2006 ANNUAL REPORT

NATIBO

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North American Technology and Industrial Base Organization
(NATIBO)
Calendar Year 2006 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.

The 21st Century has presented new challenges for the national and economic security needs of the U.S and Canada. In 2006, 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.

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. members represent the Office of Secretary of Defense (OSD), Army, Navy, Air Force, Missile Defense Agency (MDA), Defense Logistics Agency (DLA), and 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
Mr. Luis Garcia-Baco, U.S. Army
Mr. John Williams, U.S. Navy
COL Craig Kimberlin, U.S. Air Force
Mr. Steven Linder, MDA
Mr. John Christensen, DLA
Ms. Barbara Sunner, DCMA
COL Phillip DiSalvo, U.S. Army

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

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 will also 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 2006 Activity

Operations and Three Year Business Plan. The Business Plan was developed to provide direction for the NATIBO by allowing the NATIBO Co-Chairs, Steering Committee, Secretariat, and Business Development Working Group to focus resources to obtain identified goals, layout processes, generate specific products, and measure progress. The plan covers the period from January 1, 2005 through December 31, 2007. The plan, which was first briefed at the 2005 NATIBO Steering Committee Meeting, was updated in 2006. The plan is an excellent advocacy

document structured to include new work as well as document current organization and operating processes.

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	Potential Areas for DND/DoD Cooperation on Homeland Defense	Identify current cooperative HD initiatives in acquisition, logistics and technology. Study was completed and report was released in 2006.
3	First Responder Access to Military Equipment	Identify North American geographic dispersal of military equipment critical to meet First Responders requirements in a national emergency in Canada or the US. Study was completed and report was released in 2006.
4	Critical Infrastructure Protection	Identify critical components in US and Canada Defense Industrial Base Sectors. Study currently underway.
5	MOU Revision/Amendment	Review and revise NATIBO MOU based upon recent national policy changes.
6	Border Surveillance Technology	Identify and evaluate sensors, platforms and network integration key enabling technologies that could transition to border security.
7	Fuel Cells	1) Identify capabilities and capacity assessment of a Canadian fuel cell producer. Study was completed in 2006. 2) Industry capabilities study of additional N. American fuel cell producers planned for 2007.

The Business Plan is posted on the NATIBO website at: http://www.acq.osd.mil/ott/natibo/

Working Groups Established. The NATIBO MOU continues to generate considerable interest. The following Working Group was established this calendar year.

- **US/CA Critical Infrastructure Protection/Defense Industrial Base Working Group (CIP/DIB WG).** The CIP/DIB WG was established to share information, provide guidance, monitor progress against the workplan, and develop joint interaction with respect to the critical assets identification, assessment and assurance of the Defense Industrial Base Sector. In addition, the CIP/DIB WG will provide the framework for the exchange of information and identification of potential Project Arrangements. The U.S. Project Officer is from the Office of the Assistant Secretary of Defense for Homeland Defense and Canada's Project Officer is from the National Defence Headquarters. The TOR was signed on January 17, 2006.

- **CIP/DIB WG Activities**. The WG developed a three-phase approach to a DCIP partnership with the U.S. and Canada. Phase I began in August 2005 and at the 2006 SCM the WG received approval to go forward with Phase II. Phase II involves prioritization of the asset list and establishing the vulnerability assessment framework.

- Three CIP/DIB WG meetings were held between the U.S. and Canada in 2006:

a. The first meeting was held on February 15, 2006, at the Defense Contract Management Agency (DCMA) Industrial Analysis Center (IAC), Philadelphia, PA. The DND provided a briefing on their efforts, leveraging the U.S. provided Defense Industrial Base Criticality Methodology, in the development of their Critical Assets Identification Lists. The DND also provided a detailed three-phase work plan schedule identifying actions and suspense dates for all activities related to the identification, assessment, prioritization and activities required to integrate/collaborate with other Canadian offices to support a mission assurance construct. The work plan also addressed joint U.S./Canada actions on the development of a North American Common Asset List and the development of a process to conduct Joint Vulnerability Assessments. DCMA IAC briefed the current status of the Defense Industrial Base (DIB) sector's activities within the Defense Critical Infrastructure Program (DCIP). The Office of the Under Secretary of Defense for Acquisition, Technology and Logistics (OUSD (AT&L)) initiated actions to create a Project Arrangement for the exchange of classified information between the US and Canada.

b. A second meeting was held on June 1, 2006, at DCMA IAC in Philadelphia, PA. The DND provided updates to their Critical Asset List (CAL) status and their prioritization process. The U.S. provided updates on their CAL process and the status of the pilot Critical Infrastructure Program – Mission Assurance Assessments (CIP-MAAs). A discussion was held on possible Canadian participation on a CIP-MAA of mutual interest, the Asset Prioritization Model (APM), Geospatial information and the Electronic Portfolio.

