

2002 ANNUAL REPORT



NATIBO

A handwritten signature in black ink, appearing to be 'Elevine'.

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Canada Co-Chair
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A handwritten signature in black ink, appearing to be 'John B. Todaro'.

John B. Todaro
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**North American Technology and Industrial Base Organization
(NATIBO)
Calendar Year 2002 Annual Report**

Background

At the 1985 Shamrock Summit, Ronald Reagan, President of the United States, and Brian Mulroney, Prime Minister of Canada, pledged to work to reduce barriers and to stimulate the two-way flow of defense goods, establish a free exchange of technology, knowledge, and skill involved in defense production. This led to the establishment of the Charter signed by the two Nations' Defense Departments on March 23, 1987. At that time the NATIBO focused on the combined capacity and capability of the defense industrial bases of the U.S. and Canada to jointly support military requirements. In 1992 the organization determined it needed to review its objectives and explore new roles and initiatives to respond to the challenges of the 1990s. This change is reflected in more focus on technology vice industrial capacity issues. The NATIBO is now charged with ensuring a cost effective, healthy, technology and industrial base that is responsive to the national and economic security needs of the United States and Canada.

Focus/Objectives of NATIBO

- Promote the development, administration, communication, and execution of the U.S. Department of Defense and Canadian Department of National Defence technology and industrial base programs and policies.
- Foster cooperation between the Governments of the United States and Canada in development of coordinated technology and industrial base policies and programs, including policies and programs that promote the integration of the defense and commercial industrial sector and the greater use of dual use products and technologies.
- Leverage resources through cost sharing and economies of scale afforded through coordinated studies and projects involving research, development, industrial capability, and logistics programs.
- Promote the interchange of technology and industrial base data between Canada and the U.S., the military services, other government agencies, and industry.
- Promote coordination of technology and industrial base planning and insertion programs undertaken by the responsible U.S. and Canadian departments and agencies in support of their national security responsibilities.
- Facilitate enhanced joint activity through Canada/U.S. involvement in studies and implementation of resulting technology and industrial base recommendations.

- Ensure that North American technology and industrial base considerations are taken into account during U.S. or Canadian military and/or civilian emergency planning activities.
- Enhance the national security of both nations by promoting the competitiveness of the North American technology and industrial base.
- In performing the above, raise issues with relevant bi-lateral committees in those cases where interface between the NATIBO and these committees is determined to be advisable.

Memorandum of Understanding (MOU)

On May 30, 2001, the Department of Defense of the USA and the Department of National Defence for Canada entered into an agreement whereby the Defense Departments can more efficiently continue their efforts to improve the defense posture of the North American technology and industrial base. The MOU (short title NATIBO) is an umbrella document that covers research, development, technical demonstration and technology insertion activity in the two Defense Departments and “grandfathers” activity performed by NATIBO under the charter. The MOU allows three basic activities: Information Exchange, the creation of Working Groups, and formal Project Arrangements (PAs). The MOU provides a recognized framework for which funds can be transferred between the participants in support of NATIBO studies and projects.

The objectives of the MOU are to:

- Effectively leverage dollars/resources and reduce redundant efforts through bilateral cooperation on studies and projects relating to the defense technology and industrial base of the USA and Canada.
- Achieve rapid technology insertion and commercialization of emerging technologies that can be used in the manufacture and repair of military weapon systems.
- Permit a wide variety of work to be accomplished on a single project from paper studies and initial research to technology insertion efforts.

Organization

The NATIBO is co-chaired by the Director, Office of Technology Transition, for the U.S. and the Director General, International & Industry Programs, for Canada. U.S. members represent the Office of Secretary of Defense, Army, Navy, Air Force, Marines, Defense Logistics Agency, and Defense Contract Management Agency. Canadian representation is from the Department of National Defence. These representatives form the Steering Committee and provide strategic direction, make recommendations on proposed projects, review the progress of the organization, and act as a conduit for addressing

recommendations to U.S. and Canadian authorities. Under the provisions of the MOU, Terms of Reference (TOR) for the Steering Committee were prepared, staffed and implemented July 11, 2001. There are five observing organizations that provide assistance to the Steering Committee as appropriate. These observers are the U.S. Federal Emergency Management Agency, U.S. Department of Commerce, Public Works and Government Services Canada, Industry Canada, and Canadian Commercial Corporation.

