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ESTABLISHMENT OF AN ENINGEERING DEVELOPMENT AND
SERVICE CENTRE (EDSC)
DP/KEN/86/048
REPUBLIC OF KENYA

Technical report: Elaboration of an Associative Model for the Engineering Development and Service Centre (EDSC)*

Prepared for the Government of Kenya
by the United Nations Industrial Development Organization,
acting as executing agency for the United Nations Development Programme

Based on the work of A.A. Canellas,
consultant for the elaboration of an EDSC associative model

Backstopping officer: E. Khan, Metallurgical & Engineering
Industries Branch

United Nations Industrial Development Organization
Vienna

* This document has not been edited.

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Notations		Abbreviations
CRT	-	Centre for Research and Technology
CTA	-	Chief Technical Adviser
DANIDA	-	Danish International Development Agency
EDSC	-	Engineering Development and Service Centre
EEC	-	European Economic Community
EPZ	-	Export Processing Zone
FKE	-	Federation of Kenya Employers
ICDC	-	Industrial and Commercial Development Corporation
IDB	-	Industrial Development Bank
ISP	-	Informal Sector Programme
JICA	-	Japan International Co-operating Agency
JKUCAT	-	Jomo Kenyatta Unviersity College of Agriculture and Technology
JUA KALI	-	Micro enterprises - informal sector
KAM	-	Kenya Association of Manufacturers
KEDS	-	Kenya Export Development Support
KIE	-	Kenya Industrial Estates
KIRDI	-	Kenya Industrial Research and Development Institute
KMAP	-	Kenyan Management Assistance Programme
KR	-	Kenya Railways
KSPX	-	Kenyan Subcontracting and Partnership Exchange
KYTEC	-	Kenya Youth Training and Employment Creation Project
MRTTT	-	Ministry of Research, Technical Training and Technology
NGO	-	Non-governmental Organizations
NPM	-	National Project Manager
NYSEI	-	National Youth Services Engineering Institute
OOPP	-	Objectives Oriented Project Planning
PAC	-	Pan African Congress
PSC	-	Project Steering Committee
UCD	-	UNIDO Country Director
UNDP	-	United Nations Development Programme
UNIDO	-	United Nations Industrial Development Organization
USAID	-	United States Agency for International Development

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION

PROJECT IN THE REPUBLIC OF KENYA

JOB DESCRIPTION
DP/KEN/86/048/11-54/J-13316

Title	Consultant for the elaboration of an EDSC associative model
Duration	Two months
Date required	1993
Duty station	Nairobi, Kenya
Purpose of project	To assist the Government of Kenya in the achievement of higher utilization of existing industrial capacity through the activity of the Kenyan Industrial Research and Development Institute (KIRDI).
Duties	The consultant will be the team leader for the consultants working on the various areas of the EDSC project extension programme. He will be specifically expected to:

1. Determine in consultation with the relevant authorities, how the EDSC can best address the basic orientations of the UNDP's Fifth Country Programme and the Kenya Government's industrial policies in a harmonious function. In particular, do a needs assessment study of small- and medium-scale enterprises including small holder farmers, in the context of:
   - employment creation;
   - enhancement of productivity;
   - conservation/earning of foreign exchange;
   - appropriate technology and standardization.

...../2

2. Bearing in mind the desirable orientation of the EDSC function and the appropriate points of emphasis, as well as the need for the long term sustainability of the Centre, determine which sector or institutions should be involved in its:
   a. management
   b. financing
   and in what manner, context and circumstances these arrangements can best be achieved.

3. Proceed to identify, consult and organize specific parties, bodies and organizations in the private sector for these purposes within a clearly defined framework of interactions with the EDSC.

4. Specify membership rights and obligations, membership application formalities, financing procedures and accounting modalities.

5. Determine the method of computation of membership fees and seek the concurrence of the prospective members.

6. Formulate the necessary associative statutes and initiate the first critical steps towards their registration in accordance with the laws in the country. Prepare the necessary proforma documentation for the administration of the associative model.

7. Act as the team leader for the consultants working on the various areas of the EDSC project extension programme.

8. Compile a draft document integrating and harmonizing the various consultancy reports in a simple and readable format highlighting the major data, principles, organizational structures, policies, prospects, statistical projections and plans geared towards attracting the interests of foreign donors to support Phase Two of the EDSC project.

9. Organize a workshop for a wide spectrum of interested parties to discuss the draft document with a view of reaching a consensus on its contents and recommendations.

10. Prepare a final version of the document based on the consensus reached at the workshop to be used for solicitating bilateral and multilateral aid for EDSC Phase Two.

EXECUTIVE SUMMARY

The first phase of The Engineering Development and Service Center (EDSC) which commenced in January 1990, will end in January 1994. A project planning workshop was conducted between 29 November and 2 December 1993 to deliberate upon a suitable project approach that would enhance higher utilization of the existing industrial capacity. The methodology used during the Workshop is based on the objectives oriented project planning. This report is a documentation of workshop deliberations and results written in a given format utilising specific instruments of analysis and project design: it should therefore, be read in that context.

Prior to the workshop, UNIDO had engaged two international consultants to review the internal project operations and examine the feasibility of identifying "Associative Model" elements that could assist the EDSC towards long-term sustainment respectively. The consultants findings formed an important background input during the entire proceedings.

One of the key findings was that under present conditions EDSC conveyed a negative image that would preclude an associative model to be implemented unless comprehensive changes were made. Potential financial donors, both international and domestic, were not interested in placing resources toward this capital intensive type of project unless (a) their targeted client areas were addressed, or (b) the Centre's focus was directed in an efficient manner toward industry and the private sector. Client firms, while impressed with the quality and variety of the Centre's machinery and equipment, pointed out a number of operational weaknesses that needed correction. On the positive side, both individual industrial enterprises as well as industrial associations (in particular KSPX and KEDS) reflected a large unmet demand for the Centre's engineering services, if properly delivered.

The OOPP Workshop resulted in a tentative project concept for Phase 11. The core problem was identified as under-utilisation of capacities available at EDSC. This was mainly attributed to poor management, inadequate operational structure and poor linkages with the private sector. The project purpose in the short-term therefore should lead to adequate utilisation of the capacities resulting in the long-term project purpose of provision of specialised technical services in terms of engineering design, prototype production, engineering facilities and training to both public and private sectors industries. This would contribute to the overall national goal of enhanced industrial development in Kenya.

In order to achieve the project purpose, the project outputs are directed towards establishing an effective management, harmonising and improving the EDSC operational structure, and establishing adequate linkages with emphasis to stimulating the private sector use of the EDSC. To achieve this, it was a general consensus among participants that radical reorganisation and management changes must take place.

Immediate policy changes facilitating the operation of the Centre autonomously must take place. Emphasis should be directed towards running the Centre on a commercial basis. This can only be achieved with the involvement and participation of the private industrial sector with which ties have been minimal in the past. The Workshop considered the Centre to be viable, if operated along these lines.

It is of course of paramount importance that policy guidelines including setting specific goals are made by the implementing agencies. The Centre must also generate income for its sustainment.

As an important vehicle towards the achievement of the Centre's activities, a strong Project Steering Committee should be established immediately. While doing this, due care and consideration should be given to the composition of its membership and the private sector's role in the Committee. On the onset, emphasis must be given to ensuring KAM, FKE, KSPX and KEDS members involvement in the decision making of running the Centre. This will ensure the income generation and long-term sustainment of the Centre.

A number of ownership models for the Centre was considered ranging from outright privatization (using KIE or GTZ models) to share participations by development bank institutions (such as IDB, DFCK or ICDC) leading toward greater autonomy, cost recovery, and private sector emphasis. While several of the models contained attractive features, the consensus of the Workshop was to adopt the model keeping the Centre under KIRDI and providing services to both the private and public sectors. However, this would only be possible through major changes in management, operational structure, and appropriate linkages.

It was the view of the workshop participants that mechanisms should be worked out to fund operational costs and installation of some of the required equipment for full operation of the Centre.

Policy Guidelines for EDSC Management, Operations and Output*

The UNDP 5th Country Programme will cover the period 1994-98, which coincides with the duration of the 7th National Development Plan 1994-98. Kenya's national development objectives, priorities and perspectives during this period are expected to be focused on the following strategies which show direct relevance to the EDSC.

1) Human Resource development for Improved Management Capacity:

a) Activities to strengthen institutional, administrative and managerial capacities for designing and implementing policies which help promote high employment, sustainable development and translate economic growth into human welfare. This includes (i) further interventions in support of parastatal and civil service reform programmes, and (ii) support to public enterprise reform and privatization programmes on rationalization of the operations of parastatals, broadening their base of ownership, and enhancing enterpreneurship development for employment creation.

ii) Small Enterprise Development (SED) and Employment:

a) The primary objective of the proposed programme activities is to support private sector development through the promotion of entrepreneurship, technical training and development of micro, small and medium scale enterprises, with particular attention to women entrepreneurs, technology transfer for the enhanced productivity and product diversification, and increased awareness of environment factors.

b) The transfer, acquisition, dissemination and adaptation of appropriate technologies and promotion of quality control.

iii) Industrial and Commercial Development:

a) The focus of development has been to increase the flow of goods and services as measured in GDP, employment and income. Since the industrial and commercial sectors have emerged as the most dynamic forces, they have been accorded high priority in Kenya's development process. Emphasis was placed on the development of these sectors to transform the economy by raising productivity and achieving greater use of local resources. Kenya's efforts to industrialize rapidly were initially encouraging but have generally fallen short of post-independence expectations. This is partially explained by the fact that early policy instruments focused on promoting an import substitution policy which, while initially successful, created forces of insufficiency and slower industrial growth. As a result, the sector became inward-oriented, too import-dependent and capital intensive, and unable to absorb enough of the rapidly increasing labour force.

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* Based on the themes highlighted in the 5th Country Programme and the 7th National Development Plan.

The net effect of the import substitution strategy has set forth structures that are weak and inefficient by world standards. As a result, manufacturing has not been dynamic, has not raised productivity or entered international markets, and has not expanded its structure or developed many local linkages.

b) In light of the above, and to maintain more industrial growth, it was determined to restructure the policy instruments to improve the efficiency and competitiveness of the sector and re-orient it towards increased export and increased use of domestic resources.

To accomplish this, a new sectoral policy orientation is needed. In the past, policies have tended to provide an enabling environment for the manufacturing sectors in general by addressing broad macro-economic policies and strategies. However, it is now obvious that problems affecting one sector may not apply to a different sector, and solutions or incentives effective to one sector may not be relevant to another sector. The government formulated industrial specific policies such as motor vehicle industry policy, textile industry, chemical industry policy, etc. The areas covered under the Engineering Industries sector are: iron and steel, non-ferrous metals, capital goods, industrial spare parts, transport, electrical and electronic. The policies to develop these sectors are mostly similar in that they suffer from capacity under utilization, high import duties, and non-rationalized production.

Introduction

A. Establishment of EDSC Project

The Engineering Development and Service Centre (EDSC) project began in January 1990 under a three year phase (1990 - 1992). The project was funded by UNDP with UNIDO as the executing agency. The UNDP contributed US$ 4,014,032 and the Kenya Government Kshs. 42,100,322, including buildings.

The EDSC was established within the Kenya Industrial Research and Development Institute (KIRDI) which is operated under the Ministry of Research, Technical Training and Technology (MRTTT). The EDSC was answerable to the three contracting parties, i.e. the Kenya Government, UNDP and UNIDO. On a daily basis, its activities were wholly directed by the Chief Technical Adviser (CTA). An organizational chart is illustrated in Annex 2. The CTA was assisted by a National Project Manager and National Experts who head technical units within the centre. Operational guidelines were provided by a Project Advisory Committee comprised of government Ministries, the Kenya Association of Manufacturers (KAM), other relevant institutions and private sector firms.

B. Functions which EDSC was to Perform

KIRDI is a parastatal body that has a national mandate that includes:

(a) Designing, developing & adapting machine tools, equipment, instruments and processes, and

(b) Commercialize relevant findings and activities.

EDSC was to perform the following tasks:

(1) Develop indigenous equipment, machinery and products;

(2) Provide advice on improvement and development of industrial machines;

(3) Manufacture prototypes;

(4) Provide technical services (including design) to manufacturing industries in product and process development, technical information and trouble shooting.

The EDSC is considered an integral part of the machinery and metal-working subsector which comprises a universe exceeding 500 industrial enterprises. Its main objective was to "enhance a greater capability to the industrial capacity of Kenya".

C. Background Information

In July 1992 an evaluation mission studied the EDSC and issued an in-depth report that was generally positive concerning EDSC's progress and operations, although the mission pointed out that the centre "still had to prove itself to industry".

The main weaknesses noted were its inability to demonstrate an effective usage of its machinery and equipment, its lack of linkage with the private sector, and a need to develop a rational and intergrated production systems. However, the mission recommended a second phase for the project estimated (at that time) at an amount approximately US$ 3,250,000.

During the first half of 1993 a first draft project document was prepared for the second phase but it was not found in line with present UNDP policies and the specific guidelines proposed for the Fifth Country Programme. Two project extensions were provided by UNDP/UNIDO which cover funding for the project through January 1994. The additional input of US$ 336,785 for the 13 month extension represented a total UNDP revised budget of US$ 4,350,817.

Based on a project revision document finally approved in August 1993 it was decided that two consultants would be assigned to review, respectively (a) the elaboration of an associative model for the EDSC and (b) an integrated production and marketing programme for the EDSC.

The consultant (economist) for the associative model arrived in Kenya in mid-October 1993 while the production and marketing consultant (engineer) arrived in early November 1993. The findings, issues and recommendations of these consultants would provide the basic resource data for an Objectives Oriented Project Planning (OOPP) workshop held in Nairobi during a four day period (Nov. 29, 30, Dec. 1,2). The workshop participants represented UNIDO, EDSC, a number of Kenyan ministries, relevant Kenyan institutions and industrial enterprises. The objectives of the OOPP workshop was to (a) permit a frank and open discussion of the many problems, issues (both managerial and operational) that would lead to recommendations for positive change, and (b) a conceptual ownership model considered viable for a second stage project concept.

REPORT

(MISSION DP/KEN/86/048/11-54)

Mr. Andrew Canellas' - Programme of Visits to Government Ministries, Public and Private Organizations and EDSC Target Beneficiaries

A. Week of October 11 - October 17

I departed Newport News, Va. on Monday, Oct. 11th, and following stops in New York and Amsterdam, arrived in Vienna on Tuesday, Oct. 12th. The afternoon of Oct. 12th and Wednesday, Oct. 13th were spent at UNIDO devoted to handling administrative matters with Appointment Officer (Visa, UN certificates, etc.) and technical briefing by the Backstopping Officer of the Project (BSO) and by the Chief of the Project Appraisal Section (PAS). The BSO provided background information on the EDSC project, while the Chief of PAS focused on the methodology and procedures of the OOPP workshop which was planned (in the opinion of the Chief of PAS) to examine the components of the associative model, the main thrust of my assignment. There was a difference of opinion between the BSO and the Chief of PAS on this project. The BSO felt that the OOPP workshop would define the main components and form of the second phase project document while the Chief of PAS presumed the workshop would discuss the elements of an associative model to the EDSC. To clarify the situation, the BSO wrote a 'Note for the File', dated 13/10/93, to the effect that "Mr. Canellas' main responsibility will be a report setting forth tbe formulation of an associative model for the EDSC, and his input of such a model to the workshop".

I departed Vienna late on Oct. 13 and arrived in Nairobi the morning of Oct. 14th and was briefed that afternoon and on Oct. 15th, in great detail on the EDSC by Mr Stefano Bologna, UNIDO Country Director.

Mr Sakari Koivula, Programme Officer joined in several of the discussions and provided assistance in several administrative matters.

It was evident that the EDSC was perceived to be lacking necessary fundamental elements from management practices to production techniques to reaching targeted client groups. The UNDP viewed the center in dire need of change that would direct it toward self-sustainability and market driven forces, hence the effort toward an associative model. An extension of a second phase for the EDSC would require, in UNDP's views, abandoning the status quo mentality that existed during the first phase of the project (1990 through 1992, plus 1993 extension).

B. Week of Oct. 18 - Oct. 24

During this period discussions were held with the following persons at KIRDI and EDSC:

J. M. Mong'oni - Acting Director, KIRDI

G. O. Magore - National Project Manager, EDSC

N. Njeru - Head of Economic Unit, EDSC

C. L. Osogo - Head of Production Unit, EDSC

D. O. Liech - Head of Design Unit, EDSC

S. Sikkema - Associate Expert (Associate Expert leaving this week)

1. Initial Impressions of Facilities

After paying an initial visit to the Acting Director of KIRDI, much of the week was devoted to in depth discussions with the four National experts indicated above, principally with Mr Magore, the Project Manager, and Dr. Njeru, Head of the Economic Unit. A tour of the plant and machinery and design facilities was taken with Messrs. Liech and Osogo. The discussions held and observations made did not lessen the impression of an engineering center operating at well below its capacity, with a host of problems, that had been voiced earlier. The discussions pointed to a labyrinth of personality problems during the first phase period between the former Chief Technical Adviser(CTA) and several foreign experts, as well as EDSC staff. There is scant evidence of any activity going on throughout the premises although Mr. Canellas was given a list of on-going activities. None of the installed pieces of machinery was in use at the time of the tour, from what was observed.

