

# PUBLIC COMMUNICATION BY SCIENTIFIC INSTITUTIONS IN INDIA

A CASE FOR CHANGE

JANUARY 2022

This brief working paper by the [Foundation for Advancing Science and Technology-India](#) (FAST-India) includes a preliminary assessment of the status of public communication by scientific institutions in India, its comparison with other countries, and proposes possible ways to build and enhance these activities in the country to boost the impact of science and technology on society and vice versa. This working paper is part of an ongoing effort by FAST-India to promote science communication and public engagement in India and will be updated as more insights and recommendations are gathered through further research and consultations. Feedback/inputs for this working paper can be emailed to [sarah@fast-india.org](mailto:sarah@fast-india.org).

**Acknowledgements:** We would like to thank everyone who took part in the consultations for this paper. We also thank FAST-India Board Members Mr Thomas Barlow and Dr Sivaram Swaminathan and Dr Marina Joubert, Senior Science Communication Researchers at Stellenbosch University, South Africa, for their valuable inputs for this paper.

*This working paper can be cited as “Public Communication by Scientific Institutions in India: A Case for Change (2022). FAST-India Working Paper.”*

## TABLE OF CONTENTS

1. <a href="#">About the Working Paper</a> .....	3
2. <a href="#">Introduction</a> .....	4
3. <a href="#">Public Communication by Scientific Institutions: A Global Perspective</a> .....	5
4. <a href="#">Public Communication by Scientific Institutions: The Indian Scenario</a> .....	7
5. <a href="#">Public Communication by Scientific Institutions in India: A Case for Change</a> .....	8
6. <a href="#">Public Communication by Scientific Institutions in India: Steps of Change</a> .....	11
6.1 Actions for Funding Organisations	
6.2 Actions for Educational Organisations	
6.3 Actions for Scientific Institutions	
7. <a href="#">Conclusion</a> .....	15
8. <a href="#">APPENDIX 1</a> .....	16
8.1 Details of Stakeholder consultations by FAST-India	
8.2 Interview questions	
9. <a href="#">APPENDIX 2</a> .....	17
9.1 The SciComm Huddle by FAST-India	
10. <a href="#">APPENDIX 3</a> .....	20
10.1 Typical functions of a ‘communications office’	
10.2 Indicative team composition of a ‘communications office’	

## 1. ABOUT THE WORKING PAPER

This brief working paper by FAST-India includes a preliminary assessment of the status of public communication, particularly Science Communication (SciComm), by scientific institutions in India, its comparison with other countries, and proposes possible ways to build and enhance these activities in the country to boost the impact of science and technology (S&T) on society and vice versa. The findings and recommendations in this paper are based on semi-structured, qualitative interviews of 18 scientists, research administrators and communication and engagement professionals based at major academic and research institutions in India, UK, USA and EU (Appendix 1) and literature consultations, conducted between August - November 2021. To arrive at a representative analysis, the Indian institutions in this paper were selected for they operate in varied regional and funding contexts and are at different stages of formal commitment to SciComm, whereas the non-Indian institutions were selected for their world-class academic programme and high quality public communication and SciComm infrastructure and activities.

The qualitative interviews were designed to understand public communication goals, motivations and activities of scientific institutions in India, their key challenges, and the nature of support needed to build or strengthen their public communication efforts. The consultations with communication and engagement professionals based at premier scientific institutions in the UK, USA and EU attempted to gain an understanding of best practices in these regions. The findings in this study are further supplemented by discussions that took place at The SciComm Huddle (Appendix 2) organised by FAST-India in December 2021 that brought together Indian and international researchers to discuss trends and best practices in SciComm and public engagement.

This working paper is not a comprehensive assessment of the SciComm landscape in India, but it provides some early insights into how scientific institutions in the country can improve their SciComm capabilities. Furthermore, while we recognise that SciComm is enabled and carried out by a diverse set of actors, this working paper focuses only on the role of scientific institutions in India. The interactions between these varied SciComm players is crucial for building a robust ecosystem for SciComm in India towards creating a knowledge-based society. Therefore, this working paper does not advocate favouring one actor over another.

Hereafter, terms like 'public communication' are used to describe a plethora of communication activities undertaken by scientific institutions to engage with external audiences for wide-ranging objectives. Whereas, 'SciComm' is used to specifically describe activities involving public communication of science and engagement with non-expert audiences on matters related to science and technology, unless different terminologies are used in external references and quotes.

## 2. INTRODUCTION

In recent years, Science Communication (SciComm for short) has gained tremendous momentum worldwide. This trend is largely driven by the need of governments, funders and scientific communities, to share the value and impact of research to build public's understanding, trust and support for science and scientific institutions, and to enable evidence-based decision making and policymaking across sectors, at all levels. These efforts are also being progressively used to make scientific research and innovation responsible and responsive to societal needs, views and aspirations towards developing effective societal systems to address local and global challenges. Lately, SciComm has assumed a greater significance in tackling widespread scientific misinformation.

In today's constantly evolving information and communication landscape, SciComm is a complex and dynamic process that is most often initiated and coordinated by scientific institutions and governments to generate mutual benefit for science and society. SciComm has been broadly categorised into two paradigms - the '*dissemination paradigm*' and the '*public participation paradigm*'. Former is a more popular and ubiquitous approach that usually involves relaying scientific information to the public to bridge the knowledge gap. However, there is growing recognition for the second approach of '*public participation*', which is a shift from one-way, top-down communication to promoting meaningful dialogue between science and society for mutual learning.

