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**REPORT # PE 956-003
REPORT ON PROJECT # 22416
STUDY EXCHANGE VISIT OF THE
REGIONAL CENTRE FOR
RESEARCH AND DEVELOPMENT
TO THE NOVA SCOTIA RESEARCH
FOUNDATION CORPORATION.
AUGUST 18, 1995 - SEPTEMBER 1, 1995**

For:

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1.0 EXECUTIVE SUMMARY

During the period of August 18, 1995 to September 1, 1995, a delegation of three senior managers from the Regional Centre for Research and Development (RCRD), Mansoura, Egypt, were hosted by the Nova Scotia Research Foundation Corporation, Dartmouth, Nova Scotia, on a study exchange visit funded by the International Development Research Centre, Ottawa. Members of the Egyptian delegation were:

- Dr. Mohamed Owieda, Unit Director
- Dr. Ahmed Fattah, Deputy Director
- Dr. Adel Nofal, Technical Advisor

The visitors were exposed to the infrastructure, procedures and programs in place in Nova Scotia to help the development of small and medium sized enterprises (SMEs). This was accomplished through presentations and tours of a number of organizations who support SMEs, "job shadowing" of technology extension personnel, detailed discussions of program development and impact, corporate development initiatives at NSRFC/InNOVAcorp, tours and discussions with management of a number of SMEs who had taken advantage of various support programs.

The delegation had a busy and productive 15 day training session. Areas of greatest interest were the "one stop" advisory and referral services of the Canada/Nova Scotia Business Services Centre, the IRAP and TPI extension services, the Saint Mary's Small Business Development Centre, the Technology Innovation Centre Incubator Mall, and outreach CAD/CAM training offered by the Technical University of Nova Scotia.

Specific opportunities for further collaboration include:

- Assistance from the NS Agricultural College in improving the management of the Agricultural Field Service in Egypt
- Establishing a partnership with AMEC, NSRFC, and TUNS and the Institute for Metallurgical Research in Egypt to enable the transfer of information and technology on advanced industrial materials, particularly polymer composites.
- Training Egyptian technical field staff in small company diagnosis procedures, assist with the implementation of TPI and IRAP type programs
- Technical and management training of SMEs in Egypt
- Establishing a Quality and Productivity awareness program to help convince Egyptian SMEs of the importance of quality for export markets
- Conducting a review of the food processing industry in Egypt, determining its current level of technology and capability, leading to possible technology transfer and foreign investment.

2.0 INTRODUCTION & BACKGROUND

During the period of August 18, 1995 to September 1, 1995, a delegation of three senior managers from the Regional Centre for Research and Development (RCRD), Mansoura City, Egypt, were hosted by the Nova Scotia Research Foundation Corporation (NSRFC), Dartmouth, Nova Scotia, on a study exchange visit funded by the International Development Research Centre, Ottawa. Members of the Egyptian delegation were:

- Dr. Mohamed Owieda, Unit Director
- Dr. Ahmed Fattah, Deputy Director
- Dr. Adel Nofal, Technical Advisor.

The purpose of the visit was to expose the delegation to the infrastructure, procedures and programs in place in Nova Scotia, to help support small and medium sized enterprises (SMEs). Whereas the members of this delegation were responsible for training a technical field service upon their return, special emphasis was placed on the management of various programs delivered by NSRFC and other organizations supporting the development of SMEs. The extensive itinerary (See Appendix A) developed for the delegation to achieve these objectives included:

- Presentations by major stakeholders in supporting and developing SMEs
- Visits to various organizations that work with SMEs, in technology development, to provide market / business information.
- Tours of companies who had taken advantage of various support programs
- Job shadowing various individuals who deliver programs or provide advice to SMEs.

Emphasis was placed on the Industrial Research Assistance Program (IRAP), and the Technical People in Industry Program (TPI), the primary outreach programs delivered by NSRFC.

Ongoing feedback from the visiting delegation was used to modify the itinerary as necessary, to ensure that the delegation was exposed to the areas most important and beneficial to them. An enhanced cultural exchange was provided by including entertainment and interesting social activities as appropriate. A detailed chronological account of activities undertaken and observations on specific areas of interest or potential future collaboration follow in Section 3.0 and 4.0..

