

Watchdogs of the public interest



Young street vendor of newspapers in Costa Rica

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Talk to science journalists from Africa, Asia or Latin America and they will all tell you that the path to effective science reporting is a rocky one. A Zambian journalist, for example, complains that little information circulates on locally conducted research owing to the lack of contact between scientists and reporters. Another journalist in China bemoans the low priority accorded to media relations, most science-related policy decisions being made behind closed doors. A Brazilian journalist struggles to unearth news in her country, where few research centres have press offices to publicize their findings. Such grievances are widely shared. Notwithstanding this, there are several reasons to be optimistic about the future of science journalism in the developing world. The first to welcome this news should be the general public and the public authorities in the countries concerned; for science journalists are defenders not only of the public interest but also of effective governance, as political decisions made on the basis of wrong or distorted information will almost inevitably be bad ones.

One reason for optimism about the future of science journalism in the developing world is that professional organizations like the World Federation of Science Journalists (WFSJ) have been highlighting the needs of developing countries as one of their top priorities. Such needs figured prominently, for example, at the federation's biennial global conference in Melbourne, Australia last April.

Secondly, international aid agencies acknowledge the extent to which a robust science journalism community is essential to the success of their programmes and in particular to bridging the gap between knowledge and practice. This includes not only bilateral agencies like the Swedish International Development Cooperation Agency or Britain's Department for International Development but also international agencies like UNESCO (*see the example of the Pacific*).

Last, but by no means least, has been the growing interest within developing countries themselves in the need for robust science journalism. Across the world, young journalists who are seeking to make an impact with their writing – which can include science graduates who are turning to journalism in order to put their knowledge to good purpose – are actively seeking ways to put their commitment into effect.

An obstacle course

There are many obstacles in journalists' way. One is a lack of demand for their services, particularly from the owners of private media houses who have instructed their editors to base the criteria for selecting news stories on what sells newspapers and thus advertising space (*see the example of China, overleaf*). In some cases, this can create a reluctance to publish stories seen as 'too gloomy' – a category into which many poverty-related stories such as increases in infectious diseases inevitably fall – and to give preference to the antics of international soccer stars.

Another obstacle is simply a lack of training, either in background scientific knowledge or in journalistic skills. Various efforts are being made to combat this. The online Science and Development Network that I direct, for example, is currently working with the WFSJ to prepare a set of on-line science journalism training modules to develop key skills. But there is still a long way to go before professional levels of science journalism in many parts of the developing world approach anything like what is required.

Lastly, there is the attitude of scientists themselves. In the developed world, most scientists have now accepted that being open to inquiries from journalists is part of their professional responsibility. In the developing world, however, this awareness remains elusive and journalists face a major task in persuading scientific institutions that they should open up.



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Geoffrey Nyarota, Editor-in-Chief of Zimbabwe's only independent daily newspaper, the Daily News, was awarded the annual UNESCO/Guillermo Cano World Press Freedom Prize for 2002. This year's prize went to Anna Politkovskaya, a columnist for the Novaya Gazeta newspaper and outspoken campaigner for human rights who was killed in the entrance to her home in Moscow (Russia) on 7 October 2006

Fostering science communication in the Pacific

Many of the challenges science communicators face around the world are exacerbated in the South Pacific, a region of small island states with highly dispersed and frequently isolated communities. One major challenge is the shortage of skilled science communicators and journalists, compounded by a steady brain drain from the small island states to their larger neighbours such as New Zealand, Australia and the USA.

The benefits of science are not always apparent to the majority of Pacific islanders living a near-subsistence lifestyle. This fuels – and is fuelled by – perceptions that science is difficult, irrelevant and not for them. At the national level, limited resources and dependence on external aid further restrict involvement and engagement with science and its products. At the regional level, strategic oversight and planning in relation to science and technology policy are limited.

Since 2000, UNESCO's Apia Office and the Centre for Public Awareness of Science at the Australian National University (ANU-CPAS) have been tackling this problem. They have been fostering science communication in the South Pacific in three ways.

To foster public communication of science, they have run workshops for Pacific-based journalists to enhance their science reporting skills, in Canberra (Australia) in 2000 and in Apia (Samoa) in 2001 and 2002 (see photo).