Perceptions and practices of SciComm vary across countries as they are usually contextualised by national histories of science, technology and education, and significantly influenced by the governance of these sectors. Even though SciComm is now recognised as a distinct field of research and practice in many countries, it assumes different meanings depending on who is orchestrating it and, as a result, according to a recent study, it still lacks a clear definition or purpose. Kappel and Holmen (2019), however, provided the following common goals of SciComm based on global empirical literature review:

- Improving the population's understanding\* of science
- Generating pro-attitudes toward science
- Generation of public epistemic and moral trust
- Collect and make use of the public's input about acceptable/worthwhile research aims and applications of science.
- Collect and make use of local knowledge.
- Make use of distributed resources to be found in the citizenry.
- Enhance democratic legitimacy of funding, governance and application of science or specific segments of science
- Generating political and private sector\* support for science

*\*added/modified by the author of the paper*

Typically, these aims of SciComm are carried out by the following actors and organisations:

- Governments, funding agencies and policymakers
- Academic institutions, academics and students
- Science academies

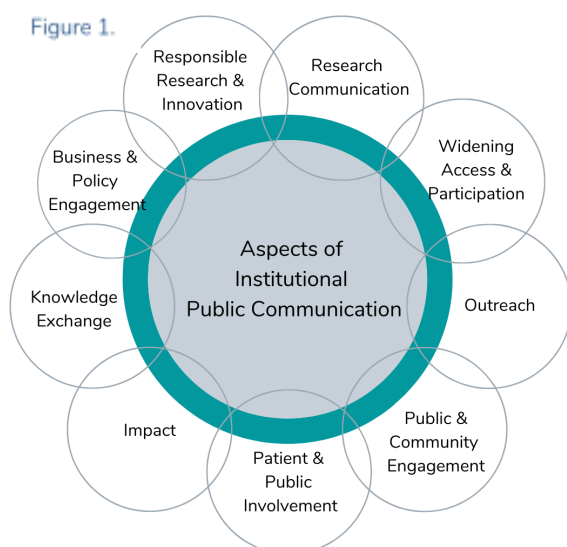
- Advocacy organisations and activists (for e.g. organisations working on the environment, climate change, etc.)
- Charities, philanthropy, humanitarian aid organisations
- Media organisations and journalists (print, broadcast, new media)
- Press officers and communication officers
- Science museums and centres
- Non-professional communicators and independent sector organisations,
- Public and community engagement and allied professionals

SciComm is catalysed by all of the above actors but their relevance and presence vary across regions. Among these, universities and research-performing organisations are universally regarded as key drivers of social change and economic growth as they play an important role in not only building critical human capital needed for nation-building but also in enabling the production and dissemination of scientific knowledge that is essential for human and planetary well-being. To fulfil this role effectively, these institutions must build, in the first place, effective mechanisms and channels to engage the public in this process of knowledge creation and its subsequent uptake.

### 3. PUBLIC COMMUNICATION BY SCIENTIFIC INSTITUTIONS: A GLOBAL PERSPECTIVE

Societal engagement is recognised as the ‘third mission’ by academic institutions the world over. The first two missions are training human capital (education) and knowledge production (research). Institutional engagement, which includes partnerships with local authorities, community groups, charities, private or social enterprises, voluntary organizations, industry and schools, is an important part of the academic mission of many institutions today. Based on this, public communication activities of institutions of higher education and research are typically used to achieve one or both of two broad-based goals: **1)** build and enhance institution's visibility and reputation for attracting staff, students, collaborations, funding, etc., (strategic communication) and **2)** improve public understanding and participation in scientific research and innovation by informing and engaging with local communities and the public at large (SciComm).

Figure 1.



While a functional distinction is usually drawn between these aims, there is generally a fair amount of overlap between activities supporting these aims [see Figure 1; adapted from Public Engagement with Research (PER) Daisy developed by Oxford University, UK, that shows various overlapping aspects and objectives of the University's communications and engagement activities]. Institutions differ in the degree to which they prioritize these aims, and as a result, their outcomes and resulting benefits are different. Institutional team structures and capacity driving these public communication aims also vary across institutions and regions (Figure 2).

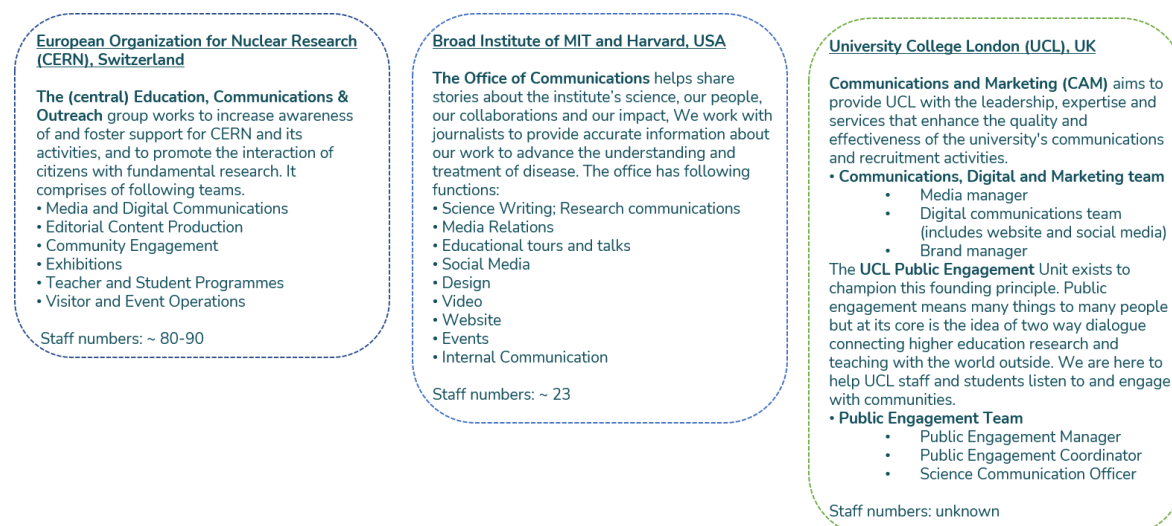


Figure 2. A comparison of institutional structures handling public communication and SciComm efforts in different countries

Furthermore, at large universities and research labs, in addition to a central communications office, different research centers, departments, and research programmes have their own communication teams. Decentralizing communication responsibilities not only helps to relieve the central office of some workload but also results in more targeted and effective communication. In some countries, these institutional structures not only promote the institution and its work but also provide training and guidance to its scientists and students to communicate and engage effectively with non-expert audiences. Additionally, large universities also engage with public audiences, particularly young people, through science centres or museums placed within their campuses.

While the intensity of public communication efforts of institutions in these countries varies based on their size, availability of resources, local context and other factors, most of them usually have formal policies and/or guidelines for public communication and allocate reasonable resources and capacity towards it. The adoption of the 'dissemination paradigm' and 'public participation paradigm' as a SciComm ideology varies across SciComm-faring countries and their scientific institutions. However, it is clear that the deliberations in these countries have moved beyond 'why' scientists or the scientific community at large needs to engage with the public to 'how' they should do it. With the growing recognition of the social, cultural, political, and economic interfaces of science and technology, the approach to SciComm has also become more multi-disciplinary and versatile in these countries than merely a one-way communication of science by domain experts or traditional science communicators.

