2009 ANNUAL REPORT

NATIBO

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Calendar Year 2009 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 NADIBO 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 was reflected in more focus on technology vice industrial capacity issues.

Each year presents new challenges for the national and economic security needs of the U.S and Canada. In 2009, NATIBO responded by expanding the areas it supports beyond traditional industrial base/preparedness concerns to include leveraging technology. This includes the assessing of infrastructure to develop and transition new military technology, as well as the ability to transfer technology between civilian and military applications and develop manufacturing technologies to support military transformation production strategies.

MISSION STATEMENT

In support of North American national security, the NATIBO facilitates technology and industrial base efforts between the U.S. and Canadian Defense Departments.

Focus/Objectives of NATIBO

- Promote the development, administration, communication, and execution of the U.S. Department of Defense and Canadian Department of National Defence (DND) 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 also 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 (OTT), for the U.S. and the Director General, International & Industry Programs (DGIIP), for Canada. U.S. advisors to the Co-chairs represent the Office of Secretary of Defense (OSD), Army, Navy, Air Force, Missile Defense Agency (MDA), Defense Logistics Agency (DLA), and the Defense Contract Management Agency (DCMA). Canadian representation is from the Department of National Defence (DND). 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 four observing organizations that provide assistance to the Steering Committee as appropriate. These observers are the U.S. Department of Commerce (DoC), Public Works and Government Services Canada (PWGSC), Industry Canada (IC), and Canadian Commercial Corporation (CCC).

Steering Committee Members

Ms. Cynthia Gonsalves, U.S. Acting Co-Chair and OSD representative
Ms. Linda Custer, U.S. Army
Mr. John Williams, U.S. Navy
Ms. Persis Elwood, U.S. Air Force
Mr. Steven Linder, MDA
Ms. Donna Davis, DLA
Ms. Mary Grace Dondiego, DCMA
Ms. Jo Ann Carmichael, U.S. Army

Mr. John Neri, Canadian Co-Chair
Mr. Michael Slack, DGIIP

Secretariat

The U.S. Army Edgewood Chemical Biological Center 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 facilitates 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 advocates for and increases awareness of all NATIBO sponsored activities.

Calendar Year 2009 Activity

Operations and 3 Year Business Plan. This plan was developed to provide direction for the NATIBO. The plan covers the period from January 1, 2009 through December 31, 2011. The Plan allows the NATIBO Co-Chairs, Steering Committee, Secretariat and BDWG to focus resources to obtain identified goals and generate specific products. As part of an annual review process, the plan is updated by the BDWG.

Several Work Plans are identified in the Business Plan.

Work Plan	*Title*	*Purpose/Comments*
1	Advocacy Plan	Update current marketing methods; develop new strategies to better advocate NATIBO as an organization and the value/utility of the MOU.
2	Alternative Fuels	Conduct an industrial base assessment of alternative fuel technologies based on coal-to-liquid and gas-to-liquid conversion processes.
3	Critical Infrastructure Protection	Identify and assess critical components in US and Canada Defense Industrial Base Sectors.
4	Shared Technology and Industrial Base Processes and Practices	Develop and share common processes related to industrial base.
5	Technology/Industrial Base Assessments	Conduct joint assessments of selected technology and industrial base topics. • Next Gen Over-the-Horizon Radar • Unmanned Systems (air, water, ground)
6	MOU Revision/Amendment	Review and revise NATIBO MOU based upon recent national policy changes.

Working Groups Established. Working Groups provide the framework for identifying mutually beneficial technology and industrial base cooperative activities between the Participants. The following Working Group was established this calendar year:

- **Alternative Fuels Working Group (WG).** The Alternative Fuels WG was established to maintain an overview of the respective programs within the U.S. DoD and Canada's DND to develop and certify alternative fuels for use in military systems. The WG will study and explore potential collaborative activities covering the following areas: alternative fuels research, certification, pilot production, Defense Department coordination with civil agencies and logistics/distribution strategies. To accomplish this, the Alternative Fuels WG conducted an industrial base assessment of alternative fuel technologies with emphasis on coal-to-liquid (CTL) and gas-to-liquid (GTL) conversion processes. This study compares the costs and benefits of several alternatives to developing a Fischer-Tropsch (F-T) CTL and/or GTL industrial base to produce fuels for the North American military and commercial sectors. This study also will identify the potential market impact and/or risks associated with DoD and DND investment solutions to mitigate technology, environmental and business constraints. The U.S. Project Officer is from the Air Force Research Laboratory and Canada's Project Officer is from the National Defence Headquarters. The WG Terms of Reference (TOR) was signed on June 9, 2009. During CY2009, the team researched the topic through extensive review of existing reports and documents, contact with involved government agencies, commercial firms, industry associations, and subject matter experts.

