

International Conference “Groundwater, key to the Sustainable Development Goals”.
Paris, May 18-20th, 2022

[02k - ROUND TABLE - Hydrogeology and hydrogeologists in Sahelian countries: specific challenges for the achievement of SDG targets](#)

An overview of Sahelian hydrogeology through a bibliometric analysis (2000-2020) to sustain the groundwater resources management in the Sahel.



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Université
Cheikh Anta Diop
(3)



THE WORLD BANK
(4)

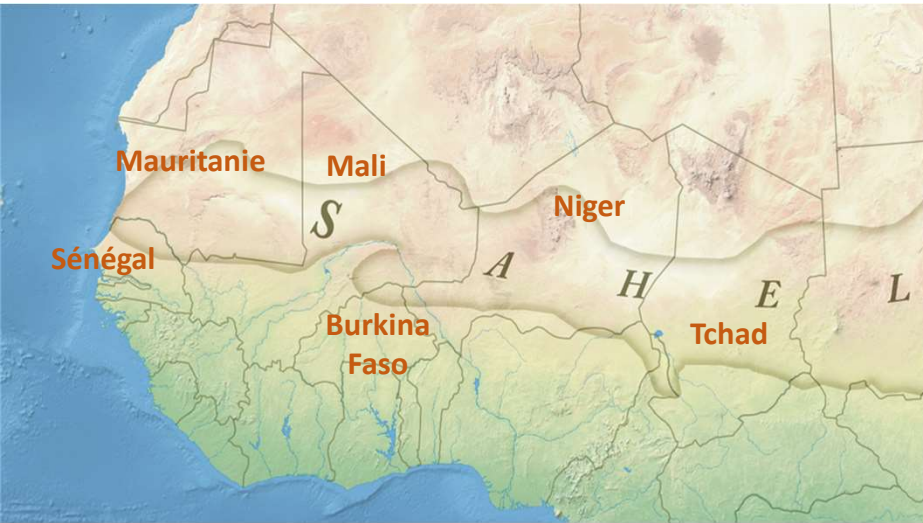


Context

Material, methods

Results

Conclusion



In the Sahel, water scarcity and management issues due to :

- Climate aridity
- Economic, political, security and development conditions
- **Lack of local expertise in hydrogeology**

Literature review of the **international scientific research on Groundwater (2000-2020)** in 6 Sahelian countries :

Burkina Faso, Chad, Mauritania, Mali, Niger, and Senegal

Framework of the ***Sahel Groundwater Initiative*** led by the World Bank

Context

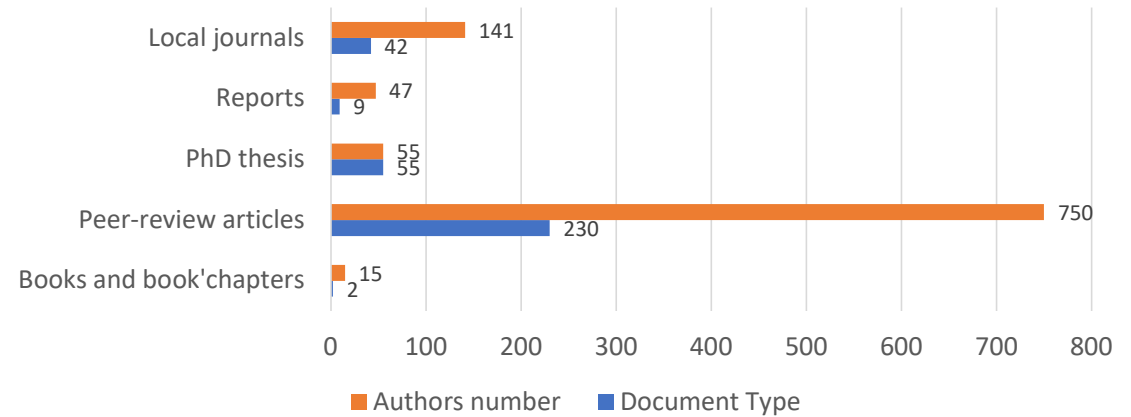
Material / methods

Results

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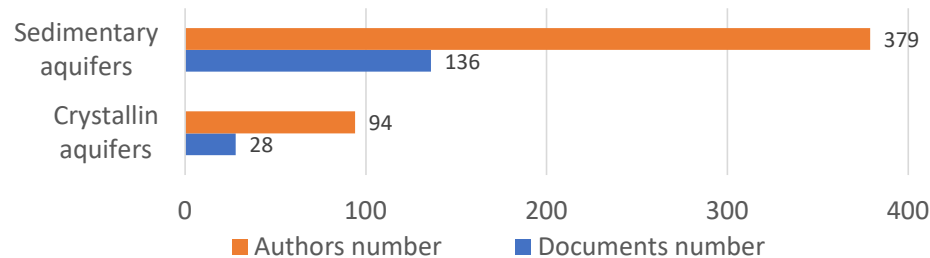
Creation of a database :

- **1008 authors** and **338 documents**
exclusively on groundwater in the Sahel



- author's names, gender, affiliations, city and country of practice
- 5 scientific topics (GW resources identification/characterization, Water quality and pollution risks, Impacts on GW resources, GW management/water policy, GW uses)

- type of aquifer



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Statistics



Mapping

- Authors
- Keywords

- Gender
- Institutions
- Country/Cities



Networks visualization



VOSviewer
Visualizing scientific landscapes

Nees Jan van Eck and Ludo Waltman
Centre for Science and Technology Studies
Leiden University

