



*Annual Report*  
*1993 - 1994*

## *New Horizons*



**SCIENCE INSTITUTE**  
OF THE NORTHWEST TERRITORIES

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*New Horizons*  
*Linking northern*  
*knowledge*  
*through*  
*partnerships...*  
*for a rich and*  
*equitable future*

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August 26, 1994

Honourable Richard Nerysoo  
Minister Responsible for the  
Science Institute of the Northwest Territories

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*Letter of  
Transmittal*

Dear Mr. Nerysoo:

The Science Institute of the Northwest Territories (SINT) was amalgamated with Arctic College in May 1993, and a strong, new direction was established. This new direction focuses on increasing northern involvement in science and technology, particularly in research and development. The mechanism for this new thrust is Arctic College and the instruments available to it as a post-secondary institution. The ultimate goal is the development of northern knowledge and skills to enhance northern-based, post-secondary programs.

Through 1993-94, SINT, within the Arctic College community, adopted a new corporate environment. We are embracing as our guiding values responsiveness to communities, innovation in program design and entrepreneurialism in addressing science and technology needs of Northerners. To implement these values, we have successfully forged partnerships with northern businesses, government agencies, community groups and the research community.

This spring, the research support program was launched to increase northern involvement in research. This program, funded through Research Centre user fees, provides support to researchers to hire northern research assistants relevant to the social and economic agenda of Northerners.

Increasingly, the Research Centres in Inuvik, Iqaluit, Igloolik and Fort Smith are involved in partnerships with other community agencies to ensure needs are met. The Inuvik Research Centre is collaborating with the Aurora Campus to implement a field researcher training program and a renewable resources training program. The Igloolik Research Centre plays a strong role in supporting traditional knowledge research, while the Iqaluit Research Centre is very active in enhancing school science programs. The South Slave Research Centre has assisted with several community studies for the Salt River First Nation, Social Service Agencies and the town of Fort Smith.

The Technology Development Program has initiated many innovative projects, most notably the alternate energy technology projects. Negotiations to establish a privately-funded windfarm in Cambridge Bay was successfully completed by SINT in 1993.

Our Science Advisory Services staff have been very active in coordinating community awareness of, and input into, the licensing process. As well, they have played a key role in collating a compendium of research conducted in the North, designed to inform Northerners of research affecting them.

Finally, the Information and Education Co-ordinator has revitalized out-education activities. Through a partnership with Industry Canada, the Innovators Program was reshaped to play an enhanced role in elementary and secondary school education in the North.

On behalf of the Board of Governors of the Science Institute of the Northwest Territories, we respectfully submit the 1993-94 Annual Report.

Sincerely,



Steve Richards  
Chairperson



Chuck Parker  
Executive Director

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1993-94

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- *South Slave Research Centre*  
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Peter Redvers, Contract Researcher  
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*Introducing the  
Science Institute*





Knowledge is the fulcrum upon which development is balanced. For the development of the North to truly reflect and protect the cultural and ecological integrity of the North, it must be balanced on northern knowledge.

Northern knowledge is collected and documented in many ways. Traditional knowledge is passed down through generations by elders, and collected and collated by community groups for future generations. The unique ecosystems of the North are sometimes viewed as laboratories from which a greater understanding of the earth's biophysical processes is gleaned. We have developed appropriate technology designed to the rugged specifications required by northern conditions. The rapid social, cultural and economic changes experienced by northern communities in recent years have created problems that required us to come up with innovative northern-based solutions. Building on the knowledge and experience of Northerners, we have created northern institutions that address these human issues face on, in a way unparalleled in the Western World. This is the knowledge and skill of the North from which a rich and equitable future will emerge.

The Science Institute plays a key role in building this knowledge by coordinating community-based research activities, promoting responsive, technological development, documenting research undertaken in the North, and supporting and facilitating research that responds to the northern research agenda. Through our parent organization, Arctic College, we strive to make this knowledge the foundation upon which education and training in the North will be based. Our programs have historically been, and will continue to be, developed and implemented through partnerships with community agencies across the North; partnerships which demonstrate our mutual interest in, and commitment to, sustainable and equitable northern development.

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## History

Although the Science Institute was originally formed in 1976 to provide scientific and technological advice to the Legislative Assembly, during the last 10 years, the focus of its activities has changed dramatically.

The Science Institute Act, passed in 1984, established the Science Institute as an arm's length agency responsible for licensing research conducted in the Northwest Territories. In 1988, this mandate expanded to include management of the Research Centres in Inuvik, Igloolik and Iqaluit. Because it has always been the main agency dedicated to the advancement of science in the North, it has been called upon over the years to expand its services. It now plays a key role as a resource agency for science education, and has a very active technology development program.

In 1993, the Science Institute was amalgamated with Arctic College to link scientific research and technology development more closely with education and training at a community level. During this same year, the South Slave Research Centre in Fort Smith became a permanent research facility.

With the amalgamation came a change in corporate style. The Science Institute of 1994 maintains its commitment to supporting scientific research, while becoming more proactive in influencing the research agenda in the North and in involving Northerners in research in their communities. The overview of the activities of the four program areas (Scientific Services; Science Advisory Services; Technology Development; and Information and Education) demonstrates the way in which the Science Institute is playing a vital role in preparing Northerners for involvement in a technological age.

*Scientific Services  
Directorate*



The primary role of the Scientific Services Directorate is to provide logistical, technical and administrative support to scientists and researchers in the Northwest Territories. This support is provided through the facilities available at the Institute's headquarters and the Inuvik, Igloolik, Iqaluit and South Slave (Fort Smith) Research Centres.

In 1993-94, the Scientific Services Directorate generated 12 person years of employment at its Research Centres. A conservative estimate of the amount spent on goods and services by visiting researchers using the facilities and services of the Research Centres is \$1.8 million.

The three Arctic Research Centres located in Inuvik, Igloolik and Iqaluit provided 11,465 days of support to 447 researchers. In total, these researchers were involved in 165 projects. Compared to the previous year, this represents a decrease of approximately 15 per cent in the number of projects; a 19 per cent decrease in person days of support; and a two per cent decrease in the number of researchers who used the Centres.

Other services and activities provided through Scientific Services include undertaking research projects independently and in partnership with other agencies; collecting field data for other research agencies; working on technology feasibility projects with the Institute's Technology Development Program; and promoting interest in science and technology through the Institute's public information programs, workshops and symposia.

