

# User needs and knowledge gaps Outlook on adaptation strategies for EU-Africa cooperation and capacity building under a changing climate

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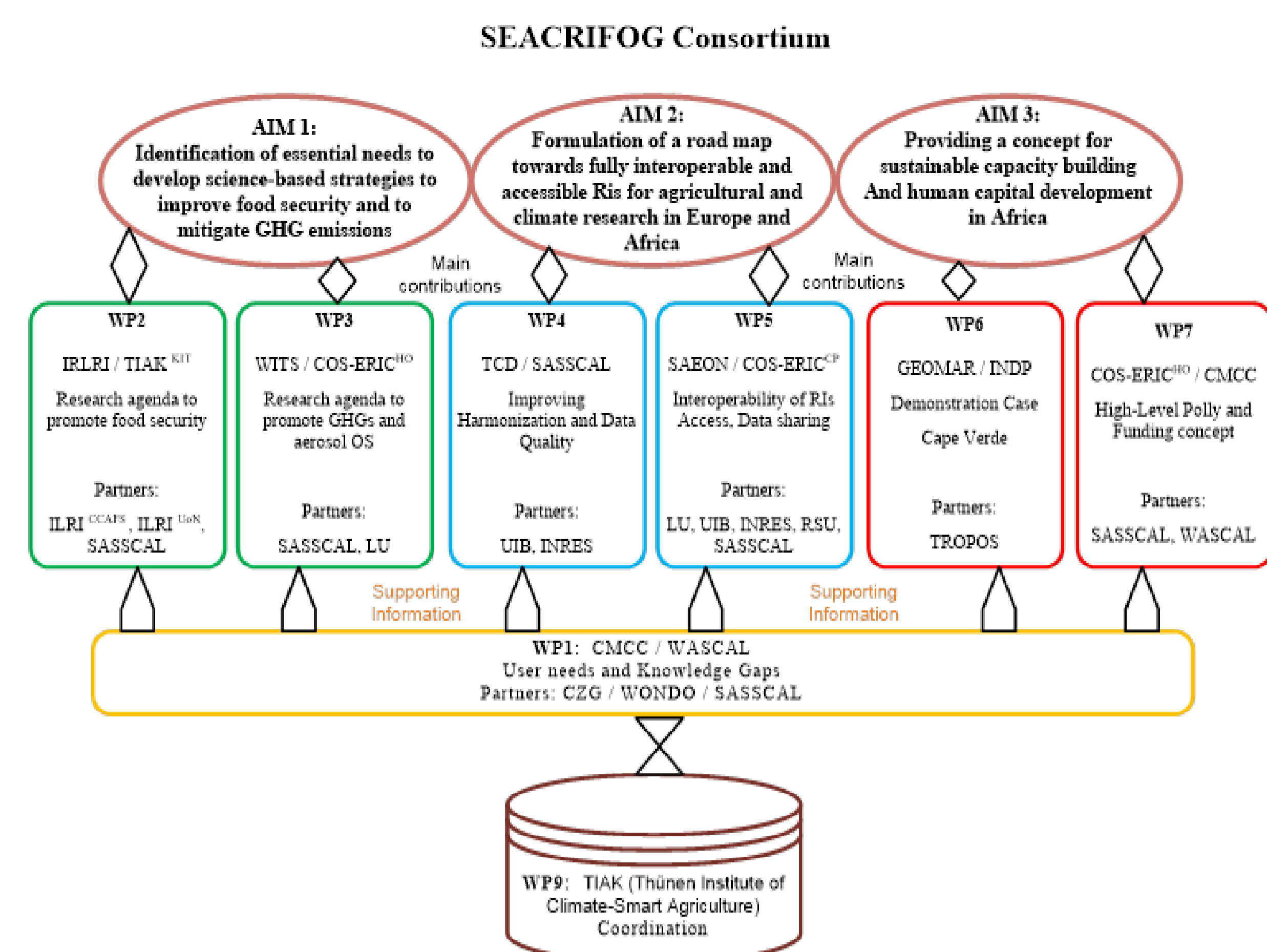
## BACKGROUND

Policymakers and land-use decision makers are increasingly dependent on knowledge on the state of the environment. Long-term observational systems and research infrastructures have been identified to be indispensable elements of knowledge generation to serve climate change adaptation, food security, and climate change mitigation. SEACRIFOG (Supporting EU-African Cooperation on Research Infrastructures for Food security and Greenhouse *gas observations*) project aims at supporting the dialogue on different levels (policy, science, society) and at developing an integrative network for long-term and sustainable cooperation among African and European environmental research infrastructures.

