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Keywords: Africa, aerosol, bibliometric review, air quality guidelines, air quality monitoring stations

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1. INTRODUCTION

The African continent has suffered the most severe consequences of air pollution and its impacts on global health and the environment. It is crucial to assess the current state of knowledge and research on air quality in Africa and its evolution over the past decades across the five regions into which the United Nations divide the African continent (North Africa - NA, Southern Africa - SA, Central Africa - CA, East Africa- EA, and West Africa - WA).

This assessment will:

- Track the evolution of air quality research publications in each region from the earliest available data up to 2022.
- Evaluate the impact of environmental legislation and the infrastructure for air research and monitoring on the number of publications and improvements in air quality.

2. METHODOLOGY

- A comprehensive search of articles was conducted on the Web of Science digital platform (<https://www.webofscience.com/wos/allldb/basic-search>).
- The University Rankings (UniRank) website has been consulted to gather university information (<https://www.4icu.org/Africa/>).
- Air quality monitoring data for Africa has been obtained from the World Air Quality Index website (<https://waqi.info/#/c/-14.005/26.938/5z>).
- Information on air quality legislation in Africa has been obtained from *Regulating Air Quality: the First Global Assessment of Air Pollution Legislation* (<https://www.unep.org/resources/report/regulating-air-quality-first-global-assessment-air-pollution-legislation>)

3. RESULTS

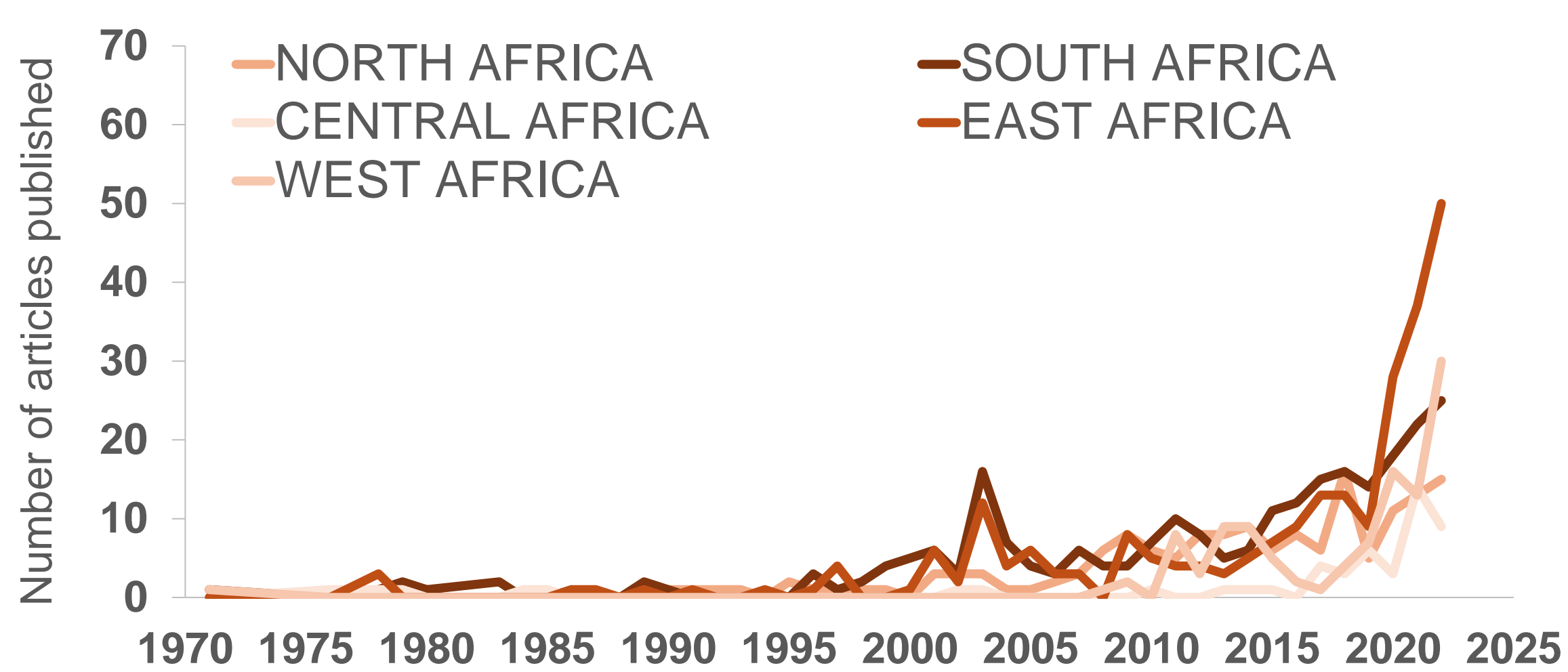


Figure 1: Evolution of articles published on air pollution in the five regions of Africa from 1971 to 2022.