2. Visit to Subcontracting Exchange

Early in the week the first institutional visit was made to the Kenyan Subcontracting and Partnership Exchange (KSPX) as it represents a potential linkage with an appropriate client group. Present at the meeting were the following:

Emma Muchene - Kolaas - Manager, KSPX

Nicola G. Schicchi - CTA (UNIDO Expert)

M.E.D. Humphreys - Consultant to KSPX

The KSPX, established in 1991, is funded by UNDP, executed by UNIDO and attempts to develop linkages through subcontracting between large and small industries. It also carries out industrial surveys and operates a data base of over 300 industrial firms that could represent a natural client group for the EDSC. When asked their impressions of EDSC, the responses summarized as follows:

- The EDSC is poorly publicized - not well known;
- The equipment the center has is excellent but poorly utilized;
- The experiece of a number of KSPX firms points to good quality work but very slow delivery times;
- Prices charged for their (EDSC) products and services are very cheap compared to other competitors;
- The EDSC is not entrepreneurial minded;
- It's capability has never been utilized properly, especially in generating outreach ties with the private sector;

- There is high potential staff turnover due to relatively lower salaries and uncertainty of contract extensions;
- One of EDSC's major problems is that its procedures are bureaucratically run within a parastatal format; a separation from KIRDI, which mainly has a research and development mandate, would be beneficial;
- EDSC's staff salaries and variable running costs (non-fixed) should be self-financed, otherwise the center undercuts local firms which is not a desirable side result.

The KSPX developed its 300 firm data base by visits to the metal-working, engineering, plastics and rubber industries, thus identifying firms and assessing their capabilities of becoming sub-contractors. Beginning in January of 1994 the firms will have to pay membership costs, the details of which have not been finalized. The structure of the membership fees could be flat, or by size of firm, or be charged as a fee upon obtaining a subcontract.

A methodology of this type is needed in Kenya because of the limited market size and the non-indigenous (non-Kenyan) structure of much of its large and medium industry which has had a tendency to perpetuate the same type of vertical business linkages with smaller industries.

3. Summary of Initial In-Depth Interview with EDSC Staff

Discussions with the EDSC staff brought forth the following relevant points:

- There were no funds at present for the workshops;
- It is their opinion that a foundry is needed because of poor casting standards in Kenya; the need for it had been submitted previously to UNIDO, with no result;
- Orders are filled in an informal manner; after several visits, or at times one, a request for quotation is received by the EDSC to

which it responds with a proforma invoice with cost estimates. This is binding for 3 months. If the price is accepted by the client 50% is requested as a down payment, but often work is started without the initial payment. When the potential client does not accept the quotation, the EDSC's costs in the preparatory work are not recovered although a 25% charge is added to all definite orders. Delivery time is normally not made an issue.

° Initially the center could import directly up to $200 in value on a required component or raw material but this is no longer possible.

° The EDSC, according to a prior UNDP spokesperson, is not a project normally funded by UNDP because it is high-tech and not labor-intensive, but the Kenya Government aggressively supported it. It is a project more designed for donor funding.

° It was alleged that the former CTA did not extend the contract of two foreign experts and four national experts due to alleged incompetence and this was done without the concurrence of the Kenya Gov't, UNDP or UNIDO.

° The design department has not had any orders for over a week.

° A business like environment is lacking throughout the center.

° The staff admitted to long, unreasonable delays in fulfilling the orders. The reasons were ascribed to poor supervision and management and a production system based on item by item jobbing. It was inferred that the former CTA and the supervisors did not have a private market orientation.

° No market strategy for the EDSC's capability has ever been devised.

° The center's Project Advisory Committee, which is to establish policy guidance for the EDSC, has met 3 times in over 3 years. On two other occasions the committee meeting was disbanded due to lack of quorum. An issue here was that Committee members wanted a sitting allowance for which there was no provision.

4. Preliminary Needs Assessment of EDSC Clients Based in Interviews

A number of preliminary needs of EDSC clients were identified in the course of the discussions. These will be pursued in depth when client interviews take place. Identified were the following:

i. Training of small enterprise technical employees;

ii. Assistance in marketing products;

iii. Information needs of various types, i.e., government regulations, financing, raw materials acquisition, improved accounting method etc.

iv. How to forge sub-contracting linkages with medium and large enterprises;

v. Improving their individual design capability;

vi. Issues pertaining to machine and tools procurement, including their installation;

vii. Technology improvement/research and development/innovation.

5. Meeting held with Mr Stanley M. Mbagathi the Private Consultant for the G.T.Z. OOPP Workshop

Included in the meeting were Messrs. Magore and Njeru. A decision was made to have a three day rather than a five day OOPP workshop on the basis that the latter was too lengthy for the busy schedule of the top level participants. The dates scheduled were the three days of November 29 through December 1st (Monday through Wednesday). This represented a one week delay from the earlier tentative date of November 22, mentioned by Mr de Faria in Vienna. It seemed logical to do so as the expected consultant on Production and Marketing had not yet arrived and this later date would provide a better opportunity to utilize his inputs.

Mr Mbagathi emphasized not exceeding a group numbering 16 persons, if possible. He would act as Moderator of the workshop. Several tentative participant institutions were mentioned such as:

Necessary Participants (Government	Possible Other(Private)
UNIDO - 1	Kenya Ass. of Manufac. - 1
EDSC - 2	Fed. of Kenya Employees - 1
KIRDI - 1	Jua Khali Federation - 1
Ministry of Planning - 1	Client Beneficiaries - 2
Ministry of Commerce & Ind. - 1	Chamber of Commerce - 1
Ministry of Research, T. T. & Tech - 1	**Possible Others(Public)**
Ministry of Finance - 1	Kenya Industrial Estates - 1 (ask for Mr Aluchio)
	Kenya Subcontracting & Production Exchange (KSPX) - 1

Both the UNDP Resident Representative, Mr Whaley, and UCD, Mr Bologna, stressed that the OOPP workshop should maximize the number of participants from the private sector. The workshops "should not be a dialogue between Government Bureaucrats."

A meeting with Mr Mbagathi will be held two weeks prior to the scheduled workshop.

C Week of Oct. 25 - Oct. 31

1. Visit to Development Finance Company of Kenya, Ltd. (DFCK)

The interview was held with Mr John V Bosse, General Manager of DFCK, a parastatal that provides funding to industry through loans and equity shares (ownership). He had never heard of the EDSC and indicated that his institution had no experience in taking an ownership position in parastatals, although he knew of no obstacle in taking a position in one that was in the process of privatizing. His lack of knowledge of EDSC infers that EDSC obviously needs to publicize its services. His initial reaction (when I explained the center's capabilities) was that it should not be located in KIRDI, which he knew and with which he was not impressed.

His major point was that EDSC's engineering capability should be directed toward industry exclusively, and if it were modified through an 'associative model' with various membership shares, then it may be of possible interest to DFCK. He emphasized that such an association would need to be properly registered, and that the new concept of a 'Registered Association' should be sponsored through the Chamber of Commerce (C of C) or the Kenya Association of Manufacturers

(KAM). In that case, his institution might be attracted.

Mr Bosse emphasized that for a fee the DFCK would help put together the "associative model' for EDSC. They would help attract other members, assess the center's capabilities, have a legal input but essentially all their functions would be looked at from a commercial perspective.

The DFCK has a subsidiary, the Small Enterprise Finance Co., that provides funding for small enterprises and even some of the larger 'Jua Khali.' In his opinion the EDSC's output is not compatible with the informal sector.

2. Visit to Industrial Development Bank(IDB)

The meeting was held with the following:

Mr E C A Saina, Deputy Managing Director

Mr S N Nyamwaya, Portfolio Manager

Mr Barnabas W Maina, Chief Corporate Planning

The IDB is a financial institution (parastatal) in existence for 20 years for the purpose of furthering economic development in Kenya by assisting medium and large scale industrial enterprises mainly through long term loans and direct equity investment. The IDB will finance industrial projects regardless of type of ownership but over 75 percent of its investments are in the private sector. In the past it has often taken an equity investment in projects but will not be doing so for the foreseeable future. Mr Saina's reasoning was that the Industrial and Commercial Development Corporation(ICDC) provides equity investments and they don't want to replicate their function.

When I asked if they might, in the future, be interested in taking a financial position in EDSC if it were converted into an 'associative model' their response was that only under the basic condition that

EDSC be transformed into a profit-making entity. Even at that point, IDB would want to carry out a feasibility study, examine the center's organization, audit past financial statements, make a future earning's projection - in a word, carry out analyses from an organizational, financial and economic perspective as well as assess the center's impact on the economy. They emphasized that it had to be detached from KIRDI if IDB were to be involved. EDSC had to enjoy a fairly large degree of autonomy, and IDB would want to deal with EDSC and not KIRDI which is research, not profit, oriented.

IDB also finances engineering enterprises so from that viewpoint there would be a fit.

3. Visit to Kenya Industrial Estates(KIE)

A long discussion, and tour of the machine and tool workshop, was held with Mr P. Aluchio, Operations Manager of KIE. The KIE has been in business of financing and developing small and medium scale industries, owned and managed by African entrepreneurs, since 1967. The KIE provides credit, management assistance, technical extension services and constructs industrial sheds for sale and rent. The KIE provides loans not to exceed Ksh.5,000,000/- and attaches emphasis on projects that generate or save foreign exchange, create employment, utilize local raw materials, are based in rural areas or are connected with agro-based industries KIE does not finance parastatals.

The interesting part of the discussion was Mr Aluchio's narration of how KIE is in the process of privatizing their general service centers, which resemble EDSC in that they contain engineering machines, tools and provide design services. The clients of these centers often did not want to pay for services obtained in the belief that government sponsored efforts did not warrant reimbursement. KIE had maintained these centers for 20 years and now sold them directly to the workshop employees. These workshops are now running on a commercial basis. In time there will no longer be any KIE subsidy. The employees were told to become co-owners of the centers or lose their jobs and that was a sufficient inducement, according to Mr Aluchio.

KIE provided the new co-owners with a loan for the value of the machines, and a commercial rent was charged for the existing plant, all with a one year grace period. The employee in charge of the old centre became its manager and outreach efforts were implemented to generate new sales. Production expanded as the new co-owners already knew their market but now they had added incentives. The center in Nyeri was the first to go through such conversion, others include Nairobi, Mombasa and Nakuru. KIE is now receiving rents from the Nyeri workshop while the others are in the first year period. The workshop shown to me has 22 employees using the following types of machines and tools: lathe, milling(horizontal)and vertical), die sinking, tool grinding, presses (mechanic and hydraulic), heat treatment, cutting, surface grinder, radial drilling, gig boring and power hack saw. There is a design department and an auto repair shop. The workshop is humming with activity. Mr Aluchio would be an excellent participant for the OOPP workshop and indicated interest in attending.

4. Visit to the U.S. Agency for International Development

Discussions were held with:

Ms Alfreda Brewer, Deputy, Private Enterprise Office

Ms Emmy B. Simmons, Economist.

The present AID financial and technical assistance focus is on the Kenya Association of Manufacturers (KAM), some venture capital firms, non-governmental organizations (NGO's), micro interprises (Jua Khali) and non-traditional exports but nothing in industrial technology, as EDSC represents. The above were familiar with KIRDI and perceived it as an R & D center with no relevance to the objectives and mission of their Private Enterprise Office. However, if EDSC were restructured and provided with the necessary conditions of fostering meaningful linkages with the Kenya private sector, U.S. AID would not preclude interest in the future.

5. Visit to the GTZ Informal Sector Programme

Discussions were held with Mr James Tomecko, GTZ Team Head of the Informal Sector Programme. Its clients include the Jua Khali with an artisan breakdown of 35 percent tailors, 25 percent carpenters, 15 percent mechanics and metal working, and the balance in all other categories. Interestingly, his programme is in the process of going through a radical change from the past - the objective is to acquire "commercial sustainability". Their objective is to become self-sustaining. The process is expected to take three years to accomplish. In theory, such a process should include the following steps:

(Contents of steps have been changed to apply to EDSC)

(a) Implementation of a Management Information System

First step must include a system to acquire all needed information, i.e. cost accounting data - analysis of product range - etc.

(b) Marketing Survey

Need to know what demand presently is and what demand should be for the EDSC's full potential.

(c) Product Range

What should the EDSC be providing in terms of engineering products and services. Is there going to be a specific strategy or will the EDSC function on a daily jobbing basis from all industries ? Some product lines may have to be dropped. Can't be all things to all people.

(d) Design Organization

When the above three stages are completed, the EDSC's organization chart should reflect the necessary departments to carry forth the new objectives.

(e) Personnel Policy

Decisions need to be made concerning utilization of staff. Who remains and who is transferred. Salary structures need to be re-examined, as there is a degree of competition with the private sector. Job classification is needed. Needs to fit with the EDSC's new objectives. Need to "ring-bind" - keep the desirable employees. Provide "performance contracts" not to exceed two years. An "exemption" can be obtained to pay people more than government rates, if that is required to do the job. If the concern is whether such a new organization is finally going to be able to pay for itself, then a feasibility study will need to be done. Contains all the elements of a business plan. In the case of Mr Tomecko's Informal Sector Programme, the process will take three years to implement.

The above programme was established in 1988 to provide financial assistance to the informal sector mainly in rural areas that traditionally found credit inaccessible. The Jua Khali have already establised a business and have some knowledge of business management. The ISP provides loans of up to Ksh.50,000/- (Ksh.100,000/- for second-term borrowers) to small enterprises with an average of 2 employees per business. These loans are disbursed through deployment of 35 field officers throughout 26 districts. The ISP monitors the impact of the loan and provides training in business plan preparation and general business management.

6. Visit to the Center for Research and Technology(CRT) in Kenya, Nairobi

A tour was provided throughout the center by Mr Gordon A Wagutu, appropriate Technology Officer. The center is involved in assisting the Jua Khali sector through courses in metal working, tailoring and in marketing and management. Tools are provided to the Youth Polytechnic school as a grant. The CRT also works with the Kenya Youth Training and Employment Creation Project (KYTEC) which organizes training seminars and training extension services to the Jua Khali. Tools are provided to them free of charge. They are minor tools consisting of vices, power hack saws; shears, drills, grinders, welding machines etc. The workshop consisted of tools for tailors (sewing machines, cutting machines, button-hook machining) and carpenters (planers, lathes, hand saws, wood working tools etc). The observation was made that the machinery at the EDSC was designed for small and medium industry, not the Jua Khali sector.

A tour was taken through the appropriate Technology Center where a demonstration was made of making bricks (non-fired) for construction through pressure; bio-gas for cooking from cow dung; a water wheel construction from discarded items; drying house for drying grain; and a refrigeration unit that cools through charcoal.

7. Visit to the Japan International Co-operation Agency(JICA)

The interview was held with:

Mr Yuji Kashihana, Asst. Resident Representative

Mr. Shinji Shibata, Asst. Resident Representative

The JICA, funded by the Japanese Government, carries out two major technical assistance projects; the National Youth Service Engineering Institute(NYSEI) and the Jomo Kenyatta University College of Agriculture & Technology(JKUCAT). With JKUCAT, located at Juja in the Kiambu District, there are 17 Japanese experts on assignment for 2-3 years working with local professors in transferring knowledge in Advanced Science, Engineering, Agricultural Engineering and Horticulture. The NYSEI project contains 9 Japanese experts providing expertise to Kenyan students selected to undertake training programme leading to the Technician and Diploma level.

JICA also sends trainees to Japan under its technical co-operation programme.

JICA does not interact with the private sector. They indicated a willingness to accept EDSC technicians for additional training under appropriate circumstances (that would have to be negotiated). They believe such an arrangement would fit within the in-country training budget. Their interest in an associative model is limited to training.

8. Meeting with Mr Kamunge of the World Bank

This was a hurried meeting as it took place after 3.00 p.m. on Friday, Oct. 29th. After explaining to Mr Kamunge the purpose of my visit and whether the Bank would, in the future, be interested in providing possible funding to EDSC under some type of associative model arrangement, his response was that the World Bank for the present would have to pass. However, the Bank might possibly be interested in the near future but only if some portion of EDSC's products and services were diverted to include the Jua Khali sector, as that is the focus of the World Bank at present.

D Week of November 1 - November 7

1. Meeting at the Kenya Railways Workshop

This was a brief meeting with Mr. Odhoch, Works Manager, who described the activities of his organization. The Kenya Railways (KR) workshop mainly provides needed products and services to the railways and the transportation industry but due to excess capacity has been involved in commercial work for industrial customers throughout Kenya and even from neighbouring countries. These clients learned of the workshop's capabilities from KR seminars and word of mouth. The workshop is most impressive and has taken on large orders from the agricultural equipment and sugar industries, including hospitals. The EDSC's equipment is not competitive with KR's as the latter handles bigger jobs - they include large lathe machines, heat treatment, a foundry and do metallography. At present, about 15% of their work is commercial, on a jobbing basis. They are not interested in an 'associative model' concept with EDSC, for the present, as they view themselves with a different mandate.

2. Meeting with an EDSC client enterprise - Safepak

Discussion were held with:

Mr. Denesh Shah - Director

Mr. Tushar Shah - "

Safepak is a small enterprise of 20 employees, in business for 2 years, and manufactures plastic bottles for mineral water, soft drinks and pharmaceutical products(medicine). Safepak's involvement with EDSC focuced on an attempt to have a 'dip cavity' made for their bottles. After initial discussions, EDSC stated that the work could easily be done and refused Safepak's offer of a technical drawing, prefering to do it themselves. The main point made was that even after three attempts the work was never satisfactory. The grooves in the bottle's neck were never grooved properly. The EDSC wanted Safepak to compromise on the dimensions, but Safepak refused. The enterprise was very vocal about its perception of EDSC's lack of proper management, inadequate supervision, lengthy period of time between trial efforts, and, at least in this case, poor performance which came as a disappointment after being impressed with the engineering equipment seen at the center. The principals felt that a drastic change of attitude was in order, and that what should have taken less than one month took three, and the product still proved unsatisfactory. Safepak is to receive a refund from EDSC for its 50% initial down payment, but the major complaint was the loss of time which is not recoverable. The principals made the observation that the EDSC was underutilized at present although it's conception was a good idea. If properly utilized the EDSC could save foreign exchange, minimize downtime on finding appropriate engineering expertise, use local raw materials and develop local technicians through training - but these objectives have not been carried out. "Their good intentions have never materialized."

