SDG Goal 9	**Industry, innovation and infrastructure**
SDG Target 9.5	**Enhance scientific research, upgrade the technological capabilities of industrial sectors in all countries, in particular developing countries, including, by 2030, encouraging innovation and substantially increasing the number of research and development workers per 1 million people and public and private research and development spending**
SDG Indicator 9.5.2	**Researchers (in full-time equivalent) per million inhabitants**
Time series	**Researchers in full-time equivalents**

1. General information on the time series

- Date of national metadata: 30 September 2021
- National data: http://sdg-indikatoren.de/en/9-5-2/
- Definition: The time series shows the number of research and development personnel working as researchers (in full-time equivalent) per 1 million inhabitants.
- Disaggregation: Not available.

2. Comparison with global metadata

- Date of global metadata: July 2017
- Global metadata: https://unstats.un.org/sdgs/metadata/files/Metadata-09-05-02.pdf
- The time series is compliant with the global metadata.

3. Data description

- Research and experimental development (R&D) comprise creative and systematic work undertaken in order to increase the stock of knowledge – including knowledge of humankind, culture and society – and to devise new applications of available knowledge. R&D personnel include all persons engaged directly in R&D activities within a statistical unit. Researchers Researchers are professionals engaged in the conception or creation of new knowledge. They conduct research and improve or develop concepts, theories, models, techniques instrumentation, software or operational methods. The data on researchers is given in full-time equivalent and is collected by the Federal Statistical Office of Germany on an annual basis for Higher education Sector, Government sector and Private non-profit Sector. Data for Business enterprise sector is collected by Wissenschaftsstatistik GmbH im Stifterverband für die Deutsche Wissenschaft on behalf of the Federal Ministry of Education and Research. The data on population for the years 2012 and after was calculated by the Federal Statistical Office based on the Census in 2011 and has, since then, continuously been updated by the Microcensus. The Microcensus is an inquiry directed to households, designed to obtain information on the labour market and related issues through a series of personal interviews with a sample of 1%. The Microcensus is designed as a multi-topic survey, integrating many different subject fields. The European Labour Force Survey (LFS) is integrated into the Microcensus and is harmonised in all EU member states. Data on population are the results of the latest population census (currently: 2011 Census) rolled forward in a breakdown by sex, age, marital status and citizenship, using both statistics of population change (migration, births, deaths, entering into marriages or registered same-sex partnerships) and information on changes in citizenship and the dissolution of marriages or registered same-sex partnerships. Before 2011, updated census data from 1987 (Federal Republic of Germany) and the population register of October 1990 (German Democratic Republic) were used. For the years before 2011 the results for population were calculated backwards using the census 2011 and migration, birth and death statistics.

4. Accessibility of source data

- Total researchers - Eurostat table [tsc00004]:
https://appsso.eurostat.ec.europa.eu/nui/show.do?dataset=tsc00004&lang=en
- Population – GENESIS online 12411-0001:
https://www-genesis.destatis.de/genesis//online?operation=table&code=12411-0001&bypass=true&language=en

5. Metadata on source data

- Quality Report - Survey on Expenses, Revenues and Personnel of the Public and Publicly Subventioned Institutions for Sciences, Research and Development (only available in German):
https://www.destatis.de/DE/Methoden/Qualitaet/Qualitaetsberichte/Bildung/wissenschaft-forschung-entwicklung.pdf

6. Timeliness and frequency

- Timeliness: Researchers: t + 15 months; Population: t + 8 months
- Frequency: Annual

7. Calculation method

- Unit of measurement: Per 1 million inhabitants
- Calculation method:

$$\textbf{Researchers per million inhabitants} = \frac{\text{Researchers [full- time equivalents]}}{\text{Population [number]}} \cdot 1{,}000{,}000$$