



**HAL**  
open science

## A tool-box for designing an agroecological transition with local stakeholders

Elise Audouin, Jacques-Eric Bergez, Gaël Plumecocq, Olivier Therond

### ► To cite this version:

Elise Audouin, Jacques-Eric Bergez, Gaël Plumecocq, Olivier Therond. A tool-box for designing an agroecological transition with local stakeholders. 12. Conference of the European Society for Ecological Economics (ESEE), Jun 2017, Budapest, Hungary. 35 p. hal-01607886

**HAL Id: hal-01607886**

**<https://hal.science/hal-01607886>**

Submitted on 5 Jun 2020

**HAL** is a multi-disciplinary open access archive for the deposit and dissemination of scientific research documents, whether they are published or not. The documents may come from teaching and research institutions in France or abroad, or from public or private research centers.

L'archive ouverte pluridisciplinaire **HAL**, est destinée au dépôt et à la diffusion de documents scientifiques de niveau recherche, publiés ou non, émanant des établissements d'enseignement et de recherche français ou étrangers, des laboratoires publics ou privés.



Distributed under a Creative Commons Attribution - ShareAlike 4.0 International License

# tatabox



Transition Agroécologique des Territoires Agricoles

AGENCE NATIONALE DE LA RECHERCHE  
**ANR**

## PROGRAMME ANR - AGROBIOSPHERE 2013

Projet ANR-13-AGRO-0006-01

### TATABOX

**Transition agroécologique des territoires : une boîte à outil pour concevoir et mettre en œuvre une transition agroécologique des territoires agricoles avec les acteurs locaux.**

Date de début du projet: 16 janvier 2014

Durée: 48 mois

**Production non identifiée comme livrable: Presentation for the 12<sup>th</sup> conference of the European Society for Ecological Economics, 20<sup>th</sup> to 23<sup>rd</sup> of June 2017 in Budapest (Hungary), on “Ecological Economics in action: building a reflective and inclusive community” in the parallel session « Science-society contributions to sustainability transformation: citizens science, Community-Based Research, Participatory Action Research, Responsible Research and Innovation», titled: “TATA-BOX: “Territorial Agroecological Transition in Action”: a tool-Box for designing an agroecological transition with local stakeholders”**

Dissemination Level		
PU	Public	<input checked="" type="checkbox"/>
AN	Restreint aux membres d'autres projets ANR (Commission ANR incluse)	<input type="checkbox"/>
RE	Restreint à un groupe désigné par le consortium (Commission ANR incluse)	<input type="checkbox"/>
CO	Confidentiel, uniquement pour les membres (Commission ANR incluse)	<input type="checkbox"/>

TATABOX vise à tester et adapter une méthodologie pour aider les acteurs agricoles locaux à développer une vision de la transition agroécologique souhaitable et à la gérer. Le projet implique 9 unités de recherche et 986 ETP. Les chercheurs sont de différentes disciplines permettant une bonne analyse des différents processus en jeu : agronomes, zootechniciens, écologues, sciences de l'informatique, ergonomes, sciences de gestion, géographie sociale, économistes. Le cas d'étude est un grand bassin versant agricole dans la partie sud-ouest de la France (Aveyron et Tarn-et-Garonne).

E-mail : [jacques-eric.bergez@inra.fr](mailto:jacques-eric.bergez@inra.fr)  
Internet : <http://www6.inra.fr/tatabox>

Auteurs de ce livrable :

Elise Audouin,  
Unité de recherche : *INRA, UMR 1248 AGIR*  
E-mail : [elise.audouin@inra.fr](mailto:elise.audouin@inra.fr)

Jacques-Éric Bergez,  
Unité de recherche : *INRA, UMR 1248 AGIR*  
E-mail : [jacques-eric.bergez@inra.fr](mailto:jacques-eric.bergez@inra.fr)

Gaël Plumecocq,  
Unité de recherche : *INRA, UMR 1248 AGIR*  
E-mail : [gael.plumecocq@inra.fr](mailto:gael.plumecocq@inra.fr)

Olivier Therond,  
Unité de recherche : *INRA, UMR 1248 AGIR*  
E-mail : [olivier.therond@inra.fr](mailto:olivier.therond@inra.fr)

Clause de non-responsabilité :

Ce manuscrit a été rédigé dans le cadre du projet TATABOX, financé par l'Agence Nationale de la Recherche au travers du programme AGROBIOSPHERE 2013. Son contenu ne représente en aucun cas la position officielle de l'Agence Nationale de la Recherche et est entièrement sous la responsabilité de son(s) auteur(s). L'information contenue dans ce document est délivrée telle quelle. Il appartient au lecteur d'utiliser ces informations avec discernement.

# tatabox



Territorial Agroecological Transition in Action

## A tool-box for designing an agroecological transition with local stakeholders

Elise Audouin

Jacques-Eric Bergez

Gaël Plumecocq

Olivier Therond

UMR AGIR

INRA Centre Occitanie Toulouse, France



12<sup>th</sup> ESEE conference  
21th of June 2017

Session: Science-society contributions to sustainability  
transformation: Citizens Science, Community-Based Research,  
Participatory Action Research, Responsible Research and Innovation

AGENCE NATIONALE DE LA RECHERCHE  
**ANR** ANR-13-AGRO-0006



le cnam

CRTD

Dynafor

EFTS  
EDUCATION FORMATION  
TRAVAIL SAVOIRS



Métafort

MA  
TOULOUSE

SenS  
Sciences en Société





# Agroecological transition: a challenge that requires new tools



**Multiple challenges  
Conventional agriculture**

# Agroecological transition: a challenge that requires new tools



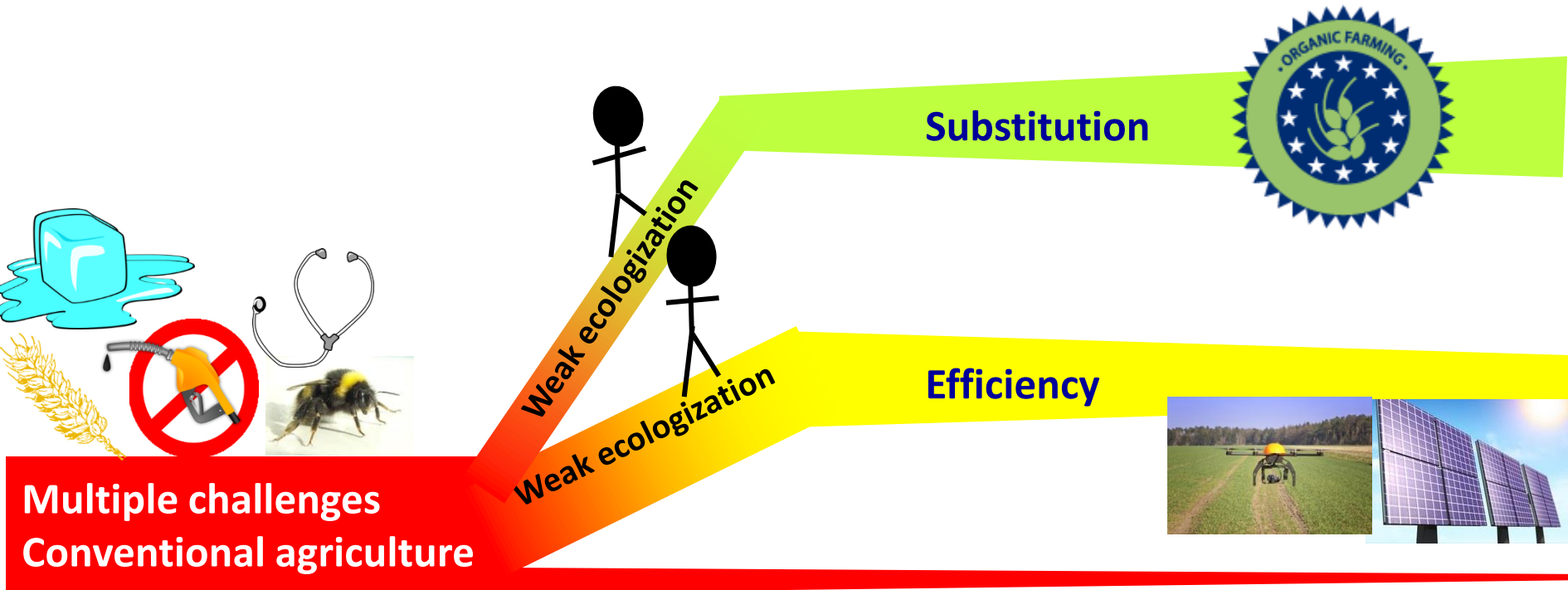
Weak ecologization

Efficiency

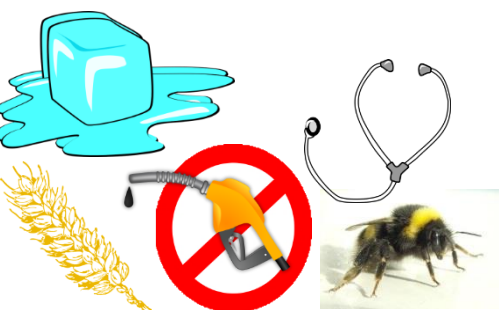
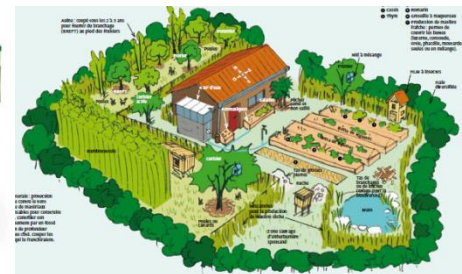


Multiple challenges  
Conventional agriculture

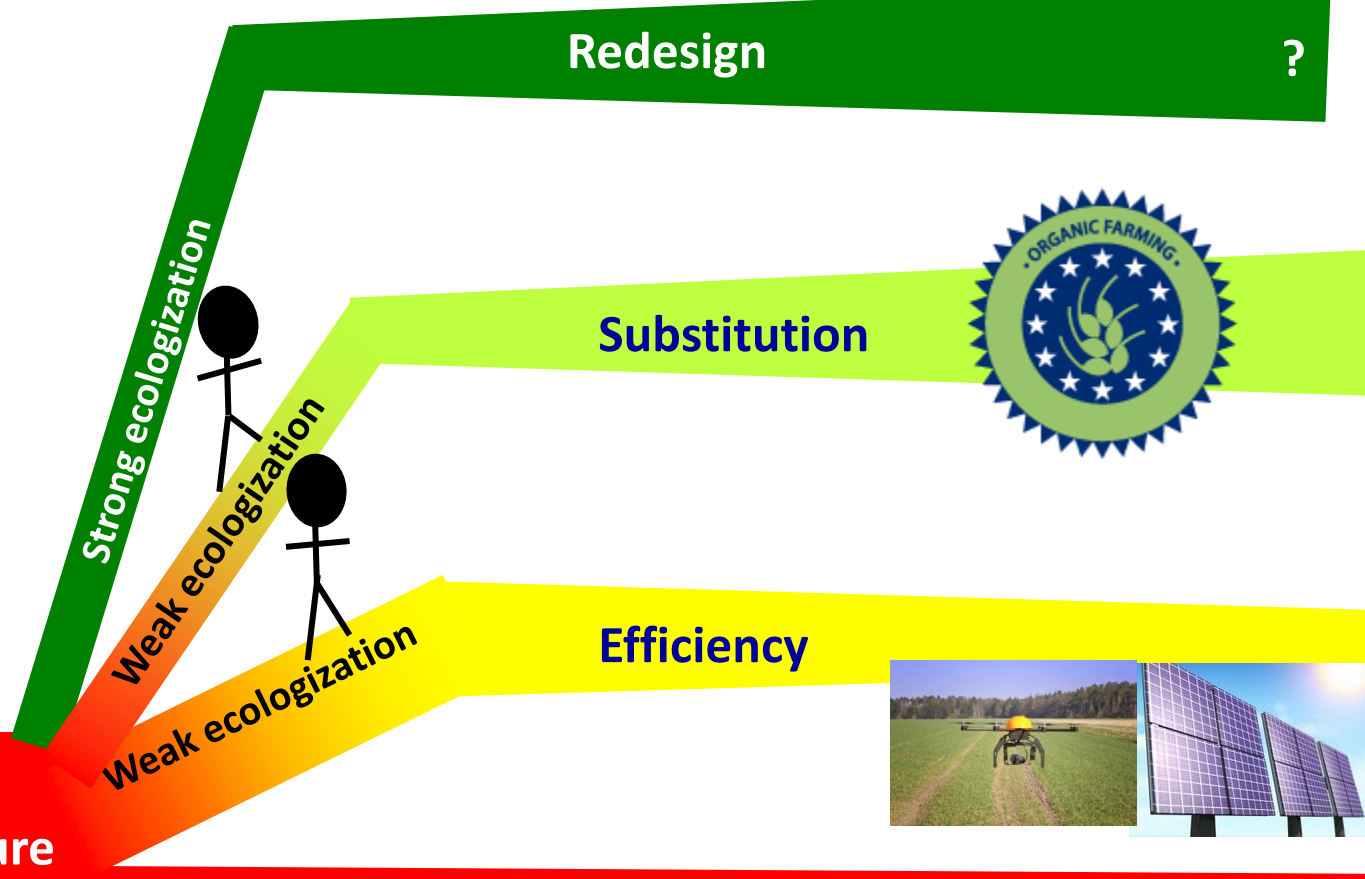
# Agroecological transition: a challenge that requires new tools



# Agroecological transition: a challenge that requires new tools



**Multiple challenges  
Conventional agriculture**



**Redesign**

?

