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Teaching agroecology

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Teaching agroecology

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UMR Innovation

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Challenges: agroecology & e-learning



How to build capacities to support agroecological transition, for which the use of ecological processes is a key point for increasing productivity, supplying ecological services and reducing inputs ?

- What knowledge do actors / students require to understand and make use of ecological processes?
- How are these ecological processes modified by crop management practices, and how can they be optimised?
- Which innovations (technical, social, organisational) are necessary to facilitate the related change in practices, technical systems and professional social networks?
- How can these innovations be introduced into rapidly evolving production systems?
- How can training and research best develop the acquisition of knowledge and accompany change, to contribute to sustainable agricultural development?

Agroecology is knowledge intensive

How to teach agroecology?



- Does the learning process in agroecology networks lead to train differently?
(Brives *et al.*, 2010 ; de Tourdonnet *et al.*, 2014 ; Girard 2014)
- Does the on-going revolution in digital learning offer opportunities to meet the challenges of training for the agroecological transition?

How do practitioners learn agroecology?

- Link to the field:
 - Singular \leftrightarrow generic: contextualize / decontextualize
 - Observe, understand

Integrate diversities (contexts, biodiversity, practices, actors) to mobilize ecological processes



How do practitioners learn agroecology?

- Link to the field: *Integrate diversities (contexts, biodiversity, practices, actors) to mobilize ecological processes*
- **Link to action:**
 - do / make do / let do
 - A questioning of the frames of the design

*Give the ability to learn
and design by oneself*



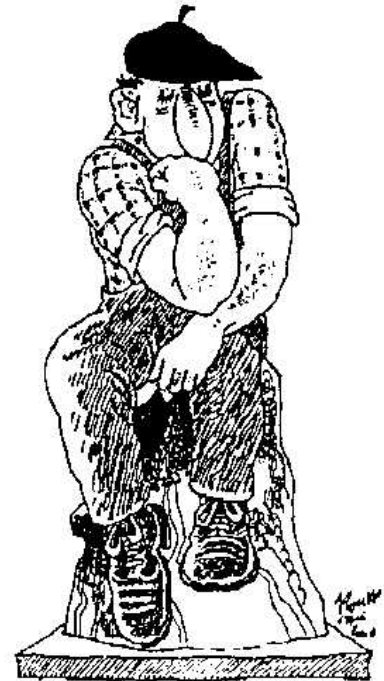
How do practitioners learn agroecology?

- Link to the field: *Integrate diversities (contexts, biodiversity, practices, actors) to mobilize ecological processes*
- Link to action: *Give the ability to learn, and design by oneself*
- **Peer learning**
Design devices for the exchange of practices (technical, pedagogical ...)



How do practitioners learn agroecology?

- Link to the field: *Integrate diversities (contexts, biodiversity, practices, actors) to mobilize ecological processes*
- Link to action: *Give the ability to learn, and design by oneself*
- Peer learning: *Design devices for the exchange of practices*
- **Inter-disciplinarity, Hybridization of knowledge**
Recognize, articulate, co-build agroecological knowledge



How do practitioners learn agroecology?

- Link to the field: *Integrate diversities (contexts, biodiversity, practices, actors) to mobilize ecological processes*
- Link to action: *Give the ability to learn, and design by oneself*
- Peer learning: *Design devices for the exchange of practices*
- Intrer-disciplinarity, Hybridization of knowledge: *Recognize, articulate, co-build agroecological knowledge*
- Unstable knowledge and definitions, controversies, beliefs, commitments, non shared sense