To foster science education, they have run creative science teaching workshops for Pacific-based primary and secondary school science teachers in their home countries, using locally available materials and equipment. These took place in Apia in 2001 and in Suva (Fiji) in 2005. Further workshops are planned for Tonga later this year and for next year.

To foster online networking, they have designed and implemented pilot projects such as the Register of Pacific Scientists, online since 2005 and available at pacificscience.net, and the Pacific Science Exchange.

UNESCO Apia and ANU-CPAS are currently developing the Pacific Science Network (PacSciNet). This will serve as a web-based focal point for information, activities, news and success stories relating to science and its application in the Pacific, building upon the experiences of the pilot activities above. PacSciNet will also support and promote field-based activities through which scientists and communities work together to tackle energy issues and enhance community resilience to such challenges as climate change, saltwater intrusion in soil and freshwater, and natural disasters. It is hoped that PacSciNet will go online by the end of the year but funding is still being sought to make this possible.

For details (in Apia): h.thulstrup@unesco.org; www.pacificscience.net



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A public space for assessing developments

In the modern world, science journalism has a double function. On the one hand, it is the public's main source of information about inventions and discoveries that will affect our lives; it feeds the public appetite for information.

At the same time, science journalism provides a public space within which the impact of these developments – including the response of governments – can be assessed and debated, a lesson that environmental groups, with their media-attracting activities and professionally staffed public relations offices, have been quick to master.

This second role is becoming increasingly important. Within the developed world, much of this role has focused on the side-effects of rapid technological development and economic growth, the fruits of which are already being widely enjoyed. Such is the case with reporting on climate change, for example, where debate focuses on issues ranging from new energy technologies that can reduce the consumption of fossil fuels to government policies that can cut carbon emissions without reducing living standards.

In the developing world, the stakes are much higher. Here, the challenge is to find ways of using developments in science and technology to raise living standards to a level that is even minimally acceptable. At the same time, it is important to ensure that this is done in a manner that is socially, ethically and environmentally acceptable. To put it more sharply, science journalism has a key role to play in achieving the goals of sustainable development.

Better information for better decision-making

This task has several components. The first, as indicated above, is to bring to the attention of both the public and decision-makers within the developing world the scientific and technological achievements that make development possible. None of the Millennium Development Goals, whether reducing child mortality or promoting food security, can be achieved without the use of science and technology, and the capacity within developing countries to utilize both effectively.

The science journalist's second role involves paying attention to the social and political mechanisms needed to



Science reporting under threat in China

Hepeng Jia, *SciDev.Net*
17 January 2007

Leading Chinese journalists have called for dedicated science coverage, as their field is increasingly marginalized by market-oriented media reforms. The Chinese Society of Science and Technology Journalism (CSSTJ) intends to petition China's official media watchdog, the Central Publicity Department (CPD) about the situation.

Speaking at a CSSTJ seminar in Beijing on 12 January, Li Bin, a senior science journalist at China's state Xinhua news agency, appealed for 'minimum science reporting amounts for mass media.' Xu Xiuhua, science editor of *The People's Daily Online* called for 20% of all media coverage – equivalent to science's contribution to the Chinese economy – for science reporting.

Late last year, the CPD and the China Association for Science and Technology encouraged media to report more science. But a study conducted by Wang Xuefeng, deputy editor-in-chief of Beijing newspaper *The First*, revealed increased marginalization instead. Based on 14 national and local newspapers in Beijing over six months, science accounted for just 3% of articles.

Wang said science stories were small and many articles praised individual scientists or institutions rather than the science itself. He singled out official media, often subsidized by the government, for replacing their science columns with advertising-friendly automobile or property pages. *The People's Daily* replaced its science page with culture reporting in 2005. *China Daily* has also revoked its weekly science and health pages, despite growing from 16 to 24 pages in 2007.

Cai Wanlin, a senior science reporter at China National Radio, said official media, with less pressure to earn a profit, should shoulder the responsibility of popularizing science.

ensure that development is properly sustainable. In some cases, such mechanisms will focus on preserving assets – such as clean air and water – that are essential to future generations. In other cases, they may focus on an appropriate technology policy, such as funding research into biofuels and other sources of clean energy, or on building the basic capacity in science and technology that will allow the Millennium Development Goals to be achieved by developing countries themselves.

