There is a growing diversity of scientific partners. Iraq now counts Iran among its closest collaborators, for instance, and India, Malaysia and Pakistan figure among the top five collaborators for other Arab countries. Chinese scientists have become close collaborators for their peers in Egypt, Qatar, Saudi Arabia, Sudan, Syria and the UAE.

There is potential for greater intra-Arab collaboration, since half of all journals published in the Arab world are open access, compared with just 11% in Western Europe and 5% in North America, according to the Elsevier Scimago Journal Rank database in 2019.

Between 2015 and 2019, Saudi Arabia registered the greatest increase in the number of granted patents, followed by Egypt, the UAE and Qatar. The rest of the region actually recorded negative growth over the same period (Figure 17.5).

Figure 17.2: Trends in human resources in the Arab States

Distribution of students in the Arab States by programme, 2018 or closest year (%)

<table>
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</table>

Note: Data are unavailable for some countries and the share of unspecified students is over 5% for others. In the table, the non-allocated shares concern Algeria (2%), Bahrain (5%), Lebanon (1%), Palestine (2%), Sudan (4%) and Tunisia (2%).

Researchers (FTE) by sector of employment in the Arab States, 2018 or closest year (%)

- Algeria
- Egypt
- Iraq
- Kuwait
- Morocco
- Oman
- Qatar
- Syria
- Tunisia
- United Arab Emirates

UNESCO SCIENCE REPORT (2021)
Researchers and technicians (FTE) per million inhabitants in the Arab States, 2013 and 2018

Global average density of research personnel (FTE) in 2018

Share of female researchers (HC) in the Arab States, 2018 or closest year (%)

Expenditure on higher education as a share of GDP

Note: Data are unavailable for some countries.

Source: UNESCO Institute for Statistics

UNESCO SCIENCE REPORT (2021)