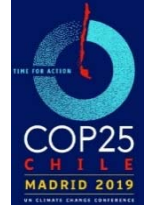




Madrid, December 11th 2019 – 4th FORUM of PARTNERS



Towards an international research consortium on Soil Carbon

Cristina ARIAS-NAVARRO

Scientific Officer, INRA, France





- H2020 CIRCASA has **22 partners** including the research secretariats of **4p1000**, **GRA** and **FACCE-JPI**
- Together with these initiatives and with CCAFS-CGIAR, it has direct outreach to a total of **82 countries** accounting for **85% of the world's total research on soil C sequestration in agriculture**



Countries partners of CIRCASA, 4p1000, GRA, FACCE-JPI and CCAFS



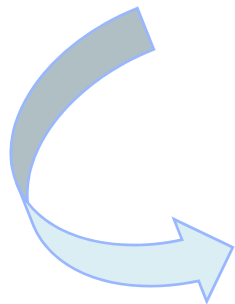
WORK PLAN



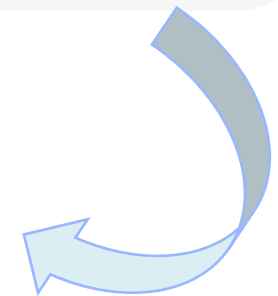
Review Scientific & Technical Evidence



Stakeholder's views:
Knowledge & Research needs



Co-design a Strategic
Research Agenda



Facilitating the establishment of an
International Research Consortium (IRC)



Stakeholder's views: Knowledge & Research needs

Online Survey



What new knowledge is needed by farmers to increase uptake of SOC management options?

What new knowledge is needed by other stakeholders to increase uptake of SOC management options?

10 Regional workshops



What knowledge is available but needs to be made accessible to farmers and other stakeholders?

What new research is needed as a result of the knowledge needs?

CIRCASA regional Hubs



[CIRCASA, 2019. Assessing barriers and solutions to the implementation of SOC sequestration options]



Review Scientific & Technical Evidence

14 Research Challenges to SOC in agriculture

Theme 1



Processes

1. Stabilisation of soil carbon
2. Soil C saturation
3. Role of Microorganisms in soil C dynamics
4. SOC and greenhouse gas emissions

Theme 2



Management & Monitoring

5. Deep soil stabilisation
6. Measuring and Monitoring
7. Vegetation management
8. Organic amendment management
9. Mixed agricultural practices

Theme 3



Barriers

10. Preventing soil organic loss
11. Economic
12. Socio-cultural barriers
13. Institutional/legal barriers
14. Technological readiness for SCS



[CIRCASA, 2019. *The science base of a strategic research agenda*]