Among the initiatives introduced by the Scientific Services were the user fees at the Institute's Research Centres and the development of the Research Assistant

Program, the Research Fellowship Program and the Research Associate Program. Each of these Programs was developed to promote and develop research and research capabilities which directly contribute to the social, cultural and economic well-being of the people of the Northwest Territories.

As well, a third "Plain Language" publication was produced entitled *Archaeology of the Western Arctic Coast*. The paper was distributed to schools across the Western Arctic.

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### **Inuvik Research Centre**

Two successful activities were held for National Science and Technology Week. Sixteen local scientists and technologists gave presentations at a High School Science Conference. An open house with 12 local presenters was organized for the Elementary School and public. Both events were well-attended and excellent feedback was obtained from teachers, students and the public.

The Canadian Museum of Civilization archaeology project ended after several years of study in the Inuvialuit and Gwich'in regions, and Federal Fisheries and Oceans completed a major broad whitefish study.

Dr. Ross Mackay donated his Centenary Medal for Northern Science to the Inuvik Research Centre. He was the first recipient of this medal (1984) which will be placed on display in the Centre's library.

Several collaborative projects have been undertaken with Arctic College, including an umiak reconstruction, and the development of two environmental program proposals - Natural Resource Management Program and Field Assistant Certificate Program.

The Centre supported five environmental data gathering programs:

- operation and maintenance of atmospheric toxic monitoring equipment for Environment Canada (under contract);
- operation and maintenance of Cosmic Ray monitoring equipment for the Research Council of Canada (under contract);
- snow sample collection for the National Hydrological Research Institute;
- ice wedge monitoring for the University of British Columbia;
- permafrost heave monitoring for Carleton University.

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### **Igloolik Research Centre**

#### *Igloolik Oral History Project*

As in previous years, this Project was a major focus of Centre activity throughout the winter months. In cooperation with Igloolik elders, the goal of the Project is to record the traditional knowledge of the Iglulingmuit. Topics covered in the interviews include life histories, traditional medicine, hunting techniques, animal biology, skin preparation, clothing design and sewing, astronomy, belief systems, legends and place names. Copies of the taped interviews, including translations and transcripts, are deposited at the Prince of Wales Northern Heritage Centre in Yellowknife. A series of publications based on the Oral History Project are planned for 1995-96. This year, the Project was financially supported by SINT and the Muttart Foundation of Edmonton, Alberta.

#### *Ataguttaaluk School Archaeology Course*

The Centre again contributed to the success of the Igloolik school archaeology course through the provision of essential logistical support. This course

(now a regular feature of the Ataguttaaluk School curriculum) involved about 10 students annually in archaeological training in Igloolik Island's endangered Thule and Dorset sites. Students receive a thorough grounding in archaeological technique. An important component of the course involves student/elder interviews focusing on local traditions and artifact interpretation.

#### *Alternative Energy*

The Centre supported two alternative energy projects during the year. In August 1993, two 10 kw wind turbines were installed near the community. The electrical power generated by the turbines is fed into the community grid, reducing the demand on diesel-generated power. Generation capacity, wind regimes and related data are monitored daily, through a modem telephone link, by the project consultant, Island Technologies Ltd. of Prince Edward Island. In a related project, Energy, Mines and Resources Canada has installed solar energy monitoring equipment in a dwelling near the Research Centre to determine the potential for photovoltaic (PV) energy generation in the Igloolik region.

#### *Environmental Monitoring Programs*

The Centre supported three long-term environmental data gathering programs:

- daily weather and atmospheric observations for the Atmospheric Environment Services Branch, Environment Canada (under contract);
- operation and maintenance of a regional seismology station for the Earth Physics Branch, Environment Canada (under contract);
- operation of a magnetometer for auroral studies (University of Alberta/University of Boston project).

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**Iqaluit Research Centre**

A total of 148 individual researchers used the Iqaluit Research Centre in 46 research projects during the 1993-94 fiscal year. With the help of these researchers, the Centre offered a number of plain language "Simply Science" presentations to the public. Through these presentations, researchers shared information about their research activities. Topics included insight into the historic activities of Martin Frobisher, the Thick Billed Murre populations in Northern Hudson Bay, the historical development of syllabics in the Eastern Arctic, local archaeology activities, as well as information about local marine ecology.

Researchers continued to add to the Centre's Reading Room collection by sending in copies of reports, journal articles and theses. Local high school and college students and the public increasingly used the Reading Room for information on a wide variety of subjects.

Centre staff cooperated with local schools by leading marine ecology day trips and participating in a range of educational activities such as the Annual Science Fair.

***National Science and Technology Week***

During National Science and Technology Week in October 1993, the Centre coordinated activities between Iqaluit schools and local agencies and businesses to increase student awareness of the role of science and technology in our daily lives.

***Celebrating Northern Traditional Technology***

The Centre sponsored a Celebration of Northern Traditional Technology as part of an Education Fair held at Inukshuk High School. The Celebration included opportunities for lighting the qulliq (stone lamps), scraping seal skins and stretching caribou hides. Elders demonstrated traditional skills; displays were set up highlighting the use of traditional

tools and techniques; and northern country food (donated by the community) was enjoyed by the 300 people who attended the Fair.

***Logistical Support to College Field Camps***

The Centre offered logistical support to Arctic College Environmental Technology students during their field camps through twice-daily radio contact with all field teams, thereby maintaining a critical safety link.

***The South Baffin Place Names Project***

During 1993-94, the Centre staff began the process of securing community consent and seeking funding for the South Baffin Place Names Project which will document historical Inuktitut names in the Frobisher Bay area.

***Environmental Monitoring Program***

The Research Centre supported one environmental monitoring program:

- operation and maintenance of atmospheric toxic monitoring equipment for Environment Canada (under contract).

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**South Slave Research Centre**

The South Slave Research Centre was designed as "a northern partnership fostering knowledge for a sustainable future". The activities of the Centre bring this partnership to life through initiatives in education, social research, economic development feasibility studies and community needs assessments. The following projects provide examples of the innovative and diverse nature of the work of the South Slave Research Centre.

***Mental Health Study for Fort Smith and Hay River***

This study was a needs assessment of mental health services in the region conducted on behalf of the Department of Social Services, Arctic College, the South Slave Divisional Board of Education and the Fort Smith Health Centre. The

study concluded that community-based mental health services, particularly for children and families, are required in both communities.

#### *Electrolyte Hydrogen Study*

An examination of the feasibility of producing hydrogen from excess hydroelectric power, prepared by researchers from the Institute for Integrated Energy Systems, revealed that hydrogen production can be cost-competitive in today's hydrogen market.

