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Contribution of HEIs in Ensuring Access to Affordable and Clean Energy (SDG-7)

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Elsevier and the SDGs

- In 2015 Elsevier released the report [*Sustainability Science in a Global Landscape*](#)

Our commitment to sustainability/SDGs has continued:

- RELX SDGs Resource Center
- Signatories of SDG Publishers Compact
- 2020 report: [*The Power of Data to Advance the SDGs*](#)
- Integration of SDG analysis in Elsevier Data Tools
- Close collaboration with THE for the Impact Rankings

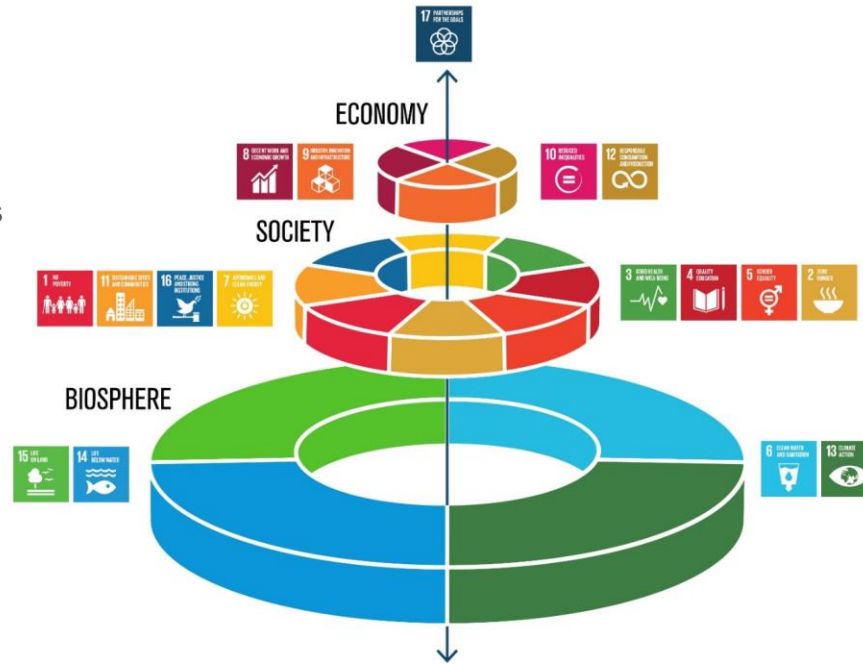


<https://www.elsevier.com/connect/sustainability-science-hub>

United Nations Sustainable Development Goals - SDGs

-economies and societies are embedded parts of the biosphere

- **The 17 UN SDGs** are a set of goals developed to replace the Millennium Development Goals (MDGs) and were adopted by all UN member states in 2015 as part of the [2030 agenda for Sustainable Development](#)
- **17 SDG Goals** with **169 targets** and **231 unique indicators** to measure progress.



