FAST INDIA

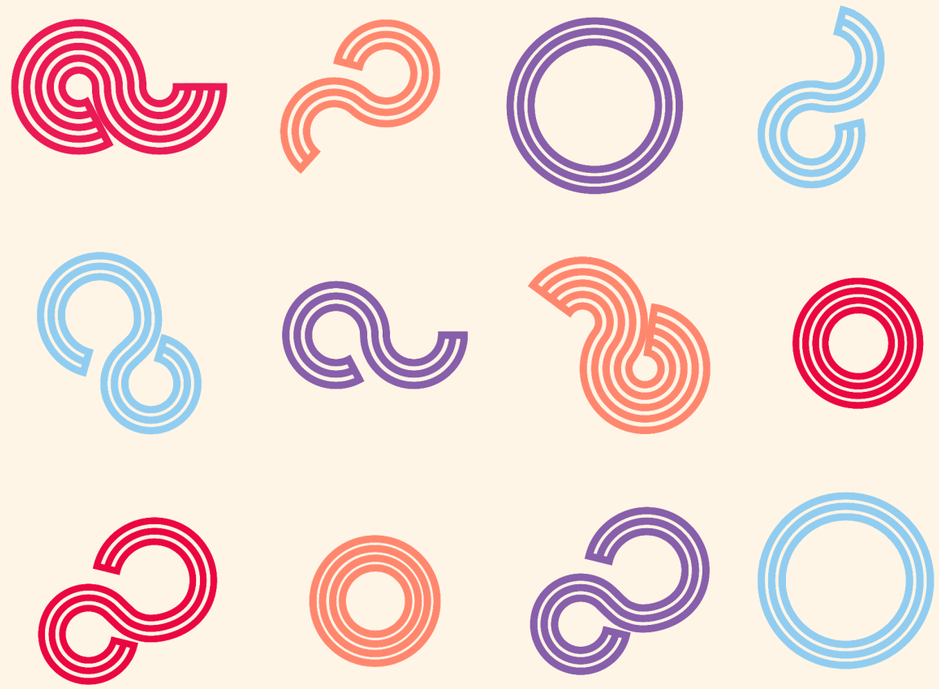
India Science Festival

SciComm ThinkLabs

Towards Strengthening Science and Society Connect in India

RESOURCES

2024



SciComm Readiness Tool For Institutions

Developed by Sarah Hyder Iqbal, Yukti Arora and Banya Kar

In recent years, there has been a growing expectation for universities and research institutions in India to enhance their communication strategies, ensuring effective and timely engagement with a diverse range of non-science and non-expert audiences. This imperative arises for a multitude of reasons, such as accountability to the taxpayer, attracting talent and funding, necessitating a proactive approach to making research and science accessible to diverse audiences, and enhancing the public's participation in science. For institutions to be able to fulfil these diverse needs in an effective and timely manner, they must establish and uphold a robust framework for Science Communication (SciComm) and Public Engagement (PE). However, Indian scientific institutions are at various stages of developing their commitment and capacity for SciComm/PE.

This **SciComm Readiness Tool** has been designed to help institutions assess their current commitment and capacity for SciComm/PE. The tool also indicates measures the institutions can take to improve their ability in SciComm/PE in line with the growing demands. Funders can also use the tool to review an institution's commitment and ability to make its research accessible and engage with the public on scientific matters.

The tool should be discussed and completed by various stakeholders in the institution, including leadership, administration, SciComm/PE staff (if available), faculty, and students, so that it is an unbiased representation of the institute's SciComm capabilities and commitment. Refer to the glossary in case you are unclear about any of the terms mentioned in the tool. Based on the total number of statements that stand true for your institution under each category, you should be able to self-evaluate your institute as low, moderate, or high on SciComm readiness. For institutions to fulfil the imperatives assigned to them, they should aspire to achieve a 'High SciComm Readiness' level.

We envision this evaluation system with indicators to be used as a tool by institutions to inform and support their development of SciComm/PE structures and practices.

Note:

1) The term SciComm/PE is used in this document to describe the process of communicating and engaging with non-scientific or non-expert audiences about scientific research and science more broadly towards generating mutual benefit.

2) This is not a comprehensive tool and will be updated periodically to incorporate the latest trends, user feedback, and evolving needs within the dynamic landscape of science and research communication.

This tool can be cited as: SciComm Readiness Tool for Institutions (version 1). Sarah Hyder Iqbal, Yukti Arora and Banya Kar. SciComm ThinkLabs. FAST India. 2024.

Write to sarahhyderiqbal@gmail.com to provide feedback and suggestions for this tool.

SciComm Readiness Tool For Institutions

Parameters	Low SciComm readiness	Moderate SciComm readiness	High SciComm readiness
Mission	☐ There is no mention of SciComm/PE in the institutional vision, mission, and strategy. ☐ SciComm/PE is not an institutional priority.	☐ There is some mention of SciComm/PE in the institutional vision, mission, and strategy. ☐ SciComm/PE is considered an institutional priority.	☐ There is a clear mention of SciComm/PE in the institutional vision, mission, and strategy. ☐ SciComm/PE is considered an institutional priority. ☐ The institution invests in developing a SciComm/PE strategy for a defined period.
Leadership	☐ None of the influential leaders in the institution serve as champions for SciComm/PE.	☐ Some of the institution's senior team members act as informal champions for SciComm/PE.	☐ The Director/VC acts as a champion for public engagement and a senior leader takes formal responsibility. ☐ All senior staff have an understanding of the importance and value of SciComm/PE to the institution's agenda.
People	☐ There is no dedicated full-time staff for SciComm/PE. ☐ Research or administrative staff at the institution serves the SciComm/PE function in a part-time capacity.	☐ Dedicated full-time staff for SciComm/PE. ☐ ~70% of their work is related to SciComm/PE-related activities. ☐ Somewhat clear job description for SciComm/PE roles, with a few areas of ambiguity.	☐ Dedicated SciComm/PE Office/Department ☐ Dedicated staff for each of the distinct SciComm functions such as research communication, social media, website, public engagement, and outreach. ☐ >90% of their work is related to SciComm/PE ☐ Well-defined job descriptions for SciComm/PE staff

Processes	☐ No governance structures for SciComm/PE function (hiring policies and SOPs) ☐ No strategy for the SciComm/PE activities.	☐ Basic governance structures for the SciComm/PE function. ☐ Basic strategy for the SciComm/PE activities.	☐ Clear and tailored governance structures that effectively support SciComm/PE staff and activities. ☐ Clear institutional strategy for SciComm/PE with intended outcomes, timelines, evaluation plan, resources, etc. ☐ Well-defined SOPs for all standard SciComm/PE practices/activities.
Infrastructure	☐ No infrastructure dedicated to SciComm/PE ☐ Lack of specialised tools/platforms for creating and disseminating SciComm/PE resources. ☐ No physical/digital spaces for hosting SciComm/PE events/activities.	☐ Moderate infrastructure to support SciComm/PE ☐ Access to basic tools and platforms for content creation and dissemination. ☐ Some dedicated space and resources for hosting SciComm/PE events.	☐ Well-developed infrastructure to support full-fledged SciComm/PE activities ☐ Access to advanced tools, technologies, and platforms to not only develop and disseminate content but also to analyse the metrics. ☐ Dedicated space for SciComm/PE events and activities (like a Science Engagement Centre/Museum etc.).
Funding	☐ No funds allocated specifically for SciComm/PE to carry out regular tasks. ☐ Difficulty securing external funding due to lack of clarity about the SciComm/PE function.	☐ Moderate allocation of institutional funding for SciComm/PE to carry out regular tasks. ☐ Funding for new SciComm/PE programmes not easily available. ☐ Ability to raise some external funding.	☐ Funding for SciComm/PE is readily available to carry out regular tasks and implement new programmes. ☐ External funding is easily attainable, as SciComm/PE are fundamental to institutional vision.
Professional Development	☐ No clarity on career pathways for SciComm/PE team members - enabling promotions, increased responsibilities, and leadership roles. ☐ No clarity on the qualifications, skills, and experiences needed for progression. ☐ No institutional mechanisms or opportunities to ensure the SciComm/PE staff stays up-to-date on the latest trends in SciComm/PE.	☐ Moderate clarity on career pathways for SciComm/PE team members - enabling promotions, increased responsibilities, and leadership roles. ☐ Some clarity on the qualifications, skills, and experiences needed for progression. ☐ Occasional institutional mechanisms or opportunities to ensure the SciComm/PE staff stays up-to-date on the latest trends in SciComm/PE.	☐ Clear career pathways for SciComm/PE team members - enabling promotions, increased responsibilities, and leadership roles. ☐ Adequate institutional mechanisms or opportunities to ensure the SciComm/PE staff stays up-to-date on the latest trends in SciComm/PE.
Collaboration	☐ No interaction between the SciComm/PE office and internal stakeholders such as scientific and non-scientific staff, students, and leadership. ☐ No collaboration with external actors (institutions, individuals, media, NGOs, etc.) for SciComm/PE.	☐ Moderate interaction between the SciComm/PE office and internal stakeholders such as scientific and non-scientific staff, students, and leadership, with room for improvement. ☐ Some collaboration with external actors (institutions, individuals, media, NGOs, etc.) for SciComm/PE.	☐ Well-established and institutionalised collaboration between SciComm/PE office and internal stakeholders such as scientific and non-scientific staff, students, and leadership. ☐ Collaboration with external actors (institutions, individuals, media, NGOs, etc.) for SciComm/PE programmes.

Culture	☐ Very low or no awareness or understanding of the importance of SciComm/PE among institutional stakeholders. ☐ No opportunities for staff and students to participate in SciComm/PE activities. ☐ No recognition of SciComm/PE efforts by SciComm team, staff and students. ☐ No training in SciComm/PE for researchers, staff, and students to retain their interest, knowledge, and skills.	☐ Growing awareness and integration of SciComm/PE into institutional culture. ☐ Moderate opportunities for staff and students to participate in SciComm/PE activities. ☐ Limited recognition of SciComm/PE efforts by SciComm team, staff and students ☐ Limited to moderate training in SciComm/PE for researchers, staff, and students to retain their interest, knowledge, and skills.	☐ Full integration of SciComm/PE into institutional culture ☐ Adequate opportunities for staff and students to participate in SciComm/PE activities. ☐ Explicit, formal recognition of SciComm/PE efforts by SciComm team, staff and students ☐ Regular training in SciComm/PE for researchers, staff, and students to retain their interests, knowledge, and skills.

Glossary

Science Communication: The practice of conveying scientific information to diverse audiences in an accessible and understandable manner, fostering a bridge between the scientific community and the public.

Public Engagement: The active involvement of the public in scientific processes, discussions, or decision-making, promoting two-way communication and collaboration between scientists and non-expert audiences.

Institutional Mandate: The officially assigned responsibilities and objectives that guide an organisation or institution in its pursuit of specific activities.

Mission: A concise statement defining the fundamental purpose and goals of an organisation, emphasising its commitment to specific values and objectives.

Vision: A forward-looking statement outlining the desired future state or impact an organisation aims to achieve through its actions and initiatives.

SciComm/PE Strategy: A structured plan outlining the approach, methods, timelines, and monitoring and evaluation matrix for effective science communication or public engagement initiatives, tailored to specific goals and target audiences.