## RESEARCH OBJECTIVE

The aim of this work is to provide the outlook on knowledge needs and gaps in the field of adaptation strategies to climate change in Africa.

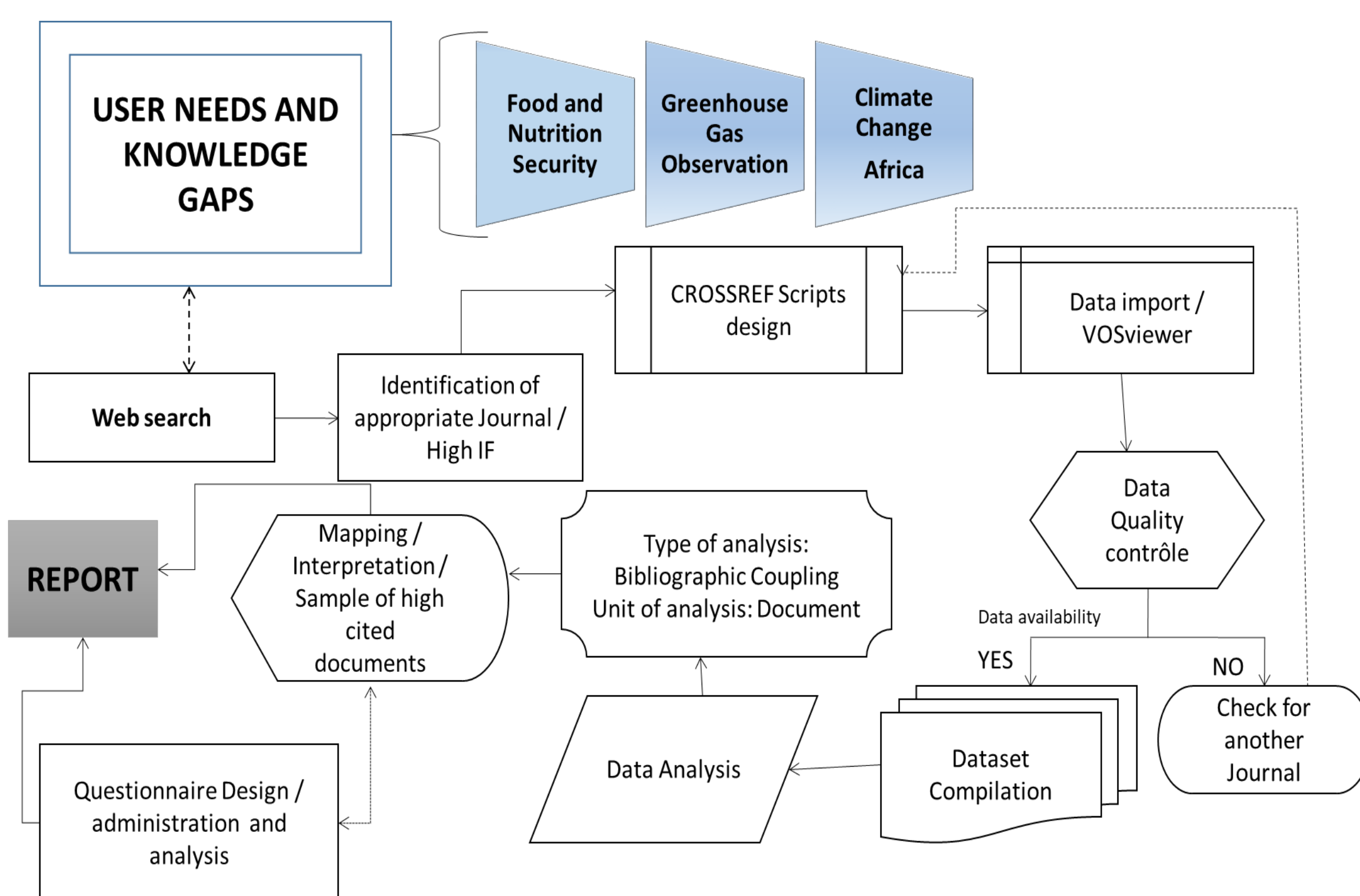
## OVERVIEW OF THE SEACRIFOG PROJECT



**Figure 1. Simplified overview of the SEACRIFOG project structure including the central aims and the main role of the individual work packages**

## METHODOLOGY

The Figure 2 shows various steps used to identify essential user needs and knowledge gaps regarding adaptation strategies to climate change.