#### *Sustainable Development Plan for Fort Smith*

Through extensive community consultation, a graduate student from the Faculty of Environmental Design at the University of Calgary and a local researcher compiled a plan to guide economic development in Fort Smith to the turn of the century.

#### *Wood Buffalo National Park*

##### *Communication Survey*

This survey, conducted by the Centre, is part of an overall strategy on the part of Wood Buffalo National Park to improve communication between the community and Park staff. The survey revealed, that although current communication initiatives of Visitor Activities by staff are quite successful, additional initiatives are required. Through the survey, a set of recommendations to enhance community public relations between the Park and the community it serves, have been developed.

#### *Innovators in the Schools*

In April 1994, two researchers from the University of Alaska Geophysical Institute conducted research on the aurora borealis in Fort Smith. These researchers made a significant contribution to our fledgling Innovators in the Schools Program by visiting school and college classes in three communities, and presenting observations and results to approximately 400 students.

#### *Needs Assessment Survey*

While the South Slave Research Centre has been very active this year developing and implementing specific projects, the Centre felt it was important to survey the community to better understand and document the research needs of the surrounding communities. As a result, in March 1994, the Centre conducted its own needs assessment which suggests there is tremendous interest and commitment to the integration of scientific and traditional knowledge in the region. Communities want to know how to do research, and they want to know more about research conducted in their areas. The information gleaned from this survey will guide the direction of the South Slave Research Centre in its commitment to assisting communities to achieve sustainable and equitable development through the application of research, traditional knowledge and technology.



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*Technology  
Development  
Program*

The Technology Development Program focuses on the development of new technologies for northern living. Our aim is to assist northern industry to develop unique technologies to strengthen economic development potential. With an interactive approach to science and technology, our programs are also assisting Northerners in general. At present, we are involved in three main areas of activity: environmental technologies, alternate energy technologies, and engineering technologies.

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### **Environmental Technologies**

The objective is to develop waste treatment and recycling technologies that are suitable for cold climate conditions and that are maintainable by NWT technology infrastructure.

*Hay River Chicken Farm Waste Treatment*  
Northern Poultry (Hay River) has had a history of environmental emission problems. After considerable research, the conclusion is that a two-step process would be required to mitigate these problems. The first step is to monitor the operating parameters which would identify the root cause of the odour emission. The second step would then be to implement the required solution. The estimated cost of the monitoring system is approximately \$80,000. An agreement has been reached with the Department of Economic Development and Tourism (GNWT) that they and Northern Poultry would financially participate (\$36,000 + \$8,000) in this project, which would be administered by South Slave Research Centre. An action plan was prepared and presented to the Hay River Town Council.

### *Wood Waste Pelletization and Power Generation*

It is proposed that wood waste pelletization technology be established in the South Slave area. The resulting product will be used in an innovative free-flow pellet stove requiring only a

vent pipe instead of a flue gas-chimney. Additionally, the wood pellets would be used in a zero effluent gasifier for power generation. The first phase of the study on the economic feasibility was prepared by NWT Stanley Associates. The report indicated that the wood pellets could supply thermal energy at a competitive price in a number of NWT communities. The establishment of a pellet plant could create up to 30 jobs in the South Slave area, and would play a significant role in reducing the oil consumption in the NWT. The second phase of the study has been completed. A draft report was received and is being reviewed. The conclusion is that the technology for pellet gasification has not matured to the extent that it can be relied upon as a reliable system. Consequently, the technologies with a high potential for successful development will have to be identified, and further research and development work will be required.

### *Tannery Guidelines: A Consulting Contract*

The Science Institute was awarded a consulting contract by the Department of Economic Development and Tourism, to review environmental concerns and prepare guidelines for commercial tanneries in the NWT municipalities. The overall output of this assessment will be the product of a multi-factor analysis. The major factors to be considered will include: existing standards for tannery effluent and ofal; range and volume of raw materials for tanning; and the capability and capacity of the municipal infrastructure to accommodate tannery effluent and ofal. A second version of the final draft of the report was completed and circulated for review among the members of the advisory committee. The committee comprises a number of Federal and GNWT departments responsible for the environment and municipal affairs. The committee has approved the contents of the guidelines, but they have asked for further additions and clarifications in a





number of areas. The third draft is being prepared. It would include information from the Broughton Island tannery, which is currently being upgraded.

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### **Alternative Energy Technologies**

The objective is to establish a technology base for delivery of appropriately-scaled, alternative energy to northern communities and to reduce significantly the NWT oil consumption.

#### *Photovoltaic (PV) Systems: Direct Electricity from the Sun*

Many remote communities in the Northwest Territories are not serviced by the main electricity grid and depend instead on expensive electricity generated mainly by diesel and gasoline generators. For many communities, PV systems represent a promising alternative. A detailed contractual agreement was signed on the July 26, 1993 between SINT and Natural Resources Canada to fund a

joint research program called "PV for the North". The Program consists of three distinct projects with the following objectives:

*Project (A):* To study the market for PV in the North, and to initiate a transfer of expertise and technology to northern communities, and to test PV components for operation in a cold climate.

*Project (B):* To study and demonstrate the viability of an advanced PV technology (such as PV/diesel) to supplement the use of fossil fuels for supplying electricity to the northern communities.

*Project (C):* To promote the use and benefits of PV energy in northern locations.

A detailed work plan was prepared. Significant progress has been made in the PV project.

#### *Northern Wind Farm*

Negotiations with NRCan, Dutch Industries and NWT Power Corporation have been completed on a commercial Wind Turbine Demonstration at Cambridge Bay. It is proposed that an 80 kw horizontal wind turbine be used from Dutch Industries of Regina, Saskatchewan. An important milestone has been achieved in bringing a Canadian industry to invest in an NWT renewable energy program.

#### *Igloolik Windmill*

Two 10 kw Wind Energy Conversion Systems (WECS) in Igloolik were successfully installed. This project is a cooperative venture, involving the Department of Public Works and Services (PWS), the local utility and the Science Institute. NRCan is funding the cost of monitoring and instrumentation. One of the machines has successfully operated throughout the winter. However, the second machine would require further adjustment before it was put into regular service. EM and PR/GNWT has agreed to pay the R and D costs for the repair of the machines.