Infrastructure: This includes physical and digital infrastructure for carrying out SciComm activities effectively. Such as website, graphic media tools,

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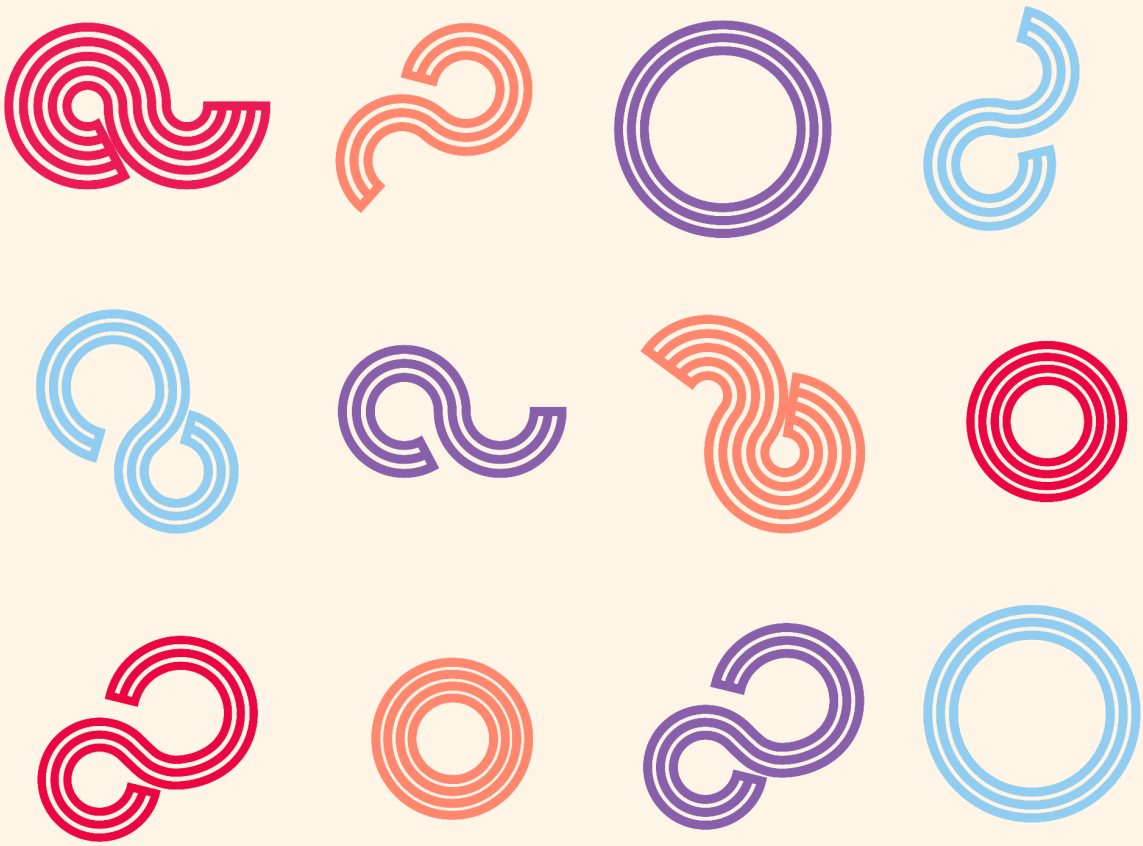
Further resources for institutions to build capability for SciComm/PE

A detailed SciComm/PE checklist for institutions can be found here: W Institutional SciComm/PE check-list.docx

Find here a questionnaire that will help you map the goals, objectives, and implementation strategy of SciComm/PE function at your institution: W Mapping Institutional Goals for SciComm/PE.docx

If you're thinking about developing a Science Communication team at your institution, check out these Frequently Asked Questions (FAQs) on Building Institutional Communication Functions

This Institutional SciComm Tool is inspired by the EDGE tool by the NCCPE, UK.



A Customisable Modular Framework for Training in Science Communication and Public Engagement in India

Developed by Suchitha Champak in collaboration with Sarah Hyder Iqbal, Siuli Mitra, Shruti Sundaresan, and Shreya Ghosh as part of SciComm ThinkLabs 2023–24, FAST India

This document can be cited as: A Customisable Modular Framework for Training in Science Communication and Public Engagement in India (Version 1). Suchitha Champak, Siuli Mitra, Shruti Sundaresan, Shreya Ghosh and Sarah Hyder Iqbal. SciComm ThinkLabs. FAST India. 2024.

Introduction

This *modular framework for science communication and public engagement training in India* aims to address the diverse communication needs of the stakeholders in science, technology, and innovation in India. The target beneficiaries are the government, academia, industry, and civil society.

About the Framework

This document provides a standard modular, customisable framework to enable academic institutions (colleges, universities), research institutions, other science agencies, and government bodies to design and implement short-term courses in science communication and public engagement (SciComm/PE) as part of their training.

The framework can be used to design courses aimed at training individuals with little to no experience in science communication (*beginners*) and science communicators or researchers who have at least a year of experience communicating science in any format (*intermediates*). Both categories can include undergraduate and postgraduate students of STEM disciplines, PhD students, or researchers in an academic or research institution setting, based on how much prior training they have in SciComm/PE.

The framework has been drafted as a guiding document for institutions and individuals interested in designing SciComm/PE courses. The learning outcomes and details of what should be taught in a specific module are only suggestions and can be modified depending on specific needs. Case studies or practice-based assignments should be added, considering what is relevant for the trainees.

Potential users of this framework

1. Science Ministries and Departments and other R&D funding agencies
2. Government-funded skill development bodies (e.g. Capacity Building Commission, State S&T Councils)
3. Academic institutions (Central and State Universities, Private Universities, Deemed-to-be Universities, Colleges)
4. Research institutions (Autonomous bodies funded by CSIR, DST, DBT, ICMR, and others)
5. Individuals who identify as SciComm/PE trainers

Time duration (in hours): The modules can also be delivered as stand-alone sessions, each as a short course of duration 8 to 10 hours.

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A Customisable Modular Framework for Training in Science Communication and Public Engagement

Points to remember while using this framework:

- Learning goals and outcomes are indicative and can be adapted while designing a course
- To incorporate a balance of theory-based and practical modules
- To encourage hands-on learning
- Resources are added for easier implementation and can be changed
- Identification of skilled trainers to run different modules of the course is important
- Adapt curriculum modules with emerging technologies and platforms in SciComm/PE

A. Essential modules

Each module lists desirable learning outcomes and some pointers on what a syllabus could typically include. Trainers can adapt these to suit the requirements of a course by including topics relevant to the students. For instance, case studies for a set of agriculture postgraduates could include real-life examples of media reporting on genetically modified crops in India. The break-up of the time spent on each module is provided for a short course of 8 to 10 hours.

1. Fundamentals of Science Communication and Public Engagement

Learning outcomes:

By the end of this module, the learners should be able to:

- *Analyse the evolution and historical significance of science communication and public engagement initiatives, with an emphasis on global perspectives and challenges unique to India.*
- *Articulate the core principles of SciComm/PE, including the 'what, why, who, how, and when,' and apply this understanding to develop strategic communication initiatives that effectively engage diverse audiences.*
- *Critically evaluate different models of science communication with the capability to adapt these models for effective use in the Indian context, including the integration of citizen science initiatives.*
- *Assess the impact of science communication on society through the lens of scientific literacy, public trust, policy influence, and ethical considerations, supported by the analysis of case studies relevant to both global and Indian contexts.*

a. The historical context and evolution of SciComm/PE in India and globally (1.5 hours)
Introduction to the genesis of science communication and public engagement, exploration of significant developments globally and within the Indian context (e.g. People Science Movements in India, origin of science museums and centres); evolution of public understanding of science in India (large-scale surveys conducted in India and their findings), adoption of different communication technologies and their impact.

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b. The *what, why, who, how* and *when* of SciComm/PE (2 hours)
What do science communication and public engagement entail? Exploration of the goals behind initiatives. Stakeholders' involvement. Examination of strategies, approaches, and techniques used. Timing a communication initiative (Is it appropriate to talk about space science with an audience in a war-stricken country?).

c. Models of science communication (2 hours)
Overview and exploration of popular models: Deficit model, Contextual, Lay expertise, and Dialogue/Public Engagement models. Rethinking the four models based on findings from public understanding of science in India. Introduction to citizen science initiatives in India, highlighting the involvement of the public in scientific research and data collection.

d. Definition, scope, and importance of SciComm and PE. (1.5 hours)
Definition of science communication and public engagement. Scope of science communication and public engagement activities across contexts and disciplines. Importance of effective science communication and public engagement in fostering scientific literacy, building trust, promoting dialogue, and advancing societal well-being.

e. Science communication's impact on society (2 hours)
Examination of the various ways in which science communication influences societal perceptions, attitudes, and behaviour towards scientific and technological advancements. S&T policies in India and evaluating their impact on the science-society relationship. Ethical considerations and potential risks associated with science communication and its impact on society. Analysis of case studies and examples illustrating the tangible impacts of science communication initiatives on different segments of society (e.g., Introduction of genetically modified crops, Roll-out of vaccines during national immunisation programs, Establishment of nuclear reactors).

Suggested reading:
- Models of public communication of science and technology by Bruce Lewenstein, 2003.
- Rethinking models of science communication in practice. Jennifer Metcalfe, PhD Thesis, 2019.
- Bridging the Communication Gap in Science and Technology: Lessons from India by Pallava Bagla and VV Binoy

2. Understanding your audience

Learning outcomes
By the end of this module, the learners should be able to:
- *Define and segment the audience based on audience data*
- *Adapt communication strategy to cultural differences*
- *Create Effective Communication Plans*

a. **Defining your audience** (2 hours)

Importance of clearly defining the target audience for effective communication. Demographics and other relevant factors that influence audience characteristics.

b. **Knowing your audience** (3 hours)

Tools and techniques for gathering information about the audience, including surveys, interviews, and focus group discussions. Analysis and interpretation of data to gain insights into audience needs, preferences, and behaviour. Case studies on the analysis of methods used in Public Understanding of Science surveys in India).

c. **Understanding cultural contexts to tailor communication and engagement strategies** (3 hours)

Significance of cultural context in communication. Different cultural dimensions, such as language, customs, values, and norms, and how they impact communication strategies. Practical strategies for adapting communication techniques to suit the needs and preferences of different audience segments. Case studies and real-world examples illustrate the importance of cultural sensitivity (e.g., vaccine roll-out in areas where religious beliefs led to low rates of immunisation). Practice-based assignments to customise messaging, tone, and delivery channels to maximise engagement and effectiveness.

Suggested reading:

- When Science Meets the Public. Proceedings of a workshop organised by the American Association for the Advancement of Science, 1991.
- Don't Be Such a Scientist by Randy Olson
- The Art of Science Communication by the American Association for the Advancement of Science
- Escape from the Ivory Tower: A Practical Guide for Scientists Who Want to Make Their Science Matter
- The Politics, Business and Publishers of Indian Science Journalism by Vasudevan Mukunth
- Communicating science in a changing India by Shreya Ghosh

3. Science writing and storytelling

Learning outcomes:

By the end of this module, the learners should be able to:

- *Write the first draft of a popular science story based on a scientific finding/fact/topic*
- *Successfully pitch their science stories, understanding the requirements and processes involved in publication.*
- *Produce various types of written science communication tailored to electronic and print media.*
- *List the different types of science writing.*
- *Critique and analyse popular science works from a variety of sources*
- *Explain the difference between a 'topic' and a 'story' and describe the key elements of story structure*

- *Recognise and avoid plagiarism.*

a. Relevance of popular science writing (2 hours)
Storytelling as a tool for popular science writing. Decoding popular science stories published in India and globally using *Storygrams*.

b. Types of written products (2 hours)
Fundamentals of writing (e.g. Writing a news report). Popular science writing formats include press releases, news, features, explainers, and photo essays. Writing for electronic and print media.

c. Techniques for producing engaging science stories (3 hours)
There are different storytelling techniques and strategies for capturing readers' attention and making science content engaging and accessible. This would include tips on crafting compelling narratives, using analogies and metaphors, incorporating multimedia elements, and tailoring the writing style to the target audience.

d. Dealing with plagiarism (1 hour)
The importance of maintaining academic integrity and ethical standards in science writing. Plagiarism, citing sources adequately, and strategies for avoiding unintentional plagiarism. Case studies and examples of plagiarism in science writing, including those from India, illustrate the ethical considerations involved.

e. Pitching a story (1 hour)
Pitching science stories to editors or publishers. Identifying suitable outlets to publish. Navigating the editorial process.