Context

Material, methods

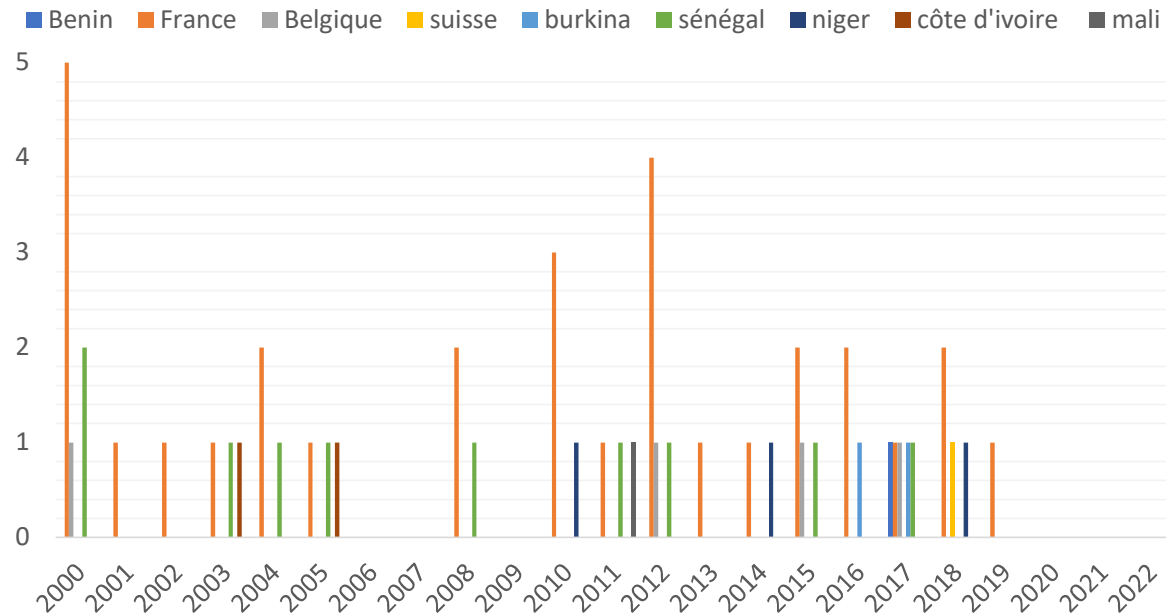
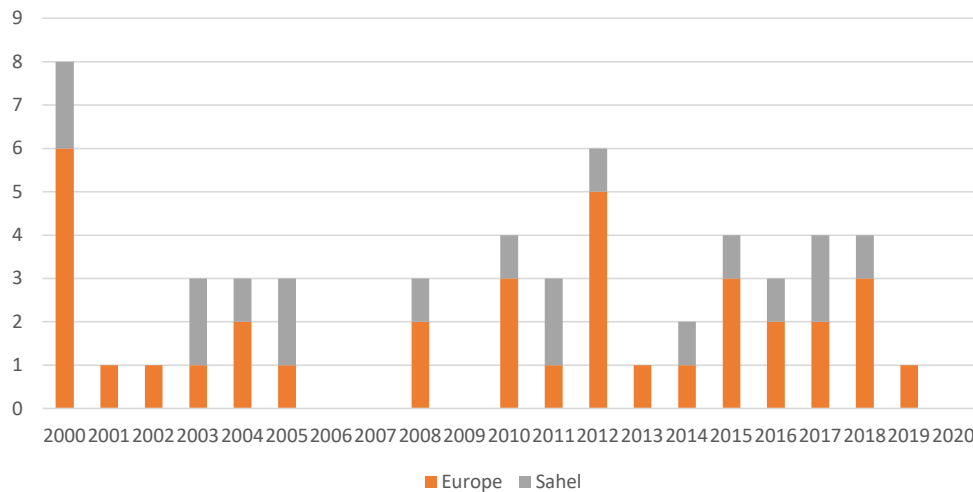
Results

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Academic training :