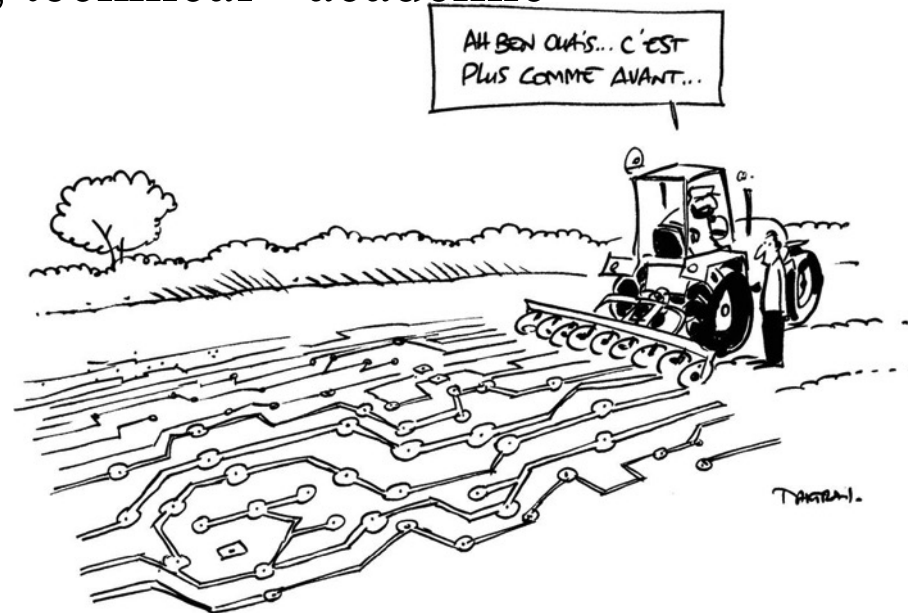
To situate oneself in relation to different standards and paradigms, to articulate the approaches



Challenges: agroecology & e-learning

- Needs for (massive, accessible) training and teaching on agroecology
- TIC : Digital native generation, internet access, smartphone...
- Need to include field, observation, experiences in the learning process
- Needs for peer learning
- Needs for partnership : interdisciplinarity, teachers – researchers - stakeholders, N-S, technical - academic

Numeric learning :