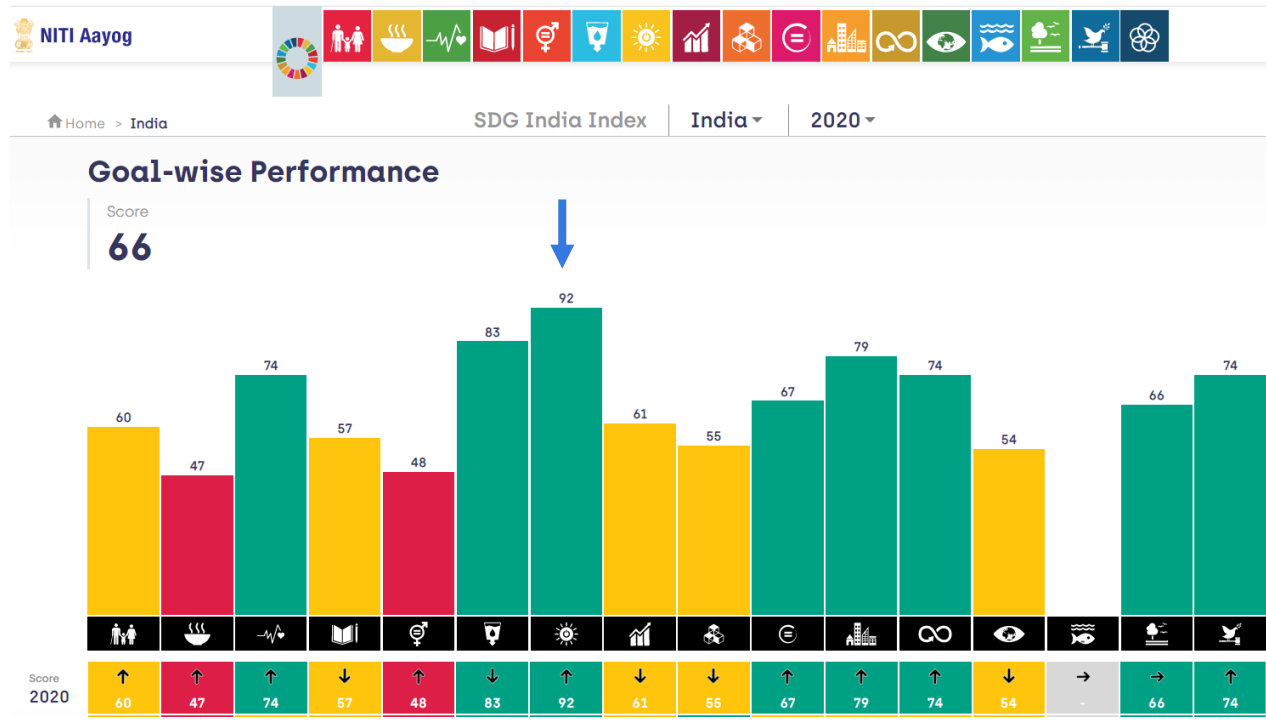
Graphics by Jenker Lohwasser/Florian

Need for SDG discussion

- Increased awareness of SDGs informs issues of
 - National competitiveness
 - Environmental protection
 - Social justice
 - Equity and Inclusion



National Institution for Transforming India – NITI Aayog SDG index



<https://www.niti.gov.in/reports-sdg>

What you measure, you can change . . .

- Increased awareness of SDGs informs issues of
 - National competitiveness
 - Environmental protection
 - Social justice
 - Equity and Inclusion
- What data related to SDGs can we measure?
 - **Research output and impact**
 - Funder data
 - Patent data
 - Topic data
 - **Collaboration data**



Pathways to Net Zero: The Impact of Clean Energy Research



+ Energy Filter on



Pathways to Net Zero: The Impact of Clean Energy Research



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Key themes addressed in the report include:

- Publication and topic trends
 - Disciplinary diversity
 - Collaboration (international, academic-corporate)
 - Global South participation
 - Corporates in Net Zero energy
 - From research to patents
 - Policy implications
- ... and more!



Foreword:

Ban Ki-moon

Co-chair of the Ban Ki-moon Centre for
Global Citizens & 8th UN SG



<https://www.elsevier.com/connect/net-zero-report>

Source: Netzero report, Elsevier

NØEnergy research is one of the fastest growing fields and accounted for 5% of global publications in 2020, as opposed to the 1% in 2001. **But are we investing enough in sustainability science?**

Leading countries-
China, USA, India,
Germany and
Japan

The international collaboration share increased to 45% in 2020. India, Russia and Poland are on decline

Almost half of the global active patents related to NØEnergy research are from **China**. two-thirds of all NØEnergy patent families focused on *GHG Emission Reduction*.

