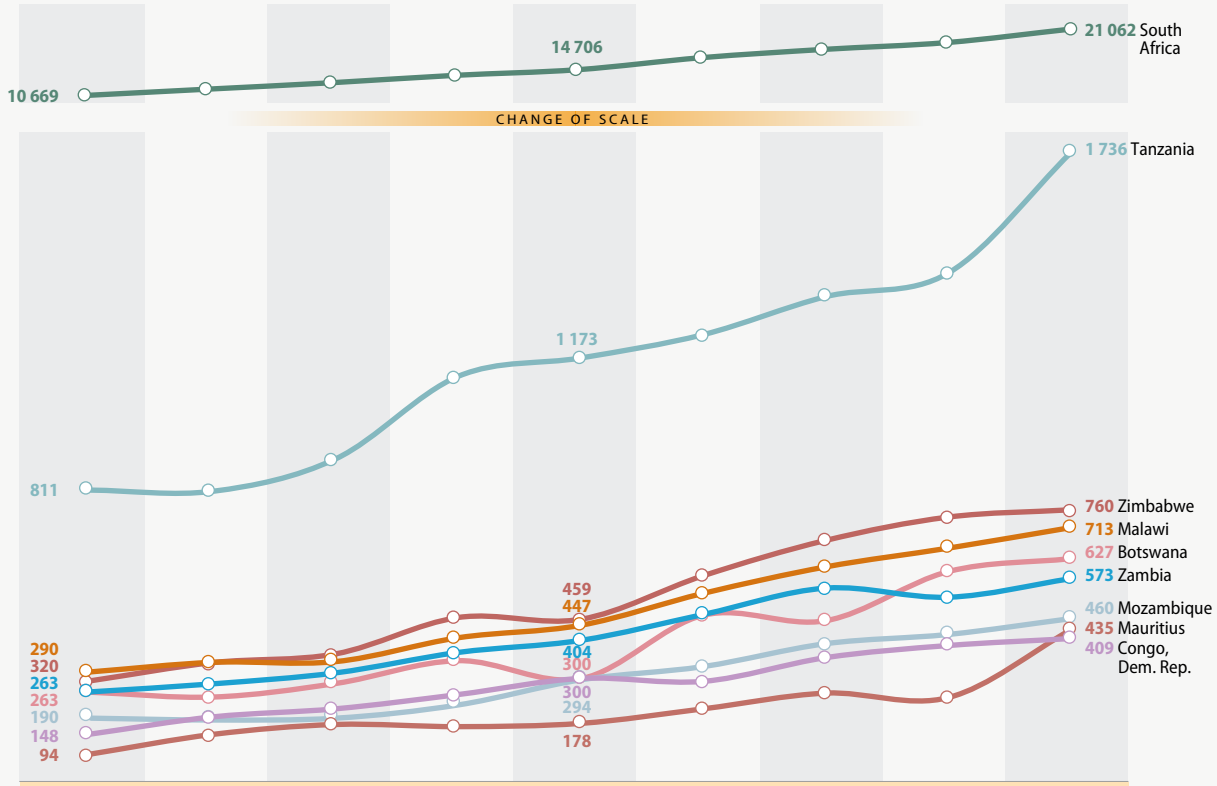
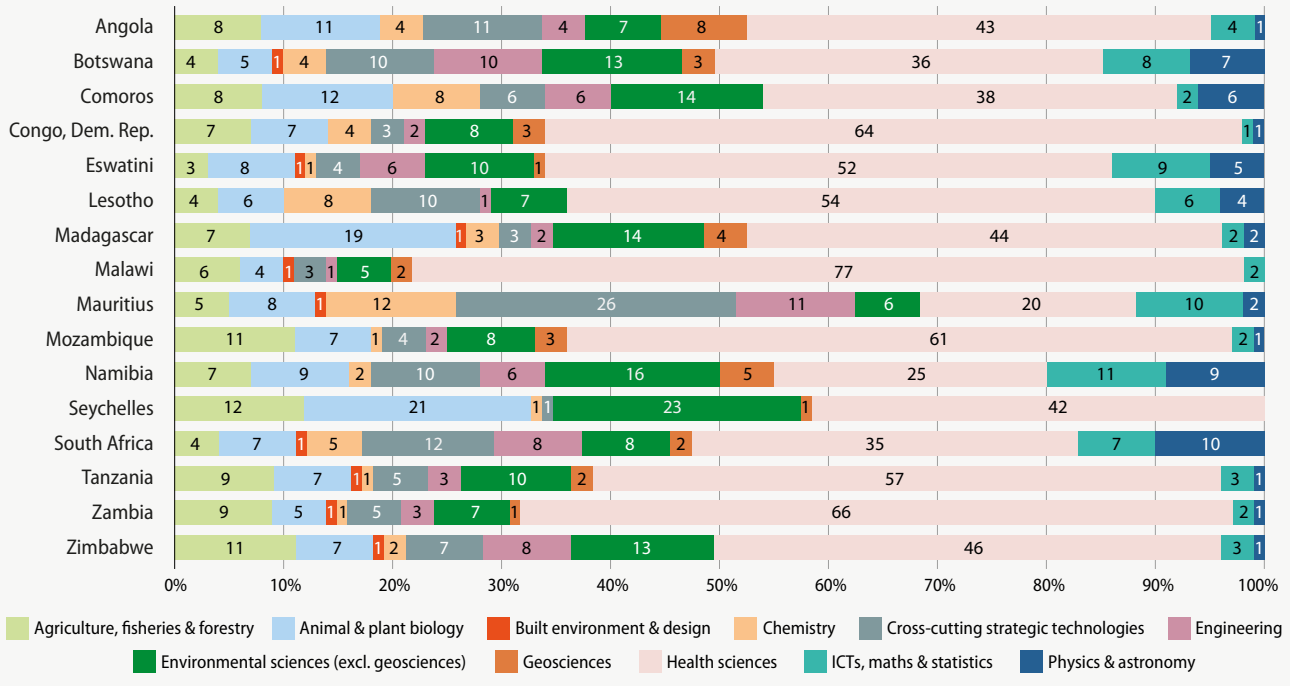
Figure 20.7: **Trends in scientific publishing in Southern Africa**

