

Congo Basin Forest Partnership (CBFP)
The France-Gabon Co facilitation of the CBFP (2023-2025)
**Strategic axis Promoting dialogue and scientific and academic cooperation on the forests of
the Congo Basin**
DRAFT

Progress Report of the project “MAPPING OF HIGHER EDUCATION, UNIVERSITY AND RESEARCH INSTITUTIONS IN THE COMIFAC REGION AND INTERNATIONAL PARTNERS”

« CARTOGRAPHIE DES INSTITUTIONS D’ENSEIGNEMENT SUPÉRIEUR, UNIVERSITAIRE ET DE RECHERCHE DE L’ESPACE COMIFAC ET DE PARTENAIRES INTERNATIONAUX »

by
Honoré Tekeu, PhD
Brunhel N'tambu Vambi, PhD student
Damase P. Khasa, Professor

Establishment year of each Institution

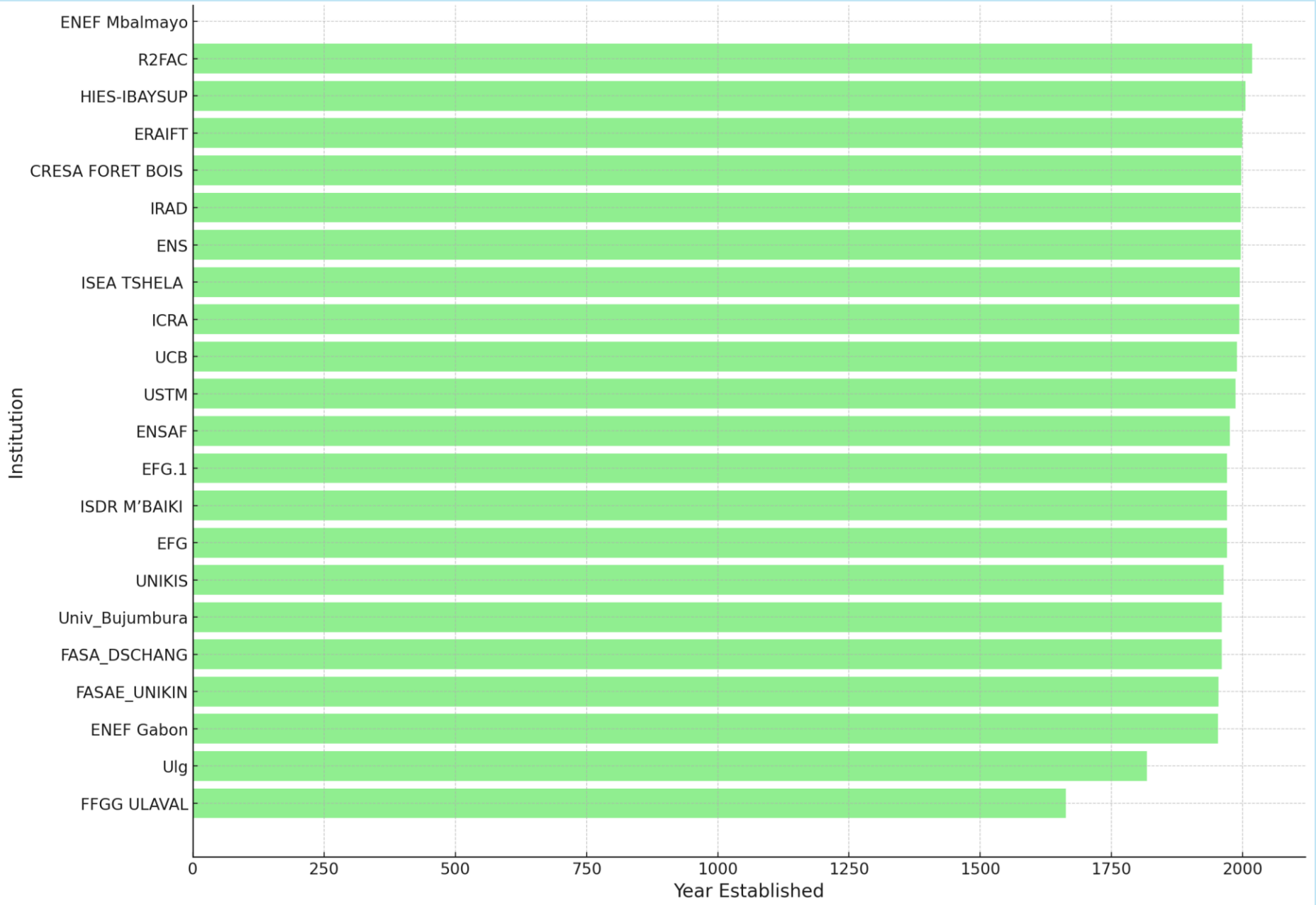
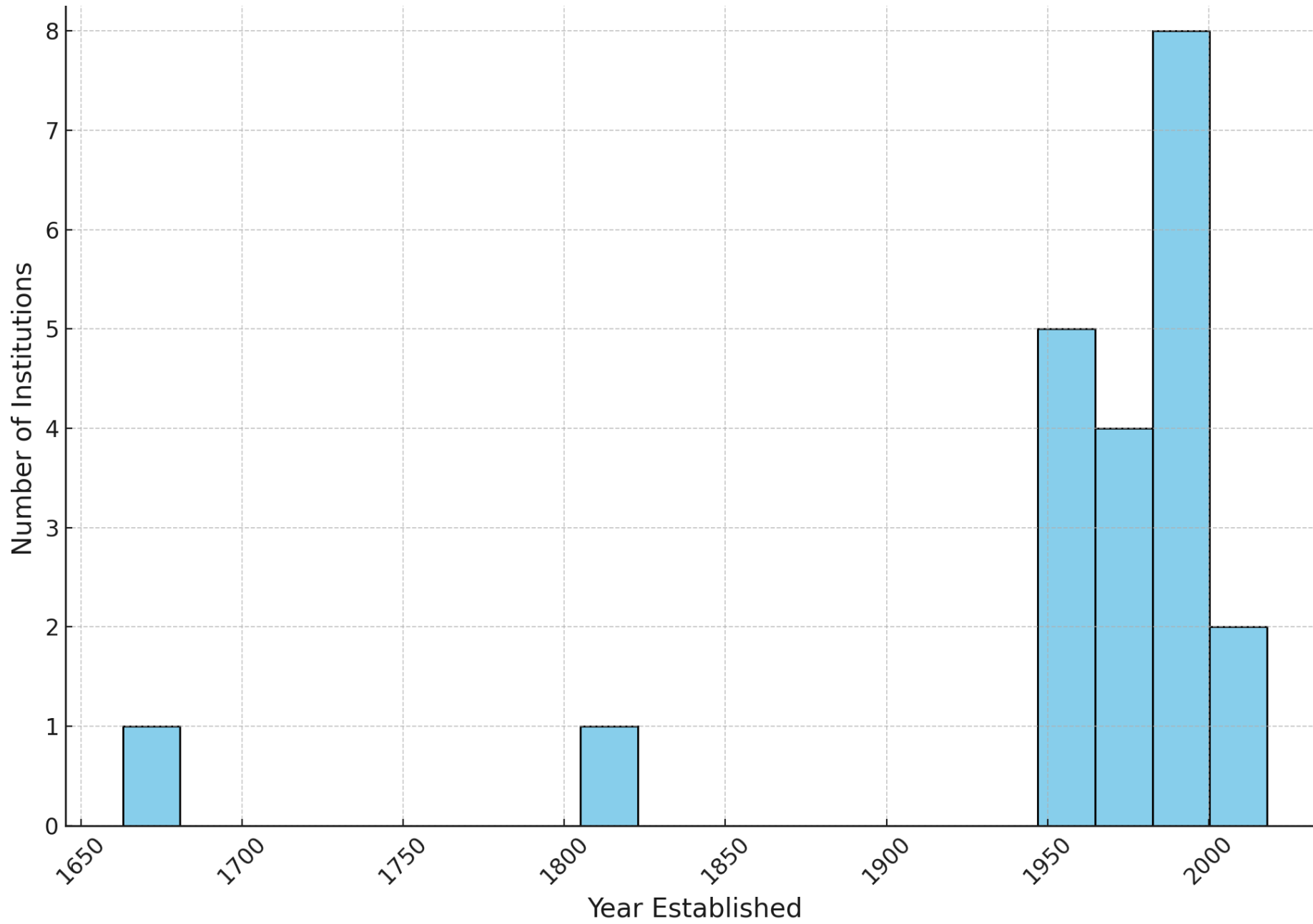
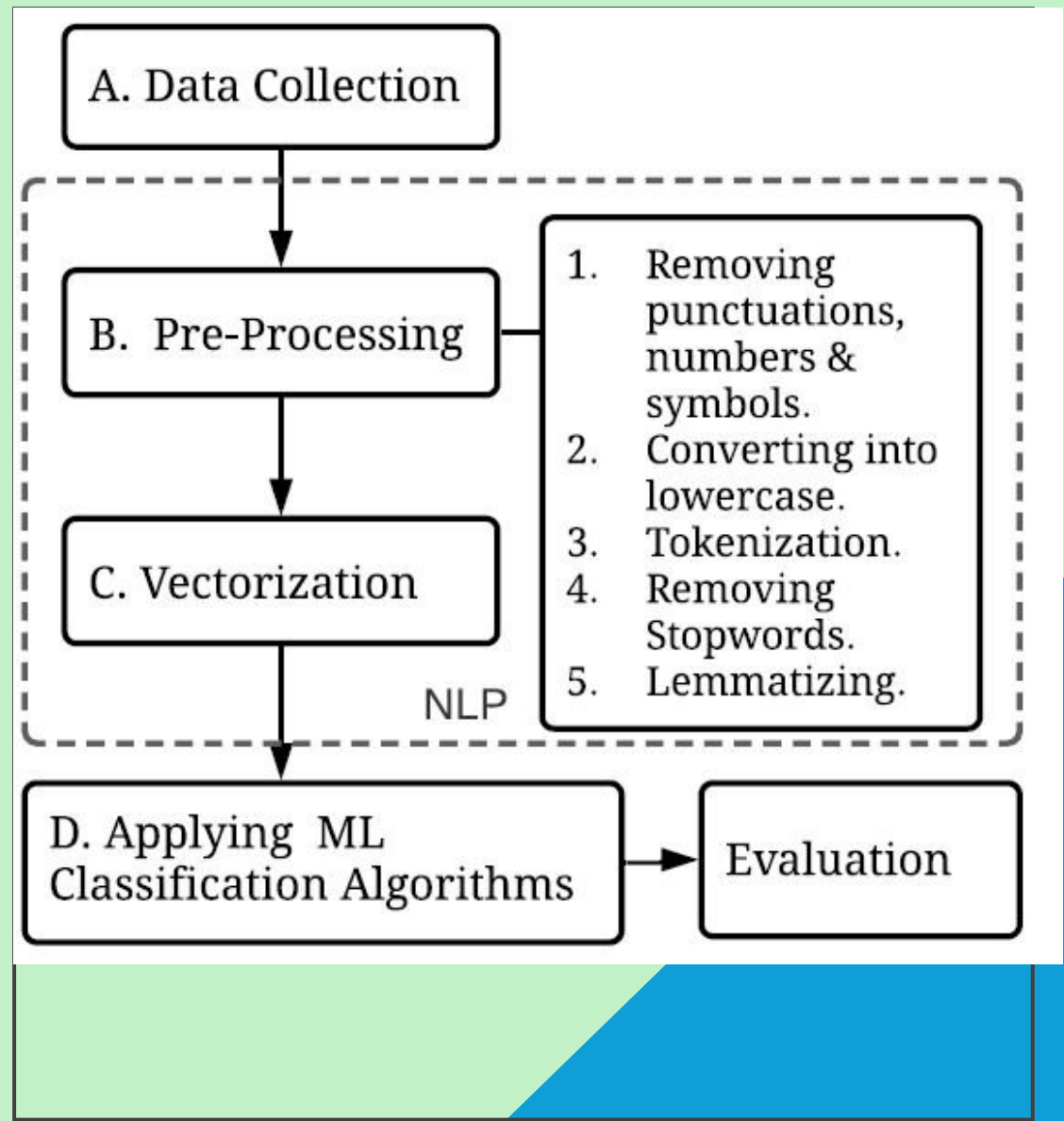
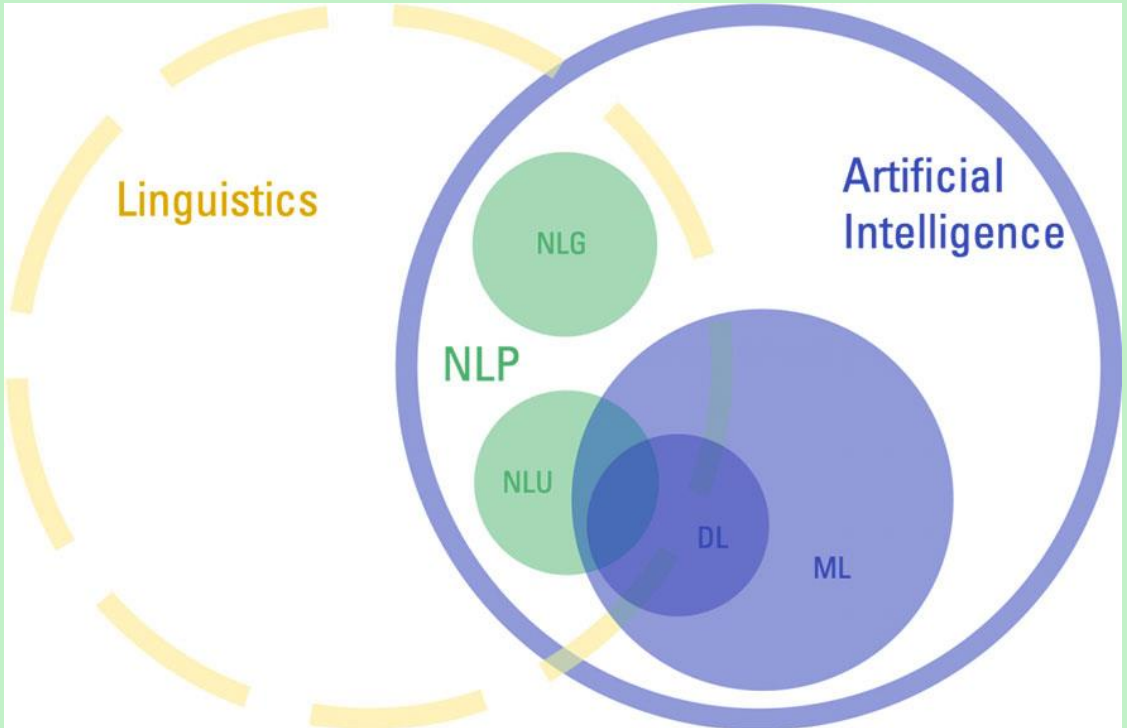
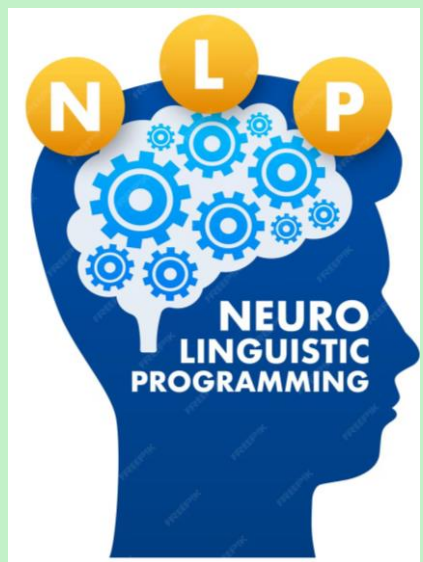