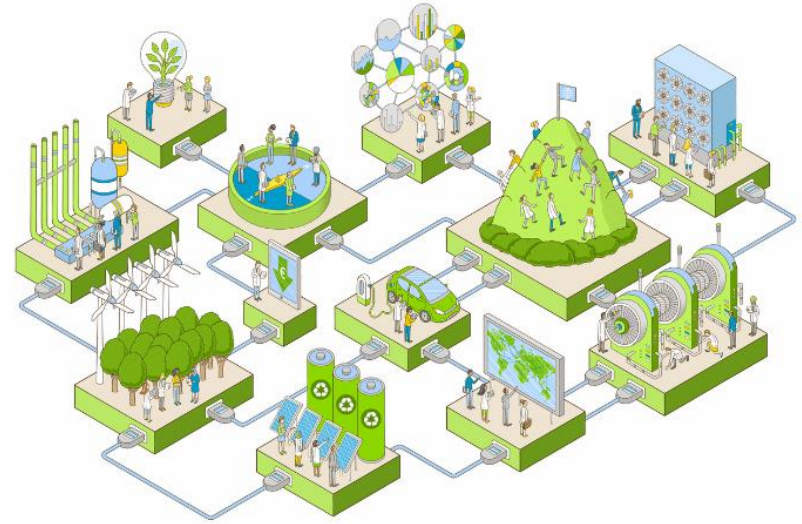
European corporates produce a large share of NØEnergy research publications, with Chinese companies starting to overtake them.

Academic–corporate collaboration more prevalent in European countries, USA, Canada, Japan and South Korea

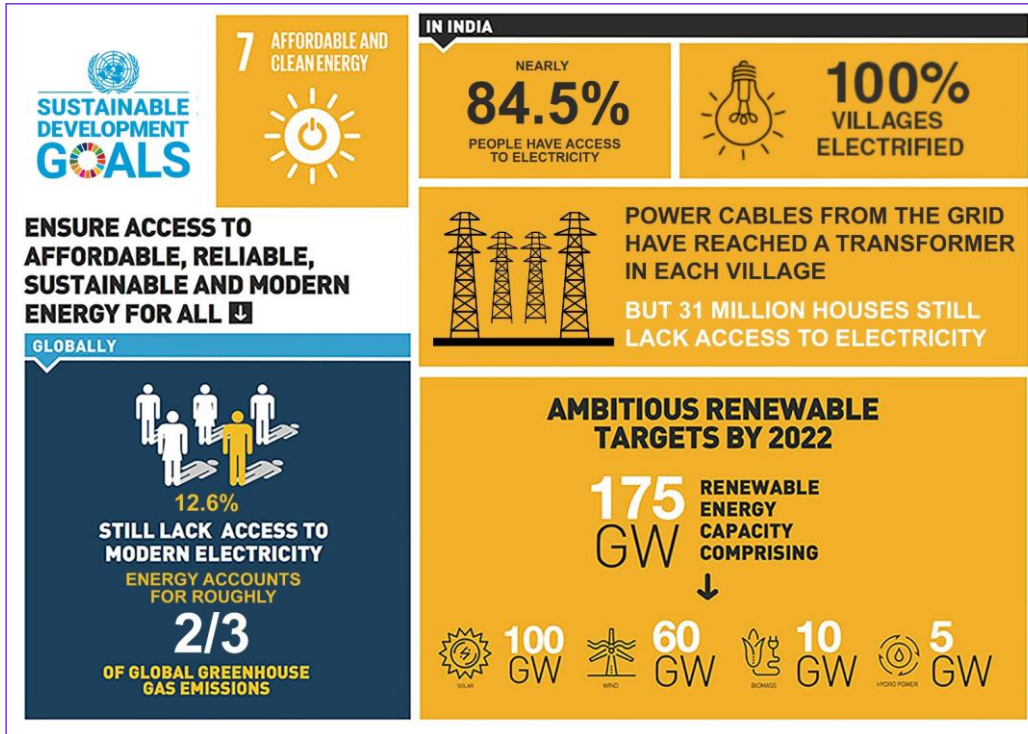
In policymaking, NØEnergy research has been taken up by governmental agencies such as the European Commission, the US government, German Umwelt Bundesamt; inter-organizational bodies and think tanks, including the World Bank, the Wuppertal Institut and the IPCC.

