





Editorial

The UN Sustainable Development Goals and Fire Technology

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The Sustainable Development Goals (SDGs) were formulated in 2015 by the United Nations General Assembly to set 17 interlinked objectives to serve as a “shared blueprint for peace and prosperity for people and the planet, now and into the future” [1]. In this work, we analyse if and how scholarly outputs published in Fire Technology made a contribution towards the SDGs.

The 17 Goals represent a “call for actions” by all the developed and developing countries members of the United Nations. The objectives cover the most pressing challenges facing mankind, ranging from poverty and inequality to economic growth, health and education, land and water, technology and innovation, and peace and partnership [1, 2]. A summary of these 17 goals is visualised in Fig. 1. The SDGs are also gaining momentum in academia and science, and they are playing a key role in ensuring success [3, 4]. In fact, academia is a key stakeholder in this challenging process [5]. Research on the SDGs has been growing dramatically in the world. Table 1 shows the number of scholarly outputs by the SDGs produced in the world in 2015 and 2022 based on bibliometric data from SciVal (Elsevier) [6]. The scholarly outputs for many SDGs have doubled from 2015 to 2022.

The SDGs have been an important topic in the world of university rankings. For example, the Times Higher Education Impact Rankings [6] and the QS Sustainability Rankings [8] have attempted to measure universities’ performance to address the SDGs through collecting and analysing research and operational data and evidence. In addition to scholars and the ranking agencies, many other stakeholders pay increasing attention to the SDGs. Governments and funding agencies often incorporate the SDGs in funding and grant categories and decisions. Students worldwide are also pushing for the delivery of sustainability goals [9]. As

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Figure 1. The sustainable development goals (SDGs) by the United Nations [7].

**Table 1
Scholarly Outputs by the SDGs in the World for 2015 and 2022**

SDGs	2015	2022	Growth rate (%)
SDG 1: No Poverty	10,904	19,810	82
SDG 2: Zero Hunger	24,975	55,888	124
SDG 3: Good Health and Well-being	419,465	688,598	64
SDG 4: Quality Education	29,733	59,278	99
SDG 5: Gender Equality	18,558	34,992	89
SDG 6: Clean Water and Sanitation	36,856	73,410	99
SDG 7: Affordable and Clean Energy	117,537	203,313	73
SDG 8: Decent Work and Economic Growth	30,907	73,087	136
SDG 9: Industry, Innovation and Infrastructure	49,956	124,149	149
SDG 10: Reduced Inequality	31,007	62,125	100
SDG 11: Sustainable Cities and Communities	44,146	95,609	117
SDG 12: Responsible Consumption and Production	27,386	65,860	140
SDG 13: Climate Action	30,512	77,737	155
SDG 14: Life Below Water	20,308	38,790	91
SDG 15: Life on Land	28,189	50,304	78
SDG 16: Peace, Justice and Strong Institutions	31,899	53,588	68

such, it is paramount that assess how if/how researchers, institutions and journals are contributing towards these goals.

Is Fire Technology Journal contributing towards the SDGs targets? The answer is yes!, and the results of our analysis are promising. To run this analysis, we used

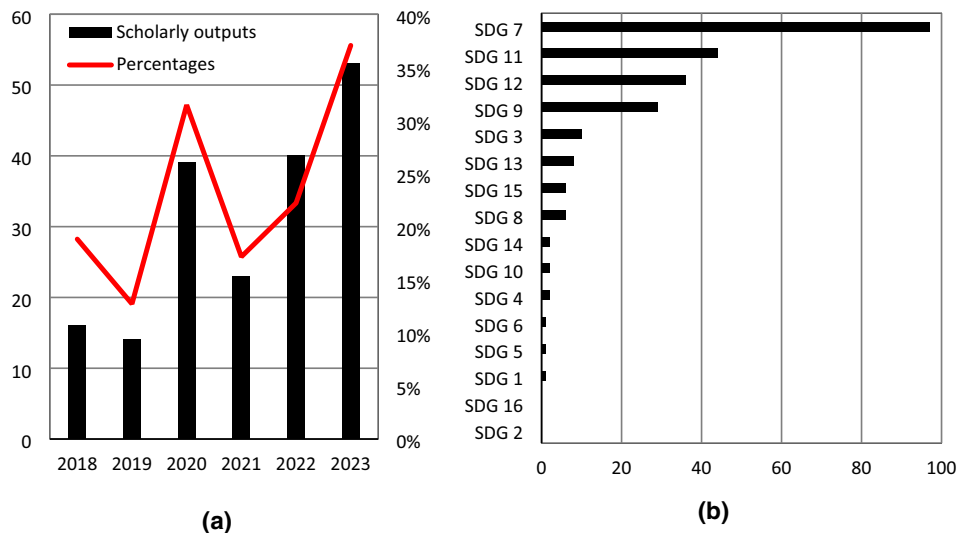


Figure 2. Scholarly outputs published in Fire Technology contributing toward the SDGs targets: (a) numbers and percentages of outputs by year; (b) numbers of outputs for each SDG (note: a scholarly output can contribute to more than one SDG, $n = 185$).

the data provided by SciVal, an online tool developed by Elsevier that enables users to analyse the research performance of individuals and institutions from all around the world using Scopus data [10]. In our case, we assessed the SDG data for Fire Technology from 2018 to 2023.¹ In fact, since 2018, Elsevier has released SDG search queries to track if research articles make a contribution toward SDG targets. Readers can refer to this documentation regarding the Machine Learning algorithms developed and implemented for this mapping task [11].