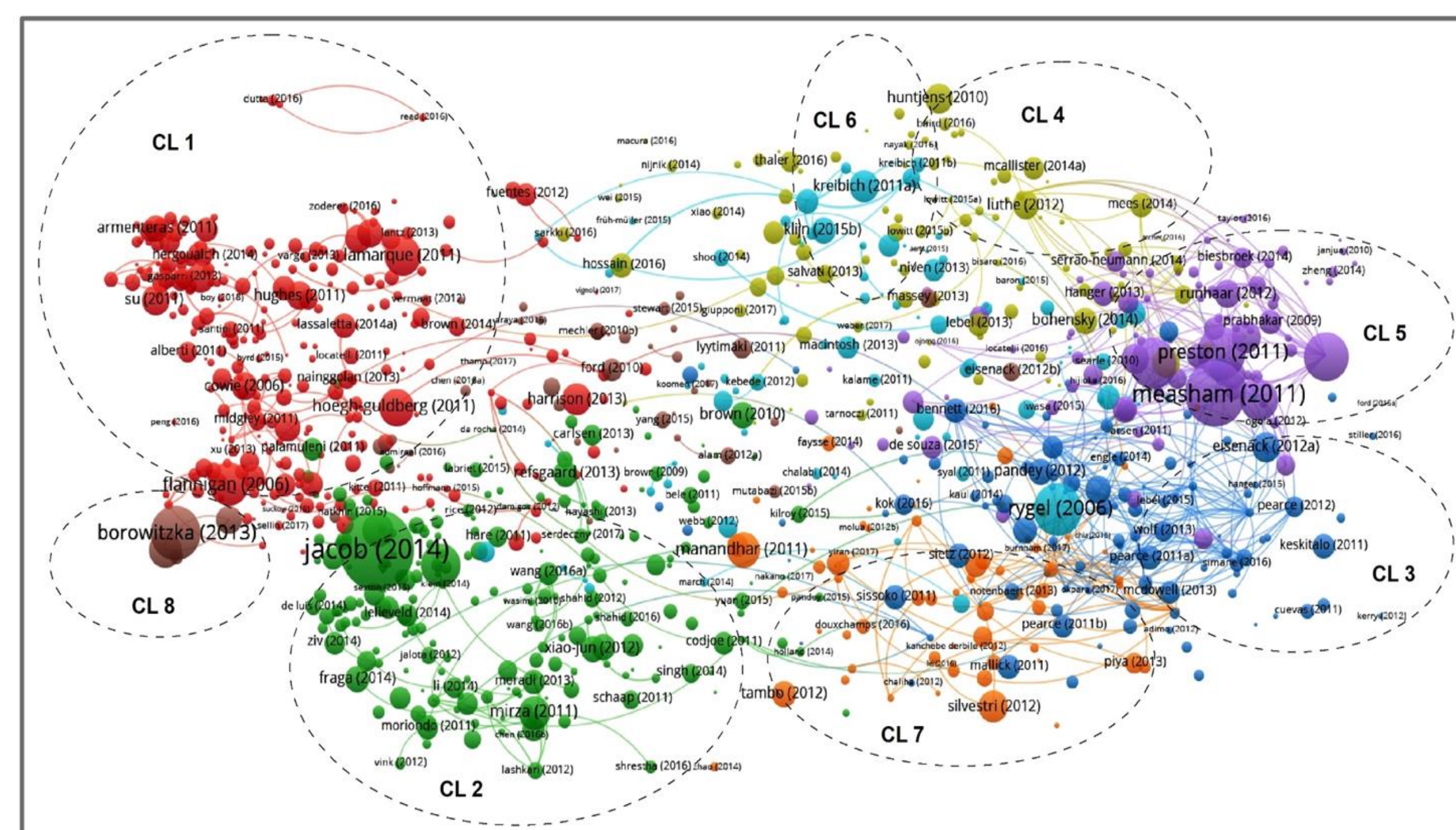


**Fig. 2 Flowchart showing the methodological approach**

- The bibliographic coupling of documents were compiled into 7 clusters (Table 1) under VOSviewer software.
- Each cluster underlined the main idea in user needs and knowledges gaps in the field of adaptation strategies to climate change (Fig. 3).