**Substitution**

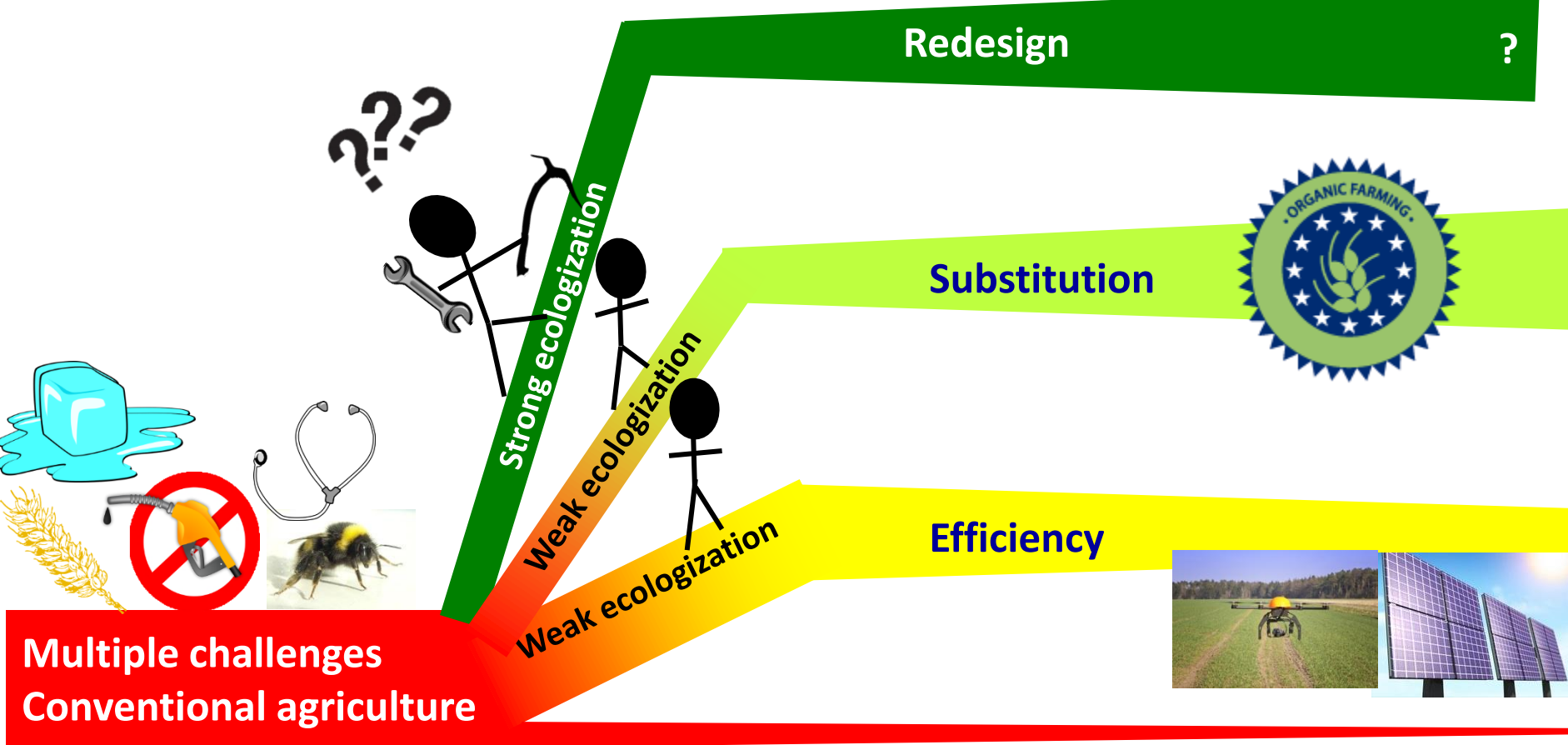


**Efficiency**

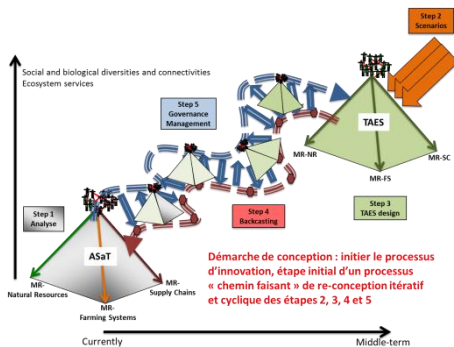




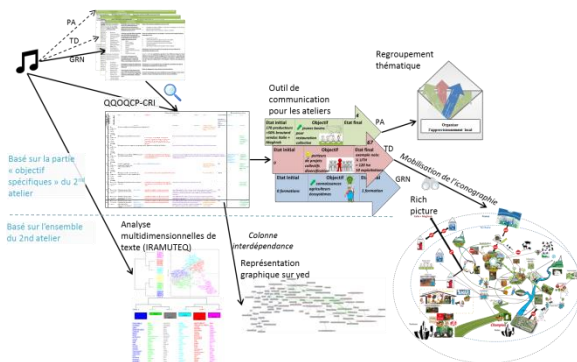
# Agroecological transition: a challenge that requires new tools



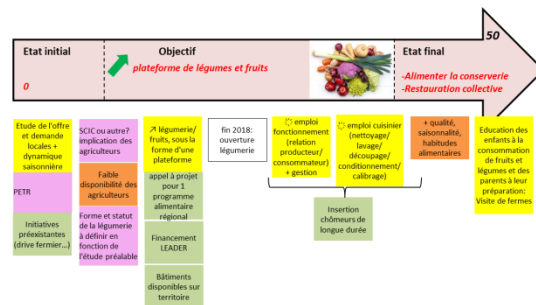
# This presentation focuses on the participatory methods and tools design and application on 2 territories