3. Meeting with EDSC client enterprise - Associated Electrical Industries

Discussions were held with Mr. Steve Kuria, the Company's owner, a firm of 25 employees, that manufactures light bulbs mainly for the domestic market but with hopes of exporting upon completion of a restructuring. Mr. Kuria's main points were that EDSC is improperly managed and under-utilized. The firm's first request from EDSC, the sharpening of a tool, a glass marker, was properly done but it took two and a half months to complete - delivery time was unacceptable, although the price was reasonable. The second job requested, consisting of small gears and rachets used in a machine, was improperly done although the initial sample was correct. When told by EDSC that the job would be corrected, there was no follow-up unless the client firm applied pressure. "It is too bureaucratically run." There is no way this client firm would join in an "associative model" with EDSC as things presently stood. According to the client, EDSC needs a complete management overhaul. The price quotation alone took over two weeks to obtain and Mr Kuria's perception was that everything had to be cleared through the CTA, creating a bottleneck.

4. Meeting with Mr. Mong'oni, Acting Director of KIRDI and Professor Mutahi, Permanent Secretary of the Ministry of Research, Technical Training and Technology

There was an initial meeting with Mr. Mong'oni, followed up the next morning with a meeting with the Permanent Secretary attended also by

Messrs. Mong'oni and Magore. I provided a brief summary, as requested, of my initial findings(as Messrs. Mutahi and Mong'oni were embarking on a two-week visit to other engineering centers in the Far East during the coming weekend). Upon hearing of my initial soundings, which were not conducive to forming an associative model as initially conceived due to the basically negative responses, Professor Mutahi emphasized that we keep in mind the 'developmental' aspects of EDSC along with its obvious 'for profit' functions. "It should be strengthened but maintained in KIRDI", if possible.

5. <u>Meeting with Mr. G. A. G. Kimaru, Chief Industrial Manager of the Industrial & Commercial Development Corporation(I.C.D.C)</u>

After a lengthy discussion it was evident that Mr. Kimaru would be an excellent candidate to participate in the OOPP workshop. As a high level official of the ICDC, whose operations as a parastatal involved in the industrial development of Kenya he described, he indicated the possibility of interest on their behalf. He was not familiar with EDSC but planned to make a visit there shortly. He could foresee the possibility of ICDC taking an active role as an umbrella organization thus helping direct the EDSC toward a greater share of cost recovery, and ICDC could influence a large number of firms to become associated in the future <u>once changes in EDSC's management and operations were implemented</u>. Mr Kimaru felt that EDSC needed a greater degree of autonomy even though it remained under KIRDI. The ICDC has long experience in development and he believes his organization could be instrumental in bringing forth a desired change in EDSC, with which KIRDI would gain. Of course, one of the steps toward that goal is the necessity of knowing what the present cost breakdowns are - to what extent is KIRDI providing subsidy? An accurate accounting system must be provided. In summary, this would appear to be a good linkage.

6. Meeting with EDSC Potential Client Enterprise - Someni Industries

Discussions were held with Mr. S. K. Wahome, Managing Director and Mr. D. N. Kamanga, Group Manager. This is a firm of 40 employees that manufactures school chalk. The firm was directed to the EDSC via a booth at an exhibition fair at the Kenyatta Center. Mr. Kamanga has seen the EDSC and is impressed with the equipment and machinery there but has not had any work performed by them. When asked if he would be interested to join in an 'associative model' as a paying member with EDSC, his response was a guarded "yes" if he knew that he could obtain the products, information, and technical training required. This potential client firm sees a definite future need for the EDSC, especially if the firm were convinced that it could deliver the goods.

7. Meeting with the Centre of Excellence for Entrepreneurship Development - Federation of Kenya Employers(F.K.E.)

The interview was held with Mr. Amassi Sing'ora, the Centre Co-ordinator. The FKE, an umbrella organization of the Centre, is comprised of national employers - a trade union for employers that has 3,000 members. Employers of 1-49 employees comprise 35%(1,200) of the total membership. There are associations within FKE by industrial subgroups, that are legally organized and registered. The purpose of the organization is to set national standards with the Kenyan labor force that include working conditions, salary structures, hours of work, leave time, etc. There exists a sub-group of associates that is informal. Once a standard is set, it is applicable to the entire industry. The organization has a training department, and a management consultancy and executive placement service. The Centre is a recent addition that provides entrepreneurship through promoting quality management; it has three projects that are co-funded by outside donors:

1. Private Sector Small Enterprise Development (UNDP);

2. Total Quality Management (UNDP - UNIDO Executed); and

3. Entrepreneurship for Export Promotion (U.S. AID).

The Centre promotes seminars and talks on 'Management awareness' issues. and foreign experts are invited to speak.

Any liaison with the EDSC would have to be determined by the Engineering Association and Allied Employers Association whom I'll contact later.

8. Meeting with Mr. Titus G. Ruhiu, Chief Accountant of the Kenya National Chamber of Commerce & Industry

The Kenyan Chambers of Commerce provides the normal services of Chambers everywhere with special emphasis on directing trade inquiries from abroad and directing them to the appropriate party. It has about 3,000 members in Nairobi with regional chambers throughout the nation totalling 8,000 in all. One of their important functions is providing a Certificate of Origin for exporters. When asked if he was aware of any institution formed within Kenya as an 'associative model' concept, his response was negative. Having been acting Chief Executive for two years he believes he would have heard of it, had there been one.

Mr Ruhiu himself cannot attend the OOPP workshop due to other commitments that week but he'll try to name a participant or two that I can meet (he would have made an excellent candidate as he is very informed and articulate).

9. Meeting with Mr John W. Kuria, Chief Executive of the Kenya Association of Manufacturers (KAM)

This manufacturers' association has a total of about 600 members consisting of domestic and multi-national firms including parastatals both large and small. This association has more of the industrialists as members whereas the Kenyan C of C contains more commercially oriented enterprises except those that are vertically integrated.

Upon discussing EDSC and the 'associative model' concept, Mr Kuria indicated that it should not have been placed within KIRDI. In his opinion EDSC must be market oriented and develop a good track record in dealing with industry, which has not been done. The EDSC should have a marketing department, it's own financial officer, and a Board of Directors that is 50 to 75 percent comprised of representatives from the private sector. It could continue to be a National Engineering Centre, located within KIRDI, but it should have a private sector initiative and orientation. Mr. Kuria believes that left the way it is, the EDSC cannot survive as members knowledge-able with its functions believe it is 'hopeless'.

Mr. Kuria, who would have made an excellent participant to the OOPP workshop, cannot attend due to other commitments.

E. Week of Nov. 8 - Nov. 14

1. Meeting with Principals at the Kenya Subcontracting & Partnership Exchange (Second Meeting). Now located at the British American Centre

Present at the meeting were:

Emma Muchene-Kolaas, Manager KSPX
Peter K. Wainaina, National Industrial Engineer
Michael Humphreys, Consultant

Mrs. Muchene-Kolaas indicated a willingness to attend the Nov 29 - Dec. 1 OOPP workshop accompanied by Mr. Peter K. Wainaina (two welcomed participants) and possibly Mr. Humphreys. I indicated that the workshop had to be restricted to around 16 - 20 participants so Mr. Humphreys may not attend; this can be determined later.

The KSPX (which was visited during my first week in Nairobi) is a UNDP funded project, not legally incorporated, and initially attached to a non-governmental organization (NGO), Kenyan Management Assistance Programme (KMAP), which is supported by USAID and Kenyan industry. KMAP was to help the KSPX by providing extension services which never materialized.

KSPX needs to be linked with some other organization as it is not expected to be self-sustaining from the fees to be collected from their members in early 1994, therefore there is potential in linking with the Export Processing Zone (EPZ) located in the British American Centre. This new linkage should enable the KSPX client firms (potential subcontractors) to get subcontracts from exporters using the EPZ. The exporters using EPZ represent a new universe for the potential subcontractors, and represent mainly foreign firms. A possible future scenario is to provide additional incentives to foreign firms using the EPZ as an inducement to enter into subcontracting relations with the KSPX client firms.

There is a potential linkage between a restructured and dynamic EDSC and the KSPX that is not limited to providing specialized tooling for the 300 plus potential subcontractors but also with the medium to large industrial exporters that are investing in the EPZ. This needs to be pursued.

It was stated in the initial meeting that no contracts had been signed thus far between the contracting industrialists and the universe of 300 potential contracts. While this was confirmed, it was pointed out that 5 or 6 'working relationships' had been implemented at a value exceeding Ksh.17 million and 29 more such relationships valued at Ksh.65 million were "on the board". The negative impression thus far of not having a contract signed must be mitigated by the 'working relationships' established. A major reason for lack of signed contracts is reluctance on the subcontractors' part as they recognize that the main contractors can always cancel.

2. <u>Second meeting with Federation of Kenya Employers (FKE)</u>

Two consecutive meetings were held with:
Mrs Jacqueline A. Mugo, Executive Officer
Mr. Fred Nabangi, Technology Extension Officer

Mrs. Mugo will not be able to attend the OOPP workshop but will provide me with one or two appropriate and interested industrial entrepreneurs from the engineering industries, if possible. She personally had never heard of EDSC.

Mr. Nabangi visited the EDSC as a result of a talk given by Mr. Magore at the FKE to a group of industrialists from the metalworking sector. A number of the industrialists visited the EDSC and were impressed with the 'machining capabilities'. The high calibre of the machines reinforced the impression that the EDSC's major impacts were in design and production of machine tools, spare parts and developing prototypes. The actual implementation in two cases did not meet the high expectations. In one case, the industrialist was given a price quotation by EDSC which was perceived too high by the industrialist. In a second case, the matter is still being pursued although the price quotation for dies to make a security light cover was also considered to be high. (This complaint of EDSC price quotations being too high is in the minority).

3. <u>Meeting with Messrs. Bologna, Koivula, Eldsvig and Canellas to Discuss Issues Related to the OOPP Workshop</u>

A meeting (on Nov. 10th) exceeding three hours focussed on the issues relevant to the three day OOPP workshop scheduled for Nov. 29 - Dec. 1st. The main points raised were the following:

- UNDP, having stated its policy, will leave the EDSC project to UNIDO to formulate;
- The expectations are that the workshop will enable the various findings, discussions, options and conclusions to form the basis for a project concept
- Eldsvig and Canellas were encouraged to be frank, but constructive;
- Mr. Bologna suggested seeing Mr. Felsner at the KIRDI Leather Centre as an indicator of how the Centre used associative ties (tanning, shoes, leather) to change;
- The elements of the Workshop Report should contain the basic material for a Project Concept;

Mr. Bologna mentioned that Mr. Belo had announced plans to retire at the end of the year so the responsibility for a project document was discussed. One possibility was to extend Mr. Eldsvig's contract by several weeks. Mr. Bologna had already agreed in principle to extend Eldsvig's stay beyond Dec. 1st to participate in the Workshop and complete his report. No decision was made on the extension time.

It is necessary to guide the workshop participants towards evolving a strategy for the EDSC.

Discussions were held concerning the venue for the workshop - should it be held a short distance from Nairobi so that participants could go home in the evenings, or held at Naivasha or Nyeri (in relative confinement for the whole period) where there was less probability of the participants being called to attend other matters. Canellas indicated that two of the potential client participants had stated they would attend only if the venue were close to Nairobi to enable them to check into their enterprises before or after the workshop sessions.

4. <u>Meeting with Mr. R. J. Kigunda, Manager - Export Processing Zone (EPZ)</u>

From 10 - 20% of the value of the output of the industrial enterprises investing in the EPZ is devoted to the Kenyan domestic market; the remaining 80 - 90% is produced for export. The EPZ has been in existence for 2 years and has 12 industrial firms with an industry mix of garment manufacturing, pharmaceuticals, processing of sisal, clearing seeds (for pet food), safe producer, chemicals, photographic film and book binding. The textile producer is large enterprise numbering in the hundreds of employees while most of the others are small scale industries with less than 50 employees.

Thus far not many backward linkages (except ownership) have been developed from the EPZ except those few investors that have limited partnership with local firms. The attraction of new industrial investors is a slow process as the EPZ would be content to have a new entrant every two months. I discussed the associative model concept (EDSC) with Mr. Kigunda who responded that the EDSC is not even known by most industrialists. However, he believes that if EDSC is restructured to provide quality engineering services in a timely fashion there could be a potential linkage. He mentioned, for example, the need of an EPZ enterprise for a machine that could extract oil from sunflower, a request for assistance that he could not fulfill. In addition, the EPZ requires training of its workers which could be a linkage if EDSC had the capability to provide it. Industries to be created in the EPZ in the future have been identified in textiles, agro-processing and pharmaceuticals.

5. Meeting with Mrs Agnes Guilland, Economic Counsellor, Delegate of the European Economic Community (EEC) to Kenya

After discussions with Mrs. Guilland on EDSC, and the concept of an associative model, her response was that the EEC, for the present and visible future, would only be interested if it saw that EDSC was managed and operated within a private sector "environment" and that it provided products and/or services to small industry and/or the informal sector (Jua Kali).

6. Meeting with Afrotech Inc., Engineering Firms - Mr. Werner K. Weber Managing Director

Afrotech Machinery Inc. was established in 1975 as a workshop with machinery and equipment. At present, it serves all of East Africa. Afrotech is an affiliate of a parent enterprise in Germany that manufactures bottling machinery. Afrotech has 20 employees - its largest customers are Kenya Breweries and Cocacola. Afrotech, which provides engineering spare parts and services to bottlers, used EDSC in the past to obtain hardening and grinding of a disc spare part. The job performed by EDSC was satisfactory but delivery time was far too slow, and the price was actually cheap. Mr. Weber does not perceive the EDSC as being in competition with their engineering firm; on the contrary the EDSC is viewed as a centre that can provide specialized engineering services to his enterprise, mainly in spare parts. One of Afrotech's main problems is acquiring the precise quality steel needed in its work, which is not available in Kenya and usually must be imported by the parent firm. Some raw materials are provided locally but not problem-free due to improper specifications.

Mr. Weber showed me an index of steel sources, which was shown to and copied to KIRDI. He indicated interest in attending the 3-day OOPP Workshop and would inform us by Thursday, November 18th.

7. Meeting with Mr. D. N. Njoroge, Managing Director, Carnaud Metal Box

Mr. Njoroge was referred by Mrs. Mugo, Executive Officer of FKE, as an excellent candidate for the OOPP Workshop due to his position in Metal Box, a manufacturer of metal containers (cans) and as Chairman of the Engineering and Allied Employers Association. Metal Box is a large enterprise employing over 700 employees in Nairobi and Thika, involved in producing cans for food and non-food products. Also manufactures aluminium extruded tubes for toothpastes and pharmaceuticals, and prints security documents (cheque books). Carnaud Metal Box has international ties in France and the U.K. as well as I.C.D.C.

Metal Box manufactures some of its own spare parts and has subcontracted with Kenya Railways. The enterprise also manufactures some machines for its own use and for client firms. In addition to providing client firms with cars, Metal Box extends to them the machinery and 'know-how' to seal the can properly - both training and technology.

Metal Box has generated entrepreneurship by enabling household canners to acquire the technology to expand from a "husband and wife harvest time kitchen activity" into a commercial venture. An example given was Seven Trees Firm, a successful canner.

EDSC is a possible linkage with Metal Box. In his opinion, the engineering and/or metal working sectors face three major problems:
a) inadequat sources of raw materials (steel and other metals)
b) many tools must be imported due to inadequate domestic production (capacity); and c) the industry faces small market constraints.
Mr. Njoroge raised the question of training as a viable role for EDSC (?).

8. Visit to Yarnken Industry - EDSC Client Enterprise

Discussions were held with Mr. Wainaina, Managing Director and Mr. Dev. Raj Jindal, Factory Manager. Yarnken manufactures and sells blanket weft yarn to the textile industry. It is a medium size of 60 employees, working 3 shifts so the machines are 100% utilized. Yarnken's experience with EDSC was generally positive, the enterprise was able to obtain 3 sets of gears as desired. The price quotation was timely, the price competitive, and the initial work was performed within a two-week period as the required steel for the gears was in stock. This enterprise had an overall satisfactory impression of the work performed on the helical bevel gear. The enterprise still has an order outstanding with EDSC for a 3rd gear set. The criticism raised was that (1) delivery time should be faster, and (2) there is a feeling of underutilisation of the machinery and equipment there. They were impressed with the calibre of machines and felt that EDSC should be a 'beehive' of activity. In their opinion, the EDSC was a good idea, at its inception, but never reached its potential. They had a feeling that the machines were reserved for someone else's use. Mr. Wainaina noticed that he never saw an "Engineering Centre - EDSC" sign anywhere upon his arrival to the premises.

F. Week of Nov. 15 - Nov. 21

1. Meeting held between Messrs Stanley M. Mbagathi, OOPP Moderator B. Eldsvig and A. Canellas

The purpose of this meeting was to provide the two resource persons a general outline of what the OOPP methodology entails. The three day scenario was explained. The initial 'findings' should be summarized and presented in a frank and candid format along with an abstract of major options and recommendations. The moderator emphasized that the workshop would evolve into a Participation Analysis, formation of Problem Tree, development of an Objective Analysis, followed by an Alternatives Analysis and finally into a Project Planning Matrix. Each segment was described.

2. Meeting held with Mr. S. Koivula, UNIDO Programme Officer, Mr. Magore, Project Manager and A. Canellas

The meeting was held to identify the OOPP Workshop participants, by name, in preparation toward sending out the workshop invitations. Those identified as of Nov. 16 to be participants were: (OOPP Workshop Nov. 29, 30 and Dec. 1).

