Venezuela: Science and Technology for Development

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Independence and development were the key words during the First National Congress of Science and Technology, which convened—somewhat ironically, in the Caracas Hilton Hotel—from 5 to 12 July 1975. At the suggestion of Aristides Bastidas, a science journalist, the congress had been requested by the President of the Republic, Carlos Andrés Pérez, who had chosen symbolically as inauguration day the 5th of July, anniversary of the Venezuelan Declaration of Independence in 1812.

The purpose of the congress was to establish a dialogue between scientists and technologists, on the one hand, and politicians and users of the results of science and technology (industrialists and the like), on the other. The committee in charge of organizing the meeting was coordinated by Miguel Layrisse, a research hematologist and head of the National Science and Technology Council (CONICIT). The opening session was attended by some 2000 people, a number of whom subsequently formed 17 subcommittees on general subjects, such as the organization of the state for science policy and the utilization of science and technology for development, and 58 work groups on different aspects of agriculture, oceanography, ecology, environmental diseases, metallurgy, nutrition, energy and petrochemistry, food technology, communications, and urban development. These topics give an idea of the organizers' sense of priorities.

It was stressed throughout that Venezuela, like most if not all developing nations, is excessively dependent on foreign economy and know-how, and that this dependence could only be broken through the proper use of science and technology. At present, Venezuelan R & D are still weak: they consume probably no more than 0.15 percent of the gross national product. (The gross national product, however, is rather considerable because of the increase in oil prices, so that Venezuela probably has one of the largest investments in R & D in Latin America.) Even though Venezuela has made considerable headway since the early 1950's, when researchers could be counted in the dozens, there are still relatively few investigators, around 2,500, or approximately 2.5 per 10,000 inhabitants as compared to some 25 to 30 per 10,000 inhabitants in most developed countries. But interest in what this small group can do for society and how it should develop has been awakened in the public and politicians, and the congress made this fact evident.

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Emphasis on Technological Development

In the context of the congress, development was given a social rather than an economic tinge, with a strong accent on the improvement of the quality of life for the majority of the people. As is today everywhere the case, the practical applications of science were emphasized, but basic science was recognized as necessary for educative, cultural, social, and even economic reasons. As President Pérez expressed it in his opening speech, "... for each bolivar spent on scientific research we should spend four bolivars on technological research," a proposal in strong contrast with the situation in 1974, when roughly 37 percent of research resources were given to basic science, 52 percent to applied science, and only 11 percent to development. Technological research in Venezuela is widely thought to be almost nil, because most industries derive their ideas and know-how from abroad. But an industrialist, Roberto Salas Capriles, pointed out in an interesting paper that no less than 92 projects of technological development have been carried through actual application or have good potential applicability. Of them, 32 were carried out by private industries, 31 by the Instituto Venezolano de Investigaciones Científicas (IVIC), 26 by the Universidad Central de Venezuela, and 3 by public industry.

President Pérez announced his decision to give strong impetus to R & D and to strengthen CONICIT and IVIC. He said that no less than 42 foreign technological researchers would be brought to work at IVIC during the year. He commented on his own scholarship plan, Gran Mariscal de Ayacucho, under which 8400 students have been sent abroad to study in priority areas. He implied that from now on the state would take a stronger hand in the orientation of the scientific and technological system.

There were many comments, especially on the part of those from outside the scientific community, that CONICIT, which began functioning in 1967, has not fulfilled all expectations. While its role in increasing science activity per se and its generally apolitical and impartial nature were recognized, many thought that CONICIT had not been able to modify substantially the direction science was taking in the country. This was widely attributed to its lack of political connections. Basic decisions are still being made independently in the individual research institutes and particularly in such prominent state institutions as the Instituto Venezolano de Petroquímica and SIDOR, the large steel enterprise.

Throughout the congress, dialogue between the various communities was free and easy, and communication was excellent. There was a high degree of consensus. An exception was the session in which final approval of the recommendations of the work group on private research centers was sought. Students and others voiced the idea that private groups acted on the basis of "antinational interests" and that they "reinforced dependence." A number of decisions tending to strengthen private research, particularly in industries, were watered down and ended in anodyne recommendations.

The scientific community, through a document prepared by the Venezuelan Association for the Advancement of Science, expressed its concern over "the risk that bureaucratic structures without effective connections with the scientific community should establish programs which might affect the internal workings characteristic of the research system" and demanded that the participation of active researchers in scientific policy-making be assured. Concern has also been voiced (Gustavo Arnstein in *El Nacional*, 16 July) over the politization of science, which seems nonetheless unavoidable now that Venezuela has at last recognized through practical action that science and technology were the necessary—albeit not the sufficient—keys to development and independence.