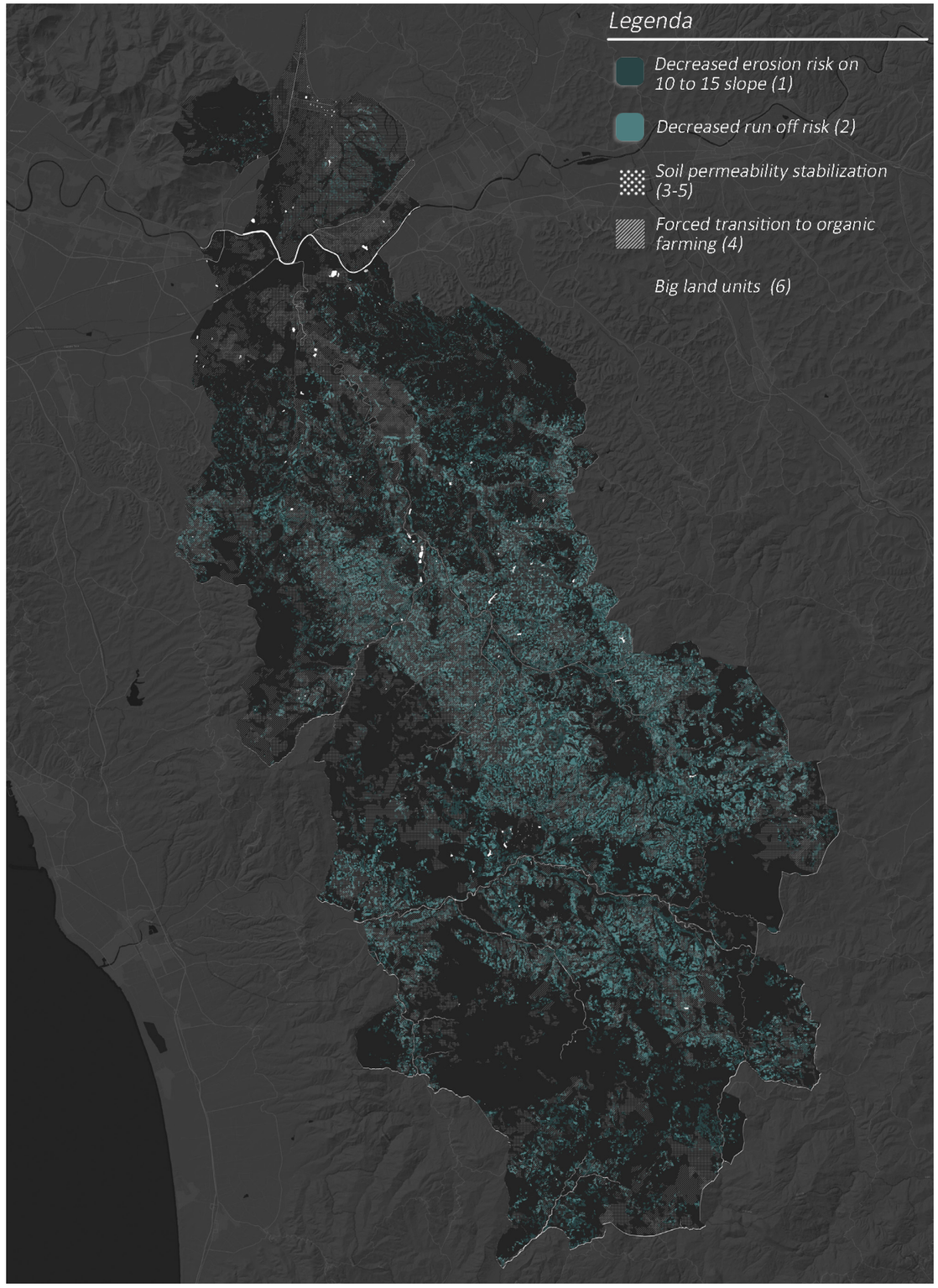
GEOGRAPHICAL INDICATION

	GENERAL RESTRICTIONS	SPATIAL OUTCOME (MAXIMIZATION)	Affected spatial criticalities: Soil erosion	Soil cont.	Water cont.	Water use	Biodiversity
1	Land use limitations on altitude: No productive land allowed above 700m altitude.	• All productive lands above 700m are withdrawn from production.	✓	✓	✓	✓	✓
2	Land use limitations on slope: No permanent crops (orchards olive groves or wineyards) on low slope areas.	• All permanent crops on low slope are forced to land use to seasonal crops.	✓				
3	Land use limitations on soil composition: Lower fertile soils are not suited for productions	• All productive lands on low and low-medium fertility soils are withdrawn from production	✓	✓	✓	✓	✓
4	Nourishment, how much can be fed to the animals, how much can fields be irrigated: Irrigation is kept to the minimum possible.	• Decreases the irrigation demand of all productive land by 1 point.				✓	
5	The typology: only a set of specific animals or crops has to be used. Most of them are indigenous species.	• All productive land not included in a GI production chain is forced to land use change.	✓			✓	
6	The Costs: High costs assessment force smaller business to merge into assosiations or abandon productive land	• All business smaller than 2 hectares merge into business with 15 hectares avarege					✓



MAXIMIZED ORGANIC

The most efficient of the three policies for limitation on chemical products.



ORGANIC FARMING

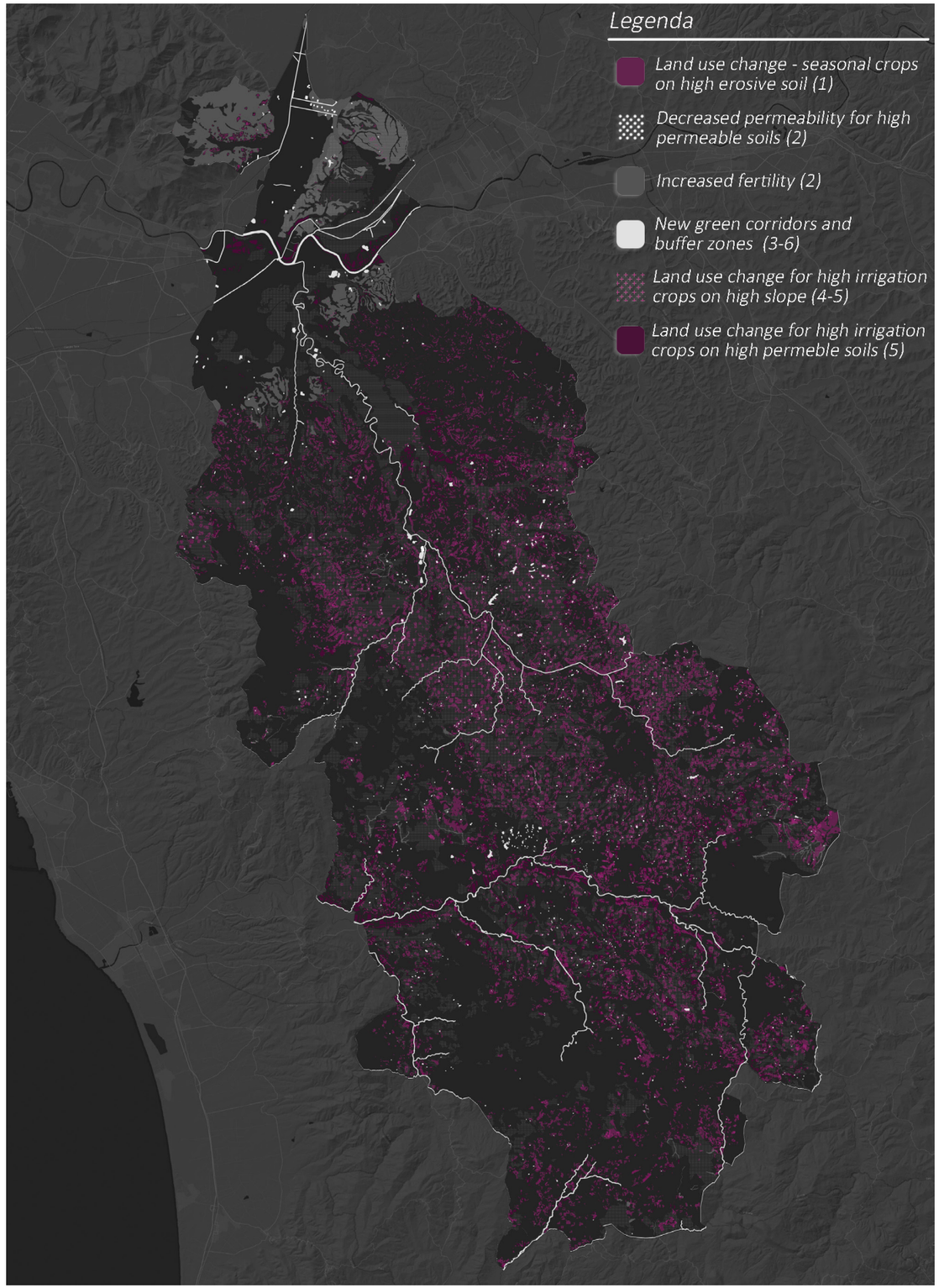
GENERAL RESTRICTIONS	SPATIAL OUTCOME (MAXIMIZATION)
1• Grassing in the high-risk months on grasslands and other seasonal crops.	• Protects seasonal crops on 10/15% slope from soil erosion
2• Grassing between the rows of permacultures.	• Decreases run off water on high slope land (above 10% and beneath 15%)
3• Resting period every two years for each agricultural land unit.	• Decreases soil eutrophication (decreases permeability by by 1 point for high permeble soils)
4• Resting period every two years for each agricultural land unit.	• Ban for chemical products extended on all productive land
5• Only the use of non-chemical products is allowed (they can be chemically processed have to be made of natural ingredients)	• Increases soil fertility by 1 point • Increases the value of low permeability soils by 1 point
6• The forced resting period for land units influences indirectly the size of land units and the diversification of production.	• Land units over 50 hectares are splitten up into 20 hectares units or smaller

Affected spatial criticalities

Soil erosion	Soil cont.	Water cont.	Water use	Biodiv-ersity
●				
			●	
			●	
	●	●	●	
	●		●	
				●

MAXIMIZED CAP

The CAP policy particularly focuses on water use efficiency and fertile soil qualities.

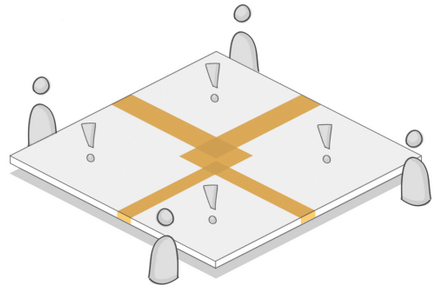


COMMON AGRICULTURAL POLICY

	GENERAL RESTRICTIONS	SPATIAL OUTCOME (MAXIMIZATION)	Affected spatial criticalities: Soil erosion	Soil cont.	Water cont.	Water use	Biodiversity
1	Minimum soil cover for highly erosive soils.	• Land use change for seasonal crop on high erosion soils	✓				
2	Maintain soil organic matter levels through' appropriate practices, including a ban on stubble burning.	• Increased fertility for low fertile soils by 1 point • Increased water retention for high permeble soil by 1 point			✓	✓	
3	Protection of water from pollution caused by nitrates from agricultural sources.	• Introduction of buffer strips along the waterways (20m), prohibition of the use of fertilizers.	✓	✓	✓	✓	✓
4	Protection of groundwater from pollution: prohibition of direct discharge into groundwater and measures to prevent indirect pollution.	• Land use change for high irrigation crops on high permeable areas				✓	
5	Making the use of water in agriculture more efficient	• No high-irrgation crops on slope over 15% • No high irrigation crops on high permeable soils				✓	
6	Maintenance of landscape features, including, hedges, ponds, ditches, trees in rows, field edges and terraces	• Increased number of green corridors (10m) crossing the productive clusters (land units over 50 hectares)	✓	✓	✓	✓	✓

OPTIMIZATION PHASE

First, the impact of spatial criticalities is quantified for each of the maximized policies.