55 PhD thesis since 2000 : 31 realized in France, 10 in Senegal, 4 in Belgium.....

PhD thesis/year since 2000



Efficient South-North cooperation for academic training of young Sahelians

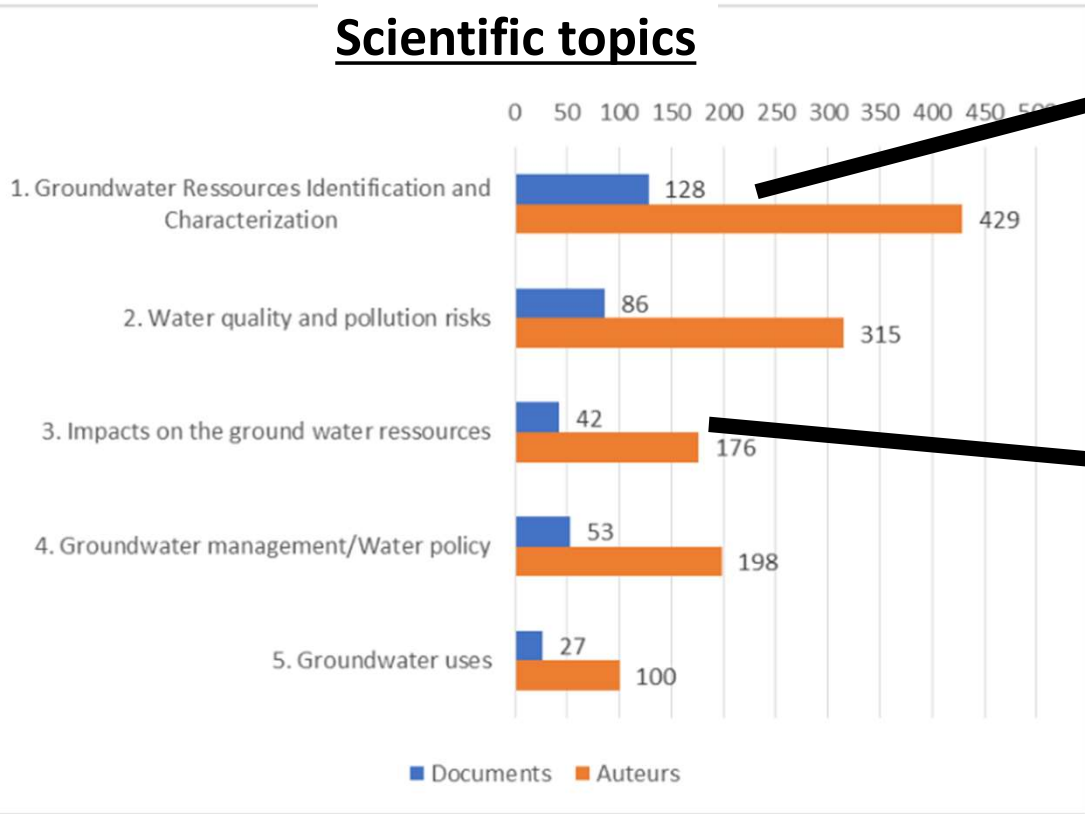
Context

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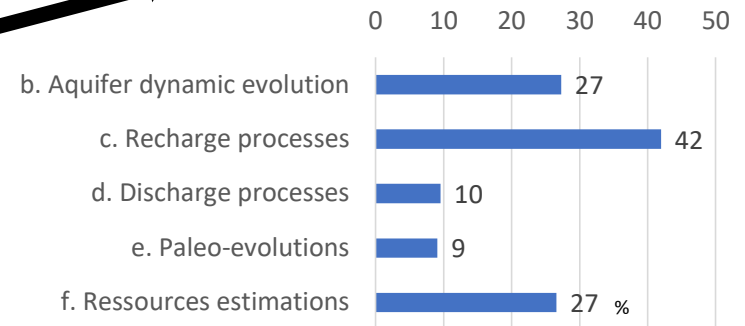
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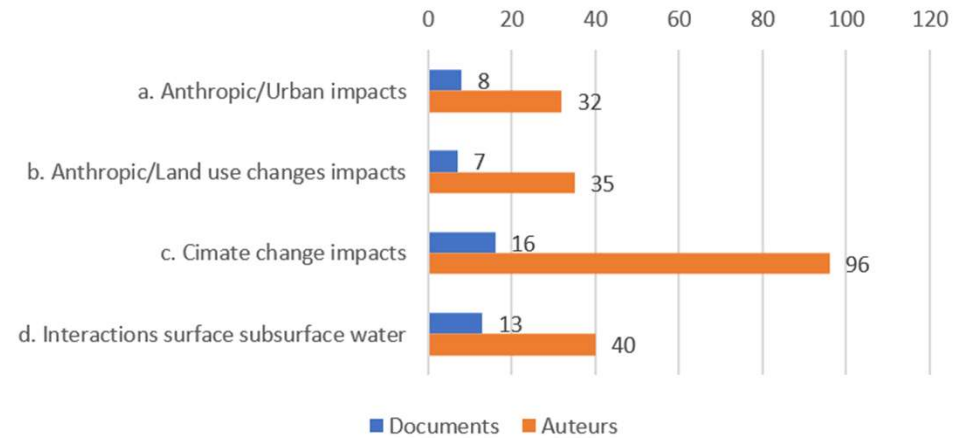
Scientific topics



Groundwater Ressources Identification and Characterization



