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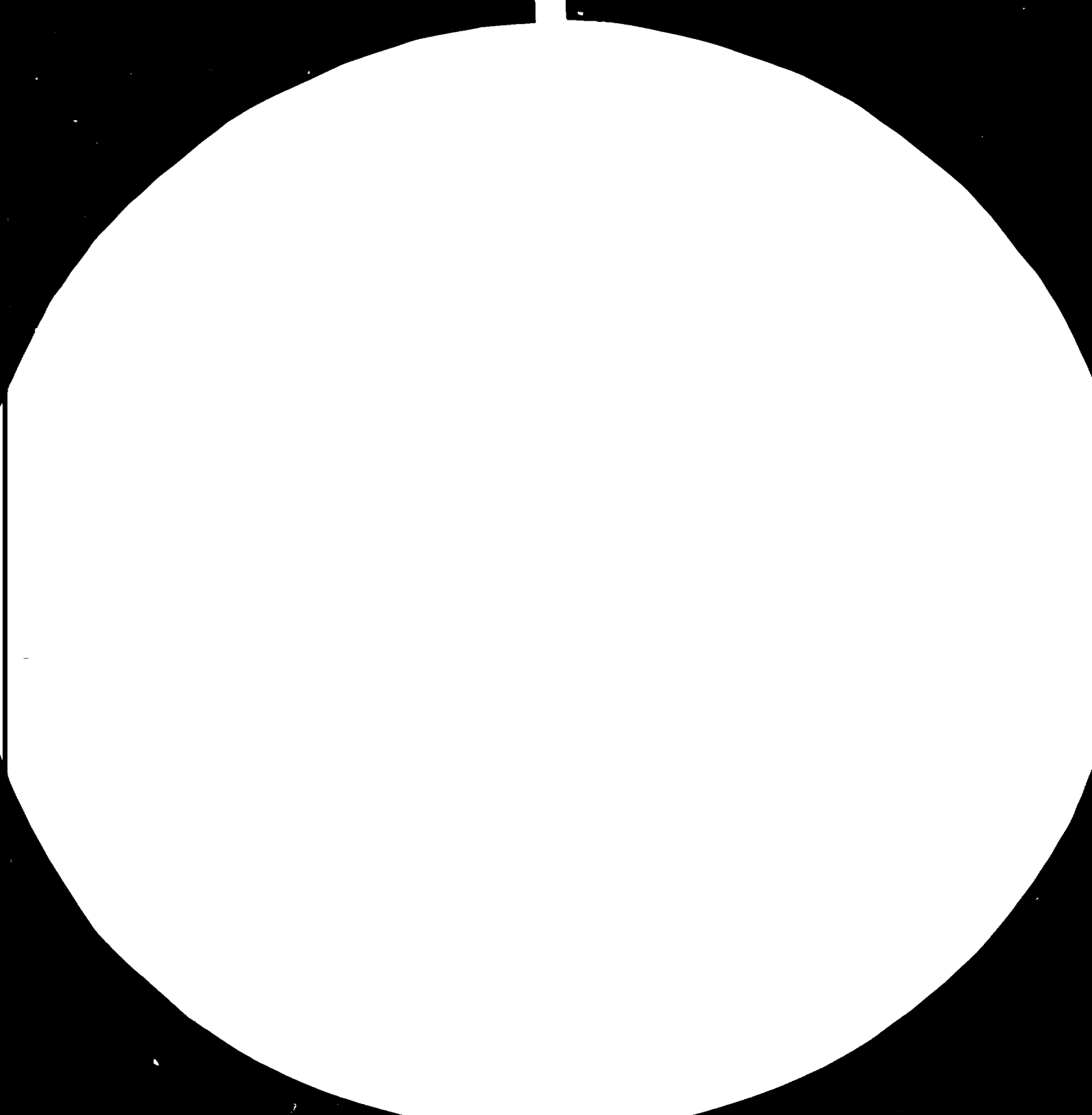
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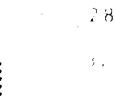
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Resolution Test Chart
1.0 1.1 1.25 1.4 1.5 1.6 1.8 2.0 2.2 2.5 2.8

Note

Restricted

DP/BRA/75/003

12960

Brazil.

STANDARDIZATION, QUALITY CONTROL AND QUALITY
CERTIFICATION IN THE IRON AND STEEL INDUSTRY.