Steering Committee Members

Mr. John Todaro, U.S. Co-Chair
Mrs. Cynthia Gonsalves, OSD
Mr. Luis Garcia-Baco, U.S. Army
Mr. Steven Linder, USN
COL Paul Coutee, USAF
Mr. Rod Manzano, USMC
Mr. Steve Ruffa, DLA
Mr. William Ennis, DCMA
Mr. David Shaffer, U.S. Army

Ms. Evelyn Levine, Canadian Co-Chair
Mr. Michael Slack, DGIIIP

Secretariat

The U.S. Army Materiel Systems Analysis Activity is the NATIBO Secretariat. The Secretariat is responsible for all business management functions in support of the NATIBO, including the planning and recording of meetings, the correspondence with and between sub-committees, the maintenance of a central repository of data/files on NATIBO activities, and other business management duties as assigned by the Steering Committee. The Secretariat is also responsible for selected functions in support of the MOU.

Business Development Working Group (BDWG)

The BDWG provides a permanent forum for the exchange of views on the means of utilizing the technology and industrial base to meet defense program objectives, and through this forum identify mutually beneficial cooperative technology and industrial base activities between DoD and DND. The BDWG also will facilitate exploratory discussions and review documentation prepared by proponents for the purpose of establishing a Working Group or PA under the provisions of the MOU. The BDWG will also advocate and increase awareness of all NATIBO sponsored activities.

Calendar Year 2002 Activity

Working Groups Established. The NATIBO MOU has generated considerable interest. The following Working Groups were established this calendar year on a broad spectrum of topics. The BDWG facilitated the development and staffing of the TOR required for the establishment of working groups.

- **Gas Turbine Engine – Industrial Base Analysis Working Group (GTE-IBAWG).** The GTE-IBAWG was established to explore, study and report on specific technology and industrial base issues associated with the near-term development, production and support of turboprop, turbofan and turbojet engines with military applications. The TOR for the GTE-IBAWG was signed 19 July 2002. The GTE-IBAWG has undertaken a study focusing on industry's ability to meet current and future military requirements for military helicopters. Focusing on common parts, the GTE-IBAWG will identify any problems with parts (reliability issues) or suppliers (manufacturing/logistics issues), and identify any future collaborative opportunities. Anticipate this study to be completed in calendar year 2003. U.S. Army Aviation and Missile Command and the Canadian Defence Liaison Staff are the respective Project Offices for this effort.
- **First Responder Technology Working Group (FRTWG).** The NATIBO is undertaking an effort that will explore, study and report on specific technology and industrial base issues associated with migrating military technologies and products which can be used by civilian First Responders. The FRTWG will collaborate with military laboratories, civil agencies, industry associations, and First Responder professional associations on windows of opportunity for identified military technologies and products. The U.S. Project Officer is the Office of Technology Transition and Canada's Project Officer is Canadian Defence Liaison Staff. The TOR for this working group was signed 2 December 2002.
- **US/CA Soldier Systems Technology Working Group (SSTWG).** The SSTWG was established to maintain a continuous overview of the respective programs of the U.S. Objective Force Warrior and/or related programs and Canada's Soldier Systems Science and Technology Thrust and/or related programs. The SSTWG will undertake activities covering lethality, mobility, sustainability, survivability and command control and information systems, as well as related human factors related to these programs. The goal is to identify mutually beneficial technology and/or industrial base cooperative activities. The TOR is being staffed for signature. The U.S. Project Officer is from U.S. Army Natick Soldier Center. Canada's Project Officer is from the Thrust Leader Soldier Systems Defence Research and Development Center.

