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**FINAL REPORT**

**RESOURCES FOR INDUSTRIAL  
DEVELOPMENT**

**PROJECT No. 596-0128**

**An Institutional Strengthening  
Specific Support Grant**

**by  
ELIAS HILL**

**December, 1990  
Guatemala City, Guatemala**

**Presented to  
ROCAP and ICAITI**

ROCAP

ICAITI

INDUSTRY

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**ACKNOWLEDGMENT**

Strength becomes stronger with the help of others.

- Luther

With deep gratitude I acknowledge and thank the many persons in ICAITI who so dedicated gave their time, support and ideas helping to overcoming difficulties and obtaining results, and must of all, for accepting to change their points of views and working habits to achieve jointly overall changes for the betterment of their institution. Particular indebtedness must also be expressed to ROCAP/AID staff for their dedication, understanding and unlimited support to this project. Special thanks, of course, must be extended to my wife, Rosalinda, whose patience and kindness were always comforting relief and inspiration to coupe with all facets of this project.

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# INTRODUCTION

**Final Report REDI Project.**

**INTRODUCTION**

**Truth can only be found among free men  
with unselfish attitudes**

This project has been a revelation as to problems, methods and approaches to be encountered in changing long established work procedures and daily work habits in a semi-governmental regional institution.

Resistance to change is directly proportional to time of existence of any organization. Long established work habits can not be easily changed. They demand extra efforts, understanding and dedication in every respect. The REDI project faced a challenge and was able to accomplish wonders considering the short time and limited funds used in this endeavor.

ICAITI has operated, miraculously, without applying solid business practices for quite some time. Often they have provided services to private enterprises at less than cost and without an established funding source for it. This has driven ICAITI to several financial crises and it had to develop a dangerous dependency on a few International Institutions, mainly ROCAP.

Day by day International funding sources became less dependable. ICAITI could no longer wait to move to a more solid and lasting way of doing business, or it would perish. ROCAP, responding to ICAITI's request, approved funds to ICAITI to introduce institutional changes to reach a level of self-sufficiency, while providing quality services to the Central American industrial sector.

REDI has demonstrated that it is possible to introduce changes in any institution, provided mental attitudes are preconditioned for it. Time and resources are commonly wasted when new methods and procedures are implemented without the corresponding mental attitude change of the affected personnel. This is especially more true within bureaucratic and semi-bureaucratic institutions.

The Central American arena has been, and will continue to be, very difficult to cope with, especially for regional Institutions like ICAITI. But ICAITI has now, with assistance from REDI, developed an excellent base to secure stability. ICAITI has in place solid systems which in a methodically fashion will help to improve its services towards excellence and to achieve the important goal of self-sufficiency.

The author wants to point out that ICAITI will present a detail final report of this project, attaching to it copies of all materials developed under the project. This report, therefore only contains overall observations from the author as the general advisor to the project.

The author also wants to emphasize that contractors undertaking projects under US Government sponsorship are encouraged to express freely personal professional appraisal of projects. Therefore, the stated points of view and opinions in this report, do not necessarily represent AID/ROCAP position or policy.

**BACKGROUND**

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## **BACKGROUND**

Knowledge of the past prepares the way  
for the future.

Central America is a Region where five countries have traditionally viewed themselves as part of a larger whole. They have a common colonial history and some very definite pre-colonial origins. They have repeatedly sought political and economical union, and developed regional physical infrastructure in roads, ports, power and communications. They have founded and supported developmental, technical, trade and financial institutions to further the common good. A fertile seed for the establishment of a Central American Parliament is now in place, and Panama has declared its interest in incorporating itself in this group.

Economical and political difficulties in the Central America region during the 70s and part of the 80s have dramatically affected industrial growth in Central America, creating a key barrier for "Regional Institutions" to implement more regional projects, especially those directed to private enterprises.

Industrial growth in Central America is considered of key importance if the region is to progress towards economic development and stability. However, industrial growth has proven to be a complex and difficult task. The private sector has experienced a prolonged recession which has forced its limited resources to be concentrated on survival, rather than on revitalizing its capacity.

To change this stagnant situation, technical and financial assistance (identified as major needs of the sector), must be provided to the industrial sector in an effective fashion. These needs may be better provided to industry through an existing regional organization, whose roles and objectives are based in the growth of the industrial sector.