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### **Engineering Technologies**

#### *Fleshing Tool for Small Scale Tanning*

All of the stages of the aboriginal tanning process are done by hand and do not need any other implement than a sharp knife. Traditionally, the fleshing was done with bone scrapers, but nowadays special knives or other metal instruments are often used. The fleshing process is the hardest of the whole tanning process, and requires a number of hours of hard, physical labour and a considerable amount of skill. The introduction of a low level of technology can ease the hard work involved in the fleshing process. Therefore, initiatives have been taken to develop an appropriate technology that can be used to make

the aboriginal tanning process into a semi-mechanized process. Three R and D organizations were awarded contracts for the conceptual development of a mechanized fleshing tool. These contracts would provide conceptual designs, which would be reviewed and considered for further development. Two organizations have completed their conceptual studies, and they are currently being reviewed. The third organization attempted to test a number of devices on the actual skins supplied by SINT. They have encountered considerable difficulty in overcoming the technical problems. Further effort is underway to resolve the problem.

#### *Gold Recovery from Tailings*

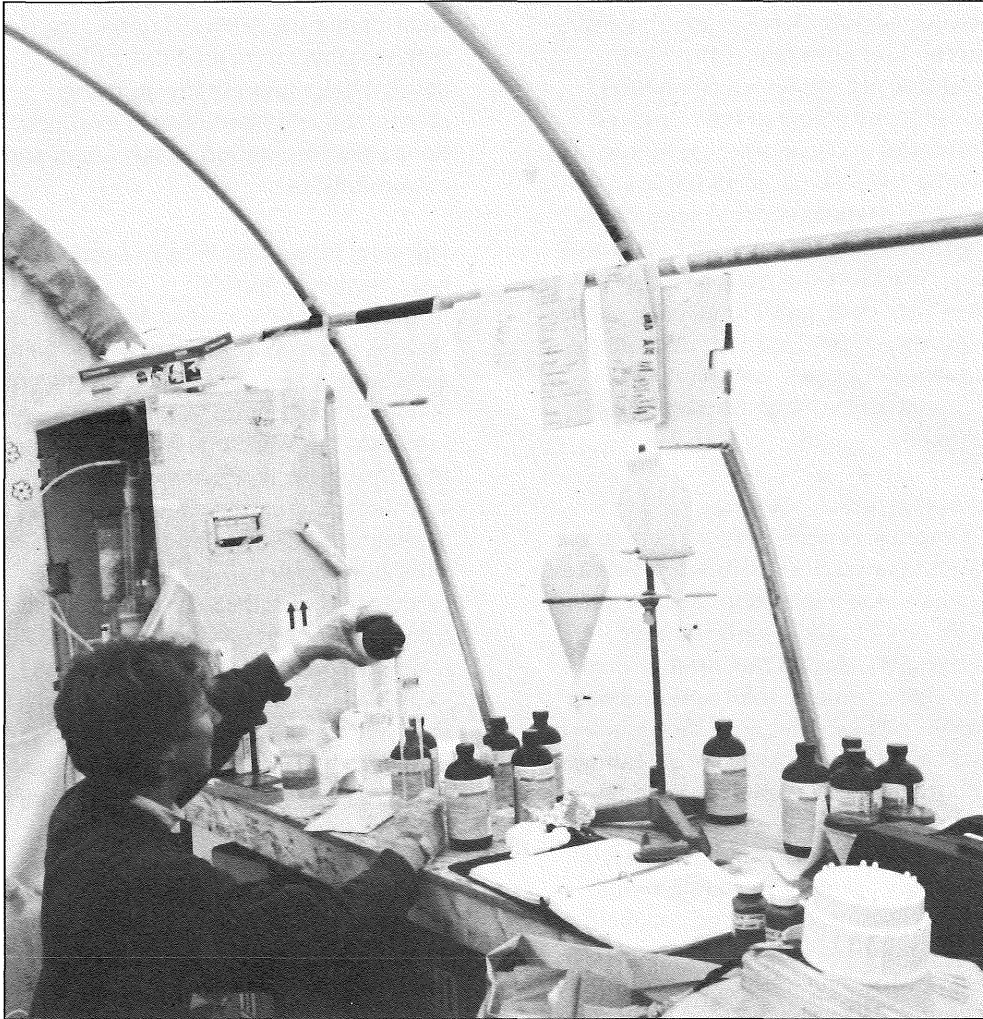
A novel Canadian technology for recovering gold from tailings has been under investigation. The technology is based on the principle of selective absorption. It uses a small amount of an absorbent material and a non-toxic additive in a slurry of water. By imparting high intensity turbulent shear stress to the ore slurry, minerals are separated from the ore due to its oleophilic and hydrophobic properties.

The gold recovery technology, if successful, would be useful to small operators by providing higher yields which are not obtainable by standard chemical separation processes. Furthermore, the technology, with certain modifications, is also applicable to diamond recovery. Small samples of tailings are being tested to assess the feasibility of the new process.

Initial assessment of the sample showed that an assay was required for the samples. The Saskatchewan Research Council was contacted to provide that analysis. They have now analysed a number of samples. The result of the analysis and a final report is under preparation.

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*Science Advisory  
Services*



Science Advisory Services are responsible for the administration of the NWT Scientists Act, an Act which requires researchers working in the Northwest Territories to obtain research licenses. During 1993-94, our focus has been to improve relations between researchers, regulatory agencies and NWT communities. To achieve this goal, several initiatives were undertaken to increase public awareness of NWT community and regulatory agencies, and to improve information exchange between these agencies.

#### *Interacting with Researchers*

To improve communications between various parties, Science Advisory Services produced the publication *Doing Research in the NWT: A Guide for Researchers Working in Canada's Northwest Territories*. The Guide contains information about community agencies, including hamlet and band councils; Metis locals; hunters' and trappers' organizations; regional, aboriginal organizations; and federal, territorial, municipal and aboriginal regulatory agencies. In addition, the Guide contains information about ethical conduct and working within land claim regions. This publication was sent to all relevant NWT agencies, as well as various research institutions. Since its release, the Guide has received wide-spread endorsement from government and aboriginal agencies, and is recognized as an important tool towards improving dialogue between researchers and Northerners.

#### *Interacting with NWT Communities*

Science Advisory Services also began to deliver regional workshops to NWT community representatives. The focus of the workshops was to discuss the NWT Scientists Act and the role of the communities in the licensing process. In November 1993, we delivered a morning workshop to representatives of a number of South Slave and Deh Cho communities, who were also attending a Planning and Lands Workshop hosted by Municipal

and Community Affairs. Community representatives were provided with a detailed description of the licensing process and an opportunity to ask questions about community involvement and responsibilities.