Existing criticalities

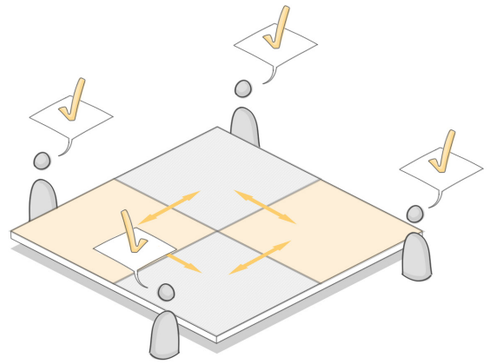
Topic	Topic	Area (he)	Percentage (%)
Valdera	Natural spaces on tot. area	56,892.50	42.31
Soil erosion	Seasonal crops on high slope	25,779.10	19.66
Soil contamiantion	Conventional farming on low permeability	14,951.30	52.93
Water contamiantion	Conventional farming on high permeability	37,866.60	35.67
	Conventional farming on high slope	15,939.80	12.16
Water use	High irrigation on high permeability	58,166.60	54.75
	High irrigation crops on high slope	25,944.00	19.79
Biodiversity	Big size units oned by big businesses	3,311.98	7.67

Assessed criticalities

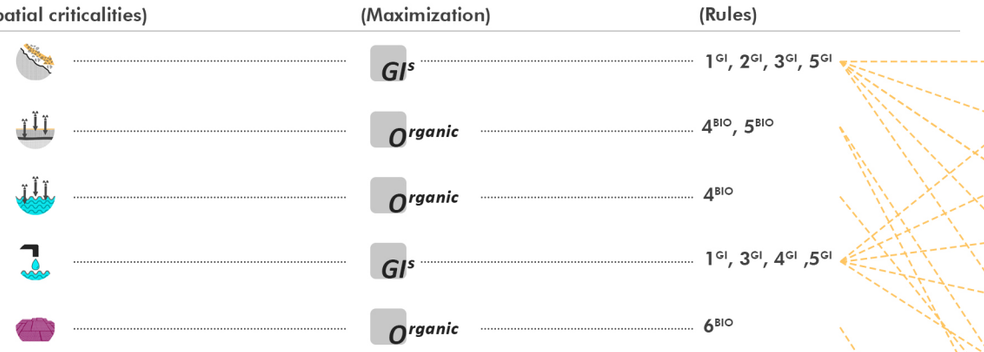
Geographical indication		Organic farming		Common agricultural policy	
New area(he)	Difference(%)	New area(he)	Difference(%)	New area(he)	Difference(%)
83,851.79	47.39%	56,892.50	0%	57,223.95	0.58%
9,104.80	-64.70%	14,068.60	-45.43	23,246.20	-9.83%
15,645.80	+4.65%	0	-100%	13,801.30	-7.69
39,897.10	+5.31%	0	-100%	15,272.60	-59.69%
28,445.60	+10.34	0	-100%	25,596.20	-0.71%
1,399.99	-97.59%	13,349.60	-77.05%	44,817.00	-22.95%
723.163	-97.21%	13,808.80	-46.78%	12,135.40	-53.22%
3,311.98	0%	1,618.00	-51.15%	3,311.98	0

OPTIMIZATION PHASE

For each spatial criticality, the highest value is selected, and the rules that influence it are included in the optimization phase.



OPTIMIZATION SELECTION



OPTIMIZATION

GENERAL RESTRICTIONS

SPATIAL OUTCOME (MAXIMIZATION)

1GI Land use limitations on altitude: No productive land allowed above 700m altitude.
- All productive lands above 700m are withdrawn from production.

2GI Land use limitations on slope: No permanent crops (orchards olive groves or wineyards) on low slope areas.
- All permanent crops on low slope are forced to land use to seasonal crops.

3GI Land use limitations on soil composition: Lower fertile soils are not suited for productions
- All productive lands on low and low-medium fertility soils are withdrawn from production

4GI Nourishment, how much can be fed to the animals, how much can fields be irrigated: Irrigation is kept to the minimum possible.
- Decreases the irrigation demand of all productive land by 1 point.

5GI The typology: only a set of specific animals or crops has to be used. Most of them are indigenous species.
- All productive land not included in a GI production chain is forced to land use change.

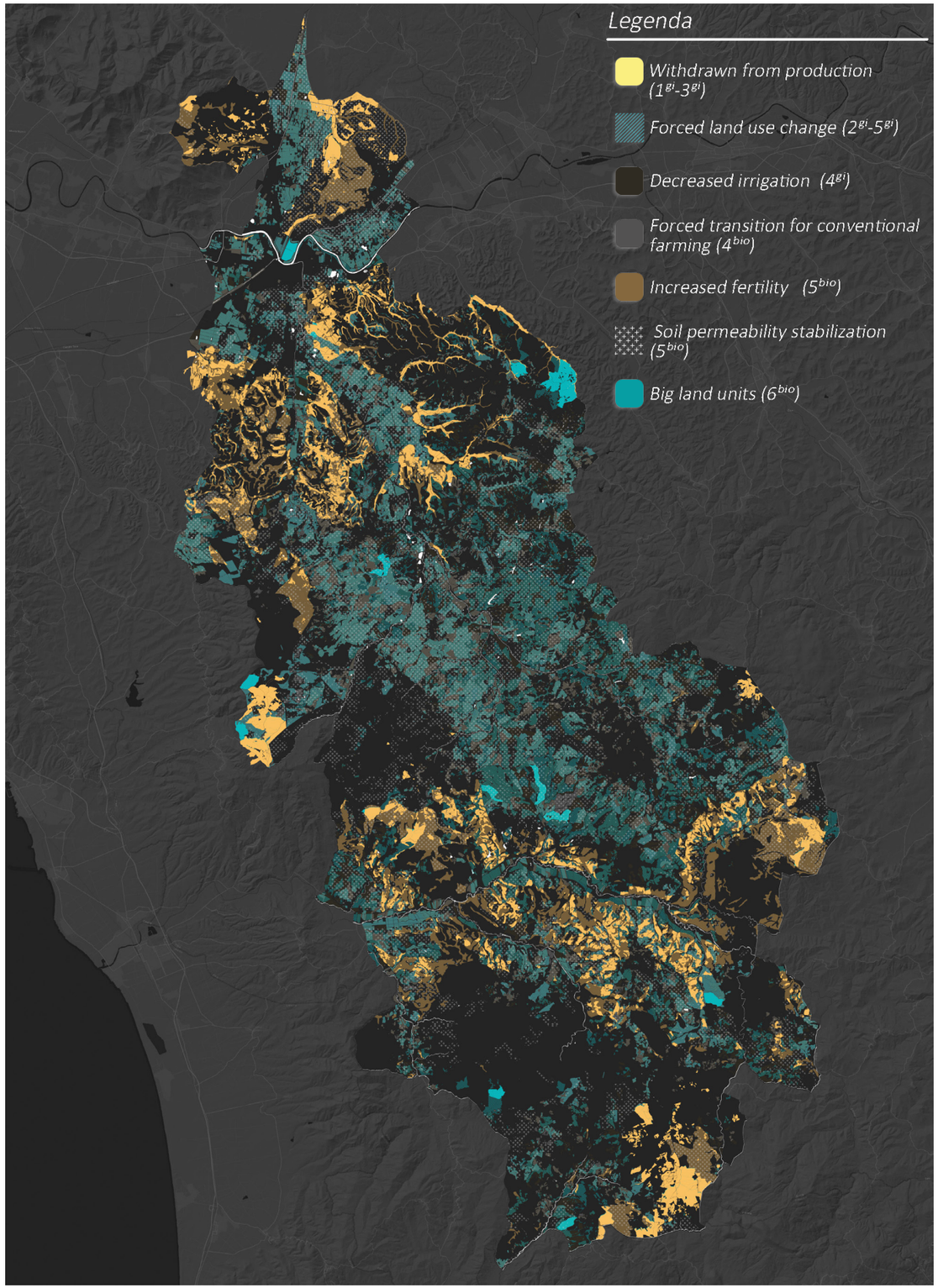
4BIO Only the use of non-chemical products is allowed (they can be chemically processed have to be made of natural ingredients).
- Ban for chemical products extended on all productive land

5BIO The whole agribusiness is convicted to the rules for organic production and must fulfil a 3-year resting cycle before the approval.
- Increases soil fertility by 1 point
- Increases the value of low permeability soils by 1 point

6BIO The forced resting period for land units influences indirectly the size of land units and the diversification of production.
- Land units over 50 hectares are splitten up into 20 hectares units or smaller

Affected spatial criticalities

	Soil erosion	Soil cont.	Water cont.	Water use	Biodiv-ersity
1GI	●			●	
2GI	●				
3GI	●			●	
4GI				●	
5GI	●			●	
4BIO					
5BIO					
6BIO					



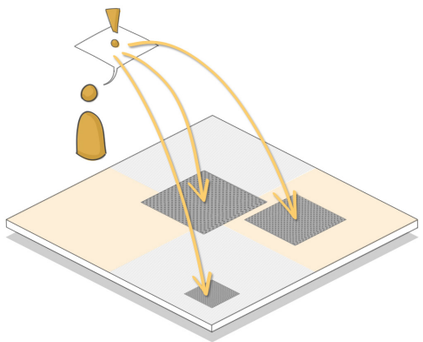
OPTIMIZATION MAP

OPTIMIZATION

	GENERAL RESTRICTIONS	SPATIAL OUTCOME (MAXIMIZATION)
1^{GI}	Land use limitations on altitude: No productive land allowed above 700m altitude.	• All productive lands above 700m are withdrawn from production.
2^{GI}	Land use limitations on slope: No permanent crops (orchards olive groves or wineyards) on low slope areas.	• All permanent crops on low slope are forced to land use to seasonal crops.
3^{GI}	Land use limitations on soil composition: Lower fertile soils are not suited for productions	• All productive lands on low and low-medium fertility soils are withdrawn from production
4^{GI}	Nourishment, how much can be fed to the animals, how much can fields be irrigated: Irrigation is kept to the minimum possible.	• Decreases the irrigation demand of all productive land by 1 point.
4^{GI}	The typology: only a set of specific animals or crops has to be used. Most of them are indigenous species.	• All productive land not included in a GI production chain is forced to land use change.
4^{BIO}	Only the use of non-chemical products is allowed (they can be chemically processed have to be made of natural ingredients).	• Ban for chemical products extended on all productive land
5^{BIO}	The whole agribusiness is convicted to the rules for organic production and must fulfil a 3-year resting cycle before the approval.	• Increases soil fertility by 1 point • Increases the value of low permeability soils by 1 point
6^{BIO}	The forced resting period for land units influences indirectly the size of land units and the diversification of production.	• Land units over 50 hectares are splitten up into 20 hectares units or smaller