a mean to address
these issues ?



Our experiences

■ Projects :

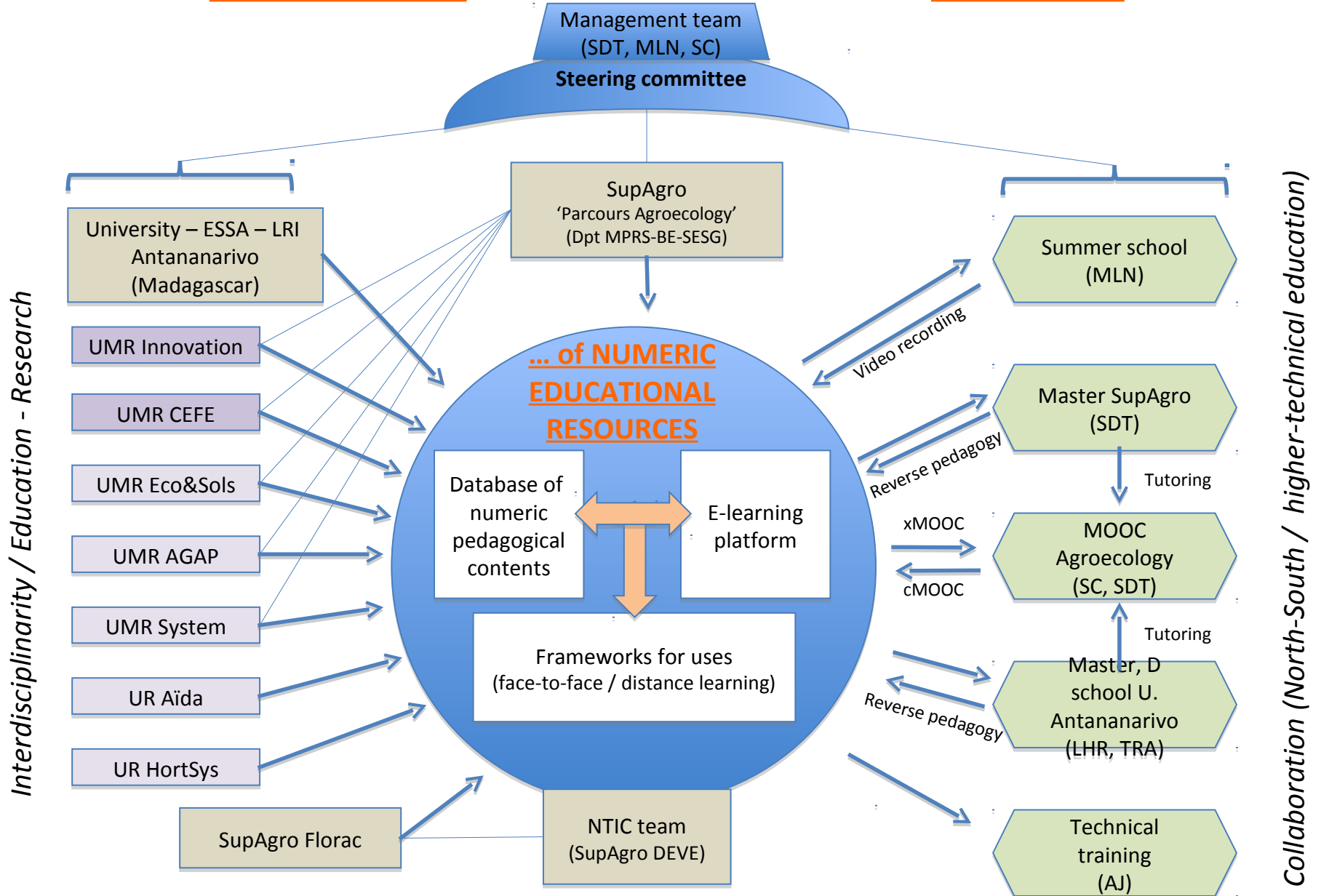
- PEPITES (2009-2013) : Ecological, technical and social innovation processes in conservation agriculture
 - PAMPA (2012-2013) : Programme d'appui multi-pays à l'agroécologie
 - IPERCA (2015-2017) : Innovative Pedagogical Resources in CA for SE Asia
 - **PARMI** (2014-2017) : Promoting agroecology demands innovation in education
-
- **MOOC agroécologie** (2015)
 - **Parcours Agroecology – 3 months** (2017)
 - **SupAgro agroecological farm** (2018)