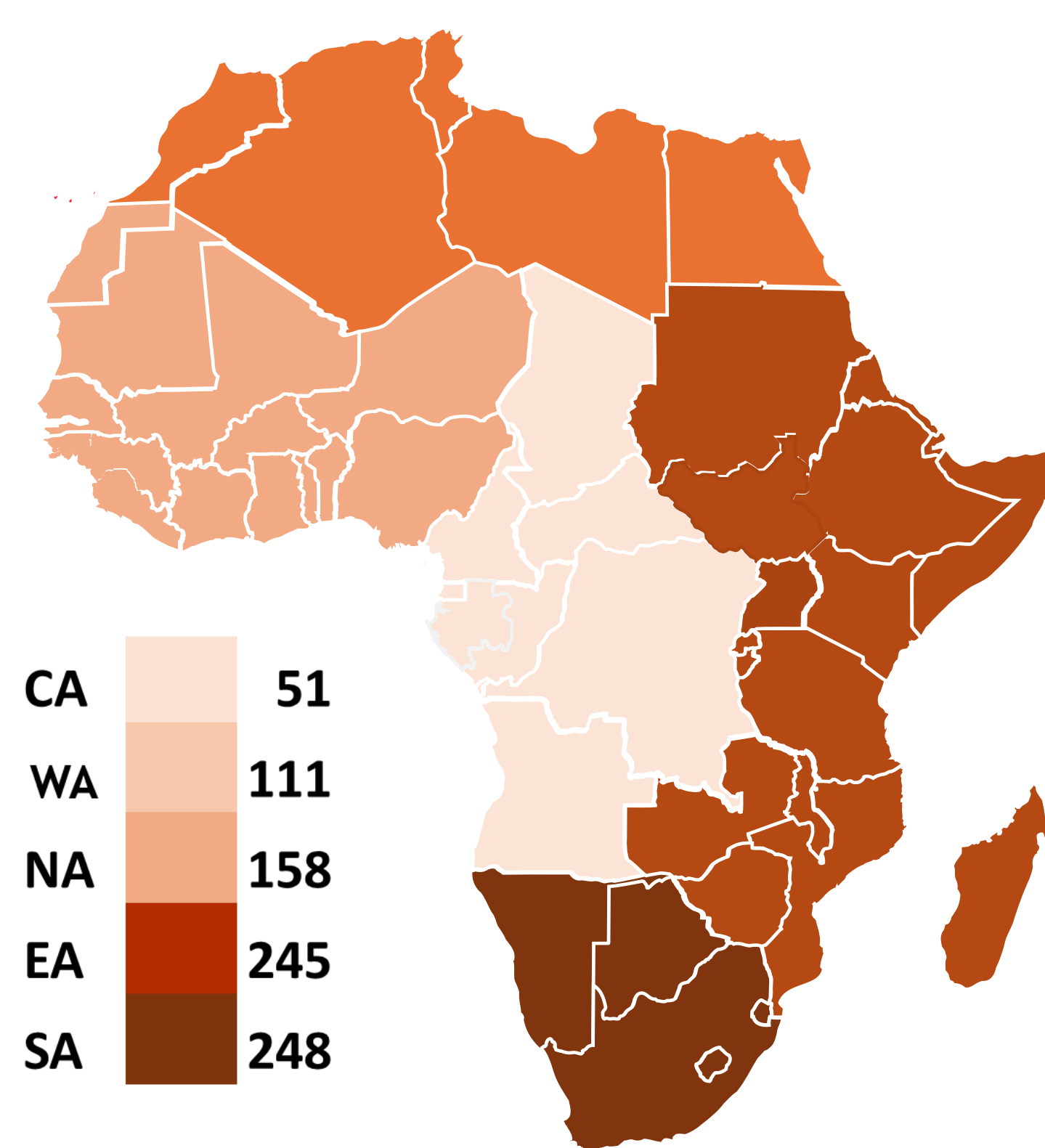


Figure 2: Number of publications on air quality in different African regions from 1971 to 2022.

