

26 OVERVIEW OF CASE STUDIES

Overview of case studies  
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As part of the contribution the Ministry of State for Science and Technology made towards the Science Council's Study on Public Awareness of Science and Technology, Ministry officials undertook to examine and evaluate the public awareness impact of three government programs. Those which were selected were the Telidon Program of the Department of Communications, the Oilseed Crops Program of Agriculture Canada, and the Pilot Scoliosis Screening Program of the National Research Council.

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Although the Science Council had requested only one case study, it was decided within MOSST that three would be written to enable officials to prepare an overview and comparative analysis. The study of three programs rather than one would not only offer a wider spectrum of government activities in public awareness, but would also help avoid the possibility that the one case study chosen would be unrepresentative of such activities.

The selection of the three government programs under consideration was not based on specific criteria or common themes. Rather, the choices were arbitrary. Due to the time frame within which the studies were to be completed, it was necessary that the programs selected be characterized by readily available information, such as departmental documentation,

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previously written reports and media articles, supplemented as necessary by interviews and discussions with officials involved in the programs, whether in an operational or information dissemination capacity.

This brief overview and comparative analysis can be viewed either as an introduction to, or as concluding comments on, the three study reports. In either case, the overview should be read in conjunction with the texts of the case studies, not as a completely separate document, as it will refer to certain developments which, to be understood clearly, must be read in their proper context. Observations and comparisons of the three government programs studied will be made, in this paper, under the following sub-headings: (1) definition of public awareness (including identification of target public(s)); (2) types of public awareness activities; and (3) role of the federal government (vis-à-vis other organizations).

1. Definition of public awareness

The first concept upon which an attempt at a comparative analysis of the three case studies will be made involves the definition of "public awareness" (or at least an explanation of what is meant by that term) and, concomitant to this, an examination of the public(s) at which the public awareness activities described in each report were aimed.

We believe that the term "public awareness" means more than passive receptivity to information, although one can be fully aware of S&T issues without being in a position to participate in public debate or to contribute meaningfully to those public decisions on science and technology that affect one's life. Still, the aim of a policy to heighten awareness ought to be more than merely to inform the public about scientific and technological issues. Such a policy should make the public attentive or actively watchful, in order to assist it to better understand and comprehend S&T issues.

If one accepts these distinctions, then the simple dissemination of information, i.e. what we call public information or public relations activities, should be considered as only one, albeit an important, element of public awareness endeavours. The objective of public awareness activities should be not only to make the public more knowledgeable and better informed but to allow them to have greater understanding of the relevance to society of current scientific and technological issues. In this way, the public may be able to make rational and free decisions on matters which affect their lives. In assisting the public to increase its awareness of science and technology, the government will be responding to its democratic responsibility of helping Canadians to participate in debates and decisions concerning important scientific issues affecting society.

In the Telidon program of the Department of Communications, it is evident from an examination of the department's public awareness activities that the target "public" could be divided into four distinct groups: (1) the Canadian government itself, including DOC management, as well as the major decision-makers, the Cabinet; (2) the telecommunications' industry including carriers, cable-TV companies and information providers; (3) potential purchasers of videotex and teletext, both in Canada and internationally; and (4) the public in general, both at home and abroad.

The "public" in the Oilseed Crops Program of Agriculture Canada can be seen to include any or all of the following groups which comprise the oilseed industry, namely: crushers, pedigree seed growers, feed formulators and producers, export shippers, farm machinery manufacturers, feed-users and farmers. As well, the consumer of oilseeds should be regarded as a separate and distinct public.

The "public" in the Scoliosis Screening Program of the National Research Council can be seen to include children, especially in the 10 to 13 years-of-age group, as well as their parents/guardians, and also public health and education authorities. Further more, public awareness and fund raising



activities involved the general population as part of the target public.

In general terms, the studies of the three government programs tend to show that the public(s) involved reached a greater level of understanding and comprehension, as a result of public awareness activities, and were thus able to make rational decisions on those S&T issues which affect their lives.

Those publics identified in the Telidon study were able, by means of the various information activities employed by DOC, to become aware of the technology involved and to participate in certain decisions affecting that technology. Awareness of Telidon helped influence decisions made within the government, including the Cabinet. Certain publics became formally involved in the decision-making process by means of the establishment of such groups as the Canadian Videotex Consultative Committee and the Videotex Information Service Providers Association of Canada, as well as in such existing organizations as the International Telecommunications Union (which decided to include Telidon in the world standards for videotex). General public involvement, feedback and influence was, and is still being, specifically determined through the monitoring of several field trials throughout the country. The ultimate link, of course, between awareness and

decision-making in the Telidon project, as in any marketing endeavour, exists in the decision to purchase. The success of the public awareness activities of the Telidon program have been manifested in its selection for the first United States consumer trial of teletext, for use in a major project of the Venezuelan government in Caracas, and by several governments and private sector organizations within Canada.