## Frameworks for agroecological transition

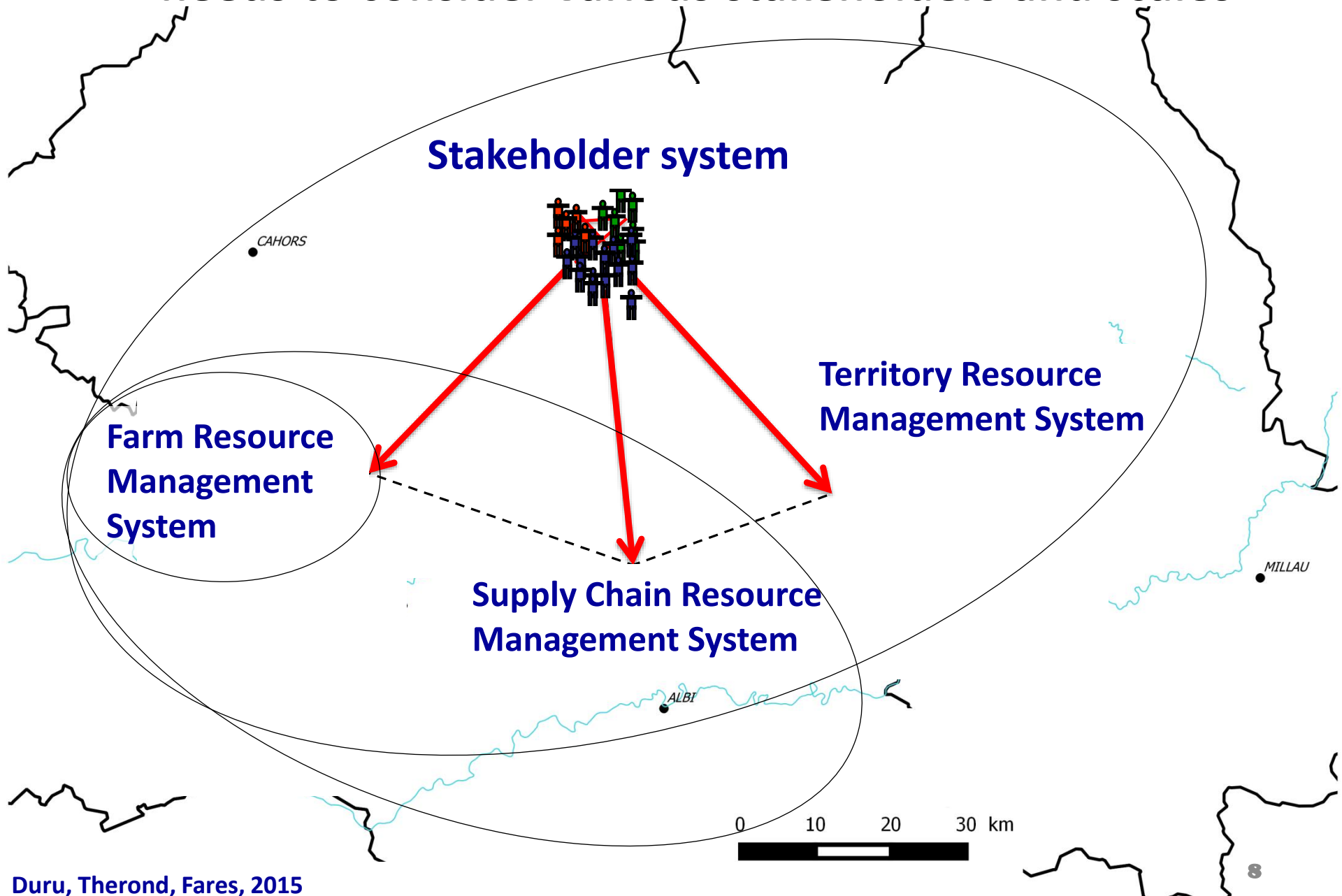


## Methods and tools design

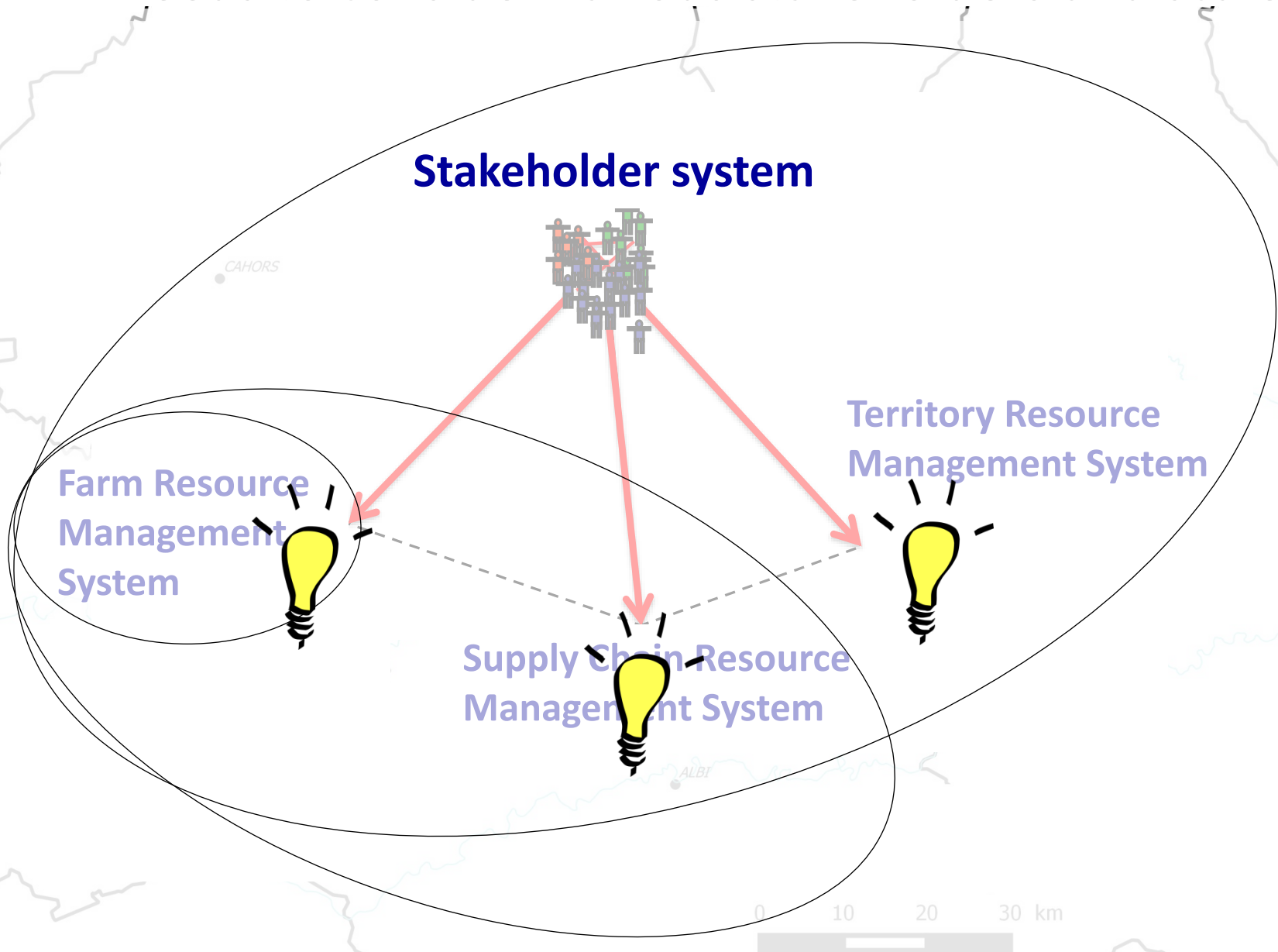


## Results obtained

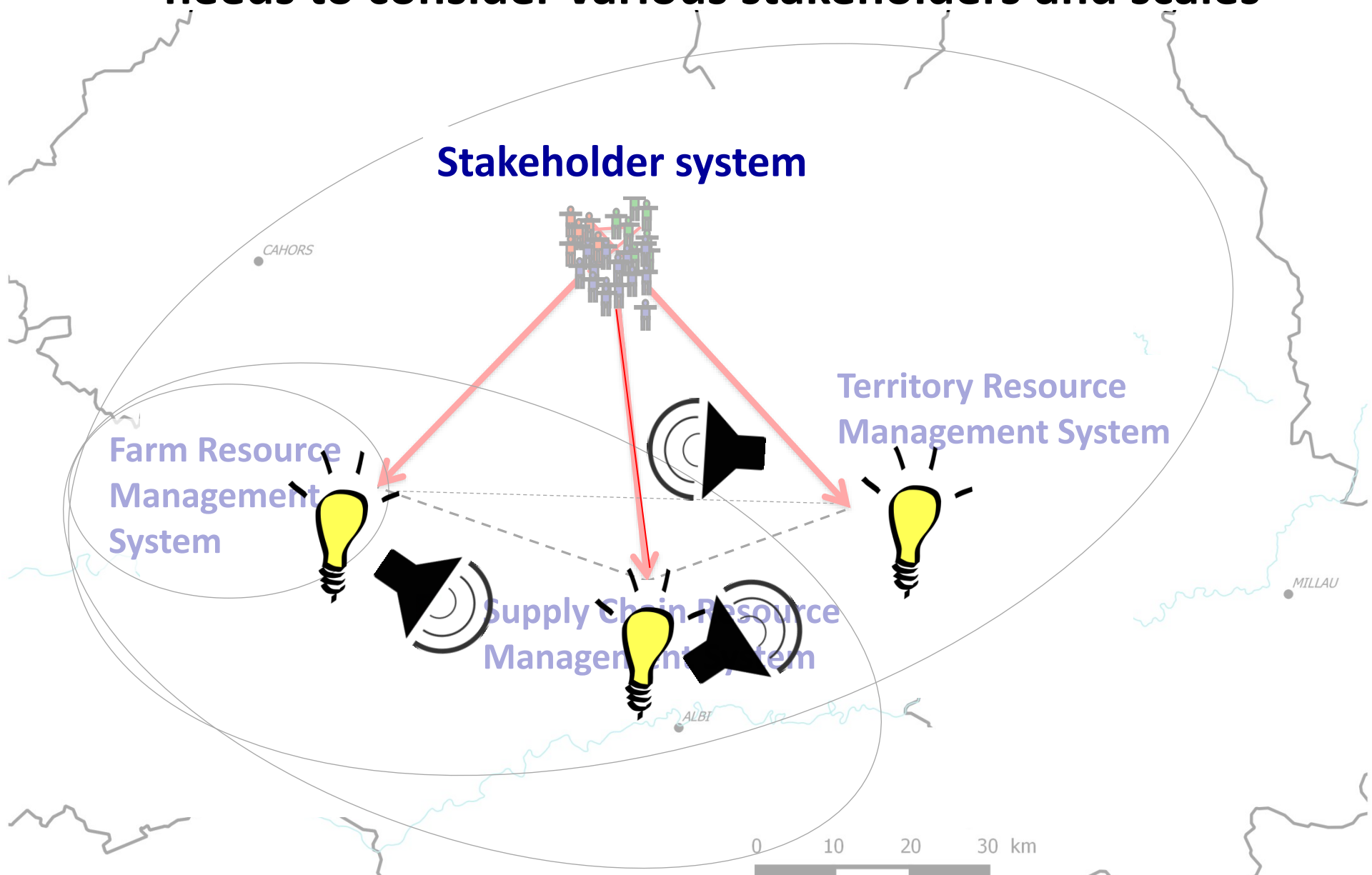
# Conceptual framework: agroecological transition needs to consider various stakeholders and scales



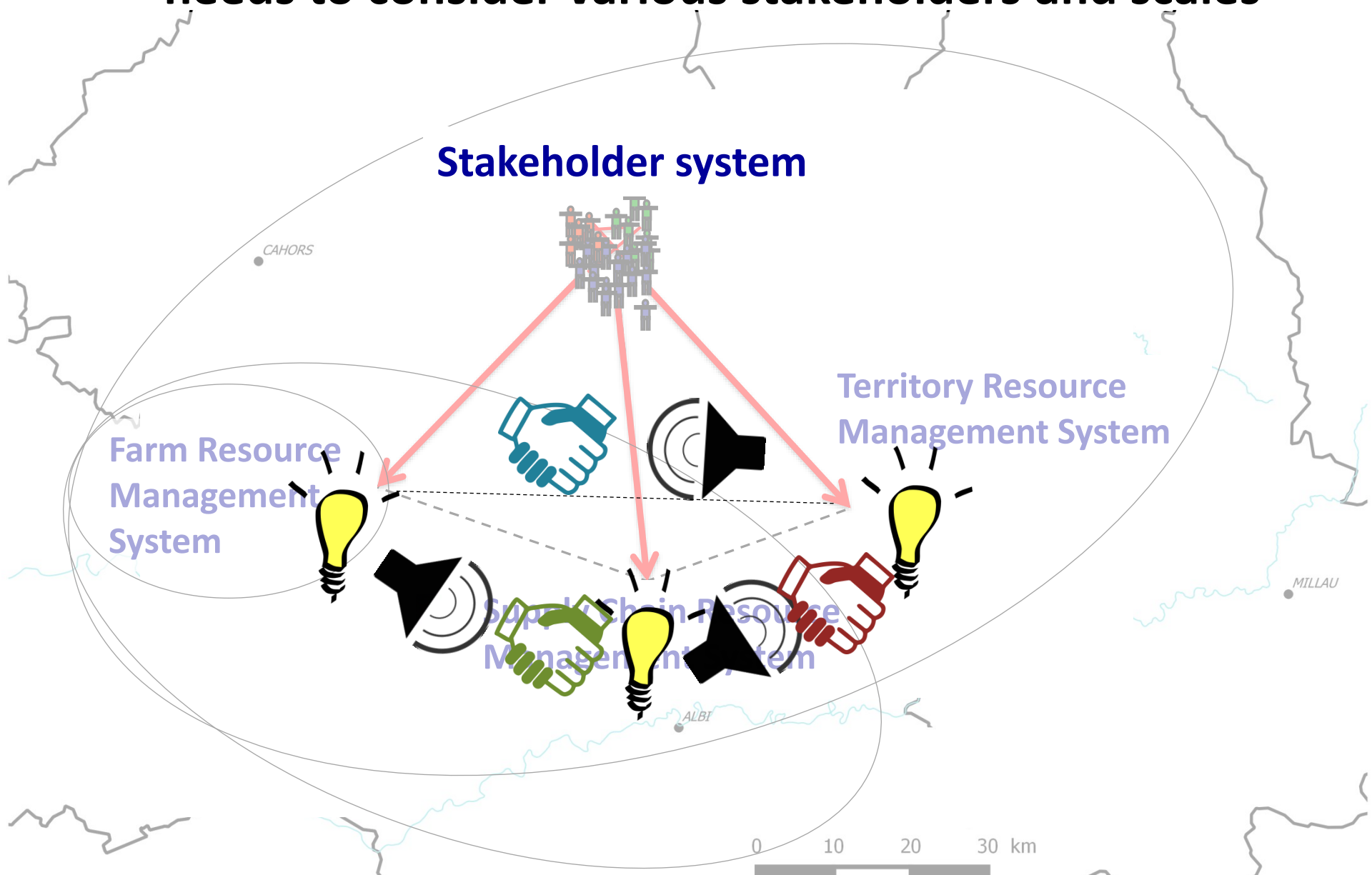
# Conceptual framework: agroecological transition needs to consider various stakeholders and scales



# Conceptual framework: agroecological transition needs to consider various stakeholders and scales



# Conceptual framework: agroecological transition needs to consider various stakeholders and scales





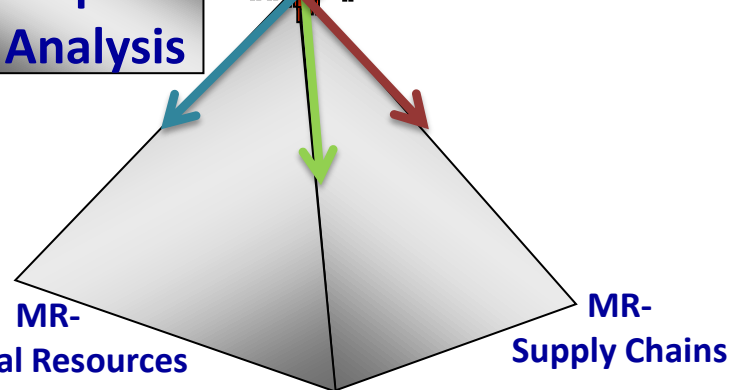
# Agroecological transition in a 5-step iterative process