Additionally, public communication by scientific institutions is seen to be greatly influenced by the prevailing news media landscape in the country and its coverage of science and technology. It is for this reason that in countries like the US, UK, Australia, Germany and other countries with a thriving media industry, universities and research labs would at least have a media or news office or staff designated to handle engagement with the press. However, with the rise of new media platforms such as websites, social media, streaming platforms, etc., the communications offices in these countries have diversified and are, as a result, less reliant on traditional media to relay information to the public. The professional courses and training offered by universities in these countries have also

helped their scientific institutions to build and strengthen their public communication as well SciComm capabilities.

The public communication efforts of scientific institutions in many of these countries are also influenced by the research funding landscape. For example, in the US, many private and public universities rely on philanthropic donations and other private funding; as a result, they see significant value in investing in institutional promotion through outreach activities. In contrast, universities in the UK and Europe rely heavily on public funding, and consequently, their public communication and outreach activities emphasize their social responsibility. For example, in the UK's [Research Excellence Framework \(REF\)](#), a system for assessing the quality of research in UK higher education institutions, institutions' public engagement activities are also reviewed to measure overall impact. Furthermore, Horizon 2020 (H2020), one of the biggest Research and Innovation Programme of the EU, with nearly €80 billion of funding available over 7 years (2014 to 2020), recognised SciComm or '[Science with and for Society](#)' as a critical and integral facet of responsible research and innovation and subsequently invested €462 million into this as part of Horizon 2020.

Many funders also provide institutions and researchers with extra funding to carry out communication and public engagement activities. For example, National Institutes of Health (NIH), National Science Foundation, USA, Wellcome Trust, UK, Global Fund, UK Research and Innovation (UKRI), National Institute of Health Research (NIHR), UK, The European Union (EU) among others, require integration of public and community engagement and knowledge translation activities in funding applications to ensure that the delivery of research is responsible and its outputs are accessible and result in societal impact. The requirement to demonstrate 'pathways to impact' of research on society has become more important in large grants. Interestingly, a [study](#) by Entradas *et al.* (2021) found differences in public communication between institutes in Germany, the UK, Italy, Portugal, Brazil, and Japan with varying levels of excellence in research and noted that research funding is an important determinant of these differences. Their research also suggested that *"excellent institutes reap more benefits from funding than less excellent, as funding increases, which is particularly visible in the increased level of intensity of media channels."*

It has also been widely [noted](#) that institutions in these countries often promote public communication in an effort to improve their visibility rather than to inform and/or promote public dialogue on matters related to science and technology. [Entradas \*et al.\*](#) (2020) also observe that *"an 'arms race' for public visibility between research institutes could bias the research system towards non-research activities and thus risk undermining core research activities, not least for the smaller players."* In order to sustain public support for scientific institutions of all shapes and sizes by building public appreciation and understanding of science, institutions need to build a cohesive communications strategy that combines institutional promotion and SciComm activities with an overarching goal to strengthen the connection between science and society.

## 4. PUBLIC COMMUNICATION BY SCIENTIFIC INSTITUTIONS: THE INDIAN SCENARIO

In line with the global trends, the SciComm landscape in India is fast evolving, largely catalysed by the central and state governments, its funded science organisations and a burgeoning digital communication landscape. The promotion of scientific literacy and popularization of science, however, is not a recent trend in India. Post-independence, India looked to science and technology as



a means to economic progress and social development and called upon its citizens to be scientifically literate and participate in science and technology. As a result, Article 51A was introduced in the Indian constitution which states that it is the duty of every citizen “to *develop the scientific temper, humanism and the spirit of inquiry and reform*”. To comply with this constitutional requirement, since the 1950s, various public and private institutions, people’s science movements and science associations have been spreading scientific knowledge in a variety of languages, formats and channels across the country to build scientific temper. While the Government of India’s Science, Technology and Innovation Policy of 2013 recognised the public, for the first time, as an active participant in science and technology and not just a passive recipient of scientific information, the recent draft Science, Technology and Innovation Policy (STIP 2020) and the Government of India policy on Scientific Social Responsibility (SSR) demonstrated a more strategic commitment to enabling engagement between science and society.

As with many other countries in the Global South, India too has begun to assert and position itself as an important contributor to and beneficiary of the international scientific community and, as a result, sees value in actively showcasing its potential and impact on the global stage. Furthermore, public institutions and researchers are progressively looking at securing funding from the private sector that would require them to make their work and impact widely visible and easily accessible. The traditional news media in India is also becoming more interested in covering the latest developments in science and technology, increasing the need for scientific institutions and researchers to engage with journalists and other media professionals on a regular basis. Furthermore, Indian science funding agencies such as the Department of Science and Technology (DST), Science and Engineering Research Board (SERB), Council of Scientific and Industrial Research (CSIR), DBT/Wellcome Trust India Alliance (India Alliance) among others, now mandate its funded institutions and researchers to undertake science outreach programmes and also provide additional funding for this purpose even though the uptake of this funding remains relatively low (based on interviews by FAST-India and secondary research; no data available in the public domain).

To respond to this growing need to promote engagement between scientific institutions and various public and private actors, the STIP 2020 policy specifies that “*every public-funded institution and the department will have a dedicated wing set-up for science communication and public engagement in STI-related activities*” and that “*Institutes and organizations will be encouraged to earmark a percentage of allocated budget (SSR fund) for science communication and public engagement activities*”. However, it is unclear how these stated ambitions will be achieved in the absence of trained professional capacity as well as a formal institutional commitment and strategy for public communication and SciComm.