- **Future Fire Control Systems Working Group (FFCSWG).** The FFCSWG provides a forum for the exchange of research, development, test, and evaluation information of Future Fire Control Systems to encompass all aspects of fire control – from target acquisition to post action assessment. The FFCSWG anticipates establishing cooperative research, development, test and evaluation projects. Late in 2002 the FFCSWG TOR was staffed for approval. A signing ceremony has been planned for early January 2003 at the Canadian Embassy in Washington, DC. NATIBO and FFCSWG representatives from both countries are scheduled to attend. The Project Director Future Armored Vehicle Systems/Multi-mission Effects Vehicle Technology Demonstration Projects is the Canada Project Officer and Division Manager, Fire Control and Software Engineering is the U.S. Project Officer.

Ongoing Efforts From 2001. The NATIBO MOU was signed in the spring of 2001 and the following activities were initiated that year. These efforts continue to work under and support NATIBO MOU objectives.

- **BDWG.** The BDWG had a variety of inquiries from potential users, mostly via phone call, regarding the use of the NATIBO MOU on a broad spectrum of topics. Several projects were not within the scope of the MOU and the BDWG suggested other international agreements or referred proponents to their International Programs Office for guidance. Of the thirteen inquiries received in CY2002, three have resulted in the formation of Working Groups. In some instances an International Agreement better suited to the user's needs was recommended.
- **Multi-Service Regenerative Electrolyser/Fuel Cell Working Group (MREFWG).** The MREFWG, established 12 October 2001, was formed to exchange information on MREF testing in the Light Armored Vehicle (LAV) environment. U.S. Army Tank-automotive Command contracted with Hydrogenics (a Canadian firm partially owned by General Motors) to develop a fuel cell in a box. The fuel cell is approximately one cubic meter in size (with the hydrogen tanks), weighs approximately 250 pounds, is silent when in operation, has a small thermal signature, and can run for ten hours (dependent on load and size of tanks) or until the water runs out. Output is electricity, heat and water. There is nothing to dispose of and there are no harmful emissions. Hydrogenics is scheduled to provide a prototype to U.S. Army Tank-automotive Command February 2003.

NATIBO Website. During CY2002 over 69,600 users accessed the NATIBO website and approximately 36,300 reports were downloaded. CY2002 usage was down slightly from CY2001 activity but this can be attributed to the six weeks the website was off-line while adjustments were made to conform to new security procedures. The Biological Detection System Technologies Study, 1999 Rechargeable Battery/Systems for Communication/Electronic Applications Study, and the Diminishing Manufacturing

Sources and Material Shortages report captured the most interest. The website also has information on how to prepare required documentation when forming a working group or preparing a PA to be implemented under the MOU. Examples are also provided. TOR and PA were each downloaded over 100 times. This is significant because inquirers seriously looked at how to use the MOU. The URL is <http://www.dtic.mil/natibo>. Updates are made when appropriate.

Steering Committee Meeting. The CY2002 Steering Committee meeting, hosted by the U.S. Air Force, was held June 11-12 in Colorado Springs, Colorado. In addition to the business meeting, attendees toured the North American Aerospace Defense Command (NORAD) Cheyenne Mountain Operations Center.

Exhibit. The NATIBO exhibit is displayed at selected forums, conferences and expositions. The exhibit was placed and staffed at the Defense Manufacturing Conference December 2-5. This forum provided an opportunity for approximately 950 leaders from government, industry and academia to exchange perspectives and information about critical DOD technology and sustainment initiatives.

Presentations. Members are frequently invited to make presentations on NATIBO projects to their senior staff or other departments, agencies, activities. In response to calls for papers, submissions are frequently selected for presentation at conferences and symposiums. Some of these events are described below.

- SBCCOM Advance Planning Briefing for Industry, Chemical/Biological Defense Systems and Warrior Systems, March 5, 2002, Hunt Valley, Maryland, Biological Detection System Technologies Technology and Industrial Base Study, Major Norman Saulnier
- International Point of Contacts, Air Force Research Laboratory Technology Directorates, May 7, 2002, Wright-Patterson Air Force Base, Ohio, NATIBO Memorandum of Understanding, Alan Taylor
- Joint Service Industrial Base Assessment Planning Conference, June 5, 2002, Arlington, Virginia, Small Gas Turbine Engine Study, Alan Taylor
- Canadian Forces Air Force Liaison Officers, October 9, 2002, Washington DC, NATIBO briefing, Major Arnold Kettenacker
- Foreign Comparative Test Tour in Canada with representatives from the US, Canadian Defence Industries Association, Industry Canada, Atlantic Canada Opportunities Agency and Ontario Exports, November 4-7, 2002, Halifax, Toronto, Montreal, NATIBO briefing, Major Arnold Kettenacker