Impacts on the ground water ressources



Context

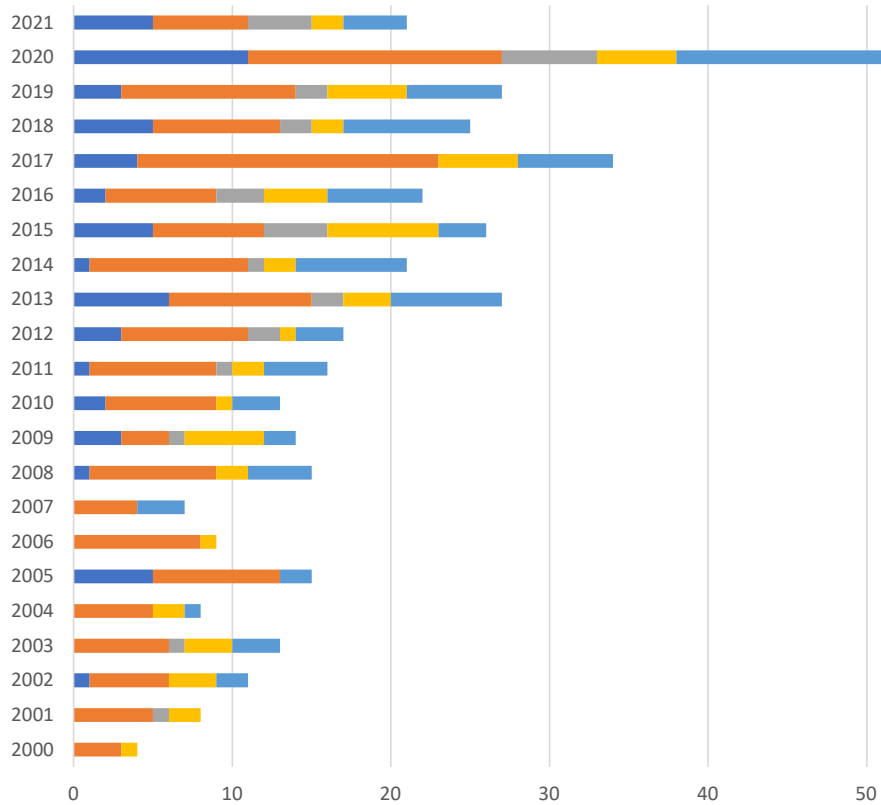
Material, methods

Results

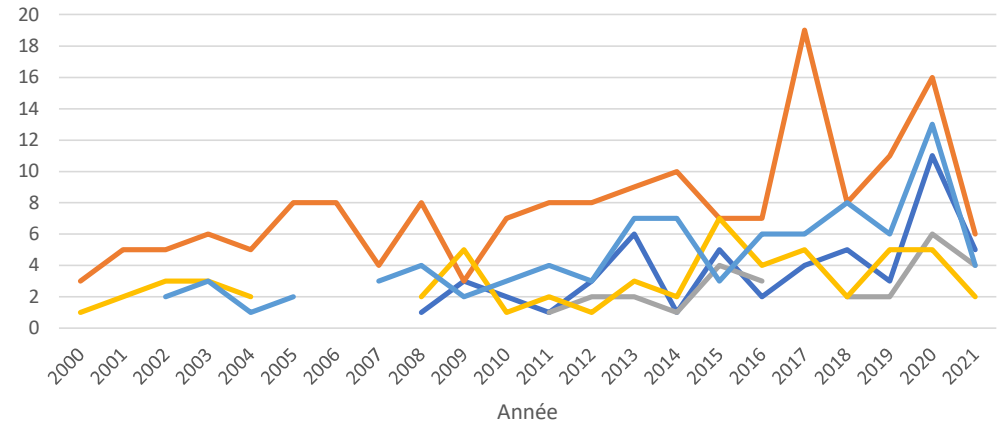
Conclusion

Scientific topics

Number of publications and topics / year



Number of publication by topic /year



- groundwater management
- groundwater resources identification and characterisation
- groundwater uses
- Impacts on the groundwater resources
- water quality and pollution risks