Ongoing Efforts From 2008. The NATIBO MOU was signed in the spring of 2001 and several working groups were established from 2001 through 2009. These working groups continue to work under and support NATIBO MOU objectives.

- **BDWG**. The BDWG had a variety of inquiries from potential users 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.

- **US/CA Infantry Soldier Modernization Working Group (ISMWG)**. Canada hosted the annual ISMWG Meeting in May 2009. The group established a new Action Team on Novel Helmet Concepts and Materials and held an initial kick-off meeting in May 2009. The group continued staffing the Equipment and Materiel Transfer Arrangement under the Future Force Interoperability MOU. PEO Soldier will re-submit the final version to Deputy Assistant Secretary of the Army for Defense Exports and Cooperation (foreign military sales).

- **US/CA Defense Industrial Base/Critical Infrastructure Protection Working Group (DIB/CIP WG).** The U.S. and Canada held a joint briefing at the January 2009 Homeland Infrastructure Foundation-Level Data Working Group on Cross Border Infrastructure Program, Security and Prosperity Partnership and Critical Foreign Dependencies Initiative. The briefing focused on the partnership that has developed between the U.S. DoD and Canadian DND regarding critical infrastructure. The briefing also touched on Canada's need for a geospatial tool to view their infrastructure.

  The U.S. and Canada met in February 2009 to review and update each other on the status of their respective DIB Identification and Prioritization processes. During this meeting a

discussion was held on future Canadian needs to establish a Canadian Critical Infrastructure Protection - Mission Assurance Assessment team and the training of the team and other interested parties. Canadian officials asked associates from DCMA IAC as the Defense Infrastructure Sector Lead Agent for the DIB if they could brief at a meeting with various Canadian government and industry organizations, similar to the Critical Infrastructure Partnership Advisory Council within the U.S. An affirmative response was provided and Canada was given the action item. Individuals from both nations completed a review and comparison of the latest Canadian Critical Asset List with the latest U.S. Defense Industrial Base Critical Asset List.

Another meeting was held in June 2009. At this meeting each country provided an update of the status of their respective CIP and plans for the future. Discussions were held on U.S./Canada cooperative activities for the year ahead.

- **Future Fire Control Systems Working Group (FFCSWG).** The most prominent exchanges in 2009 were directed towards Soldier Systems technologies and, specifically, small arms. Canada is in the process of examining options for the modernization of its small arms inventory and associated R&D efforts around the related current and developing technologies. The Canadian related R&D projects are funded from several sources: Applied Research Projects and a Technology Demonstration Project. In 2009, the U.S. and Canada engaged in discussions about automatic target recognition for combat vehicles and small arms smart sight. Meetings were held at the Armament Research, Development and Engineering Center in Picatinny, NJ, and in Canada at Valcartier and Ottawa to discuss this topic.

- **Multi-Service Regenerative Fuel Cell (MREF) Working Group.** This WG had been on hold for a period and is now being reactivated. Representatives and fuel cell and jet propellant-8 (JP-8) reformer technology experts at the Army Research Laboratory (ARL) have engaged in discussions regarding technical aspects and to determine if there are common areas of interest. TARDEC is interested in engaging with Canada on fuel cell technology. ARL has collaborated with companies in the U.S. and Canada on fuel cells.

- **Soldier System Technology Working Group (SSTWG).** Although the SSTWG has had no activity in 2009 that produced any significant results; at the request of DUSD IP, DLA is looking into helmet technologies and the prospect of renewed activity within the coming year looks promising.

- **Homeland Defense Working Group (HDWG).** The WG had no activity in the past year, but remains as the umbrella WG for future collaborative efforts for different types of the latest HD technologies.

NATIBO Website. During CY2009 approximately 100,566 reports were downloaded from the NATIBO website. The Border Surveillance Technology Collaborative Point Paper, the Biological Detection System Technologies Study, and the First Responders Study captured the most interest. The website has information on how to prepare required documentation when forming a working group or preparing a Project Arrangement under the MOU. Examples of each

are provided. The NATIBO URL is http://www.acq.osd.mil/ott/natibo/ Updates are made when appropriate.

Steering Committee Meeting. The 2009 Steering Committee Meeting, hosted by Canada's DND, was held June 9-10 in Vancouver, British Columbia, Canada. In addition to the business meeting, attendees toured two defense industries located in the Vancouver area: 1) Bionic Power, a company that has developed the Bionic Energy Harvester, a wearable technology that unobtrusively generates electricity from the natural motion of walking and uses it to charge a wide range of portable battery-powered devices; and 2) NGRAIN Corporation, a Vancouver-based company that designs, develops and markets interactive, 3-D visualization and real time simulation software tools for geospatial and medical applications. In addition, a representative from Mist Mobility Integrated System Technology Inc. (MMIST) gave a presentation on the MMIST precision aerial delivery systems.