Ask-me-anything sessions with established science writers from India can be included. (1 hour)

Suggested reading:
- MIT OpenCourseWare's Science Communication: A Practical Guide for foundational knowledge
- Houston, We Have a Narrative by Randy Olson
- The Open Notebook, a collection of resources for science journalists
- The Hook by Richard Krevolin

4. Scientific Jargon

Learning outcomes:
By the end of this module, the learners should be able to:
- *Identify all instances of jargon used in a piece of science-related writing*
- *Use different strategies to remove jargon from any given piece of writing*

a. Defining ‘jargon’ for your audience (1 hour)
Defining jargon and its potential to alienate non-expert audiences. What constitutes jargon (e.g., abbreviations, technical terms, or specialised phrases)?

b. Tools and strategies to tackle jargon (1 hour)
Strategies and techniques for effectively navigating and managing jargon. Strategies to identify jargon (through research and asking clarifying questions). Using metaphors and analogies as tools. Case studies on successful and unsuccessful science communication examples, focus on the use or avoidance of jargon.

Practice assignment: Activities involving students picking out jargon from scientific articles or communication pieces. (1 hour)

Suggested reading:

- Don't Be Such a Scientist by Randy Olson
- Jargon in science communication research and practice
- Communications Tip: Simplifying Scientific Language
- Analogies in science and science teaching
- Good jargon and bad jargon

5. Science communication in Indian languages

Learning outcomes:
By the end of this module, the learners should be able to:

- *Understand the significance of communicating science in regional languages within the context of India.*
- *Identify key organisations and initiatives involved in science communication in Indian languages.*
- *Evaluate the challenges and opportunities involved in translating scientific terminology and concepts from English to Indian languages.*
- *Explore tools and resources available for translating scientific material into Indian languages.*
- *Apply learned strategies to transliterate or translate scientific content effectively.*

a. The need to communicate science in regional languages (1 hour)
Importance of communicating science in regional languages in India. Case studies could include science popularisation initiatives by state S&T councils, the All India People’s Science Network, Kerala Sasthra Sahithya Parishad, and other state-level science academies and associations.

b. Translation or transliterating science (2 hours theory + 1 hour case studies discussion)
Challenges and strategies involved in translating or transliterating scientific terminology and concepts from English to Indian languages. Tools for translation. Analysis of case studies to

recognise effective strategies for science communication in regional languages (Initiatives by Vigyan Prasar).

Suggested reading:

- Imagine Project
- Science Communication in Multiple Languages Is Critical to Its Effectiveness
- Science Literature in Indian Languages: A Study of Punjabi Language
- Is there science beyond English? Initiatives to increase the quality and visibility of non-English publications might help to break down language barriers in scientific communication

6. Media Engagement

Learning outcomes:

By the end of this module, the learners should be able to:

- *Write a media pitch for a scientific story idea and identify appropriate media outlets to send it to*
- *Write a press release related to a scientific finding/event/or idea*
- *List various strategies to use while engaging with the media to ensure accurate reporting*
- *Create a toolkit to share findings from a project with the media during a press briefing*

a. Basics of media engagement (2 hours)
Concepts related to media engagement, including the importance of effective communication, understanding different media platforms (print, electronic, and digital), identifying target audiences, crafting key messages, and managing media relations. Ethical considerations and responsibilities of scientists while engaging with the media.

b. Tools and techniques for media engagement (2 hours)
Practical strategies and tools that scientists can use to engage with the media effectively. This could include writing press releases, giving media interviews, using social media platforms, creating multimedia content, and engaging with journalists and reporters through press briefings.

Example case studies: Indian Space Research Organisation (ISRO) media engagement during the Chandrayaan 3 mission, Developments related to GM Mustard and media engagement. (1 hour)

Suggested reading:

- "On the Record: Communicating to the Media" and practical project workshops - MIT OpenCourseWare's Science Communication: A Practical Guide for foundational knowledge

7. Tackling pseudoscience, disinformation and misinformation

Learning outcomes:

By the end of this module, the learners should be able to:

- *Develop a nuanced understanding of pseudoscience, disinformation, and misinformation and their implications for public discourse.*
- *Acquire skills in fact-checking scientific claims and evaluating sources of information.*
- *Enhance proficiency in communicating controversial or sensitive scientific themes effectively to diverse audiences.*

a. Unpacking pseudoscience, disinformation and misinformation (1 hour)
The concepts of pseudoscience, disinformation, and misinformation and their impact on public perceptions of science. Examples from India may include the spread of false information during the COVID-19 pandemic about traditional medicines or alternative healing practices.

b. Science fact-checking (2 hours)
Critical evaluation of claims and sources of information (verifying sources, evaluating evidence, and identifying logical fallacies). Case studies from India could include instances where scientific research has been misrepresented or exaggerated in the media, such as claims about curing cancers or diabetes.

c. Communicating controversial/sensitive themes in science (1 hour)
Effective communication strategies for discussing controversial or sensitive topics. Role of language, message framing, and audience awareness in shaping public perception and understanding of scientific issues. Case studies from India may include debates over genetically modified crops, nuclear energy, or climate change, where scientific evidence is often politicised, and communication challenges arise in conveying complex information to diverse audiences.

Suggested reading:

- Bad Science by Ben Goldacre
- The Debunking Handbook by John Cook and Stephan Lewandowsky

8. Impact Evaluation

Learning outcomes:

By the end of this module, the learners should be able to:

- *Describe the need and importance of impact evaluation in SciComm work*
- *Experiment with readily available tools for data analysis*
- *Create an impact evaluation plan for a SciComm project of their choosing*
- *Write an impact report in an audience-appropriate format*

a. Purpose of impact evaluation: (1 hour)

Importance of evaluating the impact of science communication and public engagement efforts and using evidence-based approaches to evaluate impact.

b. Tools and Methods for impact evaluation: (1.5 hours)
Tools for impact evaluation (qualitative and quantitative research methods, surveys, interviews, focus groups, social network analysis). Selecting appropriate evaluation methods.
c. Planning and executing an impact evaluation plan: (1.5 hours)
Process of developing and implementing an impact evaluation plan for science communication and public engagement projects. Identifying key stakeholders, setting clear objectives and outcomes, establishing evaluation criteria and indicators, designing data collection methods, and creating a timeline for evaluation activities. Include a practice assignment on evaluating the impact of a known public engagement initiative.

d. Embedding a culture of impact evaluation: (0.5 hours)
Strategies for fostering a culture of impact evaluation within organisations and institutions involved in science communication and public engagement.

B. Add-on modules (optional):

This is a list of thematic modules, which include an indicative list of topics that can be covered and professionals who can be engaged as trainers. Based on the chosen add-on module, the entire course can be customised to achieve a specific goal. For example, by adding the visualising science or digital content modules, the rest of the course can be tuned to develop a “Multimedia SciComm Course”.

1. **Visualising Science**
    a. Basic principles of visual science communication
    b. Experimenting with formats (illustrations, infographics, graphical abstracts, comic strips, etc)
    c. Practice assignments

Trainers: Graphic designers, science illustrators, comics artists

Resources:

- "Seeing is Believing: Visualising Science for Communication" - MIT OpenCourseWare's Science Communication: A Practical Guide for foundational knowledge
- Data Visualisation in Science Communication - University of Illinois

2. **Creating digital content**

    a. Conceptualising and scripting
    b. Experimenting with formats (videos, podcasts, immersive AR/VR, etc)
    c. Tools and techniques of production

Trainers: Journalists and digital content creators.

Resources:

- Starting Your Podcast: A Guide for Students
- Recording Not By The Book

3. Social media

a. Social media as a tool for science communication
b. Identifying and adapting content for different social media channels
c. Conceptualising, executing and evaluating campaigns

Trainers: Social media managers working with science agencies

Resources

- Scientist's Guide to Social Media
- Science communication with social media – the choice of the proper tools
- Science Communication: how social media can effectively boost your research project

4. Science and Technology Policy Communication
   a. Understanding the S&T policy landscape in India
   b. Role of scientists in policy-making (Real-life case studies from scientists' engagement with politicians can be added)
   c. Policymakers as target audience and strategies to engage with them

Trainers: S&T policy professionals

Resources

- Escape from the Ivory Tower: A Practical Guide for Scientists Who Want to Make Their Science Matter.
- Science Technology and Innovation (STI) Policies in India: a Flashback by Aditya Kaushik, B. Chagun Basha & Lakshmi Ganesan for India Bioscience.

5. Health Communication

- Foundation of Health Communication - Role of communication in the delivery of healthcare and public health, relevant theories and models, cultural considerations in India.
- Evidence-based Communication - Effective communication of research, and strategies for communication through various channels.
- Communicating for health advocacy and health promotion - Engaging with communities.
- Ethical considerations - Maintaining transparency, accuracy and cultural sensitivity, Tackling misinformation and disinformation.

Trainers: Healthcare professionals

Resource:

- WHO Strategic Communications Framework (2017).

C. Course evaluation

The participants in the course can be evaluated in the following ways:

1. Continuous evaluation: Every module can have a hands-on exercise or interactive component, such as discussions and debates.
2. Capstone project: At the end of the course, the participants can choose to create a comprehensive strategy to communicate the work from a lab or institute and develop some pieces of content of their choice. OR, they can choose to take part in designing and executing a public engagement event at their institute.
3. Internship: The participants can join the communications team at their own institute or join other science communication initiatives or agencies to implement their learning through an internship

Impact evaluation of the course

The effectiveness of the course can be evaluated through

1. Comparing before v/s after material from participants
2. Feedback forms
3. Qualitative assessment by tracking expectation fulfilment
4. Grading the capstone project using predefined parameters

D. Implementation strategy

The successful implementation of the framework requires the following:

1. Establishing *a governing body or consortium dedicated to science communication training* is imperative to oversee the development, implementation, and evaluation of standardised guidelines and accreditation standards.
2. Secondly, *effective coordination with academic institutions, government agencies, and industry partners* is crucial to facilitate the integration of science communication courses into existing academic curricula, leverage government support for initiatives, and tap into industry expertise and resources.
3. Lastly, ensuring the *sustainability of the framework requires the allocation of adequate resources and the establishment of funding mechanisms*. Securing funding from both public and private sources, as well as exploring innovative financing models, would enable long-term viability and scalability.

4. Additionally, *continuous investment in infrastructure, technology, and human capital is essential for maintaining the quality and relevance of SciComm/PE training*.