The case study on the Oilseed Crops Program revealed the existence of two sets of "public awareness" problems. The first had to do with the dissemination of information and research results concerning certain detrimental features of rapeseed, notably: its high content of erucic acid and glucosinolates, which presented real or potential health dangers; its vulnerability to certain diseases; and characteristics of its hull which reduced its oil yield and made it cosmetically unattractive.

In the agricultural community, there is a fairly free and active flow of scientific information through a healthy, although not always obvious, network of interested parties. It is evident that both federal scientists and the agricultural community are aware of, appreciate, and assist in the solving of each others' difficulties and concerns. Technology transfer

from government laboratories, where R&D is performed, to the farm where it is applied, is thus very effective. The resolution of such issues in rapeseed development as the reduction in the level of erucic acid exemplifies the mutual co-operation of the parties involved, and highlights both the eagerness of scientists to disseminate their findings and the ready acceptance of farmers to apply them. Overall, the mix of formal-informal consultations and information exchange appears to be working well and, at times, the work of government research scientists precedes the farmers' or industry's needs.

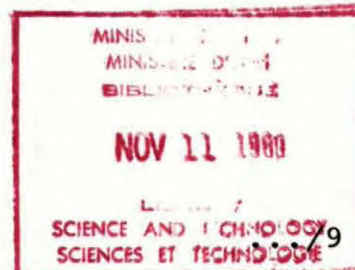
The second set of problems associated with public awareness of the oilseed crops program involves the acceptability of rapeseed products by the consuming public. The government appears to be generally aware of, and sensitive to, the consuming public's concerns (agreeable taste of rapeseed products, longer shelf-life of rapeseed oil, etc.). If the consumer is to be persuaded to accept rapeseed products, however, he or she must become aware of developments in this area and have access to accurate information. To the best of our knowledge there has been no general consumer-oriented public information campaign nor any attempts to involve the general public in the decision-making or consultation process. Hence, this area of public awareness is relatively weak.



The "public awareness" tasks of the Pilot Scoliosis Screening Program can be seen to include:

- (a) making the general public, especially parents, aware of the medical facts about the disease and the availability of a safe, inexpensive method for its detection;
- (b) creating community-wide institutional arrangements for the screening of children;
- (c) inducing the purchase of diagnostic equipment at the community level; and
- (d) persuading parents to have their children undergo scoliosis screening.

In the Scoliosis Screening Program, the objectives indicated above were met and the success of creating public awareness was quite impressive. Some 90.5 per cent of all children involved were in fact screened for scoliosis. The Ottawa Civic Hospital Women's Auxiliary purchased the Moiré screening machine used in the test. Furthermore, parental fears, based on the unfounded belief that the screening method used X-rays, were allayed through extensive and positive media coverage and detailed descriptions of the benefits of the screening program. The public awareness activities thus resulted in wide public acceptance and support of the program.



2. Types of public awareness activities

This section will examine and outline the various instruments, activities and mechanisms used to create or increase public awareness of the government programs under consideration. In the three case studies, it was evident that certain common elements existed and a number of similar methods were used. These included attempts to explain the technical aspects of each project so that the public would appreciate its benefits and advantages, and the use of the mass media to communicate information to the public. It would appear, however, that the various activities were dependent upon the particular aspects of the S&T project involved, the specific publics aimed at, and the hoped-for objectives or anticipated results. For instance, it would seem that different types of activities and efforts would be needed in an international marketing and promotion exercise for a new, high technology product such as Telidon, as compared with the requirements of an established, ongoing program such as that of oilseed crops. The following paragraphs will elaborate on these points.

When it became known that several broadcasting, cable-TV and telephone companies in Canada were either copying or purchasing European-designed videotex systems, the Department of Communications decided to inform the public about Telidon and did so at a press conference and demonstration on August 15, 1978.

With this step, DOC undertook an aggressive, sustained public information, media relations and marketing campaign which assured Telidon of a high degree of public awareness impact.

DOC's public awareness efforts with regard to Telidon were aimed at reaching as many of the public as possible, and convincing them of Telidon's capabilities and potential. Frequent press releases and news conferences kept reporters well aware of recent developments. Whenever possible, one-on-one relations between DOC personnel and the media were established. Departmental officials wrote many articles in various trade and popular magazines describing the Telidon system. Numerous demonstrations of Telidon equipment and technology were given in trade shows and exhibitions throughout Canada and the rest of the world; particular emphasis was given to a public awareness campaign in the United States. Brochures were printed and distributed, outlining in simple language Telidon's features and functions. Much more technical information was readily available for specialists in the field and potential purchasers. A videotape presentation was produced which described the technical features of Telidon, and DOC became associated with the production of a major TV-Ontario television series which focused attention on Canadian videotex developments. Major pilot projects and field trials in several cities and towns across Canada were designed and undertaken to stir up public awareness and to demonstrate the technology and applications of Telidon.