Social and biological diversities and connectivities

Ecosystem services



Step 1  
Analysis



Currently

Medium term





# Agroecological transition in a 5-step iterative process

Step 2  
Scenarios



Social and biological diversities and connectivities  
Ecosystem services



Step 1



MR-  
Natural Resources

MR-  
Supply Chains

MR-  
Farming Systems

Currently

Medium term

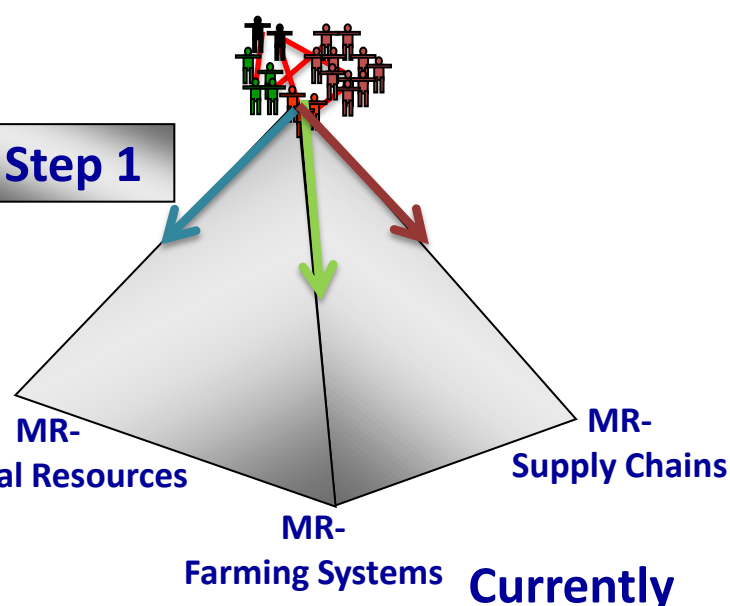


# Agroecological transition in a 5-step iterative process

Social and biological diversities and connectivities  
Ecosystem services

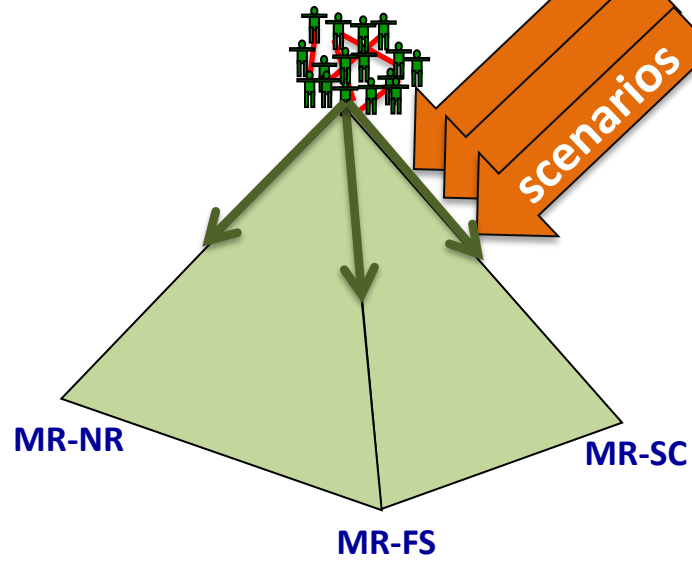


Step 1



Currently

Step 2



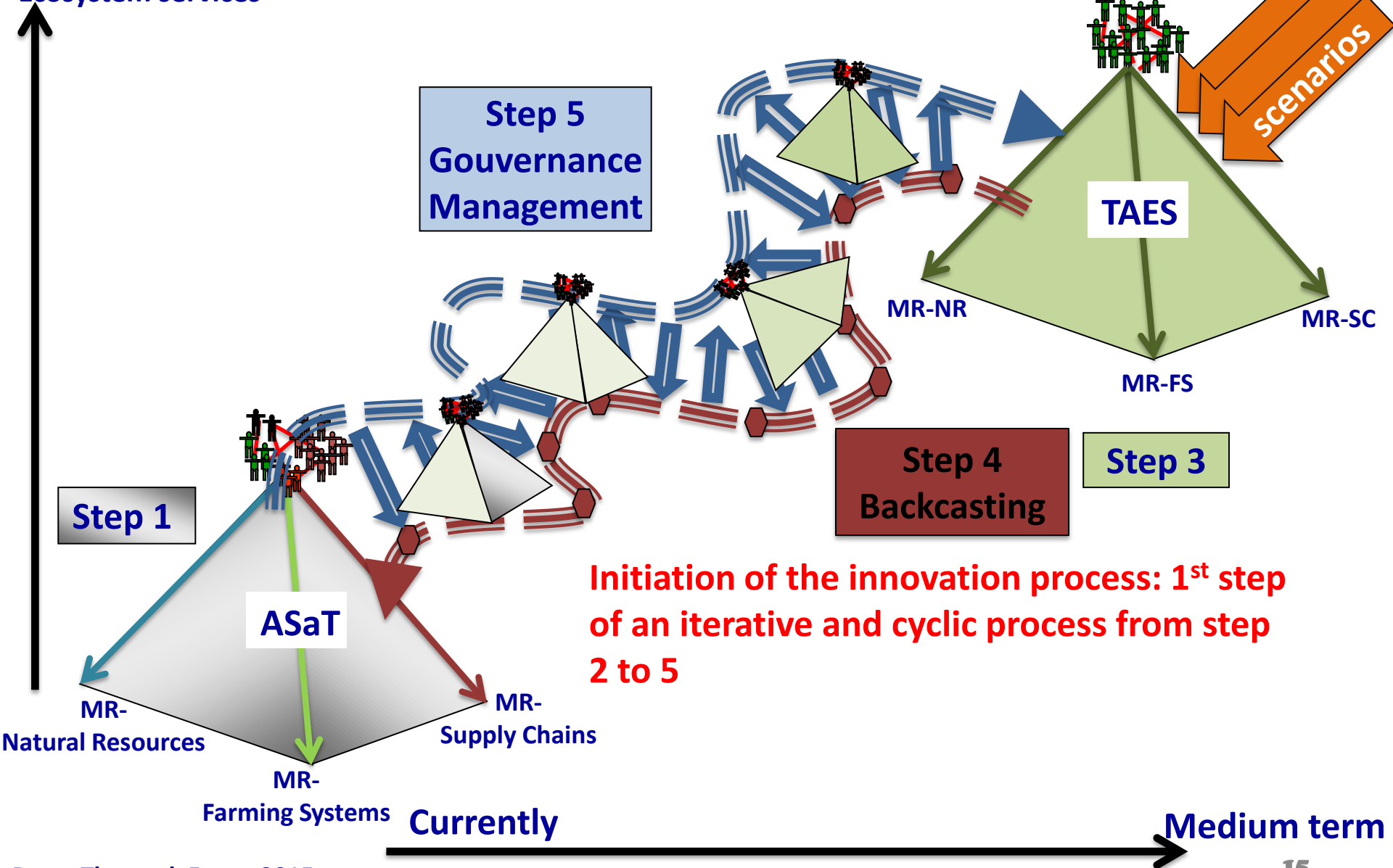
Step 3  
TAES design

Medium term



# Agroecological transition in a 5-step iterative process

Social and biological diversities and connectivities  
Ecosystem services



Initiation of the innovation process: 1<sup>st</sup> step of an iterative and cyclic process from step 2 to 5

# Almost as many researchers as participants

42 pluridisciplinary researchers



+ *Ergonomics* + *Sociology*



# Almost as many researchers as participants

42 pluridisciplinary researchers



+ Ergonomics + Sociology

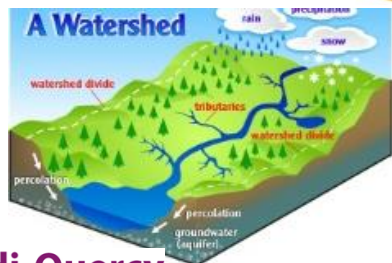
Selection



le cnam



Territory partners:



Pays Midi-Quercy

Pôle d'Equilibre Territorial Rural



# Almost as many researchers as participants

42 pluridisciplinary researchers



+ *Ergonomics* + *Sociology*



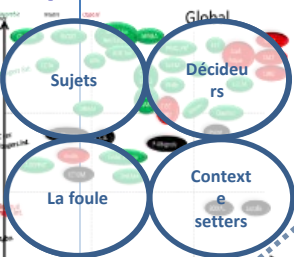
Selection



Territory partners:

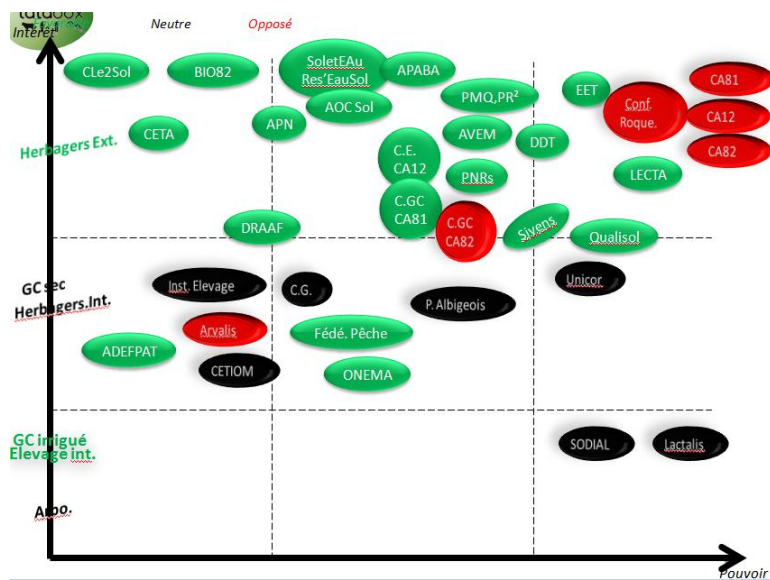


Selection



Workshops' participants

# Key individual stakeholders part of a global representativeness of local agricultural system



Organisme	Agriculteurs	Fonction	Contact	Mail	Contact de	Tel	Adresse1
ADEAR Tarn		Animateur	Rémi Gachenot	adear.tarn@free.fr	Etienne	05 63 51 03 70	ADEAR Maison des associatio
ADEFPAT		Directrice	Anne Froment	anne.froment@adefpat.fr	Etienne		
Albigeois		Chef projet Plan Climat Territorial	Julien frat	ifrat@pays-albigeois-bastig	Etienne	05.63.36.87.01	Pays de l'Albigeois et des Bas
APABA	X	président	Olivier izard	olivierizard@hotmail.fr	Marc		
Bio82		animatrice	Virgil Bezin	techniquebio82@gmail.com	Guillaume		
CA12		Conseillers d'entreprise	Héloïse Gonzalo-Turpin	heloise.gonzalo-turpin@ay	Marc		
CA12		conseiller élevage bio	Stéphane Doumayzel	stephane.doumayzel@tjv	Guillaume	05.65.73.77.13	
CA12		conseiller agronomie fourrages	Benoit Delmas	benoit.delmas@tjveyron.c	Guillaume	05 65 71 37 00	
CA81		conseiller fourrages élevage	Jean-Bernard Mis	jb.mis@tarn.chambagri.fr	Guillaume	05.63.48.83.87	
CA81		Conseillère agronomie-environnement	Cécile Frayse	c.frayse@tarn.chambagri.f	Etienne	05.63.48.83.83	Chambre d'agriculture du Tar
CA81		Conseillère agronomie-environnement	Antoine Delaunois	a.delaunois@tarn.chambagri.fr	Etienne	05.63.48.83.83	Chambre d'agriculture du Tar
CA82		Conseillère Grande Cultures conventionnel et bio	Ingrid Barrier	ingrid.barrier@agri82.fr	Etienne	05.63.65.07.11	
CA82		Conseillère installation bio	Marie Cabarès	marie.cabares@agri82.fr	Etienne	05.63.63.09.95	
CA82		Responsable du pôle végétal	Didier Lafage			05.63.63.63.46	
CFPPA albi							
Clé 2 Sol		présidente	Sarah Singla	s.singla@laposte.net	Etienne, JPS	05.65.73.61.70	
CRAMP	X	Pôle économie et prospective	Nelly Grillet	nelly.grillet@mp.chambagri	Olivier, Etienne	05.61.75.75.81	
FDCUMAR2							
fédé pêche 12		Ingénieure	Martine Guilmet		Alexandre		
Fermes de Figeac		Directeur	Dominique Olivier	dominique.olivier@fermesdefigeac.coop			
GPLV		Animatrice (permanence le mardi)	benedicta Canredon			565451957 06 75 12 22 55	
Lactalis							
PMO		Chargé de Responsab					
QUALISOL		président					
Res'Eausol		directrice					
Ruthénois		directrice					
SODIAL							
Sol et Eau	X	Président					
UNICOR							