Brazil

Final Report

by

Robert B. Toth

UNIDO Expert

in

Economic Benefits of Standardization

1. ASSIGNMENT

To make Brazilian Industry more aware of the contribution standardization can make to profitability and to assist managers of standardization programs to more effectively organize and operate their programs, I was engaged to serve a two month assignment in UNIDO Project EPA/75/003. I arrived on November 20, 1982 for an initial four week period and returned again on February 20, 1983 to complete the assignment. I was stationed in Rio de Janeiro and made trips to São Paulo, Belo Horizonte, Ouro Branco, Volta Redonda and Cubatão.

2. JOB DESCRIPTIONS

My duties were:

- To determine to what extent Brazilian industry could apply economic analysis to their standardization programs;
- To obtain examples of cost savings through standardization;
- To make Brazilian industry aware of the value of economic analysis to their standardization programs;
- To train standardization specialists in the principles and practices of economic analysis;
- To provide general consultation to individual companies on ways to improve the operation and management of their standardization programs.

3. PRELIMINARY DISCUSSION

Work done in Brazil was a continuation of my efforts in the field of economic analysis of standardization which were initiated in 1965 in USA. Consulting activities were accomplished in the same way that I assist companies and government agencies in the USA where I have been consulting on standardization matters since 1971. A series of lectures were specifically developed for this Brazilian assignment which used material that I had successfully applied in U.S. universities

and multi-division companies, as well as a similar assignment in the Peoples Republic of China.

I found Brazilian companies to be much more advanced than other developing countries with which I was familiar. Though many companies have product lines which are licensed designs of foreign companies and which they are reluctant to change in the interest of standardization, I did find much original design work going on. Of even more significance is the high national priority placed on important substitution. Standardization is a vital element to encourage indigenous suppliers to produce appropriate products and materials. In addition, engineers tend to feel that as long as they are substituting imported parts and materials they may as well accomplish some standardization improvements as well.

I found most Brazilian engineers to be enthusiastic about applying cost-benefit analysis to their standardization work because they saw that it would enable them to communicate better with top management; justify the investments in their standardization programs, and enable them to manage their resources and their programs more effectively.

4. WORK ACCOMPLISHED

During this assignment I worked at three steel companies and one shipbuilder. In addition I assisted two other companies with specific problem more than 600 man hours of industry time was applied to this task. Three major lectures were presented in addition to those at the companies. A total of 113 persons devoted 434 man hours to this effort. Work sheets detailing these activities are attached.

In addition to the meetings, discussions were held with Walter dos Santos, President of INMETRO; Claudio Loewenstein, Director of Standardization, INMETRO, Cel. Cyro A. Borges, Director of Standardization, SIDERBRÁS; and Franklin Rache Souto, Chairman of PETROBRÁS, Standardization Commission.

Responding to many requests for my lectures in a written format, B. S. Krishnamachar, Project Manager, requested that I prepare a comprehensive report. The result is a 30 page booklet, "Economics of Standardization - a Pragmatic Approach", that provides all the necessary information and direction to enable a standards department manager in a company or government agency to apply cost-benefit analysis to his program. It provides work sheets for performing calculations and a uniform format for reporting results. Numerous examples are included, most of which are based on studies done at Brazilian companies. The booklet emphasizes that economic analysis of standardization projects can be simple and straightforward. No complicated formulas are used.

This text fills a real need in the standardization community and should be useful to UNIDO on other projects in many countries.

5. RECOMMENDATIONS

It was apparent that many standards managers are eager to apply cost benefit analysis in their operations. The seeds have been planted and they should now be nurtured. The booklet that has been prepared should be translated into Portuguese and distributed widely. Major companies such as SIDERBRÁS, ELETROBRÁS, and PETROBRÁS should be encouraged to require their operating companies and divisions to use the techniques and reporting formats in submitting annual summaries of accomplishments. A general seminar on the subject should be held in about a year at which attendees could share experiences and report results. Shortly thereafter UNIDO/INMETRO should publish a small booklet (8 to 12 pages) of case histories of the savings and cost avoidance that have resulted from standardization. This booklet should be distributed to top management in industry and given wide publicity.

In this way management can be made aware of the contribution standardization makes to profitability and they will be encouraged to institute standardization programs where they do not exist and fully support those that are functioning.

Acknowledgements

I sincerely appreciate the assistance and guidance of Mr. Krishna machar of UNIDO, Dr. dos Santos of INMETRO and members of their staff for enabling me to accomplish my mission satisfactorily.