Affected spatial criticalities

Soil erosion	Soil cont.	Water cont.	Water use	Biodiv-ersity
●			●	
●				
●			●	
			●	
●			●	
	●	●		
	●		○	
				●

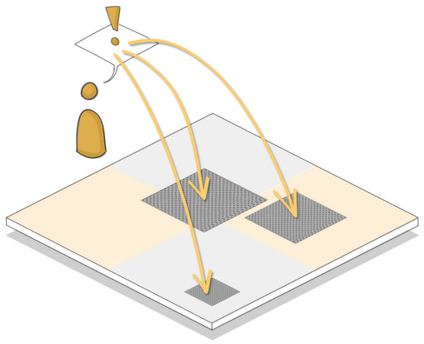


SPATIAL PRINCIPLES

OPTIMIZATION

SPATIAL CRITICALITIES	GOAL	EXISTING AREA	NEW AREA (OPTIMIZED)	PREDICTION
High soil erosion risk area	*by 50%*	*25,779.10*	*9,104.80*	*by 64.7%*
High soil contamination risk area	*by 50%*	*14,951.30*	*0.00*	*by 100%*
Underground contamination risk area	*by 50%*	*37,886.60*	*0.00*	*by 100%*
Open waters contamination risk area	*by 50%*	*15,939.80*	*0.00*	*by 100%*
Irrigation high inefficiency area	*by 50%*	*58,166.60*	*1,399.99*	*by 97.6%*
High Run off risk area	*by 50%*	*25,944.20*	*723.16*	*by 97.2%*
High monocultures risk area	*by 50%*	*3,311.98*	*1,618.00*	*by 51.2%*
Natural spaces area	*18%*	*56,892.50*	*85,851.79*	*by 47.4%*

INTEGRATION OF SPATIAL PRINCIPLES



SPATIAL PRINCIPLES

1 -

Engagement for sustainability

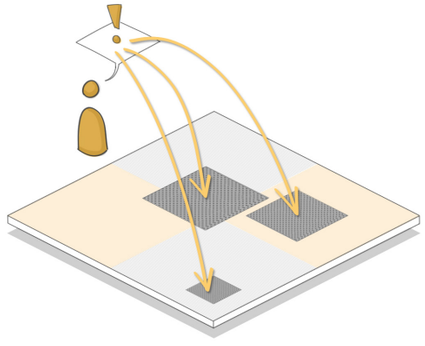
(a) The policy engages in banning chemical pesticides and fertilizers.
(b) The policy and consortium engage in the protection and regulation of the use of local water resources.
(c) The policy and consortium engage in protecting fertile soil from erosion and eutrophication.
(d) The policy and consortium engage in the protection of biodiversity and preservation of natural spaces.
(e) The policy engages in preserving crop diversity and landscape quality.

OPTIMIZATION

Affected spatial criticalities

	GENERAL RESTRICTIONS	SPATIAL OUTCOME (MAXIMIZATION)	Soil erosion	Soil cont.	Water cont.	Water use	Biodiversity
1 GI	Land use limitations on altitude: No productive land allowed above 700m altitude.	• All productive lands above 700m are withdrawn from production.	✓			✓	
2 GI	Land use limitations on slope: No permanent crops (orchards olive groves or wineyards) on low slope areas.	• All permanent crops on low slope are forced to land use to seasonal crops.	✓				
3 GI	Land use limitations on soil composition: Lower fertile soils are not suited for productions	• All productive lands on low and low-medium fertility soils are withdrawn from production	✓			✓	
4 GI	Nourishment, how much can be fed to the animals, how much can fields be irrigated: Irrigation is kept to the minimum possible.	• Decreases the irrigation demand of all productive land by 1 point.				✓	
5 GI	The typology: only a set of specific animals or crops has to be used. Most of them are indigenous species.	• All productive land not included in a GI production chain is forced to land use change.	✓			✓	
4 BIO	Only the use of non-chemical products is allowed (they can be chemically processed have to be made of natural ingredients).	• Ban for chemical products extended on all productive land		✓	✓		
5 BIO	The whole agribusiness is convicted to the rules for organic production and must fulfil a 3-year resting cycle before the approval.	• Increases soil fertility by 1 point • Increases the value of low permeability soils by 1 point		✓			
6 BIO	The forced resting period for land units influences indirectly the size of land units and the diversification of production.	• Land units over 50 hectares are splitten up into 20 hectares units or smaller					✓

INTEGRATION OF POLICY PRINCIPLES



1. conflict

Optimization list — Policy principles

5gi ✕ 1.d

Only a set of specific animals or crops has to be used.

..”protection of biodiversity”..

5gi ✕ 1.e

‘’...”

..”crop diversity and landscape quality”..

2. adjustments

Replacement possibilities for 5GI

5gi ≃ 1cap 5cap

Only a set of specific animals or crops has to be used.

Minimum soil cover for highly erosive soils.

Making the use of water in agriculture more efficient

3. solutions

Testing compatibility

1cap ✓ 1.3

Minimum soil cover for highly erosive soils.

Preserving crops diverisity and pluricultural fields.

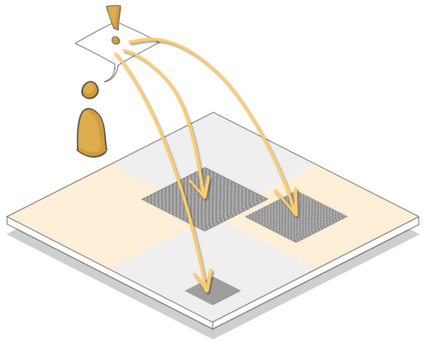
5cap ✓ 1.3

Making the use of water in agriculture more efficient

Preserving crops diverisity and pluricultural fields.