## Stakeholder analysis

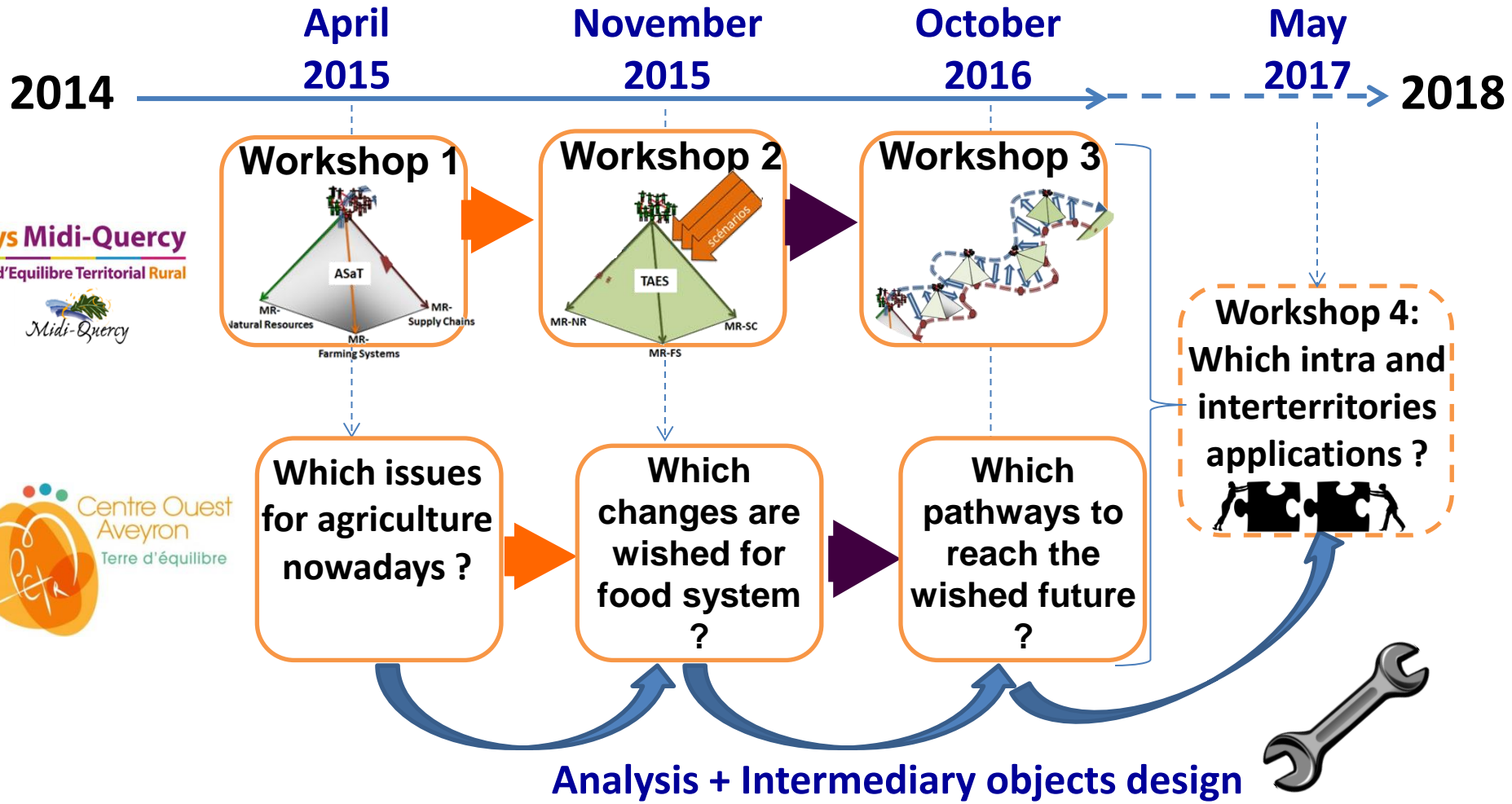
## Workshops' participants:

- Farmers
- Farmer groups
- Civil society (consumers or environmental associations)
- Advisory groups
- Institutions
- Supply chain (cooperative, label)



## Stakeholders data basis

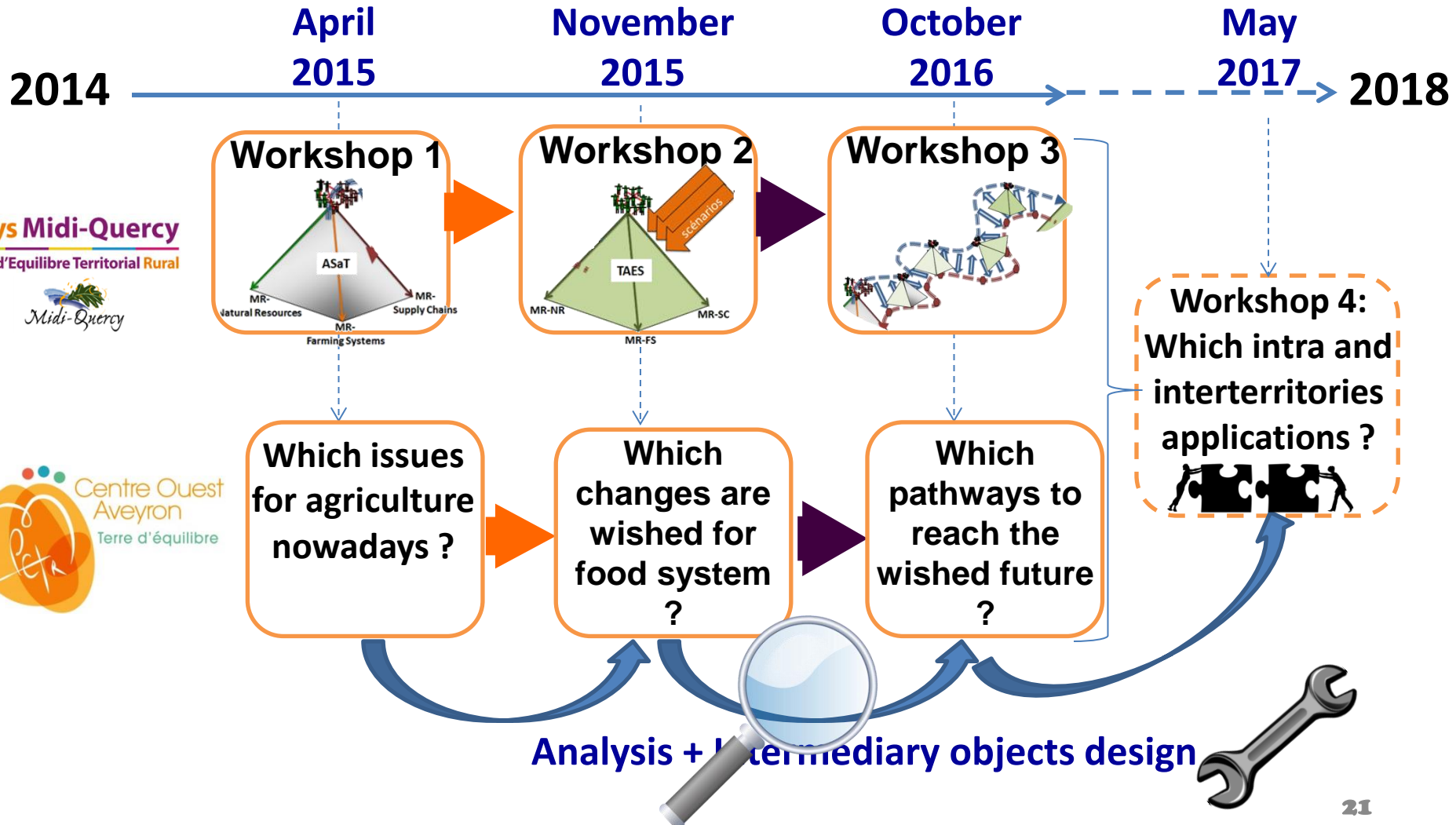
# An operationalization of the conceptual framework in 3+1 steps



**Pays Midi-Quercy**  
 Pôle d'Equilibre Territorial Rural  
 Midi-Quercy

**Centre Ouest Aveyron**  
 Terre d'équilibre

# An operationalization of the conceptual framework in 3+1 steps



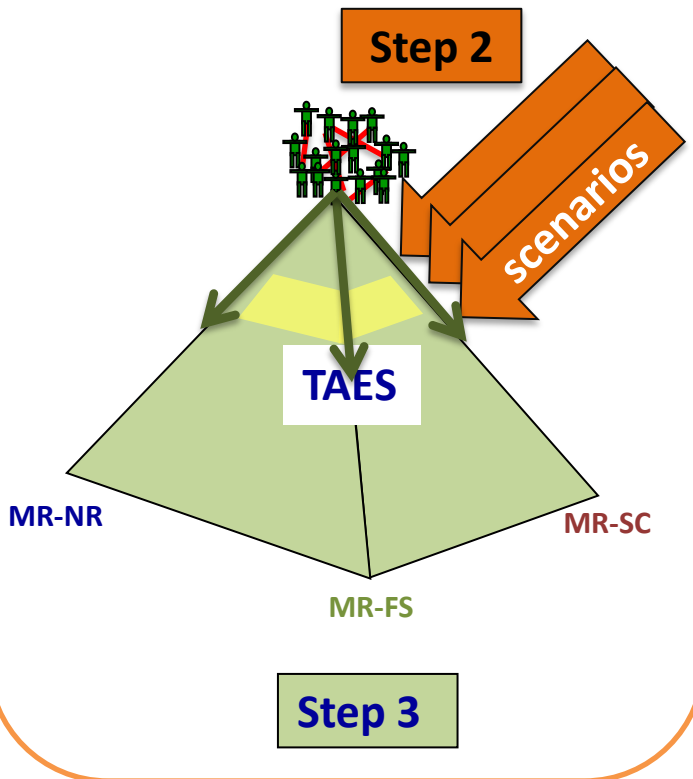
**Pays Midi-Quercy**  
Pôle d'Equilibre Territorial Rural  
*Midi-Quercy*

**Centre Ouest Aveyron**  
Terre d'équilibre



# 83+65 targets for an agroecological system in 2025 represented at different scales

## Workshop 2



- ↗ crop rotation's length
- spread calving time to optimize the use of mountain lands
- create common compost platform
- ↗ pilot farm to test innovations
- ↗ direct selling
- ↗ certification label to export
- ↗ wooded network
- ↘ urbanization dynamics
- ↗ soil cover
- ...

# 83+65 targets for an agroecological system in 2025 represented at different scales

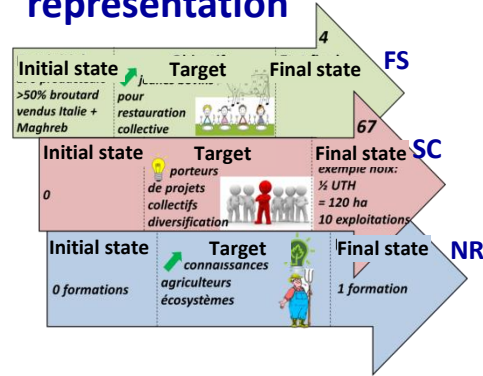
FS	SC	NR
<ul style="list-style-type: none"> <li>... Développer la vente directe pour compléter le revenu des exploitants et assurer la production de cultures de qualité dans les zones défavorisées...</li> <li>... Améliorer l'efficacité énergétique des exploitations agricoles en favorisant les énergies renouvelables et la maîtrise de l'énergie...</li> <li>... Favoriser la production locale et de proximité pour réduire les distances de transport et soutenir les circuits courts...</li> </ul>	<ul style="list-style-type: none"> <li>... Développer l'agriculture biologique pour améliorer la santé des sols, la biodiversité et la qualité nutritionnelle des produits...</li> <li>... Promouvoir l'usage raisonné des produits phytosanitaires et privilégier les méthodes alternatives de lutte contre les nuisibles...</li> <li>... Encourager l'adoption de pratiques agricoles respectueuses de l'environnement et de la biodiversité...</li> </ul>	<ul style="list-style-type: none"> <li>... Protéger et restaurer les écosystèmes agricoles pour maintenir la biodiversité et les services écosystémiques...</li> <li>... Favoriser la résilience des exploitations face aux aléas climatiques et environnementaux en mettant en place des pratiques adaptées...</li> <li>... Promouvoir les pratiques agricoles qui favorisent la séquestration de carbone dans les sols...</li> </ul>



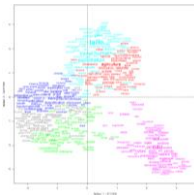
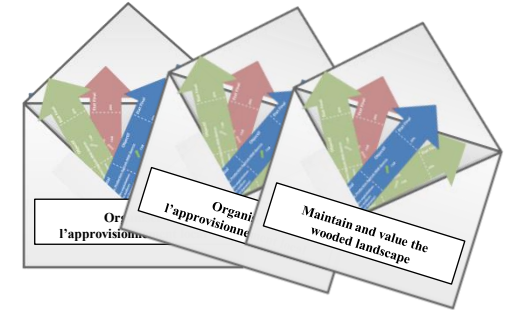
5W1H -HRI

Question	Response
What? (Quoi?)	...
Why? (Pourquoi?)	...
How? (Comment?)	...
Who? (Qui?)	...
Where? (Où?)	...
When? (Quand?)	...