UNIDO

- Mr. S. Bologna, UCD
- Mr. S. Koivula, Programme Officer

UNIDO Consultants

- Mr. A. Canellas, Consultant
- Br. B. Eldsvig, Consultant

EDSC

- Mr. Magore, Project Manager
- Dr. Njeru, Head Economic Unit

Ministry of Research, Technical Training & Technology

- Permanent Secretary Prof. Karega Mutahi

KIRDI

- Mr. J. M. Mong'oni - Acting Director

Ministry of Finance

- Either Mr. Ogana, Director of External Resources or
  Mr. B. Chele, Deputy

Ministry of Commerce & Industry

- Mr. Olum, Director of Industries

Kenya Subcontracting & Partnership Exchange (KSPX)

- Mrs. Emma Muchene-Kolaas, Manager
- Mr. Peter Wainaina, Project Engineer
  (possibly Mr. Humphreys, Consultant - if space available)

Federation of Kenyan Employers (FKE)

- Mr. Fred Nabangi, Technology Extension Officer

Industrial and Commercial Development Corporation (ICDC)

- Mr. R. Aluchio, Operations Manager

Kenya Association of Manufacturers (KAM)

- (Not identified yet. Several candidates cannot attend for
  3 whole days).

Client Beneficiaries

- Mr. Tusher Shah, Director - Safepak
- Mr. Dan Njoroge, Managing Director - Security Printers (part of Carnaud Metalbox)
- Werner K. Weber, Resident Engineer, Afrotech Machinery Ltd
- (Attempt being made to obtain 2 or 3 more from private sector)

3. A visit to the Leather Development Centre - KIRDI

Discussions were held with Mr. Odongo, Head Leather Development Centre. A tour of the Centre was taken; the Centre's output is about 20% in R & D, 70% in commercial jobbing and 10% in training. More 'development' work is done than 'research' due to nature of industry. An example of 'research' is the fish skin project which was sold to an Italian firm that will begin processing. Another example is the leather washers for the cotton gin industry. The centre employs 32 persons, all paid by KIRDI. The centre is not self-sustaining at all notwithstanding its linkages with (1) tanneries (2) leather goods manufacturers and (3) shoe manufacturers for which it does work. Its utilization capacity rate is obviously at a much higher level than EDSC, in part because the Centre has specialized finishing capacity not available elsewhere.

4. Meeting held with Mr. Leon B. M. Tomasen, First Secretary Royal Netherlands Embassy

Mr. Tomasen is also Regional Adviser Small Enterprise Development and Urban Poverty Alleviation. As a donor, the Dutch Embassy is focussing mainly on poverty alleviation projects. The EDSC, even in a restructured mode, is not of interest to them at present. He believes that no technology policy has been articulated for Kenya; technology needs of the country should have been identified and then translated into a National Policy. Sustainability is not possible, in his opinion, under EDSC's present ties to KIRDI. Indicated that Approtech is an NGO worth visiting, mainly for their work in developing a machine that extracts cooking oil from sunflower seeds. By so doing, forward and backward linkages were developed extending to firms that can manufacture the machines and boosting the agricultural sector at the same time.

- Point - Can any of EDSC's developmental projects reflect any similar success stories?

5. <u>Meeting with Mr. Anderson, Counsellor Development in charge of Engineering, Embassy of Denmark (DANIDA)</u>

After explaining the EDSC project, Mr. Anderson was quick to respond that DANIDA is not interested in funding any technology project for the foreseeable future. Their focus at present is rural roads, rural infrastructure and rural health. They had previously been involved in several technology projects mainly with training components and have not been satisfied with their progress. He also mentioned Approtech as an NGO to visit.

6. <u>Meeting with Mr. Magore, Project Manager to probe accounting system, present organizational structure and other issues</u>

EDSC set up a simplified accounting system relating to cash flow that consists of (a) invoice books, (b) income receipt books and (c) requisition book for procurement. Four copies of transactions are made: (i) accountant; (ii) project manager; (iii) working file (issued by design or production unit by name of client); (iv) main file. The EDSC accounts are maintained by Mr. Kitolo the accounts clerk who reports to Mr. Ngugi, Senior Accountant, who oversees both EDSC and Leather Development Centre at KIRDI

As stated earlier, the process to actually begin work on a project is informally structured - normally, 50 per cent of the cost is paid by the client upfront (following receipt of a price quotation from EDSC). However, if the client has already done business with EDSC work often begins without the down payment.

Most income for products or services performed by EDSC is paid for by cheque which goes to the accountant who writes a receipt. All incoming cheques are passed on to the accounting clerk and deposited into a numbered account - "KIRDI-EDSC".

The design unit identifies material and parts required to perform a job. The production unit then submits a requisition (internal document) for the necessary production items and is signed by the persons requesting, receiving and issuing the material. If the needed materials are not available internally, a different requisition form is used to place an outside order. Only the Heads of the respective departments can place outside orders - Njeru, Liech or Osogo - which is then countersigned by the project manager, Magore.

An attempt was made to reconcile the internal jobbing accounts with the list of "jobs already done by EDSC" that appears in the Report of the In-depth Evaluation Mission (23 July 1992) (annex 5, pgs 45 - 48). The report lists a total of 81 jobs performed under the following groupings:

	Description	Number
a.	Design and fabrication of items	11
b.	Design and fabrication of tools	12
c.	Design and fabrication of spare parts	3
d.	Design of items	8
e.	Design of spare parts	33
f.	Other services rendered	14
	Total	81

The jobbing accounts document is entitled "Income and Expenditure For Period Ended 31-5-92" a period about two months before the date of the above Evaluation Report, yet only 7 jobs are listed for a total income of Ksh.332,541, with expenditure of Ksh.236,406, and a net balance of Ksh.96,134. The explanation given was the following: (1) a number of internal development (all prototypes) jobs were not shown in the "Income and Expenditure" accounts, a number of these prototypes were used for display purposes at exhibitions; (2) it wasn't until relatively late (March, 1992) that the 50% down payment was required. In essence, a reconciliation of the aforementioned accounts is not available. It should be noted that none of the internal prototypes that were both designed and manufactured by EDSC generated any further activity. They included a telescopic hydraulic crane, a manual rice thresher and a motorized rice thresher. Prototypes solely designed included a mobile conveyor, a wheelchair and a pipe bender. No further production followed because of (a) inadequate marketing - trade fair exhibitions are, by themselves, insufficient and should have been followed up by visits to potential end users, and (b) in several cases there was a wrong choice of prototypes selected.

A case in point was the prototype for a wheelchair. A survey study was carried out pointing to the conclusion that the entire demand in Kenya was not more than 2,000 wheelchairs per year and a domestic producer already existed that could cover all orders, so its production was considered rendundant.

EDSC Collected and Unpaid Revenue as 15 October, 1993

A cumulative accounting was obtained (annex 6) of all collected and "expected" EDSC revenue as of 15 October, 1993, with the earlier entry posted date of Dec. 12, 1991 and the latest October 13, 1993. The Progress Report reflects total fee charges, over a 22 month period of Ksh.1,506,940 of which Ksh.1,048,804 or 71 per cent were actually paid. and Ksh.438,135 or 29 per cent, still outstanding. It is not known how much of the outstanding amount is uncollectable.

An Income and Expenditure report (annex 7) for the period Sept. 1 through to Oct. 15, 1993 shows total revenues, plus bank interest, of Ksh.40,610 and expenditures of Ksh.24,793, with a net balance of Ksh. 15,817. This net balance covers a period of 45 days and demonstrates the fact that KIRDI, and by extension the Ministry of Research, Technical Training and Technology, subsidy of EDSC, except for the UNDP funded personnel, is almost complete.

The fact that only seven orders generated revenue during the 45 day period is an indication of the very low level of capacity utilization of both machinery and personnel. The EDSC is very much understaffed when compared with its July 1992 Evaluation Report organizational chart showing manpower requirements of 204, which was never reached. Its present staff of 68 (annex 2-A) has to be extremely underutilized to generate the low level of revenues and production/design orders mentioned above.

7. Follow up Discussion with Mr. Gerhard Felsner, CTA and Mr. John M. Muriuki Leather Regional Project Co-ordinator at Westlands Office

A visit was paid to the KIRDI LDC where Mr. Odongo, the Head of LDC, provided a tour of the facilities and pointed out the leather treatment processes available. The LDC has 32 employees, all of whom are paid by the Kenyan Treasury. The jobbing revenue generated from tanneries, leathergoods and shoe manufacturers is used to buy chemicals, raw materials, machinery spares and to help defray maintenance costs. The LDC is not self-sustaining in any way notwithstanding the fact that it has a specialized finishing capacity not available elsewhere in Kenya.

The discussions with Messrs Felsner and Muriuki underlined the basic inability of the LDC to forge the necessary linkages to the private sector because of its KIRDI control. As a result, LDC was never able to carry out the necessary extension services to industry, as KIRDI management continues to have a different orientation. Much of the raw skins being processed at LDC comes from the Jua Kali rather than the better leather that the quality machines should be processing.

A brief description was provided of the eight country regional project designed to upgrade leather industry development in East and Central Africa. Machinery and equipment are provided to qualified leather enterprises who pay back the loan amounts to a special trust fund subsequently used for hides and skins improvement activities within the country.

8. Meeting with Mr. Leopoldo Gliksman, Director of Harrtz & bell Engineering Firm

Mr. Gliksman had approached the EDSC to follow up on a leather project initially, at which point he met Mr. Geoffrey Lamb, a foundry expert working at EDSC. The enterprise has about 200 employees providing engineering services for large customers mainly in machining, fabrication and foundry work almost exclusively for the Kenya market. In discussing the elements of an associative model, Mr. Gliksman believes EDSC should offer specialized consultancy services to the engineering sector which is justified by some of the high quality machinery. In his opinion, improving Kenyan technology by providing quality services to the private sector should be EDSC's role. He demonstrated a willingness to attend the OOPP workshop and would inform us within two or three days of the possibility.

9. Discussions with Mr. F. N. Gitau, Managing Director of Kenya Engineering Industries

Mr. Gitau went to EDSC for the purpose of purchasing tools and discovered that was not EDSC's function. His enterprise is medium sized with 160 employees involved in producing a wide variety of metal products - tools, locks, garden tools, metal door handles, etc. Mr. Gitau has been placed in his position by the ICDC, a shareholder of Kenya Engineering Industries (KEI) which is now under receivership. The firm has seen better days and now has difficulty meeting the prices of similar imported products from the Far East, particularly from China whose prices are too competitive for this firm to meet.

His thoughts on EDSC were that it is not presently suitable for an associative model unless all kinds of managerial and private sector linkages are forged. He sees the EDSC as a catalyst to generate high quality engineering capacity - but does not see this occurring without the necessary changes in management, supervision and employee attitude.

10. Meeting with Mr. Andy Goldberger, Managing Director East African Hydraulic & Metal Industries Ltd

E. A. Hydraulic is a manufacturer of security doors, supersteps for airports, air compressors, hydraulic fork lifts, safes and other products. It employs 80 persons and has more orders than it can handle. While Mr. Goldberger has never been to the EDSC site, he was impressed with the list of machinery and equipment there. He foresaw a role for EDSC to assist his firm when its machines were at full capacity if EDSC were interested in taking on the overload. In particular, he saw a need for internal surface grinding work. Due to the present high demand for machining jobs the firm is compelled to give out some of its jobs to other engineering firms and pay market prices. Therefore, if a proper arrangement could be worked out E.A. Hydraulic's overload could be matched with EDSC's underutilized capacity.

Mr. Goldberger could not be away from his firm for 3 days to attend the OOPP workshop. He pointed out that product planning is not easy in Kenya due to its limited size of market and rapidly changing market needs, the main characteristics of the metal working industries. The volatility is due to desired product changes and unstable consumer purchasing levels as demand for products is not constant. This firm has been in business for 25 years, has a well trained staff and is a vital cog for Kenyan industry.

11. Discussion with Mr. K. V. Kamath, Director, Galsheet (K) Ltd

Galsheet is a large manufacturer (350 employees) of corrugated metal sheet, roofing material, steel and aluminium coils, and similar products. He never heard of EDSC and doesn't understand why EDSC did not utilize KAM's linkages with industry to develop extension services. Considering the high percentage of Asian industrialists and factory managers, Mr. Kamath believes two vital roles for EDSC would be to (1) increase the engineering skills of indigenous Kenyans (2) to help upgrade Kenyan technology, much of which is 20 to 30 years old. He pointed out that there are over 6,000 expatriates in Kenya and about half stay to open up their own enterprises but in the process they don't develop Kenyan enterpreneurship. He has heard of KIRDI but believes it has not carried out its mandate. It has not done any extension work and therefore knows nothing of industry. The consensus among other industrialists is that the initiative is lacking to carry this out.

12. Visit to Kenya Export Development Support (KEDS) (a project funded by US AID)

Discussions were held with Mr. Paul Guenette, Chief of Party and Mr. Simiyu Wambalata, Assistant Export Development Advisor.

The KEDS is a scheme designed to promote non-traditional exports which excludes all products and services except coffee, tea and tourism. They impact mainly on (a) agro-industry (cut flowers, fruits, horticulture and canning) and (b) manufacturing (where 14 subsectors have been identified). In existence for one year, KEDS has carried out base line economic surveys where 253 current exporters have been identified by sub-sectors in co-operation with the Kenyan Association of Manufacturers (KAM).

KEDS has never heard of EDSC but foresees a natural and mutually rewarding linkage between the engineering centre and KEDS. In setting up a strategy for their export scheme KEDS is developing eligibility criteria for providing assistance. Major problems identified in the manufacturing universe of exporters include (1) poor quality control, (2) inefficient production technology of the existing machinery and equipment, (3) poor machinery maintenance, and (4) outdated equipment which inhibits the exporters from exporting quality products. KEDS worked with KAM to provide product information, analyze export constraints, help new exporters acquire the necessary technical expertise, aim at specific markets, and other assistance measures. KEDS also works with Fresh Produce Association of Kenya to obtain similar data on horticulturists. From these sources, KEDS acquired a data base on Kenyan exporters including their strengths and weaknesses.

KEDS has the financial capability to assist private sector clients within its scheme to solve problems (technical, marketing, products, etc) on a cost-sharing basis whereby KEDS pays up to 50% in the areas of business planning, strategies marketing, production, packaging, product improvement and quality control. The principals spoken to agreed that a potential linkage could be formed with EDSC providing needed engineering services to the KEDS data base of enterprises in production, product improvement and quality control. This would enable (a) greater EDSC usage of its machinery, (b) provision of a meaningful service to the industrialist at a greatly reduced price (under the 50% cost-sharing scheme), and (c) would carry out a developmental role for the Kenyan economy by increasing exports, foreign exchange earnings, and employment.

Messrs Guenette and Wambalata cannot attend the OOPP Workshop but would want to be contacted later to discuss the possibility of forming such an association.

13. Additional Discussion with EDSC staff on Sundry Matters

a. Most of EDSC equipment was not fully installed until mid-1991 (about 18 months from inception of project).

b. There was no real follow-through of industry extension work (trying to ascertain market demands, needs, etc) although KAM had offered assistance in this area and the initial first phase Project Document had earmarked KAM a pivotal role. It was obvious to KAM officials early on that KIRDI was not interested in pursuing such contacts, otherwise KAM could have orchestrated numerous contacts as it has with KEDS, KSPX and other organizations.

c. No Training or Liaison unit was functionally implemented within EDSC apart from 2 brief training classes of one week for design and 3 days for jig boring (over a period of almost 4 years). The initial participants were unhappy due to lack of lunch and further training sessions were discouraged by the CTA on the excuse of "lack of funds". EDSC lacked a training resource person although the 3 international experts who were supposed to provide training did not (the organization chart shows a training and industrial unit staff of 16 persons). While an associate expert was sent by UNIDO to provide training liaison with Nairobi Polytechnic and others, he spent a year working on an inventory of the tool shop.

d. The Organizational Chart that appears in the EDSC Evaluation Report of July 1992 does not and never did fit reality. Instead of the 204 employees shown, only 68 are presently employed and the total staff over the four year period never exceeded the present number - which is less than one-third of the total staffing envisaged.

e. No one was ever hired to carry out a marketing survey or develop a linkage with the private sector. No efforts, of any substance, were given to generate industrial extension work, yet, the initial project document had identified seven basic objectives here:

- liaison with specific firms
- define industry problems for which services are required
- preparation of technical programmes for problem solving
- preparation of cost estimates for problem solving
- organization of consulting team for problem solving
- follow-up with clients to evaluate performance
- marketing services for engineering design office

14. Meeting with Mr. B. S. Shetty, Manager Steel Structures Ltd

Steel Structures Ltd is a large general fabricator employing over 1,100 persons (700 fulltime and 400 - 500 seasonal). The firm mainly produces and erects steel structures, storage tanks and machinery. It started in 1971 with 40 employees; its present size and ability to export to all of East Africa attests to its successful growth. The firm's main problem is obtaining special materials (steel, chains, bearings, gear boxes, sprockets, etc) on a timely basis. Since most of these items are not available domestically, they are imported in larger batches than required so storage is needed. Mr. Shetty views EDSC as having the capability of providing a few special services for his firm. He mentioned the Kenya Railways as a machinery and equipment centre with excellent capability but with no sense of importance of delivery time. He raised the possibility of working with EDSC if it could provide timely engineering services and contemplated the possibility of a linkage if a prototype were developed with marketing feasibility. Mr. Shetty indicated interest in attending the OOPP Workshop and will contact us.

15. Discussion with Mr. Wambugu Kariuki, Director of Naciti Engineers Ltd and Wakate Institute

Mr. Kariuki is director of a small engineering firm and the Wakate institute, which develop "can do" technicians for Kenyan industry. His visit to EDSC left him very impressed with the installed machinery but feels it will never fulfill its potential within a civil service environment which lacks all of the attributes necessary to generate services in a business-like manner. When the employees know they will be paid regardless of output, nothing will be done efficiently. He went to EDSC with a drawing for a job - then received no feedback even though 3 or 4 months passed. He perceived EDSC as having no concept of the value of time, so he looked for an alternative source in the private sector.

He fervently believes that the head of KIRDI, or even EDSC, must be business oriented and not just a holder of advanced academic engineering degrees. Development, in his opinion, is to serve industry well - then everyone benefits.