3.0 DETAILED ACTIVITIES

Friday, August 18, 1995

The visiting delegation was met at the Halifax International Airport and transported to their hotel accommodations. Information briefing packages containing literature such as statistical profiles of the NS economy, the NS directory of manufactures, maps of the local area, and miscellaneous tourist information were previously prepared and presented to the delegation. Informal talks were held that evening to review the proposed agenda, identify

specific areas of interest, and general business discussions. Due to the lateness of the hour and the fatigue of the visitors, the preliminary discussions were kept to a minimum.

Saturday, August 19, 1995

The day was spent touring the cities of Halifax and Dartmouth and helping the delegation orient themselves. In the evening the delegation attended a Dinner Theatre.

Sunday, August 20, 1995

A tour of sites of interest around metropolitan Halifax including Peggy's Cove was given. The evening ended with a trip to a local jazz club for dinner and entertainment.

Monday, August 21, 1995

The delegation was formally introduced to the Chief Executive Officer of InNOVAcorp (NSRFC), Dr. Rollie MacInnis. Presentations then followed by the following organizations involved in supporting SMEs in Nova Scotia.

Mr. Don Crane ***Director of Customer Service and Development, Business Development Bank of Canada***

Mr. Crane described the lending philosophy and activities of the Business Development Bank, in their support of SMEs. He also discussed the various educational programs, consultants, and assistance provided to SMEs by the Bank.

Mr. John Marshall ***National Research Council***

Mr. Marshall discussed the structure and function of the Industrial Research Assistance Program in supporting technology adoption, and new product development among SMEs.

Mr. Charlie MacArthur ***Industry Canada***

Mr. MacArthur explained the changing role of Industry Canada with a new focus on helping SMEs become active in the international marketplace.

Mr. Mel Coombs ***Director, Small Business Service Centre***

Mr. Coombs explained the idea the "one stop shopping" for small and medium sized companies and entrepreneurs wanting to know about government assistance programs and regulations from the federal and provincial governments. The Small Business Service Centre maintains several databases on programs and regulations by the government and acts as a referral agency to direct inquiries to the appropriate department or organization.

Mr. Larry Webber ***Nova Scotia Business Development Corporation***

Mr. Webber discussed the financial assistance and management assistance packages available through the Nova Scotia Economic Renewal Agency.

The members of RCRD were given the opportunity to discuss their activities in Egypt and their progress to date in establishing the RCRD. There was an opportunity for questions and information exchange, where we obtained a better idea of what the delegation was hoping to achieve while in Canada.

After lunch the delegation was provided with a tour of NSRFC facilities, which included:

- i) Industry and Information Services - contains the library, information retrieval services
- ii) Industrial Research Assistance Program (IRAP) - National Research Council's Technology Outreach Program
- iii) Technical People in Industry (TPI) - designed to match technical skills with the needs of SMEs
- iv) The Quality and Productivity Initiative (QPI) - which encourages manufactures to carry out Quality and Productivity improvement initiatives and to pursue ISO 9000 certification.
- v) Laboratory and Testing Services - which includes Materials Testing, Failure Analysis, Forensic Investigations, Microbiology, Analytical & Environmental Chemistry.
- vi) Product Engineering - the design and commercialization of innovative products and services as well as technical problem solving for SMEs. A tour of Nova Magnetics, a wholly owned subsidiary of NSRFC that designs, develops, manufactures and markets magnetic coupling products for the petrochemical, deep sea diving, and nuclear industries.
- vii) Process and Environmental Technologies - includes Corrosion Engineering, Waste Management, Energy and Plant Biotechnology.

Some activities were similar to those being performed by some RCRD partners in Egypt. The area of greatest interest appeared to be the operation of the Small Business Service Centre, as an access and referral point for SMEs wanting additional information on programs and services available through the provincial and federal governments.

In the evening the delegation was given free time to visit various shopping malls in the area.

Tuesday, August 22, 1995

In the morning the delegation was given a briefing on the Information Retrieval services, particularly the use of the Internet and database searches for supporting the technology field service in solving technical inquiries from small and medium sized enterprises.