Please scan the QR code below to access all the resources mentioned in this framework:

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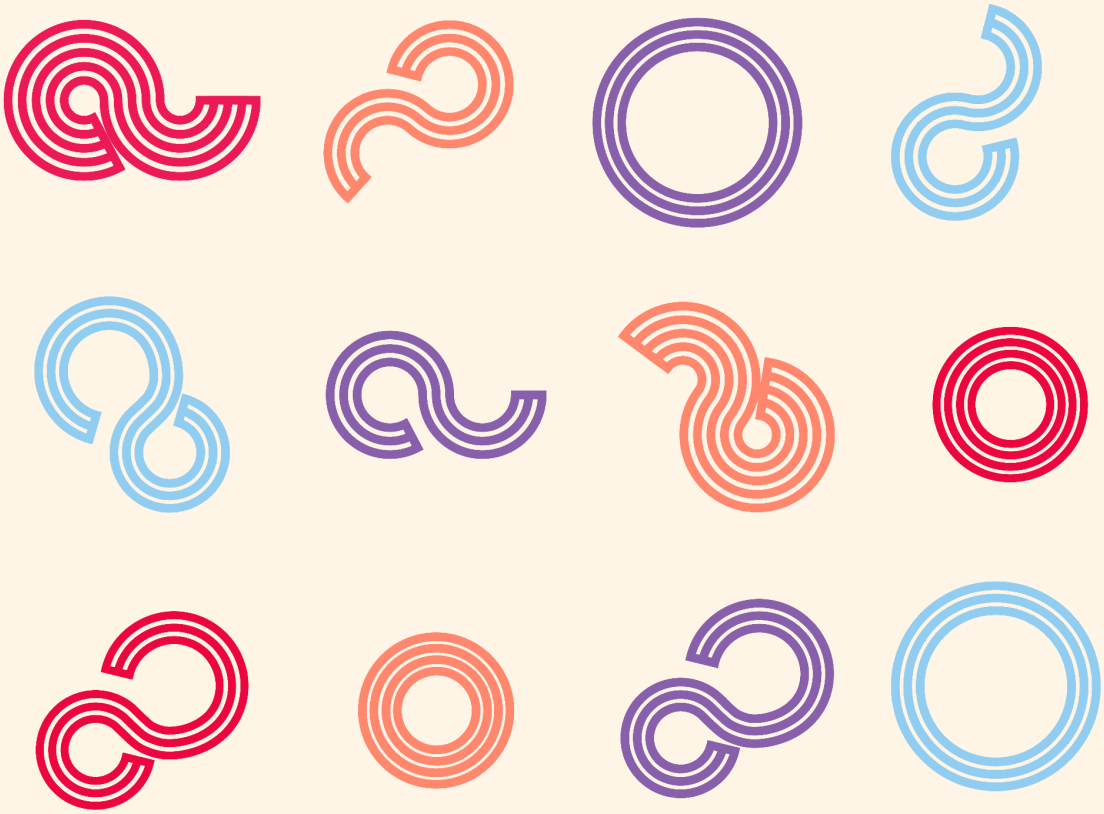


Framework for a Science Journalism Residency Programme in India

Developed by Shruti Sundaresan, Sayantan Datta and Ankita Rathore, with inputs from Sahana Ghosh, Subhra Priyadarshini and Sarah Hyder Iqbal, as part of SciComm ThinkLabs 2024.

Introduction

Based on the findings and recommendations of the Science and Media Working Group (FAST India's SciComm ThinkLabs), we carried out a study to understand the interactions between scientists and media. This document outlines a framework for the **Journalist-in-Residence Program** hosted within a scientific institution, which would be a useful programme for both scientists and journalists to understand each other's work better.

Implementors and stakeholders

Applicants will be journalists interested in or already covering science stories in India.

The residency is to be implemented and anchored at a scientific institution, **providing infrastructural support** for the residency, **access** to scientists and laboratories, as well as the science communication/press office at the institution. Scientists are to serve as mentors to help demystify scientific processes and outputs.

This document can be cited as: Framework for a Science Journalism Residency Programme in India (version 1). Shruti Sundaresan, Sayantan Datta, and Ankita Rathore. SciComm ThinkLabs. FAST India. 2024.

Experienced science journalists to serve as **mentors**, offering their expertise through modules of the training programme while also playing an advisory role through the course of the residency. Collectives or professional bodies, like the Science Journalists Association of India (SJAI) to play a pivotal role in overseeing mentorship and the central administration of the residency, ensuring a seamless integration of **journalistic rigour and scientific inquiry.**

Framework for a Journalist-in-Residence Programme

Aim: To establish a residency programme that strengthens the relationship between scientists and media professionals through hands-on, immersive training and practice.

Objectives:

- To offer a distinct platform for scientists and media to engage in active dialogue
- To enable training for high quality science journalism and writing while engaging in immersive practice
- To encourage journalists to understand, appreciate and critique scientific process and rigour
- To help scientists understand the process behind the production of science stories

Who can apply:

- Full-time science journalists (either associated with a publishing house, or working independently) with minimum of 3 years of demonstrated work experience. Part-time journalists and journalists who do not cover science will not be considered for this role.
- Candidates with a Bachelor's degree in journalism, communications, or STEM will be given a preference.
- A portfolio of published articles, reports, interviews, or multimedia pieces that demonstrate an ability to explain complex scientific concepts to a general audience.
- A track record of adhering to the highest standards of journalistic integrity and ethics.
- A willingness to explore new ideas, cover different scientific disciplines, be receptive to interdisciplinary methods and embrace innovative approaches in science journalism.
- A clear understanding of their current skill set, strengths, and areas for improvement. Applicants should also express an interest in professional development to acquire new skills necessary for advancing science journalism.

Nature of Engagement: Hybrid

Duration of the pilot programme: 1 month

7-10 days - Online training;
10 days - Residency
10 days - Developing the work output

Potential outputs:

The pilot programme can primarily focus on written outputs (articles, feature pieces, and interview led thought piece) but the residency programme can be open to:

- Articles
- Feature Pieces
- News Packages
- Radio Reports/ Podcasts/ Audio Stories
- Infographics
- Video Reports
- Photo Essays
- Illustrated Stories, as outputs.

Structure of the Programme:

Phase	Details
Phase I: Training	Selected journalists will undergo intensive, hands-on training (akin to a certificate course) in science writing, communication and journalism (post mapping journalist's strengths, interests and existing competencies).
Phase II: Residency	• Mock role-play sessions "fill-my shoes" for scientists and journalists to understand each others professions • Skill exchange programme (lab rotation, media interaction, impactful writing, etc) • Understanding the workings of various labs within the institute, engaging in conversations with multiple stakeholders • Identifying areas of interest to cover stories • Workshop with scientists and journalists to explore intersectional stories between science and society • Pairing of journalists with one or two key principal investigators at the institute
Phase III: Production and Publication	• Journalists will use this time to produce the science story. • The residency programme will be contingent upon journalists finding their own platforms/newsrooms for publishing their stories (with support from the programme organisers).

Phase I | Training Module Details

The residency program will be guided by a cadre of esteemed science journalists, editors, and reporters. Funding dependent, the programme will try to feature global perspectives by including both Indian and international mentors, so the online nature of this module is fully utilised.

We also propose collaborating with collectives like the Science Journalists Association of India to deliver this module.

The following areas/topics can be covered as part of this training period.

Critical Analysis of Science Reporting
Evaluation of examples of science journalism to identify strengths, weaknesses, and biases, and to develop a critical eye for assessing scientific claims in the media.

Structuring Articles
Structuring articles for maximum reader engagement, including effective introductions, transitions, and conclusions. Review of grammar rules and best practices for maintaining a consistent writing style.

Writing and Reporting Skills
Techniques for effective science writing, like crafting compelling narratives, and conducting interviews with scientists. Crafting clear, concise, and jargon-free prose to make scientific topics understandable to a broad audience. Adaptation of writing skills for various formats, including news articles, features, op-eds, blog posts, and social media updates.

Data Journalism
Introduction to data analysis and visualisation techniques, and incorporating data-driven storytelling into science reporting.

Ethics in Science Journalism
Ethical considerations in science reporting include accuracy, balance, and conflicts of interest.

Science Policy and Society
Examination of the intersection between science, policy, and society, including the role of science journalism in informing public policy debates and addressing societal challenges.

Digital Tools and Multimedia Storytelling
Training in using digital tools for research, writing, and multimedia storytelling, including social media, podcasting, video production, and interactive graphics. Understanding the characteristics of online writing, including search engine optimisation (SEO), audience engagement strategies, and writing for mobile devices - all as per the journalist's requirements.

Incorporating Visual Elements
Guidance on integrating visual elements such as images, illustrations, and infographics to enhance the understanding and visual appeal of science articles.

Collaborative Writing
Strategies for effective collaboration with editors, scientists, and other stakeholders throughout the writing and editing process.

Phase II | Residency

In this phase of the residency programme, the journalist-in-residence will be expected to interface with scientists at a science institution. Their engagement will involve the following components:

Observation

The journalist-in-residence will have access to scientists and laboratories at their host institution and will be expected to spend time observing science in action. Observations can include particular methods/techniques, discussions among scientists, and laboratory cultures. Journalists will be encouraged to rotate across various labs. A basic understanding of scientific principles, scientific rigour and critical thinking in science will be demonstrated.

Interaction

The journalist-in-residence will work towards interacting with scientists at the host institution through one-on-one/group meetings and interviews. The journalist will also conduct one workshop for scientists at the host institution with the intention of raising awareness around science journalism and its practices.

Collaboration

The journalist-in-residence will seek potential story ideas by collaborating with scientists at the host institution. They may be potentially grouped with a principal investigator to explore such ideas, or they might seek an idea on their own. Having found such an idea, they will pursue reporting the story.

The story development will be largely independent—the scientist can make suggestions, discuss the larger picture, and connect journalists with their collaborators.

Phase III | Producing Outputs and Publishing

In this phase, the science journalist will work towards producing and publishing their reported story. For journalists representing a media house, the residency programme will seek to establish a publishing tie-up with the media house. For independent journalists, the residency programme will support them in pitching stories to media houses. An assigned mentor will also help edit the pitch and first draft of the story.

The focus is on strengthening journalistic reportage on the areas of science showcased in the residency, not reportage on the host institution.

Impact measurement of the pilot programme:

Quantitative Metrics:

1. Number of applications for the pilot programme
2. Dissemination and engagement metrics for the published content post the residency programme

Qualitative Assessment:

1. Content Quality: Depth, accuracy, and impact of the content produced by journalists
2. Feedback from stakeholders: Mentors, scientists, host institute, funders, etc
3. Participant Satisfaction: Measure participant satisfaction through surveys, interviews, or focus groups to understand their experience and perceived impact.
4. Track the career progression of journalists
5. Assess the sustainability of the programme by analysing its long-term viability, funding sources, and institutional support.
6. Measure appetite for increased partnerships with funders, media outlets, host institutions and potential mentors
7. Benchmarking: Compare programme outcomes and impact metrics with similar programmes globally

Risks associated with the programme:

1. In the absence of editorial independence, the outputs can become a PR campaign for the institution.
2. The focus of this programme is on strengthening journalistic reportage on the areas of science showcased in the residency, **not reportage on the host institution.** Otherwise, one may not be able to critique the host institution's work if the need arises.

To mitigate these risks, we suggest the following measures:

1. Establishing clear guidelines and agreements for editorial independence between the journalist, publication house, and host institution, with clear emphasis on the fact that the focus is on science, not the institution,.

2. Encouraging transparency and integrity in reporting by providing journalists with access to diverse perspectives and sources of information.

