

IMPRESSIONS ON COLLABORATION BETWEEN NML, INDIA AND CARIRI, TRINIDAD AND TOBAGO

S. Prakash, National Metallurgical Laboratory Council of Scientific and Industrial Research, India and Liaquat Ali Shah, Caribbean Industrial Research Institute, Trinidad and Tobago

Introduction

Collaborative R&D efforts are increasingly receiving greater emphasis in the strategic management of knowledge and innovation between the RTOs. These efforts and emanating relationships, however, differ significantly from those governed by markets or hierarchies, and raise very many different issues both for researchers and managers. It addresses alternative forms of governance mainly where organizations cooperate internationally. The characteristics and criteria bear on the choice of governance: risk and reliance on trust. The relationships between these criteria and the choice of governance mechanisms in developing collaborative alliances with other organizations determine as to whether it is likely to fail or to succeed. Implementing and managing an alliance is therefore harder than deciding to collaborate. The paper offers some glimpses and impressions on the collaboration between National Metallurgical Laboratory (NML) Council of Scientific and Industrial Research, India and Caribbean Industrial Research Institute (CARIRI) Trinidad and Tobago initiated at one of the international forums provided by WAITRO.

Mr. Liaquat Ali Shah, Chief Executive Officer of CARIRI, Trinidad and Tobago and Dr. Swatantra Prakash, Head of the Business Development and Monitoring Division of the NML, India interacted during various WAITRO international conferences at Malaysia and Canada including the SIRIM-WAITRO Conference and WAITRO Biennial Congress held in Malaysia from August 12-14, 2008. As both the organizations have a strong commonality of R&D activities they have been evincing keen interest in collaborating with each other to share knowledge and exchange R&D expertise. CARIRI and NML India thus explored a possibility of collaborating in the field of corrosion assessment and prevention of metals being used in various industries including construction, engineering, petroleum and oil and gas sectors in Trinidad and Tobago.

NML Jamshedpur India, being one of the 37 constituent laboratories of Council of Scientific and Industrial



Research (CSIR), New Delhi, an Enterprise under the Government of India, is a premium metallurgical research and development laboratory. CSIR through NML, having conducted research and development and gained extensive scientific and technological experience in assessing, preventing, combating and controlling corrosion of metals and materials for more than five decades, agreed to collaborate with CARIRI to establish a laboratory for meeting demands for new and improved Corrosion Assessment and Prevention Services (CAPS) at CARIRI.

Major challenges

Corrosion is the deterioration of materials by chemical interaction with their environment. The consequences of corrosion are many and varied and the effects of these on the safe, reliable and efficient operation of equipment or structures are often more serious than the simple loss of a mass of metal. Failures of various kinds and the need for expensive replacements may occur even though the amount of metal destroyed is quite small. Of the many, major challenges of the NML-CARIRI collaboration including knowledge sharing, decision-making, and both human and infrastructural resource allocations, were amicably solved mutually. These mechanisms involved reaching operating agreements with both well-defined financial and technical objectives, chartering arrangements for exchange of knowledge and joint marketing efforts to carry out a need analysis for establishment of corrosion assessment and prevention services at CARIRI by augmenting its existing facilities and generating new ones.

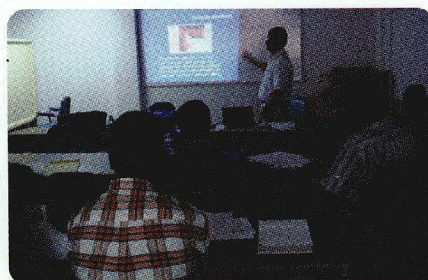
Modus Operandi

The collaboration initially led to create more formal mechanisms to support and contribute to the relationship which finally exceeded the initial expectations of both NML and CARIRI future co-operations. A need analysis result, based on the market survey of the industrial sector of Trinidad conducted by NML for the establishment of corrosion assessment and prevention services at CARIRI shows that the estimated annual costs of metallic corrosion is several million US dollars. The costs of corrosion come either due to premature deterioration or failure. It leads to the need for maintenance, repair and replacement of damaged equipment. Other sources of costs include lost production and increased downtime of equipment arising from corrosion problems. In some cases, corrosion cost involves additional standby units to alleviate downtime problems. It attributes to the corrosion failures or unscheduled maintenance. As emanated from the analysis, the "cost of corrosion" is of major economic consequence to society and is reflected in the increased losses that it causes to various industrial sectors of the global economy in general, and in Trinidad in particular.

It involved visits of NML's consultants along with CARIRI scientists to various industries in Trinidad. They designed questionnaires for conducting a survey of identified companies in the area and used these to interview and examine various damaged components of steel structures, process equipment, as well as exposed and buried oil and gas pipe lines that were getting corroded owing to severe corroding environments. The steel components and structures were examined at the site of the various bridges including those newly constructed, repaired and/or to be taken up for preventive maintenance. Also invited were the



key counterparts from each of the industries and organizations that were visited in Trinidad and they interacted with those commercial people who consider profit, and those who may be involved in planning and executing the collaborative efforts in assessing, preventing and controlling corrosion of various industrial houses. CARIRI played a pivotal role as the facilitator and an objective mediator to ensure that the meeting is collaborative. The analysis report of the industrial sector survey of Trinidad suggests to establish a corrosion laboratory with suitable human resources as well as relevant infrastructural and corrosion testing facilities at the local R&D institute in Trinidad. CARIRI has the potential to also become a consolidating force in the corrosion monitoring, prevention, products and service sectors. A training on corrosion assessment, prevention and control encompassing the basics and fundamentals of electrochemistry and corrosion, types of corrosion and the practice of corrosion control and prevention was also offered by NML at CARIRI.



Closure

Collaboration options are often recognized as commercial collaborations leading to business and financial implications. These are generally thoughts of the naive and utopians. It may, however, not always be true that everybody won't play fair and/or won't collaborate openly and honestly. There have been silos within large corporations that are dedicated to gaining an advantage in a collaboration. But what is incomprehensible is how so much of the funds can be lost because RTOs invest so little effort in building true collaboration between organizations at the earliest possible stages. The real profits in collaboration are in challenging competitive behaviors, creating mutual obligation and finding a common ground where everyone benefits.

The collaboration between NML and CARIRI has indeed been a learning experience for both organizations. It offered an opportunity to get to know the counterparts from each organization one-on-one by talking about experiences, philosophies, families, out-of-work interests and not only about contracts, obligations and intellectual property. It helped develop common values for the collaborative effort and the negotiation, identify common requirements and differences as well as display an ability to cooperate.