He sees EDSC as performing multi-disciplinary role:

a) a place where industry can come to use and to learn to use the excellent machinery there;

b) a place where prototypes (after careful study) should continue to be developed even though the two or three initial attempts were unsuccessful; after all, an institution as well as persons will learn from failure - that's what development is all about;

c) a place where a small foundry should be installed because of the need for good quality casting but run on a commercial basis where recognition is tied to productivity;

d) a place where good technical training is provided, with qualified teachers;

e) a place where staff development takes place within a scheme of rotating personnel so that they are not stilted in one or two sole tasks;

f) the key to all the above is to have the right kind of people in place - managers with a sense of business practices, a willingness to develop linkages with the private sector, a desire to expand the outreach possibilities of the EDSC, and to view research and development efforts as a bridge to producing products and services toward profit-making ends.

Summary Presentation of Major Findings and Issues for OOPP Workshop on Engineering Development and Service Center (EDSC)

Provided by: A. Canellas
UNIDO Consultant

Date: 29 November 1993

1. Main Mission

The basic thrust of my mission was to examine the feasibility of identifying " Associative Model" elements that could assist the EDSC toward long term sustainability, Conceptually, this involved elements that could forge (a) financial ties with potential donors (b) managerial ties with other institutions, and (c) possible membership ties with EDSC client beneficiaries. Another way to describe an Associate Model is to ask if the entity is multi-financed, multi-managed or has multi-ownership or membership. For any of these linkages to occur, of course, there must exist a perception of the EDSC that is generally positive - otherwise, the matching and liaisons will not easily take place. I must admit, at the outset, that the EDSC image is not at all positive - it has, during its almost four years of existence, created a definitely negative impression in accomplishing its main objective of enhancing a higher utilization of existing industrial capacity.

11. Policy Guidelines

As we approach 1994 the EDSC needs to be looked at through the focus of the major policy guidelines set forth in the UNDP 5th Country Programme and Kenya's 7th National Development Plan, both of which cover the period 1994-1998. An examination of these documents points to the following relevant guidelines :

(a) Activities to strengthen institutional, administrative and managerial capacities .... to help promote economic growth;

(b) This includes further interventions in support of parastatal and civil services reform programmes;

(c) Support to public enterprise reform and privatization programmes on rationalization of the operations of parastatals, broadening their base of ownership, and enhancing entrepreneurship development for employment creation;

(d) Under small enterprise development - the primary objective of the proposed programme activities is to support private sector development through the promotion of entrepreneurship, technical training, and development of micro, small and medium-scale enterprises ... with particular attention to ... technology transfer ... (abbreviated to underline main guidelines)

111. Main Findings

1. Financial Donors - Bi-lateral and Multi-National Institutions

A number of potential financial donors were visited to ascertain their interest, in the near future and under appropriate circumstances, to possibly provide financial assistance to EDSC. The donors included the World Bank, the Delegate from the European Economic Community (EEC), USAID, the Danish assistance Agency - DANIDA, and the Royal Netherlands Embassy. Findings reflect the following:

* None of the donors are interested, at present, in donating to EDSC type projects which are considered capital intensive, industrial technology oriented.

* None of the above had ever heard of EDSC

* The above donors are focussing their funding in the following areas:

Donor	Recipient Area
World Bank	micro-industry sector (Jua kali)
European Economic Community	small industry and/or jua kali
USAID	KAM, NGO's, Jua Kali and non-traditional exports
DANIDA	rural infrastructure and rural health
Royal Netherlands Agency	poverty alleviation projects

With the exception of DANIDA, the other donors left the 'door open' for possible reconsideration in the future under the conditions that (a) their targeted recipients were clearly shown to be assisted, and (b) that EDSC were managed, supervised, and operated in a business-like manner with visible linkages to private sector.

2. Kenyan Financial Institutions

Visits were also paid to several Kenyan financial institutions to discuss associative model linkages:

* Industrial Development Bank (IDB)
* Development Finance Company of Kenya (DFCK)
* Industrial & Commercial Development Corporation (ICDC)
* Kenya Industrial Estates (KIE)
* GTZ Informal Sector Programme

A summary of discussions held with the above revealed the following:

(a) Without exception, none had heard of EDSC and all questioned the initial wisdom of placing it under KIRDI whose role is to specialize in research and development

(b) The DFCK and ICDC indicated an interest in an associative model concept as long as the thrust of EDSC's capability were mainly toward industry and the private sector. The ICDC indicated that it could be instrumental in bringing about a desired change in EDSC, while keeping it under KIRDI, and yet diverting EDSC toward a greater share of cost recovery once changes in EDSC's management and operations were implemented. The IDB would be interested in pursuing an associative model concept only if EDSC were transferred entirely into a profit-making entity.

(c) The KIE was interesting from the viewpoint that it is in the process of privatizing their general service centers (which resemble EDSC in that they contain engineering machines, tools, and provide design services)

(d) The GTZ Informal Sector Programme, serving the jua kali, is privatizing in the hopes of becoming self-sustaining. The effort is to take three years.

3. Kenyan Industry, Trade and other Non-Financial Institutions

Possible linkages were discussed with the following non-financial institutions:

* Kenya Association of Manufacturers (KAM)
* Federation of Kenya Employers (FKE)
* Kenya Subcontracting and Partnership Exchange (KSPX)
* Kenya Export Development Support Project (KEDS)
* Export Processing Zone (EPZ)
* Japan International Cooperation Agency (KICA)

The JICA indicated willingness to provide a training linkage with the EDSC. All of the other institutions have industry client data bases whose enterprises reflect a demand for EDSC engineering services in varying degrees.

Institution	Number of Enterprises
KAM	600 domestic and international manufacturers
FKE	3,000 business employer members
KSPX	300 potential subcontractors
KEDS	253 current exporters
EPZ	12 industrial firms in zone

Of the above, the most viable and natural potential linkages for EDSC appear to be with KSPX and KEDS. The options will be discussed later.

4. Impressions of EDSC held by Client Firms

Three distinct groups of client firms in different industries were surveyed for their impressions of EDSC. Selection criteria were based on (a) satisfied enterprises, (b) dissatisfied enterprises, and (c) those that, for one reason or another, never had a job fulfilled.

(a) Without exception - all were impressed with the quality and variety of the machinery and equipment.

(b) There was mixed reaction to quality of the engineering spare part, tool or services rendered. Some were very pleased with the work, while in two cases refunds of their down payment were offered by the EDSC.

(c) Virtually every client complained of the excessively long delivery time to perform the work.

(d) There was no feed-back to the client when the job was in process of preparation, before a decision to implement the work had been made.

(e) All remarked about the apparent "non-business like" environment of the EDSC and the underutilization of the equipment. It were as if the machinery were being reserved for someone's use.

(f) It seemed to the client observer that all the decisions were being made by one or two persons - and everything had to be cleared with the Chief Technical Adviser (CTA).

(g) Most client firms stated that prices charged were very reasonable, if not cheap compared to market prices.

5. **Personal Impressions of EDSC Obtained From Staff Interviews (including foreign experts), Observations, and Study of Project Documents, Reports and Internal Records**

(a) A good job was done on the selection and installation of the machinery and equipment.

(b) Unfortunately there existed a labyrinth of personality problems during the first phase period between the former CTA and several foreign experts, as well as with EDSC/KIRDI staff. These problems affected EDSC productivity and staff morale.

(c) The EDSC is poorly publicized - not well known. there is no sign anywhere pointing out its existence, either upon entering the premises or the building. A business like environment is lacking throughout.

(d) The first phase project document pointed to KAM playing a pivotal role in assisting EDSC to generate outreach ties and linkages with the private sector, which was never done.

It was obvious to KAM officials early on that KIRDI/EDSC was not interested in pursuing such contacts. As a result there was no real follow-through of industry extension work (trying to ascertain market demands, needs, etc.).

(e) No training was functionally implemented within EDSC apart from 2 brief training classes of one week for design and 3 days for jig boring (over a period of almost 4 years).

(f) The Organizational Chart that appears in the EDSC Evaluation Report of July 1992 does not and never did fit reality. Instead of the 204 employees shown, 68 are presently employed and the present staff total has never been exceeded over the approximately four year period.

(g) There is high potential staff turnover due to relatively lower salaries and uncertainitv of contract extensions. The UNDP bridging finance delays during 1993 had a demoralizing impact on the staff.

(h) Work orders are filled in an informal manner - some clients are required to place a 50% down payment and others, who had work performed previously, are not.

(i) The staff admitted to long, unreasonable delays in fulfilling work orders. The reasons were ascribed to poor overall management, and supervision and a production system based on item by item jobbing.

(j) No market strategy for EDSC's capability has ever been devised.

(k) The center's Project Advisory Committee (PAC) which is to establish policy guidance for the EDSC, has met 3 times in almost 4 years; on two other occasions the committee meeting was disbanded due to lack of quorum.

(l) When industrial outreach efforts occur, they bear fruit as evidenced by the EDSC industrial visits during the last week of October which generated 19 jobs at a value exceeding Kshs. 1.5 million. Why haven't these occured more often ?

(m) None of the internal prototypes that was designed and made by EDSC (hydraulic crane, a manual rice thresher and a motorized rice thresher) generated any further activity. Prototypes solely designed included a mobile conveyor, a wheelchair and a pipe bender.. No further production followed because of (i) inadequate marketing and/or (ii) wrong choice of prototypes selected.

(n) Accurate cost figures are difficult to obtain. A Progress Report over a 22 month period (December 1991 - October 1993) reflect total fee charges of Kshs. 1,504,940 of which Kshs. 1,048,804 or 71 per cent, were actually paid - Kshs. 438,135, or 29 per cent, still outstanding. Not known how much of this outstanding amount is uncollectable.

(o) An Income and Expenditure Report for the period Sept. 1 through Oct. 15,1993 (a 45 day period) shows total revenue, plus bank interest, of Kshs. 40,610 and expenditures of Kshs. 24,793, with a net balance of Kshs. 15,817. This demonstrates the fact that, apart from the UNDP/UNIDO funded staff, the subsidization of EDSC staff and all variable costs by the Kenya Treasury is almost complete.

IV: Several Options for Consideration

1. EDSC can continue under its present "status quo" condition - and encounter an early demise. No institution or donor is attracted to it in its present state.

2. The Industrial Development Bank (IDB) indicated it would be willing to try to transform the EDSC into a profit-making entity but only if completely detached from KIRDI. However, the process would require a complete feasibility study, an audit of past financial statements, a future earning's projections - in a word, a complete financial and economic analysis. These analyses would have to indicate a favourable response before implementation.

3. The Development Finance Company of Kenya (DFCK) indicated a willingness to attempt an approach similar to that of IDB, above.

4. The Industrial & Commercial Development Corporation (ICDC) would be willing to attempt to restructure EDSC, once changes in its management and operations were implemented, toward obtaining a greater share of cost recovery. The ICDC could influence a number of firms to become associated with EDSC, providing it with greater autonomy, but keeping it within the jurisdiction of KIRDI.

5. EDSC could follow the pattern of Kenya Industrial Estates (KIE) which is selling its general services centers (four thus far) to their workshop employees who are running them on a commercial basis through outreach efforts. In time, no KIE subsidies are expected to be necessary. The GTZ Informal Sector Programme is attempting a similar privatization scheme which, over a three year period, is expected to achieve "commercial sustainability".

6. EDSC could be restructured in a comprehensive manner to include, as a minimum, the following changes:

(i) Overall policy guidance by a Policy Advisory Committee (PAC) that is comprised at least of 50% by the private sector, and that meets at least quarterly (every 3 months) to review progress (and whose members are paid a "meeting fee").

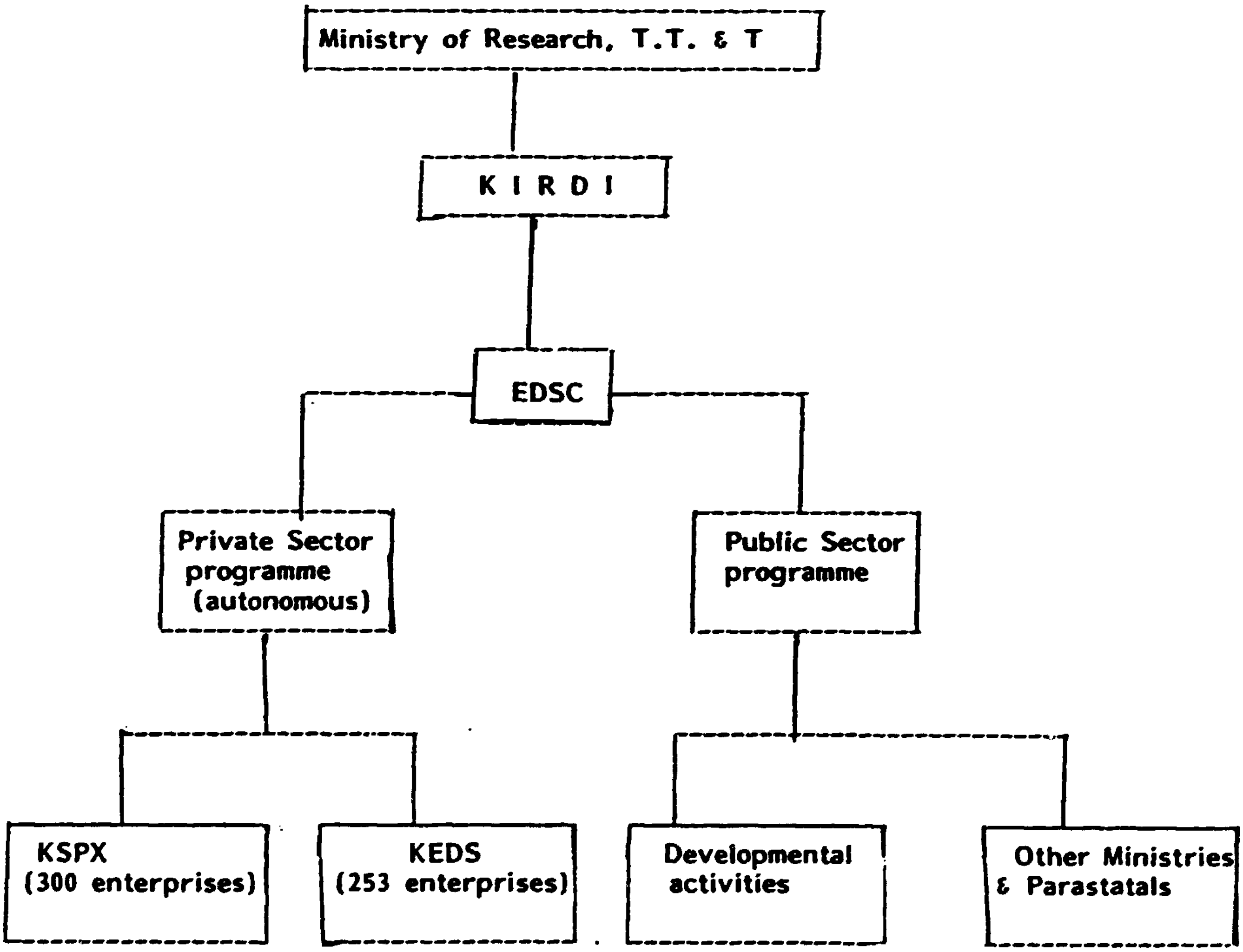
(ii) EDSC should have a top person in charge (whatever the title) that has engineering capability along with a management, business and private sector orientation. He should understand a proposed dual role for the center that will (a) promote strategic industrial sector linkages that will maximize the center's impact on the Kenyan economy and (b) carry forth selected activities along KIRDI lines to develop indigeneous equipment, machinery and products, to manufacture well researched prototypes and to provide engineering services to the public sector, where justified.

(iii) The linkages to maximize (a) above should be as follows:-

(1) A private sector focus concentrating on the universe of 300 industrial firms already identified and assessed by the Kenya Subcontracting & Partnership Exchange (KSPX) as being viable subcontractors and in need of spare parts and other engineering services that can be provided by EDSC and;

(2) A focus on the data base of 253 manufacturers identified as current exporters within the Kenya Export Development Support (KEDS) also in need of EDSC engineering skills.

The linkages of (1) and (2) provide EDSC with direct ties to dynamic sectors of both the domestic and the export market. All firms have been identified and, thus represent an easily accessible market. A schematic presentation of EDSC under this option would look like this:



III. Major Parameters and Issues Identified at OOPP Workshop - Project Concept

A. Analysis of Situation

1. The Workshop clearly established the fact that international donors, Kenyan financial and industrial institutions and many industrial client firms held a less than positive image of EDSC. Representatives from these three major groups attended the Workshop and confirmed this impression. The present situation of EDSC precludes any type of Associative Model from being implemented until comprehensive changes have been made. Yet, the in-depth interviews held with the individual client industrialists and industrial associations such as KSPX, KEDS, KAM, and FKE, all point to a large existing, unmet demand for EDSC's engineering services to the industrial sector. The Centre's equipment and machinery is held in high esteem but needs to be harnessed and utilized efficiently.

2. The core problem identified was underutilization of the EDSC engineering capacities. Under-utilized elements were identified in staff, training and facilities, engineering services, design, testing and provisions of consultancy services - all tasks that were initially prescribed as being well within the capacity of the Centre. The immediate courses of the core problem were analyzed as (a) poor management, (b) inadequate operational structure of EDSC, and (c) poor linkages with the private sector.

   The need for better management was evidenced especially in poor production, weak financial planning and control, an inadequate organizational structure (headed by a non-functional Policy Advisory Committee), inadequately trained staff, and lack of guidance from both UNIDO and KIRDI. These major problems resulted in late delivery of jobs and insufficient use of the machinery, lack of autonomous financial control by the Centre, a marketing function that was not carried out, lack of training by international experts (including premature termination of contracts) and virtually no operational direction provided by UNIDO or KIRDI (Problem Tree 1).