**Tableau 1 : Statistic on the collected published papers from Crossref database in the field of adaptation**

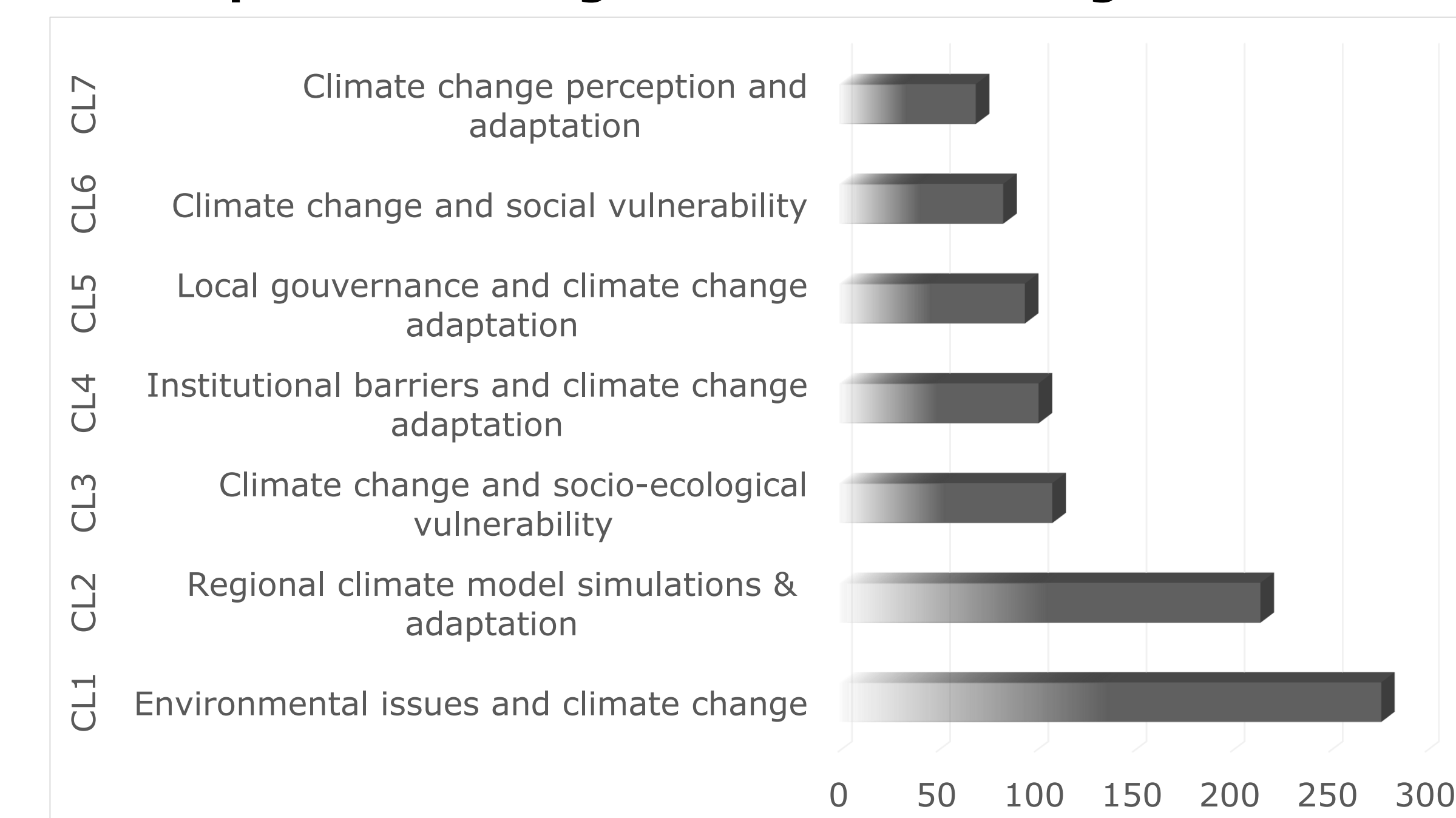
Sub-themes	Number of collected documents from Crossref database	Number of clusters	Number of most important selected / searched documents
Climate change adaptation strategies	2346	07	39