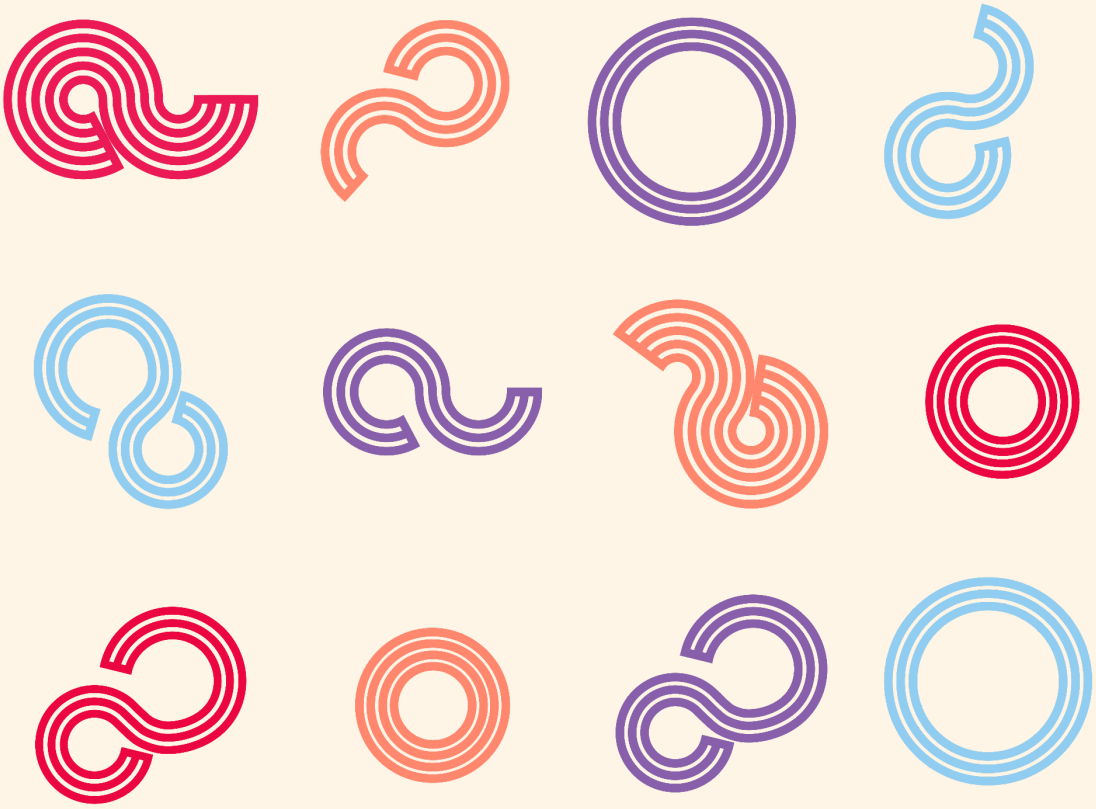
3. Establishing a feedback system where participants may anonymously report any pressure to conform to institutional narratives.

4. Clearly disclosing the sources of funding for the programme establishes that funding does not influence editorial decisions.

5. Providing adequate information and support during the “training” phase, where topics like ethical reporting, fact-checking, conflict of interest, objectivity, etc. are covered.

6. Onboarding journalists from diverse backgrounds, with interests in a wide range of topics and perspectives within the field of science, beyond just the areas showcased by the host

institution. This might help avoid the perception of the programme as a PR campaign for the institution, while promoting balanced and comprehensive reporting.



Survey Questionnaire to Assess Indian SciComm Efforts (Working Group 1)

About SciComm:
Science Communication (SciComm) and Public Engagement (PE) are fundamental tools and approach for communicating with and engaging non-expert audiences on various aspects of science, research and its applications. SciComm and PE are now being increasingly prioritised by both academic and research institutions worldwide to help bridge the gaps between science and society.

About Us:
We are a group of science communication professionals who are interested in better understanding the landscape of Indian science communication initiatives, using a mixture of surveys, literature reviews and interviews. Together we constitute the "Scope of SciComm" Working Group, collaborating as part of FAST India's SciComm ThinkLabs initiative.

About the Survey:
As part of this survey, we aim to systematically study the Indian SciComm ecosystem to explore the scope of SciComm & PE in the country and document the diversity of SciComm and PE practices in India. We hope to use this data to reflect on the current state of SciComm and PE in India and eventually develop actionable roadmaps, frameworks, and recommendations for professionalising and advancing this field in the country.

Who is this Survey for:
Please take this survey if you are a science communication or public engagement practitioner, or a scientist/student/citizen actively involved in communicating science to non-expert/public audiences.

Instructions for filling up the survey:

- The survey has very short field or multiple-choice questions split over 9 sections and will take about 8-10 mins to complete.
- Participation in this survey is completely voluntary. By filling out this survey, you consent to participate in this survey and understand that your responses will be used for non-commercial, research and educational purposes only. Please find here FAST India's privacy policy.
- We assure you that the survey data will be stored securely. The survey data and insights may be published but will be anonymised, and no private information about the respondents will be disclosed.
- Please note that there are no right or wrong answers; your input is highly valued as it will help us gain valuable insights from this survey.

For more details about this survey or ThinkLabs, you can write to indiasciencefest@fast- india.org.

Survey completion time: ~ 8-10 mins

This survey can be cited as: Survey Questionnaire to Assess Indian SciComm Efforts. Siddharth Kankaria, Banya Kar, HS Sudhira and Sarah Hyder Iqbal. SciComm ThinkLabs. FAST India. 2024.

SURVEY

A. About you

This section collects some basic information about you, which will be anonymised and aggregated later.

1. Gender * (Mark only one.)
    - Female
    - Male
    - Non-binary
    - Transgender
    - Prefer not to say
    - Other:
2. Age * (Mark only one.)
    - 18 to 24
    - 25 to 34
    - 35 to 44
    - 45 to 54
    - 55 to 64
    - 65 or over

3. City and State*:

4. Designation or role within SciComm and PE * (Select all that apply)
    - Science Communication / Public Engagement Practitioner or Professional
    - Scientists
    - Student
    - Freelancer
    - Science Journalist
    - Science Communication/Public Engagement Researcher
    - Science Communication / Public Engagement Teacher/Trainer/Workshop facilitator
    - Science Administrator / Manager / Support staff
    - Citizen passionate about Science Communication / Public Engagement

- Other:

5. Affiliation, employer or place of work* (Select all that apply)
    - Public University
    - Private research institute
    - Private University
    - Media
    - Freelance
    - NGO
    - Government agency
    - Corporate
    - Other:

6. Company/Organisations where you do SciComm/PE work (if you're okay with sharing)

7. Do you self-identify or consider yourself to be a science communicator or public engagement practitioner? Mark only one oval.
    - Yes
    - No
    - Sometimes
    - Not sure
    - Other:
8. In what capacity do you perform SciComm/PE activities? * (Mark only one)
    - As your primary line of work (paid, full-time role in SciComm/PE)
    - As your secondary line of work (paid, part-time in SciComm)
    - As a tertiary / voluntary work (unpaid, voluntary work for passion)
    - Others:

9. Have you undertaken any formal training/educational courses in SciComm or PE? * Mark only one.
    - Yes
    - No, but I have mostly learnt on the job
    - No, but I'm planning to soon
    - No
    - Other:

B. Aims, Objectives and Functions of SciComm/PE

This section aims to understand the various (often overlapping) aims, objectives and/or functions of science communication and public engagement in the Indian context.

10. Which of the following functions or roles does your SciComm/PE work CURRENTLY FULFIL?* (Select all that apply.)
    - Spreading awareness about STEM concepts and information
    - Making science more enjoyable, accessible and relatable
    - Enhancing interest and involvement in STEM issues, topics and applications in society
    - Helping shape audiences' opinions, attitudes and perceptions of scientific topics and issues
    - Promoting a deeper understanding of the process of science, its actors, institutions, and corresponding social factors
    - Promoting the brand or enhancing the PR of a scientific organisation, research institution and/or university
    - Promoting STEM as a career / inspiring the next generation to join science
    - Increasing scientific literacy

- Informing people about cutting-edge developments, inventions and discoveries in scientific research
- Collaboratively work with public inputs and dialogue to inform scientific research
- Co-producing knowledge with different stakeholders
- Building more critical skills, rational thinking and scientific temper
- Questioning the process, people and institutions of science
- Facilitating behavioural change through evidence and information
- Countering misinformation
- All of the above
- None of the above
- Other:

11. **Which of the following functions or roles do you think SciComm/PE SHOULD FULFIL?* (Select all that apply)**
    - Spreading awareness about STEM concepts and information
    - Making science more enjoyable, accessible and relatable
    - Enhancing interest and involvement in STEM issues, topics and applications in society
    - Helping shape audiences' opinions, attitudes and perceptions of scientific topics and issues
    - Promoting a deeper understanding of the process of science, its actors, institutions, and corresponding social factors
    - Promoting the brand or enhancing the PR of a scientific organisation, research institution and/or university
    - Promoting STEM as a career / inspiring the next generation to join science
    - Increasing scientific literacy
    - Informing people about cutting-edge developments, inventions and discoveries in scientific research
    - Collaboratively work with public inputs and dialogue to inform scientific research
    - Co-producing knowledge with different stakeholders
    - Building more critical skills, rational thinking and scientific temper
    - Questioning the process, people and institutions of science
    - Facilitating behavioural change through evidence and information
    - Countering misinformation
    - All of the above
    - None of the above
    - Other:

12. **According to you, whose responsibility is it to communicate and engage with the public about science?* (Select all that apply)**
    - Scientists and researchers themselves
    - Science communicators and public engagement professionals
    - Science journalists
    - Scientific institutions and organisations
    - Government agencies and policymakers
    - Everyone mentioned above shares this responsibility
    - I'm not sure
    - Other:

13. **What barriers, if any, do you think hinder effective SciComm and PE? * (Select all that apply)**
    - Insufficient or absence of SciComm/PE training
    - Insufficient or absence of SciComm/PE resources
    - Insufficient or absence of SciComm/PE funding
    - Insufficient or absence of SciComm/PE trained staff / professionals

- Insufficient or absence of buy-in from senior leadership (at one's institution)
- Insufficient or absence of clear institutional policy on SciComm/PE
- Negative perception/lack of recognition for SciComm/PE
- Reduced priority for SciComm/PE work
- Too many competing work pressures
- Other:

C. Time spent on SciComm/PE activities

This section aims to understand the amount of time that you spend in doing SciComm/PE activities.

14. **How many hours a week do you spend doing SciComm/PE activities? * (Mark only one)**
    - <2 hours per week
    - 2 to 5 hours per week
    - 5 to 10 hours per week
    - 10 to 20 hours per week
    - 20 to 30 hours per week
    - 30 to 40 hours per week
    - >40 hours per week

15. **Are you satisfied with the amount of remuneration offered for your SciComm/PE work currently?* (Mark only one)**
    - Yes, I get paid enough for my SciComm/PE work
    - Yes, I get paid decently for my SciComm/PE work but would welcome higher pay
    - Yes, I get paid sufficiently for my NON-SciComm/PE work and don't mind doing my SciComm/PE work for free or for lesser pay
    - No, I don't get paid enough for my SciComm/PE work by a small margin
    - No, I don't get paid enough for my SciComm/PE work by a large margin
    - Not sure
    - I'm currently unemployed
    - Other:

16. **Would you like to change the time you spend doing SciComm/PE activities? * (Mark only one)**
    - I'd like to do MORE of it
    - I'd like to do LESS of it
    - I'd like to keep doing the SAME amount
    - Not sure
    - Other:

D. Context and Audience

This section aims to understand the audiences, contexts, scenarios and purposes for which science communication is deployed in the Indian context.