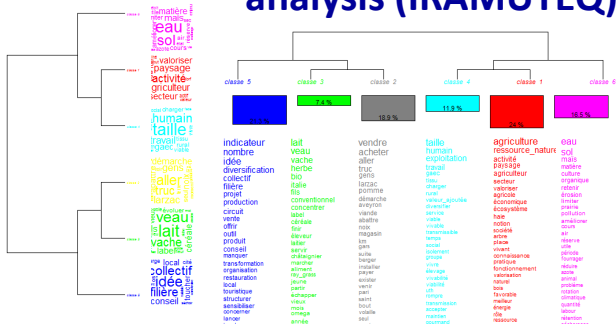
## Target individual representation



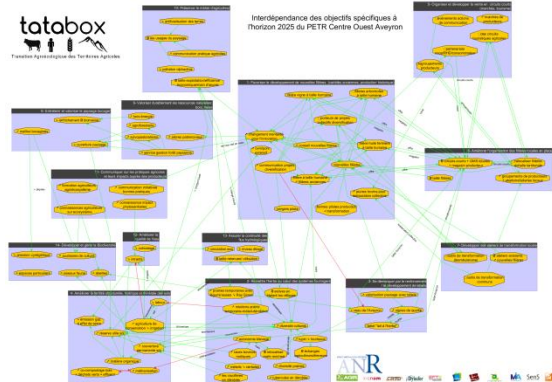
## Target clustering



## Multidimensional text analysis (IRAMUTEQ)

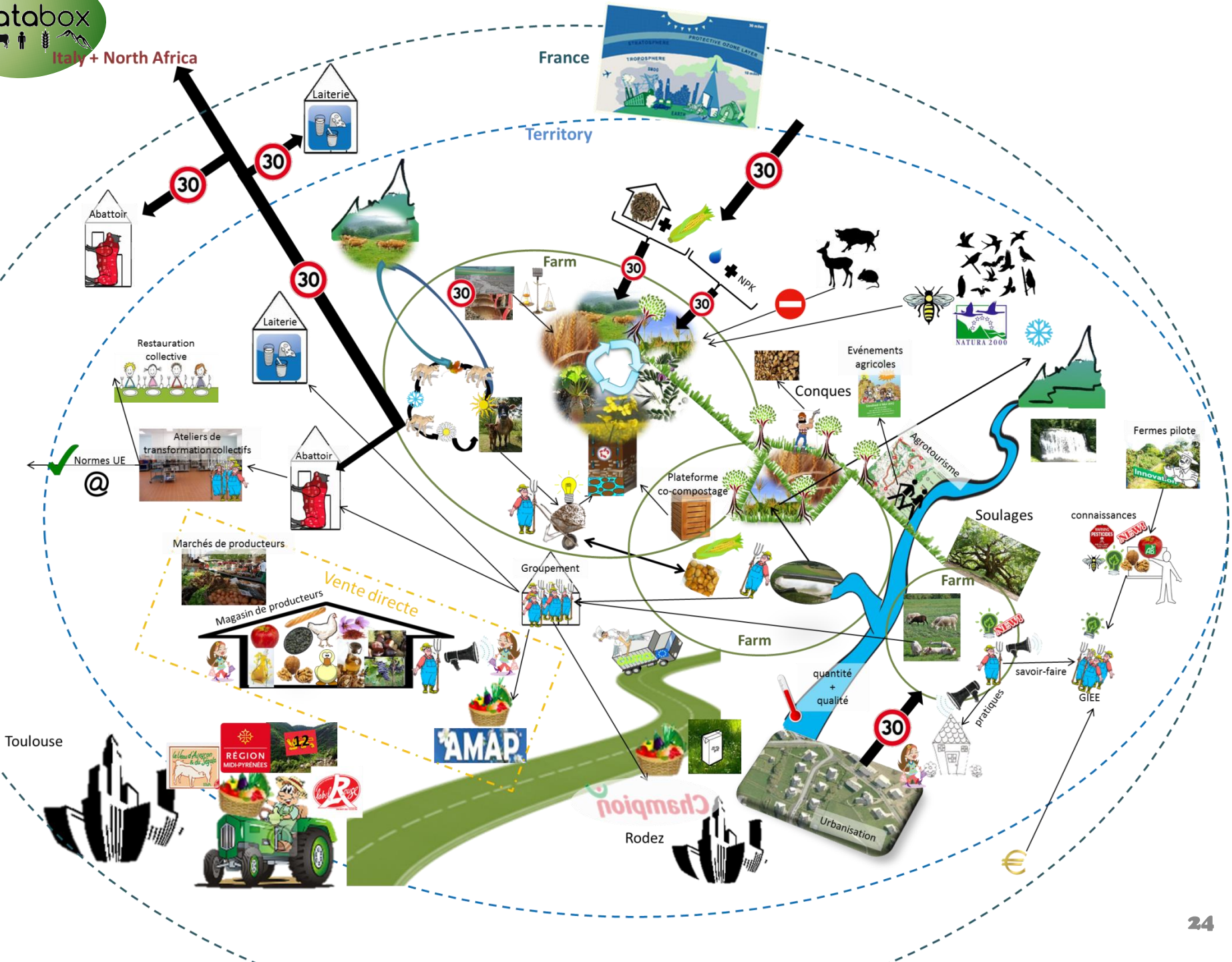


## Interdependency representation on yed

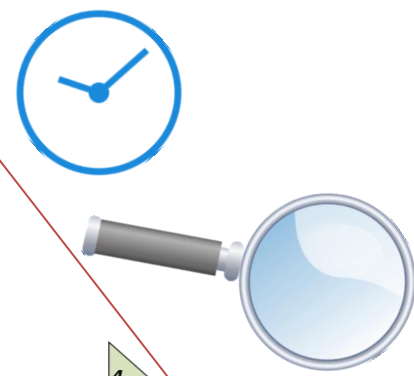
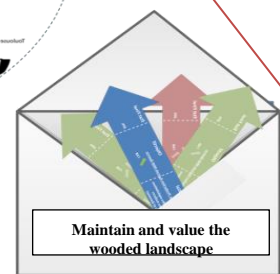
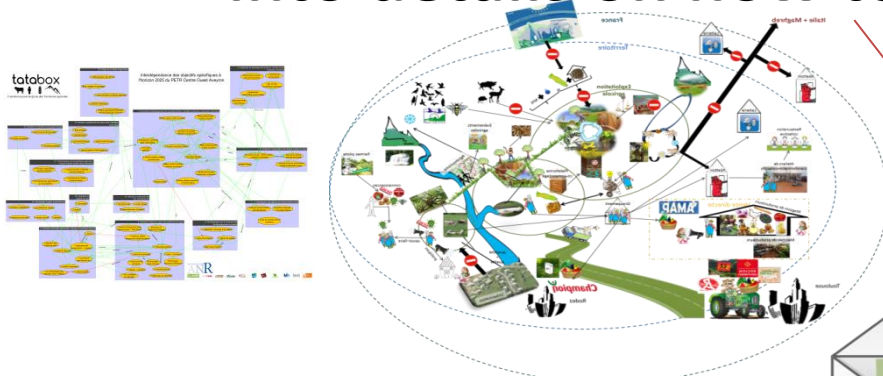


## Rich picture





# A diversity of methods and tools to go progressively into details on how to reach the targets



What did you already produced?

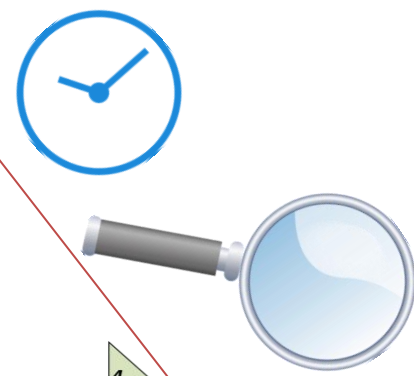
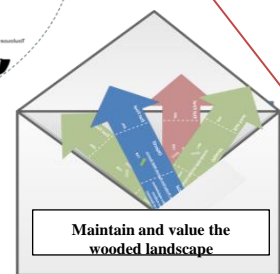
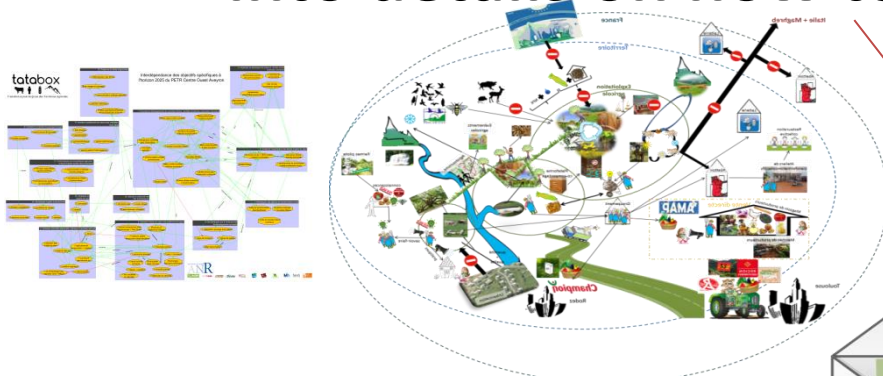
Are there priority clusters?



How do you organize the targets in each cluster?

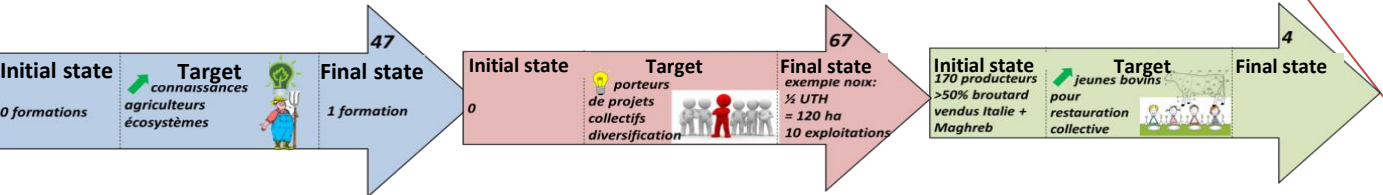


# A diversity of methods and tools to go progressively into details on how to reach the targets

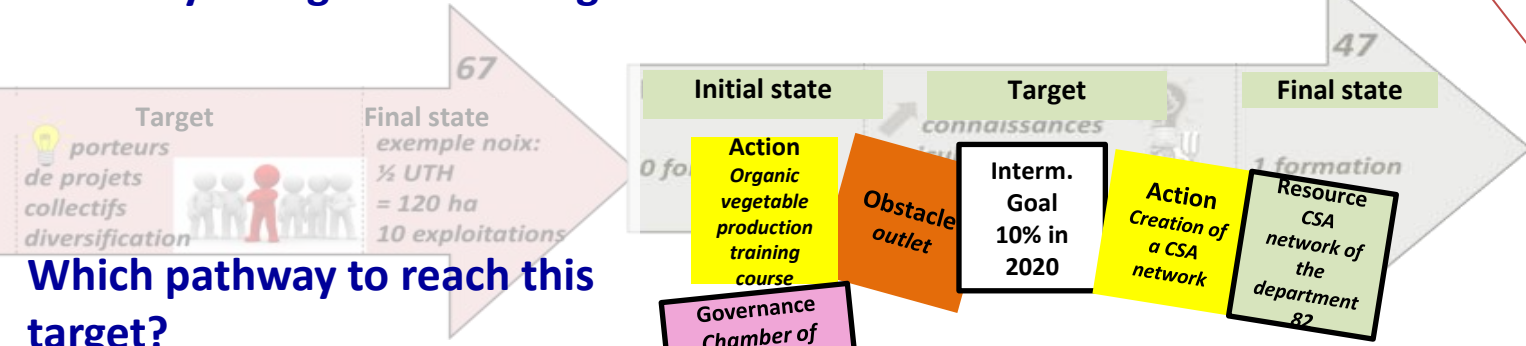


What did you already produced?