The stronger these regional institutions are, the greater is the probability for Central America to achieve its goals. This is the theme that inspired ROCAP to assist ICAITI with the REDI project, the main purpose of REDI was: To improve the institutional capability of ICAITI to better respond to the technical needs of Central American industries.

The Central American Research Institute for Industry (ICAITI) is one of the oldest regional institutions. It was established over 33 years ago by the five Central American Republics with support from the United Nations. ICAITI is a regional independent, non-profit organization, with a clear global mandate to promote economic and industrial development in Central America through the appropriate utilization of the region's natural resources.

The Institute presently maintains a staff of 154 people, approximately half of which are professionals and technicians. The central facilities in Guatemala City includes a microbiological research center, organic and inorganic chemistry laboratories, a pulp and paper pilot plant, a food technology laboratory, a stove and combustion technology lab, and one of the best technical libraries in the region (with over 55,000 entries, subscriptions to 150 technical periodicals, and computer access to international data bases for information searches). In addition to its headquarters in Guatemala, ICAITI maintains offices in Honduras, El Salvador, Nicaragua, Costa Rica and Panama.

ICAITI has implemented important projects of various sizes under contract with ROCAP and AID/W, most of them have been very successful, such as "Industrial Energy Efficiency Program (PEEIR)" and "Technology Transfer". ICAITI has also successfully implemented numerous projects with other international organizations such as GTZ, OAS, ONUDI, IDRC, and IDB. In summary, ICAITI has played a very important role in the development of Central America and possesses the basic infrastructure and know-how to provide assistance to the industrial sector in Central America.

**SUMMARY DESCRIPTION**

## PROJECT SUMMARY DESCRIPTION

To know where you are going is to have half of the journey completed.

**Program Goal:** Improve Industrial Productivity and Promote Exports. **Project Purpose:** Improve the institutional capability of ICAITI to respond to the technical service needs of Central America industries on a more demand-driven and self-sustaining basis.

**Project Summary:** This project is to strengthen ICAITI's capacity to deliver relevant, efficient and competitive production-oriented, income generating services to the private industrial sector in Central America on a self-sustaining basis.

The project includes five basic areas (Components) which represent an integrated approach to improve ICAITI's efficiency in all areas, and to provide quality services to Central American industry. These components are:

(1) Marketing and Promotion, (2) Planning (3) Technical Development, (4) Administration and Finance. In addition, funding was provided for training, the fifth area. This activity has been of such importance to the project that it was managed as a component. Throughout the project, it was expected that ICAITI could become a Center of Excellence by adopting improved systems, such as:

**A Strategic Plan.-** A long term institutional plan including a) a well defined strategy for implementing self sustaining industrial outreach programs; b) a long term planning and strategy process receiving inputs from the advisory committee and having timely approval by the Board of Directors;

and c) an institutional mechanism for reviewing and updating the long-term strategy on a regular basis; d) a process for allocating resources in the annual budget preparation in accordance with the long-term strategy and medium term objectives.

**An Advisory Committee.**- A functional and effective industrial advisory committee made up of private sector representatives from each country, with clearly defined responsibilities. - **Management Systems.**- An improved organizational and management system, with internal and external controls, geared to responding to clientele's and ICAITI's staff needs. This would include: a) an operating administrative system of approved procedures for improving internal productivity; b) a methodology for systematic analysis of ICAITI overhead and a clear set of policies and procedures for overhead recovery and allocation; and c) a clear definition of "core" staff, facilities, and annual budget requirements, including projected sources for its support.

**A Marketing System.** - A clear marketing system and strategy implemented, capable of establishing a well diversified source of income. This would include: a) a system to update market assessment and a corresponding review of the menu/marketing strategy; b) a well defined procedure for writing, promoting and controlling proposals; c) an operating system for internal evaluation of procedures and of client satisfaction; and d) a 10% increase in absolute value of sales of services of the operative divisions to the private sector in year one, and another 20% increase in year two.

**A Service Menu.**- A new menu of "profitable" services responding to Central American industry's needs. This includes: a) a new menu of service established through a series of market assessments, industrial development programs and in-puts from private chambers of industry; b) ICAITI personnel trained for the new menu; and c) quality services being offered to the region's industry.

**Technical Linkages.**- Strengthen linkages with international technical centers to assure that technology within the institute is up to date and can support the new menu (providing quality services to the region's industries)

**Human Resources Development.**- Improved efficiency through better working conditions and personnel incentives including an effective system for contracting technical back-stopping contractors to support new services. - **Accounting and Cost Systems.**- Timely accounting information and controls to back up and help the decision making process including an improved cost control system providing timely reports to management on the costs and progress of service activities.