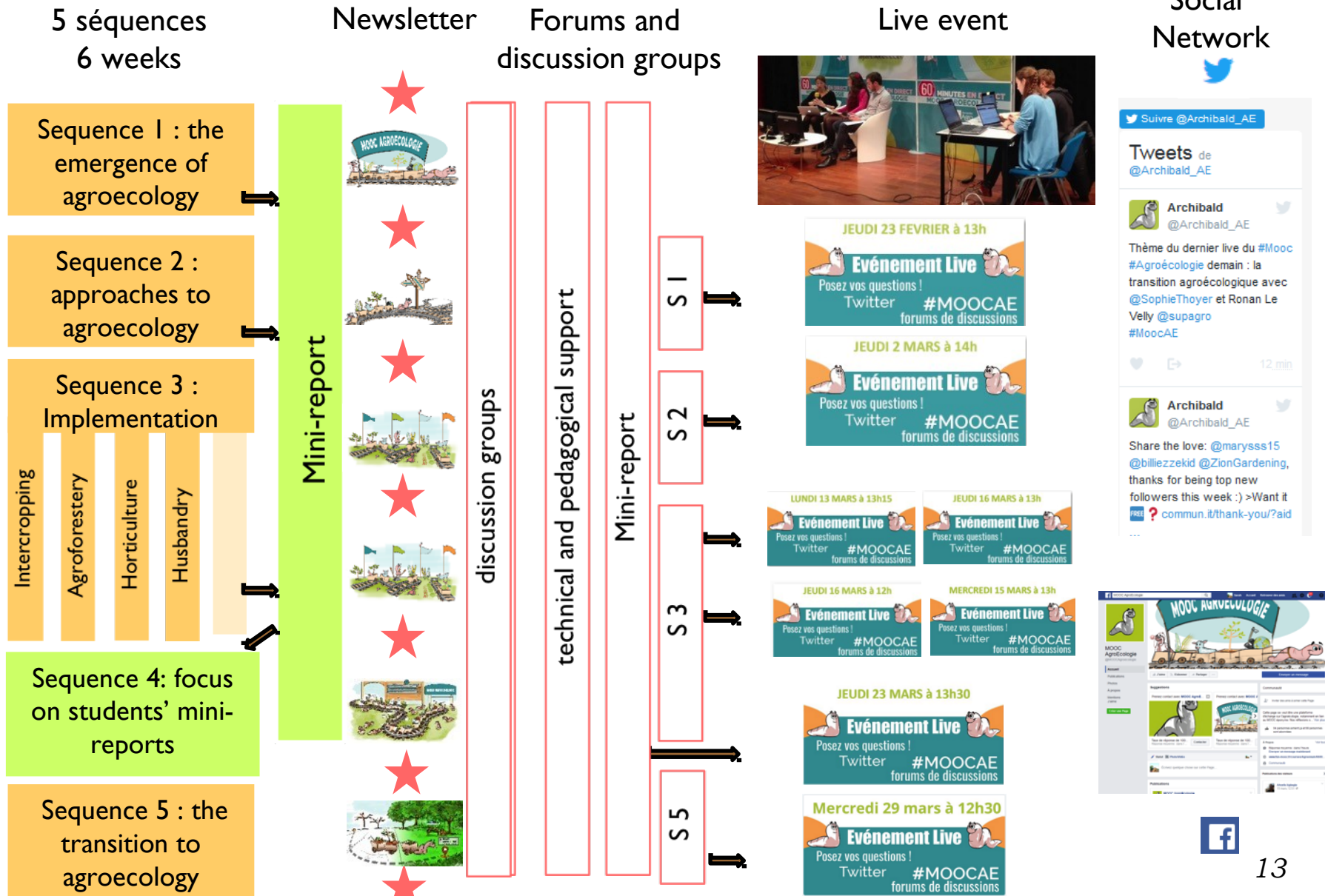
PARMI : Promoting Agroecology demands innovation in education