While the **indicators** are **positive** for net zero research **more targeted**, coordinated research in key areas, together with **more collaborative efforts** between the Global North and South are required to ensure that **all countries** and regions **have access to the expertise and technologies** needed to build capabilities at the local level to tackle climate change and make progress towards net zero.

Zooming in on Net Zero Energy research in India..

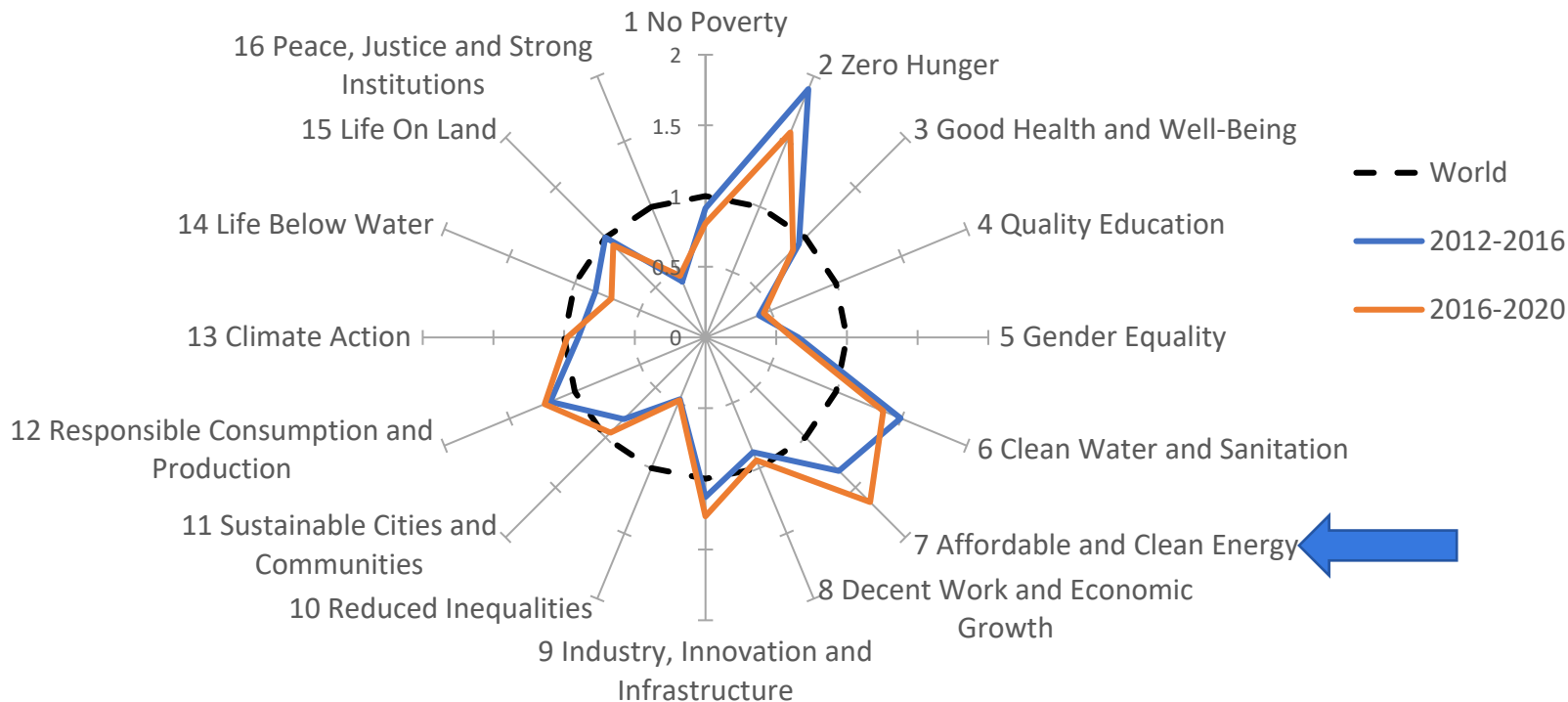


SDG 7- Affordable and Clean Energy - India



More than **70%** of Electricity from Coal

Relative Activity Index of India in SDG research



SDG 7 and SDG 13 Research Volume



- Countries/Regions ↑
-  China
 -  United States
 -  India
 -  Germany
 -  United Kingdom
 -  South Korea
 -  Japan
 -  Italy
 -  France
 -  Spain