## **5. PUBLIC COMMUNICATION BY SCIENTIFIC INSTITUTIONS IN INDIA: A CASE FOR CHANGE**

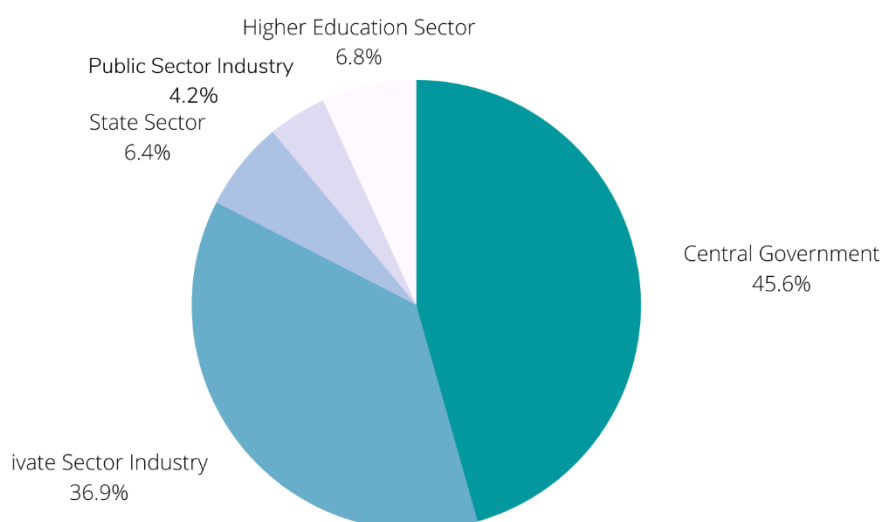
Even though the SciComm rhetoric, in some form or another, has been part of government policy documents for a while, it is being increasingly felt that India is not doing enough to enable meaningful interactions between science and society. The scientific community and the various SciComm actors in the country also lack a well-developed understanding of SciComm and its purpose and continue to employ traditional approaches in a contemporary and dynamic communication landscape. “*Science communication is a loosely used term bordering on colloquialism, its power and ability to influence people and policymakers vastly overlooked and*



*under-utilized*” quoted from a brainstorming session report on SciComm organised by the Office of the Principal Scientific Adviser (OPSA) to the Government of India (GOI) in January 2020. Furthermore, the scientific community continues to rely on traditional media to relay scientific information to the public because of which it remains the major source of science news in the country. However, with increasing financial pressures on the media industry and constantly changing reporting priorities, this reliance is problematic to say the least and foregrounds the need for institutions to build their own mechanisms to communicate and engage with diverse publics.

While most research-performing institutions in India are publicly funded (Figure 3), and thus recognize their accountability to the public, their efforts to communicate advancements in S&T remain insufficient, particularly when compared to their peers in other countries. There could be many reasons for this. For e.g., since the evaluation of public communication or SciComm activities is not part of any funding process, the level of commitment to such efforts is usually at the discretion of each institution and its individual researchers. Additionally, as there are only a few institutions of excellence within the country, recruitment of high-quality students and staff, funding-raising, etc., is usually not difficult for them, further reducing the need to invest in public communication to fulfil its mandate.

Figure 3. **National R&D expenditure by sector 2017-18**



Source: Research and Development Statistic 2019-20, Government of India

It has been observed that regardless of the level of excellence of an institution, it is their commitment to public communication that most contributes to their public communication activity. Only 2 of the 11 major Indian scientific institutions consulted for this paper have outlined their commitment to SciComm on their websites. Interestingly, these are the only two institutions that also have formal structures and staff overseeing diverse activities. Currently, a small number of institutions (a volunteer-led database) in India have dedicated staff to handle public communication functions. Furthermore, in 4 of 11 Indian institutions covered in this paper, a scientist or administrator without relevant training was employed as a communications or public outreach coordinator. At the other 7 institutions where a staff member was specifically hired to oversee its strategic public communication and SciComm functions, they typically had a degree in natural sciences and lacked relevant training or expertise for the role and usually learnt on the job. They were also expected to

handle a diverse range of responsibilities, involving a variety of audiences, including research communication, multimedia content development, event management, skill and capacity building training, risk communication, public and policy engagement, fund-raising, and so on. At major institutions in other countries, these functions would typically be handled by different specialist staff.

While top-down support for SciComm has been inadequate and slow in coming, the stakeholder consultations suggested that the bottom-up efforts of individual researchers (few in number per institution; usually inherently passionate about SciComm) and student-led initiatives contribute significantly to institution's SciComm efforts but are not well-integrated or recognised. But equally, there is inadequate utilisation of funding offered by funding agencies for SciComm or public engagement activities as mentioned in the previous section. This is in part because researchers are not equipped with the appropriate communication skills to engage with the public on science and usually lack the motivation and professional incentives to undertake these activities. Moreover, institutions currently lack the means to train and support researchers to take up these activities. These factors were cited as critical barriers to researchers' participation in communication activities by stakeholder consultations conducted by FAST-India and also in a recent [survey](#) conducted by India Alliance of its funded researchers based at various Indian scientific institutions (Figure 4).

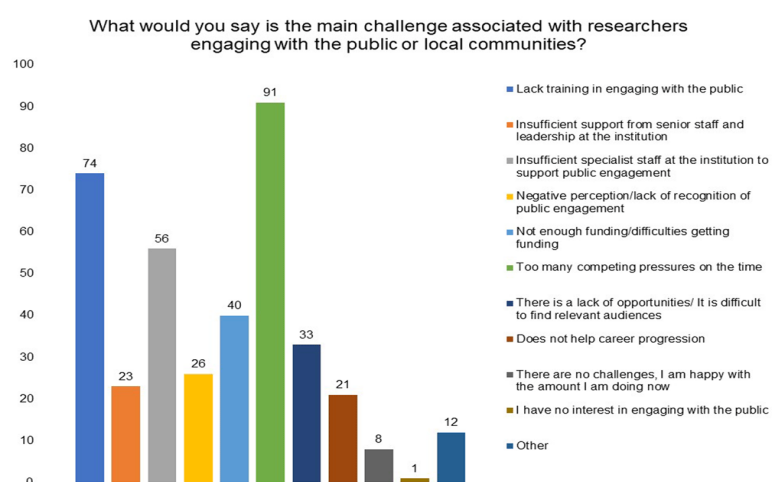


Figure 4. Iqbal S and Kar B. A survey to gather perspectives of DBT/Wellcome Trust India Alliance-funded researchers on public engagement with science. Wellcome Open Research. 2021 (under review)

As producers of new scientific knowledge, a classic public good, researchers have an ethical commitment to disseminate their research findings in a timely and effective manner. Therefore, researchers can also play a critical role in supporting institutions' SciComm aspirations, and it is thus critical for institutions to proactively enhance researchers' capacity to communicate effectively while also having a specialised public communication office/team. This office/team can ensure that it not only supports researchers in their engagement with the public but also serves as a continuous channel of communication between the institution and the outside world.