**PROJECT DEVELOPMENT**

**Final Report REDI Project**

**PROJECT DEVELOPMENT**

**Future is to have the will to change.**

**- J.Galtung**

**START UP.**

This project confronted significant problems at its beginning. The Institute was facing a period of uncertainty. There was no confirmed Director and various groups (member countries) were competing for the control of the Institute.

The Acting Director had little authority to make changes within the Institute. This situation made it very difficult for him to initiate, in an orderly manner, the necessary institutional changes considered under REDI.

The Acting Director's position was made especially difficult due to internal jealousies; key staff members also sought to be named Director and therefore tried to bolster their own position by undermining any initiative made by him.

This crisis became even stronger in November 1988 when a new person (former-employee of ICAITI) was proposed for the Directorship by the president of ICAITI's Board. It was not until April 8, 1989 that this issue was finally resolved with the official nomination of Mr. Ludwig Ingram as the permanent Director for the Institute.

The project's initiation was also hampered by other elements. The project agreement was signed on June 22, 1988. Nevertheless, delays at ICAITI in the presentation of the first work-plan and difficulties at ROCAP for approving funds delayed programmed activities until November, 1988. The first funds were committed in late October, 1988, more than four months later from the stating date of the project.

The author considers that some of the initial problems the project faced, in the long run, became assets, especially concerning sensitive information and fact confrontation. The high animosity existing among all the personnel at that time made it possible to gather critical information not easily obtainable. Under any other circumstances, this information would have been difficult or impossible to obtain.

### **PROJECT MANAGER.**

In the beginning ICAITI's Acting Director assumed the total responsibility and management of this project. In spite of his good intentions and hard dedication, he was unable to provide the project with all the needed time and detail attention required to expedite the numerous tasks involved. This inconvenience was made evident early in the game. Nevertheless, it was not until April 15, 1989 (after Mr. Ingram's confirmation as Director) that a full time project Coordinator was brought on board. Management of the project improved considerably shortly after.

This project clearly confirmed that "Institutional Improvement Activities" require top level authority with total Director's support and a full time permanent employee to be in charge. This person is to be of the highest qualification, including aggressiveness, tactfulness and consistency, to insure inside daily detail monitoring, guidance and encouragement throughout the implementation of the project. Without a full time project manager, projects of this type cannot be properly implemented.

### **HUMAN BEHAVIOR.**

This project was a typical "Human Behavior Project". Its implementation, therefore demanded different approaches and techniques. The expected results from every intervention was tinted with a great deal of uncertainty. Human actions and reactions became an intimate part of the established method or system.

Much has been said and written about human behavior. But scientifically, we know little about the subject, especially when we intent to model (predict) human behavior results at any level of precision. The prime object of this project was to change the human behavior (methods and work habits) of a 33 year old institution, where "their way" was considered the right way.

### **MIND PREPARATION STAGE.**

People normally do not change their ways without wanting to do so. Like the old adage says: "You can take a horse to the river, but you can not make him drink water".

The implementation of this project demanded a well planned, strong and subtle mind preparation phase composed of several activities oriented to predispose ICAITI's personnel to "want to change" or to at least accept and support changes.

The basic routine of first working with the minds of the individuals, making individuals want to change, prior to implementing changes, is a methodology (requirement) not widely understood. It has been proven that changes adopted without an adequate "mental attitude change" are doomed to failure.

### **SUCCESS MEASURING INDICATORS.**

This project was haunted with weak success measuring indicators. For instance, the amount of money spent is surely not the best indicator of achievement, especially regarding will-to-change (a major element in this project). In the majority of cases the desire to change in an institution can be achieved without spending large amounts of money.

It is vital in any activity to establish "Success measuring indicators". But wrong indicators are chaotic. Without proper indicators the element of human drive is lost. People need to know how they are doing in whatever activity they are involved.

Measuring indicators are even stronger if we can include in them the element of comparison by which a person or group of people can gage themselves against others. This establishes the element of competition, with which the human drive is further motivated.