#### *Improving Interactions Between Regulatory and Community Agencies*

In December 1993, Science Advisory Services organized a two-day workshop to address key issues about the licensing and permitting of research in the NWT. Attending the workshop were representatives from federal, territorial, municipal and aboriginal regulatory agencies, as well as research and community agencies. The workshop was designed to familiarize participants with the issues, and provide recommendations on how these issues may be resolved.

The recommendations propose fundamental changes in administrative procedures and inter-agency communications. These changes are aimed at enhancing dialogue between researchers and the communities, and improving the exchange of information between agencies. At the suggestion of workshop participants, Science Advisory Services produced *Response from the Science Institute of the Northwest Territories to Workshop Recommendations*, a document which proposes ways to implement workshop recommendations.

*Summary of Licensed Research Conducted in 1993*

A total of 262 licenses were issued to researchers who collected data in the NWT during the year 1993. Just as in previous years, most research was conducted in either the Baffin or Inuvik regions, although a significant proportion of studies had data collection sites in more than one region. In addition, biological and physical sciences continue to be the most common research topics licensed by the Institute.

**Membership on Committees**

*Interdepartmental Working Committee on Traditional Knowledge*

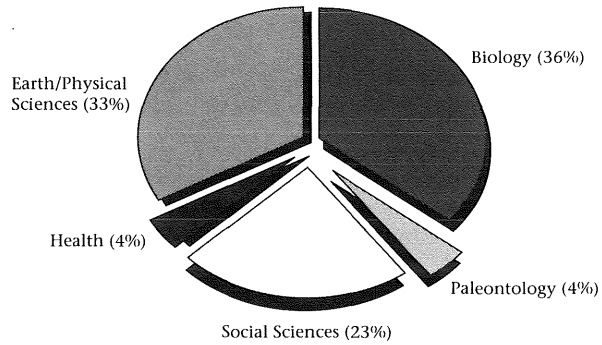
Science Advisory Services participated in the development of a two-year work plan for Committee activities relating to the use and promotion of traditional knowledge in territorial government and agency programs. We also participated in a one-day meeting with cultural organizations in order to discuss traditional knowledge initiatives.

*National Health Research Development Program: North of 60 Initiative*

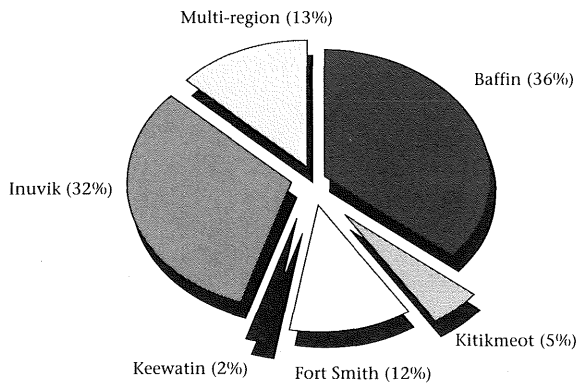
A comprehensive review of the North of 60 Initiative was conducted by the Territorial Department of Health. Science Advisory Services assisted the Department of Health with this review. Recommendations on improving the administration of this initiative were presented to the national program office.

*Survey of NWT Research Activities Conducted in 1993*

Agencies and communities are interested in knowing how Northerners benefit from research activities conducted in the NWT. In an attempt to measure benefits to Northerners, Science Advisory Services conducted a survey of all NWT researchers who received a research permit or licence under the NWT Scientists Act, NWT Wildlife Act and NWT Archaeological Sites Regulations for research conducted in 1993. This survey collected



*Licences by Type of Research, 1993*



*Licences by NWT Region, 1992*

information about the nature of the research activities, as well as the extent of northern involvement in these activities. Completed surveys were returned to the Institute in late spring, and an analysis of the data is currently underway. Researchers, communities and agencies will be informed of survey results.

*Information and  
Education*



The Information/Education Program is the public face of the Science Institute. Its goal is to promote science and technology awareness within the Northwest Territories. This is accomplished by encouraging the general public (particularly students) to take an active interest in science, technology and traditional knowledge through various projects and programs.

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### **Science Fairs**

The Science Institute continues to support Science Fairs at the local, regional and national levels by:

- providing special awards for students working on northern science projects;
- providing judges through the Innovators in the Schools Program; and
- helping with funding for regional Fair winners to attend the Canada-Wide Science Fair.

The Science Info-Line was revised this past year to include participation by the staff of the Iqaluit, Igloodik, Inuvik and South Slave Research Centres. The Science Info-Line provides a science information hotline which connects students with resource people who can provide assistance with Science Fair projects.

Expert's Days continued as a resource for students working on Science Fair projects and proved to be a hit in Jean-Marie River and Fort Simpson.

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### **Cross-Cultural Science Camps**

For the fifth consecutive year, the Science Institute organized Cross-Cultural Camps (on the land camps which bring native and non-native traditions together). A total of 45 young students from communities in the Yellowknife area gathered at a traditional fishing island in the North Arm of Great Slave Lake. At the end of the week-long camps, students leave with a greater appreciation of the natural history of the land and cultures of its people.

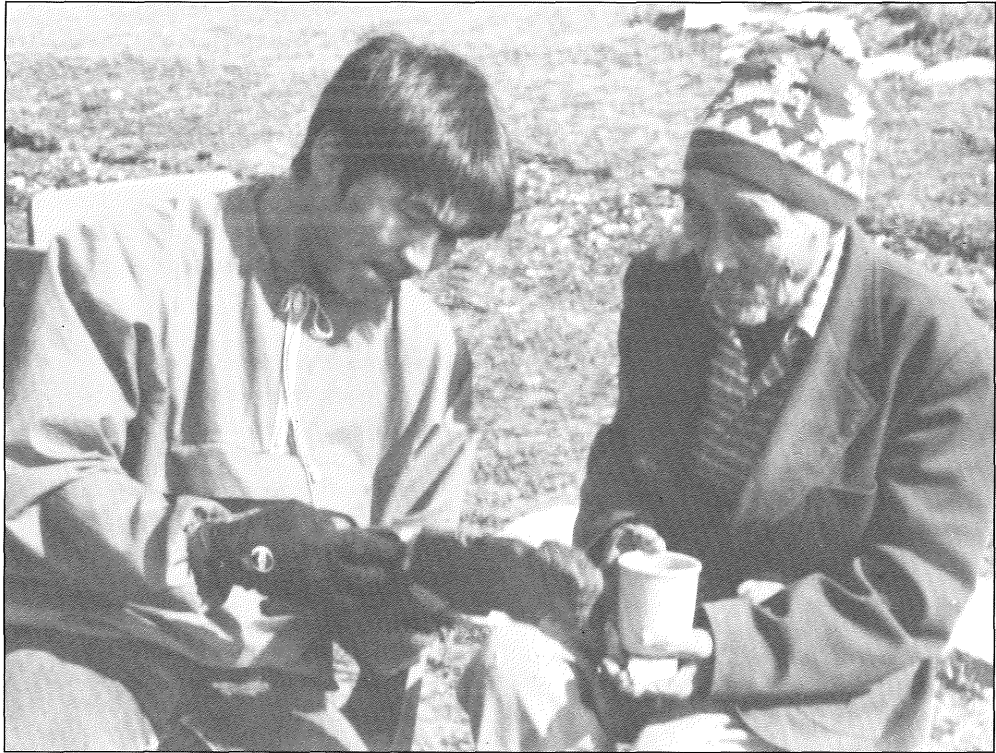
The Science Camps started in 1989 as a pilot project. This spring, the Board of Governors, following a review of the Science Camps, agreed that the future involvement by the Science Institute would change from a coordinating role to a supporting one. The Board further recommended that a "Guide to Developing Cross Cultural Science Camps in the NWT" be developed.