Awards. Certificates of Appreciation were presented to James Hirvonen, Bryan Prosser and Bruce Sartwell for their technical expertise, leadership and dedication to the Ion Implantation of Military Components project. A Certificate of Appreciation was

presented to James Dorsey for his contributions to the development and maintenance of the NATIBO website. The Chairmen's Award of Achievement for Outstanding Performance was presented to Major Norman Saulnier for his contributions to NATIBO from 1999 – 2002.

Funding

The NATIBO has no direct funding line in U.S. or Canadian defense budget systems. Projects are funded from the operating budget of member organizations. The U.S. Army, U.S. Navy, U.S. Air Force and Canada's Department of National Defence equitably support the NATIBO Secretariat.

The NATIBO functions with 'payment in kind' contributions from its members. The U.S. Army prints and publishes studies and brochures. The U.S. Air Force pays expenses associated with the exhibit. OSD sponsors the website and Canada has provided materiel for the exhibit and expenses associated with the exhibit at events in Canada. The U.S. Navy waived the entrance fee for the NATIBO exhibit at the Defense Manufacturing Conference 2002. All the Services and Canada have had employees staff the exhibit at events.

Planned Activities for Calendar Year 2003

BDWG. The BDWG will continue to work with prospective users of the MOU to ensure that prospective activity is consistent with the objectives of the NATIBO MOU. They will assist users in the preparation and staffing of documentation required for international activity. The BDWG will continue to work closely with the Steering Committee and Co-Chairs regarding the business activity of the NATIBO.

Multi-Service Regenerative Electrolyser/Fuel Cell Working Group (MREFWG).

The fuel cell in a box prototype, scheduled to be received from Hydrogenics in February 2003, will be analyzed at the U.S. Army Tank-automotive Command and used in Phase II of the project. Phase II will integrate the fuel cell into a LAV Reconnaissance, Surveillance and Target Acquisition (RSTA) variant (Coyote) for testing.

First Responder Technology Working Group (FRTWG). This First Responder Initiative is pursuing its objectives and has started bringing in other elements of the U.S. and Canadian Defense Departments and Government Agencies to facilitate the push of technologies from the Research and Development stage and the pull of technologies into a product for the end users. Briefing/meetings with affected organizations are continuing to establish long term capability necessary for this effort to have meaningful results.

US/CA Soldier Systems Technology Working Group. Continue staffing TOR for signature and provide copy to interested parties. Working Group meetings will be held to coordinate the exchange of information with a view to find areas of collaboration.

(Note: TOR was signed 2 January 2003.)

Future Fire Control Systems Working Group (FFCSWG). A signing ceremony for the TOR is scheduled for 9 January 2003 at the Canadian Embassy in Washington, DC. Working Group meetings will be held to coordinate the exchange of information with a view to find areas of collaboration on future fire control systems. (Note: The TOR was signed 9 January 2003)

Exhibit Schedule. The tentative NATIBO exhibit schedule for CY2003 follows.

February	Canada On Capital Hill, Washington, DC
August	DOD Diminishing Manufacturing Sources and Material Shortages (DMSMS) Conference, San Diego, California
December	Defense Manufacturing Conference, Washington, DC

Conclusion

Throughout history, advances in technology have directly and indirectly transformed the course of world events. Commercial technology will not by itself satisfy military needs. New technology must be affordable for the military and profitable for industry. The Defense budget reductions of recent years on both sides of the border have forced an increasing emphasis on affordability as a leading investment factor governing military technology programs. The threats of the 21st century are unpredictable and change faster than technology and industry can respond. We cannot design and equip our forces for every contingency. The key to the future is expanding technology leveraging opportunities between DoD and DND. The U.S. and Canada are neighbors and allies dedicated to the defense and nourishment of peace and freedom. NATIBO...a forum for cooperation.