CONSTRUCTION...

... and USES...



The Mooc Agroecology



Teaching agroecology with e-learning



- Link to the field
→ *Images, videos, testimonies, investigations*
- Link to action
→ *Training by oneself, activities, constructivist approach*
- Peer learning
→ *Collaborative devices*
- Interdisciplinarity, Hybridization of knowledge
→ *Interdisciplinary contents, forums*
- Unstable knowledge, commitments:
→ *Forums, debates...*

Mooc agroecology : key figures



20 000
participants



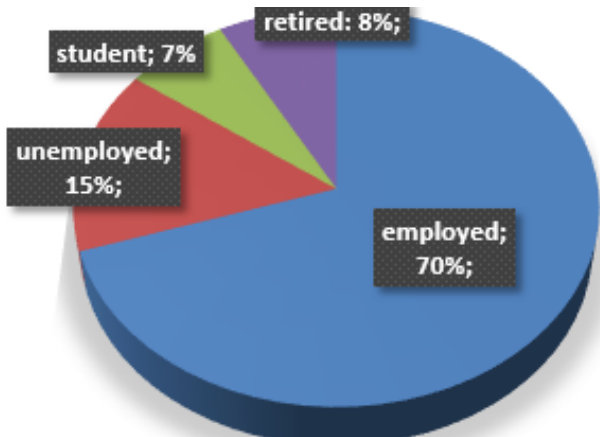
100
Countries



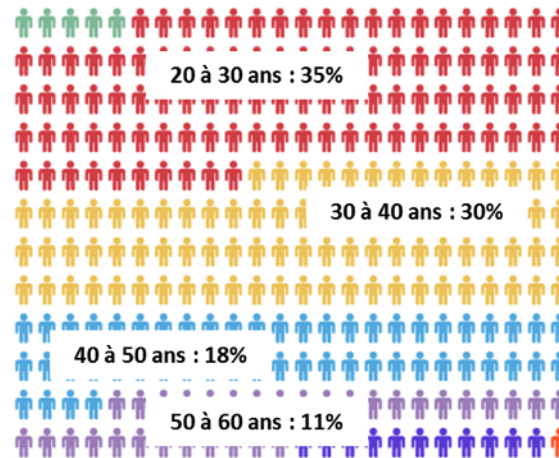
50
Students
for tutoring



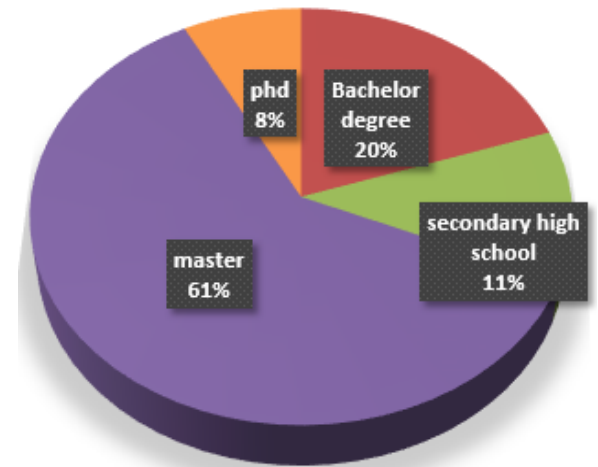
210
mini-reports



Occupation

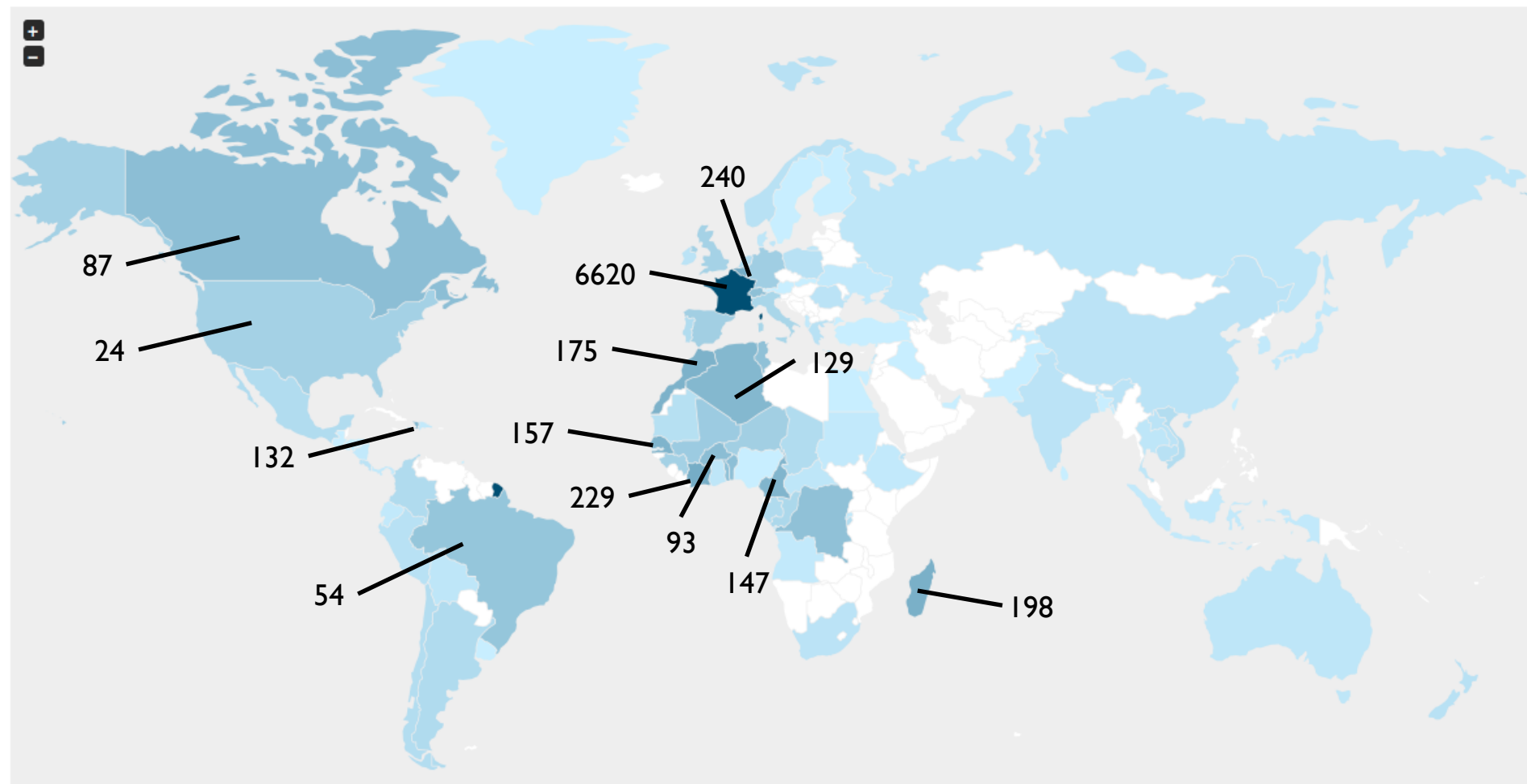


Age

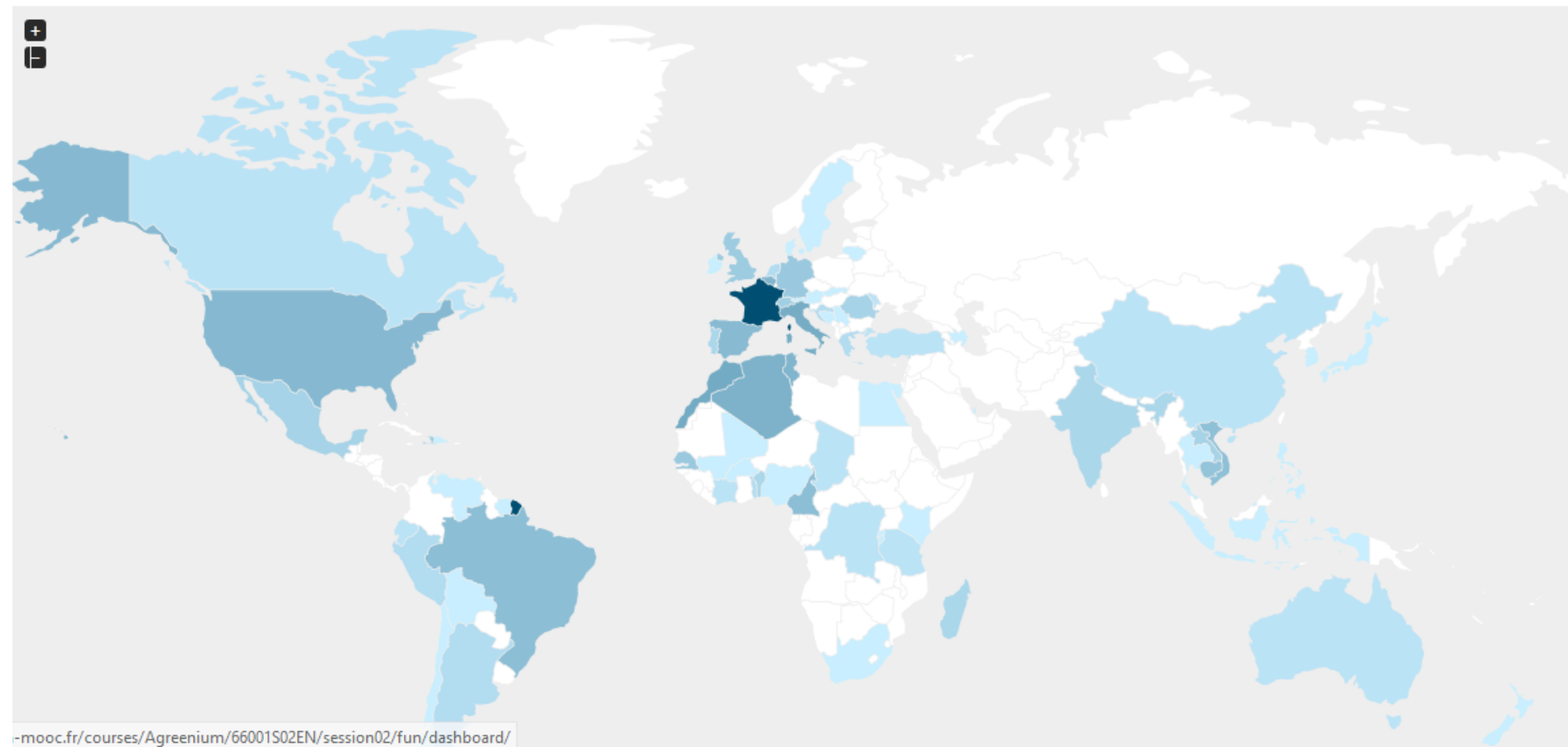


Study level

Key figures : participants location (french)



Key figures : participants location (english)



Back office

■ Institutional strengthening : SupAgro → Agreenium



Le Parisien (<http://www.leparisien.fr>)

Le premier Mooc mondial sur l'agroécologie est français

24 Fév. 2015, 21h53 | MAJ : 24 Fév. 2015, 21h53