In the Oilseed Crops Program, it appears that public awareness activities are somewhat complex, at times involving an intricate network of concerned organizations. Officials of Agriculture Canada research stations participate in growers' meetings, write articles, prepare bulletins, and talk on radio and television programs. Information on recent discoveries are prepared by federal scientists and are distributed through agricultural representatives, who are provincial extension agents well known in their locality. Such information is also directly available from federal research stations, field officers and libraries, and from Agriculture Canada in Ottawa. In addition, provinces at times publish their own bulletins or publications which describe federal scientific discoveries in agriculture, as there is considerable interrelationship between the two levels of government in this area. The dissemination of knowledge and practices developed by federal R&D is also achieved via departments of agricultural studies in universities, manufacturers of farm implements and chemicals (e.g. fertilizer, pesticides), non-government publications, the mass media, and by the Canola Council of Canada (prior to March 1980, the Rapeseed Association of Canada).

In addition to ad hoc or indirect contacts, Agriculture Canada increases public awareness through formal annual meetings with the Canola Council, the seed growers' and the crushers' associations. These meetings permit Agriculture Canada to monitor



the way rapeseed is performing and to forewarn companies about possible problems. Agriculture Canada follows up on complaints and takes them into account when determining its R&D priorities.

Other methods that further public awareness are joint ventures and contracting-out. The joint ventures are usually specific and very limited in nature. Contracting-out is used to a certain extent; however, the private sector possesses little scientific capability in such areas as plant breeding and crop management. Consequently, these methods only add marginally to public awareness.

Overall, the combination of both formal and informal approaches to furthering public awareness appears to be working well and indicates a great public confidence in Canadian scientists researching into oilseed crops and a concerned and enlightened attitude on the part of the oilseed public.

Public awareness of the Scoliosis Screening Program was essentially created by Dr. G. Armstrong and his colleagues at the Ottawa Civic Hospital. They secured the co-operation of the Ottawa-Carleton Health Board and the Ottawa Board of Education to implement the screening program. They obtained the financial assistance of the Ottawa Civic Hospital Women's Auxiliary to purchase a screening machine, as well as volunteer

assistance during the actual screening tests. Furthermore, the Rotary Club of Ottawa was persuaded to purchase the necessary film and computer time to assess the screening of the results. Likewise, Dr. Armstrong and his colleagues took advantage of a press conference held by the Civic Hospital, which was well covered by the print and electronic media, in order to disseminate the medical facts about the scoliosis screening technique and the method used, and to encourage parents to have their children screened.

Information of a general technical nature on scoliosis screening was published in two issues of the National Research Council's magazine, Science Dimension. A special explanatory film was being prepared by the NRC at the time of this writing to help gain public acceptance of the Moiré method of scoliosis diagnosis.

### 3. Role of the federal government

Although in all three projects examined for this study the actual R&D for the programs was performed in federal government laboratories, the government's role in promoting public awareness differed in each case. The marketing and public information campaign for Telidon was primarily initiated and implemented by the federal government, particularly the Department of Communications. The Oilseed Crops Program is characterized by close co-operation and interaction between Agriculture Canada, the provincial governments and the oilseed associations. The Scoliosis Screening Program, on the other hand, was essentially

orchestrated by medical personnel within the public health sector.

The federal government played a very active and influential role in the public awareness aspects of the Telidon program. It was greatly due to the Department of Communications' public information, media relations and marketing campaign that Telidon achieved a high level of public awareness. The progress of public awareness internationally was enhanced by the efforts of the Department of External Affairs and the trade commissioners of the Department of Industry, Trade and Commerce in a loose form of co-ordination with DOC.

The role of Canadian industry in the developments associated with Telidon has not as yet been significant. Technology transfer arrangements with companies such as Norpak Ltd. have been made for the manufacturing of Telidon hardware, and co-operative ventures with Bell Canada and other telephone and cable companies have been undertaken. DOC officials argue, however, that the marketing of Telidon should be the responsibility of the industrial sector, financially assisted by government programs. The inference here is that the government's heavy involvement in promoting Telidon would not have been so great had the industrial sector shown more substantial interest and effort in this area. Recent developments now indicate that industry, after initial hesitation, is starting to get interested and involved in marketing Telidon.

In addition to the various public awareness activities outlined previously, the government's approach to the marketing of Telidon involved two primary objectives - the establishment and acceptance of the appropriate Canadian standards, and the maximization of the number of jobs available to Canadians with respect to both the service and the manufacturing aspects of videotex.