The stakeholder consultations also revealed the following key challenges and barriers for strategic communication and SciComm at Indian institutions:

i) Institutions lack clarity on what strategic public communication and SciComm entail and how these activities can benefit the institution in advancing its mission. As a result, institutions' communication

efforts are mostly fragmented and reactive as they lack a clear purpose and strategy. To add to this, strategic communication for institutional promotion is often confused with SciComm for public good.

ii) Mindset and culture of leadership, staff, researchers and students were cited as significant barriers to enabling and fostering a commitment for SciComm at institutions; *“a lot of researchers sit on ivory towers, do not wish to engage with non-science audiences”*; *“researchers find science engagement waste of time and resources”*; *“SciComm naysayers at institutions are more problematic than those not interested in SciComm”*; *“Only a few of researchers do SciComm and as a result they are seen as non-serious researchers”* [quotes from FAST-India consultations]

iii) Institutional funds are not allocated specifically for strategic communication and SciComm activities; funding for these activities is usually provided on an ad-hoc basis.

iv) Complex, rigid and slow bureaucratic processes at scientific institutions impact the hiring of communication professionals in a timely manner.

v) Poor professional prospects in the field of SciComm and a shortage of skilled professionals to take up public communication roles within the country have given rise to a Catch-22 situation.

vi) On a more fundamental level, there seems to be a lack of clarity on SciComm roles and repertoires which makes hiring inefficient and challenging.

The challenges described here are not specific to the institutions consulted for this working paper but would apply to institutions nationwide. Addressing these challenges will require both systematic interventions aimed at building capacity and infrastructure as well as fostering a culture of SciComm at scientific institutions that ensure it remains an important part of their mandate despite changes in administration and funding.

## 6. PUBLIC COMMUNICATION BY SCIENTIFIC INSTITUTIONS IN INDIA: STEPS OF CHANGE

The need for scientific institutions in India to carry out multiple communication functions is forestalled by a variety of factors, some of which have been outlined in this paper. Potential actions that key stakeholders such as funding agencies and educational organizations, in addition to scientific institutions, can take include the following:

### 6.1 ACTIONS FOR GOVERNMENT AGENCIES AND FUNDING ORGANISATIONS

Government agencies and funding organisations play a significant role in potentiating the societal impact of scientific research by bridging the knowledge to action gap. They can contribute to the institutionalisation of SciComm in the following ways:

i) Allocate funds to its funded institutions or researchers to support human resources and infrastructure for strategic communication and SciComm.

ii) Provide timely and flexible funding to scientific institutions to take up creative, interdisciplinary projects of contemporary significance that bring science and the public together. This in turn will

contribute towards building and embedding an institutional culture supportive of science engagement.

iii) Provide ring-fenced funds as part of research grants for projects that aim to engage or involve various publics in the process of knowledge production and uptake. This should be integrated at the application stage in research grants.

iv) Consider using funding or other mechanisms that reward institutions for their SciComm and public engagement efforts as a way to incentivise these activities.

v) Fund and organise SciComm training programmes for researchers and students.

vi) Develop innovative funding mechanisms and training programmes to build professional capacity for SciComm.

vi) Carry out a salary benchmarking and set a market pay rate for communication roles at scientific institutions. This will enable public-funded institutions to attract and retain high quality communications staff.

## 6.2 ACTIONS FOR EDUCATIONAL INSTITUTIONS

India lacks high-quality professional programmes and training courses in SciComm and related fields. This contributes significantly to scientific institutions' inability to hire suitable staff to carry out strategic communication and SciComm activities as well as provide structured training to their staff, researchers and students. Educational institutions can contribute towards strengthening institutional capacity for SciComm in the following areas:

i) Develop a variety of professional degree programmes, which are responsive and reflective of the need for public communication of S&T in the country and are also in line with global best practices.

ii) Create courses and training programmes that provide human resources to scientific institutions in order to carry out specific public communication functions. These should take into account the unique nature of scientific institutions in India.

iii) Include mandatory training in SciComm as part of science degree programmes.

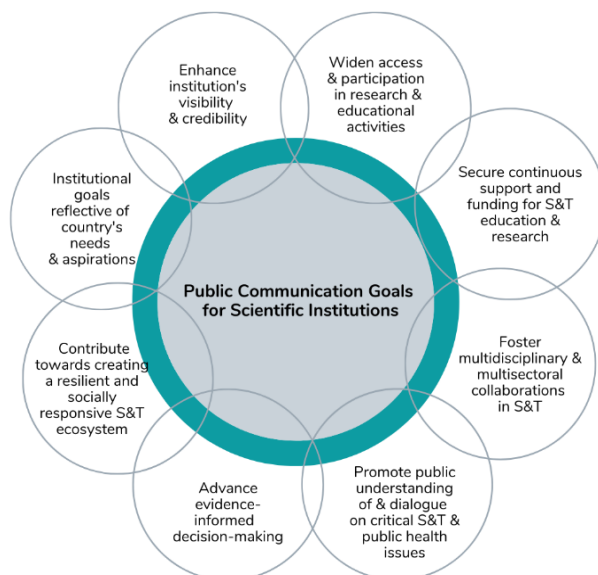
## 6.3 ACTIONS FOR SCIENTIFIC INSTITUTIONS

Scientific institutions in India are increasingly required to build robust and responsive structures for public communication in order to increase their important role in fostering a knowledge-based society capable of solving the various challenges. The framework proposed below can help institutions build and implement effective public communication strategies. However, it is not comprehensive, but rather indicative; it should be incrementally developed over time, and integrated with or placed within the larger goals and mandate of the institution. Furthermore, it doesn't delve into the practicalities of building and implementing a public communications strategy or covers internal communication strategies.

### STEP 1: Identify Goals and Outcomes

Identify key goals, objectives and outcomes of public communication critical for the institution. Depending on the institutions’ mandate, some or all of the following goals presented in the figure below can be considered as institutional goals for public communication:

Figure 5.