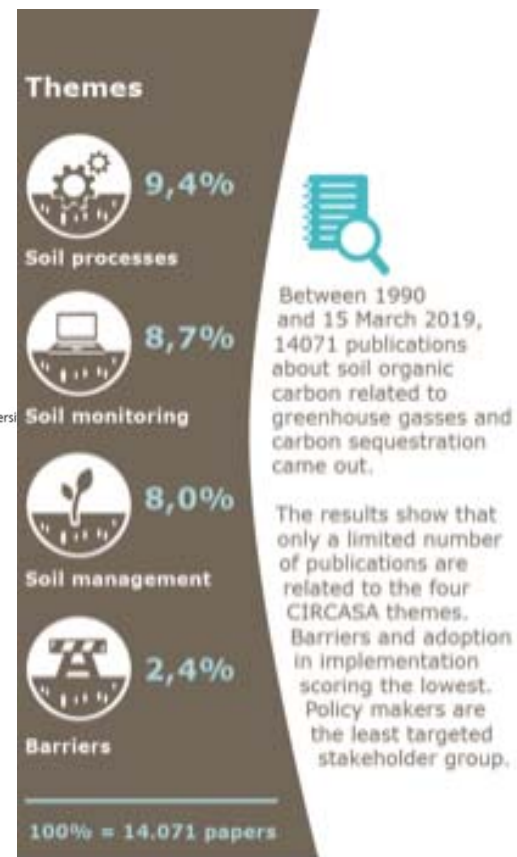
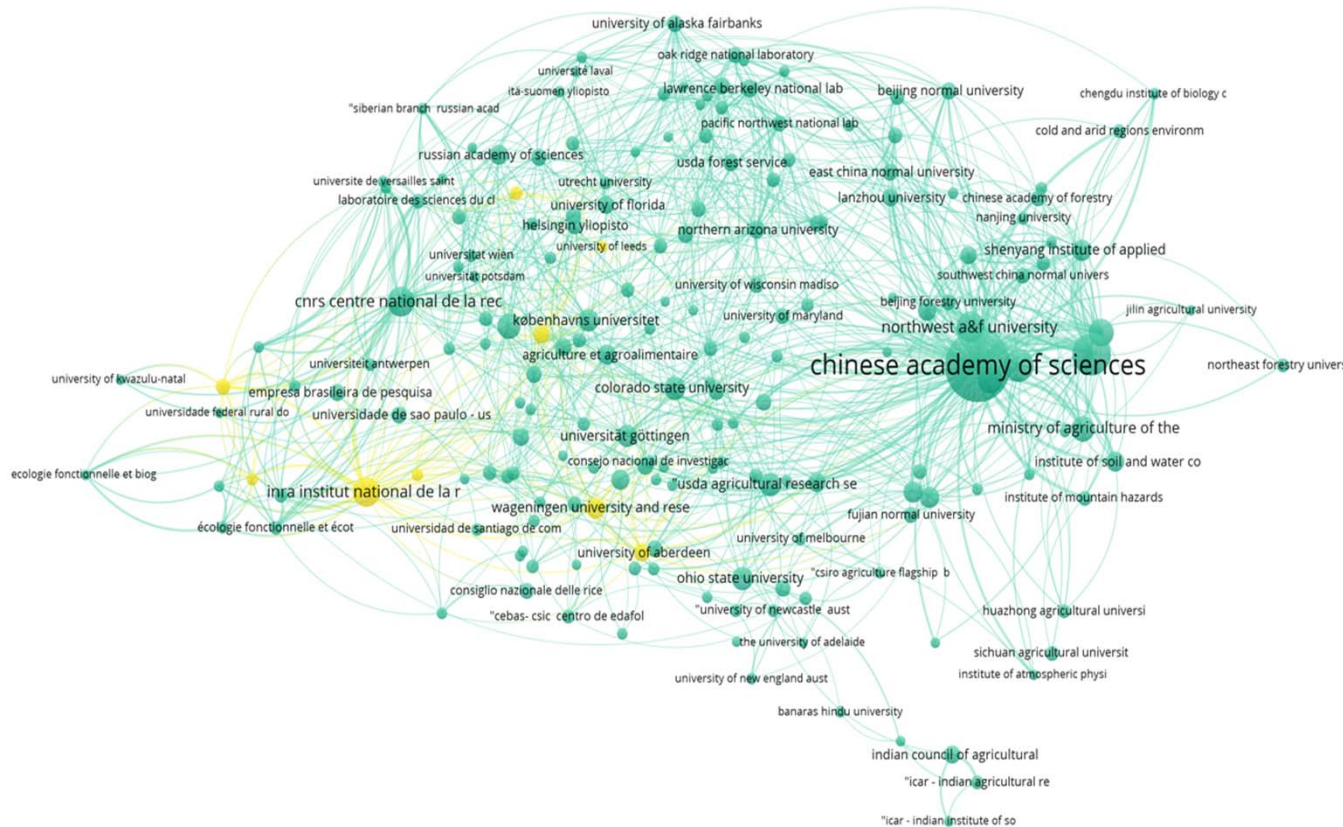
Review Scientific & Technical Evidence

Stocktake:

To identify gaps in research based on the CIRCASA themes

To identify complementary networks

14 071 articles



[CIRCASA 2019, "The Network map and dialogue"]