In the opinion of the author, most AID/ROCAP project success indicators only satisfy official (bureaucratic) justifications. It is important to emphasize that the Project Paper (Log Frame) identifiable indicators, in most cases are the only indicator used throughout the implementation of AID/ROCAP projects. It is then very important that those indicators not only cover bureaucratic needs but specially inspire human drive and competition. Establishing good human-motivating success indicators makes it very simple to select excellent Log Frame indicators.

#### **BASIC APPROACHES USED.**

The desire to change may be achieved in different manners. In this project, the use of three basic approaches or concepts to inspire and/or base the changes was very helpful. 1) The Result Concept; 2) The System's Approach and 3) The Team Approach.

**1) The Result Approach:** People in general can easily get in the habit of measuring achievements by the amount of work they put in and not by the actual product (results) put out. This practice commonly degenerates further by creating a cast of people that only looks for excuses (problems) to justify the lack of success (outputs).

Most persons accept that there is such a cast of individuals. Nevertheless, it is very hard to find a single person who admits that he/she is one of them. It has been proven that it's not too hard to teach people, in general, to develop the habit of measuring results (what is really put out), instead of measuring how much was put in or how many difficulties were encountered. The simple question is: Did I succeed? And the answer is also simple: "Yes" or "No". Complicated answers normally try to hide or justify the lack of success.

The secret is to develop among the personnel of any institution the habit of asking and answering themselves; the simple question: Did I succeed? Once this habit is established, in a very short time, an excellent cast of people evolves: persons who readily find problems and implement solutions (changes).

This habit cannot be developed with only philosophical concepts. It requires tangible means that provide bases for establishing clearly what is to be done or accomplished. Success or failure cannot be determined without establishing what is expected out of something (results or products). With this project we used "Task-Orders" as the basic element for establishing the foundation for the "result approach". A simple but effective Task-Order format was designed and a training manual was prepared. Group training meetings were conducted and individual follow up practical sessions were held to ensure that every individual absorbed the concept and was able to produce well written task-orders.

#### **The format consists of seven points:**

**1- General.** A section to provide the basic information to control the task-order: Number; Date; Person in charged; and specifically the **WHEN** the work is to be initiated and **WHEN** it is to be completed.

**2- Introduction.** To indicate **WHY** the task-order is needed and to provide a description of the problem and background of the case.

**3- Objective.** To establish the **FOR WHAT**, is the exact objective and/or purpose of the task-order.

**4- Process.** To determine **HOW** the task is to be best accomplished.

**5- Products.** To define in detail **WHAT** is expected out of each task-order (outputs).

**6- Finance.** To establish **WHO PAYS** and with what funds.

**7- Cost-Summary.** To fix the **HOW MUCH** per line item, emphasizing salaries, contracted services and any other critical item.

The introduction of the task-order system alone can be considered as a very important accomplishment of the project. Not only because of the system in itself, but because of the positive impact it made in changing mentalities and preparing the ground for other systems.

**2) The System's Approach:** It is difficult for most people to organize their thoughts and activities in a logical way. Perhaps this difficulty originates in the inefficient school programs, which don't teach practical ways to arrange the various elements of a task to reach rapid and efficient results (to organize "systems").

Often we find individuals complaining about the lack of understanding or negligence of his/her subordinate. "If I told him once I told him a thousand times ....". In most cases the real problem is the lack of a system. Without systems a person is condemned to be giving orders the rest of his life and getting deficient results.

The design and/or analysis of a system can be very simple. Nevertheless, there are many complicated approaches requiring high mathematical concepts, ones not really needed by the layman to design day to day systems. In this project we used the simple system's approach with an excellent degree of success.

#### **A system in its basic form contains five parts:**

**1- Inputs (WITH WHAT).** Whatever is needed; materials, equipment, personnel, etc. (including the power of analysis and decision making to induce the needed changes to improve the system as required).

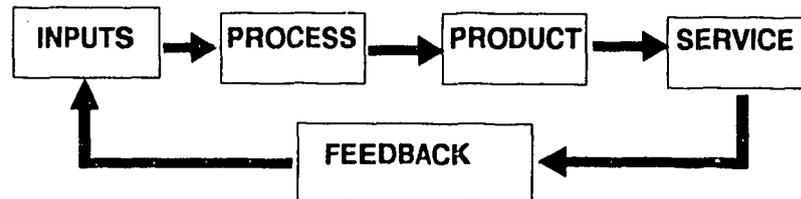
**2- Process (HOW).** A procedure to combine or modify the inputs to produce something

**3- Product (WHAT).** The something we want to make, obtain, achieve, etc.

**4- Use (FOR WHAT).** The service the product is to render.

**5- Feedback (INFORMATION).** The data from all the parts of the system to determine up to what point each part is complying with its purpose.