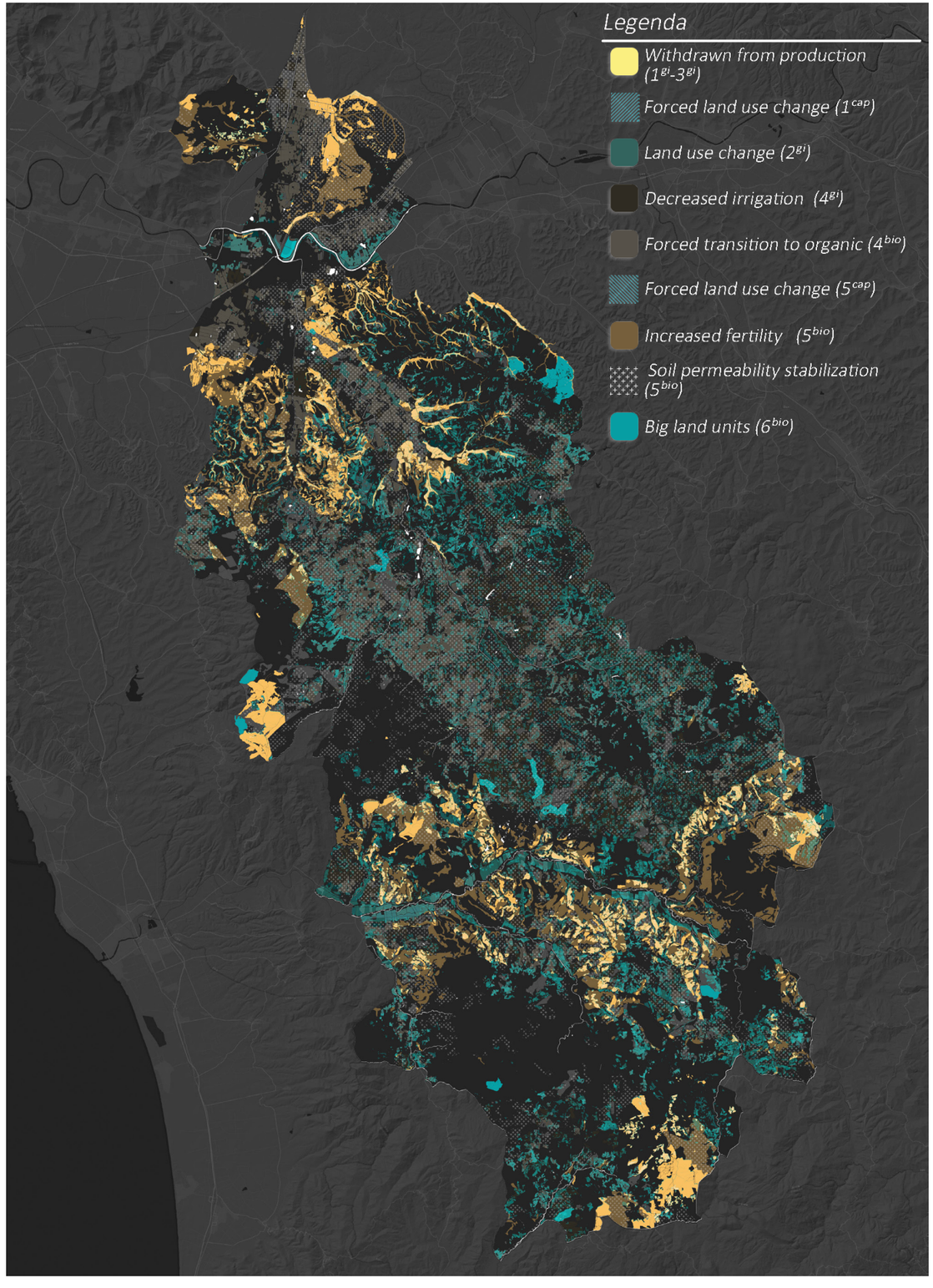
INTEGRATION OF POLICY PRINCIPLES

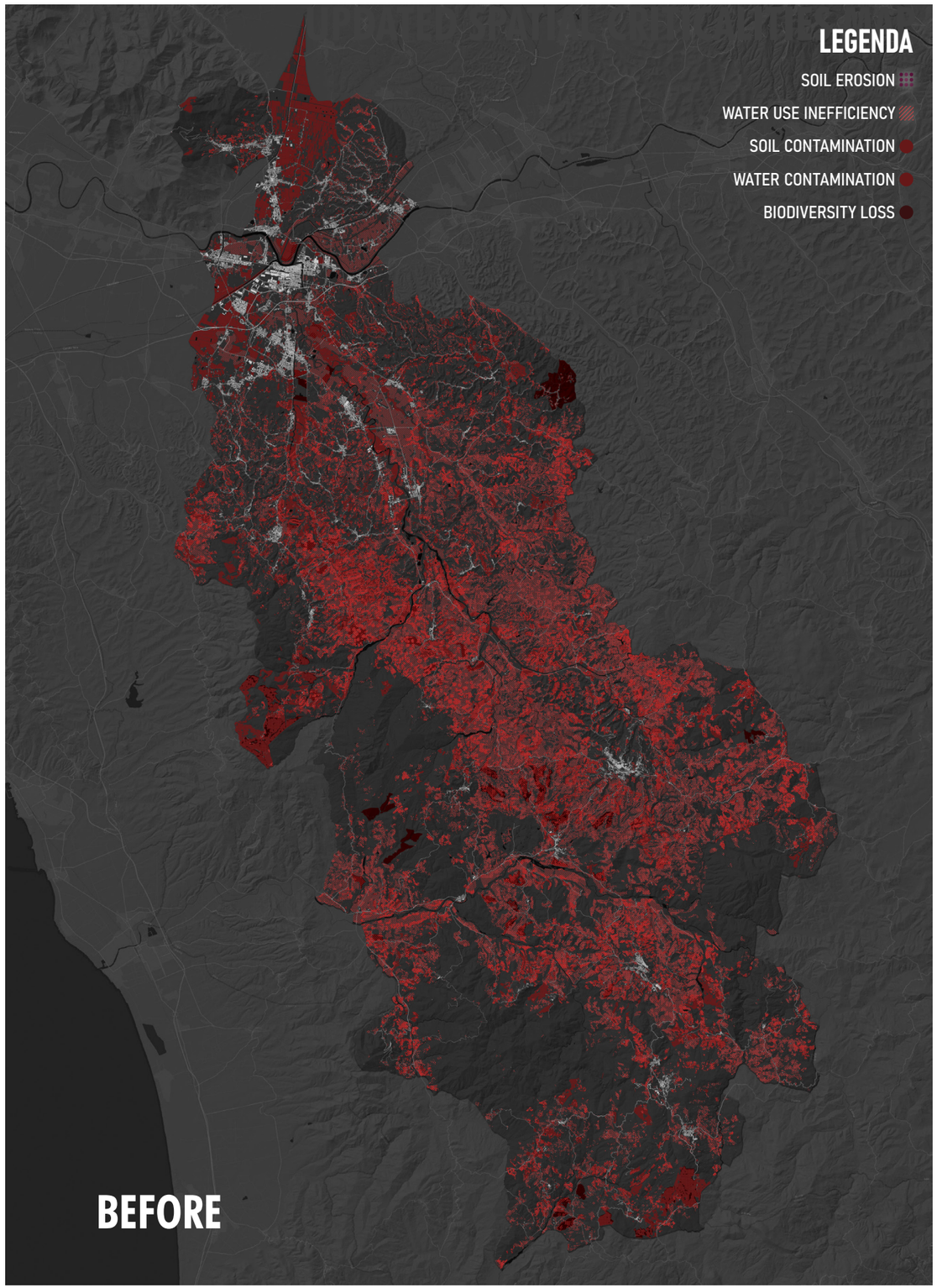
INTEGRATION MAP

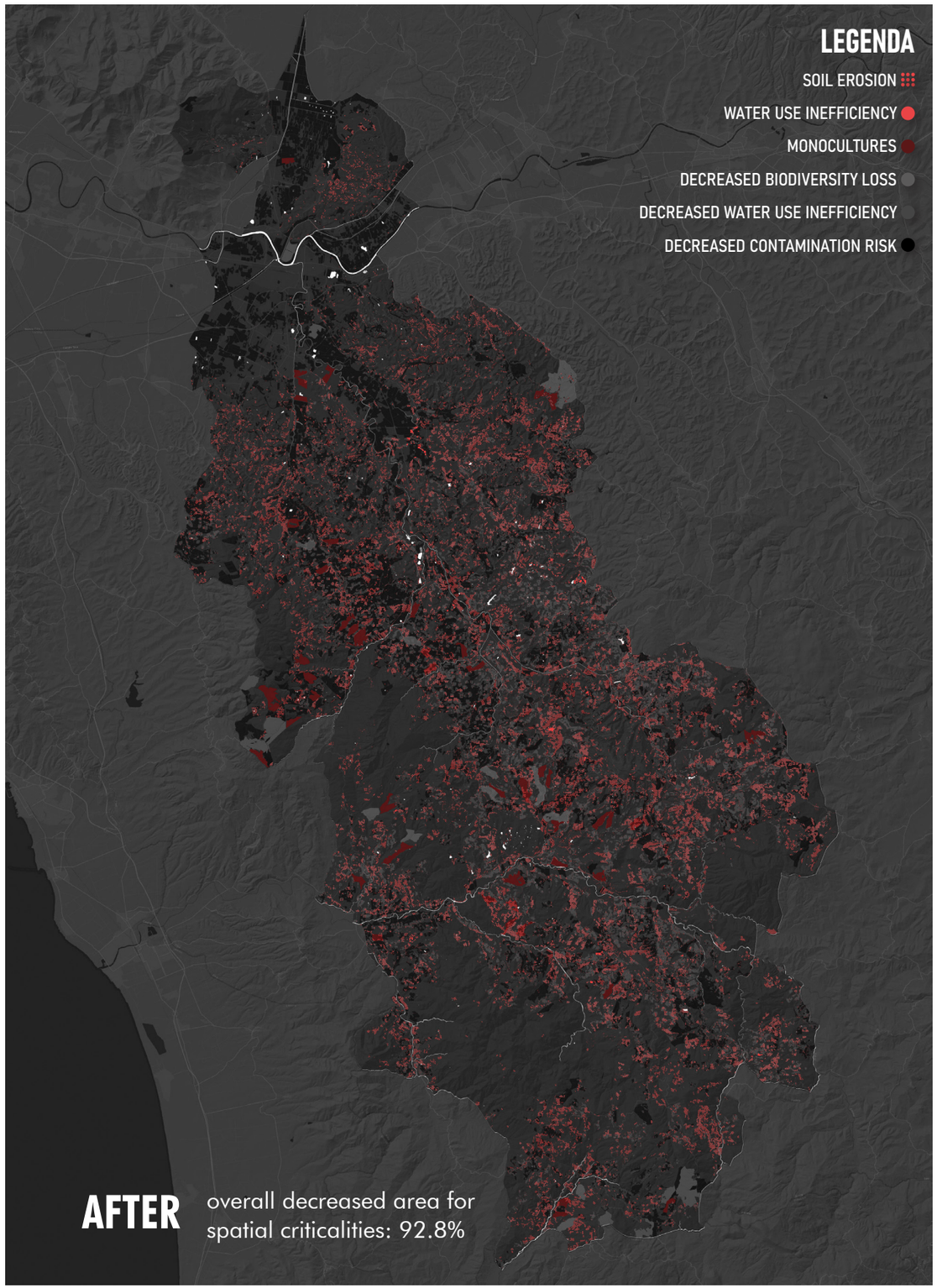


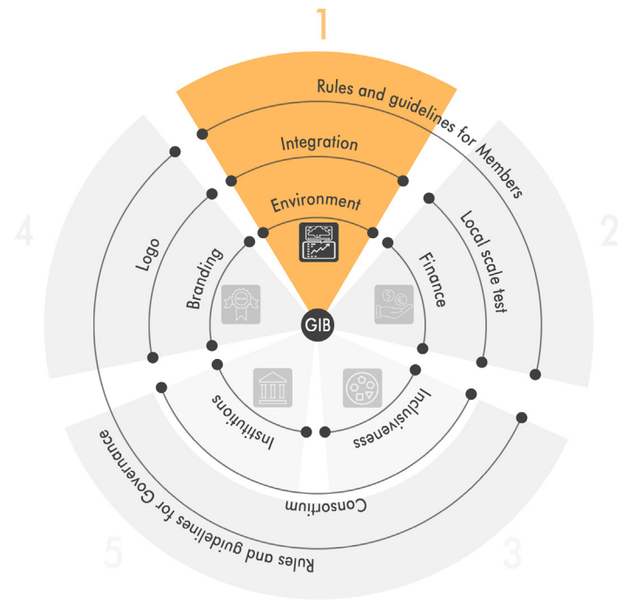
INTEGRATION

	GENERAL RESTRICTIONS	SPATIAL OUTCOME (MAXIMIZATION)	Affected spatial criticalities: Soil erosion	Soil cont.	Water cont.	Water use	Biodiv-ersity
1^{GI}	Land use limitations on altitude: No productive land allowed above 700m altitude.	• All productive lands above 700m are withdrawn from production.	●	●	●	●	●
1^{CAP}	Minimum soil cover for highly erosive soils.	• Land use change for seasonal crop on high erosion soils	●				
2^{GI}	Land use limitations on slope: No permanent crops (orchards olive groves or wineyards) on low slope areas.	• All permanent crops on low slope are forced to land use to seasonal crops.	●				
3^{GI}	Land use limitations on soil composition: Lower fertile soils are not suited for productions	• All productive lands on low and low-medium fertility soils are withdrawn from production	●	●	●	●	●
4^{GI}	Nourishment, how much can be fed to the animals, how much can fields be irrigated: Irrigation is kept to the minimum possible.	• Decreases the irrigation demand of all productive land by 1 point.				●	
4^{BIO}	Only the use of non-chemical products is allowed (they can be chemically processed have to be made of natural ingredients).	• Ban for chemical products extended on all productive land		●	●		
5^{BIO}	The whole agribusiness is convicted to the rules for organic production and must fulfil a 3-year resting cycle before the approval.	• Increases soil fertility by 1 point • Increases the value of low permeability soils by 1 point		●		○	
6^{CAP}	Making the use of water in agriculture more efficient	• No high-irrgation crops on slope over 15% • No high irrigation crops on high perm				●	
6^{BIO}	The forced resting period for land units influences indirectly the size of land units and the diversification of production.	• Land units over 50 hectares are splitten up into 20 hectares units or smaller					●




LEGENDA
SOIL EROSION
WATER USE INEFFICIENCY
SOIL CONTAMINATION
WATER CONTAMINATION
BIODIVERSITY LOSS
BEFORE


LEGENDA
SOIL EROSION
WATER USE INEFFICIENCY
MONOCULTURES
DECREASED BIODIVERSITY LOSS
DECREASED WATER USE INEFFICIENCY
DECREASED CONTAMINATION RISK
AFTER
overall decreased area for
spatial criticalities: 92.8%



1 Engagement for Environmental sustainability

Rules for sustainable farming practices

Art. (1.1) - Land use limitations on land use - land units above 700m of altitude are not suited for agricultural production, except for mountain areas and forestry.

Art. (1.2) – High erosive soil minimum cover – Soils with values of erosion risk higher than 'medium' may be used in agricultural production only for permanent cultures or mixed fields seasonal/permanent with a maximum distance of 20 m per arbustive row.

Art. (1.3) – Land use limitations on low slope surfaces – Land units with a slope of 10% or lower are not suited for agricultural production of permanent crops, such as orchards, vineyards, or olive groves.

Art. (1.4) - Land use limitations of low fertile soils – Land units with low-medium or low fertility values are not suited for any agricultural activity.

Art. (1.5) – Nourishment and irrigation limitations – The use of external waters for the irrigation of crops has to be kept within the minimum amounts defined for each crop. Exceptions are made in more extended drought periods when authorised by the consortium.

Art. (1.6) – Limitations for using pesticides and fertilisers – Agribusinesses that apply for the Geographical indicated biodistrict are not entitled to use any kind of chemical product (fertilisers, pesticides, antibiotics, insecticides). Agri-businesses may use organically produced inputs according to the limits set in European law (FERT.RE.UE 2019/2009 and RE.CE.N.1107/2009).

