Communication of Science in Colombia

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They were known as the wise men. In 1993, the wise men—a group of renowned Colombian scientists, intellectuals, and politicians—were appointed by then Colombian president, Cesar Gaviria, to evaluate the state of science and technology in Colombia and propose strategies for their development. The Science, Education and Development Commission, as the group was officially called, wrote in its final report in 1995:

> While developed countries, with just 23% of the human population, lead in the generation, transfer and commercialization of technology, stimulate scientific innovation and have 94% of the world's scientists, Latin America contributes only 1% of scientists, of whom only 1% are Colombians. In industrialized countries one scientific paper is produced for every 10 million dollars of GNP per year. With a GNP of 91,000 million dollars, in the year 2000 Colombian production should reach a total of 9,100 high level publications per year to contribute to the advancement of scientific knowledge. But the current number is much lower, because Colombian scientists publish only 1% of the scientific papers produced in Latin America.[1]

According to a study conducted by the Colombian Institute for the Development of Science and Technology (COLCIENCIAS)—the national institute that promotes science and technology research (*www.colciencias.gov.co*)—and the Colombian Observatory of Science and Technology (OCyT)—which produces statistics, indicators, documents, articles, and other elements of information and analysis of the scientific and technologic activity in Colombia (*www.ocyt.org.co*)—about 4000 publications per year are being produced by Colombian researchers (according to COLCIENCIAS, there are 7979 researchers in Colombia). That is 50% of the number of publications proposed by the Commission.[2]

"You can see it as you like: The cup is half full or half empty", says José Luis Villaveces, director of OCyT. "I believe that the fact that Colombian scientists increased the volume of the cup in the horrible last five years is a heroic act."

The country is engaged in a dreadful war between rebel groups and the government and has high rates of unemployment. Scientists have found it hard to communicate their work. However, efforts of scientific institutions and science journalists have resulted in more and better publications on science and technology.

Colombian scientists have expressed some of the difficulties in communication of science in their country:[3]

- Lack of Colombia-based journals and popular magazines on science.
- Researchers' preference for publishing outside the country; the country other than Colombia where the most Colombians publish papers is the United States (more than 800 papers from 1996 to 2000, for an average of 165 per year), followed by the UK (about 420 papers, for an average of 84 per year), the Netherlands, Germany, Spain, and Brazil.
- The complexity of scientific language and the fact that English is the international language of science (many terms do not have Spanish equivalents).
- Indifference of many Colombian scientists about communicating their work.
- Low investment in science communication.
- Public resistance or lack of interest.
- Lack of specialized journalists.
- The small amount of science generated in Colombia.

In a document issued by the Colombian Association of Science Journalism (Asociación Colombiana de Periodismo Científico, ACPC), Colombian science journalist Lisbeth Fog[4] lists the reasons why Colombian citizens feel that science and technology are not important national activities:

- Information published by the mass media is related mainly to results and discoveries made by scientists in the developed world.
- People do not receive appropriate and current information about Colombian science and technology developments.
- The few Colombian science journalists must also cover topics other than science.
- It is difficult to get editorial support for science news: science journalists do not have enough time to report, and when they do have the time, it is difficult for them to get enough space to publish their articles.
- There is a communication gap between scientists and journalists.
- Only four Colombian universities have "science journalism" as part of their undergraduate journalism programs (people can study journalism in more than 40 institutions in the country), and there is no graduate program in science journalism in Colombia.
- Journalists are not properly trained for face-to-face contact with science and scientists.

Despite those difficulties, the recommendations of the wise men have had a good effect. Villaveces observes that the quality of Colombian science journals has improved since 1995, when

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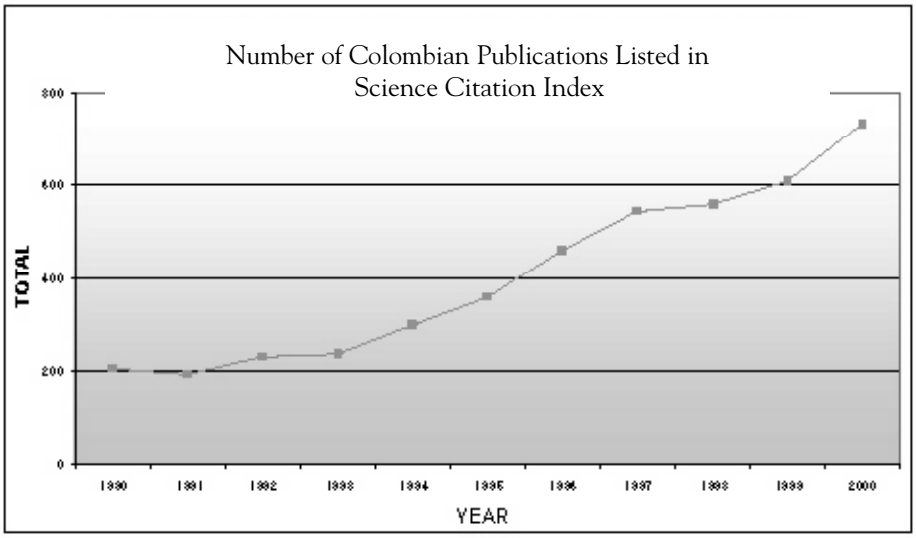
COLCIENCIAS began to classify them. In 2001, 150 journals were classified in three categories (A, B, and C), according to their scientific quality, editorial quality, visibility, and stability. Four journals were in category A, which has criteria similar to those for inclusion in the *Science Citation Index*.

"There are many indications", Villaveces says, "that there is a movement of researchers in Colombia toward increasing the quantity and quality of their work."

The number and quality of scientific publications in Colombia have increased in the last decade (see Figure). Several factors appear to be responsible. Since 1992, the government has tied the salary of public universities' professors to the number of their publications. Financial resources for research increased in 1993 when Colombia received a loan from the Inter-American Development Bank. From 1992 to 1997, COLCIENCIAS granted 608 scholarships for Colombians to obtain doctorates abroad. Many of the recipients returned with the motivation to write. "Something that didn't exist when the Commission wrote its report—between 1993 and 1994—today is a reality: doctorates in Colombia", Villaveces says. "The first person to obtain a PhD in Colombia did it in 1994, in chemistry from the Universidad Nacional in Bogotá. Since then about 100 have obtained it, and each one has published an average of three articles in top international journals."

In addition to government efforts to stimulate researchers to communicate their work, ACPC is trying to reach the general public. The association gives courses, conferences, workshops, and seminars all over the country for journalists, scientists, and students on how to communicate science. ACPC's president, Lisbeth Fog, has a master's degree in science journalism from Boston University. The Colombian Association for the Advancement of Science gave ACPC the 2002 Award for Scientific Merit in the category of science communication.

Villaveces is optimistic about the growth of science communication in Colombia. He says, "if the economy and security of the country improve, but most of all, if journalists tell us more about what is being done [in science], besides informing us about violence and soccer games, this could grow really fast."



Source: Sistema Nacional de Ciencia y Tecnología (Colombia), Comité del convenio 016 – 95 celebrado entre COLCIENCIAS, ICETEX y LASPAU. Boston: September 26, 2002

It seems that now it is the turn for Colombian science writers and editors to be the wise men (and women!).

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