   The inadequate operational structure of the Centre was partially underlined by a need to select a better mix of machinery, inefficient institutional procedures (which led to lack of staff motivation) and a lack of clear goals. It must be stated that numerous references were made to the over-centralization of decision making power by the CTA, which resulted in lack of delegation and internal communications.

Of special importance was the absence of clear expected results from EDSC by UNIDO (Problem Tree 2). A key problem that must be rectified is the lack of established linkages with the industrial sector. Few industrial extension efforts were made (mainly due to an inflexible working climate) as there was failure to appreciate the free market approach by failure to use the abilities of KAM and FKE (Problem Tree 3).

The main effects of the above problem are lack of sustainability of the Centre due to inadequate income generation and inadequate provisions of services resulting in low technology transfer which results in little employment creation.

3. The above major problems can be addressed in the following manner: (Project Planning Matrix).

(a) Effective management can be established by obtaining guidelines especially from Donor and PAC (with ample private sector participation). Introduce effective production procedures that include production planning and quality control. Establish a marketing unit, improve personnel management, and improve financial management by creating an Accounts Department that reports directly to the General Manager.

(b) The EDSC operational structure can be harmonized and improved by setting specific goals with monthly progress reports for the Donor and PAC. Monthly outputs would be set taking into account each department's capacity and ability. The introduction of a Bonus Scheme is desirable along with the setting of a staff development scheme. There is need to hold inter-departmental meetings and decentralize decision making. A better mix of machinery and equipment can be obtained (see Annex 4). Ensure training of project staff as a major requirement when recruiting experts and time their deployment, as well as selection, carefully by obtaining the input of each Department that they will join as well as by the implementing agency.

(c) Adequate linkages can be established by obtaining policy guidelines from a PAC well represented by the private sector. Positive marketing efforts can be introduced (they have been successful in the few occasions implemented) by using KAM, FKE, KSPX and KEDS. Ties can be promoted with Kenyan training and technical institutions as well as with JICA that has indicated interest in providing training assistance. The EDSC can be made better known through publicity, a brochure, an official launching and using the mass media.

4. The ownership modality that carried the consensus of the workshop participants was Option 6 (see Canellas Summary Findings), page II-10) which keeps EDSC under KIRDI and MRTTT but provides two programmes, a Private Sector (autonomous) and a Public Sector. The Private Sector programme would develop strong linkages particularly with KSPX, (300 identified and assessed viable subcontractors) UNDP funded, and KEDS, USAID funded (253 identified current exporters) This link-up would maximize EDSC impact on the private sector by focusing on two dynamic sectors both of which are supported by international donors, the implications of which could be beneficial for EDSC in the future. (see pp. I-21, and I-34 of Interviews Report).

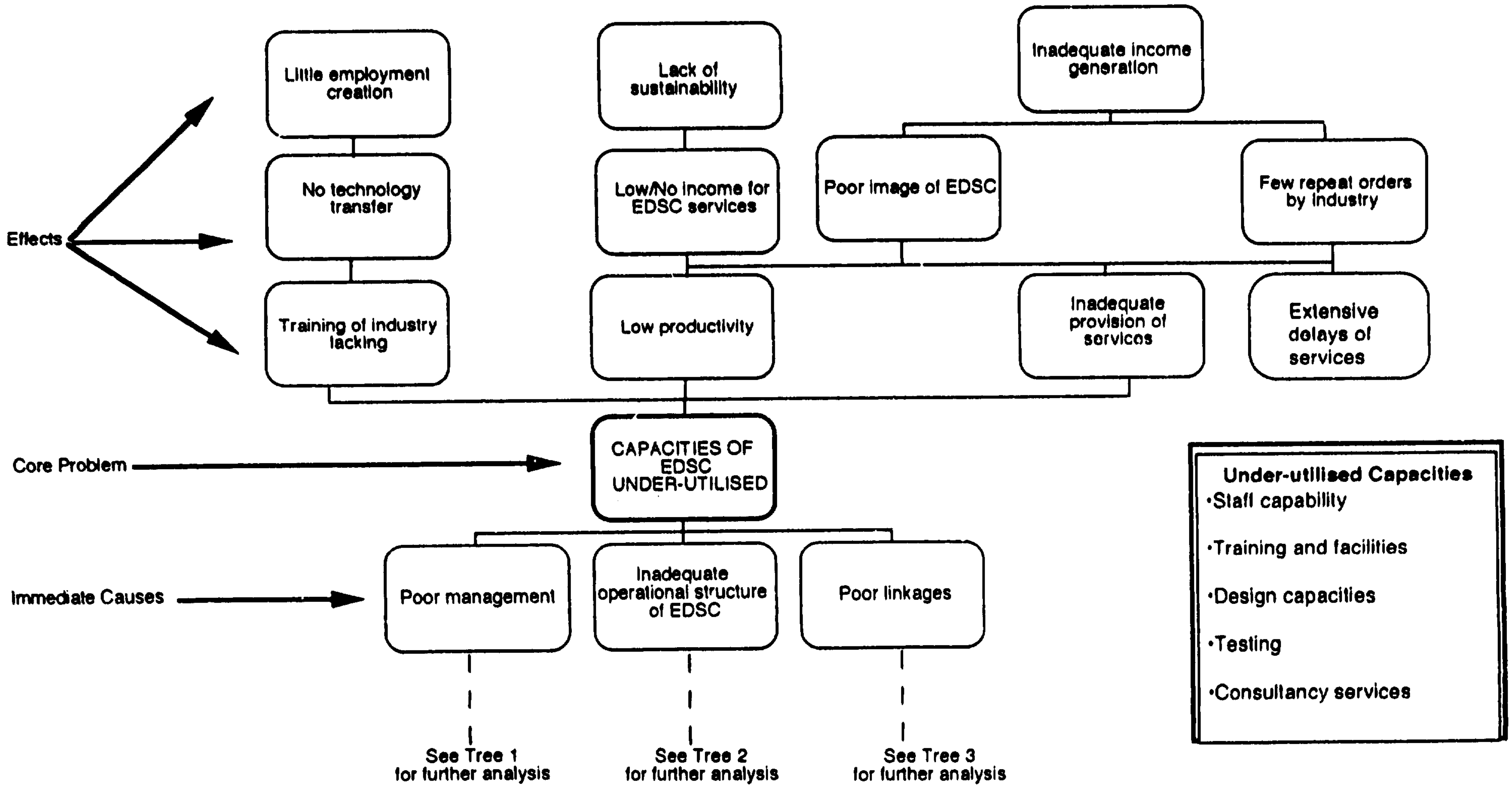
By providing EDSC with effective management, an improved and harmonized operational structure and the above linkages, the capacities at EDSC in the short-term can be adequately utilized. In the long-term the project's purpose can be met in its stated mandate of providing specialized engineering services and prototype production to both the private and public sectors in a strategic way. This would enable the enhancement of the industrial development of Kenya.

5. The critical assumption for obtaining the aforementioned changes in EDSC are the following:

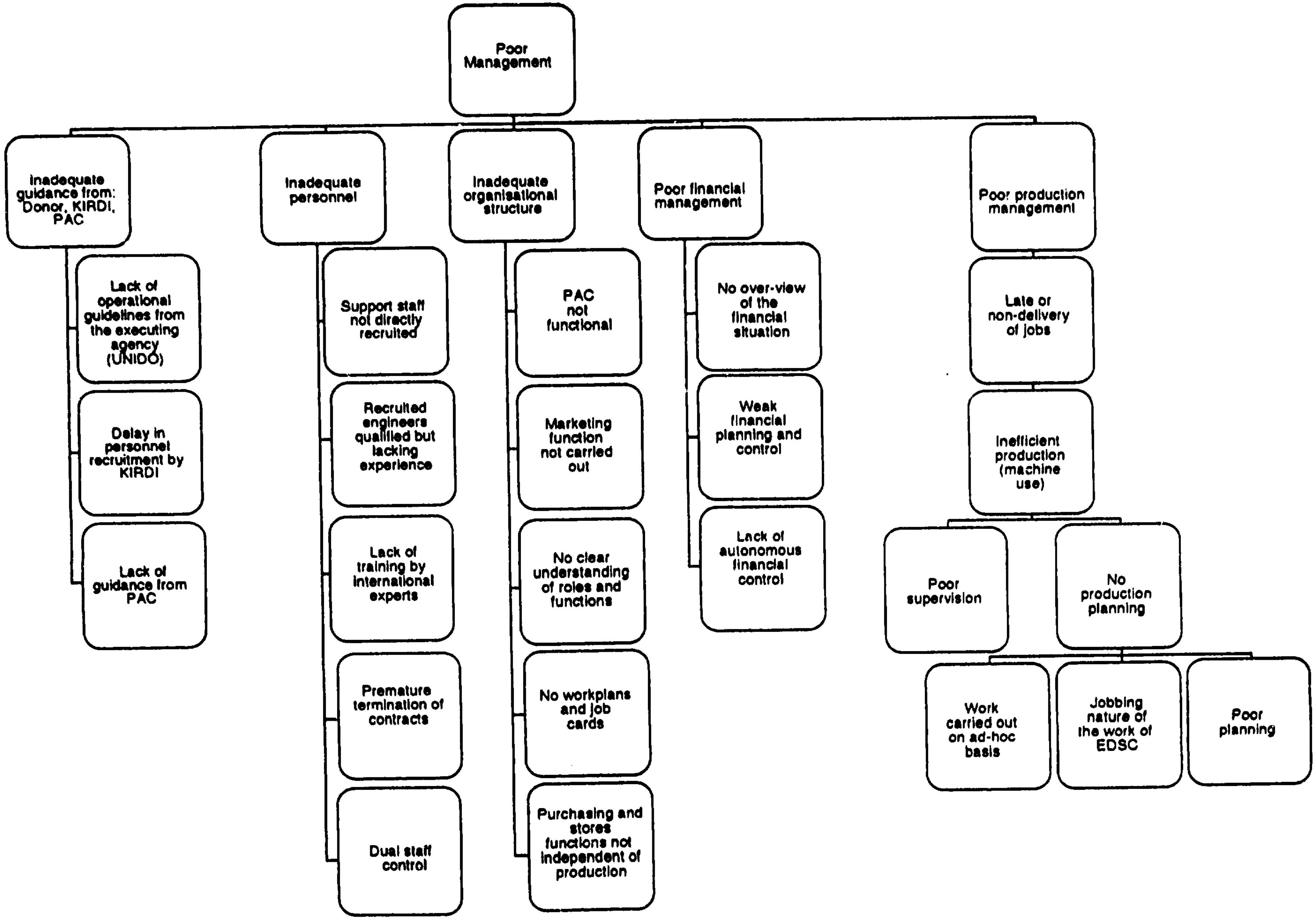
* UNIDO supports the second phase;
* Donor funds continue to be available;
* Effective managers are available and affordable;
* KIRDI allows EDSC to run autonomously;
* PAC provides policy guidelines on time.

It is assumed that both UNIDO and UNDP will provide support in the second phase with the prospect of finally launching an EDSC that is viable, productive and capable of making a real contribution to the Kenyan economy.

Problem Analysis

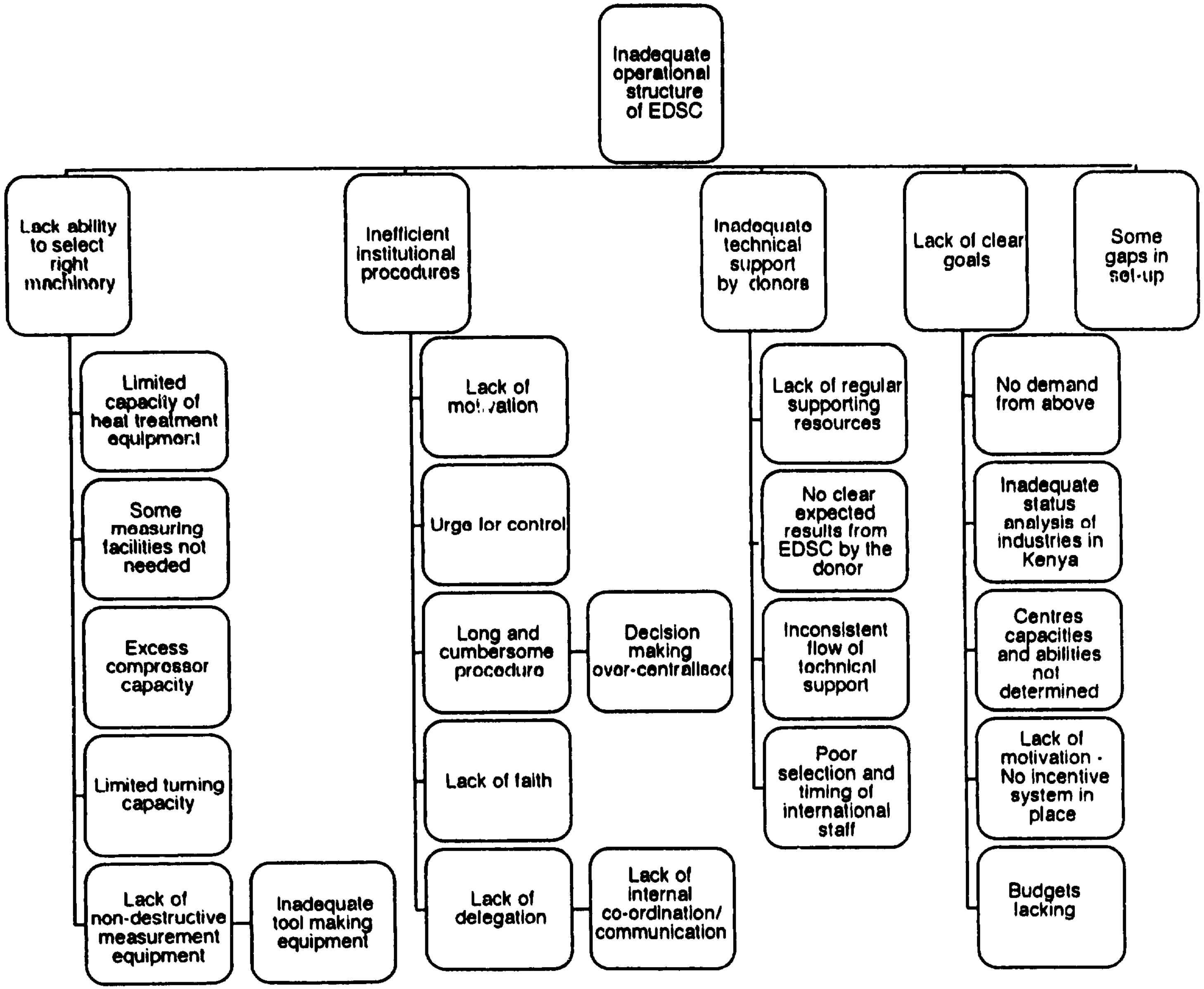


Tree 1

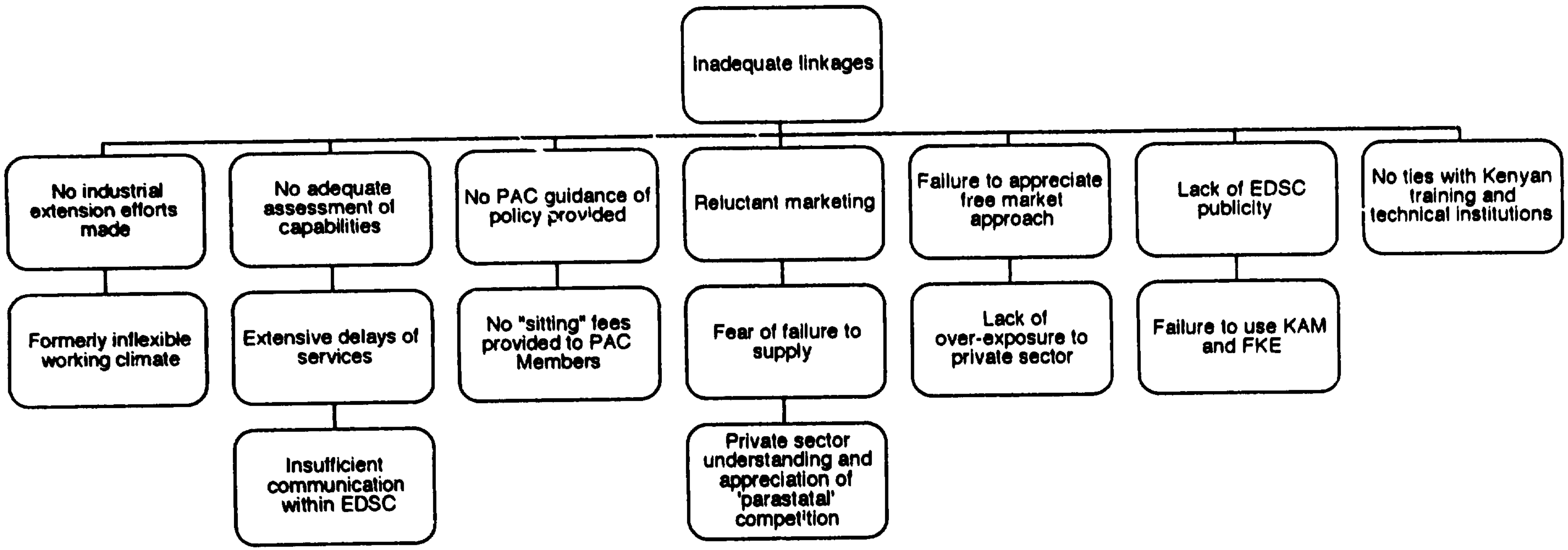


Poor Management
Inadequate guidance from: Donor, KIRDI, PAC
Lack of operational guidelines from the executing agency (UNIDO)
Delay in personnel recruitment by KIRDI
Lack of guidance from PAC
Inadequate personnel
Support staff not directly recruited
Recruited engineers qualified but lacking experience
Lack of training by international experts
Premature termination of contracts
Dual staff control
Inadequate organisational structure
PAC not functional
Marketing function not carried out
No clear understanding of roles and functions
No workplans and job cards
Purchasing and stores functions not independent of production
Poor financial management
No over-view of the financial situation
Weak financial planning and control
Lack of autonomous financial control
Poor production management
Late or non-delivery of jobs
Inefficient production (machine use)
Poor supervision
No production planning
Work carried out on ad-hoc basis
Jobbing nature of the work of EDSC
Poor planning