## BASIC SYSTEM GRAPHICAL REPRESENTATION



The feedback (information) from each part of the system should be very simple and to the point. There are hundreds of question one may ask, but (specially at the beginning) the feedback data should be maintained to the very minimum. Basically it should only answer two questions:

- a) Is the product what we wanted (meets the set standards)?
- b) Does the product provides the needed services?

To maintain the system as simple as possible, additional information is to be requested only on an "exception-bases". That is, only when a negative answers is obtain from any of the previous questions.

A system has to fulfill a very important characteristic to be a system: it has to be "self-improving". The feedback provides the data to detect flaws and the power of analysis and decision-making provide the means to implement the needed actions to improve the system. The self-improving characteristic, encourages changes. Most people are reluctant to start changes, because they fear to be wrong. Others want to study all possibilities prior to suggesting a change, and this usually takes so long that the "new" system becomes obsolete before it's completely planned.

The system approach proved very useful in this project. It not only provided a sound method for determining realistically needed changes, but also it encouraged designing and suggesting changes (systems). The importance of designing and implementing "systems" became very evident. Systems had to be started; the seed had to be planted. Confidence now exists to initiate systems. They know that systems don't have to be perfect to start with, as long as they start them right. This project so far has yielded 14 important systems and several other sub-systems.

**3) The Team Approach:** Teamwork is stepping in and helping out whenever we can, without questioning if it is our obligation or not. To facilitate the work of others is teamwork. To be congenial and understanding with our fellow workers is also teamwork. It is not difficult to recognize the characteristics found in teamwork. Yet, it is not easy to find true teamwork in most organizations. Nor is it easy to implement. Teamwork is something that demands a blend of many ingredients before it can exist. At ICAITI, with the REDI project, we made a big step towards building teamwork.

The recognition by every one in an institution that all employees are working towards the same objective and that no-one can reach it without the help of the others is the keystone of teamwork. The larger and more complicated (diversified) an institution is, the more difficult it is to establish a common goal.

At ICAITI, we used the making of a "Strategic Long Range Plan" to promote the teamwork spirit within the institute. This task was an eye-opening for everyone and an excellent mean to break-down existing barriers among many employees.

Radical conceptual differences have existed, in relation to ICAITI's objectives. Individual kingdoms (islands), with individual objectives (goals), have operated for over 30 years. ICAITI's original mandate (charter) has been used as a shield to justify some activities. Oddly enough, the same individuals have strongly criticized the mandate as 100% obsolete in order to justify other types of activities.

The preparation of the Long Range Strategic Plan demanded many hours of hard confrontations. Every employee, from all levels, participated actively in this endeavor. Point after point was discussed to iron out differences. ICAITI's Mission and seven long-range objectives were finally born. This apparently small output, was probably the most significant product ever produced in the Institute. It was the first and only output containing thoughts, ideas, affirmations or negations from every employee of the institute. Every employee rightfully feels the father/mother of the strategic plan. The most important ingredient needed to achieving teamwork was established: a common goal.

Something bigger evolved from this apparent "small product": a group of people that could work together, settle differences and agree on how to perform. This was a solid foundation to build teamwork upon. Working relations in ICAITI have improved radically.

The combination of the three approaches/concepts, referred to above, established solid principles to base a change-program. The author prepared instructional materials and conducted discussions with most of ICAITI's personnel and contractors to ensure that these approaches were used in implementing all changes.

#### **SELF-SUFFICIENCY.**

ICAITI has developed itself into a very aggressive institution with fine administrative and technical capabilities to achieve self-sufficiency. But the question still remains; up to what point should a Regional Institution, with an important developmental role to play, adopt a total business attitude? If ICAITI concentrates on a total commercial role, ICAITI could become just another service institution to industry. This could hinder many other important actions that contribute to the industrial development of the region but are not money making activities.

This conflict has not yet been clearly defined and probably will not be resolved for quite some time. To establish a limit, ICAITI has to first acquire a financial stability that permits the institution to budget funds (income) for non-recuperating developmental activities.