Afterwards, a tour was provided of the Technology Innovation Centre (TIC), a small business incubator mall co-located with NSRFC. The delegation was particularly interested in this concept and how small companies were supported and incubated into larger companies which could then leave and establish in their own premises.

After lunch, the delegation was given more in depth exposure to the Metallurgical and Materials related activities occurring at NSRFC, including Forensic Analysis, Failure Analysis, Material Analysis and various testing done to ensure a product meets specific quality standards.

Wednesday, August 23, 1995

The group was taken to the southern part of the province to visit a foundry and fabrication company in Liverpool, NS, called STENPRO, which had received considerable materials support and technical assistance from the Materials Section at NSRFC.

After lunch in the town of Lunenburg, NS, the group then toured Hawbolts in Chester, a metal fabrication company that received considerable consulting assistance from NSRFC in materials related problems in the marine environment.

Thursday, August 24, 1995

The full day was dedicated to providing a detailed briefing on the Technical People in Industry (TPI) program initiated by NSRFC, and currently funded by the Atlantic Canada Opportunities Agency. The TPI program attempts to identify technical weaknesses in companies and encourages them, through a wage subsidy, to hire technical people as a permanent staff resource to solve technical problems and to adopt appropriate technologies for the SMEs. The delegation was given in depth information on the philosophy behind TPI, the management of the program, the types of diagnostics and analyses done to assist the companies, and the identification of appropriate human resources to fulfil the technical needs of the company. The delegation found this to be a very useful and interesting program, with considerable application in an Egyptian context.

Friday, August 25, 1995

The TPI briefing was continued by visiting some companies that had taken advantage of the TPI program, and had successfully retained the technical person once the wage subsidy program had ended. Tours were made of Maritime Steel, where the delegation saw a foundry and fabrication facility, and Parrsboro Metal, another fabrication plant that produces a range of furnaces for heating homes. Parrsboro Metal was also a recipient of a Technology Transfer from a local university of a novel stretching machine used to condition athletes in off season months. NSRFC was instrumental in matching the

technology with the appropriate manufacturer, and this has turned out to be a very successful technology transfer and a new line of business for Parrsboro Metal.

Saturday, August 26, 1995

The group saw the Shearwater International Airshow and ground exhibits.

Sunday, August 27, 1995

The group was given some local tours and entertained at a barbecue at the Project Managers house.

Monday, August 28, 1995

In the morning the group met with NSRFC's Quality Control Manager, to discuss the implementation of the ISO 9002 certification within the NSRFC. Discussions also revolved around the importance of Quality Programs to SMEs that effect their ability to compete in the international marketplace.

Meetings were then held with senior management of InNOVAcorp to discuss corporate development issues and the importance of Public Relations with respect to funding partners, and managing client relationships.

Lunch was held with the President of NSRFC, Dr. Ross McCurdy, where there was an opportunity to discuss strategic issues related to a research and development organization and the challenges faced in becoming a financially independent organization.

In the afternoon the group was provided a tour of the Pratt&Whitney Computer Integrated Engine Parts Manufacturing plant, which is one of the most sophisticated fabrication plants of its kind in the world. The delegation was impressed with the high level of technology used and the high quality control standards in place.

Tuesday, August 29, 1995

In the morning Dr. Owieda and the Project Manager, Ray Roberts, toured the Nova Scotia Agriculture College in Truro, Nova Scotia and the Nova Scotia Department of Agriculture Extension Field service. Discussions were held with some researchers, one involved in Environmental/Agricultural projects, and the other involved in the development of international collaborations in technology transfer and research.

The rest of the group had a briefing with the IRAP representatives, which included how IRAP supported SMEs, then given tours of several companies who had taken advantage of IRAP's assistance in the past.

The first tour was of Galvatech, a galvanizing plant that has developed novel approaches to reducing the environmental hazard of the chemicals in the process. IRAP had been

involved in the financing of some research in this area.

The group visited the Halifax Shipyards, where new coastal patrol boats were being built for the Canadian Naval Reserves. IRAP had been involved in the Shipyards in developing new welding procedures that are currently in use.