Tree 2


Inadequate operational structure of EDSC
Lack ability to select right machinery
Limited capacity of heat treatment equipment
Some measuring facilities not needed
Excess compressor capacity
Limited turning capacity
Lack of non-destructive measurement equipment
Inadequate tool making equipment
Inefficient institutional procedures
Lack of motivation
Urge for control
Long and cumbersome procedure
Decision making over-centralised
Lack of faith
Lack of delegation
Lack of internal co-ordination/ communication
Inadequate technical support by donors
Lack of regular supporting resources
No clear expected results from EDSC by the donor
Inconsistent flow of technical support
Poor selection and timing of international staff
Lack of clear goals
No demand from above
Inadequate status analysis of industries in Kenya
Centres capacities and abilities not determined
Lack of motivation - No incentive system in place
Budgets lacking
Some gaps in set-up

Tree 3


Inadequate linkages
No industrial extension efforts made
Formerly inflexible working climate
No adequate assessment of capabilities
Extensive delays of services
Insufficient communication within EDSC
No PAC guidance of policy provided
No "sitting" fees provided to PAC Members
Reluctant marketing
Fear of failure to supply
Private sector understanding and appreciation of 'parastatal' competition
Failure to appreciate free market approach
Lack of over-exposure to private sector
Lack of EDSC publicity
Failure to use KAM and FKE
No ties with Kenyan training and technical institutions

PROJECT PLANNING MATRIX

Project Title: Engineering Development & Service Centre **Duration:** January 1994 - December 1997
Country: Kenya **Date of Issue:** December 1993

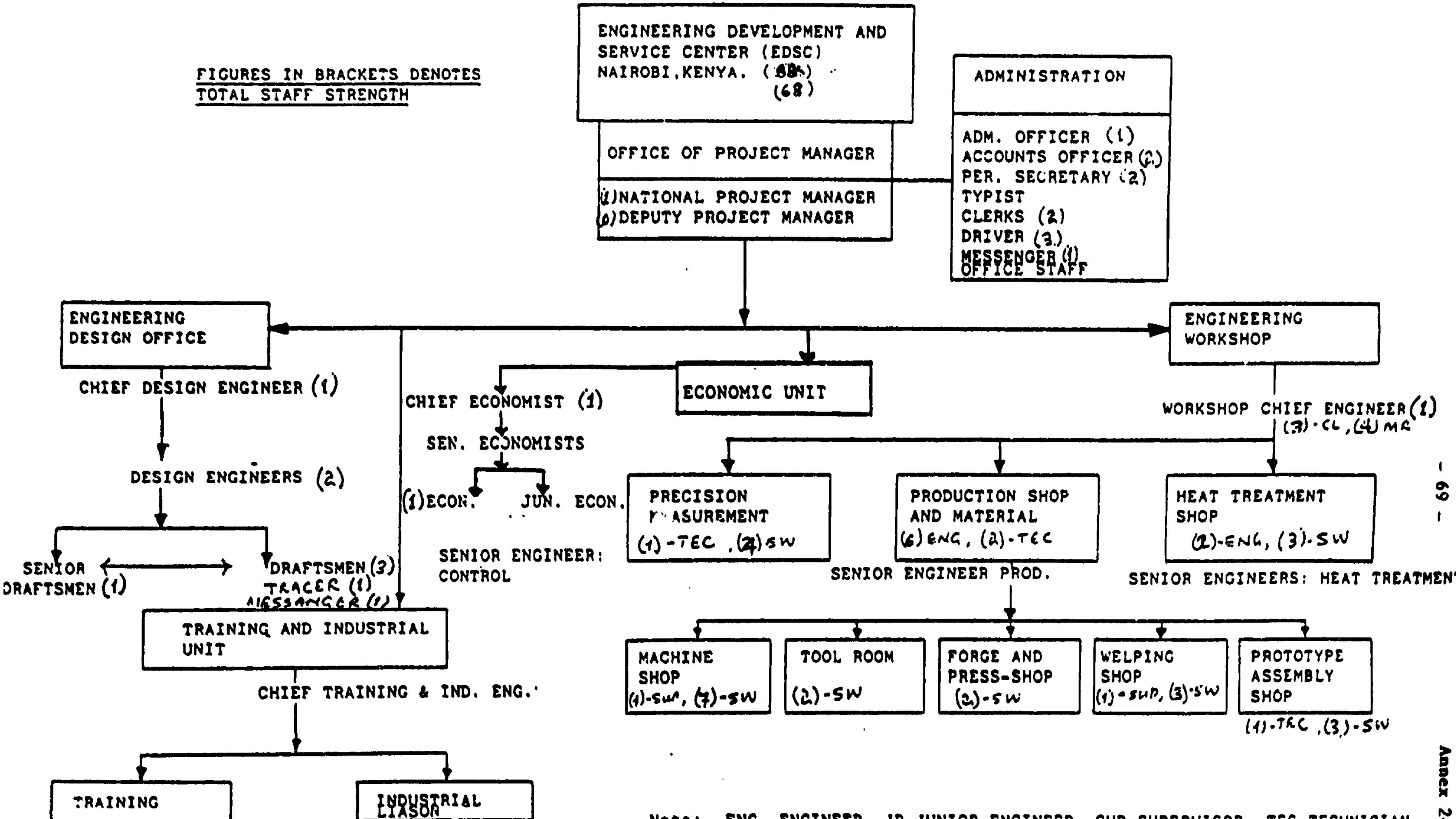
OBJECTIVES/ACTIVITIES	OBJECTIVELY VERIFIABLE INDICATORS	MEANS OF VERIFICATION	IMPORTANT ASSUMPTIONS
OVERALL GOAL: The industrial development in Kenya enhanced			
PROJECT PURPOSE: **Long-Term:** Specialised technical services in terms of engineering design, prototype production, engineering facilities and training to both public and private sectors industries provided **Short-Term:** Existing capacities at EDSC adequately utilised	Project Concept approved by UNIDO/UNDP and GoK by March 1994	Project concept in use	
RESULTS/OUTPUTS: 1.0 Effective management established 2.0 EDSC operational structure improved and harmonised 3.0 Adequate linkages established	• PSC guidelines for the management of EDSC formulated by June 1994 • PSC Members identified and meet by end of January 1994 (Resp. KIRDI) • EDSC organisational structure completed and approved by PSC by June 1994. • Terms of reference for the GM formulated by February 1994. Recruitment commences by April 1994 and manager in place by July 1994 New staff in place: -Technical Manager -Financial Manager -Production Manager by July 1994 • Areas of possible marketing of EDSC services identified by January 1994 and potential clients contacted by January 1994 • The means to access the KSPX & KEDS data bases in place by February and the data available to EDSC by March 1994	• Management guidelines available in project files • List of Members available in KIRDI/ UNIDO/ Industry and project files and Minutes of the meeting • Organisation structure in place • Staff in place	**Assumptions for Results/Outputs** --UNIDO supports the second phase --Donor funds continue to be available --Effective managers available and affordable --KIRDI allows EDSC to run autonomously --KIRDI allows autonomy in running the accounts --PSC provides policy guidelines on time
ACTIVITIES: 1.0 Effective management established 1.1 Provide adequate guidance (from Donor, KIRDI and PSC) 1.1.1 Channel all guidelines through PSC 1.2 Put in place effective organisational structure 1.2.1 Make PSC functional 1.2.2 Make PSC autonomous 1.2.3 Increase Private Sector Membership in the PSC 1.2.4 Motivate PSC members 1.2.5 Introduce effective production procedures -production planning -Job cards -Job costing -Quality control 1.2.6 Create separate purchasing and stores Units (away from production) 1.2.7 Establish a marketing unit 1.3 Improve Personnel Management 1.3.1 Create a human resources unit under Administration 1.3.2 Create a marketing function 1.3.3 Put in place recruitment procedures for staff (local and international) 1.3.4 Consult PSC on management posts 1.3.4 All EDSC staff to be paid by EDSC 1.4 Improve Financial management 1.4.1 Create Accounts Dept. reporting directly to GM 1.4.2 Introduce effective financial management systems	2.0 Harmonise and improved EDSC operational structure 2.1 Set specific goals 2.1.1 Prepare monthly progress reports for the Donor and PSC 2.1.2 Specify monthly outputs 2.1.3 Determine each Depts. capacity and ability 2.1.4 Provide sufficient working facilities 2.1.5 Introduce bonus scheme for good results of the 'Dept. of the Month' 2.1.6 Set individual staff development programme 2.1.7 Prepare monthly departmental financial projections 2.2 Improve institutional procedures 2.2.1 Hold inter-departmental meetings 2.2.2 Decentralise decision making 2.2.3 Delegate duties to the relevant Units/persons 2.3 Identify and select appropriate machinery 2.3.1 Increase the capacity of heat treatment 2.3.2 Increase the measurement facilities 2.3.3 Increase turning capacity 2.3.4 Equip the Centre with non-destructive measurement equipment 2.3.5 Supply adequate tool making equipment 2.4 Secure efficient technical support from Donor 2.4.1 Ensure training of project staff as a major requirement when recruiting experts	2.4.3 Get Departmental approval for monthly workplans prepared for and by experts 2.4.4 Ensure participation by the implementing agency and project personnel in the selection and timing of deployment of experts 2.4.5 Ensure each Dept. has a say in the selection of technical experts joining them 3.0 Establish Adequate Linkages 3.1 Provide policy guidelines 3.1.1 Provide sitting fees to PSC Committee Members 3.2 Assess capabilities 3.2.2 Introduce positive marketing 3.3 Promote free market approach 3.3.1 Solicit business support and expose staff to private sector 3.3.2 Use KAM, FKE, KSPX & KEDS 3.3.3 Carry out industrial extension 3.3.4 Promote ties with Kenyan training and technical institutions 3.3.5 Create awareness on private sector understanding and appreciation of parastatal operations	3.4 Publicise EDSC 3.4.1 Make a brochure on EDSC 3.4.2 Launch officially 3.4.3 Use different mass media 3.4.4 Put a sign board 3.5 Establish a market data bank 3.5.1 Utilise available information on clients

List of People Met		Organization
1. Mr. J. Belo	-	Industrial Development Officer - UNIDO
2. Mr. J. David Whaley	-	Resident Representative - UNDP
3. Mr. Stefano Bologna	-	Country Director - UNIDO
4. Mr. Sakari Koivula	-	Programme Officer - UNIDO
5. Mr. Alexandre De Faria	-	Chief, Project Appraisal Section - UNIDO
6. Mr. Tien N. Pham	-	Programme Officer - UNIDO
7. Mr. Sape Sikkema	-	Associate Expert (EDSC) - UNIDO
8. Mr. Gerhard Felsner	-	Leather Industry Consultant - UNIDO
9. Mr. John M. Muriuki	-	Leather Regional Project Co-ordinator (US/RAF/92/200) - UNIDO
10. Mr. Eduard G. Kristufek	-	Chief Technical Adviser (Energy Project) UNIDO
11. Mr. George O. Magore	-	National Project Manager (EDSC) - UNIDO
12. Dr. N. Njeru	-	Head of Economic Unit (EDSC) - UNIDO
13. Mr. O.D. Liech	-	Mechanical Engineer (EDSC) - UNIDO
14. Mr. C.L. Osogo	-	Mechanical Engineer (EDSC) - UNIDO
15. Mr. George S. Oyuga	-	Research Officer - KIRDI
16. Mr. B.O.F. Odongo	-	Head, Leather Development Center - KIRDI
17. Mr. Kamunge	-	Financial Officer - The World Bank
18. Mr. Anderson	-	Counsellor in Charge of Engineering Embassy of Denmark - DANIDA
19. Ms.Alfreda Brewer	-	Deputy, Private Enterprise Officer - USAID
20. Ms Emmy B. Simmons	-	Economist - USAID
21. Ms Agnes Guillaud	-	Conseiller Economique - EEC
22. Mr. R.J. Kigunda	-	Manager, Management Services - Export Processing Zones (EPZ)
23. Mr. Leon B.M. Tomesen	-	First Secretary - Royal Netherlands Embassy
24. Mr. Shinji Shibata	-	Assistant Res. Representative - JICA
25. Mr. Yuji Kashihara	-	Assistant Res. Representative - JICA
26. Mr. James Tomecko	-	Team Leader - GTZ
27. Mr. Paul C. Guenette	-	Chief of Party - Kenya Export Dev. Support (A project funded by USAID)
28. Mr. Simiyu Wambalaba	-	Assistant Export Development Advisor Kenya Export Development Support (KEDS)
29. Mr. John V. Bosse	-	General Manager - Development Finance Company of Kenya (DFCK)
30. Mr. S.N. Nyamwaya	-	Portfolio Manager - Industrial Development Bank Limited (IDB)

List of People Met (cont....)			Organization
31.	Mr. E.C.A. Saina	-	Deputy Managing Director - Industrial Development Bank (IDB)
32.	Mr. Barbabas W. Maina	-	Chief Corporate Planning (IDB)
33.	Mr. G.A.G. Kimaru	-	Chief Industrial Manager - Industrial Commercial Development Corporation (ICDC)
34.	Eng. W.A. Adhoch	-	Asst. Central Workshops Manager - Kenya Railways
35.	Prof. Karega Mutahi	-	Permanent Secretary - Ministry of Research, Technical Training and Technology.
36.	Mr. R. Aluchio	-	Operations Manager - Kenya Industrial Estates Ltd. (KIE)
37.	Ms Emma Muchene-Kolaas	-	Manager - Kenya Subcontracting & Partnership Exchange - UNIDO Project
38.	Mr. Nicola G. Schicchi	-	Mechanical Engineer - Kenya subcontracting & Partnership Exchange - UNIDO Expert
39.	Mr. Gordon A. Wagutu	-	Appropriate Technology Officer - Centre for Research and Technology
40.	Mr. Stanley M. Mbagathi	-	Principal Consultant - GS Consult Project Planning, Personnel Training
41.	Mr. M.E.D. Humphreys	-	Chief Executive - Humphreys and Associates Ltd. - Industrial Engineering and Management Consultants
42.	Mr. Amasi Sing'ora	-	Centre Co-ordinator - Federation of Kenya Employers (FKE)
43.	Ms Jacqueline A. Mugo	-	Executive Officer - Federation of Kenya Employers (FKE)
44.	Mr. Peter K. Wainaina	-	National Industrial Engineer - Kenya Subcontracting & Partnership Exchange-UNIDO Project
45.	Mr. Titus G. Ruhiu	-	Chief Accountant - The Kenya National Chamber of Commerce & Industry
46.	Mr. John W. Kuria	-	Chief Executive - The Kenya Association of Manufacturers
47.	Mr. Wainaina	-	Managing Director - Yanken Industry
48.	Mr. Deviraji Jindal	-	Factory Manager - Yanken Industry
49.	Mr. R.H. Desai	-	Factory Manager - Auto Spring
50.	Mr. B.S. Shetty	-	Manager, Mechanical Engineering Division, Steel Structures Limited.

List of People Met (Cont....)			Organization
51.	Mr. Wambugu Kariuki	-	Director - Wakate Institute
52.	Mr. Wambugu Kariuki	-	Director - Naciti Engineers Ltd.
53.	Mr. M.L. Pindolia	-	Chairman - Kens Metal Industries Ltd.
54.	Mr. Werner K. Weber	-	Resident Engineer (owner) -Afrotech Machinery Ltd.
55.	Mr. Tushar Shah	-	Director - Safepak
56.	Mr. Dinesh Shah	-	Director - Safepak
57.	Mr. Steve Kuria	-	Associated Electrical Industries Ltd.
58.	Mr. D.N. Kamanga	-	Group Manager (Administration) - Someni Indutries Ltd.
59.	Mr. S.K. Wahome	-	Managing Director - Someni Industries Ltd.
60.	Mr. Dan Njoroge	-	Manager Director - Security Printers
61.	Mr. Leopoldo Gliksman	-	Director - Harrtz & Bell Engineers
62.	Mr. F.N. Gitau	-	Managing Director - Kenya Engineering Industries Ltd.
63.	Mr. Andy Goldberger	-	Managing Director - E.A. Hydraulic & Metal Industries Limited.
64.	Mr. K.V. Kamath	-	Director - Galsheet Kenya Limited.