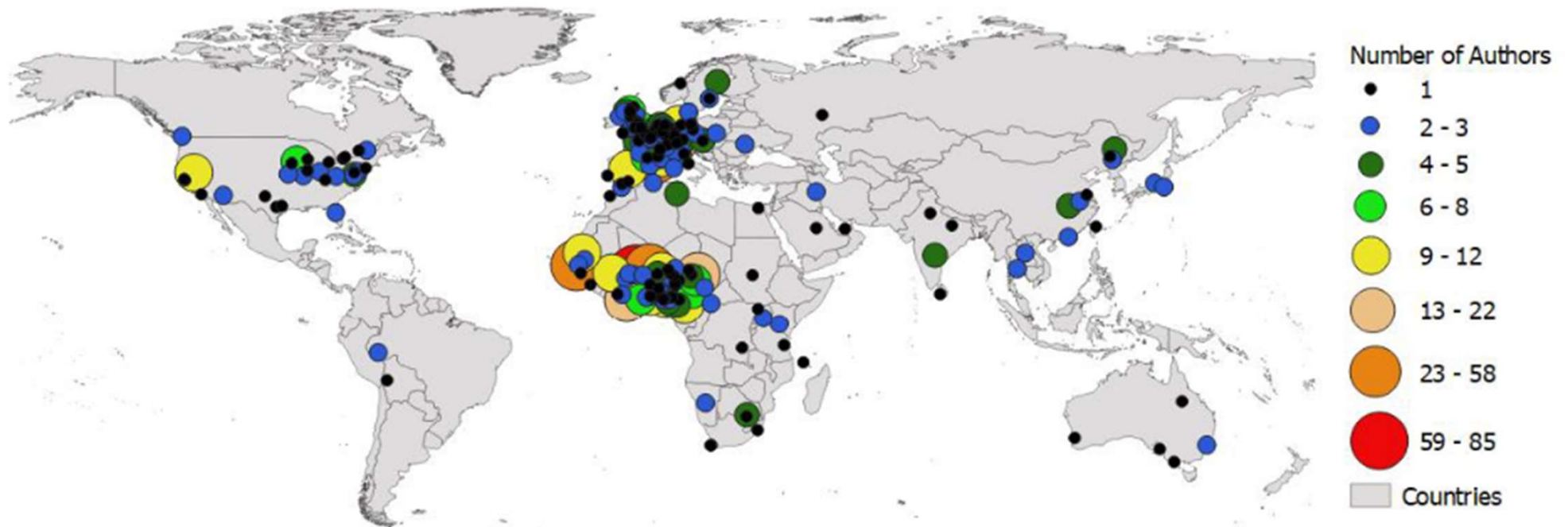
Context

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Authors : publishing about GW in Sahel, all over the world



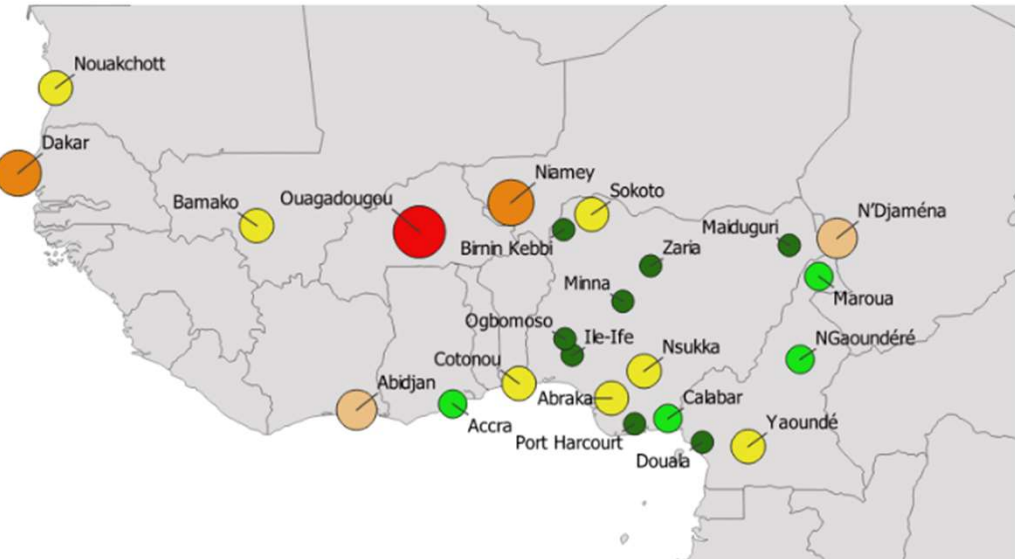
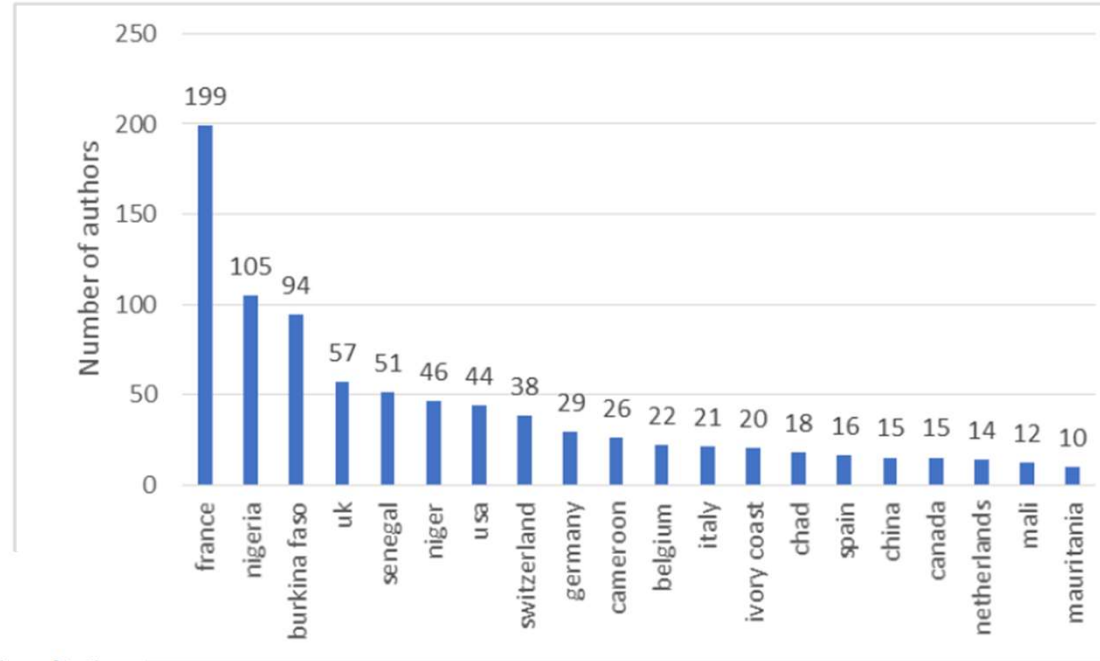
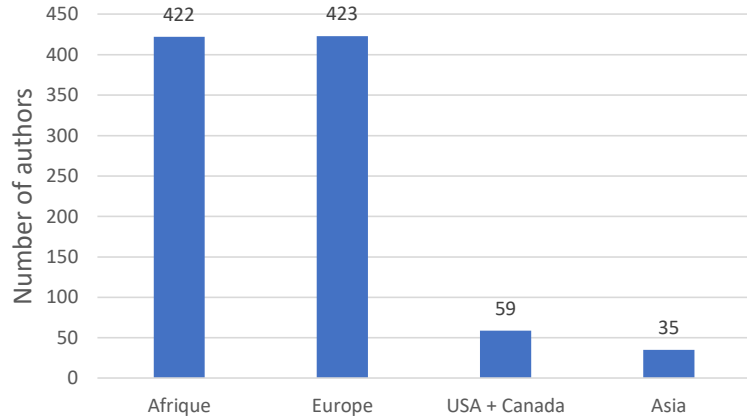
Context