17. **In your opinion, what is the level of public understanding of science, technology, engineering and medicine (STEM) issues in India?* (Mark only one.)**
    - Very Low
    - Low
    - Moderate/Medium
    - High
    - Very High
    - Not sure:

18. **Please select the different kinds of target audiences you usually work with as part of your SciComm/PE work. (Select all that apply)**
    - School Students

- University Students
- Families
- Researchers
- Media people
- Policymakers / Government officials
- Communities
- Citizens
- NGOs
- Teachers
- Patients/Patient groups
- Rural communities
- Communities with poorer socioeconomic backgrounds
- People with disabilities
- People identifying as part of LGTBQIA+ communities
- Funding agencies
- Other:

E. Content

This section aims to identify areas, topics, and competencies within STEM subjects that you communicate about.

19. **What disciplines/subjects/topics of science does YOUR SciComm/PE work CURRENTLY cover?* (Select all that apply)**
    - Biology
    - Physics
    - Chemistry
    - Mathematics
    - Engineering
    - Technology / AI
    - Medicine / Public Health
    - Pharmaceuticals / Biotech
    - Conservation / Wildlife / Ecology
    - Climate change / Geology / Geosciences
    - Space / Astronomy
    - Social sciences / Humanities
    - Careers in science / Networking / Tools in academia
    - People in science / DEIA issues in science / Gender, sexuality, caste, religion, neurodiversity, race, class, … in science
    - Science communication and public engagement tools and frameworks
    - Science of science communication (SciCommSci) or research in SciComm/PE
    - Other:

20. **Which disciplines/subjects/topics of science are your AUDIENCES MOST INTERESTED IN?* (Select all that apply)**
    - Biology
    - Physics
    - Chemistry
    - Mathematics
    - Engineering
    - Technology / AI
    - Medicine / Public Health
    - Pharmaceuticals / Biotech
    - Conservation / Wildlife / Ecology
    - Climate change / Geology / Geosciences

- Space / Astronomy
- Social sciences / Humanities
- Careers in science / Networking / Tools in academia
- People in science / DEIA issues in science / Gender, sexuality, caste, religion, neurodiversity, race, class, … in science
- Science communication and public engagement tools and frameworks
- Science of science communication (SciCommSci) or research in SciComm/PE
- Other:

21. **Which of the following sources and aspects of science (in society) do you use as part of your science communication activities' content?* (Select all that apply)**
    - New research publications
    - Experiences of people involved in science
    - Technological advancements
    - Positive societal impacts of science
    - Negative societal impacts of science
    - Impact on field/future studies
    - Science careers
    - Scientific controversies
    - Scientific misinformation (and disinformation)
    - Science policy and science governance outputs
    - Process of doing science and/or research
    - Uncertainty in science
    - Critiques of science, scientists, scientific institutions and/or processes
    - Other:

F. Channels

This section aims to identify channels, formats and languages used in your SciComm/PE efforts.

22. **What kind of formats or media do you use in your science communication activities?* (Select all that apply)**
    - Popular science writing
    - Science journalism
    - Science-themed podcast
    - Science-themed videos/ television / filmmaking Science illustration/ infographics / comics
    - Social media and digital platforms
    - Science theatre/dance/comedy
    - Science-themed games
    - Public engagement with science / Open Days
    - Citizen science
    - Science-themed museums
    - Science festivals
    - Public lectures on science
    - Stakeholder consultations, dialogue and discussions on science
    - School outreach and pedagogical activities
    - SciComm/PE teaching / training / workshops SciComm/PE research, studies or reports
    - Other:

23. **Do you rely on any kind of research or evidence-based insights in SciComm/PE or allied areas?* (Select all that apply)**
    - Yes, research papers in SciComm/PE/allied areas (e.g. those published in social science research journals)

- Yes, practitioner insights SciComm/PE/allied areas (e.g. blogs, institutional reports etc.)
- Yes, textbooks in science communication
- Yes, anecdotal insights shared in SciComm/PE workshops, courses or training
- No, I don't use any kind of research or evidence-based insights in SciComm/PE
- I'm not really aware of research or evidence-based insights in SciComm/PE
- Other:

24. Which digital platforms or channels do you use as part of your SciComm/PE work?* (Select all that apply)

- X (formerly Twitter)
- Facebook
- Instagram
- LinkedIn
- Threads
- YouTube / Vimeo / Video platforms
- Websites
- Blogs (Medium etc.)
- Podcast platforms
- Personal messaging Apps like WhatsApp, Snapchat, etc
- Other:

25. What languages do you CURRENTLY use in your SciComm/PE activities? * (Select all that apply)

- English
- Hindi
- Bengali
- Marathi
- Tamil
- Kannada
- Malayalam
- Telugu
- Gujarati
- Odia
- Assamese
- Other:

26. Which languages do you want to do more SciComm/PE in the FUTURE?* (Select all that apply)

- English
- Hindi
- Bengali
- Marathi
- Tamil
- Kannada
- Malayalam
- Telugu
- Gujarati
- Odia
- Assamese
- Other:

G. Assessment

This section aims to understand how you measure the impact, efficacy and adequacy of your SciComm/PE efforts in achieving pre-determined goals.

27. **How effective or impactful do you think your current SciComm/PE activities have been?* (Mark only one.)**
    - Not effective at all
    - Slightly Effective
    - Moderately Effective
    - Very Effective
    - Extremely Effective
    - Not sure

28. **Do you evaluate and/or measure the impact for the SciComm/PE activities you're currently engaged in?* (Mark only one)**
    - Yes No
    - Sometimes
    - Unsure / Don't know how to
    - Other:

29. **What are some of the techniques or methods you currently use for doing this evaluation and impact measurement of your SciComm/PE activities?* (Select all that apply)**
    - Headcounts
    - Quizzes
    - Feedback forms and surveys
    - Audience questionnaires
    - Collecting audience testimonials
    - Focus group discussions
    - Using an independent evaluator
    - I have never used any of these methods as yet
    - Other:

30. **Do you wish you had more training and opportunities to formally learn about doing evaluation and impact measurement for your SciComm/PE activities?* (Mark only one.)**
    - Yes
    - No
    - Sometimes
    - Unsure
    - Other:

H. Training

This section gauges your thoughts on the availability and benefits of professional training in SciComm/PE.

31. **What kind of training in SciComm/PE have you undergone? *(Select all that apply)**
    - I have undertaken/ I am pursuing a degree program (Bachelor's, Master's or PhD) in SciComm, Mass Communication or Journalism, Public Engagement
    - I have undertaken a short course/workshop in Science Communication, Mass communication or Journalism (e.g., science writing, storytelling, podcast)
    - I am an experienced SciComm/PE practitioner and have learned on the job
    - I regularly consult resources on how to communicate with non-specialist audiences
    - I am not aware of any such training available in India
    - I would like to undertake more training in the future
    - I do not need any such training
    - Other:

32. **Do you think professional training/courses in SC/PE can help improve your ability to carry out your current/future responsibilities?* (Mark only one.)**
    - Yes
    - No
    - Maybe
    - I'm not sure

33. **In which of the following SC/PE areas do you need training in? *(Select up to 5 areas that appear most important to you).**
    - (Popular) Science Writing (for an institution / freelance)
    - Science Journalism (for a news outlet)
    - Social Media Management
    - Digital Content Creation (Audio, Video, Illustrations, Graphic Designs, websites)
    - Creative/Performing Arts (e.g. dance, music, theatre)
    - Workshop Planning/Training
    - Evaluation, Impact Measurement & Monitoring of SciComm Programmes/Events
    - Reporting and Documentation
    - Fundraising and Grant-writing
    - Outreach, Public Relations and Marketing
    - Dialogue-based Engagement
    - Public & Stakeholder Engagement
    - Citizen Science / Participatory Science initiatives
    - Knowledge Management
    - Research Communication
    - Media Engagement, Liaisons and Relations
    - Liaising with scientists and researchers
    - Conducting research in SciComm/PE
    - Other:

I. Conclusion + Permissions

34. Any further comments/questions/additional information that you'd like to share with you.
35. If you would be willing to be contacted by our team in the near future, for further group discussions and/or interviews to better understand the Indian SciComm ecosystem, please share your name and email ID below.
36. I consent to the use of your survey responses for non-commercial, research, and educational purposes only, with the assurance that my personal information will be kept confidential and my identity will not be disclosed.* (Mark only one)
    - Yes
    - No

Survey Questionnaire for Scientists and Science Communicators

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About: The Science and Media Working Group (as part of FAST India's SciComm ThinkLabs) is interested in examining the current relationship between the scientific community and media in India. Through surveys and consultations, the working group aims to understand how these entities currently interact with each other, identify pain points, and seek suggestions and recommendations for interventions towards improving this relationship.

This is the first part of a survey to learn how scientists and science communicators, as well as public relations and media officers at Indian scientific institutions, perceive their interactions with the media. Furthermore, this survey also hopes to gather preliminary inputs for an institutional science media residency programme. A subsequent survey will be shared with journalists in order to better understand the enablers and challenges of covering science in India.

Please take this survey if you are:

1. A scientist (PhD student/postdoc/professor/R&D scientists) in India who engages in science communication and interacts with the media in addition to their research and academic duties.

2. A science communicator and press/media officer currently or formerly based at or working with Indian academic and/or research institutions

Note:

1. The survey would take about 5-10 minutes to fill.
2. Participation in this survey is completely voluntary. By filling this survey, you consent to participate in it and understand that your responses will be used for non-commercial, research purposes only.
3. The survey data may be published but will be anonymised, and no private information of the respondents will be disclosed.
4. This is a conditional form. Individuals will be required to fill in a relevant section of the form on the basis of the professional category they choose.

Please note that there are no right or wrong answers here; your honest input is highly valued as it will help us gain valuable insights from this survey.

This survey can be cited as: Survey Questionnaire for Scientists and Science Communicators. Shruti Sundaresan, Sayantan Datta, Debdutta Paul, Suchibrata Borah, Ankita Rathore, and Utsav Thapliyal. SciComm ThinkLabs. FAST India. 2024

Section 1: Identification

Gender:
Age:
City, State:
Institution:

What do you identify as your primary* work/role?

a. Scientist (PhD students/ postdocs/ professor/ R&D scientists)
b. Press/Media Officer/ Science Communicator affiliated with an institution

* For the purpose of this survey, we define your primary work/role as the one that sustains at least half of your current income and/or one you primarily identify with.

Section 1: Scientists

As a scientist, you may be required to interact with non-experts such as journalists, or you may choose to do so on your own. This section aims to help us understand some of the enablers and challenges you may face when working with journalists and the media. Please be reminded that there are no right or wrong answers here; your honest input is highly valued as it will help us gain valuable insights from this survey.