ICAITI has traditionally excused itself for not being able to do development activities, or not work in areas ICAITI would like to do. Some times ICAITI has even blamed donor organizations. At present, ICAITI works on the safe concept of passing the cost of development to international donors. Typically, ICAITI searches for development interventions with possibilities of international financing, prepares a proposal and looks for an international institution to finance it. There is nothing wrong with this approach. Except, that sometimes ICAITI is not too selective of the developmental area or of the conditions in which the work is to be conducted. Another basic problem with this arrangement has been the passive attitude ICAITI has taken once a donor organization is found. It slows down too much and neglects its own principles.

#### **BASIC ACTIVITIES.**

This project was composed of eight basic activities. Each of this activities demanded changes within the institution, marking the start of an organizational improvement revolution.

1) **Training:** This element was a major activity of this project. All ICAITI personnel participated very actively in training activities. Two types of training took place.

One consisted of courses designed to solidify the institutionalization of the various administrative, organizational and technical changes implemented under this project. In this area, all 154 employees participated in 78 different training activities, accumulating a total of 753 person/courses. This total is composed of 431 male-person-courses and 322 female-person-courses.

The second training focused on establishing a permanent career development program. The basic goal was to establish career levels and corresponding requirements to motivate and guide employees, in obtaining the needed training and conditions for each step on the ladder to a more rewarding position.

Training requirements for each of the various positions (jobs) in each department were determined. This information was further packaged into specific professional areas. Each professional area was subdivided in four modules:

- 1) **Introduction:** to provide the basic knowledge of the Institute and administrative procedures;
- 2) **Basic Formation:** to provide the general techniques required to operate efficiently within each service area;
- 3) **Technical Complementing:** to provide the professional staff with all required technical and administrative tools to allow maximum performance with little or no supervision; and
- 4) **Specialization:** to maximize the knowledge of a professional within a specific line of service to the highest level of excellence possible.

The institute had long suffered by lacking a program like this. Personnel in ICAITI was contracted on one capacity and normally remained in that capacity for years. This generated dissatisfaction and low productivity.

This phase of the program has provided a solid element towards the improvement of weaknesses developed by inadequate training. These activities are now consider an effective employee motivating element.

2) **Market Assessment:** A market study to determine where ICAITI had a comparative advantage due to its existing facilities and expertise, and therefore could best market its services at full cost, was a leading element among the various activities.

This study fell behind schedule due to a number of errors and deficiencies in the final product presented by the contracted firm. As a result, ICAITI took over this activity and completed a satisfactory product. But to compensate for their incompleteness, ICAITI negotiated with the firm a reduced scope of work and price.

ICAITI postponed the beginning of several activities until after the completion of this study. The information from this study was very valuable but not indispensable for the start-up of other activities. This postponement also (among other reasons previously presented) accumulated more negative time. In all, the project fell behind schedule 6 months. In June 1990, ROCAP approved a 6 months extension bringing the completion date of the project to the 31 of December, 1990. (At the time of this report an additional 6 months extension was under consideration, to assist ICAITI to evolve from an intense internal improvement effort -demanded by the project- to a smooth self-sustaining operational phase).

The market study has been a valuable asset to most activities of the project. It has provided, in several instances, data contradicting the general beliefs of most of ICAITI's personnel, especially in relation to ICAITI's image. This has encouraged employee willingness to improve ICAITI's operations throughout.

**3) Long-Term Strategic Plan:** ICAITI was in need of a strategic plan to guide the institution under a common theme. This plan was to establish goals and to provide long term viability and operational objectives, reflecting a stronger market orientation under a more business-like management.

The making of an effective long-term strategic plan demands well coordinated hard work with the assistance of an outside and impartial professional to bring about fresh points of view and to serve as the mediator in all discussions.

A five-year strategic plan was completed with the assistance of an outside consultant. The involvement of all ICAITI personnel into the planning process proved to be an important action, especially because it created an improved working atmosphere. Employees now talk freely and honestly about the problems of the Institute and are more willing to accept other's points of view.

The completed strategic plan (1990-1994) was distributed among interested parties and organizations. This Plan has helped ICAITI, internally and externally, beyond expectation. Internally it has helped to unify concepts, approaches, priorities and specially to work together towards an accepted common goal. Externally, it has helped to develop an understanding of ICAITI's role in Central America, including its present position and future goals. It also has helped ICAITI to better identify with whom to work and what to do with each identified organization. All this in turns is bringing about a stronger backing from the international, governmental and industrial communities.