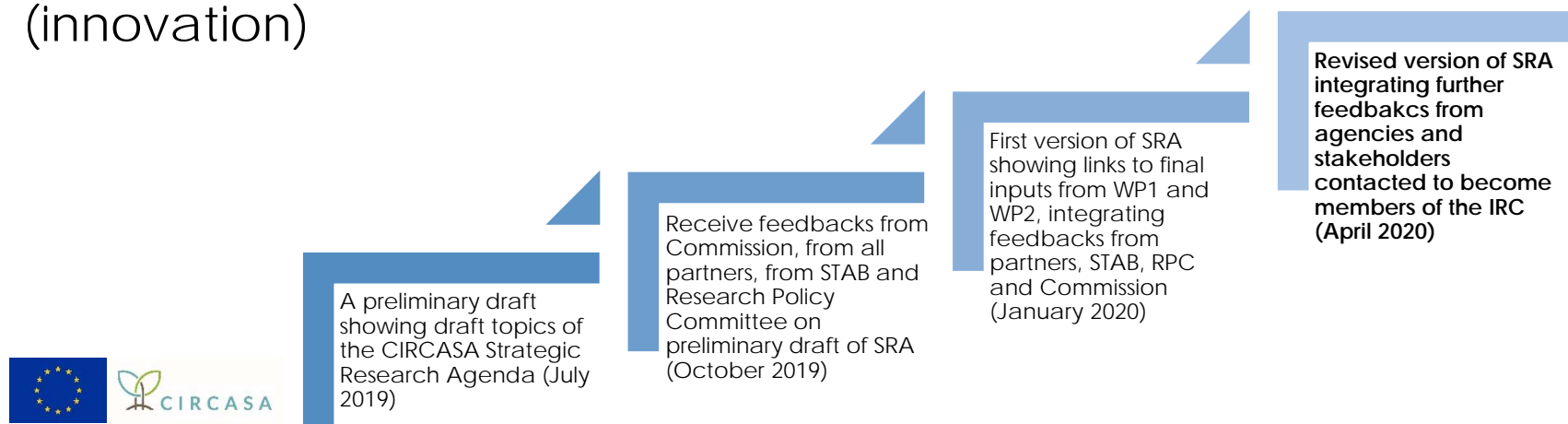


Co-designed Strategic Research Agenda

SRA supporting the alignment of research into an International Research Consortium

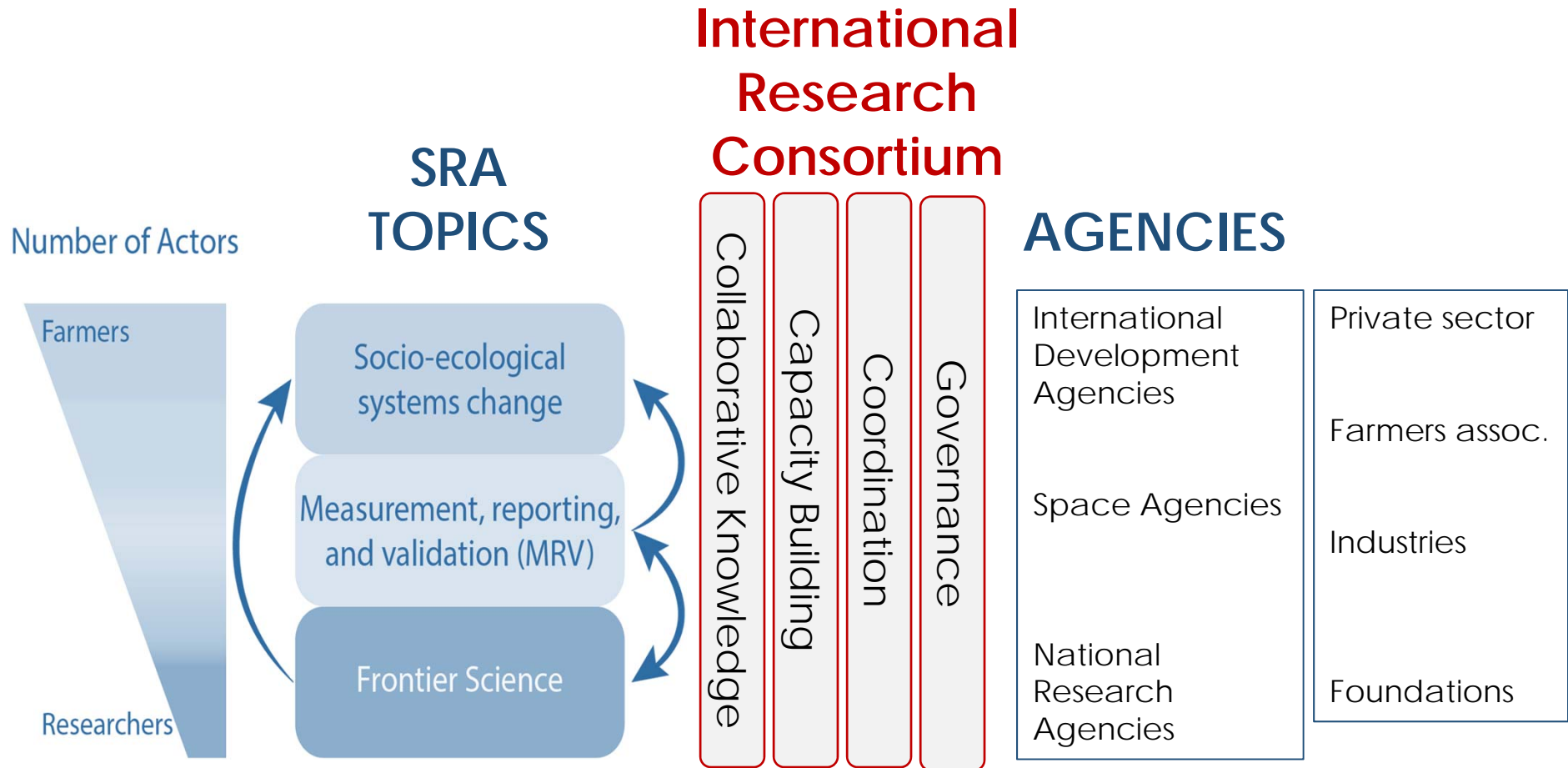
Preliminary draft topics for the SRA:

- **Topic 1** - Unlocking the potential of soils (Frontiers research)
- **Topic 2** - International soil carbon MRV System (Technological innovation)
- **Topic 3** - Innovation for scaling out soil carbon sequestration (innovation)



Preliminary vision of the CIRCASA IRC

Developing an implementation plan



Formal Dialog with partners to identify key people in each country

Topic 1 - Unlocking the potential of soils (frontiers research)

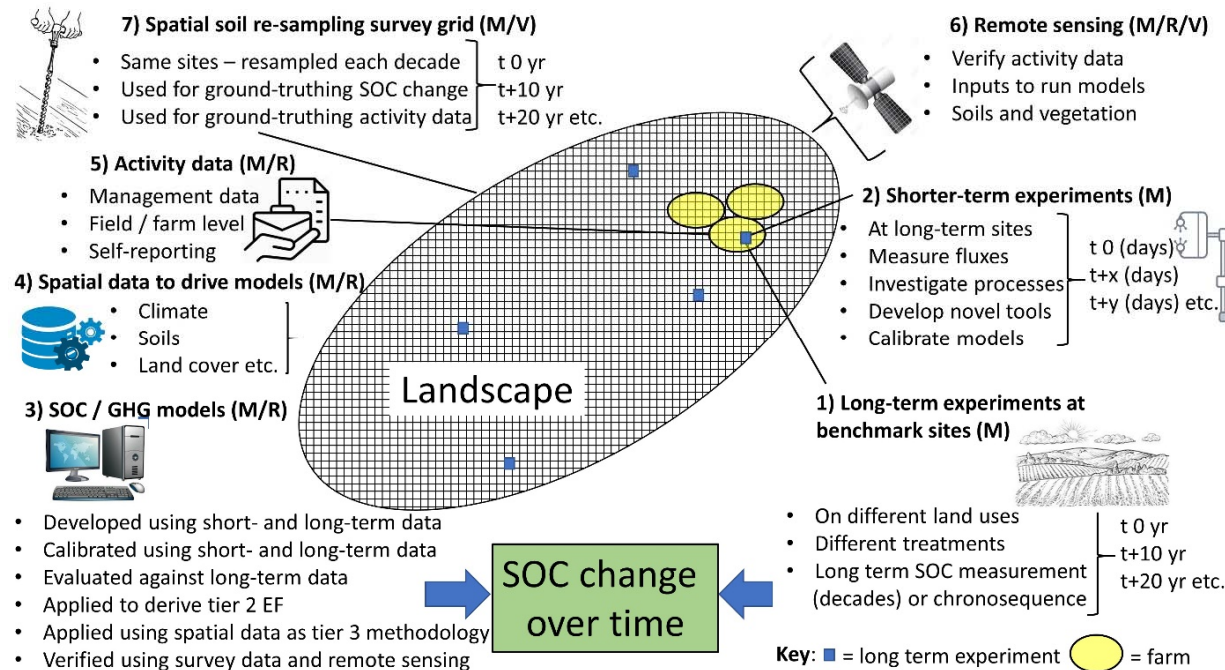
System's biology, ecology and physico-chemistry need to be combined to create the next generation of data and models that will help to unlock the potential of agricultural soils by improving our understanding of the role of agricultural management for soil health.