These goals may result in some of the outcomes listed in the table below or others that should be identified and assessed periodically:

Short- to mid-term outcomes (~ 2 - 10 years)*	Long-term outcomes (>10 years)*
<ul style="list-style-type: none"> <li>• More diverse students and faculty are drawn to the university/research institution</li> <li>• More media coverage of the institution and its activities</li> <li>• Increase in formal and informal community partnerships of the institution</li> <li>• More diverse publics are engaged in and influencing the institution’s research and science education activities</li> <li>• Increased individual skills, capacity, motivation of staff and students for dialogue and engagement with diverse publics</li> <li>• Scientists engage regularly in dialogue with diverse publics about their research and topics of interest to the public</li> <li>• Public engagement embedded within the purpose/mission of the institution</li> <li>• Increased social norms about public engagement with science within the institutional culture</li> <li>• Dedicated funding and staff to support public engagement</li> <li>• Research grants incorporate public engagement</li> </ul>	<ul style="list-style-type: none"> <li>• Greater public and private sector support for the institution</li> <li>• Increased diversity and retention of students and faculty</li> <li>• Public viewpoints increasingly affect goals, methods, outcomes of an institution’s research and education activities</li> <li>• Improved framing of knowledge for use by the public, including decision-makers</li> <li>• Science is incorporated into decision-making across sectors, at all levels</li> </ul> <p><i>* Adapted from <a href="#">AAAS Logic Model for Public Engagement with Science</a></i></p>

## STEP 2: Self-assessment

Systematically and objectively assess the institution's current commitment and support for public communication, including its SciComm activities, and areas of improvement, using freely available tools such as [EDGE](#) (Figure 6) and collaborative, strengths-based approaches like 'appreciative inquiry' to initiate an organisational-level change.

## The EDGE tool









Focus	EMBRYONIC 	DEVELOPING 	GRIPPING 	EMBEDDING 
 Mission	There is little or no reference to public engagement in the organisational mission or in other institution-wide strategies.	Public engagement is referenced sporadically within the institutional mission documents and strategies, but is not considered a priority area.	Public engagement is clearly referenced within the institutional mission and strategies and the institution is developing an institution-wide strategic approach.	Public engagement is prioritised in the institution's official mission and in other key strategies, with success indicators identified. It is a key consideration in strategic developments in the institution.
 Leadership	Few (if any) of the most influential leaders in the institution serve as champions for public engagement.	Some of the institution's senior team act as informal champions for public engagement.	Some of the institution's senior team act as formal champions for public engagement.	The Vice Chancellor acts as a champion for public engagement and a senior leader takes formal responsibility. All senior leaders have an understanding of the importance and value of public engagement.

Figure 6: A truncated snapshot of the EDGE Tool developed by National Co-ordinating Centre for Public Engagement ([NCCPE](#)), UK

## STEP 3: Develop an Action Plan

Following the initial identification of communication goals and based on the assessment of the institution's current support for SciComm, develop an action plan or strategy outlining how these goals will be achieved and progress will be measured. The strategic plan can include but need not be limited to:

- a) identifying key target audiences; this is essential for the success of any communications strategy.
- b) developing key messages, activities, formats, channels of communication and engagement, based on target audience identification. This may also include providing training in SciComm, media or policy engagement to scientists and students at the institution.
- c) creating a suitable evaluation framework to focus on both quantitative and qualitative measures (SMART KPIs, outputs and outcomes) as a measurement of strategy progress.

## STEP 4: Secure Infrastructure and Capacity

The execution of the strategy may involve:

- a) repurposing or reorganising existing institutional structures and capacity. For e.g., integrating SciComm in the Research Development Office or into an existing Marketing or Media Office. This may require hiring additional staff to deliver specific communication functions within these teams, and/or
- b) creation of a separate 'Communications office' (see [Appendix 3](#)), and/or
- c) hiring external services from individuals (interns, consultants, etc.,) or media organisations to support public communication activities.

Following steps can be employed to determine the type of capacity and infrastructure required for the implementation of the strategy:

- a) Carry out an organisational design to determine the capacity and infrastructure needed to effectively implement the communications strategy. For existing communications staff, identify essential skills and training needs.
- b) Develop an appropriate competency framework for communications staff based on the organisational design and ambitions stated in the institutional communications strategy.
- c) Secure suitable communications and engagement staff resources and/or budget.
- d) If planning to outsource key communication functions (e.g. research communications, public engagement, website, etc.), completing steps 1-3 and 5 will be critical for ensuring communications goals are embedded in the institution and serve its mandate.

### **STEP 5: Embed Change**

The communication strategy will only be effective if a deeper level change occurs at the institution. This change can be achieved through the following ways:

- a) Integrate goals and purpose of strategic communication and SciComm in the institution's mission and strategy.
- b) Allocate a certain percentage of the institution's budget and relevant resources for communication activities. This helps in aligning the budget with communication goals and tracking the effectiveness of different communication strategies. Budget allocation also helps in long-term planning.
- c) Raise awareness of the importance of public communication of science and its value through a variety of internal communications.
- d) Reward and recognise those that undertake public communication and engagement activities at the institution.
- e) Provide periodic training in SciComm to staff and students to retain their interest, knowledge and skills.
- f) Set up an advisory board of internal and external members representing diverse yet relevant expertise to monitor and guide institution's communication activities.

### **STEP 6: Extend Change**

Based on key learnings, provide mentorship to other scientific institutions in the region and/or country to help them develop their strategic communication and SciComm infrastructure and capacity. This will also be critical for building this capacity in the country.



## 7. CONCLUSION

While scientific institutions in India appear to be more open to engaging with the public today, if they are to see any significant benefits of SciComm, institutions will need to develop a long-term vision and plan to support meaningful engagement between science and society. This plan should carefully, strategically and reflexively integrate institutional promotion and SciComm, involving not just the institutions' staff, researchers and students, but also other SciComm and science and technology actors from around the country. At the same time, scientific institutions and the SciComm stakeholders in general will also need to refine their understanding of SciComm and reform its mechanisms in line with this and global best practices.

## 8. APPENDIX 1

**8.1 Stakeholder interviews:** Consultations for this paper involved semi-structured interviews with 14 individuals that included an institutional director, faculty handling science outreach, research manager and communications officers of 11 major scientific institutions in 8 Indian cities, and 5 communications and engagement professionals based at 4 major scientific organisations in 3 countries.