Art. (1.7) – Soil resting period – Conventional agribusinesses that use chemical inputs have to fulfil a three-year rest period when they apply for the Geographical indicated biodistrict. During the resting period, the agribusiness is entitled to use the resting land for production following the 'GIB policy' laws.
The product cannot be sold with the label of the certification till the conclusion of the resting period.

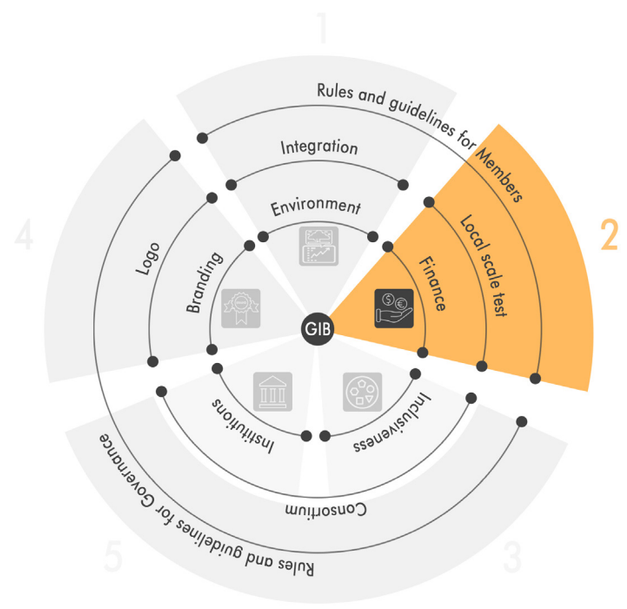
Art. (1.8.a) – Limitations for run-off waters – The use of crops with medium/high to high water demands is limited to land units with a slope value lower than 15%.

Art. (1.8.b) – Limitations for run-off waters – The use of crops with medium/high to high water demands is limited to land units with medium to low permeability.

Art. (1.9) – Rotation resting period – Land units used for seasonal crop growth are forced to use a rotational system that includes a resting period every two yields.

THE CONCLUSIONS FROM THE MAXIMIZATION METHOD DEFINE THE RULES APPLYING FARMERS MUST FOLLOW.

TO CONVINCE FARMERS TO FOLLOW THESE RULES THE FRAMEWORK MUST INCLUDE GUIDELINES ON...



2 Finanacial support program
Local scale test

Art. (2.1) – Farmers that apply for a GIB certification and have a productive land surface beneath 20 hectares are entitled to X*2 times the compensation for the transition.

Art. (2.2) – Farmers that switch from conventional farming to Gib sustainable practices are entitled to a compensation of 80 euros per hectare of converted land. The conversion time lasts three years, and financial support is derogated after 18 months from the beginning.

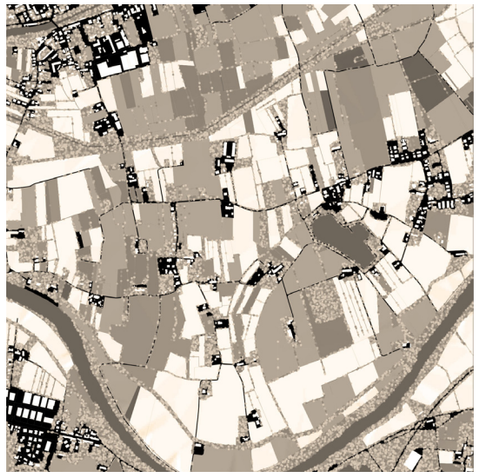
Art. (2.3.a) – For farmers that have to convert seasonal crops into permanent crops. A single payment of 80euros per converted hectare is allocated at the beginning of the transition. Successively the agri-business receives 80 euros per hectare during the period of unproductivity of land (depending on the chosen permanent crop).

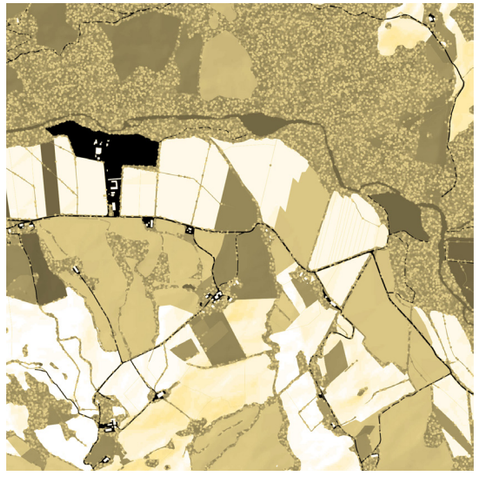
Art. (2.3.b) - For farmers that have to withdraw seasonal crops from production. These lands can be used for production in the first three years from application. After three years, the productive land is withdrawn from production. The business obtains financial aid of 80 euros per hectare for the successive five years for arbustive vegetation or ten years for high arbustive vegetation.

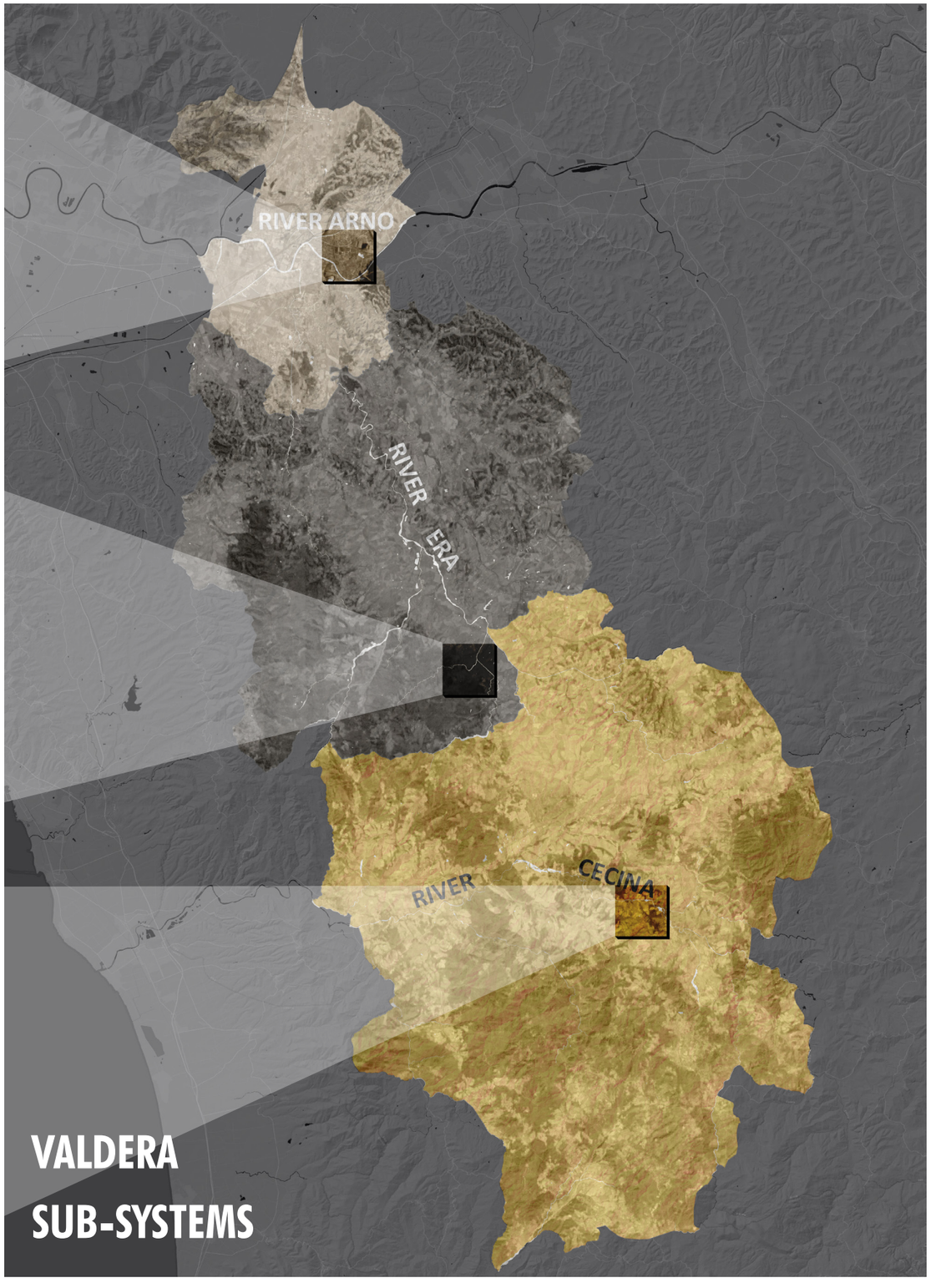
Art. (2.4.a) – For farmers that have to convert permanent crops into seasonal crops. A single payment of 240 euros per converted hectare is allocated at the beginning of the transition. The business is given three years to convert the productive land.

Art. (2.4.b) - For farmers that have to withdraw permanent crops from production. These lands can be used for production in the first three years from application. After three years, the productive land is withdrawn from production. After a year of soil resting, the business obtains financial aid of 120 euros per hectare for the successive five years for arbustive vegetation or ten years for high arbustive vegetation.

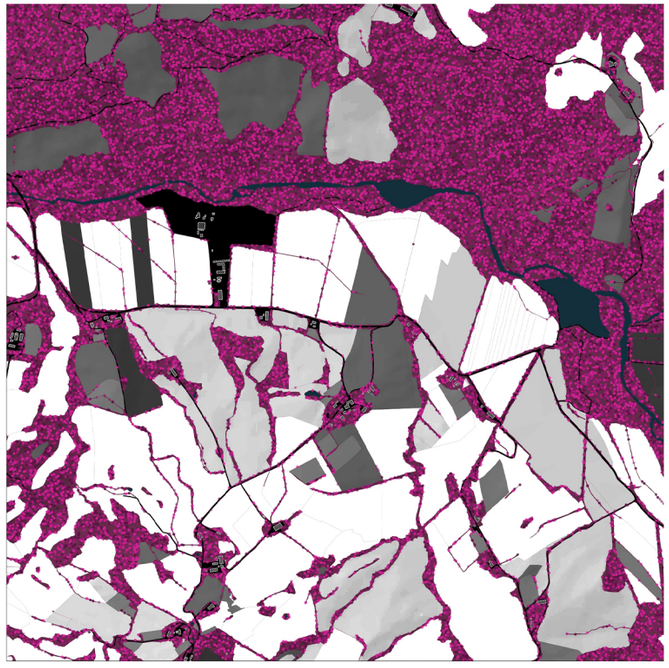
TO INCREASE THE EFFICIENCY OF FINANCIAL SUPPORTING PROGRAMS, THE INTEGRATION RULES ARE TESTED ON THE LOCAL SCALE.

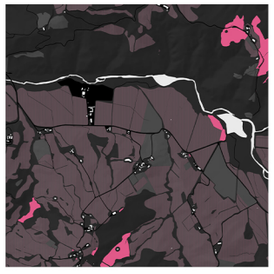






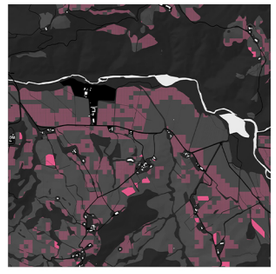
THE INTEGRATION RULES ARE APPLIED AND DISTRIBUTED ALONG A TIMELINE. SUBSEQUENTLY, THE SPATIAL IMPACT OF THE POLICY IS EVALUATED.