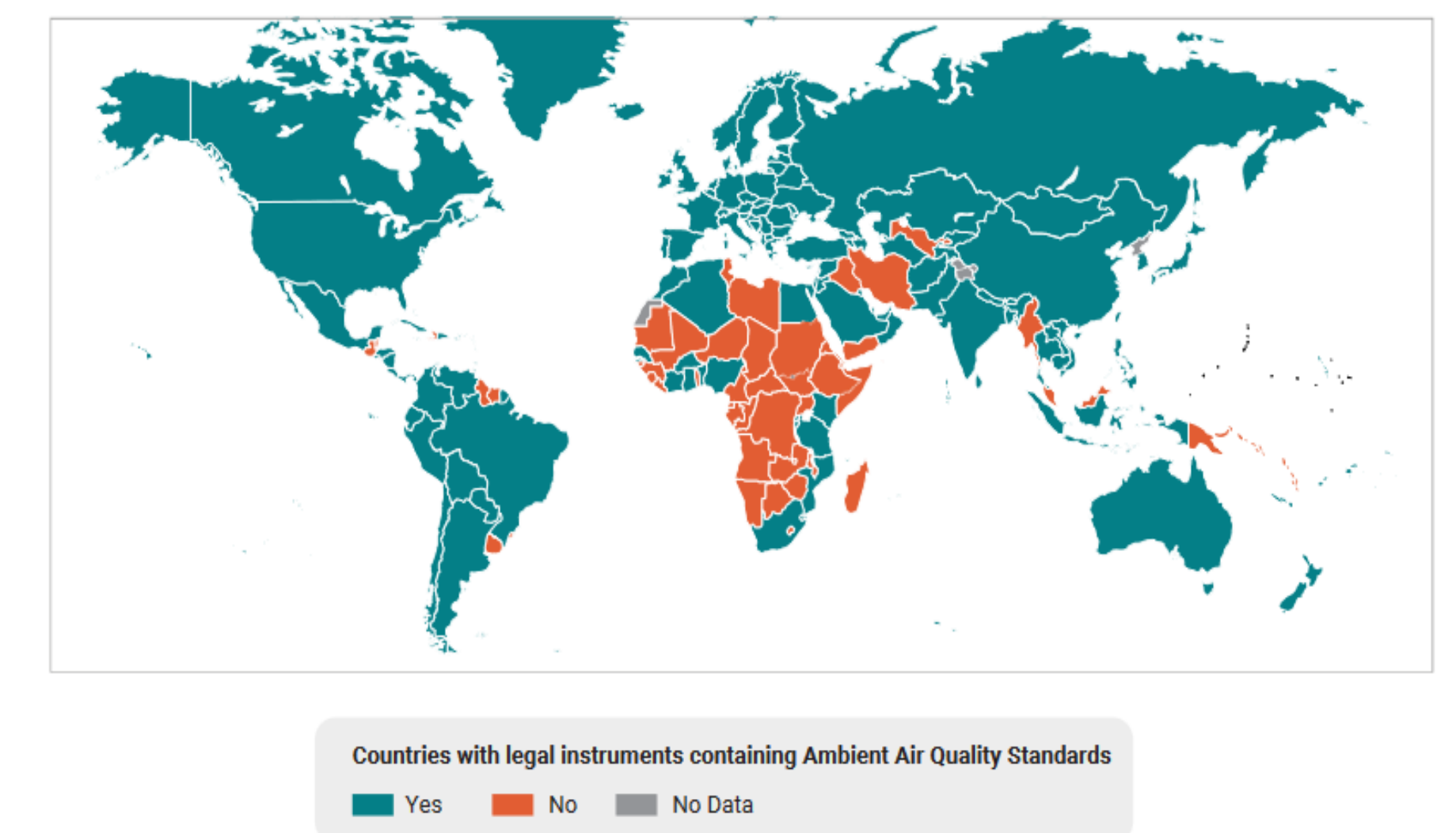


Figure 3: Countries with legislative instruments containing ambient air quality standards in the African continent (Misonne & Eloise, 2021).