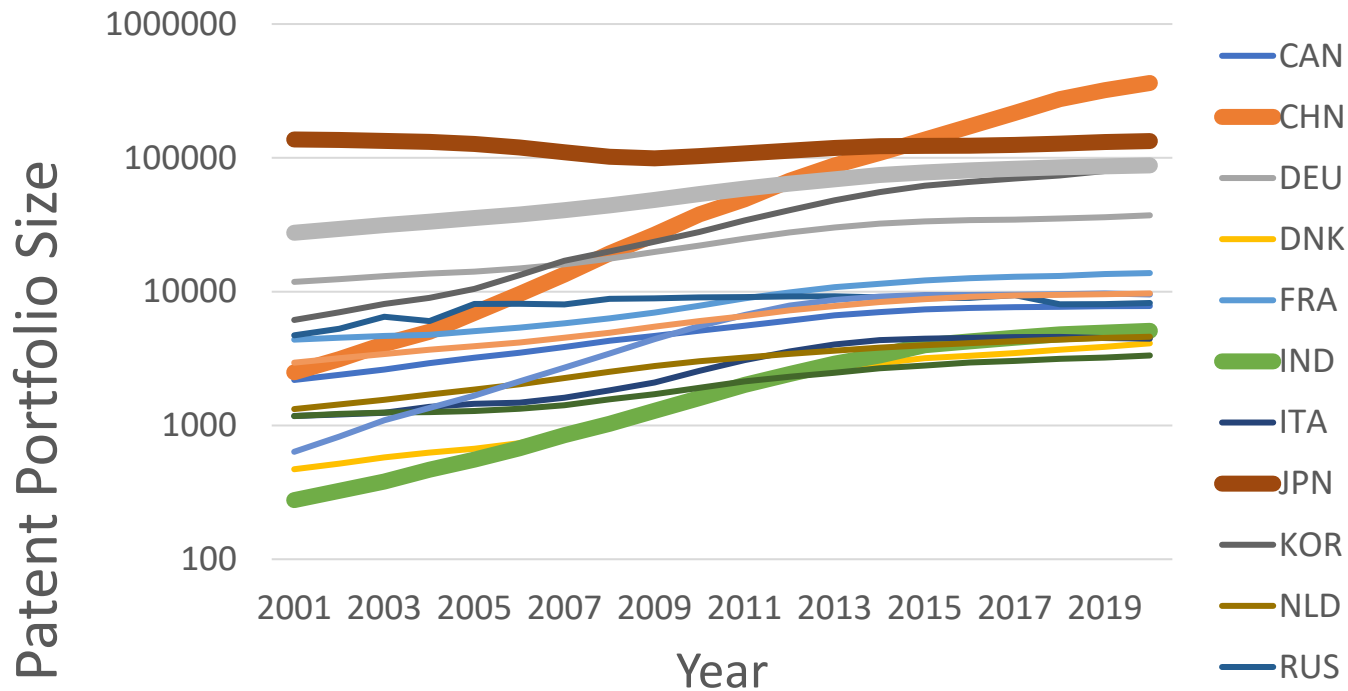


- Countries/Regions
-  United States
 -  China
 -  United Kingdom
 -  Germany
 -  Australia
 -  India
 -  Canada
 -  Italy
 -  France
 -  Spain