Government officials realized that the availability of valuable and interesting information for potential Telidon users was also very important. In non-commercial areas, therefore, the government pursued activities to help strengthen the available data base. In the private sector, major potential information providers in Canada formed their own trade association, the Videotex Information Service Providers Association of Canada. Its members include newspaper publishers, representatives of telephone companies and their yellow pages organizations, computer companies, federal and provincial government departments, university and other educational institutions, retailers and organizations in the entertainment and travel business.

In the Telidon program, some criticism has been made that the government's public awareness activities were not adequately co-ordinated, nor centrally directed. DOC officials involved with the Telidon program judge this view to be unfair and inaccurate. Although it would be difficult to clearly determine



whether or not the efforts to promote, market and enhance public awareness of Telidon were centrally co-ordinated, it is nevertheless apparent that any such efforts should be properly planned, with clearly defined objectives, performance indicators and proper resources, and that co-ordination and central policy direction are also extremely important.

Overall, the federal government's role in oilseeds public awareness has been quite extensive. Considerable attention has been devoted to ensuring that the results of government R&D are in fact transferred to the particular target public - whether it be the farmer, the pedigree seed grower, the feed manufacturer, the seed crusher or the export shipper.

As a result of the distribution of powers under the British North America Act, the traditional working arrangement has been that extension services, involving the transmission of scientific information, are largely left to the provinces. Federal-provincial co-operation is very good and the relevant scientific information is transferred from federal R&D establishments through an intricate network to the appropriate public. The channel of communications is certainly not a very streamlined one, but it is highly effective.

The only area where communications leave something to be desired is in the government's relations with the general consuming public. It is suggested that more efforts could be made to increase

awareness or to foster the consuming public's participation in the decision-making process.

The Pilot Scoliosis Screening Program indicates that the role of the federal government is not absolutely essential in furthering public awareness. The government confined its efforts to printing two articles in Science Dimension, responding to requests for interviews, and preparing an explanatory film. It entrusted to AECL - Medical Products the marketing of the scoliosis screening machine and left the main responsibility for promoting public awareness to medical authorities in the public health sector. Clearly, though the government's efforts in the area of public awareness were supportive, they were limited.

The lesson to be learned in the scoliosis screening study, therefore, seems to be that energetic, well-organized and well-respected "inventors - disseminators" are able to create the necessary public awareness for their project to succeed. They are, in fact, able to accomplish this with a minimum of government support. However, the government runs the risk of seeing excellent projects being abandoned for lack of organizational skill, respectability or energy and determination on the part of the inventory. The effectiveness of the "inventors - disseminators" might in some cases be enhanced if the government were willing to provide them with seed money and organizational support, if needed.

Concluding Remarks

As the case studies demonstrated, the public awareness activities associated with each of the three government programs were, on the whole, successful. Generally speaking and within the context of the programs studied, the public(s) involved reached a greater level of understanding and comprehension, as a result of public awareness efforts, and were thus able to make rational and informed decisions on the related S&T issues which affect their lives.

Although the programs and the public awareness activities associated with them differed in many respects, certain common features existed. The most notable, which can be seen to be essential to the successful enhancement of public awareness, include the following:

- 1) the correct identification of the publics to be addressed, and their characteristics;
- 2) the identification of the proper or most effective channels to reach these publics;
- 3) the development and use of "messages" which were readily understandable and of obvious interest to the publics addressed, especially including the benefits of the technologies being promoted;
- 4) the use of an array of effective communicators, whether they were public servants (federal and provincial), scientists, members of the public health community, or media professionals;

- 5) the use of the right mix of communications techniques, including the print and electronic mass media, specialized publications, press conferences, films, videotapes, one-to-one communications, etc.;
- 6) a focus on the promotion of inherently sound and beneficial technologies, since awareness, in and of itself, does not ensure lasting interest.

In addition to common elements, certain differences existed in the public awareness endeavours associated with the three government programs studied. One of the most significant involves the extent of the federal government's role. Even though the government's involvement ranged from very active in the Telidon program to fairly limited in the Scoliosis Screening Program, the public's level of awareness was enhanced in each case. The Scoliosis Screening Program provided an indication that the non-government sector, with some government support, could effectively increase public awareness for specific projects. Even in the Telidon program, it would seem that the government's involvement in promoting the technology was greater than it would have been had industry been more interested and aggressive in the early stages.

Lessons learned from the study of one program may not necessarily apply to another, but are nonetheless important. The specific characteristics of Telidon, for instance, suggest that



in large, complex projects there is a need for public awareness activities to be properly planned, with clearly defined objectives, performance indicators and proper resources, as well as co-ordination and central policy direction.

While the three programs studied are not fully representative of the complete run of public awareness enhancement activities, they nonetheless provide us with relevant lessons which can be considered in the evaluation of other government efforts to heighten public awareness of science and technology.