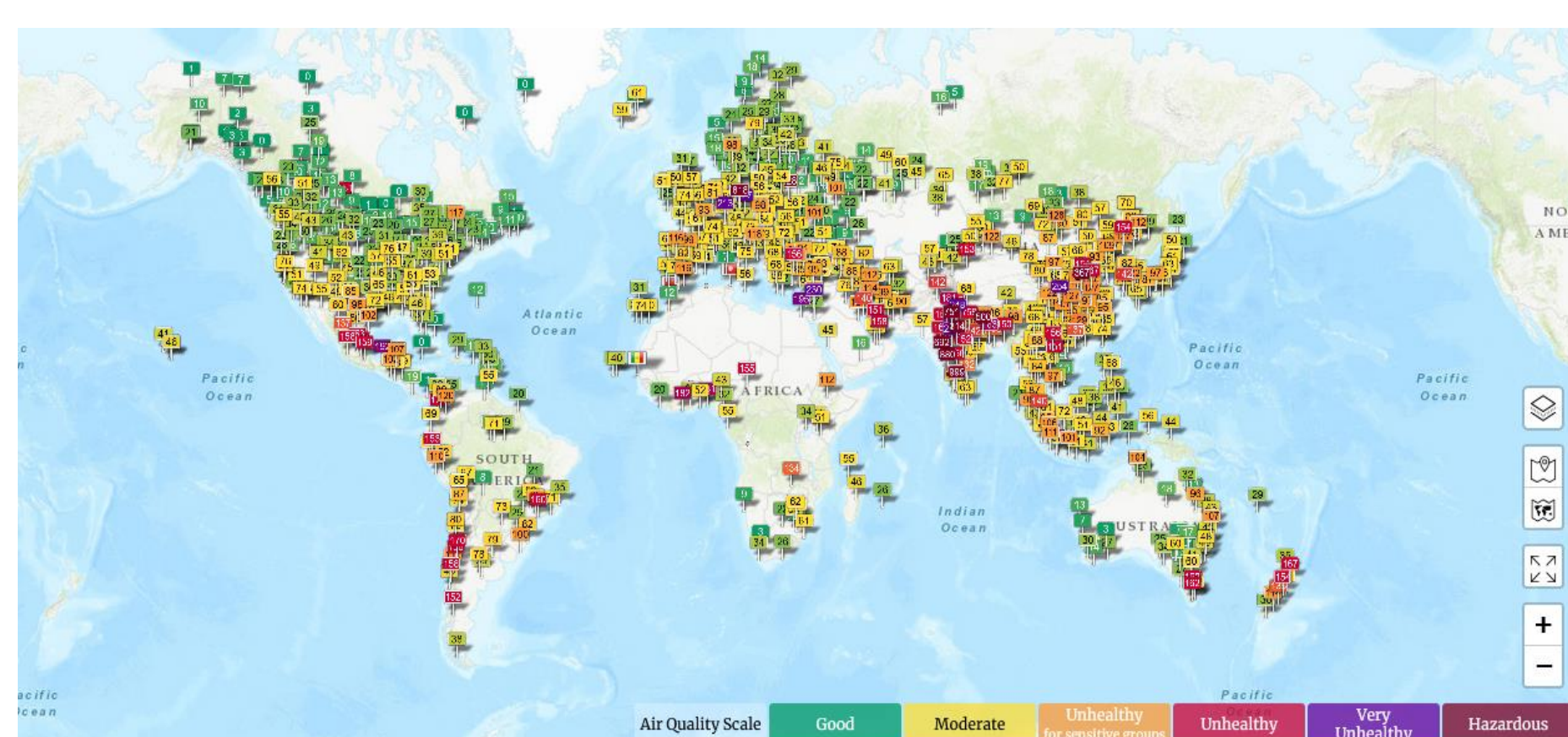


Figure 4: Air monitoring stations according to World Air Quality Index