- Interdisciplinary research
- Advanced e-infrastructures for soil biology
- Unlocking the potential of soil biology and ecology for soil carbon management

International calls with the EJP SOIL, contacts with research agencies e.g. NIFA (USA)

Topic 2 - International soil carbon monitoring system

[Technological innovation]



Vision for a global framework for Monitoring, Reporting and Verification of SOC change (Smith, Soussana et al. 2019, Global Change Biology)

Carbon Budgeting Approach

- baselines of soil carbon stocks
- Tier 3 method for national inventories of soil carbon
- soil carbon certification in domestic projects

Collaboration: EC JRC, Copernicus, GEOSS (Group on Earth Observations), ICOS (Integrated Carbon Observation System), GSP (Global Soil Partnership)

Topic 3. Innovation for scaling out soil carbon sequestration

Novel technologies and options

- improved root phenotypes (plant breeding)
- soil carbon inputs from biochar, biogas digestates and organic fertilizers
- precision agriculture applied to soil carbon (to develop no till, cover crops, long crop rotations, crop mixtures, agroforestry, etc.)

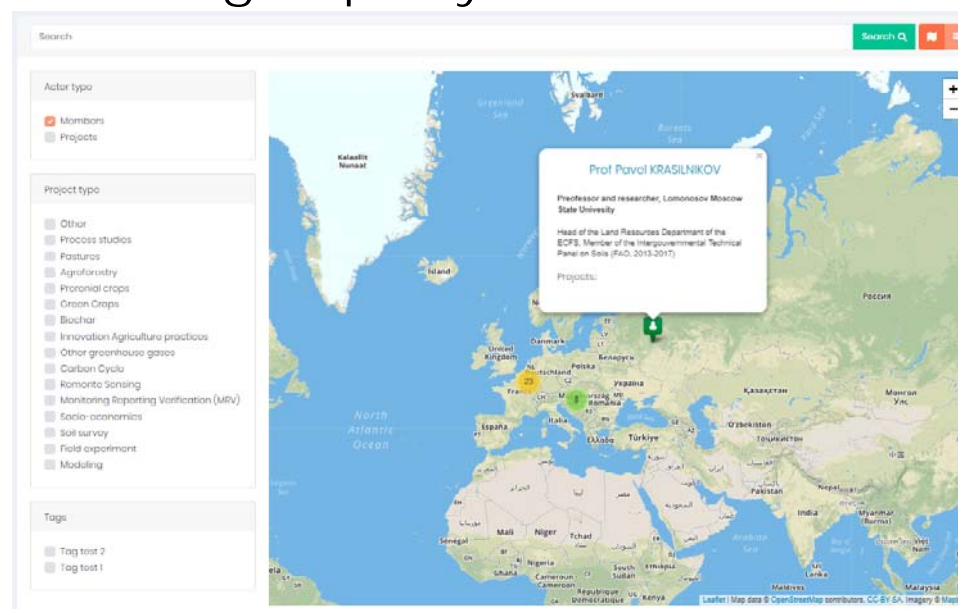
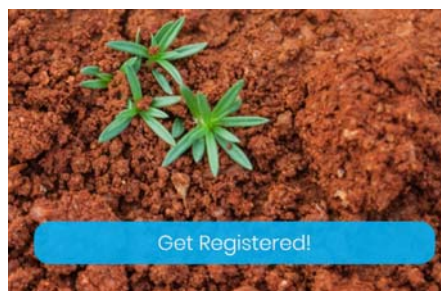
Developing public-private consortia enhancing international cooperation on these example topics would be an effective way to foster innovation in this field, while developing the European leadership.

Topic 3. Innovation for scaling out soil carbon sequestration

[Knowledge sharing and capacity building]


ocp.circasa-project.eu

Developed to structure and integrate existing knowledge on soil organic carbon sequestration in agriculture. This includes the sharing of information, data, and knowledge openly accessible.



An open data repository with geospatial and modelling data

Thank you for your attention!

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