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Authors



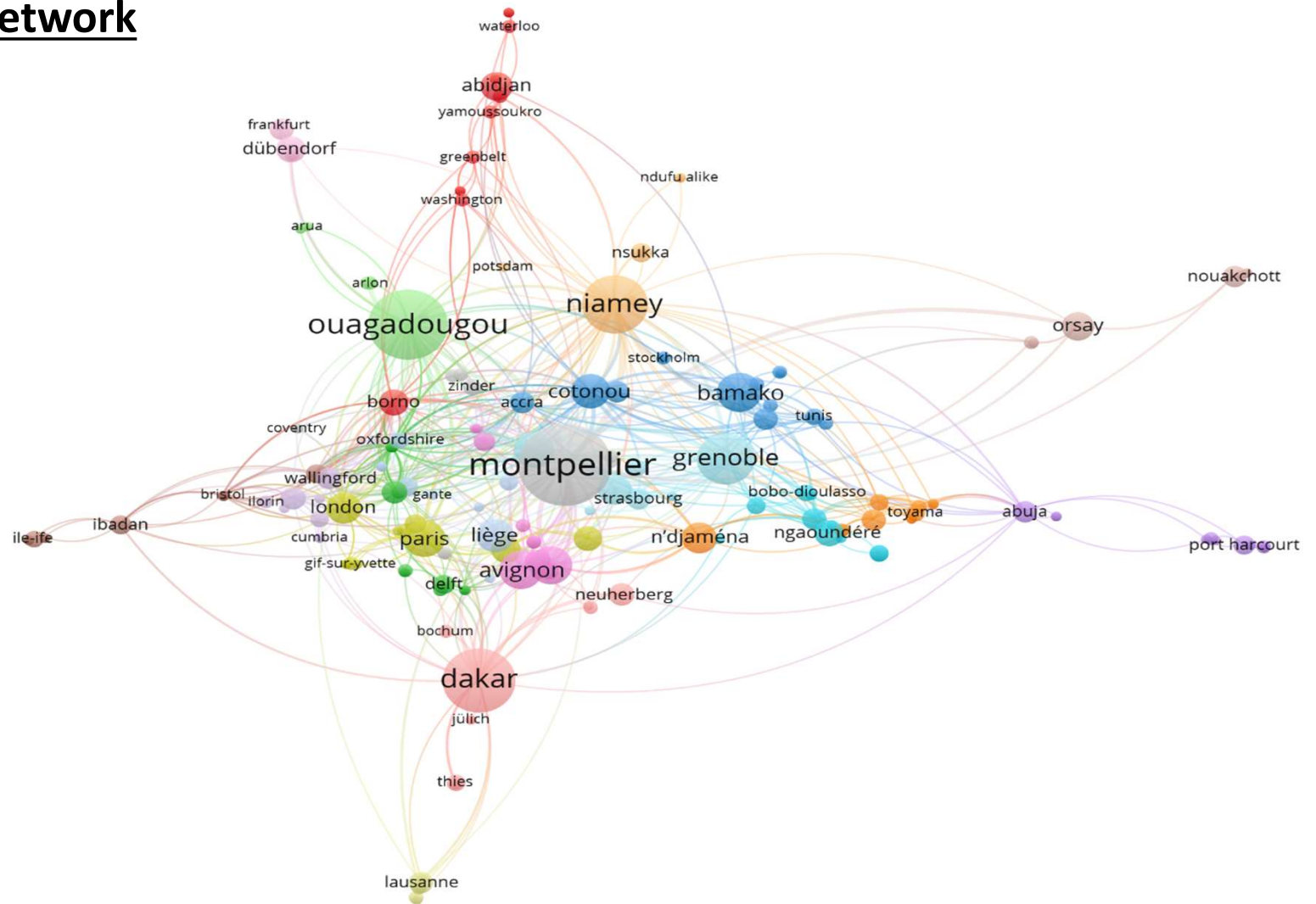
Context

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Affiliation Cities network



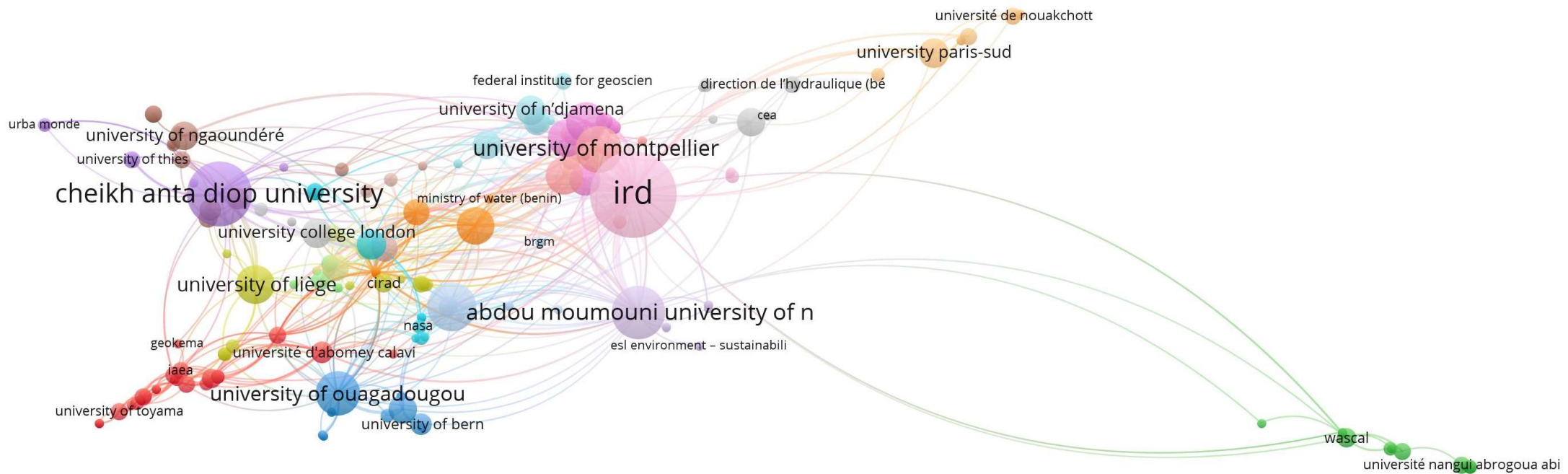
Context

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Affiliations network



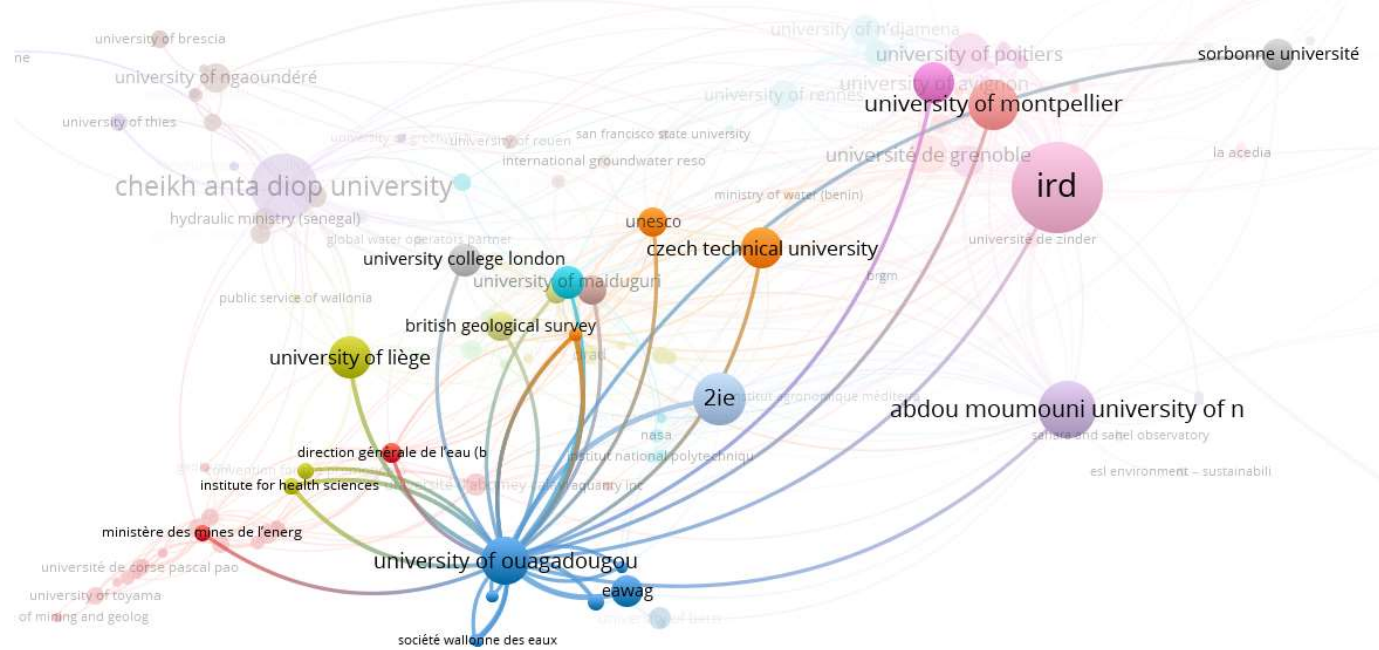
Identification of the existing collaboration networks between Sahelian and international organizations/universities