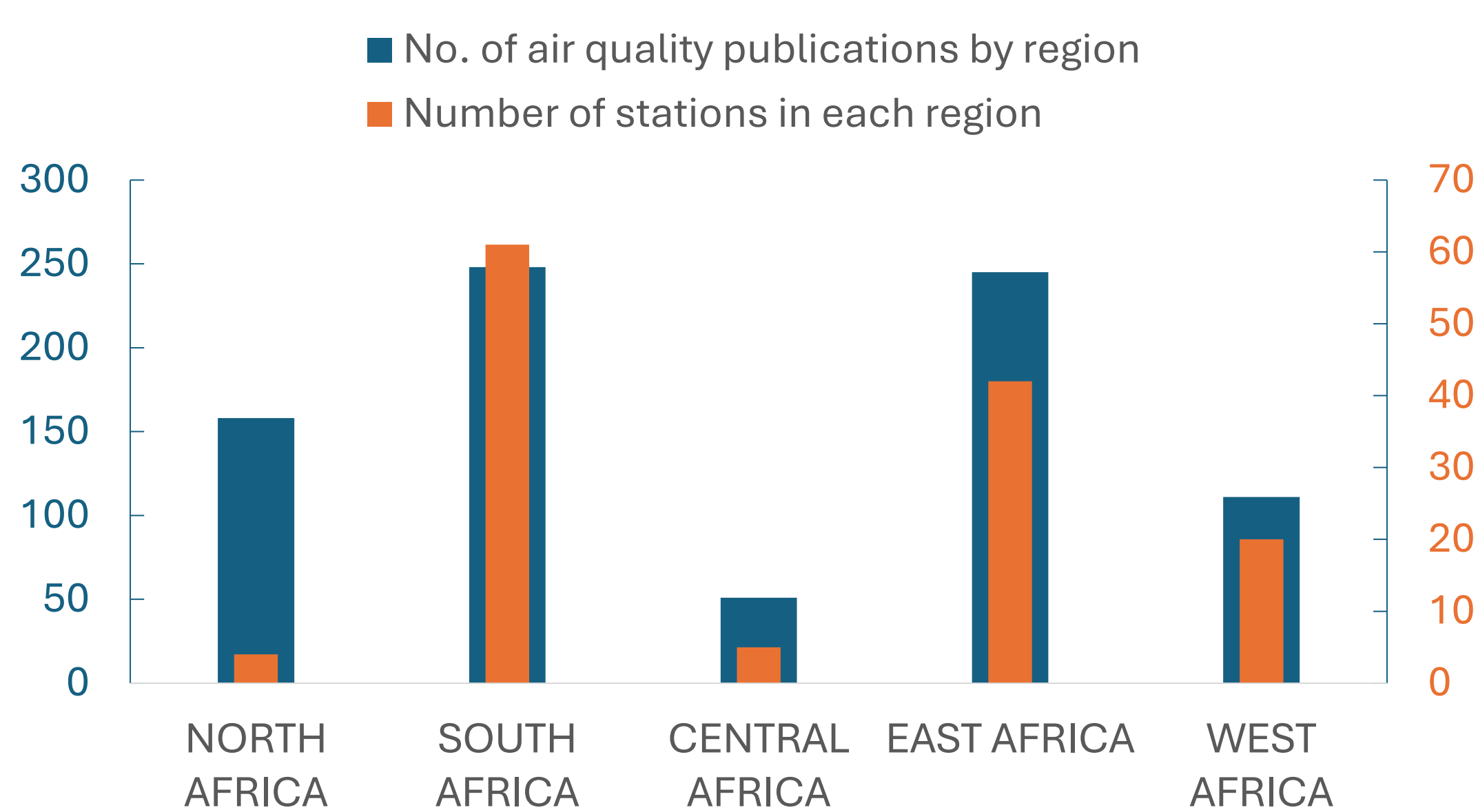


Figure 6: Number of air quality monitoring stations and number of publications per region.