### *Innovators in the Schools Program*

The Science Institute continued to administer the Innovators in the Schools Program in the NWT. The goal of the Program is to bring scientists, technicians, engineers and mathematicians into the classroom to discuss and explain their field of work. The goal of the Program is to encourage students to continue their studies in science and math, and choose to pursue careers in those disciplines.

There are now 210 persons registered in the NWT Innovators database. Innovators acted as resource people to Science Fairs, made many classroom visits, and were present at Career Fairs across the NWT. Through funding allocated in the budget for remote community access, innovators were also able to visit students in Coppermine, Rankin Inlet, Jean-Marie River, Hay River, Iqaluit, Spence Bay and many other communities.

In April, the Innovators in the Schools Program joined forces with the organizers of the Student Environmental Conference in Arviat to bring Bob MacDonald of CBC's Quirks and Quarks to speak to the students. The Innovators Program also funded the Ilihakvik Earth Week Committee to bring environmental expert Meredith Pourbaix to Cambridge Bay. The Science Institute and the Royal Canadian Geographic Society sponsored a visit by climatologist David Phillips. Mr. Phillips spoke to students in Yellowknife and Rae about unique Canadian weather phenomena.



The Innovators Program provided assistance to *Newton's Apple*, a Public Broadcasting Service program from the United States, to film students involved in the Weather Project at Elizabeth Mackenzie School in Rae-Edzo. In appreciation, *Newton's Apple* provided video copies and educational resource packages for distribution to all schools in the NWT.

The Future Scientists' Club was initiated through a partnership with the NWT Association of Professional Engineers, Geologists and Geophysicists (NAPEGG) and the City of Yellowknife. NAPEGG volunteers host a monthly meeting of the Future Scientists' Club. This program is designed to excite youngsters from ages 6 to 10 about science through hands-on activities and experiments.

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### **The Weather Project**

Grade 6 classes at 10 schools across the Northwest Territories volunteered to participate in the Weather Project and were provided with basic weather instruments. Students recorded and reported data to the Arctic Weather Centre in Edmonton using the Department of Education, Culture and Employment's electronic bulletin board system and InterNet. The data is used by the Arctic Weather Centre to improve NWT weather forecasts.



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**National Science and Technology Week**

"Discover" was the theme for National Science and Technology Week, October 13-25, 1994. Events across the NWT included mall displays, tours of facilities and businesses, and open houses at many of the Science Institute's Research Centres.

The Science Institute coordinates National Science and Technology Week in the NWT through participation in Industry Canada's Public Awareness of Science and Technology Secretariat.

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**Science in Song**

Jamie Bastedo, a well-known northern environmental educator, in partnership with the Science Institute and Industry Canada's Public Awareness Secretariat, produced an audio tape of northern environmental songs. The tape is available through CYGNUS Environmental Consulting.



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## *Auditors' Report*

To the Board of Governors  
Science Institute of the  
Northwest Territories

We have audited the balance sheet of the Science Institute of the Northwest Territories as at March 31, 1994 and the statements of revenue, expenditures and unexpended funds and changes in financial position for the year then ended. These financial statements are the responsibility of the Institute's management. Our responsibility is to express an opinion on these financial statements based on our audit.

We conducted our audit in accordance with generally accepted auditing standards. Those standards require that we plan and perform an audit to obtain reasonable assurance whether the financial statements are free of material misstatement. An audit includes examining, on a test basis, evidence supporting the amounts and disclosures in the financial statements. An audit also includes assessing the accounting

principles used and significant estimates made by management, as well as evaluating the overall financial statement presentation.

In our opinion, these financial statements present fairly, in all material respects, the financial position of the Institute as at March 31, 1994 and the results of its operations for the year then ended in accordance with generally accepted accounting principles.



CHARTERED ACCOUNTANTS  
Yellowknife, Northwest Territories  
May 13, 1994 except note 7,  
dated June 27, 1994

	1994		1993
	Budget	Actual	Actual
		\$	\$
REVENUE			
Government of the Northwest Territories (Schedule 1)	1,543,180	1,566,980	1,521,881
Government of Canada (Schedule 2)	214,206	155,964	164,390
Other (Schedule 3)	147,900	131,817	142,999
	<u>1,905,286</u>	<u>1,854,761</u>	<u>1,829,270</u>
Deferred revenue in prior year	-0-	130,971	132,555
Deferred revenue in current year	-0-	(169,441)	(130,971)
	<u>1,905,286</u>	<u>1,816,291</u>	<u>1,830,854</u>
EXPENDITURES			
Administration	213,107	196,356	243,248
Board of Governors	17,000	43,095	25,773
Bursary	3,000	3,000	-0-
Chairman	5,750	4,452	9,139
Executive Director	164,868	157,833	182,202
Industrial Research Assistance Program	50,000	50,000	50,922
Information/Education	93,240	97,533	95,199
Research Centre operations - Igloolik	262,598	259,914	255,459
Research Centre operations - Iqaluit	168,853	178,154	152,134
Research Centre operations - Inuvik	238,333	225,779	241,583
Research Centre operations - Headquarters	87,824	82,105	102,119
Research Centre operations - South Slave	39,076	39,076	43,002
Science Advisor	-0-	-0-	1,766
Science Administration	80,800	70,463	64,026
Special Projects	328,490	226,531	202,387
Special Projects (SSRC)	155,998	128,828	-0-
Technology Development	219,140	242,964	211,534
	<u>2,128,077</u>	<u>2,006,083</u>	<u>1,800,493</u>
(DECREASE) IN UNEXPENDED FUNDS FOR THE YEAR	(222,791)	(189,792)	(49,639)
UNEXPENDED FUNDS, OPENING	<u>944,501</u>	<u>944,501</u>	<u>944,140</u>
UNEXPENDED FUNDS, CLOSING	<u>721,710</u>	<u>754,709</u>	<u>944,501</u>