**4) Administration and Finance:** To increase institutional efficiency, it is necessary to have timely accounting information and controls to back up and help the decision making process in all areas. It would have been impossible for ICAITI to begin to recover costs without a solid understanding of the true costs of all its activities (products).

An improved administrative and finance system had to be established as soon as possible, not only to help management during the project execution, but to improve performance and productivity on a continuous basis.

This activity was started with an inter-divisional analysis of the needs for improving internal procedures. Emphasis was given to the identification of main areas that needed clear institutional policies and its consolidation in administrative manuals. This information was used in the preparation of the terms of reference for the selection and contracting of the consulting firm that would assist in this area. The list of needs that came out of this analysis was very revealing:

- Budgetary procedures.
- Policy on direct/indirect cost allocation and recovery.
- Pricing policies, price structure for proposals (cost estimates), and credit policies/options.
- Reporting system to meet managerial needs.
- Warehouse inventory control and supplies ordering.
- Internal audit and evaluation policies.

- System for financial and administrative management of decentralized delegate offices.
- Property inventory control and system to project and budget future needs for equipment and facilities.
- Control, registration and filing of correspondence.
- Computerized system for managing and retrieving information on projects and documentation.
- Specialized maintenance procedures for technical equipment.
- Standard procurement procedures based on type and cost of purchase.

An improved financial and administrative system is now in place. The contractor (Cooper & Lybrand) completed the required manuals and provided verbal and written recommendation to guide the implementation of the system. The improved system and manuals were divided into five areas: 1) General Accounting; 2) Cost Accounting; 3) Inventory and Property Control; 4) Budgeting; and 5) Finance and Administration.

Results of this system are now evident. Accounting data is registered and available for analysis within the first 10 days of each month. Department and Division Managers are better informed and able to make decisions based on factual data. This new way of doing business is rapidly developing into a more technical and professional fashion, where facts and figures are considered, before plunging into action. Based on economical and performance data (now available), important cost cutting actions have been taken. Other savings have also been detected, specially coming from a more effective personnel performance. Part of these savings are being used to finance the newly created incentive system which has demonstrated its ability to motivate personnel to improve their performance.

**5) Private Sector Advisory Committee:** To comply with ICAITI's mandates, it was deemed necessary to establish solid communication between ICAITI and its client groups. For this the Board of Directors, in June, 1962, approved the organization of a private sector advisory committee with representatives from each member country.

For political reasons, the creation of this committee did not materialize for over 17 years. It was not until Director Ingram with the economical and technical support of REDI, embarked on this activity.

ICAITI initiated a closer and renewed relationship with the Ministers of Economy of the region (which act as its board of directors). During the past three years, ICAITI has met with the Ministers and/or Vice-Ministers of the Central American Republics (more times than during the previous 25 years) to review institutional issues.

The creation of this committee, in spite of being made up of only private sector representatives, was no easy matter. Its formation required intensive negotiations with the Board of Directors and Chambers of Industry.

This Committee is now formed and actively operating and meeting on a regular basis. Members of the committee are taking an active role in ICAITI's affairs. The promotion and management of the Total Quality Management (TQM) program is being directly handled by each committee member in his country. They have also assumed other important responsibilities and are playing a significant role in the strategic planning process of the institute.

**6) Improved Linkages:** To assure that technology within the institute is up to date and that ICAITI is able to provide a high level technical backstopping to the Central American industry, it was necessary to establish improved working relationships and linkages with international technical sources.

High hopes were placed on utilizing linkages as the main technical input throughout the total development of the project. Nevertheless, this activity met logistical problems that prevented its early utilization.

ICAITI requested through ROCAP, a publication in the Commerce Business Daily, that invited US Institutions to establish working relations with ICAITI on a mutual benefit arrangement. Three months later (after several tracing communications), instructions to resubmit data were received. Information was re-submitted (through ROCAP again), but once more no action was evident. Four months later (after several tracing notes), a flat out denial was received arguing against its publication because no official US institution had made the request.

A fresh approach was put into action. First a computer search was made. Out of over 6000 identified compatible institutions 100 were selected as promising. Then a letter of invitation and a declaration of intent was mailed to them. An encouraging 25% response was backed-up with an aggressive contacting campaign.