c. A third meeting was held September 6–8, 2006, at the Department of National Defence, Ottawa, Quebec, Canada. The DND provided a briefing on current activities in the development of their Critical Assets Identification Lists. DCMA IAC briefed the current status of the DIB sector's activities within DCIP. Ennis Strategic Enterprises, LLC provided a briefing on the benefits of establishing a partnership with industry and the DIB Sector Coordinating Council. A briefing was also provided on the DIB Government Coordinating Council (GCC) and how the U.S. Federal Interagency, as members of the DIB GCC interacts with DoD to address policy, coordination and information sharing issues that cross infrastructure sector domains.

Active Protective Systems (APS) Collaborative Point Paper (CPP). The BDWG initiated and completed the APS CPP in 2006. The objective of this point paper was to establish and stimulate collaborative efforts on Active Protection technologies, system development, demonstration/test, and deployment concepts. The collaboration could potentially include studies on technologies or requirements, joint research initiatives, technology insertion demonstrations, vehicle integration, military ruggedization, component testing or operational concept development.

The CPP was used for informing subject matter experts on activities within DoD and identifying the DoD contacts. By using the CPP format, the BDWG was able to quickly provide a short assessment of AP capabilities/technologies in government and industry both in the U.S. and Canada. The finalized APS CPP was disseminated via email in late October to project managers and subject matter experts within the respective Departments/Services.

Ongoing Efforts from 2005. The NATIBO MOU was signed in the spring of 2001 and several working groups were established from 2001 through 2005. These working groups 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.

- **Homeland Defense Working Group (HDWG).** The HDWG completed the two HD-related studies identified in the NATIBO Business Plan.

  - The first study, entitled "Assessment of Ongoing and Potential Military Collaboration on Homeland Defense (HD) and Civil Support (CS)," identified cooperative HD and CS initiatives between the U.S. and Canada in acquisition, logistics and technology activities involving military products. The assessment identifies ongoing or planned projects and programs, identifies gaps in current planning, and provides recommendations for future cooperative projects and programs.

  - The second study, entitled "Military Equipment for First Responders (FRs): Benefits and Challenges for DoD and DND Cooperation," assessed the North American geographic dispersal of military equipment critical to meeting the requirements of civilian FRs in the event of a national emergency in the U.S. or Canada. The study concentrated on the Top 20 needs of U.S. and Canadian FRs, and especially those six needs common to both countries. Study findings identified the barriers to and issues concerning the delivery of military equipment in times of emergencies and to the acquisition and use of military equipment in the FR planning and preparation for operations.

  - It is envisioned that these two studies will lay out the framework by which both Defense Departments will achieve true bilateral acquisition and logistics cooperation in the domain of HD for the foreseeable future.

- **Multi-Service Regenerative Electrolyzer Fuel Cell Working Group (MREFWG).** The program continued to be underwritten by a "Purple Consortium" that includes the U.S. Navy ONR/Crane, U.S. Air Force Warner Robbins AFB, U.S. Marine Corps ONR/Expeditionary Power, the Corp of Engineers Construction Engineering Research Laboratory, U.S. Army RDECOM TARDEC and NASA/Glenn. Due to lack of

funding, Phase IV did not begin in 2006. The primary stumbling block for support was the belief that fuel cell technology would not be able to withstand the rigors of a military environment. As a result, a feasibility study was initiated in 2006. The purpose of this study is to determine the readiness level of the system with respect to various testing situations. If gaps are identified between the current technology and the requirement; a mitigating strategy will accompany the item. Building off the successful Phase III results, testing on the unit continued into CY2006. The testing continues to increase confidence in the technology and provide more core competency to the MREFWG. The MREFWG has continued to enjoy multiple Program Executive Office/Project Manager endorsements that included early support from the Project Manager Stryker Brigade Combat Team. The MREF Auxiliary Power Unit is of a modular design and the componentry can be readily broken out into additional platform spaces and purposes such as forklifts, boats/ships and future propulsion venues.

- **Light Armored Vehicle Working Group (LAVWG).** The LAVWG has had no activity under the NATIBO MOU in the past year. However, meetings have been conducted under the Data Exchange Agreement (DEA) on Light Armored Ground Combat Vehicles between the Canadian LAV III Office and the Stryker Office.

- **Medium Logistics Vehicle Replacement Working Group (MLVRWG).** Although the MLVRWG has had no activity in 2006 that produced any significant results; the prospect of renewed activity within the coming year looks promising.