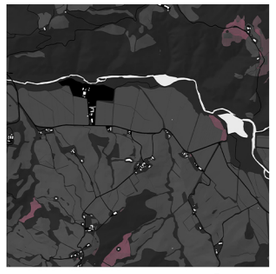




(Left map) Art. 4 - Decreased water use for irrigation.

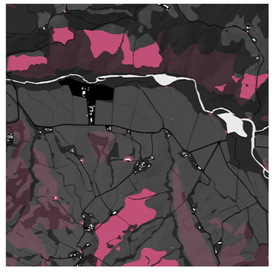
(Right map) Art. 7 - Decreased size of land units.

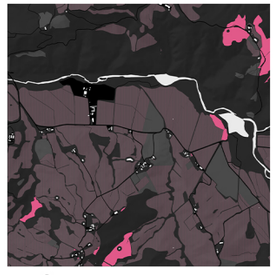




(Left map) Art.2 & 8 - Forced land use change.

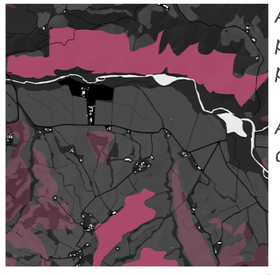
(Right map) Art.9 - Forced land use restriction.





(Left map) Art. 1 and Art. 3 - Agricultural land withdrawn from production.

(Right map) Art. 5 - Transition from traditional to organic farming practices.



Art.6 - Increased permeability for low permeable soils

Art. 6 - Increased overall soil fertility.

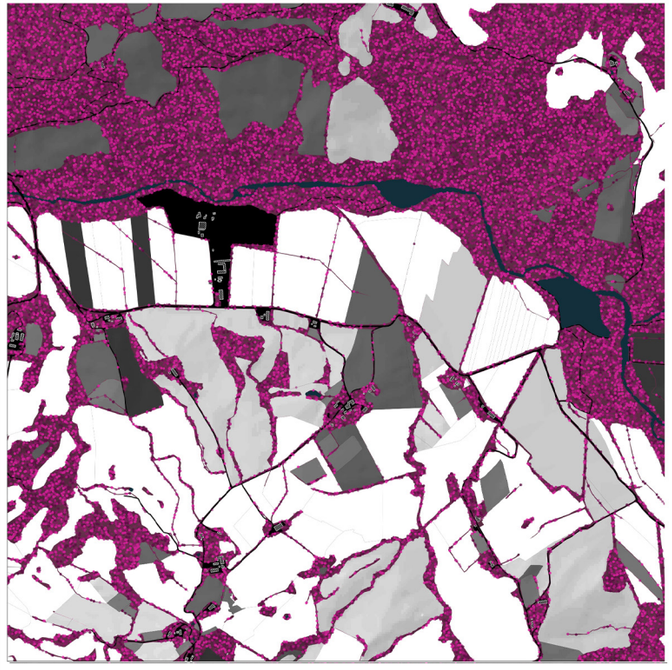
STRATEGY DEVELOPMENT FOR THE APPROVAL OF A GIB POLICY

NEW FARMING PRACTICES

LAND USE TRANSITION

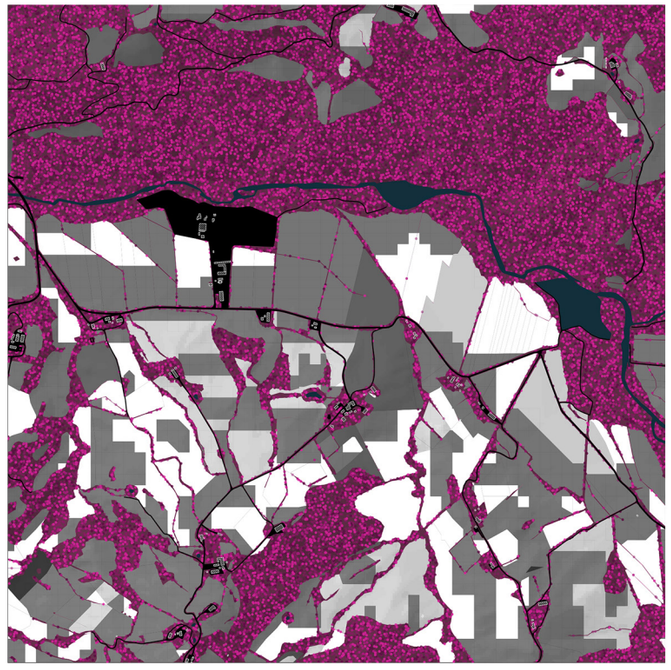
RESTORATION OF NATURAL RESOURCHES

2022 | 2025 | 2028 | 2028 | 2040 | 2045



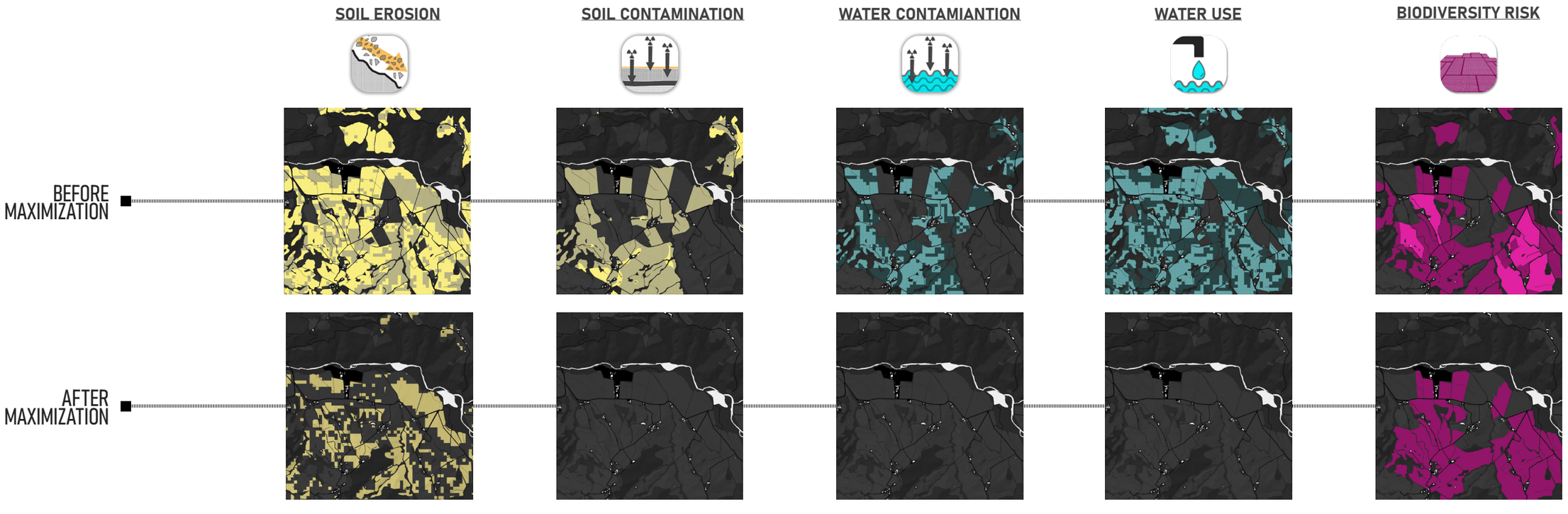
LEGENDA (Status quo)

- Paved surface
- Building
- Open water
- Natural spaces
- Seasonal crops
- Herbs and vegetables
- Sunflower and Maize
- Permanent crops (arbustive)
- Pasture and arbustive vegetation

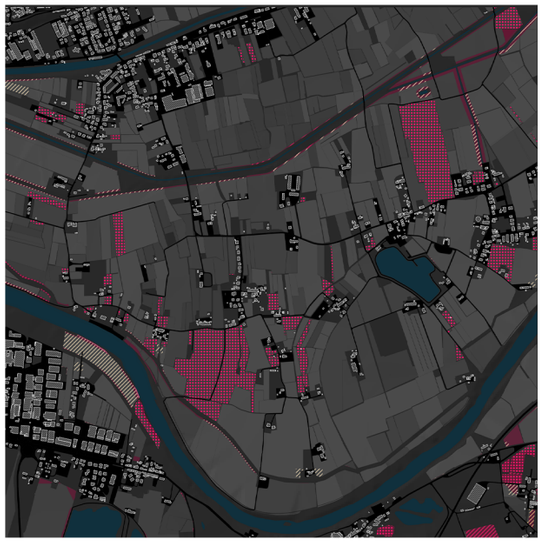


LEGENDA (post maximization)

- Paved surface
- Building
- Open water
- Natural spaces
- Seasonal crops
- Herbs and vegetables
- Sunflower and Maize
- Permanent crops (arbustive)
- Pasture and arbustive vegetation



RIVER ARNO



RIVER ERA

RIVER CECINA

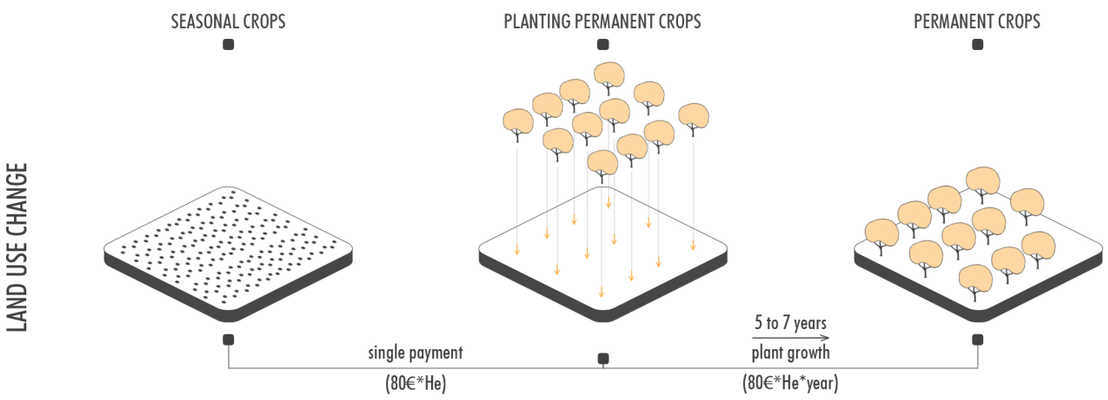
LEGENDA (Structural changes)

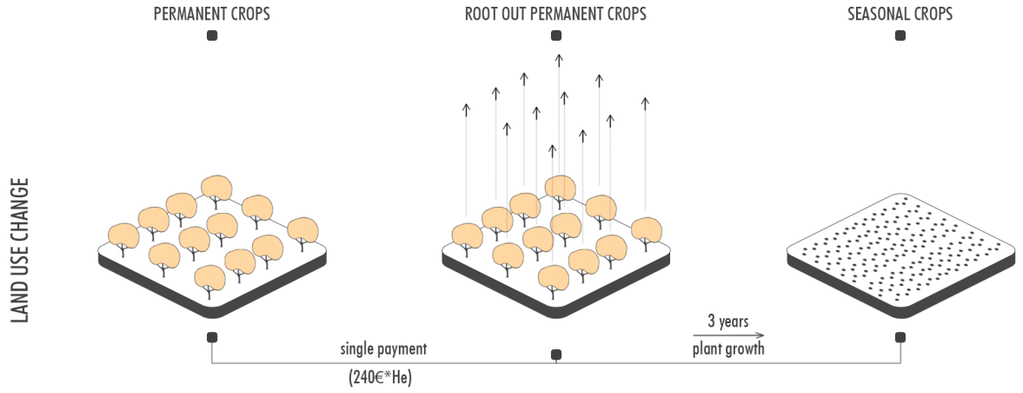
- Permanent crops
- Pasture and open fields
- Seasonal crops
- Vegetables and aromatic herbs
- Withdrawn from production
- Paved surface
- Buildings
- Open water
- Productive land