Are there priority clusters?



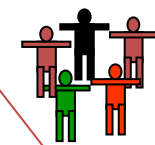
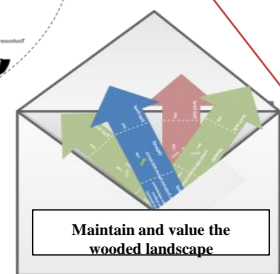
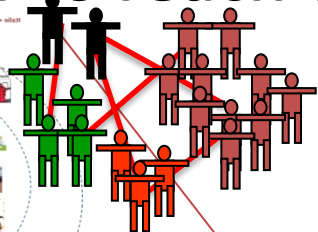
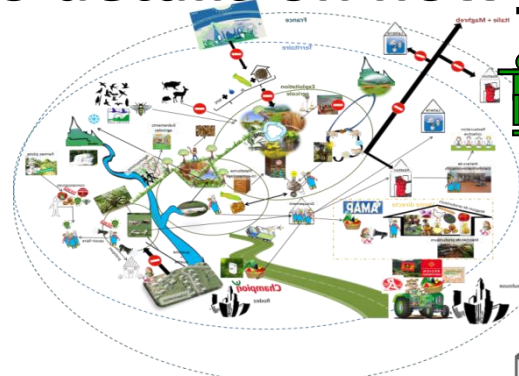
How do you organize the targets in each cluster?



Which pathway to reach this target?

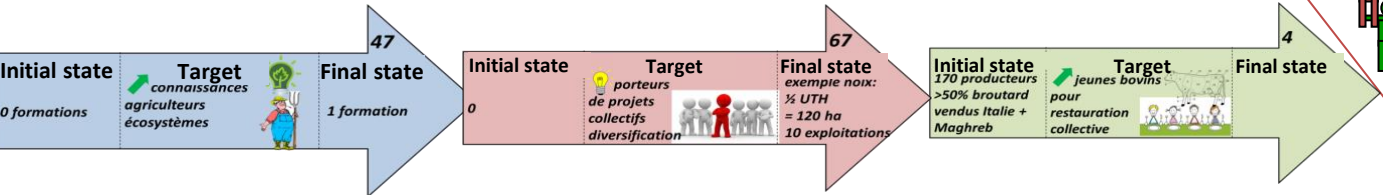


# A diversity of methods and tools to go progressively into details on how to reach the targets

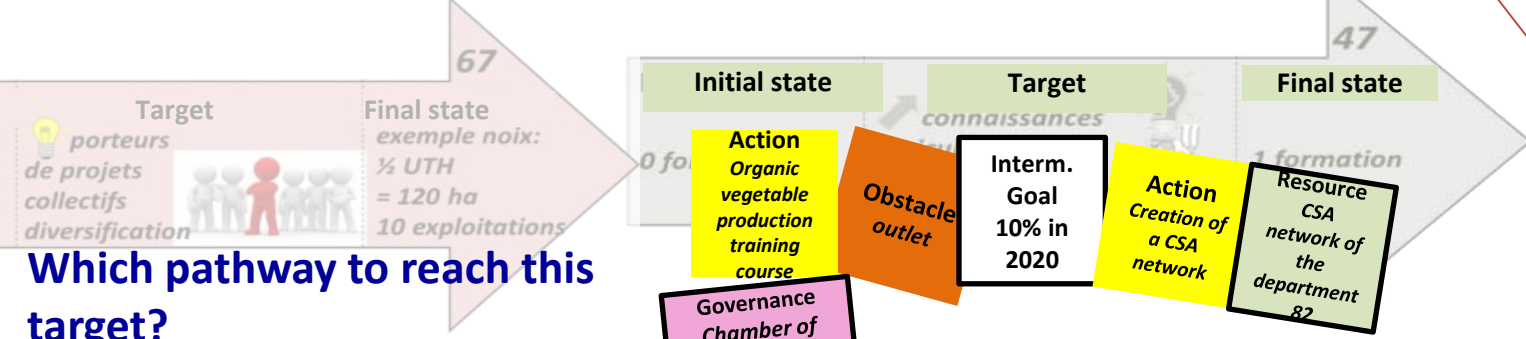


What did you already produced?

Are there priority clusters?

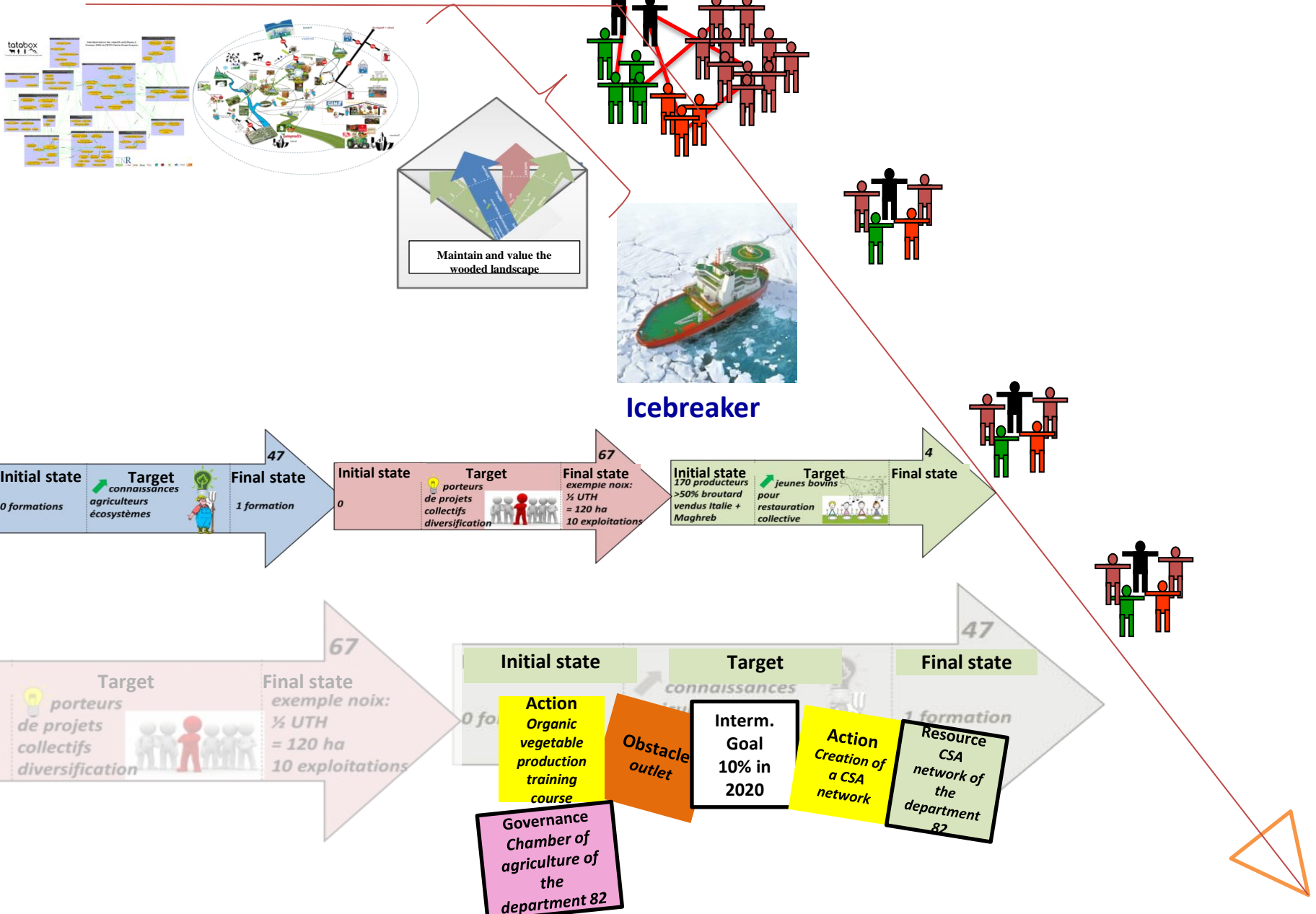


How do you organize the targets in each cluster?

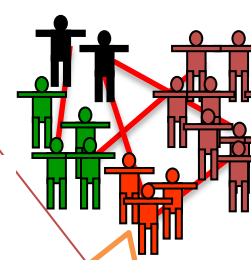
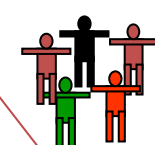
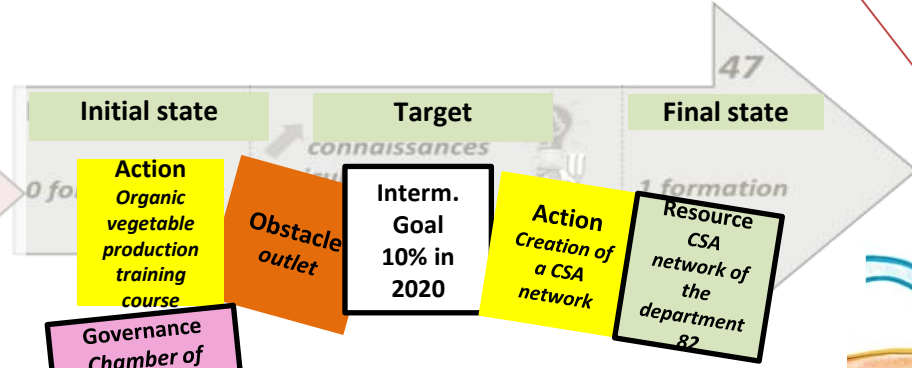
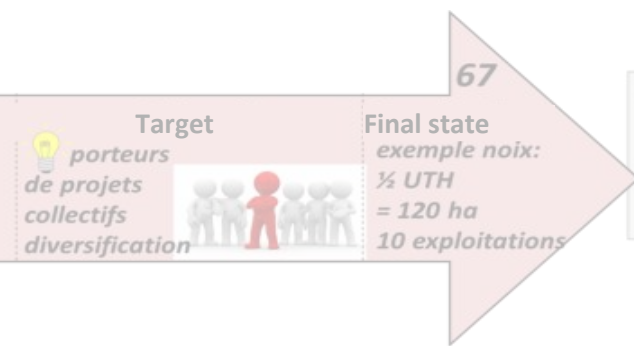
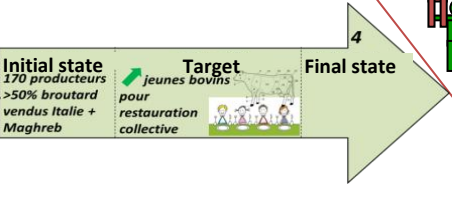
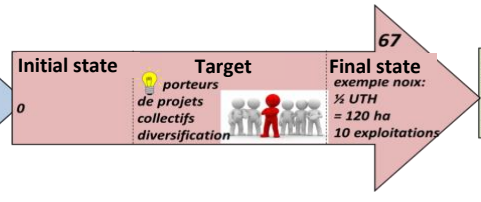
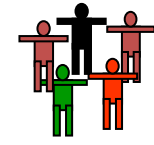
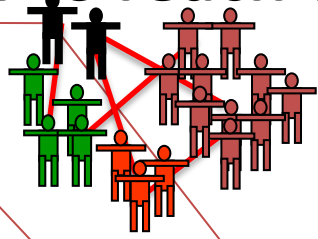
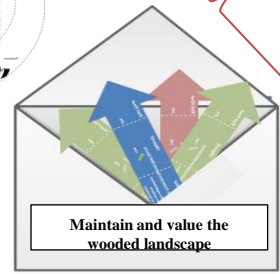


Which pathway to reach this target?

# A diversity of methods and tools to go progressively into details on how to reach the targets



# A diversity of methods and tools to go progressively into details on how to reach the targets



Convergence





# Dense outputs



Collage of project planning cards for various initiatives. Each card includes 'Etat initial', 'Objectif', and 'Etat final' sections, along with specific actions and resources. Topics include agricultural production, rural development, and community support.