### 8.2 Interview questions:

1. Role of institutional communications office - key goals/objectives, strategy, type of staff (background, experience, training, etc.) that oversees these activities at the institution.
  - How old is the comms office at your institution? (if one exists)
  - What are the top 3 goals of the communications office?
  - What goals do they think institutions should have on SciComm, but don't consider today? Do they have a roadmap of what they want to achieve in the next 3 years? What is aspiration?
  - What is the institution's motivation for the communications office -- how do they perceive it -- a key part of their mission OR recruitment enabler OR linked to goals?
  - Are institutional communication and science communication for public engagement seen as distinct fields of work, requiring specialised expertise, at the institution?
2. Role and repertoire of staff handling public communications functions
  - a. Background - Did you have relevant experience or training in SciComm before you joined this position?
3. Type of SciComm and public engagement activities of the institution?
4. What are some key enablers at the institution for scicomm?
5. What are some barriers and challenges to enabling science communication at the institution?
  - What can best help the office?
  - Leading Qs - institution backing issue, funding issue, objectives issue or what?
6. Specific training and resource needs
7. Support provided to researchers to be able to communicate their science to non-specialist audiences, including policymakers
  - Faculty/student response to communications office - do they cooperate and what are their expectations from the office
8. Will the institution be interested in setting a SciComm office within the communications office -- what could enable them to?
  - If yes, what would enable them to set up this office
  - If not, why?

Representatives at Indian institutions were probed on Qs 1-8, whereas only Qs 1-5 were asked to those based at non-Indian institutions.

## 9. APPENDIX 2

### 9.1 The SciComm Huddle

The **SciComm Huddle** by the **Foundation for Advancing Science and Technology** (FAST-India) was held on 15-16 December 2021 | 2.00 - 6.30 PM (IST) and brought together science communicators, engagement experts, creatives, media professionals, researchers, students and others, to share skills, knowledge and experiences towards strengthening science communication and public engagement practice in India and globally. The Huddle was organised as part of FAST-India's flagship event, **India Science Festival**, scheduled for 8-23 January 2022. Learn more about the festival [here](#). Through engaging experience- and knowledge-sharing sessions and discussions led by experts from around the world, the participants explored local as well as global trends and best practices in science communication and engagement, and deliberate upon innovative and actionable ideas to enhance science and society engagement critical for building a healthy and sustainable future for all.

#### Programme:

<b>Day 1</b>
<b>1.30 - 2.00 Chai kaapi huddle</b> <i>Bring your favourite beverage, huddle with organizers, speakers, and scicomm enthusiasts, and explore the conclave!</i>
<b>2.00 - 2.10 Welcome</b>
<b>2.10 - 3.15 pm   Science and Society: Global Trends and Perspectives</b>  <i>The speakers will reflect on how the practice of science communication has evolved through times in different parts of the world and discuss how changing conditions and context shape communication models and how we can draw from each others' learnings to address challenges of the future.</i>  <b>Jenni Metcalfe</b> , Director, Econnect Communication President, Public Communication of Science & Technology (PCST) Network  <b>Marina Joubert</b> , Senior Science Communication Researcher at CREST, Stellenbosch University, South Africa  <b>Siuli Mitra</b> , Communications Associate, Office of the Principal Scientific Adviser to the Government of India
<b>3.15 - 4.30 pm   Show and Tell</b>  <i>In this session, trace the path of creative, new-age science engagement projects involving the coming together of science and arts--from ideation to execution--with the creators of these projects themselves.</i>  <b>From Droplets to Cloud: Paradigm Shift in Infectious Disease Research through Comics</b> Arghya Manna, India  <b>Science Engagement Through Creative Art Projects</b> <b>A Case of Genome Adventures and Arting Health For Impact</b> Abraham Mamela, Botswana  <b>Exploring Equitable Community Science Engagement Through Traditional Arts Across Scotland</b> Lewis Hou, Scotland

## 5 mins BREAK

## 4.30 - 5.15 pm | Increasing Impact through a Community of Practice for Science Communication

*This conversation will focus on the need for building a community of practice for science communication in India towards enhancing the impact of science on society.*

**Subhra Priyadarshini**, Chief Editor, Nature India and **Siddharth Kankaria**, Communications & Program Coordinator, NCBS, India

## 5.15 - 6.30 pm | The Engaged Campus: Public Communication by Research Institutions

*This session will highlight how institutions and universities, through bespoke strategies and activities, incorporate public engagement in research, knowledge exchange, teaching, and social responsibility.*

- **Rajesh Gopakumar**, Director, International Centre for Theoretical Science (ICTS), Bengaluru, India
- **Priyanka Dasgupta**, Communication and Marketing Fellow, European Council for Nuclear Research, CERN, Switzerland
- **Namrata Sengupta**, Program Manager for Scientific Public Engagement, Broad Institute of Harvard and MIT, USA
- **Yukti Arora**, Senior Manager, Academic Communications, Ashoka University, Haryana, India

## Day 2

## 1.30 - 2.00 Chai kaapi huddle

*Huddle again and tell us what you thought about day 1 and what are you looking forward to on day 2!*

## 2.00 - 2.10 Introduction to Day 2

## 2.10 - 2.45 pm | Science communication in 21st century: The Challenge of Language

*In this session learn about the Government of India's new initiative 'Vigyan Bhasha' (Language of Science) to promote science communication in regional languages and 'India Science Wire', a programme to project Indian Science in the media.*

**T.V. Venkateswaran**, Scientist and the National Coordinator for Vigyan Bhasha, Vigyan Prasar, Department of Science and Technology, Government of India

## 2.45 - 4.00 pm | Show and Tell

*Join these science communicators and engagement professionals to trace the path of innovative projects that involve working in and with communities to make science more accessible and engaging.*

Theme: Engaging CommunitiesYouth Against Antimicrobial Resistance!

*A project in partnership with young people in the Global South*  
Mary Chambers, Vietnam

The Funlab: Reaching the Unreachable

Mohamed Soliman Daoud, Egypt

Moving a Science and Arts festival online

Edward Duca, Malta

**5 mins BREAK****4.05 - 5.15 pm | Evaluation – your best friend in science engagement!**

*Using practical examples, this session will cover:*

*WHY evaluate science engagement – need and benefits.*

*WHAT to evaluate – outputs, outcomes and impact.*

*HOW to evaluate – practical tips for evaluating your own activities and events.*

**Sarah Jenkins**, Director & Principal Consultant, Jenesys Associates Ltd, UK

**5.15 - 6.30 pm IST | Lessons From a Crisis: Has the pandemic rewritten rules for SciComm?**

*This discussion will explore if and how the COVID-19 pandemic offered new lessons for risk communication and redrafted the rules of scientific evidence and public engagement during peacetime.*

- **Sean Ellis**, The COVID Vaccine Group, The Jenner Institute, Oxford University, UK
- **Anastasia Koch**, Eh!Woza, South Africa
- **Madhushree Kamak**, Science Gallery Bengaluru, India

## 10. APPENDIX 3 TEMPLATE FOR AN INSTITUTIONAL ‘COMMUNICATIONS OFFICE’

### 10.1 Typical functions of an Institutional Communications Office

This is being proposed based on current best practices. While a distinction is being made between ‘strategic communication’ and ‘SciComm’ functions, there is usually a fair amount of overlap between these functions. Institutions should assess these similarities and differences carefully before developing a job description for hiring staff or a project brief if outsourcing these functions to external agencies/consultants.

