

# Bringing Science to Society: Essential but Not Easy

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Literally every day, the Israeli government ministers who were invited to join our discussion – but who are not with us here today – deal with, or are supposed to deal with, questions of a scientific and technological nature. These are of obvious concern not only to the Minister of Industry, who deals with high-tech industry, but also to the Minister of Communications, the Minister of Agriculture and the Ministers of Health, Environment and Energy, not to mention the Minister of Defense. Even a Minister of Justice, these days, would have to deal with laws touching upon scientific and technological issues. If this is true for the ministers, it is equally true for their deputies and assistants, the assistants of their assistants, the lobbies that try to influence them, the members of our Knesset and anyone who wishes to be a member thereof.

This brings up an issue that has never been faced by mankind before, in all its history. How can almost every decision-maker in society, whether elected or appointed, cope with all these scientific and technological issues, when they can't possibly all be scientists, engineers or people with a technical background? This makes bringing science to the public more important than ever. When we say "the public," we don't mean only children, we mean literally everyone between the ages of 5 and 120. Anyone who needs to consult a physician about a medical problem, indeed anyone who is doing almost anything today, needs a certain elementary level of understanding of science and technology. They also need a certain level of quantitative thinking, which must rely on understanding the language of mathematics, if not mathematics itself.

In my opinion, the government does not have to participate directly in this science dissemination business, except to learn. The scientific community, the universities, research institutes, national academies and other scientific organizations have the duty to share their knowledge with the public. Although 30 to 50 years ago it may have sufficed to share knowledge only with that part of the public that was

particularly talented or interested in science, today it is imperative to share information with the entire public. Similarly, emphasis on science and technology education in our schools today should not be only for physics majors or those taking the highest level of matriculation exams. The emphasis should be on bringing scientific issues – including the social and ethical issues of science and technology – to the public, at all levels of society. This is much more difficult than what we used to face with brilliant 14-year-olds. The latter may be more brilliant than us, but not so the general public.

There are very few countries with more academic activity in this area than Israel. Such activity usually carried out not by the national academy, but by academic institutions such as the research universities. For example, at the Weizmann Institute, for 41 years now, we have been contributing to curriculum development in mathematics, physics and chemistry for our national school system, and to the training of teachers, in-service training, the writing of textbooks and the implementation of new science education programs in our schools. We have run an extraordinary number of different extracurricular, after-school activities, such as science competitions (Olympiads), science clubs, school visits to science museums, and other activities that help bring science to the public. Now we are taking the next step, by establishing programs aimed specifically at various groups of children who are already disconnected from society – for example, those in street gangs, who are neither working nor studying. We still provide enrichment for the brightest kids, who are the future of our high-tech industries and research, but we also involve the other extreme and everybody in between.

It is absolutely essential for all practicing scientists and researchers in all fields of engineering, mathematics, natural science, agriculture and medicine to contribute some of their talent, time and effort to this goal, to the extent that they are able. Although not everyone may have the talent to make such a contribution, the future of any civilized society depends on it. Later we will hear about the new report of Israel's Task Force on Education; it also must address how to bring science education to everyone in Israel.