ICAITI has established working arrangements (linkages) with Five US institutions: 1) Lenox Research Institute (LRI); 2) Pennsylvania State University (PSU); 3) Mississippi State University (MSU); 4) Human Resources & Research Organization (HUMRRO); and 5) National Productivity Network (NPN) with 39 members now also available to ICAITI. Three joint activities with these institutions have already taken place and others will start early in 1991.

Also five working relations were established in Canada: 1) Protein, Oil and Starch, Pilot Plant Corporation (POS); 2) Saskatchewan Research Council (SRC); 3) Nova Scotia Research Foundation Corporation (NSRF); 4) Research and Productivity Center (RPC); and 5) Quebec Industrial Research Center (CRIQ). Activities with these institutions are also scheduled to start in early 1991 under the auspices of the Canadian Government.

These arrangements are contributing very favorably to ICAITI. Market responsiveness has increased with the incorporation of new techniques and the availability of a wider range of experts. A new mechanism is now operating for setting fees and facilitating rapid contracting of specialized short-term consultants and technical backstopping. In short, a new way to provide better services to the Central American industry is in place.

**7) Menu of Services:** The service of any institution must be flexible enough to change in accordance with market requirements. ICAITI had to establish a capability to deliver high quality services to satisfy industry's needs. For this a menu of services that responded to market demand had to be available.

This activity focus on a menu of service products of actual needs. By way of linkages, industrial development programs and private chambers of industry ICAITI assures that services are relevant. This menu, also had to respond directly to the strategies, priorities and needs identified in the market assessment and to the long-term strategic plan.

A menu of self-sustainable services requires the backing of various schemes (systems). To mention some: A mechanism capable of collecting current industrial services needs, a technical group capable of delivering quality and relevant services at competitive prices, promotional sales pamphlets and introductory talks to back-up sales visits to industry, etc. The ICAITI menu of service became a solid part of the marketing system.

**8) Marketing:** The basic purpose of this project, "to respond to the technical service needs of Central American industries on a more demand-driven and self-sustaining basis", could only be achieved with a reliable market driven approach. Thus, marketing activities became the major system of this project.

All previous activities are requirements in the establishment of a solid business plan. This marketing (business) concept has taking a leading role in ICAITI. A composite operating manual was completed by the Promotional Department. This manual covers in detail all sales activities and other ICAITI's operations. The manual is the product of a well orchestrated plan, where all systems were considered with a high participating effort from all ICAITI's personnel. The 1991 Work-Plan is emerging as part of that effort. The plan will not only respond to the long-term Strategic Plan, but also to actual country needs and conditions.

## **END-OF-PROJECT STATUS.**

The REDI project has succeeded in assisting ICAITI. The institute now has in place a number of systems and sub-systems that promote the institute as a center of excellence. Other improvements, including methods, procedures and the way the day-to-day work is handled has greatly benefited ICAITI. Also, the personnel is very much aware, motivated and committed to maintaining all improvements. Some improvements in addition to the ones mentioned in the body of this chapter, are:

**1) Stronger Leadership:** a firmer leadership through an improved organization and management working under better defined responsibilities and authorities, linked closer to the Board of Directors and influencing policy concerning science, technology and industrial development

**2) Clear Institutional Role:** a clarified institutional role promoting modern technology from other parts of the world that meet client needs and willingness to pay. This is geared to a mechanism for setting priorities which involve private and public sectors.

**3) Sound Budgetary Management:** a method for allocating resources according to sources, priorities, strategies and objectives in close coordination with the various departments and within budgetary controls.

**4) Enhanced Implementing Capacity:** a solid base to implement administrative, organizational and physical modifications necessary to carry out institutional strategy (including human resources, training, etc.)

**5) New Promotional Department:** a promotion and sales department with evaluation procedures to measure the effectiveness of promotional efforts and client satisfaction related to services provided (treatment, timeliness, cost/value). This unit includes a public relations section that elevates ICAITI's image in accordance with promotional strategy.

**6) Effective Communication:** internal communications system to promote institutional identity and provide feedback on progress towards institutional goals. This system has assisted to improve internal procedures, technical publications and interaction with the private sector clientele

**7) Improved Efficiency:** through better working conditions and personnel incentives under an advanced human resources philosophy oriented towards the achievement of its strategic goals and objectives.

Based on these improvements, ICAITI is selling its services at full cost, establishing diversified sources of income and securing its financial viability (self-subsistence). These procedures are also helping the institute to become more efficient and effective in carrying out its activities and enhancing its capability to provide unique services to the region.