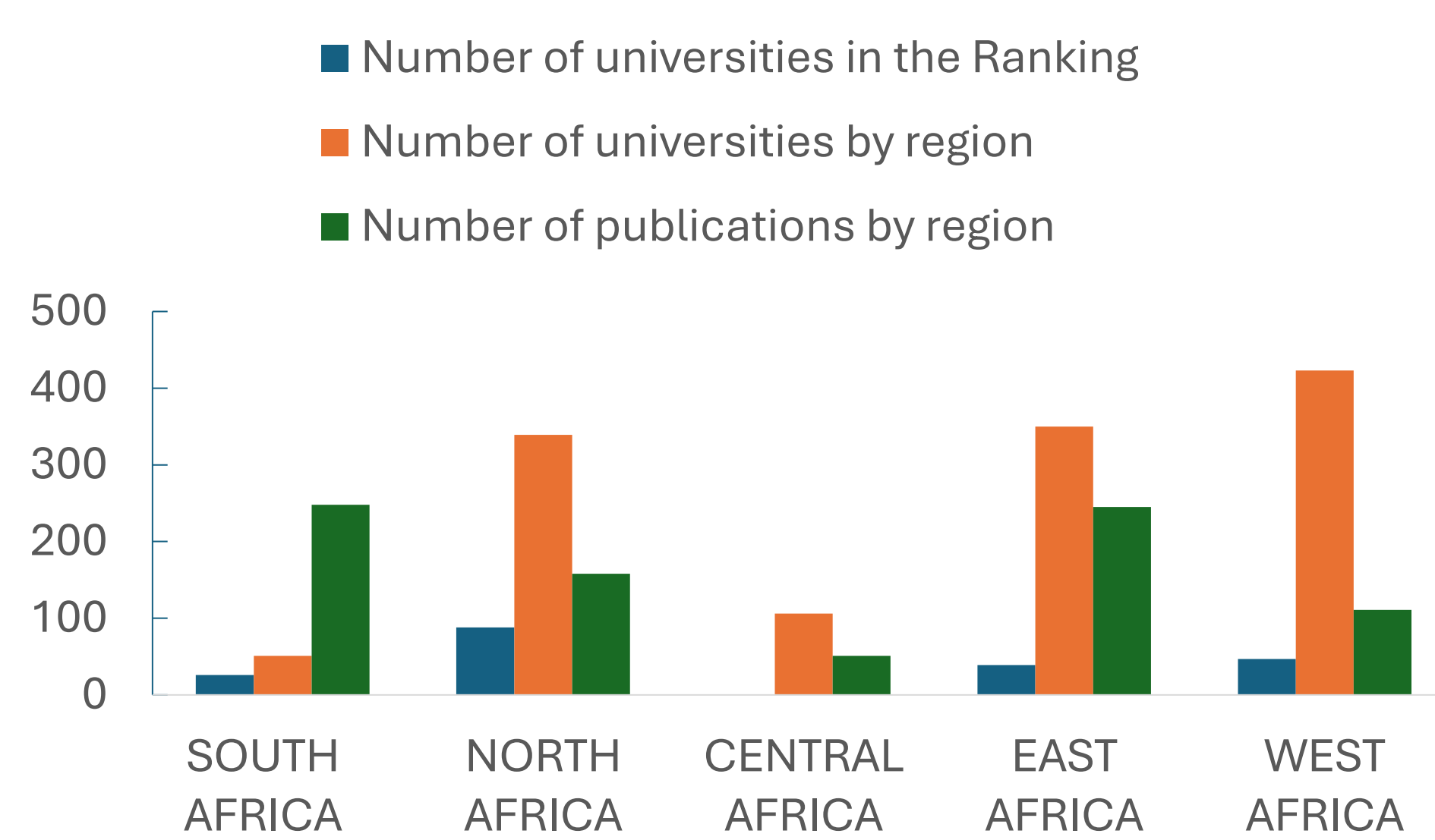


Figure 6: Number of universities, number of top universities and number of publications per region