In each case, effective science journalism needs to be based on a commitment to the idea that better information leads to better decision-making and, conversely, that political decisions made on the basis of wrong or distorted information are almost inevitably bad decisions.

To fulfil this function, journalists need to provide the facts that empower individuals to engage responsibly in social dialogue. Substantial and effective debate only takes place when those on both sides of an issue have a sound understanding of the relevant factual evidence; indeed, evidence-based decision-making is an ideal that should be aspired to at every level of society, from local communities to the top levels of government.

Trust and respect cannot be taken for granted

In the past, major institutions, whether religious, scientific or educational, were usually taken as an adequate source of such evidence. And their trustworthiness was usually taken as sufficient to guarantee informed decisions.

This is no longer the case. In modern societies, trust and respect need to be earned; they cannot be taken for granted, whether in science or any other type of social activity. That requires a number of factors, including an openness to dialogue on the part of these institutions.

Those claiming to have access to trustworthy knowledge need to come out from behind closed walls, whether these belong to the ivory towers in which scientific knowledge has traditionally been produced, or the boardrooms and corridors of power in which key decisions about the production and application of this knowledge are made.

As the UK's Committee on the Public Understanding of Science (COPUS) put it when it decided to cease operations in December 2002, 'the top-down approach which COPUS currently exemplifies is no longer appropriate to the wider agenda that the science communication community is now addressing.'

Making sure people are well informed: the example of public health

The emerging alternative to the top-down approach is the concept of empowerment. Providing people with information about modern science and technology enables them to participate directly in political debates over how both should be used responsibly. Thus, even though journalists rarely engage directly in dialogue, they can promote and stimulate it through their reporting – and indeed eagerly report on it when it takes place. Conveying facts accurately and in an accessible manner is a powerful way for the journalist to assist in the empowerment process.

This comes with the responsibility of pointing out when the publicly stated positions of those on whom they report is not grounded in the current state of scientific knowledge, as many effectively did, for example, when South Africa's health minister, Manto Tshabalala-Msimang, suggested that a good treatment for HIV/AIDS was to eat garlic and beetroot.

The issue of bird flu provides another example of where the responsibility of good science journalism lies. With the threat that the H5N1 virus could spark a global pandemic of human flu that could cost million of lives, effectively communicating accurate information about the disease will be essential to efforts to contain it. Sound information must lie at the centre of containment

efforts and governments need an accurate picture of the disease and the way it spreads if they are to make sensible decisions about the allocation of the human and financial resources needed to combat it. But the public also needs to be well informed. Some of the reasons are purely practical. For example, it is important to know that cooking food properly appears to destroy the virus and that washing hands before preparing food also helps avoid infection. Both bits of knowledge, which can be easily communicated through articles in newspapers, can help restrict the spread of the diseases. At the same time, there are strong political

reasons for ensuring that information about the disease is reported accurately in the media. For example, politicians must be persuaded to take quick action when this is needed. But they must also not feel pressured into over-reacting for the sake of calming public panic, whether by allocating resources to ineffective measures or by aiming at the wrong targets (*see box overleaf*).

In all such circumstances, journalists must ensure the information they disseminate is as accurate as it can be. This does not mean that what they report has to be

Science gains exposure in the Brazilian popular press

Luisa Massarani, *SciDev.Net*, 28 March 2007

Science is a major topic in Brazilian newspapers aimed at low-income social classes, along with football and crime, according to a new study. Research released this week (26 March) analysed coverage in the newspapers *Extra*, which has one of the biggest circulations on Sundays in Brazil at 428 000 copies, and *O Dia*, which sells 238 000 copies on Sundays.