Les ministres de l'Economie Emmanuel Macron (G), de l'Agriculture Stéphane Le Foll (C) et la secrétaire d'Etat à l'Enseignement supérieur Geneviève Fioraso assistent le 24 février 2015 à Paris à la présentation du premier Mooc sur l'agroécologie **Stéphane de**

■ Mooc team :

- 11 lecturer-researchers : agronomy, ecology, sociology, ethnology, soil biology, animal science, economy
- 2 journalists : political sciences
- 9 researchers (INRA, CIRAD, IRD, MNHN)
- 7 persons from TIC team SupAgro : 2 pedagogical engineers, web publisher, community manager, audio-visual technician, graphics designer, computer technician

Back office

- Blended learning : MOOC – Agroecology curricula of SupAgro
 - Learning with the mooc contents : videos, forums, investigations...
 - Taking advantage of the Mooc to build new capacities : community management, forum animation, communication (live events...)

- English (2017) and Spanish (2019) versions :
 - Translation
 - Resources substitution
 - Resources building
 - Mooc session animation



Parcours « Agroecologie » : guidelines

- **Build consistent and open training :**
 - 3 months curricula + 3 months internship
- **Gather teachers for interdisciplinary training**
 - 11 teachers-researchers : agronomy, ecology, sociology, animal science, soil ecology, genetic, anthropology, economics.
- **Pedagogical innovation**
 - MOOC Agroecology : training, tutoring, supervision, animation of live events
 - Reverse pedagogy, project...



UE 1 : What is agroecology?

■ Objectives

- to present the players and the different dimensions of agroecology
- to analyze the reference framework on which they are based

■ Contents

- Historical and scientific approach to understand how agroecology has emerged, has shifted the lines within various disciplines and has generated controversy
- Analysis of the diversity of actors and of experiences of the agroecology, rooted in the real world

■ Interviews / Visits



UE 2 : Fundamentals of agroecology

■ Objectives

- to know the processes underpinning agroecology to mobilize ecological functionality in agro-ecosystems

■ Contents

- Ecological, Biological, Technical and Social Processes in agroecology
- Biodiversity and diversity of practices in agro-ecosystems
- Construction of agroecology knowledge and learning.