Figure showing the historical context of each institution, highlighting the range from older, well-established entities to newer ones in the ecosystem. This diversity in foundation years reflects the depth and breadth of experience and expertise brought into the collaborative efforts within the Congo Basin

□ Distribution of Establishment years of Institutions

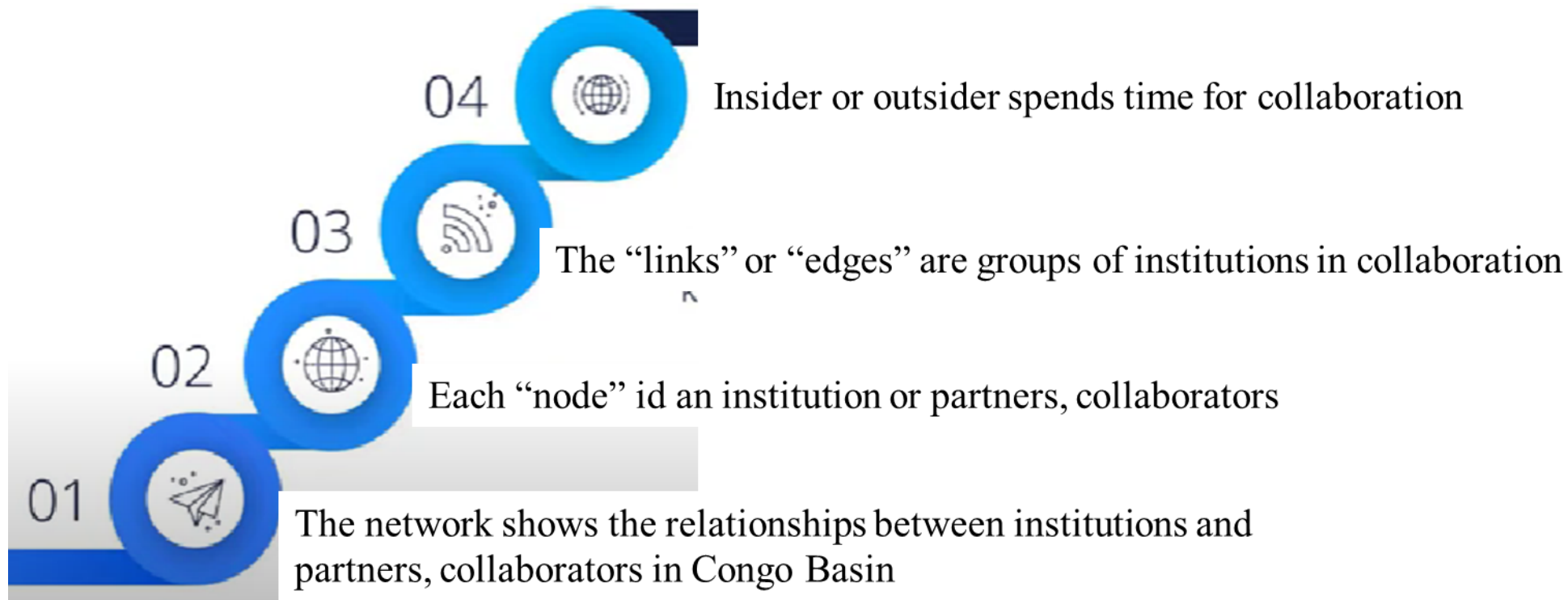


□ Sentiment Analysis Using NLP method

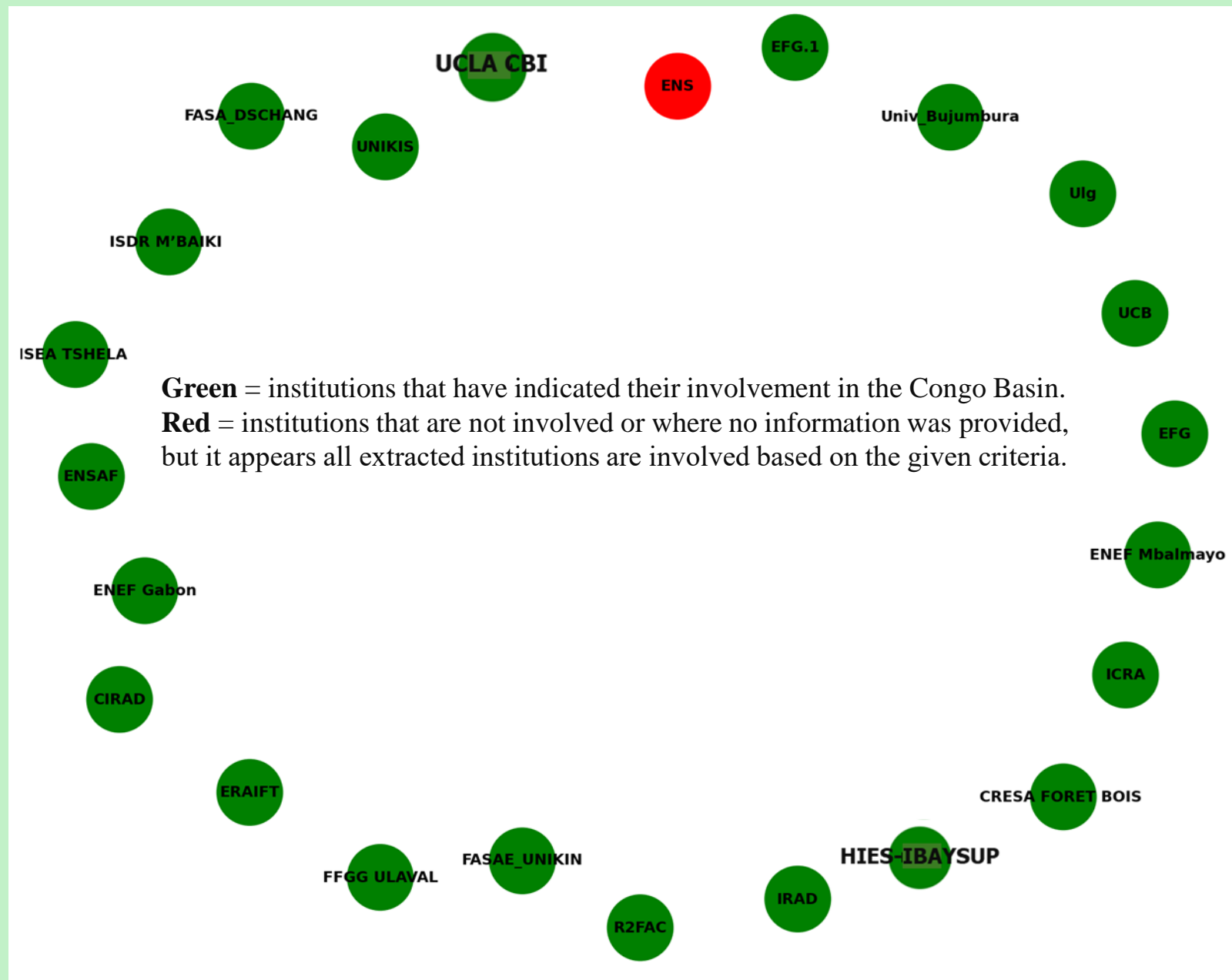


□ Network analysis

In order to illustrate how institutions are interconnected through their partnerships, with node sizes reflecting their degree of connectivity, we used NetworkX method in Python to build an artificial network undirected graph. It is a type of network used to represent relationships where the connections between nodes (in this case, institutions) have no direction. In an undirected graph, an edge between two nodes implies a mutual relationship, meaning the relationship is bidirectional or does not inherently flow from one node to another. This type of network is particularly useful for illustrating connections such as partnerships, collaborations, or associations where the direction of the relationship is not relevant to the analysis.