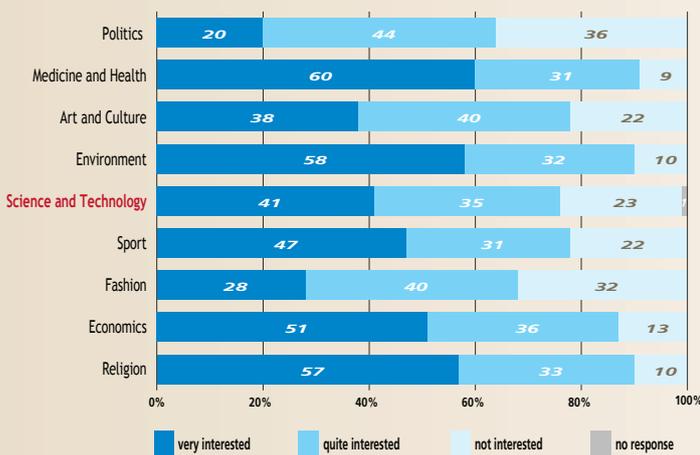
The research was conducted by science journalist Wagner Barbosa de Oliveira, who works for the Oswaldo Cruz Foundation, as part of his Masters thesis at the Federal University of Rio de Janeiro. He found that, during a six-month period between 2005 and 2006, science stories appeared on 74% of days analysed. Furthermore, 86% of these stories were published in highly visible areas, such as the top or middle of the page.

Journalists preferred to write about health issues, which represented 54% of the total. Only three in ten stories were related to research in Brazil. Oliveira praised their use of 'reliable' sources of information. 'A third of the stories explicitly mention universities and research centres as a source and peer-review journals, even in English, are mentioned as sources in 14% of cases,' he told *SciDev.Net*.

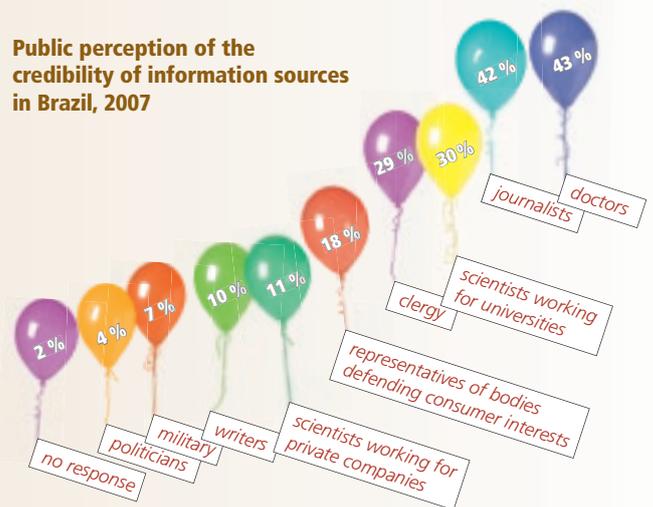
However, Oliveira criticized the extent to which science stories were sensationalized and also that science was presented as an established 'truth' — mirroring common practices in newspapers targeting more 'elite' audiences.

The study also shows that scientists do not write for newspapers aimed at the low-income classes. 'This is a sign of the low importance given to popular newspapers by scientists, which is a mistake in my opinion, since they are not considering that low-income classes are 80% of the country's population,' Oliveira said.

Public interest in science in Brazil, 2007



Public perception of the credibility of information sources in Brazil, 2007



Source of statistics: Public opinion survey published by the Brazilian Ministry of Science and Technology in April 2007: www.mct.gov.br/upd_blob/0013/13511.pdf

When the Brazilian technical commission on biosecurity approved the genetically modified (GM) corn seed LibertyLink on 16 May, most of the major national and regional newspapers picked up the story. These included *O Globo*, *Folha de São Paulo*, *Estado de São Paulo* and *Correio Braziliense*. Produced by the German company Bayer CropScience, LibertyLink corn is tolerant to a pesticide containing glufosinate ammonium, used to kill harmful grasses. Marina Ramalho reported for *SciDev.net* on 23 May that LibertyLink corn was the third GM seed to be authorized for planting and commercialization in Brazil, following Monsanto's Roundup Ready soybean (2004) and Bollgard cotton, resistant to insects (2005); 11 other GM seeds are currently awaiting the biosecurity commission's approval. Brazilians follow the transgenic seed debate avidly in their country, both from a biosecurity angle and an economic angle. This appetite for information extends to science and technology in general, according to a recent public opinion survey (see graphics above) which also reveals that Brazilians perceive journalists as being more reliable sources of information than either scientists or members of the clergy!