Collage of project planning cards, including one for 'Eclairage public' (public lighting) and another for 'Eclairage des routes' (road lighting). Cards detail objectives like 'améliorer la visibilité' and 'sécurité des usagers'.



Project planning cards for 'Développer la culture' and 'Développer la cuisine'. Includes actions like 'organiser des ateliers' and 'mettre en place des ateliers de cuisine'.



Collage of project planning cards, including one for 'Eclairage des routes' and another for 'Eclairage public'. Cards detail objectives like 'améliorer la visibilité' and 'sécurité des usagers'.

Project planning cards for 'Appart de Services de Petits et Moyens Ruraux'. Includes actions like 'aider à la mise en place de services' and 'aider à la mise en place de services'.

Project planning cards for 'Appart de Services de Petits et Moyens Ruraux'. Includes actions like 'aider à la mise en place de services' and 'aider à la mise en place de services'.

Project planning cards for 'Appart de Services de Petits et Moyens Ruraux'. Includes actions like 'aider à la mise en place de services' and 'aider à la mise en place de services'.

Collage of project planning cards, including one for 'Appart de Services de Petits et Moyens Ruraux' and another for 'Appart de Services de Petits et Moyens Ruraux'. Cards detail objectives like 'aider à la mise en place de services'.

Project planning cards for 'Appart de Services de Petits et Moyens Ruraux'. Includes actions like 'aider à la mise en place de services' and 'aider à la mise en place de services'.

Project planning cards for 'Appart de Services de Petits et Moyens Ruraux'. Includes actions like 'aider à la mise en place de services' and 'aider à la mise en place de services'.

Project planning cards for 'Appart de Services de Petits et Moyens Ruraux'. Includes actions like 'aider à la mise en place de services' and 'aider à la mise en place de services'.

Collage of project planning cards, including one for 'Appart de Services de Petits et Moyens Ruraux' and another for 'Appart de Services de Petits et Moyens Ruraux'. Cards detail objectives like 'aider à la mise en place de services'.

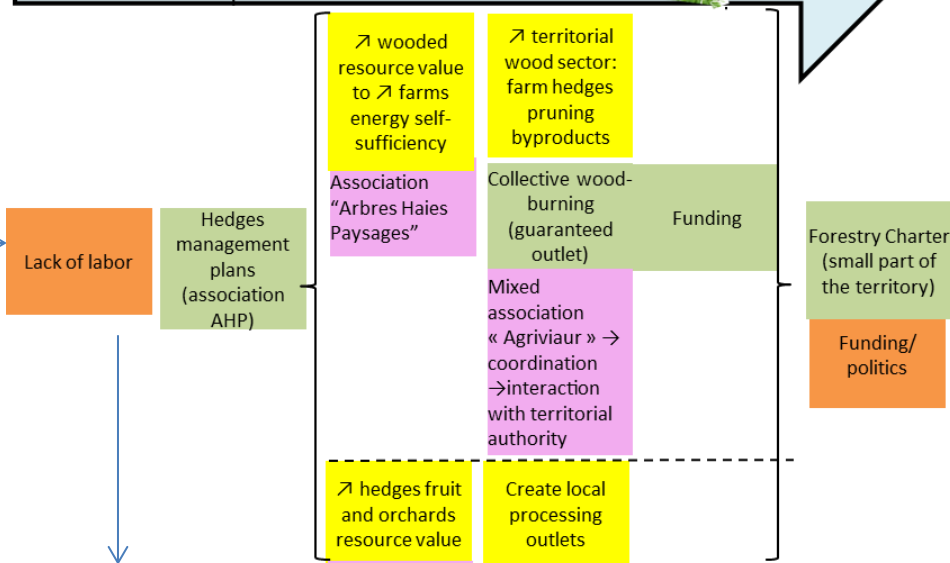
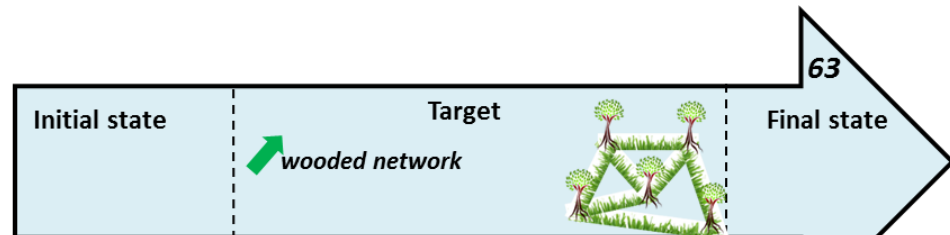
Project planning cards for 'Appart de Services de Petits et Moyens Ruraux'. Includes actions like 'aider à la mise en place de services' and 'aider à la mise en place de services'.

Project planning cards for 'Appart de Services de Petits et Moyens Ruraux'. Includes actions like 'aider à la mise en place de services' and 'aider à la mise en place de services'.

Project planning cards for 'Appart de Services de Petits et Moyens Ruraux'. Includes actions like 'aider à la mise en place de services' and 'aider à la mise en place de services'.

Collage of project planning cards, including one for 'Appart de Services de Petits et Moyens Ruraux' and another for 'Appart de Services de Petits et Moyens Ruraux'. Cards detail objectives like 'aider à la mise en place de services'.

# Processing results to create useful tools for the territorial planning



## Action plan

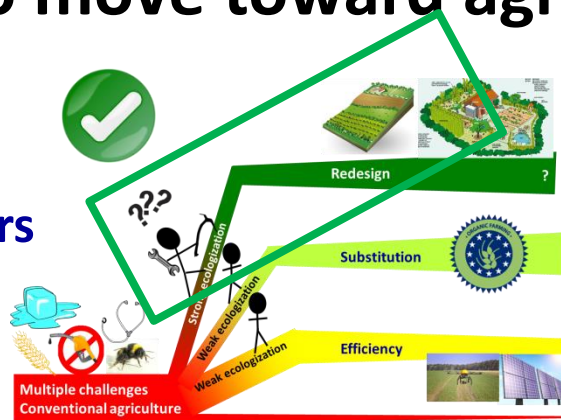
Target cluster	Target	Semester jan-16	jan-17	jan-18	jan-21
Maintain and value the wooded landscape	Create a regular wooded network between farms	-> wooded resource value to farms energy self-sufficiency	-> territorial wood sector: farm hedges pruning byproducts	-> hedges fruit and orchards resource value	-> territorial wood sector: farm hedges pruning byproducts
		Association "Arbres Haies Paysages"	Mixed association « Agrivieur » → coordination → interaction with territorial authority	Associations « Terres paysannes » and « Les amis du verger »	Association "Arbres Haies Paysages"
		-> hedges fruit and orchards resource value	-Create local processing outlets	Create employment to manage fruit trees in a farm network	Collective wood-burning (guaranteed outlet)
		Associations « Terres paysannes » and « Les amis du verger »	Start up	Start up	Mixed association « Agrivieur » → coordination → interaction with territorial authority
		-Create employment to manage tree fruits in a farm network	Visit of successful examples	Visit of successful examples	Association "Arbres Haies Paysages"
Limit shrub					

# In summary, we designed outputs for scientists and local stakeholder to move toward agroecology

## From theory to practice:

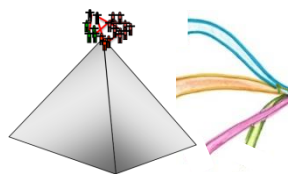
- Operational replicable method
- Validated by the local stakeholders

- ✔ Credible
- ✔ Salient
- ✔ Legitimate



## Ready to use outputs for stakeholders

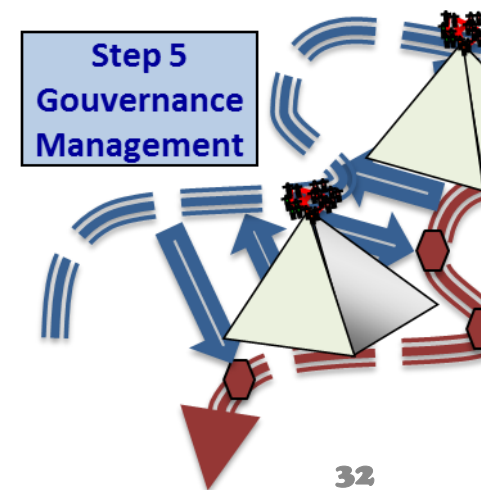
- ✔ Shared Diagnosis + Vision + Action plan
- ✔ Methodological guide



Tematic Area		Action Plan			
Priority	Objective	Activity	Responsible	Timeline	Status
High	Reduce chemical inputs	Adopt biological pest control	Local Farmers Association	Q1-Q2 2024	Completed
		Use organic fertilizers	Government Agency	Q3-Q4 2024	In Progress
Medium	Improve soil health	Plant cover crops	Local Farmers Association	Ongoing	Partial
		Reduce tillage	Government Agency	Ongoing	Partial
Low	Increase farmer income	Direct sales to consumers	Local Farmers Association	Ongoing	Partial
		Participate in subsidies	Government Agency	Ongoing	Partial

## Prospects:

- ? Researcher position on long term processes : design + implementation
- ? Polycentric governance/Step by step design
- ? Analysis learning process and position evolution



Questions?

# References

- Berg, T., & Pooley, R. (2013). Rich Pictures: Collaborative Communication Through Icons. *System Practice and Action Research*, 26(4), pp361-376.
- Cash, D. W., Clark, W. C., Alcock, F., Dickson, N. M., Eckley, N., Guston, D. H., ... Mitchell, R. . (2003). Knowledge systems for sustainable development. In *Proceedings of the National Academy of Sciences of the United States of America* 100 (pp. 8086–8091).
- Checkland, P., & Poulter, J. (2006). *Learning for Action: A Short Definitive Account of Soft Systems Methodology and its Use, for Practitioners, Teachers and Students* (John Wiley).
- Duru, M., Therond, O., & Fares, M. (2015). Designing agroecological transitions; A review. *Agronomy for Sustainable Development*. <https://doi.org/10.1007/s13593-015-0318-x>
- Duru, M., Therond, O., Martin, G., Martin-Clouaire, R., Magne, M. A., Justes, E., ... Sarthou, J. P. (2015). How to implement biodiversity-based agriculture to enhance ecosystem services: a review. *Agronomy for Sustainable Development*, 35(4), 1259–1281. <https://doi.org/10.1007/s13593-015-0306-1>
- Grimble, R., & Wellard, K. (1997). Stakeholder methodologies in natural resource management: a review of principles, contexts, experiences and opportunities. *Agricultural Systems*, 55(2). Retrieved from <http://www.sciencedirect.com/science/article/pii/S0308521X97000061>
- Hill, S. B., & MacRae, R. J. (1995). Conceptual framework for the transition from conventional to sustainable agriculture. *Journal of Sustainable Agriculture*, 7(1), 81–87.
- Horlings, L. G., & Marsden, T. K. (2011). Towards the real green revolution? Exploring the conceptual dimensions of a new ecological modernisation of agriculture that could “feed the world” *Global Environmental Change*, 21(2), 441–452. <https://doi.org/10.1016/j.gloenvcha.2011.01.004>
- Reed, M. S. (2008). Stakeholder participation for environmental management: A literature review. *Biological Conservation*, 141(10), 2417–2431. <https://doi.org/10.1016/j.biocon.2008.07.014>
- Reed, M. S., Graves, A., Dandy, N., Posthumus, H., Hubacek, K., Morris, J., ... Stringer, L. C. (2009). Who’s in and why? A typology of stakeholder analysis methods for natural resource management. *Journal of Environmental Management*, 90(5), 1933–1949. <https://doi.org/10.1016/j.jenvman.2009.01.001>
- Vinck, D. (2009). De l’objet intermédiaire à l’objet-frontière, Vers la prise en compte du travail d’équipement. *Revue D’anthropologie Des Connaissances*, 3(1), 51–72.
- Watson, R. T., Rosswall, T., Steiner, A., Töpfer, K., Arico, S., & Bridgewater, P. (2005). *Ecosystems and human well-being*. (R. T. Watson, T. Rosswall, A. Steiner, K. Töpfer, S. Arico, & P. Bridgewater, Eds.), *Ecosystems* (Vol. 5). World Resources Institute. <https://doi.org/10.1196/annals.1439.003>