Number of Net Zero Energy Patents by Country

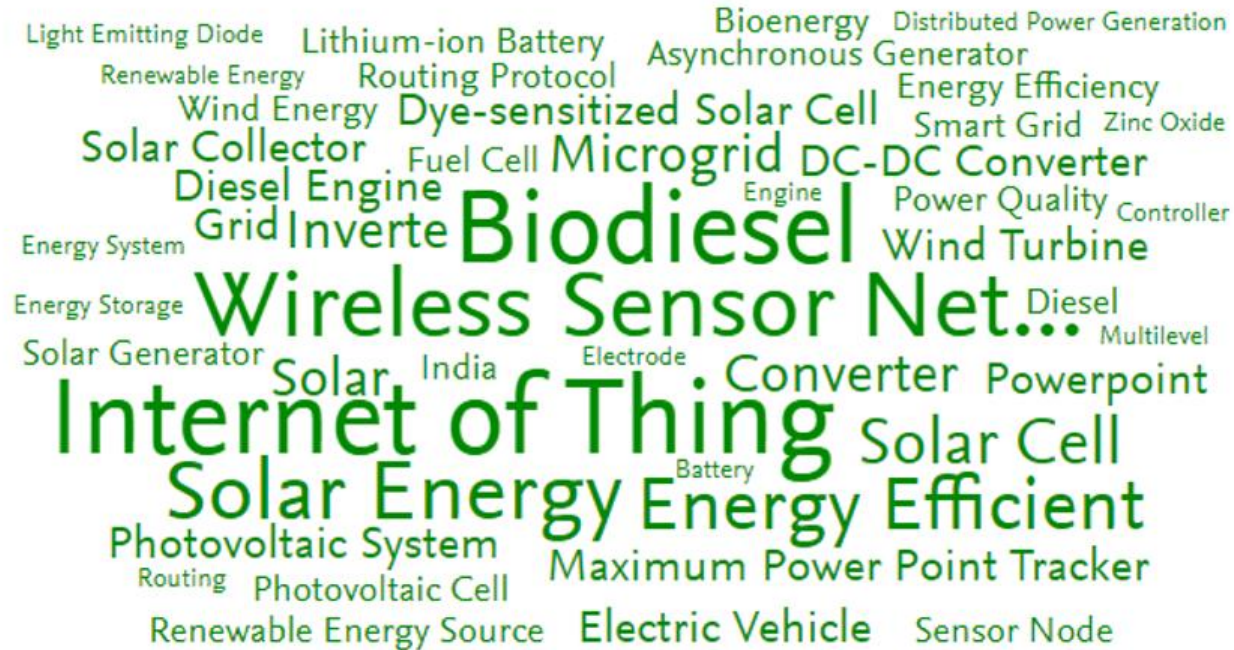
(note logarithmic scale on y-axis)



Data: RELX LexisNexis PatentSight, Nov. 2021

Source: Scival

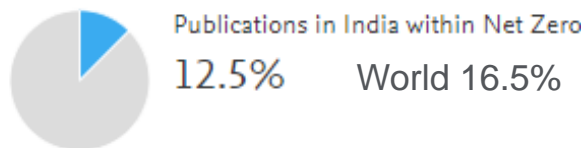
What is Net Zero Energy Research in India?



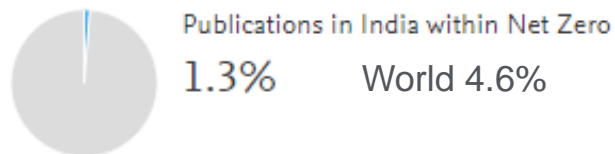
Some Numbers on Net Zero Research in India 2018-2020

61,693 publications

Output in top 10% most cited papers



Percentage of co-authorship
academia and Industry



Yearly trend

| | |
|------|--------|
| 2022 | 677 |
| 2021 | 15,637 |
| 2020 | 16,237 |
| 2019 | 15,274 |
| 2018 | 13,868 |