**Fig. 3 Bibliographic coupling cluster map of Climate Change adaptation strategies**

## RESULTS

### ➤ Main clusters-based Knowledge gaps and user needs in adaptation strategies to climate change in Africa



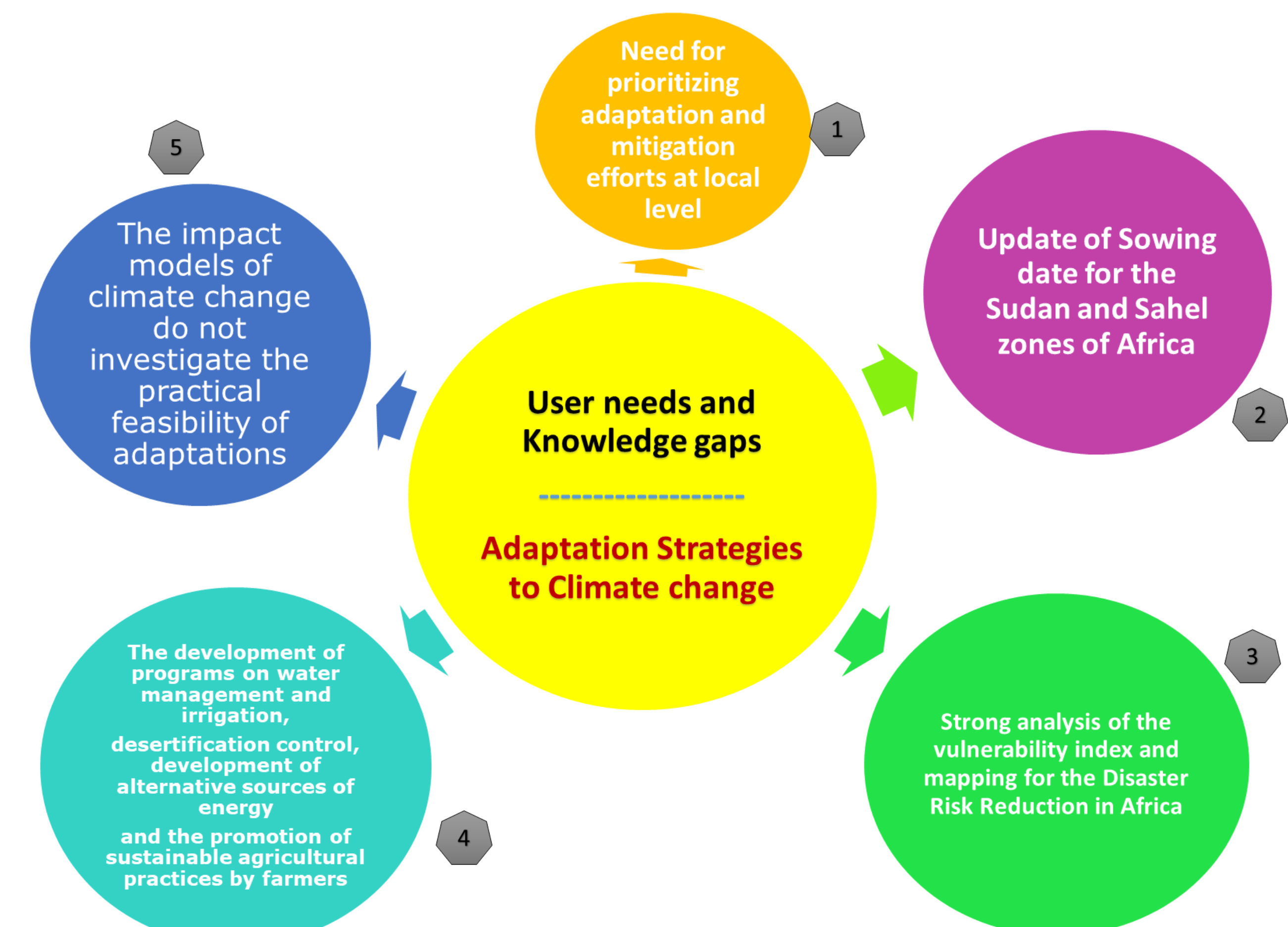
**Figure 4. Cluster analysis for climate change adaptation strategies**