Our results show that, since 2018, 185 scholarly outputs (e.g., journal articles, reviews, short contributions) were published in Fire Technology, which makes a contribution towards the SDGs targets out of a total of 776 scholarly outputs.² Figure 2a shows a steady growth in the numbers and percentages of scholarly outputs contributing toward the SDGs since 2018. On the other hand, Fig. 2b shows that the four most popular SDGs in Fire Technology are: SDG 7—Affordable and Clean Energy; SDG 11—Sustainable Cities and Communities; SDG 12—Responsible Consumption and Production; and SDG 9—Industry, Innovation and Infrastructure.³

An analysis of the keyphrase for the papers contributing to these four SDGs is provided here. The analysis of the scholarly outputs contributing to SDG 7 shows that the growing topic in this group is the investigation of battery fires and thermal explosions (see Fig. 3). The scholarly outputs contributing to SDG 11 are

¹ This time period is one of the few possible time period options available in SciVal today.

² This data was retrieved on the 24th August 2023.

³ SDG 17 was excluded in this analysis as queries on this goal were only introduced recently.

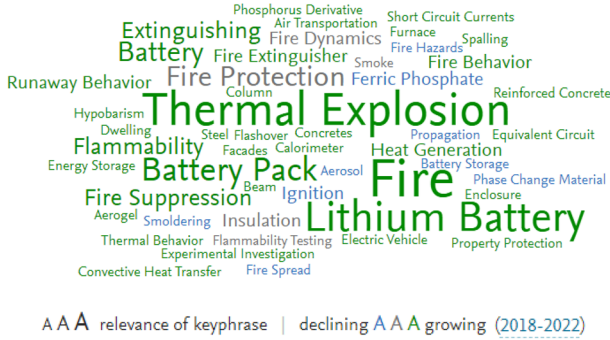


Figure 3. Keyphrase analysis for SDG 7—Affordable and clean energy.

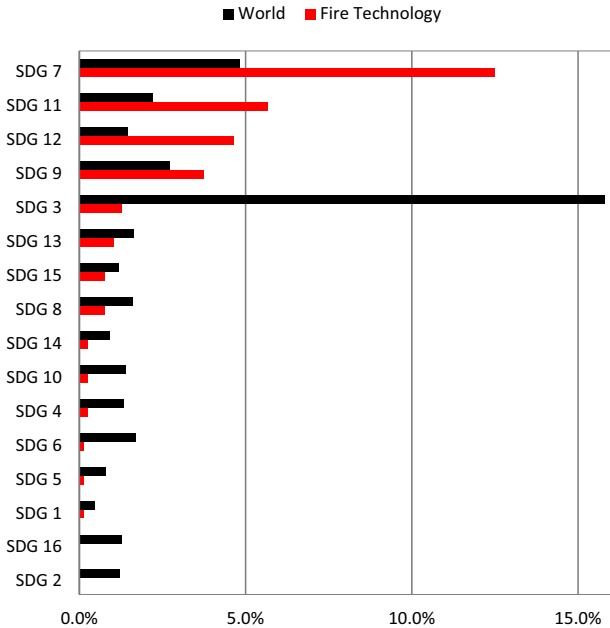


Figure 4. Percentages of scholarly outputs contributing toward the SDGs targets published worldwide (n = 21,313,431) and in Fire Technology (n = 776) in the 2018-2023 period (note: a scholarly output can contribute to more than one SDG).

instead focusing on the built environment vulnerable to wildfires, such as informal settlements and the wildland-urban interface. Finally, the scholarly outputs contributing to the SDGs 12 and 9 focus on the flammability and performance of construction materials such as timber and concrete.

Finally, it is possible to compare the percentages of scholarly outputs contributing toward SDG targets published worldwide and in Fire Technology. This analysis is proposed in Fig. 4 using the data for the time period 2018–2023 by normalising the results in terms of percentages. The results show that the most popular SDGs in Fire Technology partially match the most popular SDGs for the entirely scholarly outputs published worldwide. In fact, SDG 7, SDG 9 and SDG 11 are among the four most popular ones worldwide. However, while SDG 3 (Good Health and Well-being) is the most popular worldwide, scholarly outputs published in Fire Technology partially contribute to this goal with work assessing the impact of fire and wildfire on human health and well-being.

In conclusion, fire science research (in general) published in Fire Technology is making important contributions to addressing pressing issues highlighted by the SDGs, in particular in the area of building sustainable cities and consuming resources, such as energy, sustainably. As such, these results shows an alignment of the scholarly outputs published in Fire Technology with the 2030 agenda of the International Association for Fire Safety Science [12]. SDGs have also been an important topic to attract more citations and impact papers in Fire Technology. For example, publications in Fire Technology in SDG 7, SDG 11, SDG 12 and SDG 9 have an average citation per publication of 9.2, 16.3, 6.6 and 14.1, respectively. The average citation per publication for all publications during this time period is 7.1.

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