After lunch the whole group visited Unique Patterns, a company started by a female entrepreneur who adapted popular clothing patterns to the actual dimension of the person buying the pattern. This was done through a sophisticated computer program. Both IRAP and Technical University of Nova Scotia (TUNS) CAD/CAM Centre, were involved in finding appropriate software for the company to be able to achieve its objectives. The company now markets its patterns internationally.

After the tour of Unique Patterns, an IRAP briefing was held to discuss in greater depth the support of the programs, the paperwork and management involved in delivering these programs.

Wednesday, August 30, 1995

In the morning the delegation was taken to the Saint Mary's University Business Development Centre, a university outreach organization that was set up to assist SMEs in establishing new businesses. This centre offers Management Consulting assistance, assistance in the preparation of business plans, and has a small loan fund that can provide seed money to budding entrepreneurs. The centre uses core staff, assisted by University students, who conduct market research and development of business plans as part of their training and curriculum in the University courses. The delegation was very interested in this type of collaboration between universities and SMEs.

Later the group met with IRAP officials and toured M&M Manufacturing, a large metal fabrication company that has completed a great deal of work for the offshore oil and gas industry. M&M had used IRAP in the past for technical support, particularly in developing welding standards and procedures.

The delegation then toured Creative Canvas, a company that uses computer programs for designing various canvas products.

After lunch the group received in depth briefings on the IRAP program and discussed their plan for establishing various programs for RCRD, in Mansoura, Egypt. The rest of the afternoon was spent discussing the proposal prepared by RCRD members, and offering comment on how programs can be designed and developed.

Thursday, August 31, 1995

The delegation was briefed on NSRFC's Quality and Productivity Program, (QPI). QPI is an attempt to increase the awareness of the importance of Quality within SMEs, to do diagnostics of what is required in SMEs to achieve appropriate quality standards, and to

match SMEs with appropriate consultants to be able to help them in implementing quality programs.

The group toured a local steel company (Russell Metals), who had taken advantage of the QPI program, and has since become ISO 9000 certified. The delegation was given an opportunity to speak with the management of the company to discuss the process and the assistance that they received from the QPI program, and the positive results since certification was achieved.

In the afternoon, the group was provided with a tour the Advanced Materials Engineering Centre (AMEC), an organization established to promote the use, and to conduct applied research in advanced industrial materials, primarily composites. Discussions were held with the manager of the centre on how the uses of composites were promoted and the type of collaborative research conducted with SMEs to encourage the use of composites. A tour was then provided of the facilities and equipment available to support the development of composite based products. The delegation were very interested in possible future collaboration with AMEC.

The afternoon was spent touring the campus of the Technical University of Nova Scotia (TUNS), the primary training facility for engineering students. The group appeared very interested in the CAD/CAM Centre and its training programs.

While at TUNS the delegation met with the International Projects Manager, Robert Eagle, where they discussed areas of potential interest in future collaboration on projects effecting Egypt.

A tour was then provided of Nova Crystal, a company started by a professor in the Metallurgy Section of TUNS. The objective of this company is the commercialization of the technology involved with the growth of Gallium Arsenide Crystals to be used in the electronic industry.

They were also given an opportunity to tour a precision ceramic casting facility that was another part of the professor's research.

The remainder of the day of was spent discussing what was seen and relating the various programs to an Egyptian context.

The evening was spent touring and shopping.

Friday, September 1, 1995

In the morning the group was provided a tour of the Canada/ Nova Scotia Business Services Centre, a collaborative effort among several government organizations to provide a "one stop" information and referral service for SMEs. The manager of the centre showed the delegates various databases that were available for tracking government programs and assistance, and publications designed to assist in the management and

determine the feasibility of small business start-ups. The delegation was very interested in this approach to helping small business cut through the delegations' red tape of several government departments and could see instant applicability in Egypt.

A farewell luncheon was provided at NSRFC for the guests, where all the individuals who had provided tours and presentations during their stay in Canada were present to answer any questions that may have arisen during the week.

After lunch there were further discussions with individuals from IRAP and TPI on implementing the programs in Egypt, and a discussion on the proposal prepared by the Egyptian delegates.