- ✓ The most cited references in the cluster 1 are (Flannigan *et al.*, 2006; Lamarque *et al.*, 2011; Hoegh-guldberg *et al.*, 2011; Adimo *et al.*, 2011).
- ✓ The cluster 2 (CL2) dealt with the regional climate model simulation and adaptation (Jacob *et al.*, 2014; Bindi *et al.*, 2011; Brown 2010; Mirza 2011; Refshgaard *et al.*, 2013).
- ✓ In the cluster 3 it was possible to discuss about the user needs and knowledge gaps regarding climate change and socio-ecological vulnerability (Bennet *et al.*, 2016; Eisenack *et al.*, 2012a; Sissoko *et al.*, 2012; Marta *et al.*, 2012; Schneider *et al.*, 2002; Birkmann *et al.*, 2006).
- ✓ With the cluster 4 it was possible to outline the user needs and knowledge gaps in the field of institutional barriers and climate change adaptation (Chaudurhy *et al.*, 2013; Huntjens *et al.*, 2010; Luthe *et al.*, 2012; Oberlack, 2015).
- ✓ In the cluster 5 the authors discussed about the role of local governments and climate change adaptation (Measham *et al.*, 2013; Beck, 2010; Bierbaum *et al.*, 2013; Biesbroek *et al.*, 2013; Ford *et al.*, 2015; Beck *et al.*, Beck, 2011; Lesnikowski *et al.*, 2015).
- ✓ The climate change and the social vulnerability issues were outlined in the cluster 6 (de model *et al.*, 2015; Rygel *et al.*, 2005).
- ✓ The cluster 7 dealt with the concept of climate change perception and adaptation (Connolly-Boutin *et al.*, 2015; Cooper *et al.*, 2016; Manandhar *et al.*, 2010; Tambo *et al.*, 2011).

**Table 2: Key user needs and knowledge gaps in the field of adaptation strategies and relate authors**

N°	Keys user needs and knowledge gaps	Authors
1	There is a need for prioritizing adaptation and mitigation efforts at local level	Adimo <i>et al.</i> , 2011; Measham <i>et al.</i> , 2011,
2	Sowing date is a very important adaptation strategies that must be addressed for the Sudan and Sahel zones of Africa	Bindi <i>et al.</i> , 2010
3	In terms of development, priority needs to be given to adaptation and implementation of comprehensive programs on water management and irrigation, desertification control, development of alternative sources of energy and the promotion of sustainable agricultural practices by farmers	Sissoko <i>et al.</i> , 2011.
4	The vulnerability index assessment in developing countries such as African countries is a big challenge because of non-availability of relevant data	Rygel <i>et al.</i> , 2005; Schneider and Kuntz-Duriseti, 2002.
5	A novel framework that conceptualizes adaptations to climate change as actions is needed.	Eisenack <i>et al.</i> , 2012
6	The need to better understand how human and environmental systems are coupled and the ways in which they interact.	BohleirBirkmann and Wisner, 2006,
7	The impact models of climate change do not investigate the practical feasibility of adaptations.	Connolly-Boutin L. <i>et al.</i> , 2015

## EU-Africa joint requirements for cooperation and capacity building with regard to adaptation strategies to climate change



**Fig. 5 Synthesis of key user needs and knowledge gaps regarding adaptation strategies to climate change**

## CONCLUSION

SEACRIFOG will provide input for further developing the EU-Africa High Level Policy Dialogue on science, technology and innovation with a specific focus on adaptation strategies to climate change through:

- ✚ The need for prioritizing adaptation and mitigation efforts at local level,
- ✚ The update of sowing date for the Sudan and Sahel zone of Africa
- ✚ Strong analysis of the vulnerability index and mapping for the Disaster Risk Reduction in Africa
- ✚ The development of programs on water management and irrigation, desertification control, development of alternative sources of energy and the promotion of sustainable agricultural practices by farmers;
- ✚ The integration of adaptation into the models design

## AUTHORS

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