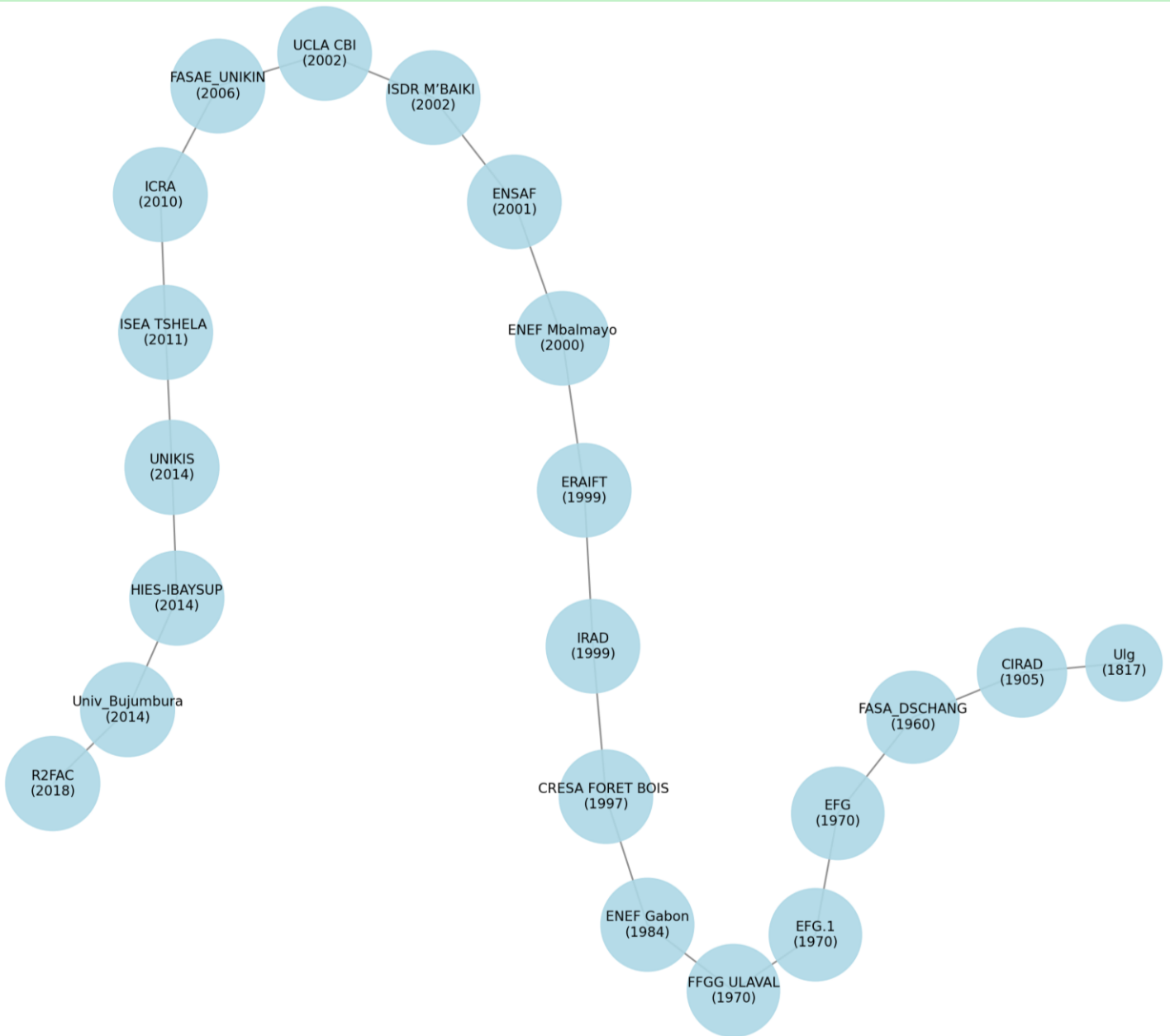


□ Involvement of Institution in the Congo basin



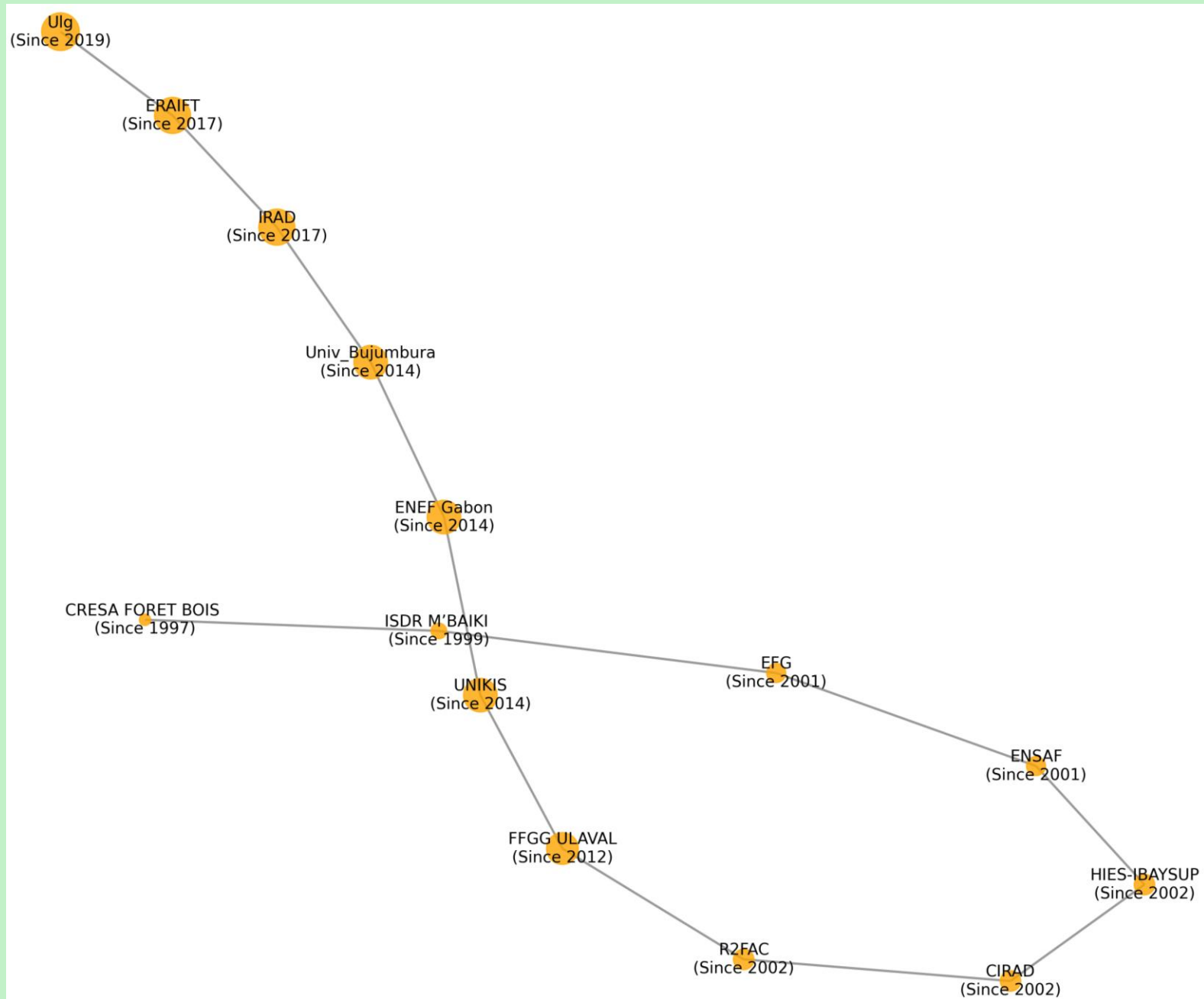
This graph highlights the connectivity and focus of institutions towards the Congo Basin, showcasing those that are actively engaged in the region. The absence of red nodes implies a strong commitment or interest among the surveyed institutions towards the Congo Basin.

□ Duration of involvement in the Congo basin by Institution



Here, we illustrated a wide range of **involvement durations** among the institutions, from longstanding participants like Ulg (since 1817), indicating a deep historical