- **Army Tactical Communication and Information System Modeling Working Group (ATCISM WG).** The ATCISM WG TOR period expired in April 2006.

NATIBO Website. The NATIBO Business Plan proposed a major re-design of the NATIBO website in 2005 followed by annual incremental updates. The goal of the re-design was two-fold: 1) to improve the overall visual display to increase awareness and advocacy of NATIBO as an organization; and 2) to improve utility by providing as many resources as possible to program managers and project engineers who are looking to use the MOU to establish a collaborative effort between DoD and DND.

The re-design was completed and launched in early 2006. The site address was moved from DTIC to OTT's AT&L server. Information on existing NATIBO working groups, briefings, and publications is included on the site. The website also has information, including examples, on how to prepare required documentation when forming a working group or preparing a PA to be implemented under the MOU.

The URL for the enhanced website is http://www.acq.osd.mil/ott/natibo/ . Updates will continue to be made when appropriate.

Steering Committee Meeting. The 2006 Steering Committee Meeting, hosted by the U.S. Navy, was held June 20-21 in San Diego, California. In addition to the business meeting, attendees toured the Command Center of the Future, the Robotics Lab and the SubNet Relay located at the SSC in San Diego. SSC is the U.S. Navy's research, development, test and

evaluation, engineering and fleet support center for command, control and communication systems and ocean surveillance.

Exhibit. The NATIBO exhibit is displayed at selected forums, conferences and expositions. The exhibit was placed and staffed at the 2006 Defense Manufacturing Conference held November 27-30. This forum provided an opportunity for approximately 1,000 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.

Awards. The NATIBO Achievement Award was presented to Mr. John Todaro, U.S. Co-Chair and Director of the Office of Technology Transition, Office of the Deputy Under Secretary of Defense in recognition for his outstanding leadership of the NATIBO from 1990-2006. Mr. Todaro retired in July 2006 and Ms. Cynthia Gonsalves is currently serving as the U.S. Acting Co-Chair.

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

Planned Activities for Calendar Year 2007

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 Electrolyzer Fuel Cell Working Group (MREFWG).** Expectations are that the Feasibility Study will be completed in April 2007. After completion, a review of the data will help determine if it is reasonable to pursue a Phase IV. With a positive result, the MREFWG will be visiting past stakeholders to acquire the necessary funding to begin Phase IV. Phase IV of the project will begin in late 2007. Phase IV will consist of the packaging and integration of the MREF Auxiliary Power Unit (APU) inside of a Stryker and/or Coyote vehicle, with a non-regenerative fuel source. The design would include ability to withstand harsh conditions and military

ruggedness. Field testing would include a series of "Silent Watch" scenarios and potential mobile tests. The U.S. and Canada will work collaboratively to verify the requirements used in the Feasibility Study and identify funding for this phase. Anticipate this working group will draft and staff a Project Arrangement for Phase IV in CY2007. Phase V of the MREF APU effort would likely involve the re-evaluation of regenerative fuel sources (electrolysis, reforming, etc.).

- **US/CA Critical Infrastructure Protection/Defense Industrial Base Working Group (CIP/DIB WG).** The WG will continue efforts to establish the criteria for a North America Common Asset List. Additionally, they will establish and define the requirements needed for a bi-national protection program as well as establishing the process for performance of a joint education and outreach awareness visit and a joint CIP-MAA. CIP/DIB WG meetings are planned for the May/June and October/November (if needed) timeframes.

- **Light Armored Vehicle Working Group (LAVWG).** The U.S. Army has plans in early 2007 to discuss a candidate program for cooperation between the U.S. and Canada. The LAVWG may be used to facilitate discussions in areas not provided for under the U.S. Canadian /Light Armored Ground Combat Vehicle DEA.

- **Soldier System Technology WG (SSTWG).** The SSTWG continues to meet periodically to discuss areas of potential collaboration. Canada will host the next meeting in 2007.

- **Future Fire Control WG (FFCWG).** The WG will move forward in 2007 to initiate collaborative work efforts on Virtual Trainers using America's Army Gaming Technology and on the Modular Small Arms Smart Sight effort.

Operations and Three Year Business Plan. Looking ahead in 2007 and beyond, the BDWG will actively seek opportunities for additional collaborative activities/studies planning. Potential areas for collaborative new work plans include Border Surveillance Technology and Robotics. The Plan will be updated to include new projects and activities as appropriate.

Exhibit Schedule. The tentative NATIBO exhibit schedule for 2007 follows:

December Defense Manufacturing Conference, Las Vegas, Nevada

The BDWG is also exploring possibilities to display the exhibit at a few of the large Service related conferences that are heavily attended by Program Managers.

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. But by working together for the interests and values we share, we can expand 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.