Volume of scientific publications in Southern Africa, 2011–2019



	2011	2012	2013	2014	2015	2016	2017	2018	2019
Namibia	129	152	193	226	259	279	292	346	381
Madagascar	231	238	265	262	292	276	326	323	341
Eswatini	47	43	48	42	55	64	81	99	116
Angola	50	65	62	87	84	100	134	94	114
Lesotho	27	31	28	26	34	29	35	43	60
Seychelles	35	34	46	41	59	43	54	48	52
Comoros	11	5	18	5	8	18	12	19	19

Scientific publications in Southern Africa by broad field of science, 2017–2019 (%)



1.25

Average citation rate for South Africa, the most prolific publisher in Southern Africa, over 2014–2016; the G20 average was 1.02.

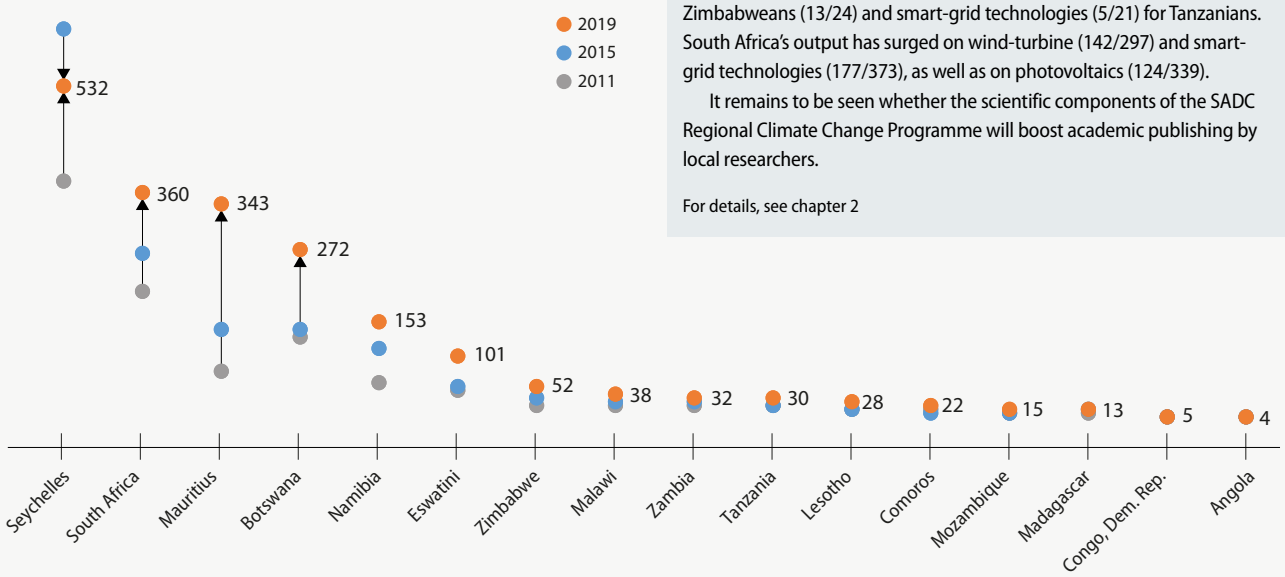
85%

Average share of publications with foreign co-authors in Southern Africa, 2017–2019 (%)

Mauritius (63%) and South Africa (56%) have a much lower share of foreign co-authorship than their Southern African neighbours.

Scientific publications per million inhabitants in Southern Africa, 2011, 2015 and 2019

Data labels are for 2019



All but Angola, Madagascar and South Africa count at least one other African country among their closest partners.

How has output on SDG-related topics evolved since 2012?

Southern African countries are publishing more on the following topics than would be expected, relative to global averages: help for smallholder food producers (Zimbabwe's output was 217 times the global average intensity), HIV research, medicines and vaccines for tuberculosis, tropical communicable diseases and traditional knowledge.

One growth area for South Africa has concerned the local impact of climate-related hazards: from 20 (2012–2105) to 95 (2016–2019) publications. On the topic of climate-ready crops, rapid growth has been observed in Malawi (5/18 publications), Mozambique (2/9), South Africa (26/109), Tanzania (5/24), Zambia (12/27) and Zimbabwe (11/42).

All 16 countries in the region published at least three times the average intensity on the sustainable use of terrestrial ecosystems, with output at least doubling in five countries, namely Angola (12/23), Botswana (78/180), Eritrea (4/12), Lesotho (2/7) and Mozambique (35/105).