1. **How important is it to share your research with non-experts such as the public or media?**
    a. Not important at all
    b. Slightly important
    c. Moderately important
    d. Very important
    e. Extremely important

2. **Do you share your scientific research through any channel?**
(Press Releases, Institutional Blog, Institutional Research Highlights, Institutional Newsletter, Personal Blog, Social Media)

    a. No, I am not interested
    b. No, but I am open to such possibilities
    c. Yes, but rarely
    d. Yes, regularly

3. **Do you interact with journalists or media to share your scientific research with public audiences?**
    a. No, I am not interested
    b. No, but I am open to such possibilities
    c. Yes, but rarely
    d. Yes, regularly

4. **If you answered '<u>No, I am not interested</u>', please choose the reasons that discourage you from interacting with journalists. [multiple choice]**
    a. I think it could harm my research
    b. I fear being misquoted in the media
    c. I had an uncomfortable experience in the past, which makes me reluctant to meeting journalists
    d. I am not interested in interacting with journalists
    e. I don't think it's essential to interact with journalists
    f. I don't have time to interact with journalists
    g. I don't have support to interact with journalists
    h. I don't know how to interact with journalists
    i. I don't think there are many science journalists in India exclusively trained to cover science
    j. My work is too technical, journalists will not be able to understand
    k. Not applicable, my answer to the previous question was different
    l. Other(s) [please specify]

5. **How would you describe your overall experience of working with journalists or the media?**
    a. Very poor
    b. Poor
    c. Neutral/ neither good nor poor
    d. Good
    e. Very good
    f. My job doesn't require me to interact with journalists

6. **How satisfied are you with the amount of time journalists spend in understanding the science you are trying to communicate?**
    a. Very Dissatisfied
    b. Dissatisfied
    c. Neutral/ neither satisfied nor dissatisfied

d. Satisfied
e. Very Satisfied

f. My job doesn't require me to interact with journalists

7. **Are you open to media requests for covering your research work?**
    a. Yes
    b. Yes, but I need to get approvals from my institution
    c. Yes, but depends on my availability
    d. Yes, but depends on whether my research is newsworthy
    e. No, I don't wish to take media requests

8. **Does your institution/university have a press/media cell or a communications office?**
    a. Yes
    b. No
    c. I don't know

9. **If your answer to the previous question was yes, does the press/media cell or the communications office help you in your interactions with the media?**

    a. No, the press cell or communications office does not help at all.
    b. Yes, the press cell or communications office is somewhat helpful.
    C. Yes, the press cell or communications office is extremely helpful.
    d. Not applicable, my answer to the previous question was 'no' or 'I don't know'.

10. **What would enable you to interact with journalists and media more effectively? [multiple choice]**
    a. Media training
    b. Clear communication and media engagement guidelines from the institution
    c. Presence of a PR or communications office in the institution
    d. Better resourced and equipped PR or communications office
    e. Incentives/ recognition for researchers engaging with the media
    f. Other(s) [please specify]

11. **Which newspaper or online news portal do you read for science-related news?**
    [text]

12. **Would you like to engage with us in a brief interview to help us learn more about your experience? If yes, please identify yourself with your name and email/phone. [optional]**

13. **Any additional information/comments you would like to share with us.**
    a. [text]

Section 2: Science communicators and Press Officers Section

As a science communicator, a public relations or a press officer in a scientific institution, you most likely engage with both the media and the scientific community. This section aims to understand how an institutional communicator such as yourself interacts with both. Please be reminded that there are no right or wrong answers here; your honest input is highly valued as it will help us gain valuable insights from this survey.

1. **Do you work at a:**
    a. Government-funded research institution
    b. Private research institution
    c. Public University
    d. Private University
    e. I am a freelancer/consultant working with a government research/ academic institution
    f. I am a freelancer/consultant working with a private research/ academic institution
    g. Other [please specify]

2. **What is the nature of your position?**
    a. I am an institutional science communicator, public relations or media officer
    b. I work with an organisation that represents/ contracts with an institutional communications office
    c. I am an independent science communicator working with an institution
    d. Other(s) [please specify]

3. **If you work at an institution, what is your institutional designation?**
    a. Public Relations Officer
    b. Press Relations Officer
    c. Science Communication Officer
    d. Outreach Coordinator
    e. Science Writer
    f. Social Media Officer
    g. Public Engagement Coordinator
    h. Communications Manager
    i. Scientific Officer
    j. Technical Officer
    k. Other [please specify]

4. **Please select your primary responsibilities from the list below. Please choose all that apply.**
    a. School/ college student session
    b. School/ college teacher training programs
    c. Curriculum development for educational workshops
    d. Informal Public Engagement/Outreach Events (Exhibitions, open days, science festival)
    e. Academic conference/ seminar event management
    f. Annual/ quarterly report preparation
    g. Research highlights/ blogposts
    h. Science Writing
    i. Media Engagement
    j. Social Media Management
    k. Scientific Manuscripts Editing
    l. Policy Engagement
    m. Managing RTI Applications
    n. Fundraising
    o. Grant Management

p. Alumni Engagement
q. Outreach for undergraduate or postgraduate admissions
r. Videography and photography of institute events
s. Website design and associated content developments
t. Teaching
u. Digital content development for research stories (videos, zines, podcasts, etc.)
v. Other(s) [please specify]:

5. **How much time do you currently spend on non-Science Communication or ad-hoc responsibilities?**

    a. Less than 10%
    b. 11–30%
    c. 31–50%
    d. More than 50%
    e. Not applicable, I do not have secondary or ad-hoc responsibilities

6. **For most of the projects/ activities that you contribute to at your institution, you are involved in which of the following capacities: [multiple options]**
    a. Proposing a project/ event
    b. Designing/ planning of a project/ event
    c. Execution of a project/ event

7. **How are most members (such as scientists, students, technical officers, etc.) of your institution involved in science communication and outreach activities?**
    a. They are NOT involved
    b. Somewhat/Occasionally involvedExtremely involved

8. **Do you receive adequate support (financial/infrastructural/ logistical/administrative) for your work from the institutional leadership?**
    a. No, I receive no support
    b. Yes, I receive moderate support
    c. Yes, I receive strong support
    d. I don't require support from the institutional leadership
    e. I am unsure

9. **What are the modes of content creation you use to share scientific content? [multiple choice]**
    a. Text
    b. Images
    c. Audio
    d. Videos
    e. Other(s) [please specify]

10. **How do you typically receive information about <u>new scientific findings</u> within your institute?**
    a. Scientists directly inform me
    b. I am subscribed to internal institutional dissemination channel(s)
    c. Other(s) [please specify]

11. How often do you read academic papers?

a. Multiple papers a day
b. About a paper a day
c. Once every few days
d. I don't read papers
e. My job doesn't require me to read papers

12. How often do you interact with scientists?

a. Daily
b. Weekly
c. Monthly
d. Rarely
e. Never
f. My job doesn't require me to interact with scientists

13. How satisfied are you with the amount of time a scientist gives you to help you with a science story about their work that you may be writing?

a. Very Dissatisfied
b. Dissatisfied
c. Neutral (neither satisfied nor dissatisfied)
d. Satisfied
e. Very Satisfied

14. How would you describe your overall experience working with scientists?

a. Very poor
b. Poor
c. Neutral/ neither good nor poor
d. Good
e. Very good

15. How often do you interact with journalists?

a. Daily
b. Weekly
c. Monthly
d. Rarely
e. Never
f. My job doesn't require me to interact with journalists

16. How satisfied are you with the amount of time journalists spend in understanding the science you are trying to communicate?

a. Very Dissatisfied
b. Dissatisfied
c. Neutral/ neither satisfied nor dissatisfied
d. Satisfied
e. Very Satisfied

f. My job doesn't require me to interact with journalists

17. How would you describe your overall experience of working with journalists?

a. Very poor

b. Poor
c. Neutral (neither good nor poor)
d. Good
e. Very good

f. My job doesn't require me to interact with journalists

18. **In your experience, how would you describe the interactions between journalists and scientists at your institution?**
    a. Very poor
    b. Poor
    c. Neutral (neither good nor poor)
    d. Good
    e. Very good
    f. I am not sure

19. **Which of these would enable you to engage more effectively with scientists and journalists?**
    a. Clearer communication guidelines and protocols
    b. Training programs on effective science communication
    c. Improved access to scientists and their research
    d. Better understanding of journalists' needs and deadlines
    e. More resources and support for science outreach and communication initiatives
    f. Not applicable, I am already engaging effectively
    g. Other(s) [please specify]

20. **Which newspaper or online news portal do you read for science-related news?**
    [text]

21. **Would you like to engage with us in a brief interview? If yes, please identify yourself with your name and email/phone:**
    a. [text]

22. **Any additional information/comments you would like to share with us.**
    a. [text]

Section 3: Common Questions (Residency Programme)

As a suggestion to improve the relationship between scientists and media, this working group is putting together a framework for a 'Science Journalist in Residence Programme' to be hosted within a scientific institution in India. The goal is to strengthen engagement between journalists and scientists and to offer journalists the opportunity to learn more about the institute's research areas.

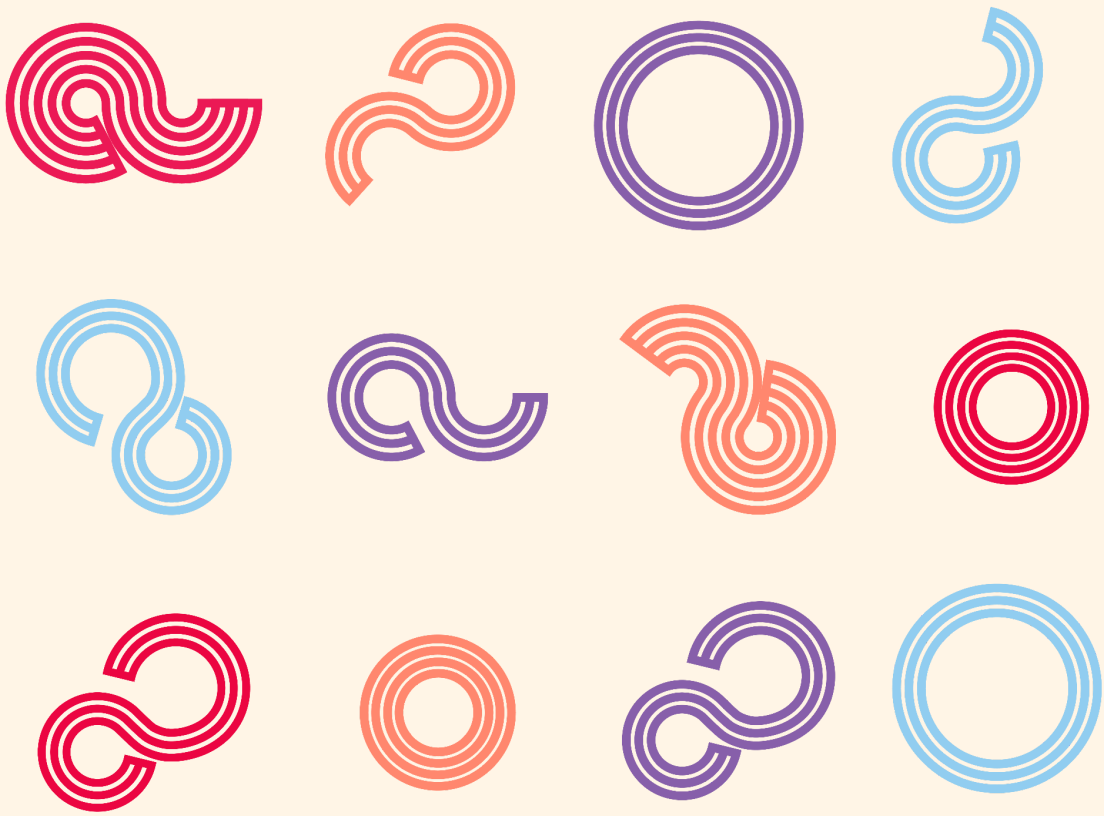
1. **Do you think a program like this will help scientists and journalists understand each other's work better?**
    a. Yes
    b. Yes, but only to some extent

c. No
d. Not sure

2. **How long should a residency program like this be?**
    a. 1–3 months
    b. 3–6 months
    c. 1 year
    d. More than 1 year
    e. I don’t know, my answer to the previous question was ‘No’ or Not sure’

3. **Would your institution/place of work be interested in hosting a program like this?**
    a. Yes
    b. No
    c. Not sure

4. **Additional comments:**
    a. [text]



Survey Questionnaire for Science Media

PART I : Description

About: The Science and Media Working Group (as part of FAST India's SciComm ThinkLabs) aims to examine how science stories are produced and published in Indian media.