connection to the Congo Basin, to more recent entrants such as R2FAC (2018). Each institution **has** a node in the graph, **where the node size correlates with the length of involvement** in the Congo Basin.

□ Duration of membership in the CBFP Partnership by institution



As **shown**, our analysis offers a more interconnected view of the institutions involved **in the CBFP Partnership**, emphasizing both the duration of their membership and the potential for collaboration among institutions with similar lengths of engagement

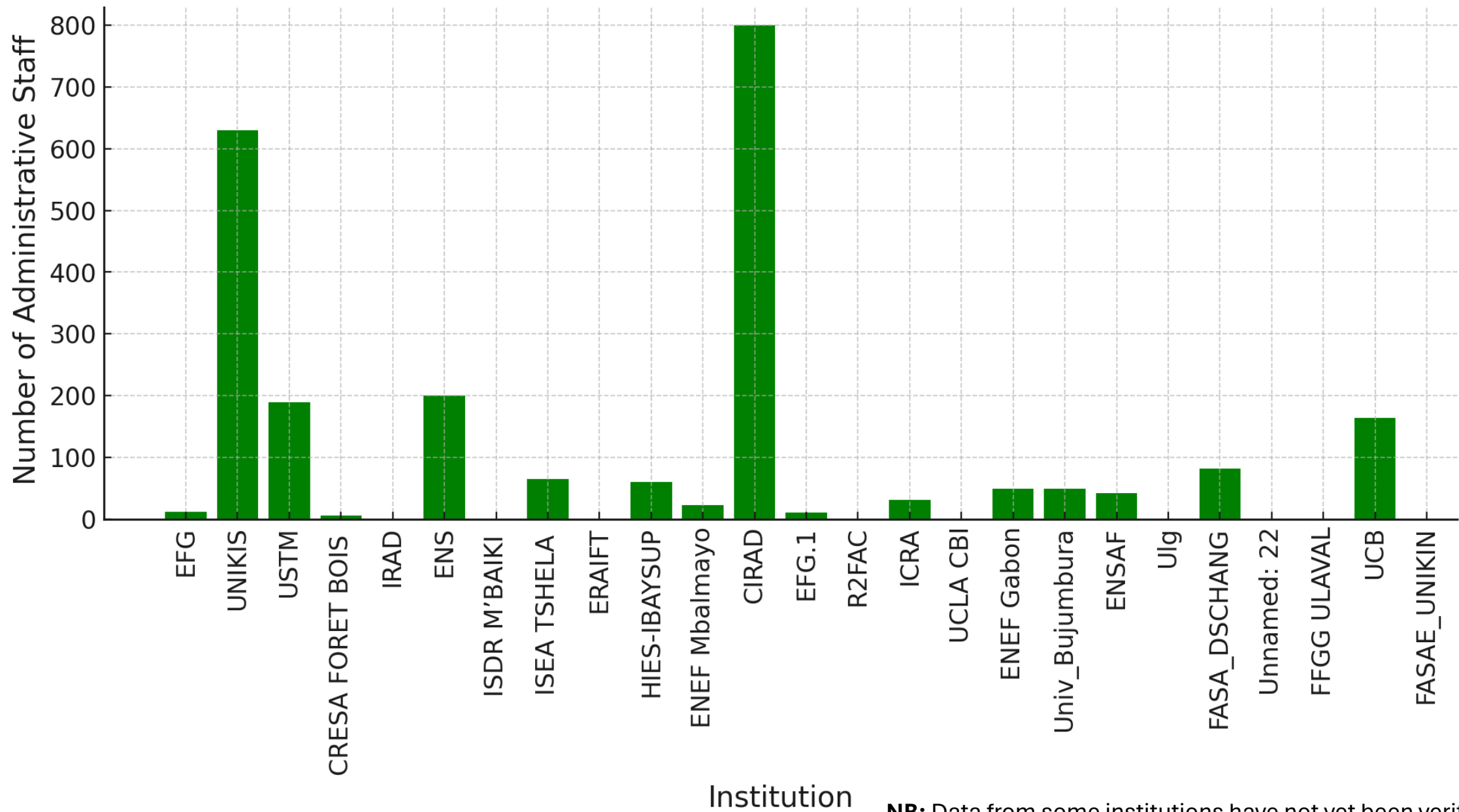
□ Network properties of each institution and partners