## Statement

of Revenue, Expenditures and  
Unexpended Funds  
for the Year Ended  
March 31, 1994

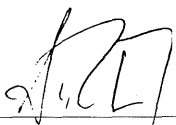
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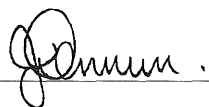
# Balance Sheet


as at  
March 31, 1994


	1994 \$	1993 \$
<u>ASSETS</u>		
CURRENT		
Cash	1,332,365	1,206,452
Accounts receivable	308,637	121,445
Prepaid expenses	821	821
	<u>1,641,823</u>	<u>1,328,718</u>
FIXED ASSETS	<u>1,001,283</u>	<u>935,052</u>
	<u>2,643,106</u>	<u>2,263,770</u>
<u>LIABILITIES</u>		
CURRENT		
Accounts payable and accrued liabilities	717,673	253,246
Deferred revenue (Note 2)	169,441	130,971
	<u>887,114</u>	<u>384,217</u>
<u>INSTITUTE'S EQUITY</u>		
INVESTMENT IN FIXED ASSETS	1,001,283	935,052
UNEXPENDED FUNDS (Note 3)	754,709	944,501
	<u>1,755,992</u>	<u>1,879,553</u>
	<u>2,643,106</u>	<u>2,263,770</u>

APPROVED BY THE BOARD OF GOVERNORS:

  
\_\_\_\_\_  
Chairman

  
\_\_\_\_\_  
Governor

  
\_\_\_\_\_  
Executive Director

  
\_\_\_\_\_  
Manager, Finance and Administration

	1994 \$	1993 \$
<b>OPERATING ACTIVITIES</b>		
Decrease in unexpected funds for the year	(189,792)	(49,639)
Fixed asset transaction charged directly to operations	<u>66,231</u>	<u>73,092</u>
	(123,561)	23,452
Cash provided by (used for) changes in non-cash working capital:		
Accounts receivable	(187,192)	(18,361)
Prepaid expenses	-0-	(189)
Accounts payable and accrued liabilities	464,427	(6,119)
Deferred revenue	<u>38,470</u>	<u>(1,584)</u>
Cash from (for) operations	<u>192,144</u>	<u>(2,800)</u>
<b>INVESTING ACTIVITIES</b>		
Fixed assets purchased	(79,860)	(79,854)
Disposal of fixed assets	<u>13,629</u>	<u>6,762</u>
	(66,231)	(73,092)
<b>INCREASE (DECREASE) IN CASH</b>	125,913	(75,892)
<b>CASH, OPENING</b>	<u>1,206,452</u>	<u>1,282,344</u>
<b>CASH, CLOSING</b>	<u><u>1,332,365</u></u>	<u><u>1,206,452</u></u>

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## *Statement*

*of Changes in Financial  
Position for the Year Ended  
March 31, 1994*

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## Notes

to the Financial Statements  
March 31, 1994

### 1. SIGNIFICANT ACCOUNTING POLICIES

#### A. Unrecorded costs paid by the Government of the Northwest Territories.

The Government of the Northwest Territories provides the following free of charge:

- i) 1,850 square feet of office space;
- ii) Telephone and mail services, printing, translation and library services, as well as other services under an Administration Agreement;
- iii) Research Centres (4), Scientific Reserves (5), and Field Stations (2), along with all maintenance and utilities related thereto, for the exclusive use of the Institute.

Revenues and expenditures recognizing the provision of these services and facilities by the Government of the Northwest Territories have not been recorded in these financial statements.

#### B. Fixed Assets

Fixed assets are expensed in the year of acquisition. The accounts "fixed assets" and "investment in fixed assets" reflect the historical cost of all assets owned by the Institute.

Certain office equipment and furnishings were transferred to the Institute in 1987 and 1988 by the Government of the Northwest Territories and recorded at values established by them.

### 2. DEFERRED REVENUE

Deferred revenue represents monies committed for programs for which the expenditures have not yet been incurred.

	1994	1993
	\$	\$
Medical Research		
- Minister of Consumer & Corporate Affairs	106,488	106,488
Cross Cultural Science Camp	-0-	4,000
South Slave Research Centre		
- Department of Economic Development & Tourism	14,319	-0-
- Indian & Northern Affairs Canada	2,256	-0-
Industry, Science & Technology Canada		
- Innovators in the Schools	46,378	19,483
Other	-0-	1,000
	<u>169,441</u>	<u>130,971</u>

3. UNEXPENDED FUNDS

Unexpended funds include amounts which the Board has identified to be expended in the future for the following purposes:

	\$
Technology Development Program	<u>352,310</u>
Medical research	<u>100,836</u>
Bursary funding	<u>42,824</u>

The balance of unexpended funds are unrestricted in their future use.

4. FUTURE OPERATIONS

The Minister responsible for the Science Institute has announced that the operations of the Institute will be integrated with those of Arctic College. This integration is proceeding and is expected to be completed by January, 1995.

5. JURISDICTION OF INCORPORATION

The Science Institute of the Northwest Territories was established by the *Science Institute of the Northwest Territories Act* of the Government of the Northwest Territories in 1984.

6. COMPARATIVE FIGURES

Certain comparative figures have been restated to conform to current year presentation.

7. REVENUES

The Institute was informed on June 27, 1994 of an additional \$50,000 of unconditional funding receivable from the Department of Education, Culture & Employment. The financial statements issued before that date have been retracted and revised to include this amount.