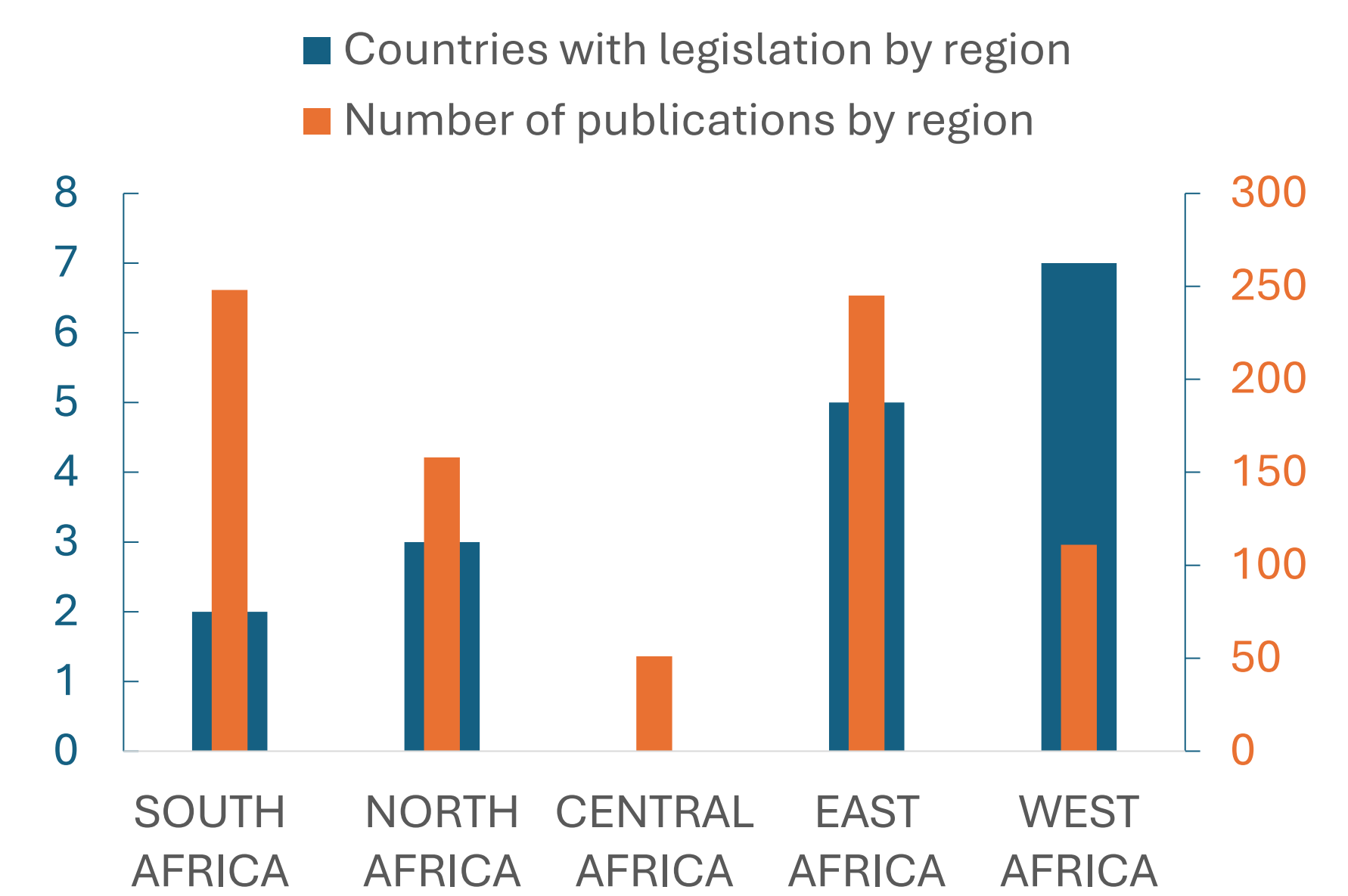


Figure 7: Number of legislations and number of publications per region.

4. CONCLUSIONS

- South African and East Africa have the higher number of publications with 248 and 245 articles respectively, while Central Africa has the lowest number of publications (50 articles). West Africa and North Africa have 158 and 111 publications, respectively.
- The first African publications date back to 1971 in Southern Africa and West Africa. Additionally, in 1978, at least one article was published in all five regions. East Africa and Southern Africa have achieved an outstanding number of publications in the year 2022, with 59 and 30 articles published, respectively.

- Only 7 of the 54 African countries have continuous air quality monitoring stations, with the majority located in South Africa, which has a comprehensive monitoring program.
- Additionally, 17 African countries have established standards to improve air quality, though only some of them, like South Africa, have specific and well-defined regulations.
- Although some regions have infrastructure and legislation, no clear impact on air quality improvement was observed. This suggests that effective implementation, international collaboration, and research funding are essential.

5. ACKNOWLEDGEMENTS

This work is part of the project TED2021-132292B-I00, funded by MCIN/AEI/10.13039/501100011033 and by the European Union "NextGenerationEU"/PRTR. Furthermore, it was partially supported by the Junta de Castilla y Leon co-financed with European FEDER funds (Grant LE025P20) and by the Schlumberger Foundation, the Women for Africa program, and the University of León.