

press officers in institutions in the first place).

Then try science journalism against the backdrop of prolonged internal conflict, or State-owned media with no freedom of press; as has been the case in some countries in the region.

Yet there are solutions too. Nepal, for example, has a rich culture of community radio, a medium that offers potential to disseminate science news in a local language and without depending on power and the internet. And open-access websites such as SciDev.Net are offering an option for low-cost, accessible, science-news dissemination across developing countries.

Web technology has opened up access to information in unimaginable ways; while blogging, podcasts and multimedia offer newer ways to disseminate infor-

mation. SciDev.Net is launched in June audio slideshows from June, and a couple of the South Asian reporters have turned out to be ace photographers.

No problem is insurmountable, if tackled with the right spirit and patience. I mentioned the absence of trained science journalists, despite a general healthy growth in the number of media outlets in print and broadcast sectors. In 2007 SciDev.Net, with some support from UNESCO organized a small workshop at the Central University, Hyderabad on an on-line module on science journalism, to gather feedback from some editors and journalism teachers. The event primed the interest of journalism teachers from three universities – Tribhuvan University in Kathmandu; University of Colombo in Sri Lanka, and University of Dhaka in

Bangladesh, which have now introduced an optional course on science journalism. A change in a university curriculum does not happen overnight and takes time; University of Dhaka introduced science journalism in 2013, and I interacted with the faculty and students in April. The questions fired by some students about the field left me optimistic... the pool of professional science journalists is set to expand in the region.

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Science for all



Nidhi Jamwal

My experiments with freelance science writing

I never really wanted to be a science writer. While I was still pursuing higher studies, over 15 years ago, I remember finding most articles based on scientific studies or new discoveries to be highly boring and confusing. Such 'science stories' were full of technical jargon, lot of data and lengthy tables. Enough to put off a layperson. So, I thought, being just a writer, sans an adjective, was a career worth pursuing. With this idea in mind, in January 1999, I joined a New Delhi-based environment research group, which also published a news magazine. As it happened, that magazine was not a typical news weekly or a features publication. It was, and still is, India's only

science and environment fortnightly. Working with *Down To Earth (DTE)* changed my perspective towards science writing. Launched more than two decades ago by its founder editor, late Anil Agarwal, *DTE* had a unique objective. Agarwal stated it in the inaugural issue of the magazine: '*Down To Earth* is not the product of a desire to capture a share of the information market. It is the product of a need that we feel within us, a desire to fill a critical information gap'. This gap, Agarwal would tell us, was between highly scientific journals on one end of the information spectrum and regular newspaper stories on the other end of the spectrum. Unfortunately, there was no meeting point. Environment and science was, thus, rarely understood by common people. But, 20 years down the line, science is no more limited to research laboratories or Ph D theses stacked in some dingy corner of a library. Today, science is for all.

Do freelance science writers have a halo around their heads?

Formula for a good science writer, as I read somewhere, is 80% good journalism and 20% aptitude to learn and communicate science. A science writer's job is to first understand scientific discoveries, and then to unpack them through writing

in such a fashion that even a layperson can associate with 'science'. Science affects us all in more than one way; hence, a successful science writer should bring science closer to laypeople. This has been my *mantra* all along.

But, this does not mean that one should not pursue courses dedicated to science journalism. The National Council for Science and Technology Communication under the Ministry of Science & Technology, Government of India has sponsored postgraduate degree and diploma courses in science and technology communication. Such trained journalists definitely have an edge over 'untrained' freelance science writers, as scientists feel more 'comfortable' sharing information with 'science journalists'. But one must remember, in India, most members of the Indian Science Writers' Association are freelancers.

Then and now

I worked with *DTE* for almost 11 years, and for the last three years, I am working as a freelance writer. In these 14 years of my journalism career, I have seen a sea change in the way 'science' reporting is done in India. From the days when science and environment articles rarely made it to the front page of a daily, to now when it is hard to read a national

daily or local newspaper without such a story, we have definitely come a long way. Science articles are no more limited to 'science pages'. For instance, climate change is not just about science. It is a combination of science, pollution, lifestyle, energy security, coastal areas, people and much more.

In early 2000s, it was very hard for a journalist to 'extract' scientific data. Data were not compiled at one source and whatever little was available, was guarded with secrecy. Things are now starting to look up. However, there still are not any ready-made science stories in India, as most research is conducted in Government-funded institutions, which are not forthcoming in sharing information. A science writer also has to be a foot soldier continuously looking out for science news, studies, discoveries and data.

For example, in 2009, a Mumbai-based research centre successfully isolated the virus strain behind the hand-foot-mouth outbreak and deciphered its etiology. Scientists found a new strain of the Cocksackievirus A6. When I requested for more information, the concerned scientist refused saying the research had to be published in an international journal first. However, I still managed to report about it. It helps to make a personal contact with the scientist and cultivate it into a life-long friendship. These 'contacts' are the lifeline of a freelancer.

Tapping freelance opportunities

Today freelance science writers have various writing opportunities to explore. Newspapers, magazines, journals, newsletters, periodicals, websites – the sky is the limit. However, the challenge for a freelancer is to be aware of such opportunities. Most publications prefer commissioning science stories to writers who have desired work experience and have reported on scientific studies in the past. Hence, budding freelance writers may face difficulty in the beginning. Networking comes to rescue under such circumstances.

Freelancers should register themselves at various listserv meant for journalists and join web groups dedicated to science writing. Such listserv/groups regularly have messages from publications/senior writers looking for freelancers. Taking up short-term internship assignments also helps. *DTE* regularly comes up with internship offers. Press Trust of India (PTI) annually recruits trainee science journalists.

Science is ever evolving. Hence, a freelancer must keep himself/herself abreast of latest scientific developments. This also helps in pitching for stories at the earliest. Since most publications have their own stable of writers, a freelancer must offer something new (with a different angle) while proposing an idea.

Payments and other challenges

Science stories require travel. Whereas most publications offer compensation (payment) against the article filed, not many reimburse travel bills. For instance, a study quantified the vulnerability of coastal zone of *Okha taluka* in Gujarat based on the projected sea-level rise scenarios of 0.5 and 1 m and warned that land area of Okha would be permanently inundated due to sea-level rise. I approached a well-known current affairs and features weekly with my story idea, which included travel to the affected villages. The idea was approved, but the magazine refused to reimburse the travel cost.

Freelancers are mostly paid on per published word basis. The rate varies between Rs 2 and Rs 5 per word. There are some publications which prefer paying a lump sum for an article. Payments usually come through only a month after the article has been published. Payment to a freelancer can never match up to the salary of a full-time journalist. However, like an employed science journalist, even a freelance science writer acts as a broker between scientists and the general public.

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Writing science for school children



Shubashree



A. S. Ganesh

Ganesh: 'Writing science for school children'. If we were to write on this topic, where would you begin?

Shubashree: Hmmm... Well, for starters, it is important to understand that children are as different as they come. They have

a strong individuality and do not all fall into one group. They are unafraid to act upon their likes and dislikes, and so it is as easy to lose a reader as it is to ensure rapt attention. So, rather than imagine an audience and write for them, it is important to choose a topic that you can do justice to – you must know a fair amount of it well, you must know the logic of your article very clearly and you must be able to communicate it without complicating.

G: Fair enough. In fact, when I first set out with 'An eye for an i' – a weekly column on scientific ideas, inventors, inventions, discoveries and their impact – I wasn't exactly sure as to how it was