No	Institution	Degree	Betweenness Centrality	Closeness Centrality	Clustering Coefficient
0	ERAIFT	0.217391	0.239344	0.246468	0
1	RIFFEAC	0.144928	0.410806	0.30857	0
2	FASAE_UNIKIN	0.086957	0.006394	0.086957	0
3	FFGG, ULAVAL	0.072464	0.084399	0.23052	0
4	EFG.1	0.072464	0.136331	0.275975	0
..
65	UY2	0.014493	0	0.191163	0
66	UY2, UDouala, UDschang, IRAD, IRET, USTM, INER...	0.014493	0	0.133749	0
67	CENAREST	0.014493	0	0.194967	0
68	CEDAMM	0.014493	0	0.203049	0
69	GIE_SCEVN	0.014493	0	0.047431	0

Interpreting the network graph of institutions and their partnerships in the Congo Basin involves analyzing various network properties that can offer insights into the structure and dynamics of the network. As presented in the Table above, key properties include degree centrality, betweenness centrality, closeness centrality, and clustering coefficient. These metrics can help identify the most influential or central institutions within the network, their role in facilitating connectivity, and the overall cohesion of the network.

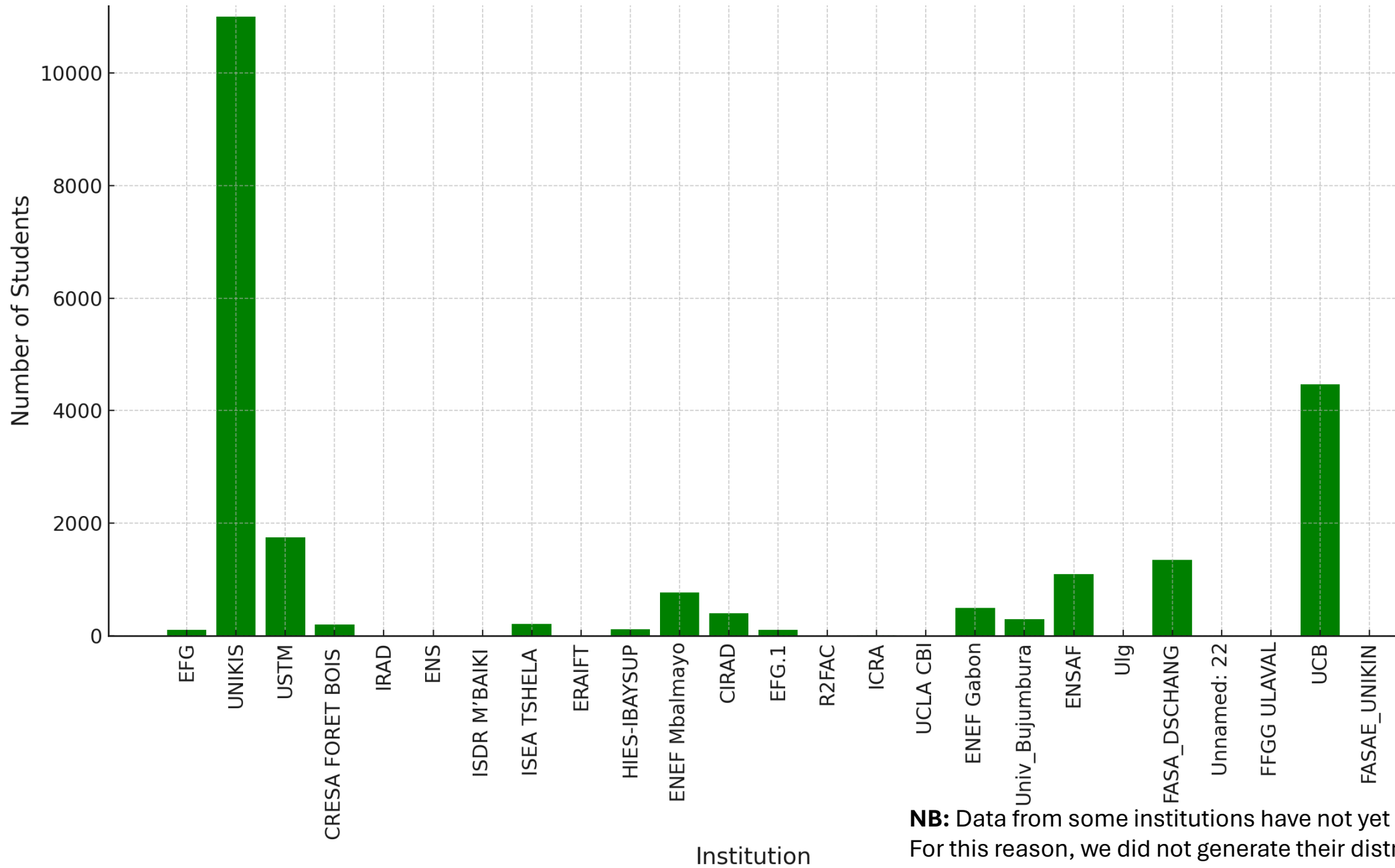
- **Degree Centrality:** Indicates the number of direct connections an institution has with others. Institutions with higher degree centrality are directly connected to many other institutions, suggesting they have numerous partnerships and potentially play a significant role in the network.
- **Betweenness Centrality:** Measures the extent to which an institution lies on paths between other institutions. Institutions with high betweenness centrality can be seen as important bridges or intermediaries within the network, facilitating the flow of information or resources.
- **Closeness Centrality:** Reflects how close an institution is to all other institutions in the network. A higher closeness centrality indicates an institution can quickly interact with all other institutions, suggesting efficiency in communication or influence spreading.
- **Clustering Coefficient:** Measures the degree to which an institution's partners are also partners with each other. A higher clustering coefficient for the network indicates a tightly knit group of institutions, where partnerships tend to form a cohesive community.