The questions that we wish to address are:

a. Who/what are the personnel/processes (including fact-checking) that are followed in Indian media platforms while producing a science story?
b. How do these personnel and processes impact the quality of the science stories produced?
c. What would an ideal pipeline for the production and publication of a science story look like in an Indian context?

For the purpose of this study, we are inviting responses from science journalists working with Indian print and online media houses, and with science institutions in **full-time, part-time, and freelance capacities**.

This includes people working at all stages of the production pipeline (editors, reporters, fact-checkers, etc.) and primarily towards written outputs (e.g. news, features, profiles, etc.).

Please refrain from filling this form if you are a:
a. science communicator who works with scientific institutions for public relations and engagement (and not a science journalist reporting, editing and/or fact-checking science stories)
b. science writer/illustrator/podcaster/video producer who does not work with reported stories
c. science writer/communicator who does not primarily work with written outputs.

We are unable to accommodate responses from journalists who work primarily with multimedia formats due to logistical reasons. **However, journalists who work with a combination of written and multimedia formats are welcome to participate.**

Note:
The data we obtain through this survey will be aggregated, analyzed, and made public at the India Science Festival 2024. By filling out this questionnaire, you consent to your responses being aggregated, analyzed, and made public. While publishing the data, we will ensure that the anonymity of all respondents is maintained. All private information that may be used to possibly identify individual respondents will be kept strictly confidential.

The data collected will be accessible to all Working Groups part of FAST India's ThinkLabs (for the complete list of the Working Groups and their members, please see this link). The research team will retain the data along with identifying information securely till December 2026. After that, the data will be de-identified and stored securely.

Part II: General Information

1. Do you primarily work:
- Full-time with a media house
- Full-time with a scientific institution
- In a freelance capacity with a media house
- In a freelance capacity with a scientific institution
- Other:

2. Do you cover beats other than science and technology?
a. No
b. Yes, but science is one of the main beats I cover
c. Yes, science is one of the many beats I cover

3. Which language do you primarily cover beats in? _____

4. How many years have you been involved in science and technology related themes/stories?
a. Less than 3 years
b. More than 3 and less than 5 years
c. More than 5 and less than 7 years
d. More than 7 and less than 10 years

e. More than 10 years

4. Do you typically work with short-form, medium-length or long-form stories?

- Short-Form (<1200 words)
- Medium-Length (1200-3000 words)
- Long-Form (>3000 words)
- All of the above

5. If you are affiliated with an organization, does your platform have dedicated personnel working towards science stories?

- Yes
- No

6. From conception to publication, how much time does it typically take for a written science story to materialize? Please respond as per your experience.

a. Within one day
b. More than one day but less than a week
c. 1-2 weeks
d. More than 2 weeks but less than a month
e. More than one month.

7. What according to you are some major barriers to covering and/or publishing Science/STEM-related stories? Select the top 3 that you think are most important.

- Lack of access to expert sources
- Complex and technical jargon
- Limited Budget for in-depth research
- Difficulty in simplifying complex concepts
- Pressure to prioritize clickbait topics
- Misinformation and pseudoscience in the Public sphere
- Limited public interest in science/STEM
- Competition with non-science news
- Limited resources for fact-Checking
- Time constraints for in-depth reporting
- Challenges in finding compelling visuals
- Influence of special interest groups
- Ethical concerns in reporting on sensitive topics
- Lack of training in Science Journalism
- Difficulty in accessing paywalled research
- Other:

1. What are some S&T subjects/themes you typically cover?

- Emerging Technologies and Innovations

- Climate Change
- Health (Public Health/Mental Health)
- Medicine
- Space Research
- Science and Technology Policy
- History of Science
- Science and Society
- Other:

Part III: Identification

1. What is your primary role?
Note: Please keep in mind that this survey is primarily for **professional science journalists**. You may choose the most appropriate option(s) (Multi-select):

a. Reporter
b. Editor

Part IV: Reporters (Based on response on Part III)

1. How do you choose topics for pitching/commissioning? (select all that apply)

- News Aggregators and Agencies
- Institutional Press Releases
- Independent Sources
- Journal Publisher Press Releases
- Other _____

2. What topics do you usually write on? Please select all that apply.

- News/Features about scientific discoveries
- Profiles of scientists
- Science and society
- Science policy
- Other ____

3. How long does it take for you to receive a response on your pitch?

- Less than 24 hours
- 24–48 hours
- 48–72 hours
- 72 hours–1 week
- > 1 week

4. Do you receive responses in cases when your pitch is not commissioned?

- Yes
- No
- Sometimes

5. Please estimate the percentage of times that you receive a response when your pitch is not commissioned.

- 0-25%
- 26-50%
- 51-75%
- 76-100%

6. What is the percentage of pitches you make that are eventually commissioned?

- <10%
- 10–20%
- 21–40%
- 41–60%
- 61–80%
- 81–100%

8. How many sources do you incorporate in a story?

- 1
- 2
- 3
- 4
- 5
- >5

9. How many of these sources are not affiliated with the institutions/manuscripts that you are writing about?

- <50%
- >50%

10. How do you find sources for your report?

- Online search
- Reference lists of papers I am reporting on
- Snowballing (I ask a source to direct me to other sources)
- I ask my editor
- My own contacts
- Other _____

13. How often do potential sources respond to you?

- 1- Rarely
- 2 - Occasionally

- 3 Sometimes
- 4 - Frequently
- 5- Always

14. How many times is your story edited/sent back to you before being published?

- 1
- 2
- >2

15. Is your story fact-checked before publication?

- Yes
- No
- Sometimes

16. If yes, are there dedicated fact-checking personnel in the organizations you work with?

- Yes
- No
- My editor doubles up as a fact-checker

Part V: Editors (Based on selection on Part III)

Q. If you are affiliated with an organisation, does it have a mandate on the number of sources that various formats should have:

- A short-form story Yes No I do not work with this format
- A medium-length story
- A long-form story

Q. If yes, how many sources is the mandate:

- A short-form story At least 1 At least 2 At least 3 At least 4 At least 5
- A medium-length story
- A long-form story

Q. How many of these sources must be independent (i.e., not affiliated with the institutions/manuscripts that the report concerns)?

- <50%
- >50%
- No such requirement
- Other:

Q. How many rounds does a typical science story go through before being published?

- 1
- 2
- >2

10. Do you respond to pitches that you do not wish to commission?

- Yes
- No
- Sometimes

11. How many pitches do you receive on average?

- 1 a day
- More than 1 a day
- Several a week
- Once a week
- Less than once a week

12. What percentage of pitches do you commission on an average?

- <10%
- 10–20%
- 21–40%
- 41–60%
- 61–80%
- 81–100%

13. Do you fact-check stories before publication?

- Yes
- No
- The reporter is expected to fact-check their stories
- I work with dedicated fact-checking personnel

Part VI: Fact-Checking

1. How important do you believe fact-checking is in the production of science stories?

- Not Important
- Somewhat Important
- Moderately Important
- Very Important
- Extremely Important

2. In your opinion, does your organization devote enough time and effort for fact-checking?

- Yes

- No
- Maybe

3. Do you work/have you worked with dedicated fact-checking personnel?

- Yes
- No
- Sometimes

4. If not, what do you think are the bottlenecks?

- Not enough budget per story
- Editors are expected to fact-check
- Other _____

5. Have you encountered instances where inaccurate or misleading information was published in a science story in Indian media?

- Yes, many times
- Yes, sometimes
- No

Part VII: Training and Upskilling

1. Have you undergone academic or professional training/ certification courses/ upskilling programmes, or participated in residencies or fellowships in science journalism?
(Note: This could be for writing, editing, reporting, fact-checking, etc.)

- Yes
- No

2. If yes, how helpful do you think your academic/professional training has been in your career as a science journalist?

- Not Helpful at All
- Slightly Helpful
- Moderately Helpful
- Very Helpful
- Extremely Helpful

3. If you have responded "No" to question 1, would you wish to get trained formally in science journalism?

- Yes
- No
- Maybe

4. What kind of training programme do you believe would be most helpful for someone looking to pursue a career in science journalism in India?

- MSc/MA/Diploma in Science Journalism
- PhD in Science Journalism
- A credit course as part of a Bachelors/Masters/PhD Programme
- An independent certification course/ online training in Science Journalism, it needn't be academic in nature
- A residency/fellowship
- I don't think training in science journalism is needed

Part VIII: Monitoring and Evaluating Impact

1. Do you monitor the reach and impact of your stories?

- Yes
- No
- No, I don't see the reason do this
- No, I usually don't have time for this
- Sometimes

2. If yes, which tools do you use for monitoring and evaluating impact?

- Google Analytics
- Social media trackers
- Company's proprietary trackers
- Awards
- Other ____

Part IX: Interaction with Scientists

Does your work require you to interact with scientists?

- Yes
- No

Part X: If Yes (for previous section)

1. **How do you get information about new scientific findings?**
    a. Personal networks
    b. Press releases from publishers
    c. Press releases from author's institutions
    d. Social media (Twitter, LinkedIn, Instagram, Facebook)
    e. Other(s) [please specify]

2. **How often do you read academic papers?**
    a. I don't read papers
    b. About a paper a day
    c. One every few days
    d. Multiple papers a day

3. **How do you get access to papers? [multiple options]**
    a. Open-access publishers
    b. Subscription-based publishers
    c. Personal networks
    d. Preprint servers
    e. Forums like Academia/ResearchGate/other(s)
    f. Through scientists themselves
    g. Through contacts at scientific institutions
    h. Unauthorised websites such as SciHub or equivalent
    i. Other(s) [please specify]

4. **How often do you interact with scientists?**
    a. Less than once a week
    b. Once a week
    c. A few times a week

5. **How satisfied are you with the amount of time your scientist sources give you to help you with your story?**
    a. Very Dissatisfied
    b. Dissatisfied
    c. Neutral/ neither satisfied nor dissatisfied
    d. Satisfied
    e. Very Satisfied

6. **How would you describe your overall experience of working with scientists?**
    a. Very poor
    b. Poor
    c. Neutral/ neither good nor poor
    d. Good
    e. Very good

7. **Which of the following factors discourages you from interacting with scientists and researchers? [optional; multiple choice**]
    a. Scientists assume a certain level of scientific training from me
    b. Scientists are not good communicators
    c. Scientists do not think of me as a collaborator
    d. Scientists do not have enough time

e. Scientists do not respond to media requests
f. Scientists are always wary of getting quoted
g. Scientists are restricted from talking to the media
h. I have had an uncomfortable experience in the past, which makes me uncomfortable in meeting new scientists
i. Scientific papers are too difficult for me to understand
j. I don't have support to interact with scientists
k. I don't know how to interact with scientists
l. Other(s) [please specify]

This survey can be cited as: Survey Questionnaire for Science Media. Shruti Sundaresan, Sayantan Datta, Debdutta Paul, Suchibrata Borah, Ankita Rathore, and Utsav Thapliyal. SciComm ThinkLabs. FAST India. 2024