	1994		1993
	Budget	Actual	Actual
			\$
Department of the Executive	1,405,405	873,335	1,424,000
Department of Renewable Resources	-o-	-o-	2,461
Department of Renewable Resources (SSRC)	5,000	5,000	4,000
Department of Economic Development & Tourism	35,100	-o-	35,100
Department of Economic Development & Tourism (SSRC)	49,090	49,090	1,870
Department of Social Services	6,000	6,000	5,000
Department of Social Services (SSRC)	3,450	3,500	-o-
Department of Energy, Mines & Petroleum Resources	4,000	10,000	8,000
Department of Energy, Mines & Petroleum Resources (SSRC)	7,000	7,000	-o-
Department of Education, Culture & Employment	8,000	537,024	11,450
Department of Education, Culture & Employment (SSRC)	4,800	8,196	-o-
N.W.T. Housing Corporation	-o-	15,000	15,000
N.W.T. Development Corporation	-o-	37,500	15,000
Legislative Assembly	<u>15,335</u>	<u>15,335</u>	<u>-o-</u>
	<u>1,543,180</u>	<u>1,566,980</u>	<u>1,521,881</u>

**Notes**

to the Financial Statements  
March 31, 1994

**Schedule 1**

Revenue -  
Government  
of the Northwest Territories  
for the Year Ended  
March 31, 1994

## Schedule 2

Revenue -  
Government  
of Canada  
for the Year Ended  
March 31, 1994

	1994		1993
	Budget	Actual	Actual
Employment & Immigration	6,177	6,008	13,013
Employment & Immigration (SSRC)	32,258	30,388	-o-
Atmospheric Environmental Services	2,400	2,400	2,400
Geological Survey of Canada	2,400	2,400	2,400
Indian & Northern Affairs	-o-	-o-	25,000
Indian & Northern Affairs (SSRC)	8,300	8,300	-o-
National Research Council of Canada			
Industrial Research Assistance	50,000	41,784	29,167
Iqaluit Research Centre	9,450	7,092	-o-
Cosmic Ray Studies	8,400	8,400	8,400
Science Culture Canada	-o-	-o-	20,274
Environment Canada	3,948	3,948	-o-
Environment Canada (SSRC)	-o-	-o-	2,500
Industry, Science & Technology	68,483	30,250	40,000
Forestry Canada	-o-	-o-	10,000
Supply & Services	20,390	12,994	11,236
Parks Canada	2,000	2,000	-o-
	<u>214,206</u>	<u>155,964</u>	<u>164,390</u>

## Schedule 3

Revenue -  
Other  
for the Year Ended  
March 31, 1994

	1994		1993
	Budget	Actual	Actual
Board of Education	15,000	-o-	12,500
Interest	71,000	80,097	93,025
Donations	9,000	1,008	6,263
Arctic College (SSRC)	8,000	2,500	2,500
Arctic College	-o-	-o-	1,000
Town of Fort Smith (SSRC)	2,500	-o-	2,400
N.W.T. Power Corporation (SSRC)	3,600	4,140	3,000
Fundraising	250	2,498	193
Rental & services	10,450	13,980	20,118
Sale of assets	4,500	5,994	-o-
Muttart Foundation	6,600	6,600	-o-
Yukon Department of Education	-o-	-o-	1,000
Bursary Donation	-o-	-o-	1,000
South Slave Divisional Board of Education	-o-	3,000	-o-
Wood Buffalo National Park	-o-	5,000	-o-
Fort Smith Health Centre (SSRC)	7,000	7,000	-o-
Deferred Revenue (CCAC)	10,000	-o-	-o-
	<u>147,900</u>	<u>131,817</u>	<u>142,999</u>





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SCIENCE INSTITUTE  
OF THE NORTHWEST TERRITORIES









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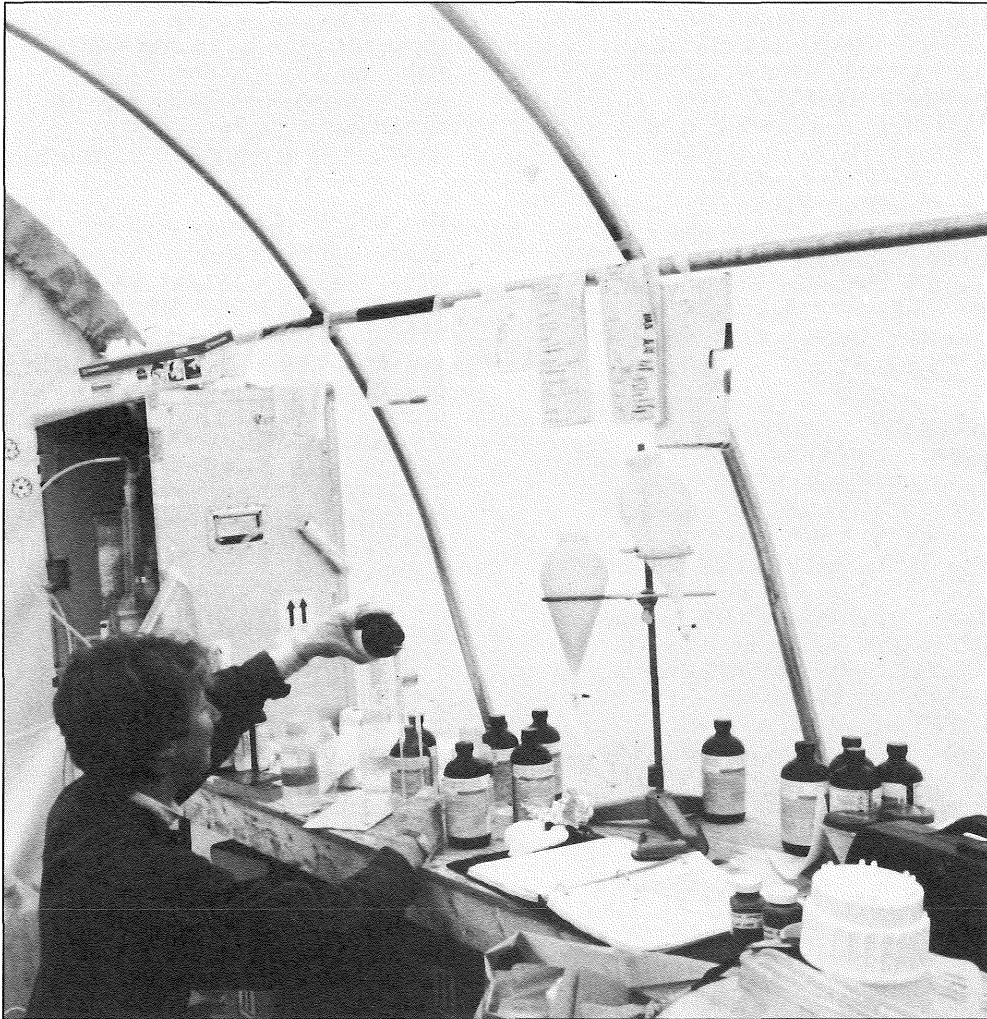
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