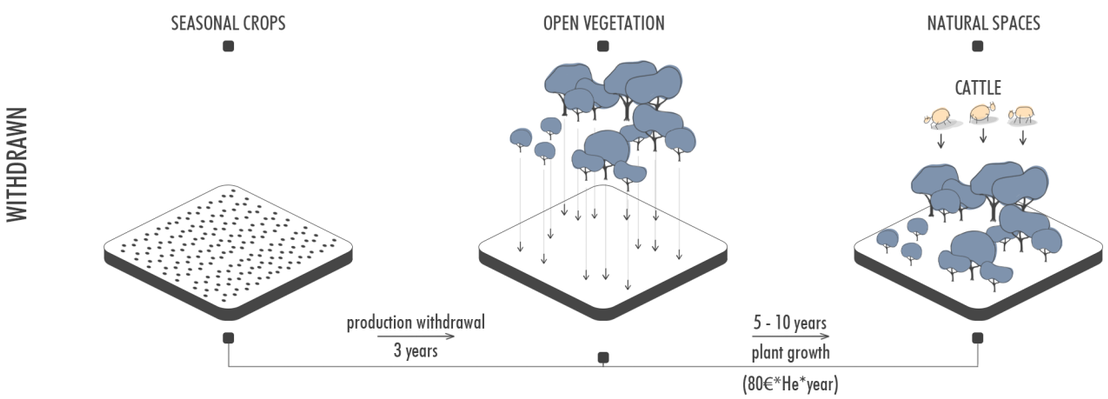
TOTAL AREA (m^2)	LAND USE CHANGE (m^2)	(%)	TOTAL AREA (m^2)	LAND USE CHANGE (m^2)	(%)	TOTAL AREA (m^2)	LAND USE CHANGE (m^2)	(%)	
4,228,750.0	110,607.0	2.5	5,908,110.0	2,655,030.0	45.0	2,947,660.0	1,741,070.0	59.0	SEASONAL CROPS
3,526.5	2,946.5	83.5	235,615.0	139,039.0	59.0	1,353,050.0	622,395.0	46.0	VEGETAGLES AND HERBS
426,539.0	425,932.0	99.9	253,794.0	52,559.40	20.5	183,745.0	20,600.8	11.0	PERMANENT CROPS
440,995.0	17,209.5	4.0	705,954.0	12,452.0	2.0	697,491.0	236,340.0	34.0	PASTURES

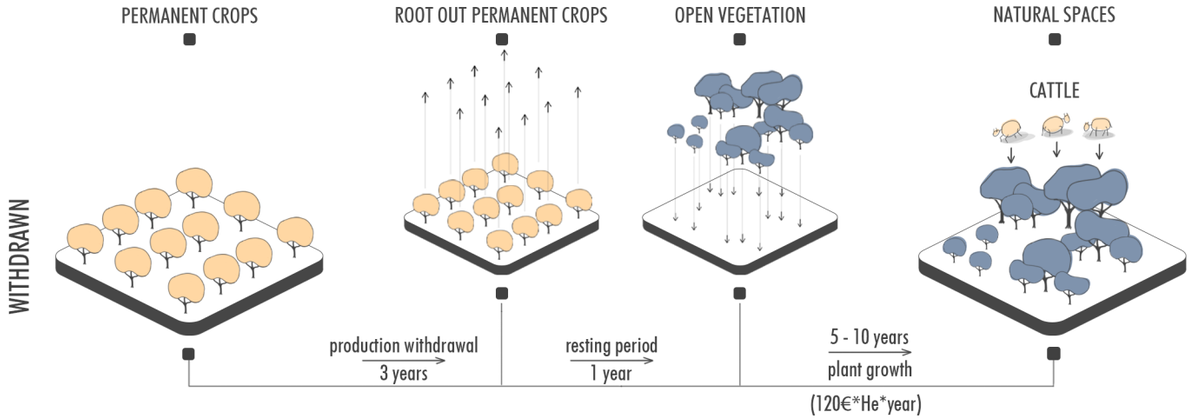
THE NEEDED LAND USE CHANGE TO ASSESS THE INTEGRATION POLICY IS CALCULATED FOR EACH SITE AND CONFRONTED WITH THE OTHERS.

THE CONCLUSIONS GIVE THE RIGHT INPUTS ON HOW TO IMPLEMENT FINANCIAL SUPPORTING PROGRAMS.



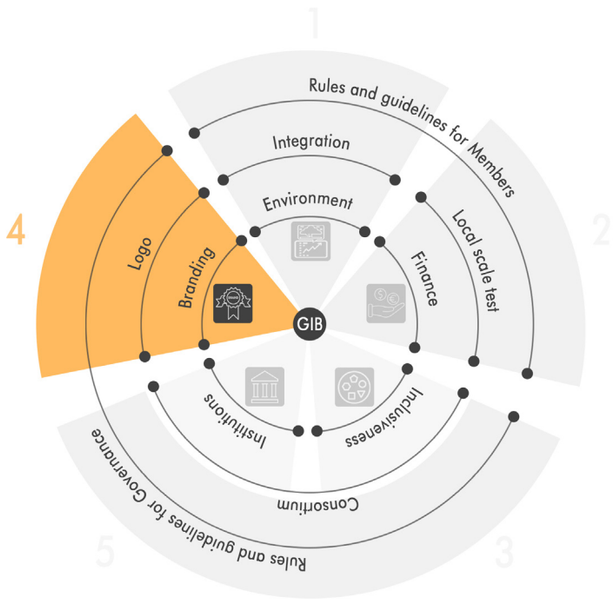






Setting the local scale test to the timeline gave us insights into the rules with longer assessment times and, therefore, higher assessment costs.

This is why particular attention is given to the distribution of funding support at different moments of the assessment procedure.



4 Branding
Certifications label

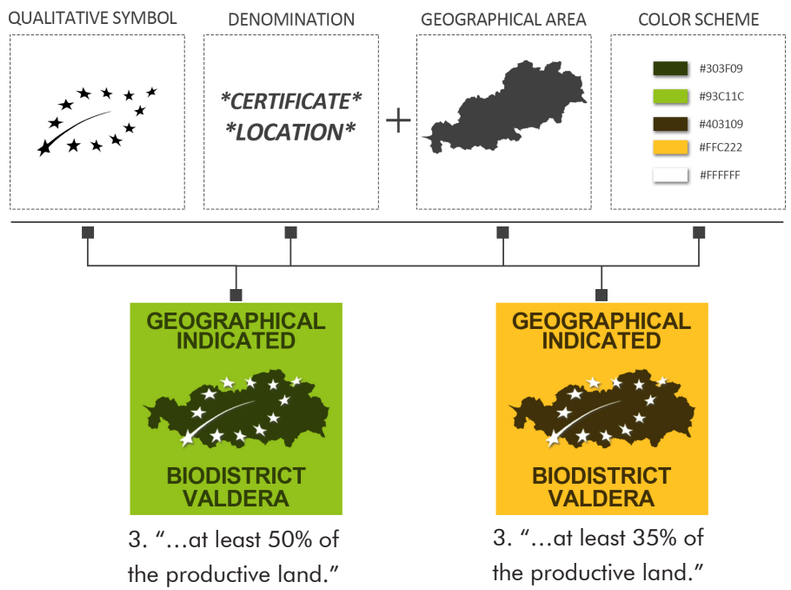
Art. (3.1) – The logo indicates the concept behind the GIB certificate. It certifies products produced with the use of sustainable agricultural practices and produced in a specific geographical area with a strong vocation for organic farming.

Art. (3.2) – The logo contains the European label for organic farming.

Art. (3.3) – The logo contains a symbol that refers to the specific geographical area. This can be represented by the physical form of the border of the selected area.

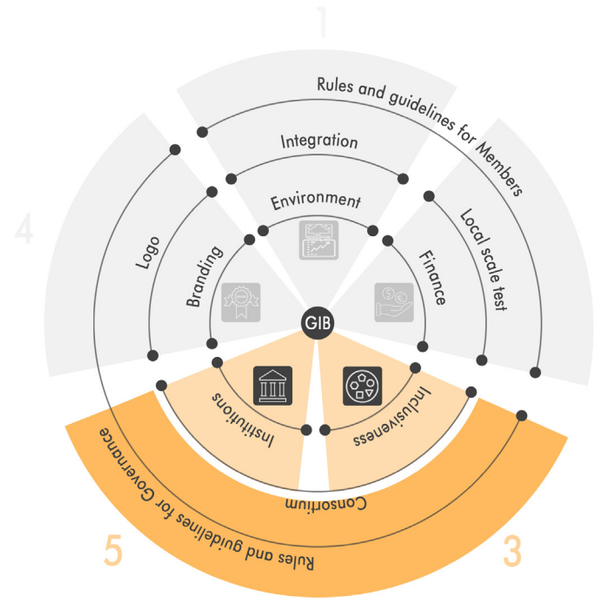
Art. (3.4) – The logo must contain the denomination of the geographical area.

Art. (3.5) – The logo must contain a defined colour scheme for the label, where a yellow (hex code: #D6D215) is used for GIBs where the share of organic productive land is equal or over 35% and green (hex code: #93C01C) for GIBs where the share of organic productive land is equal or over 50%.



3. "…at least 50% of the productive land."

3. "…at least 35% of the productive land."



3 Inclusiveness
Consortiums role

Art. (3.1) – The Consortium declares its engagement in environmental sustainability. A list of main principles is written once the consortium is founded.

Art. (3.2) – The Consortium organises meetings, workshops and participative processes that increase participation and collaboration between members.

Art. (3.3) – The Consortium is in charge of developing market strategies for the certification.

Art. (3.4) – The consortium regulates the monitoring system and chooses the external examination boards.

Art. (3.5) – The consortium simplifies application procedures for farmers who want to apply for a consortium membership and the certification policy. At least one field expert is provided to help farmers in the bureaucracy of transition.

Art. (3.6) – The consortium organises members into buyer groups with similar needs for input materials.

Art. (3.7) – Application costs for farmers that aim to become members of a GIB consortium are proportioned to the productive land of the agri-business.

Art. (3.8) – All agri-businesses' members of the consortium have the same influence on decision-making processes.

Art. (3.9) – Local residents, retailers, field experts and members of local institutions can become members of a GIB consortium by paying a non-productive member quote. They do not have an influence on decision-making that influence the policy.

Art. (3.10) – The consortium has the role of increasing the local participation of non-members.

Art. (3.11) – Non-members are entitled to participate in the consortium's events actively.

5 Governance
Application procedure

Art. (5.1) – A scoring system assesses the approval of the GIB and its consortium.