Africa's bird flu preparations must involve the media

Tom Egwang, Chief Executive Officer, Uganda Media for Health
Julie Clayton, consultant, SciDev.Net
8 February 2007

Avian flu has hit international news headlines again. Nigeria has reported the first human death in sub-Saharan Africa [Ed: confirmed by the government on 31 January 2007], the United Kingdom is going through its first outbreak among poultry and, in Southeast Asia, avian flu continues to simmer, with ongoing outbreaks and human deaths. The agent responsible – the H5N1 influenza virus – could spark a pandemic to rival those of the last century that killed millions of people.¹

Africa is where Southeast Asia was three to four years ago. Outbreaks of avian flu in poultry are repeatedly reported in Nigeria and Egypt. Other outbreaks in Niger, Cameroon and Djibouti have fortunately been contained but neighbouring countries like Togo, Ghana and Chad are still at high risk.

Until recently, the African media has been ill-prepared to report effectively on outbreaks of avian flu. The first African H5N1 outbreak, among poultry in Nigeria last year, led to sensational media headlines causing public alarm and panic.

Like any soldier going into battle, the media needs to be fully briefed about the enemy to take part in a well-coordinated assault. This means not simply reporting about deaths and outbreaks but being more proactive with up-to-date information on, for example, stories about how other countries have dealt with similar outbreaks.

It is not just about relaying information but also influencing governments. 'Media stories are usually followed by policy decisions,' said William Mbabazi from WHO, at a media-training workshop held in Kampala, Uganda, in January this year. Organized by Uganda Media for Health, the workshop aimed to familiarize journalists from across Africa with the threat of avian flu, broaden their understanding and provide useful information. It was a starting point for new lines of communication between the media, health and veterinary experts and government officials. This and a similar workshop in Nigeria have resulted in a new determination among African journalists and editors to produce more and better-quality avian flu coverage.

Similar efforts are underway elsewhere. In Nigeria, a new government communications strategy is encouraging better links between health officials and the media. The initiative has enrolled community leaders and town criers, according to Marcus Amanzi, a Nigerian news editor.

The Ugandan government plans to involve the media in a forthcoming simulation exercise, as part of its national pandemic preparedness plan. This will include the real slaughter of poultry on a farm. But unless the media are fully engaged beforehand, the exercise could lead to confused reporting and spark panic among the public. In Ethiopia and Mauritius, for example, a lack of coordination with national journalists during similar drills led to a misinformed public that stopped buying chickens despite the absence of a real outbreak. On the other hand, in Kenya and Egypt, where the media were more involved and the public better informed as a result, simulation outbreaks and control operations have proceeded far more smoothly.



'scientifically proven'; sometimes that may be technically impossible. But it should be consistent with what is either known and proven, or is considered by those scientists most familiar with the field in question to be likely, as is the case with the scientific consensus that human activity is the most likely cause of global warming.

Such arguments are applicable across the world. However, they are particularly important in the developing world, where the relatively low level of both medical and scientific infrastructure has reduced the ability of governments to meet the challenge of rapidly spreading epidemics, such as dangerous new strains of tuberculosis, and makes effective public communication even more important.

It is significant that the countries in Africa that have been most effective in combating HIV/AIDS have not been those with the most sophisticated medical infrastructure but those, like Uganda, that have been most open in communicating about the disease.

Patrolling the boundaries between state and citizen

Ensuring that policy is appropriately based on sound scientific evidence and that such evidence is made widely available is not the only contribution that science journalists can make to good governance. Equally important is the way that journalists can act as watchdogs of the public interest, patrolling the boundaries between state and citizen.

Journalists can highlight areas where strong regulation is needed to ensure that scientific developments are handled in a socially responsible way. They can also draw attention to gaps between the regulations and what happens in a practice.

For example, where pharmaceutical companies have carried out clinical trials on populations in developing countries that appear to contravene international rules on what is regarded as ethically acceptable, it is often journalists who have brought it to public attention, as the *Washington Post* did in the USA in a series of articles a few years ago.