The delegates were then given a chance to ask further questions that they may have, then were given free time to do some shopping and prepare for their departure from Canada. The delegation was transported to the airport around 7:30 Friday evening for their trip home.

4.0 CONCLUSIONS

The RCRD delegation had a busy and productive fifteen days in Nova Scotia, and was exposed to a variety of programs, and company tours focused on the provision and management of technological support to SMEs. The participants expressed some difficulty in relating to the contrast of the conditions in Nova Scotia compared to Egypt, however, their experience gave them new ideas and a broader view on how their organization will operate.

The objectives of the RCRD delegation appeared very optimistic in Egypt, and we attempted to help them prioritise the application of various programs and services, starting with a Technical Advisory Service. Several specific opportunities identified were:

- Additional assistance in establishing both the IRAP and TPI outreach programs
- The training of personnel at the TUNS CAD/CAM Centre
- Soliciting the assistance of the Agricultural College in the establishment of a more effective Agricultural field service in Egypt
- Establishing a partnership with AMEC, TUNS, NSRFC, and the Institute for Metallurgical Research in Egypt to enable the transfer of technology and information on advanced industrial materials.
- Conducting a study on the Food Processing industry in Egypt, to understand its current level of technology, and leading to possible technology transfer and investment to improve the current situation.
- A Quality and Productivity awareness program to help convince SMEs of the importance of quality in their product and its necessity within a Free Trade

Environment.

- There is a need for Technical and Management training of SMEs in Egypt.
- Training of Egyptian Technical Field Service representatives in small company diagnosis.

A return visit of some Canadian consultants to Egypt will be a very important step in the training process and in assessing additional areas of collaboration and opportunities.

APPENDIX A

**CALENDER OF
EGYPTIAN TRAINING
PROGRAM**

Egyptian Delegation Training Program

August 18, 1995 - September 1, 1995

						Friday 18 Arrive at Halifax International Airport (R. Roberts)	Saturday 19 City Tour Historic Feast (R. Roberts)
Sunday 20 Tour (R. Roberts)	Monday 21 9:00 am Orientation Session - NSRFC (R. Roberts) 12 pm Luncheon 1:00 pm Tour of NSRFC	Tuesday 22 8:30 am - 9:30 am Internet (M. Veling) 11:00am - 12:00pm Tour TIC 1:30pm - 4:30 pm Materials - NSRFC (N. Ritcher)	Wednesday 23 8:30 am Tour STENPRO Hawboldts (S. MacIntyre)	Thursday 24 9:00 am TPI Briefing (Ian Glass)	Friday 25 TPI Tours Maritime Steel Parrsboro Metal (D. Roach)	Saturday 26 Air Show (B. Mills)	
Sunday 27 Local Tours Barbeque (R. Roberts)	Monday 28 9:00 am Quality Control (H. James) 10:00 am Discussion InNOVAcorp - Corporate Development (R. Harrold) 11:00 am Public Relations (K. MacDonald) Lunch (R. McCurdy) Tour Pratt & Whitney (P. Machan)	Tuesday 29 8:30 am Tour NSAC (Eweda with Roberts) W. Connors - Beckett 8:30 am Breifing 9:00am Galvatech 10:00 am IRAP breifing 11:00 am Hlfx Shipyard 1:00am Lunch 2:00am Unique Patterns (J. Marshall)	Wednesday 30 9:00 am SMU - Business Development Centre (H. Cook) 10:30 am M&M 12:00 pm Creative Canvas 1:00 pm Lunch 3:00 pm IRAP brief (J. Marshall)	Thursday 31 9:00am - 12:00pm QPI lecture & Tour (P. Berry) 12:00pm-12:30pm Lunch 1:00 pm AMEC (L. Canary) 2:00 pm Tour TUNS Metallurgy (L. Canary) 3:00 pm CAD/CAM Centre (L. Beauchamp) 3:30pm TUNS Collab (R. Eagle) 4:00 pm Nova Crystal (N. Yemenidjiam)	Friday 1 9:00 am Business Service Centre Follow - up discussions 10:30 NSAC (B. Radford) 12:00 pm Farewell Luceon - NSRFC Afternoon IRAP, TPI Breifing Departure from Halifax International Airport		