**Key communication channels:** Website (with Content Management System, CMS), web communication technologies (such as newsletters and other email services), social media, public/community events, press communication.

#### Strategic Communication functions

1. Devise and implement creative and robust strategies and tools (brochures, annual reports, newsletters, etc.) to promote the organisation and its various programmes towards enhancing its visibility and credibility.
2. Manage the day-to-day internal and external communications of the institution, including but not limited to preparation of reports, building and maintaining press relations, website, social media, event publicity, fund-raising, and risk communication.
3. Develop media contacts, respond to media enquiries, prepare press releases, and post advertisements.
4. Support institution’s vision and liaise with and support other departments/teams at the institution for the advancement of education and research activities at the institution

#### Science Communication (SciComm) functions

1. Conceptualise and develop written, audio and visual content on research happening at the institution for various new media channels and audiences.
2. Design and implement innovative science engagement programmes for diverse publics to inform and engage them directly in institution’s research activities and science more broadly.
3. Assist faculty, students and allied staff with outreach and communications like research communication and science engagement activities through skill building workshops, development of resources, mentoring, etc.

### 10.2 Indicative Team Structure for an Institutional Communications office:

The composition (number and type of staff) and structure of an institutional communications team depends on the size, available resources and the communication mandate and goals of the institution. The table below does not include an exhaustive list of communication roles and key responsibilities and eligibility for these roles. Institutions should develop the job descriptions based

on their communication needs and introduce some flexibility in eligibility in consideration of available human resources in the country. In case of large institutions, individual departments/centres/schools can also hire/set up their own communications team that works in tandem with the central communications team. Decentralising communication responsibilities not only helps to relieve the central office of some workload but also results in more targeted and effective communication.

Additionally, institutions setting up a communications function/team for the first time can form an **advisory board** of internal and external members representing diverse disciplines yet possessing relevant expertise to monitor and guide institution's communication activities, as needed.

Roles	Key responsibilities	Eligibility	Numbers
<b>Communications Manager</b>	<ul style="list-style-type: none"> <li>Develop, execute and guide the overall communication and public engagement strategy of the institution.</li> <li>Build new partnerships and contribute ideas for new programmes, researching and recommending innovative branding techniques.</li> </ul>	A degree in mass communication or science communication or related field and 3-5 years of relevant experience in managing institutional communication in the S&T/health sector	1
<b>Social Media and Outreach Coordinator</b>	<ul style="list-style-type: none"> <li>Develop and implement promotional plans for events and programmes.</li> <li>Craft engaging content for the institution's social media accounts.</li> <li>Work with the design team to develop marketing and outreach materials and visually compelling graphics for social media.</li> </ul>	A degree in mass communication or science communication or related field or 2-3 years of relevant experience in managing institutional communication, particularly social media, in S&T/health sector	1
<b>Media relations specialist</b> <i>This role can also be taken up by the Communications Manager</i>	<ul style="list-style-type: none"> <li>Respond to enquiries from the press or other media representatives</li> <li>Create innovative and engaging public relations and media campaigns</li> <li>Build media contacts and pitch stories and news updates</li> <li>Provide media training to researchers</li> </ul>	A degree in mass communication or science communication or related field and 3-5 years of relevant experience in managing press relations in S&T/health sector	1
<b>Research Communication Officer</b>	<ul style="list-style-type: none"> <li>Identify and write creative, exciting content about new research at the institution, as well as outcomes and impacts of on-going or past research.</li> <li>Provide content and editorial support to researchers and students.</li> </ul>	A degree in science or science journalism or science communication or related fields and 1-2 years of relevant experience or 2 years of full-time or part-time experience in handling research communication. Experience with social media and other	1-2 More staff can be hired depending upon the volume of research news



		new media platforms is desirable.	
<b>Graphic designer/multimedia specialist</b>	<ul style="list-style-type: none"> <li>• Create a variety of multimedia content for different platforms and audiences</li> </ul>	A graphic designer or multimedia specialist with some experience working in the S&T/health sector. A professional degree isn't necessary; however, a portfolio of work relevant for the positions must be presented.	1-2 More can be hired depending upon the need for multimedia content
<b>Public and Community Engagement Officer</b>	<ul style="list-style-type: none"> <li>• Develop and maintain strong contacts with local communities</li> <li>• Coordinate school and college engagement programmes</li> <li>• Provide support to researchers/students in their public engagement activities and funding applications</li> <li>• Organise SciComm training workshops for researchers and students</li> </ul>	A degree in science or mass communication or science communication or related field  or  3-5 years of demonstrable experience in public engagement with science	1-2 More staff can be hired depending on the range of activities that the institutions wish to undertake
<b>Website Manager*</b>	<ul style="list-style-type: none"> <li>• Develop and maintain a high-quality, dynamic institutional website</li> <li>• Proactively update it with latest news and developments</li> </ul>	A degree in computer science, IT, systems engineering, or related qualification.  2 years of work experience as a website manager	1 More staff can be hired depending on the website activities.

\* A website manager/team may or may not be placed within a communications team but would need to work closely with them.

#### If directly hiring full-time staff:

1. Design a suitable job description for the role(s) you plan to hire for.
2. In addition to announcing the job vacancies on the institution's website and social media channels, advertise them on popular and relevant job boards.
3. Keep 6-9 months as the probation period for the hired staff; prepare a performance matrix to review their work and provide adequate guidance.

#### Outsourcing:

1. Carefully review the portfolio of work of the external agency and/or consultant to ensure it adheres to the institution's policies and standard of work.
2. Develop a clear brief with a list of deliverables, timeline and expected quality of work. Make sure this is agreed upon with the external contractor/consultant at the outset. These details should also be included in the contract.
3. Share examples of work that you would like them to follow as a reference (optional).
4. The institution can sign a non-disclosure and confidentiality agreement with the external agency or individuals to prevent unauthorised use and disclosure of information that the former considers to be proprietary or confidential, or both.