Exhibit. In a departure from past years, the NATIBO exhibit was not displayed during 2009 due to the cost of updating and setting up the display for major conferences. The BDWG has decided to keep the NATIBO exhibit in storage unless a specific event is identified that presents a compelling reason to display the exhibit.

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

Awards. The Chairmen's Certificate of Appreciation was awarded to Colonel Denis Dion in recognition of his contributions and support to NATIBO during the period of July 2004 through June 2009.

Planned Activities for Calendar Year 2010

2010 Defense Industrial Base Seminar and Workshop. NATIBO will co-host a first time event with the Joint Industrial Base Working Group (sponsored by the Office of the Director, Industrial Policy). The Defense Industrial Base Seminar and Workshop will bring together industrial analysts and acquisition professionals from government, industry and academia to hear selected speakers and discuss topics revolving around current trends and strategies impacting the defense industrial base. This event will focus on how the military customer can continue to leverage a capable and viable defense industrial base. The event kicks off with a plenary session consisting of senior leaders from across government and industry who will provide their insights into trends, issues, opportunities and expectations in regards to the defense industrial base. Breakout sessions on the second day will focus on organizations promoting solutions including tools, services and investment programs meant to mitigate barriers and risks that exist as military customers leverage the industrial base in support of the Warfighter. The event will be held Jun 15-16, at the National Defense University, Fort McNair in the District of Columbia.

Alternative Fuels Working Group (WG). The WG plans to complete its analysis and publish a report by mid-year. The results will be briefed at the June 2010 Steering Committee Meeting.

Infantry Soldier Modernization Working Group (ISMWG). The WG will continue to pursue the staffing for equipment exchange (E&MTA under the FFI MOU). The group will exchange updates on the Soldier Modernization Programs at their 2010 annual meeting. The group will conduct, initiate and/or facilitate staffing for other Action Teams, exchange mechanisms and project arrangements as appropriate. In addition, the ISMWG will report to the NATIBO Steering Committee on the work plan for the Novel Helmet Action Team once the plan is mature. The WG also plans to update the ISMWG TOR to reflect updated establishments.

US/CA Defense Industrial Base/Critical Infrastructure Protection Working Group (DIB/CIP WG). The U.S and Canada DIBCIPWG meeting is scheduled for June 2010 in conjunction with the scheduled NATIBO annual meeting. The U.S. has been invited to participate in the initial Canada Defense Industrial Base Critical Infrastructure Council meeting. Other plans for 2010 include: continuing discussions on a possible cooperative project to exchange personnel between the DND Canada and the DCMA's Industrial Analysis Center; providing training to Canadian associates in conducting a Mission Assurance Assessment at the Joint Interagency Training and Education Center, Camp Dawson, WV; providing a Joint briefing to U.S. and Canadian stakeholders (USNORTHCOM, CANCOM, and Canadian Associations); and continuing discussions on a possible cooperative venture to hold an All Hazard/Preparedness exercise between the two Nations with a focus on the Defense Industrial Base.

Future Fire Control Systems Working Group. Canada will launch a new R&D project in April 2010. The project will build on past successes in automatic target recognition for combat vehicles and ultraminiaturize the technology for incorporation into a small arm weapon sight in combination with electronic ignition for small arms. Canada has been pursuing this objective for several years with the intent to demonstrate a weapon sight that incorporates automatic target recognition which can recognize a human target and an optimal aiming point. The sight will use an electronic ignition to delay firing the weapon until the pointing error is reduced to near zero. This work is complementary (and not duplicated) to U.S. work on small arms, therefore there should be ample "ammunition" to foster cooperation.

Multi-Service Regenerative Fuel Cell (MREF) Working Group. A meeting is planned in early 2010 between U.S. Army representatives and a U.S. company to discuss collaborative opportunities in the area of fuel cells powered by JP-8.

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 DND 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. All the Services and Canada have had employees staff the exhibit at events.

Conclusion

We face more complex challenges than ever before to protect battlefield advantages. With changing threats to national security and increasing "equipment geriatrics," the North American technology and industrial base faces the challenge of advancing and maintaining technological superiority. This requires the leveraging and promoting of commercial use and investment in technologies which will have both defense and industrial applications. Broadening the technology industrial base to include both U.S. and Canadian resources so that investment costs may be shared across a broader base will improve the affordability of defense systems. The key to the future is rational use of industrial, economic, and technological resources in the U.S. and Canada to achieve the greatest attainable military capability at the lowest cost.