Number of administrative scientific staff per Institution



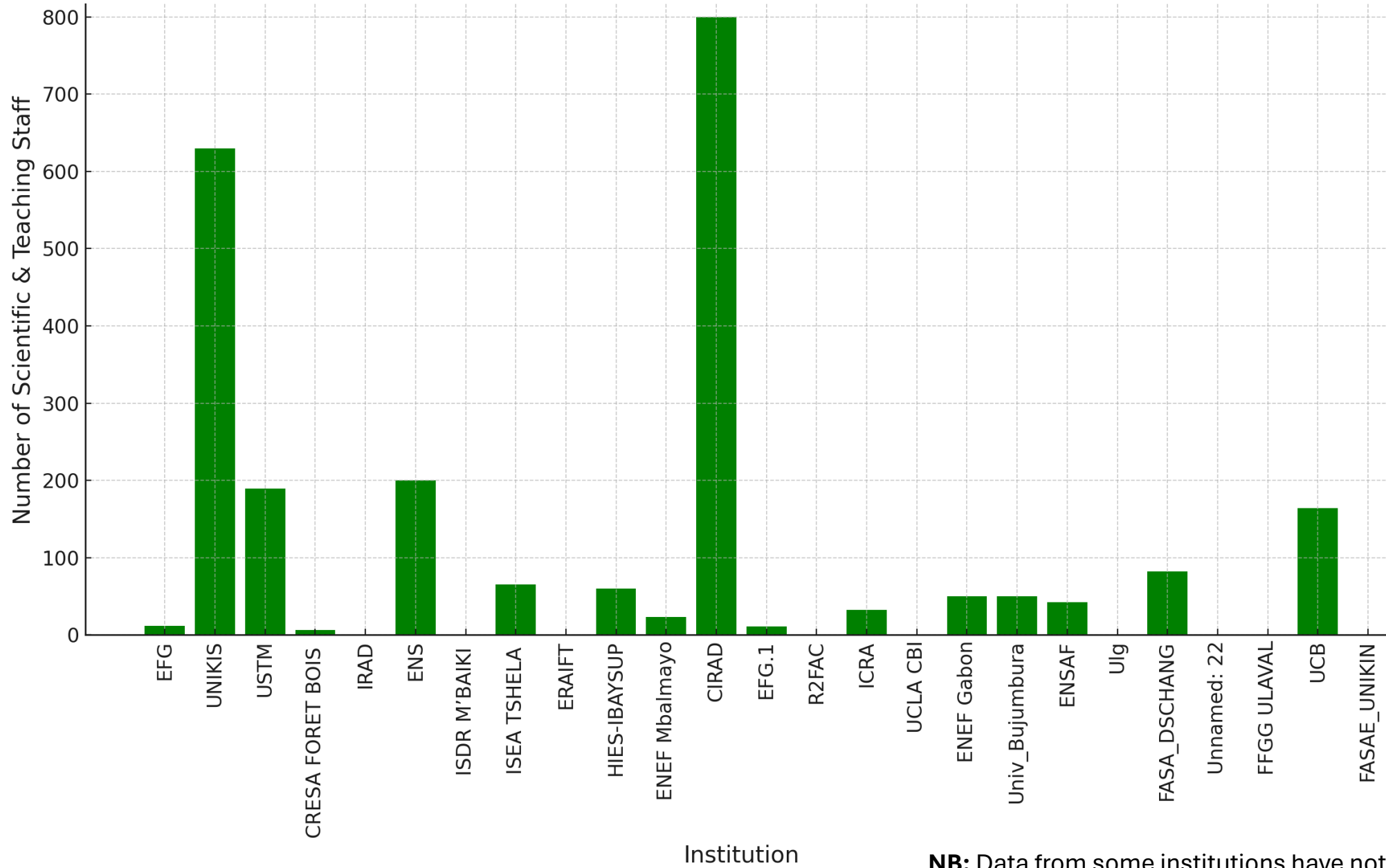
NB: Data from some institutions have not yet been verified and validated. For this reason, we did not generate their distribution histogram

Number of students per Institution



NB: Data from some institutions have not yet been verified and validated. For this reason, we did not generate their distribution histogram

Number of scientific and teaching staff per Institution



NB: Data from some institutions have not yet been verified and validated. For this reason, we did not generate their distribution histogram

Thank you !