Indian science journalists played a significant role in 2003 in bringing research to the attention of politicians which suggested that bottled soft drinks, including those made by the US-based companies Coca-Cola and Pepsi, contained dangerous levels of pesticides. The Centre for Science and Environment (CSE), an independent public interest organization based in New Delhi, found that pesticide levels in the companies' Indian products were more than 30 times greater than European Union guidelines. CSE acknowledged that all Indian soft drink brands were likely to contain high levels of pesticides, owing to the presence of these chemicals in the country's

groundwater, but chose to target Coca-Cola and Pepsi because these companies accounted for the majority of bottled soft drinks consumed in India. Although Coca-Cola and Pepsi disputed the findings, these were sufficiently convincing to persuade a parliamentary committee to launch its own research – which confirmed the CSE’s original findings – and demand an overhaul of the country’s food safety regulations.

Journalists can play an important role in exposing the misuse of authority – even inside the scientific community – particularly where this verges on corruption. The media often covers such stories but usually focuses on prominent public figures, such as politicians and businessmen. But science reporters in countries like China have highlighted the fact that the problem also exists in the scientific community, where scientists have been caught faking results to obtain promotion. And it was the Republic of Korea’s press, not its scientific community, that was responsible for the downfall of stem cell researcher Hwang Woo Suk last year, by exposing his false claims to have cloned human embryos.

Journalists can also expose circumstances in which individuals may seek to distort public perceptions of science-related issues. For example, the UK *Financial Times* revealed in April this year that a senior official at the World Bank, Juan José Daboub, a former finance minister from El Salvador who had been appointed by former president Paul Wolfowitz as one of his deputies, had sought to water down statements in a report about combating the effects of climate change, substituting words such as ‘climate variability’. The moves were robustly resisted by the bank’s chief scientist (and climate change expert), Robert Watson; but they contributed to the atmosphere of distrust in Wolfowitz’s leadership that eventually led to his resignation in June.

Science journalists can also highlight government failure to meet public commitments in science-related areas. In China, for example, pressure from journalists has forced the government to take steps to ensure that biomedical researchers adhere to ethical standards. And in Malawi, media reports that the government was cutting back on commitments to increase science spending led to a reversal of the decision in March.

A vital role

In conclusion, science journalists have a vital role to play in promoting sustainable development and good governance in three separate ways. Firstly, they can bring to the attention of both policy-makers and the public the many ways in which science and technology can contribute directly to achieving the Millennium Development Goals. They can also highlight the policies required to make this possible.

The Coca-Cola bottling plant in Plachimada (Kerala, India) was forced to shut down operations temporarily in March 2004 then again in August 2005 because of community opposition. The community blames Coca-Cola’s bottling operations in the area for falling water levels and pollution of groundwater and soil. Binayak Das from India entered this photo taken in Plachimada on 27 January 2006 in the competition run for alumni this year by the UNESCO-IHE Institute for Water Education to mark its 50th anniversary. He commented that ‘samples of water and wastes sold by Coke as soil conditioner but used by local farmers as fertilizer contained dangerous levels of heavy metals such as cadmium and lead. The State Pollution Control Board [which ordered the plant closure] confirmed that Coke’s bottling plant at Plachimada had been polluting the groundwater and agricultural land in and around its plant’



Secondly, through responsible reporting on key areas in which science and technology can make an impact – both positive and negative – on society, science journalists can help to create a robust space within which public debate on these issues can take.

Thirdly, through critical and, if necessary, investigative reporting, science journalists can hold governments, private companies and public officials – including scientists themselves – accountable for their actions, by exposing misdeeds and the lack of transparency that may have hidden these actions from public scrutiny.

David Dickson²

1. Ed.: Spanish influenza killed more people worldwide in 1918–1919 than the First World War, with estimates of 20–40 million victims. From samples of lung tissue taken recently from victims of the virus, including a woman buried in the Alaska permafrost in November 1918, molecular pathologist Jeffrey Taubenberger and his team in the USA were able to piece together the eight gene fragments of the virus. Their analysis revealed that the Spanish flu had come directly from a bird virus before gradually mutating and moving into humans. Moreover, four of the eight genes in the H5N1 strain contain mutations seen in the Spanish flu, suggesting that H5N1 too might be able to mutate to the point where it can spread between humans
2. Director of the Science and Development Network, whose free-access website (www.scidev.net) uses science journalists and researchers across the developing world to provide news, information and analysis about ways in which S&T are contributing to sustainable development