Art. (5.2) - The European Commission evaluates the scoring system. If the GIB proposal scores seventy points or above, it is approved. If the proposal scores between thirty-five and seventy points, it is approved but needs to achieve at least seventy points after a maximum of three years after the approval. If the score is under thirty-five, the proposal is rejected.

Art. (5.3) – The scoring system considers the following criteria: (1) Number of involved municipalities, (2) Percentage of organic farming on total productive land, (3) Number of involved agri-businesses, (4) Marketing strategy and evaluation, (5) Strategies for increased participation, (6) Environmental, social, and economic impact report, (7) Territorial economic integrated plan, (8) Monitoring system.

Spatial principles

1 - Engagement for sustainability

(a) The policy engages in banning chemical pesticides and fertilizers.
(b) The policy and consortium engage in the protection and regulation of the use of local water resources.
(c) The policy and consortium engage in protecting fertile soil from erosion and eutrophication.
(d) The policy and consortium engage in the protection of biodiversity and preservation of natural spaces.
(e) The policy engages in preserving crop diversity and landscape quality.

2 - Inclusiveness

(a) The application costs for single members should be affordable and proportional to the size of the agri-business.
(b) The bureaucracy for the application procedure of single members should be simplified.
(c) The activities of the consortiums should allow the participation of non-members.
(d) The membership for consortiums should be extended to not only agri-businesses but also local residents, retailers, and field specialists.
(e) Power in decision-making should be equal for all associated producers.

3 - Institutional role

(a) The policy defines the active participation and the role of local municipalities in the governance of the certification.
(b) The policy contains a framework for assessing and creating new certifications.
(c) The policy guarantees the creation of a consortium for each certification and previous to the creation of the certification itself.
(d) The policy defines the role and composition of the consortium.
(e) Involved institutions and the consortium are responsible for strategy development to increase participation.

4 - Financial support

(a) The policy provides financial support to farmers in different stages of the transition.
(b) The policy financial support is proportional to the different assessments the agri-business has to fulfil.
(c) The available funding system of the policy favours small agri-businesses.
(d) The consortium simplifies the accessibility to loans for the farmers that apply for the certification.
(e) The consortium has the role of an intermediary between associates and wholesalers for input materials to obtain better prices.

5 - Product branding

(a) The logo communicates the specific quality of the product and guarantees that specific sustainable agricultural practices were used during the production steps.
(b) The logo indicates the geographical area of provenience of the certified products.
(c) The logo includes the denomination of the designated geographical area.
(d) The consortium provides a marketing strategy for the certification.
(e) The consortium is in charge of the governance of the monitoring system to guarantee quality and law compliance.

Inclusiveness
Consortiums role

Art. (3.1) – The Consortium declares its engagement in environmental sustainability. A list of main principles is written once the consortium is founded.

Art. (3.2) – The Consortium organises meetings, workshops and participative processes that increase participation and collaboration between members.

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Art. (3.6) – The consortium organises members into buyer groups with similar needs for input materials.

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Art. (3.8) – All agri-businesses' members of the consortium have the same influence on decision-making processes.

Art. (3.9) – Local residents, retailers, field experts and members of local institutions can become members of a GIB consortium by paying a non-productive member quote. They do not have an influence on decision-making that influence the policy.

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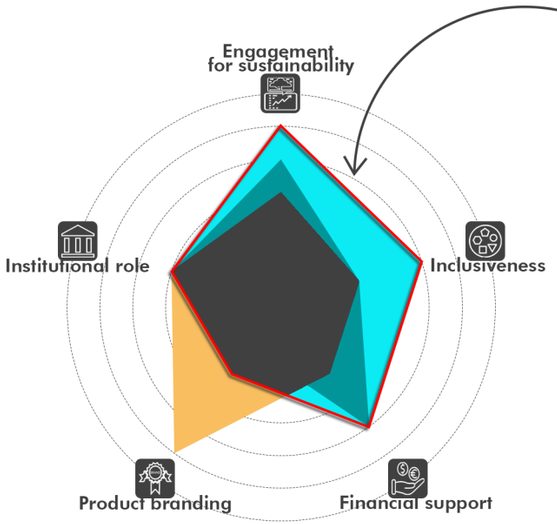
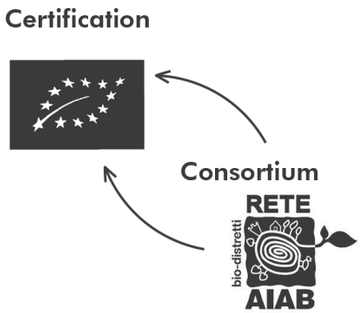
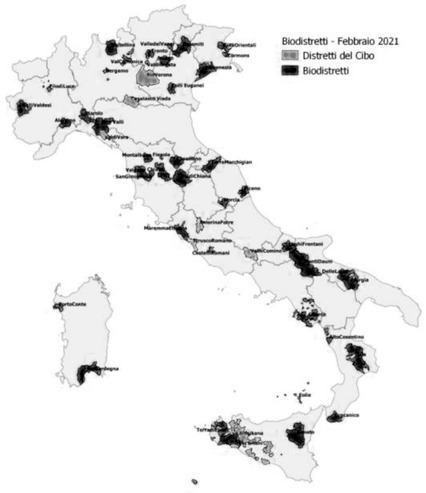
Art. (3.11) – Non-members are entitled to participate in the consortium's events actively.

TO DEFINE THE ROLE OF THE CONSORTIUM THE CONCERNING SPATIAL PLANNING PRINCIPLES ARE USED...





WHILE FOR THE APPLICATION PROCEDURE FOR A NEW CONSORTIUM, THE BIODISTIRCT HAS BEEN USED AS A REFERENCE.



	TOPIC	ASSESSMENT	SCORE
1	Involved territory	- High (3/3 municipalities have agreed) - Moderate (between 1/2 and 3/3) - Low (between 1/3) and 1/2)	5 3-4 1-2
2	Organic agricultural land occupation	- High (organic land use over 50%) - Moderate (organic land use between 35% and 50%) - Low (organic land use between 30% and 35%)	15 4-14 1-4
3	Number of agricultural businesses participating	- 10 or more businesses - From 6 to 9 businesses - From 3 to 5 businesses	10 3-9 1-2
4	Animation activity of the district	- Adequate direct participation of the members - Missing animation activity. Presents only digital information - Poorly sponsored and low visibility - No activity is planned	7-10 5-6 1-4 0
5	Conformity to the art.4, comma 4, letter b	- Detailed description, supported by planning acts - Detailed description, not supported by planning acts - General description, not supported	6-10 3-5 0-2
6	Evaluation of the territorial economic integrated plan	- Extensive description - Sufficient description - Not presented	10-15 5-9 0-4
7	Synergies created by the agreement meant to increase the number of associated farmers	- Extensive description - Sufficient description - An adequate description is missing - Not presented	7-10 5-6 2-4 0-1
8	Environmental, social and economical impact	- Extensive description - Sufficient description - Not presented	15-20 7-14 0-6
9	Territorial measures for the restriction of phytosanitary products close to urban areas	- Specific and detailed - Sufficient detail - Not presented	8-15 2-7 0-1
10	Monitoring system	- Extensive description of planned actions - Generic description - No planned monitoring system	8-10 5-7 0-4
11	Total	Proposal approved Proposal approval postponed Proposal denied	> 70 35 / 70 < 35

THE APPLICATION PROCEDURE ALLOWS BOTH BOTTOM-UP AND TOP-DOWN INITIATIVES.

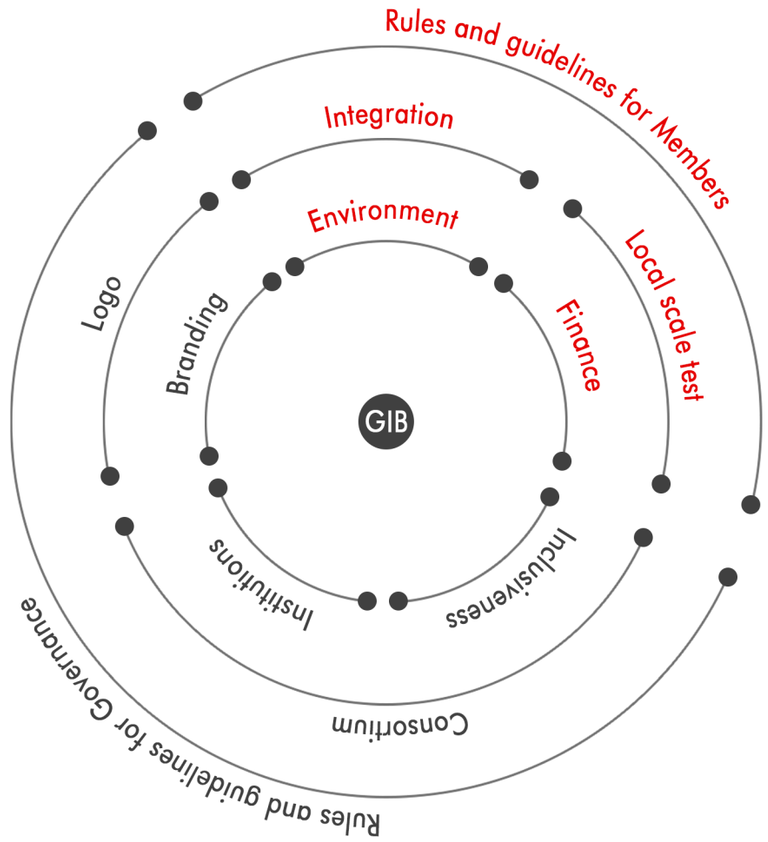
participation

planning and governance

assessment

	TOPIC	ASSESSMENT	SCORE
1	Involved territory	- High (3/3 municipalities have agreed) - Moderate (between 1/2 and 3/3) - Low (between 1/3) and 1/2)	15 7-14 1-6
2	Organic agricultural land occupation	- High (organic land use over 50%) - Moderate (organic land use between 35% and 50%) - Low (organic land use between 30% and 35%)	15 9-14 1-8
3	Number of agricultural businesses participating	- 10 or more businesses - From 6 to 9 businesses - From 3 to 5 businesses	10-15 3-9 1-2
4	Marketing strategy and animation program evaluation	- Adequate direct participation of the members - Missing animation activity. Presents only digital information - Poorly sponsored and low visibility - No activity is planned	7-15 5-6 1-4 0
5	Evaluation of the territorial economic integrated plan	- Extensive description - Sufficient description - Not presented	10-15 5-9 0-4
6	Strategies for increased participation	- Extensive description - Sufficient description - An adequate description is missing - Not presented	10-15 5-9 2-4 0-1
7	Environmental, social and economical impact	- Extensive description - Sufficient description - Not presented	10-15 5-9 0-4
8	Monitoring system	- Extensive description of planned actions - Generic description - No planned monitoring system	10-15 5-9 0-4
9	Total	- Proposal approved - Proposal approval postponed - Proposal denied	> 70 35 / 70 < 35

Rules and Guidelines for Members
Points 1 and 2 of the framework are defined according to the maximization process and are context specific.



Rules and Guidelines for Governance
Points 3,4, and 5 of the framework contain main indications on how the policy is assessed and are therefore not context-specific.

TU
BK

THANK YOU FOR YOUR ATTENTION.