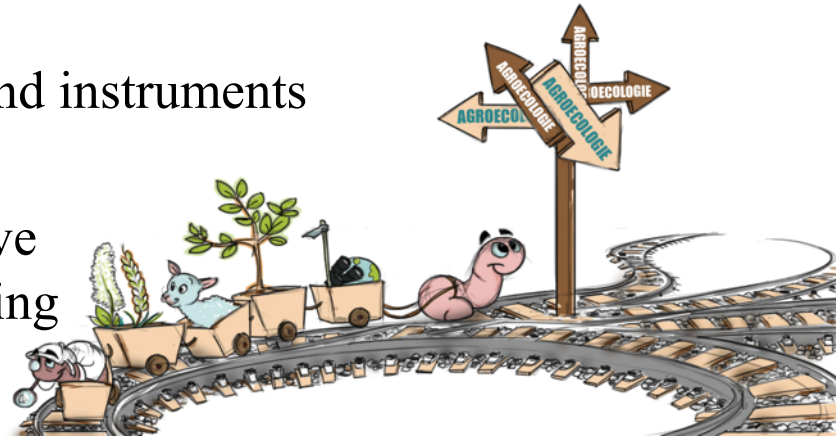
■ Field camp



UE 3 : The agroecological transition

■ Objectives

- To know the concepts, approaches and instruments of the agroecological transition
- To strengthen students' ability to drive change and to assess the corresponding impacts at the economic, social, agricultural and ecological levels



■ Contents

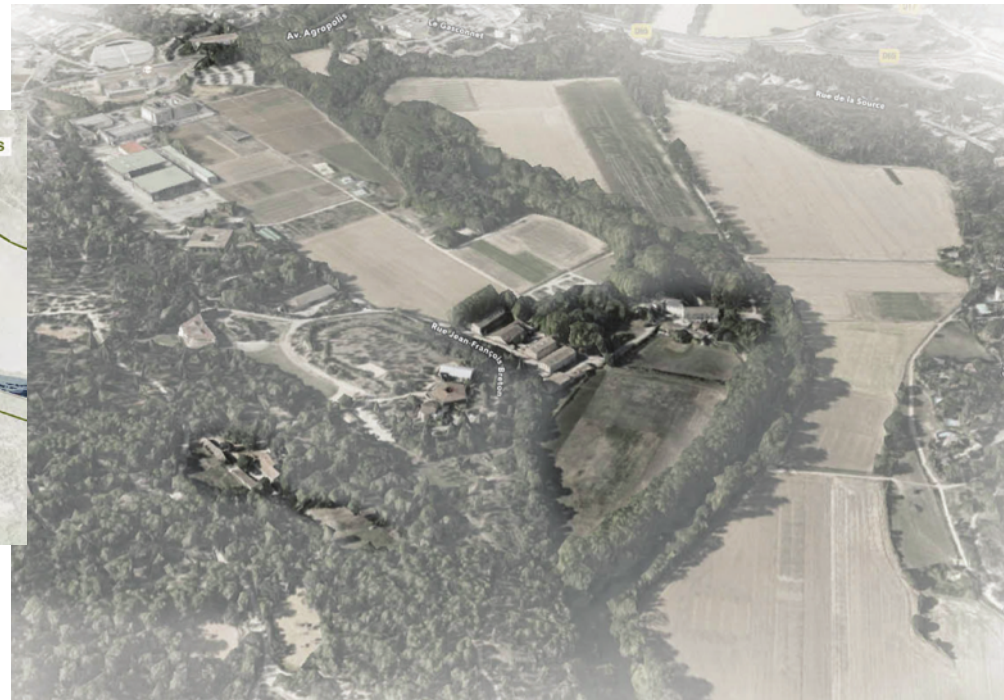
- Innovation and agro-ecological transition
- Greening of public policy,
- Evaluation methods and (co) design of agro-ecological systems,
- Ecological Engineering

■ Project of agroecological transition of a small territory



Agroecological farm project

- 3 goals
 - Install a market gardner on a plot of SupAgro
 - Make it a place of educational resources
 - Open to the public (in connection with the zoo)



Conclusion : teaching agroecology



Build training / curricula / capacity building devices that allow :

- To enhance the students capacities to support agroecological transition
- To make knowledge accessible to the greatest number, to the most deprived, throughout life
- To exchange and train between peers / between different people
- To innovate, to leave a place for the unexpected
- To structure and animate research groups - training - development

Conclusion



Conclusion



MOOC
E-learning

Teaching
agroecology

International
partnership

Parcours
agroecology



Farm