With regard to renewable sources of energy, Mauritian scientists have boosted output on biofuels and biomass (12/31), as well as hydrogen energy (2/15). Hydropower has been the focus for Zambians (6/15) and Zimbabweans (13/24) and smart-grid technologies (5/21) for Tanzanians. South Africa's output has surged on wind-turbine (142/297) and smart-grid technologies (177/373), as well as on photovoltaics (124/339).

It remains to be seen whether the scientific components of the SADC Regional Climate Change Programme will boost academic publishing by local researchers.

For details, see chapter 2

Top five partners for Southern Africa for scientific co-authorship, 2017–2019 (number of papers)

	1st collaborator	2nd collaborator	3rd collaborator	4th collaborator(s)	5th collaborator(s)
Angola	Portugal (123)	USA (64)	Brazil (57)	Spain (40)	Germany (35)
Botswana	South Africa (510)	USA (488)	UK (254)	India (129)	Zimbabwe (111)
Comoros	France (21)	Madagascar (10)	China (9)	Italy/Morocco (6)	
Congo, Dem. Rep.	USA (390)	Belgium (375)	France (193)	UK (173)	South Africa (135)
Eswatini	South Africa (155)	USA (107)	UK (36)	Switzerland (35)	Germany (25)
Lesotho	South Africa (55)	USA (47)	Switzerland (13)	Malawi (10)	Botswana/Uganda (8)
Madagascar	USA (337)	France (326)	UK (192)	Germany (159)	Italy (76)
Malawi	USA (892)	UK (743)	South Africa (369)	Kenya (193)	Uganda (167)
Mauritius	Turkey (135)	South Africa (129)	UK (113)	India (109)	Italy (101)
Mozambique	USA (372)	Spain (235)	South Africa (233)	UK (226)	Brazil (221)
Namibia	South Africa (451)	USA (229)	UK (190)	Germany (182)	Australia (118)
Seychelles	UK (68)	USA (64)	France (40)	Australia/South Africa (35)	
South Africa	USA (10 110)	UK (7 474)	Australia (4 173)	Germany (4 155)	France (3 262)
Tanzania	USA (1 439)	UK (913)	South Africa (508)	Kenya (487)	Germany (437)
Zambia	USA (752)	UK (424)	South Africa (390)	Kenya (183)	Uganda (147)
Zimbabwe	South Africa (865)	USA (513)	UK (438)	Uganda (156)	Kenya (141)

Source: Scopus (excluding Arts, Humanities and Social Sciences); data treatment by Science-Metrix