Context

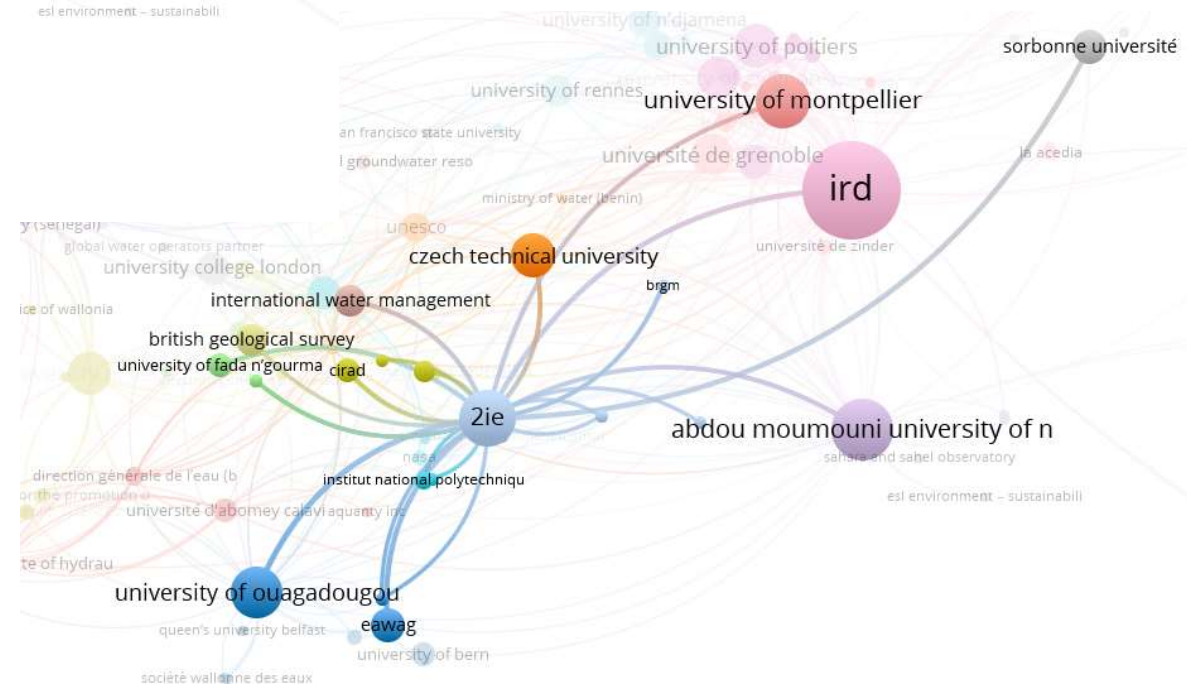
Material, methods

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Affiliations network



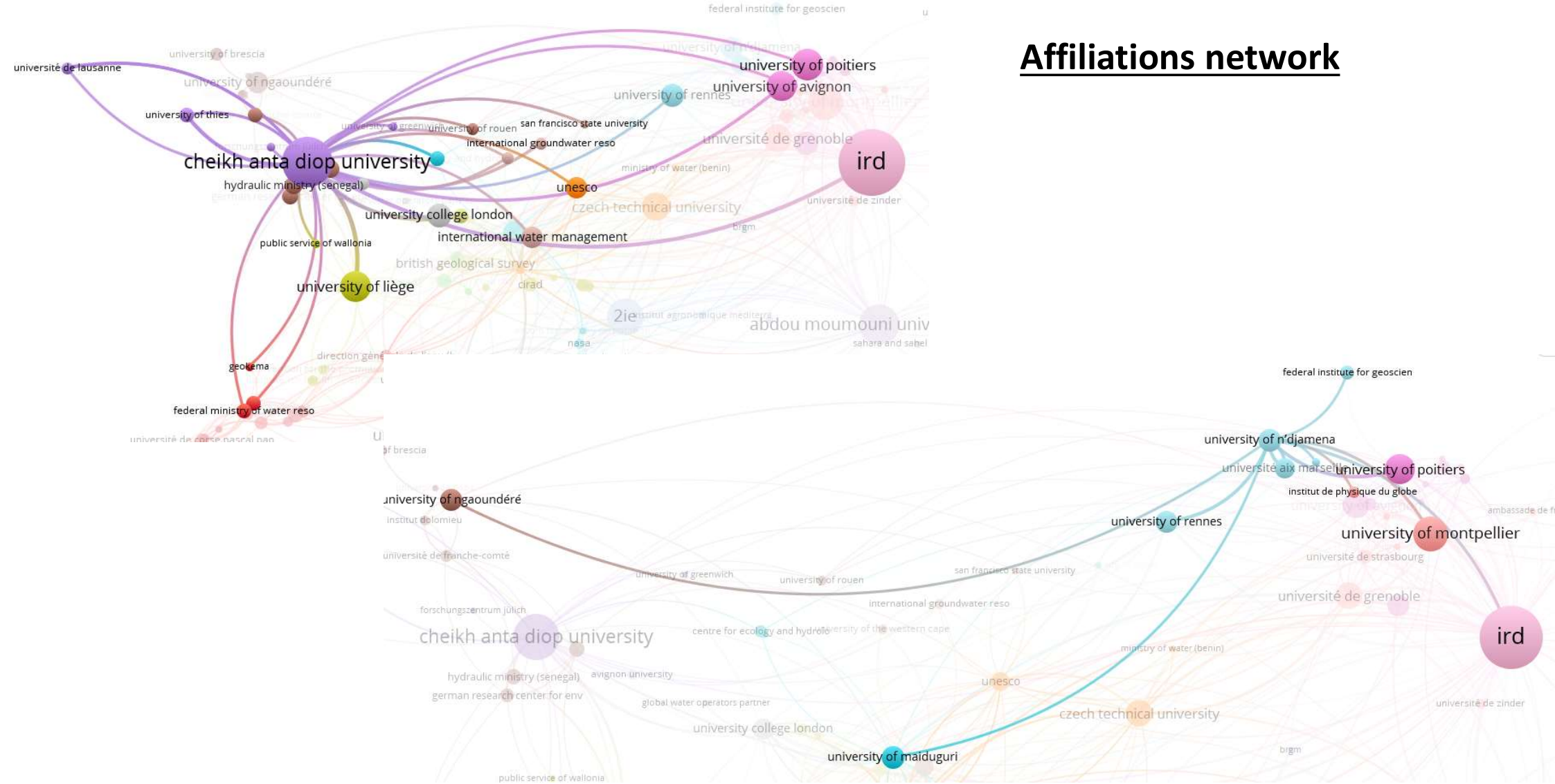
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Affiliations network



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- Importance of international collaborations (South-South or South North) for peer-review journals publications
- Research collaborations support academic formation development in the countries
- Publications involving several Sahelian universities are limited
- Main scientific topic in publications = processus and evolution of Sahelian aquifers recharge
- **This study :**
 - **proposes actions in terms of orientation and to support local research**
 - **provides guidelines for the reinforcement of academic training in hydrogeology**
 - **a reference for evaluating financial investments**