Top institutes

| | |
|--|-------|
| Anna University | 5,627 |
| Vellore Institute of Technology | 2,116 |
| Indian Institute of Technology Delhi | 2,018 |
| SRM University | 1,441 |
| Indian Institute of Technology Bombay | 1,151 |
| Indian Institute of Technology Kharagpur | 1,073 |
| Indian Institute of Technology Roorkee | 989 |

Top collaborating countries

| | |
|----------------|-------|
| United States | 1,960 |
| South Korea | 1,461 |
| China | 1,293 |
| Saudi Arabia | 1,225 |
| United Kingdom | 1,042 |
| Australia | 858 |

Leading subjects

| | |
|-----------------------|--------|
| Engineering | 32,058 |
| Energy | 19,281 |
| Computer Science | 19,111 |
| Materials Science | 12,124 |
| Physics and Astronomy | 10,450 |

IIT Delhi to Collaborate with Tata Power in Clean Energy Space



IIT Delhi, Tata Power will collaborate in areas like smart grid technology, clean energy solutions (Representative image)

Tata Power on Saturday said it has inked a pact with IIT Delhi to work together on clean energy and other projects that can be transformed from research and development level to pilot stage.

- PTI ● **NEW DELHI**
- LAST UPDATED: OCTOBER 24, 2021, 18:40 IST
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[Telegram](#) [Google News](#)



<https://www.news18.com/news/education-career/iit-delhi-to-collaborate-with-tata-power-in-clean-energy-space-4359800.html>

Activity of Tezpur University

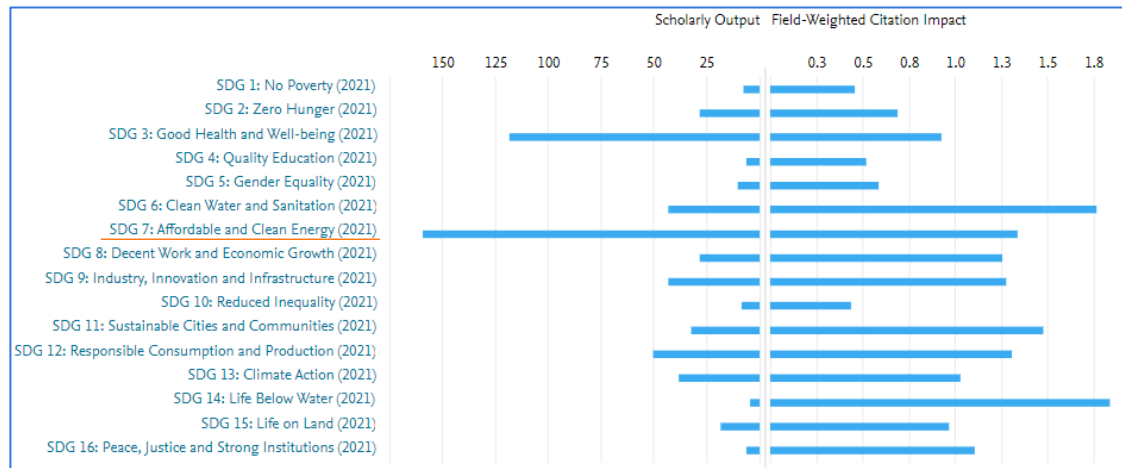
Within: **SDG 7: Affordable and Clean Energy (2021)** |

Biodiesel

Bioenergy

Feedstocks

Biomass



Indian Corporates leading in research

- Mahindra & Mahindra
- Ashok Leyland
- Indian Oil Corp
- Tata Motors
- TVS Motors

- Indian Institute of Technology Guwahati
- Assam Science and Technology University
- Indian Institute of Technology Delhi
- Indian Institute of Technology Bombay
- Gauhati University
- Osaka City University
- Indian Institute of Technology Roorkee
- Jawaharlal Nehru University
- North-Eastern Hill University India

Performance

159
Scholarly Output



[View list of publications](#)

1.34
Field-Weighted Citation Impact



30
International Collaboration



3,881
Views Count

1,710
Citation Count

Japan

United States 5

Canada 4

Egypt 4



Thank you