Thank you for your attention

Contexte

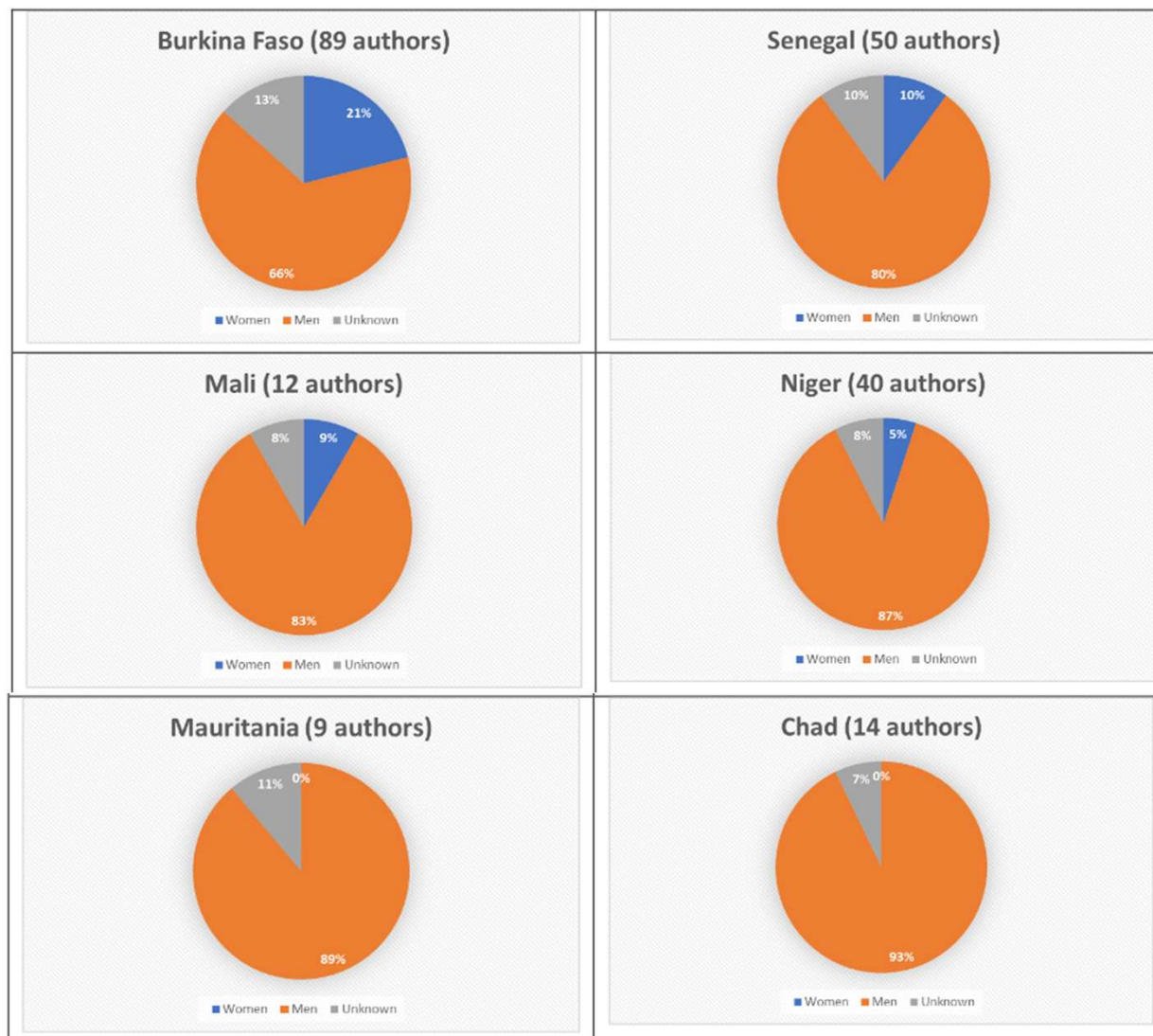
Méthode

Résultats

Perspectives

- 1) Base Zotero
- 2) Cartes et diagrammes
- 3) Réseaux

Figure 13 : proportion d'auteurs hommes et femmes dans les 6 pays du Sahel



Contexte

Méthode

Résultats

Persepectives

- 1) Base Zotero
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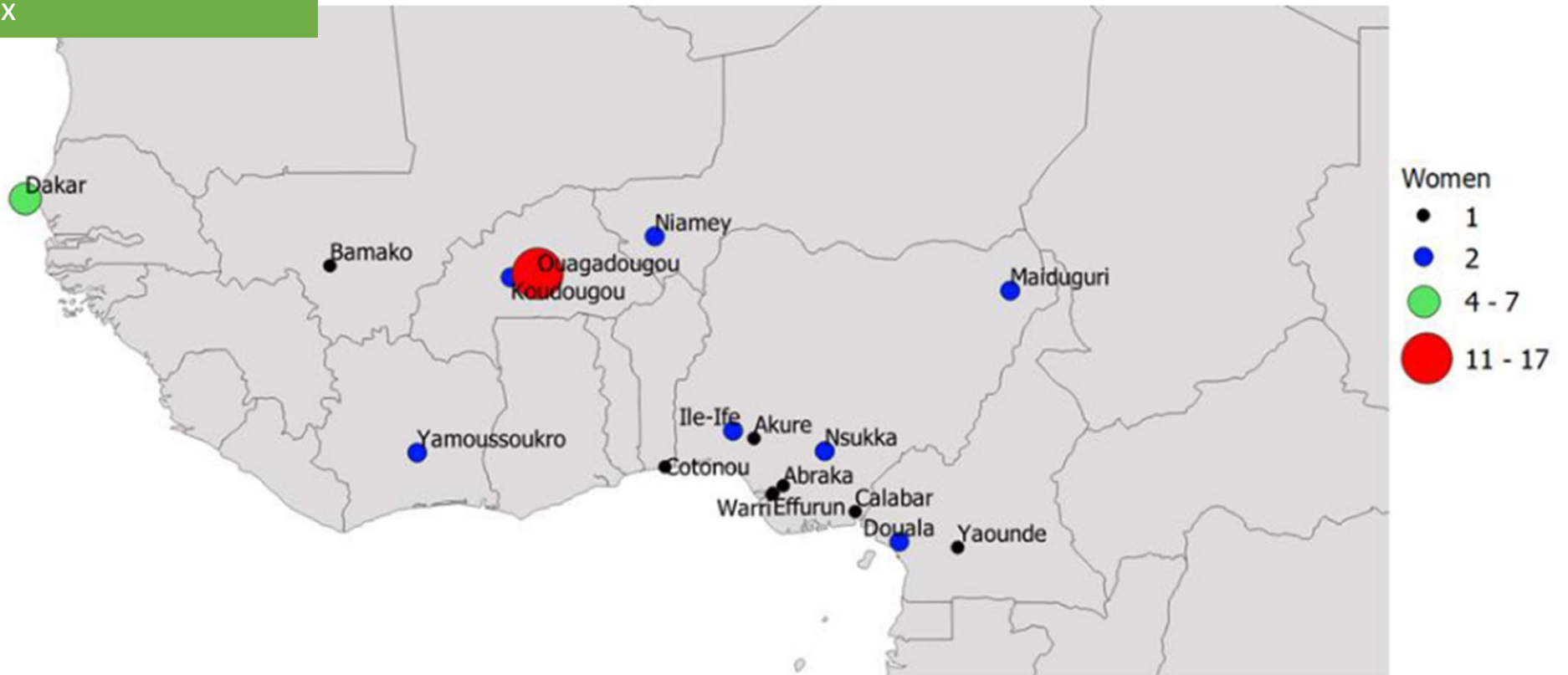


Figure 19 : Cartographie des affiliations des auteures à l'échelle de l'Afrique de l'Ouest