ORGANIZATION CHART AND MANPOWER REQUIREMENTS

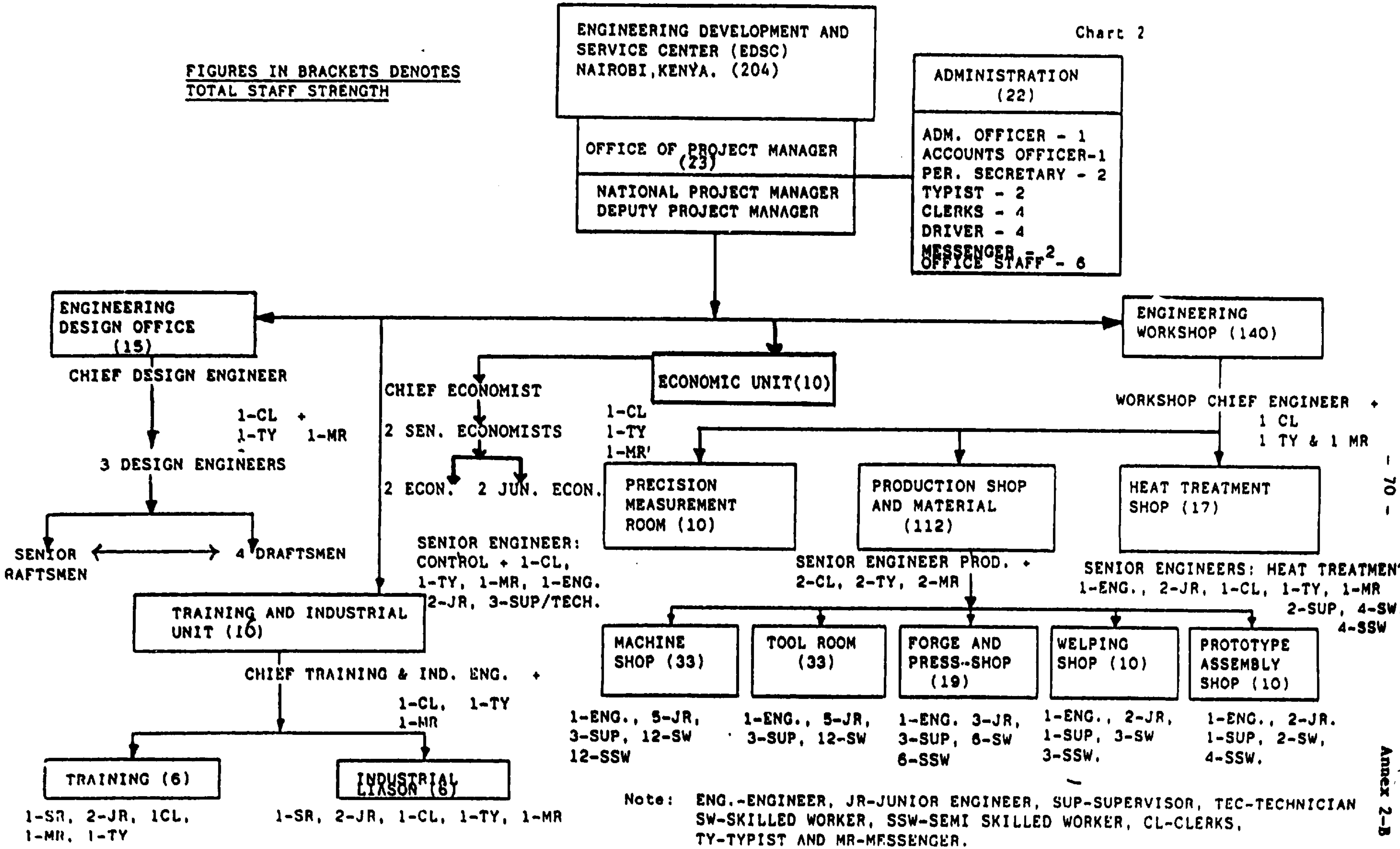


Note: ENG.-ENGINEER, JR-JUNIOR ENGINEER, SUP-SUPERVISOR, TEC-TECHNICIAN SW-SKILLED WORKER, SSW-SEMI SKILLED WORKER, CL-CLERKS, TY-TYPIST AND MR-MESSENGER.

ORGANIZATION CHART AND MANPOWER REQUIREMENTS

Chart 2

FIGURES IN BRACKETS DENOTES TOTAL STAFF STRENGTH



Note: ENG.-ENGINEER, JR-JUNIOR ENGINEER, SUP-SUPERVISOR, TEC-TECHNICIAN SW-SKILLED WORKER, SSW-SEMI SKILLED WORKER, CL-CLERKS, TY-TYPIST AND MR-MESSENGER.

LIST OF MACHINES AND EQUIPMENT ANNEX 3

No.	QTY	TYPE OF MACHINE	REMARKS
1	1	HYDRAULIC POWER HACK SAW MODEL AJVOY 300/320 SWEDEN	RECEIVED IN GOOD CONDITION AND NOW IN OPERATION
2	1	STEEL METAL BAND MODEL BAUER 5360	"
3	4	HEAVY DUTY WORK BENCH WITH ENGINEERING VICE MODEL BEDFORDS 44 CL UK	RECEIVED IN GOOD CONDITION CONDITION BUT WITHOUT MOUNTING BOLTS (16 IN NUMBER) NOT PAINTED DIN RAL 6001 NOW IN OPERATION
4	3	MARKING PLATE (SURFACE PLATE) (U.K.)	RECEIVED IN GOOD CONDITION RUBBERS MISSING NOT PAINTED DIN RAL 6001 NOW IN OPERATION
5	1	HIGH PRECISION CENTRE LATHE	RECEIVED IN GOOD CONDITION AND NOW IN OPERATION
6	1	HEAVY DUTY LATHE U.K.	RECEIVED IN GOOD CONDITION AND NOW IN OPERATION
7	1	UNIVERSAL TOOL MILLING MACHINE MODEL BRIDGEPORT 2J2 U.K.	RECEIVED IN GOOD CONDITION INSTRUCTION AND OPERATION MANUALS NOT RECEIVED NOW IN OPERATION
8	1	HORIZONTAL MILLING MODEL FEXAC UP SPAIN	RECEIVED IN GOOD CONDITION AND NOW IN OPERATION
9	1	MECHANICAL HEAVY DUTY SHAPING MACHINE AJAX MODEL AJS 450 U.K.	RECEIVED IN GOOD CONDITION AND NOW IN OPERATION
10	1	THREADING MACHINE MODEL RIGID 535-2B U.S.A.	RECEIVED IN GOOD CONDITION BUT NOT PAINTED DIN RAL 6011 AS INDICATED IN PURCHASE ORDER NOW IN OPERATION
11	1	DOUBLE ENDED GRINDER, MODEL DS 930 QT, AJAX, U.K.	RECEIVED IN GOOD CONDITIONAND NOW IN OPERATION
12	1	PILLAR DRILLING MACHINE MODEL CONDOR 40	RECEIVED IN GOOD WORKING CONDITION. OPERATION MANUALS NOT RECEIVED. NOW IN OPERATION.
13	1	WORK BENCH DRILLING MACHINE AJBM16 ENGLAND	RECEIVED IN GOOD CONDITION NOW IN OPERATION
14	1	RADIAL BORING MACHINE MODEL NARVIC LAX DRILL SH38 X930	RECEIVED IN GOOD CONDITION SUPPLIED ONLY ONE OPERATION AND INSTRUCTION MANUAL NOW IN OPERATION
15	1	PRECISION JIG BORING MACHINE MODEL AV 30, PERRIN SWITZERLAND	RECEIVED IN GOOD CONDITION OPERATION AND INSTRUCTION MANUAL NOT RECEIVED. NOW IN OPERATION
16	1	JIG GRINDING HAUSER, MODEL	RECEIVED IN DAMAGED CONDITION NOW IN OPERATION

LIST OF MACHINES AND EQUIPMENT

No.	QTY	TYPE OF MACHINE	REMARKS
17	1	AUTO HYDRAULIC SURFACE GRINDING MACHINE, AJAX MODEL AJ 800 HD TAIWAN	RECEIVED IN DAMAGED CONDITION MADE IN TAIWAN ALREADY REPAIRED AND IN OPERATI
18	1	UNIVERSAL CYLINDRICAL GRINDING MACHINE MODEL GER RHS 450 SPAIN	RECEIVED IN GOOD CONDITION AND NOW IN OPERATION
19	1	UNIVERSAL TOOL AND CUTTER GRINDING MACHINE MODEL 310 T U.K.	RECEIVED IN GOOD CONDITION AND NOW IN OPERATION
20	1	INTERNAL GRINDING MACHINE UNIVERSAL MODEL BDV 250A CZECHOSLOVAKIA	RECEIVED IN GOOD CONDTION AND NOW IN OPERATION
21	1	UNIVERSAL DRILL GRINDER MODEL FARMAN FC-50N TAIWAN	RECEIVED IN A VERY RUSTY STATE EVEN SPARE PARTS WERE RUSTY NOW IN OPERATION
22	1	SAW BLADE GRINDING MACHINE, MODEL YOLLMER DORNHAN LILIPUT S175	RECEIVED IN GOOD CONDITION SUPPLIED ONLY ONE OPERATION MANUAL. NOW IN OPERATION
23	1	ECCENTRIC PRESS MODEL LEN 63C	RECEIVED AS NEW BUT NOT IN WORKING CONDITION. REPAIRED AND NOW IN OPERATION
24	1	FORGING OPEN HEARTH - U.K.	RECEIVED IN GOOD CONDITION BUT BLOWER FAN COLOUR NOT IN DIN RAL 6001 NOW IN OPERATION
25	1	ANVIL INCLUDING BLOCK U.K.	SUPPLIED 100KG INSTEAD OF 199KG NOW BEING UTILIZED
26	1	GUILLOTINE SHEAR MODEL RUSHWORTH DG2000/35 U.K.	RECEIVED WITH DENTS AND RUSTED BLADES LEG OPERATING SWITCH CUT. ONE MANUAL REPAIRED AND NOW IN OPERATION
27	1	EDGE BENDING MACHINE MODEL ANGLIA DB IC U.K.	RECEIVED IN GOOD CONDITION OPERATION MANUALS NOT RECEIVED NOW IN OPERATION
28	1	TUBE BENDING ANGLIA DB IC UK	RECEIVED IN GOOD CONDITION NOW IN OPERATION
29	1	2 CHAMBER FURNACES UK	RECEIVED IN GOOD CONDITION AND IN OPERATION
30	2	OIL QUENCHING TANK WATER QUENCHIGN TANK UK	RECEIVED IN GOOD CONDITION AND NOW IN OPERATION
31	1	CHAMBER FURNACE ELECTRICALLY HEATED UK	RECEIVED IN GOOD CONDITION AND NOW IN OPERATION
32	1	WELDING TRANSFORMER ESAB MODEL THF 400 SWEDEN	RECEIVED IN GOOD CONDITION INDUSTRIAL SWITCH MISSING NOW IN OPERATION

LIST OF MACHINES AND EQUIPMENT

No.	QTY	TYPE OF MACHINE	REMARKS
33	1	SPOT WELDING MACHINE, MODEL SUREWELD KLT 126 ENGLAND	RECEIVED IN GOOD CONDITION NOW IN OPERATION
34	1	MIG/MAG WELDING MACHINE MODEL SUREWELD MAXI 470 UK	RECEIVED IN GOOD CONDITION NOW IN OPERATION
35	1	FREE STANDING MECHANICAL SCALE MODEL SACTER 121 UK	RECEIVED IN GOOD CONDITION NOW BEING UTILIZED
36	1	HIGH TEMPERATURE ELECTRODE STORAGE AND DRYING OVEN MODEL HTS C2-Cap 450	RECEIVED IN GOOD CONDITION NOW BEING UTILIZED
37	1	DC LACE TOOL MAKERS MICROSCOPE	RECEIVED IN GOOD CONDITION OPERATION MANUALS NOT RECEIVED NOW IN OPERATION
38	1	TWO CO-ORDINATE MEASURING MICROSCOPE TYPE ZKM 01-250c	RECEIVED IN GOOD CONDITION NOW IN OPERATION
39	1	PROFILE PROJECTOR LAB. TECHNIC GMBH	RECEIVED IN GOOD CONDITION NOW IN OPERATION
40	1	HARDNESS TESTER	"
41	6	DRAWING TABLE ASTER GREY, SLIDING SHELF, DRAWING BOARD 100 x 70cm, DRAWING MACHINE	RECEIVED IN GOOD CONDITION NOW IN OPERATION
42	1	DRAWING TABLE ASTER GREY COMPLETE 100x200 cm	"
43	1	BLUE PRINCTING MACHINE NEOLT	"
44	7	DRAUGHSTMAN CHAIR NEOLT 303 BLACK	"
45	10	FILING CABINET 4 DRAWERS NEOLT 413 GREY	"
46	2000	HANGING FILE POCKET	"
47	5	PAPER STORAGE CABINET 2 DOORS WITH LOCK, 4 SHELVES	"
48	7	HORIZONTAL FILLING CABINET NEOLT MOD 409	"
49	12	DOUBLE ENTRY SHELVING FOR LIBRARY	"
50	12	POCKET COMPUTER TEXAS	"
51	1	ROTARY TRIMMER NEOLT TRIM 150	"
52	1	PAPER GUILLOTINE EBA EXPRESS 360	"
53	1	NATIONAL MODEL COLOUR VIDEO CASSETTE RECORDER	"

LIST OF MACHINES AND EQUIPMENT

No.	QTY	TYPE OF MACHINE	REMARKS
53	1	NATIONAL MODEL TC2687 CxV26" COLOUR T.V.	RECEIVED IN GOOD CONDITION AND NOW IN OPERATION
54	1	NATIONAL MODEL NV-MTEN VHS PORTABLE VIDEO MOVIE CAMERA	"
55	1	CHINON MODEL 60R XL	"
	30	KODACHROMIE SUPPER 8 8M MOVIE FILMS	
	1	SANKYO SOUND 70Z	
56	1	POLAROID MODEL 635CL INSTANT CAMERA	"
57	1	3M MODEL 2180 OVERHEAD PROJECTOR	"
58		KODAK CARNOSEL S-AV2050 AF35mm SIDE PROJECTOR	"
59	1	DA-LITE CERSATOL TRIPOD TYPE PROJECTION SCREEN 70"x70"	"
60		LAND ROVER	IN WORKING CONDITION
61		PEUGEOT	"
62		HAND FILES	IN TOOL STORE
63		MEASURING INSTRUMENTS	"
64		PHOTOCOPYING MACHINE	IN WORKING CONDITION
65		FAX MACHINE	"
66		TYPEWRITER	"
67		VARIOUS TOOLS FROM LUNA	IN TOOL STORE
68		HAND TOOLS	"
69		TELEX MACHINE	IN WORKING CONDITION

ANNEX 4

List of machines and equipment required with justification for purchase and prices

ITEM NO.	NAME	DESCRIPTION	JUSTIFICATION	PRICE US$
1.	Spark Erosion Machine	Range of travels X 500 mm Y 350 mm Z 350mm Measurement 2800x330x2600mm	More than 60% of jobs already received requires die making (either for hot forging or cold stamping). The centre is unable to produce most of hot forging dies due to lack of this machine. EDSC capacity will also be enhanced with the availability of this machine.	380,000
2.	High Precision Centre Lathe (2 Nos)	Swing dia. over bed 500 (600)mm swing dia. over cross slide 290 (360) mm cross movements 212 (380) mm speed range (RPM) 25-5000 (16-3, 150) Centreheight over slide way 300 300 (350mm) Distance between centres - 1000mm	The three lathes currently available cannot cope with the enormous turning jobs we already have. If purchased, the centre's output will be increased (about 3 times) hence be able to meet customer's requirements and demands on time.	150,000
3.	Copy Milling Machine	Copy ratio Table size 1300x 485 mm Travels X=500mm Y=350mm Z=350mm Feed rates, step less mm/min 10-1000 Rapid traverse mm.min 3000, speed range rpm 80-4500 (12 speeds)	Required for producing high precision parts, with complicated configuration for customers (e.g. shoe cap). This machine will increase capacity by reducing production time of tools (dies, cutting tools)	60,000
4.	Equipment for Hardening	Preheating chamber with saltbath crucible furnace and warm bath tank furnace 3-part hot-water cleaning plant with cascade and 3-part salt storage container capacity of one container 130 lts	These facilities are scarce locally. EDSC will meet immediate objectives by providing common hardening facility to industries in heat treatment, tool engineering parts production and most important, training	240,000
5.	Galvanization Baths	6.a. Zinc plating 6.b. Chrome plating 6.c. Phosphating	Required in order to be able to render common services to industries (one of main objectives) as well as training.	60,000

ITEM NO.	NAME	DESCRIPTION	JUSTIFICATION	PRICE US$
6.	Tig welding Machine	460x245x460mm	For welding aluminium alloys and other steel metals that cannot be done using the existing conventional methods.	5,000
7.	Computer	IBM personal computer with 803.805x processor	For data processing especially stock taking in tool store	7,000
8.	Staff bus	62 seater	EDSC staff is growing rapidly. Already the existing bus cannot cope with the number	100,000
9.	Rockwell Hardness Tester	Max. load 185.5 kg (suitable for Brinell test 2.5/187.5) Indentor HRC, HRb (1/16"), HB 2.5 Including 1) V-table 2) Øtable 80mm " 200mm Min space 200mm	Most of the items required by our clients are imported. To be able to produce such items to the required standard, we must have hardness testing equipment of the mentioned level.	45,000
10.	Wire cutting Machine	4 KW 1500KG 250 GENSRAT Range of travel X-220 Y-160 Z-85 Dimension workpiece - 450x280x 100 mm Max: table load 100 kg	This together with spark erosion machine will speed up the production of complicated dies. We have been taking a long time to produce such dies.	187,292
11.	Tool milling machine	Table travel X-400 Y-400 Z-400 Spindle speed 40-400 r/m Feed speed 2-3600 mm/min Loading table 180 kg Table dimension 330x600mm Measurement 3880x3885x1916mm	The conventional milling machines available cannot cope with the existing jobs. Majority of jobs received must undergo milling process. This material is greatly needed.	210,000

K.I.R.D.I. - ENGINEERING DEVELOPMENT AND SERVICE CENTRE PERIODICAL ORDERS

PERIOD 1992	DETAILS	INVOICE		RECEIPT		BALANC KSH
		NO.	AMOUNT	NO.	AMOUNT	
JANUARY	KAZURI LTD	001	19064.00	003	9532.00	
	"	002	57818.00	004	28909.00	
	"	003	1193.90			
				001	13300.00	
				002	961.00	
FEBRUARY	DORIS & MISKA PETERSON KAZURI LTD	004	8300.00	005	8300.00	
	LEATHER DEVELOPMENT CENTRE	005	5228.00	006	1193.90	
	DATINI MERCANTILE LTD	006	51040.00	007	5228.00	
	AMM ENGINEERING WORKS LTD	008	2746.80	008	25500.00	
MARCH	AMM ENGINEERING WORKS LTD	009	3894.80	009	2746.80	
	"	010	7721.15			
	WORLD BANK MIN. OF AGRI.	011	826.60			
	DATINI MERCANTILE LTD	012	588.00			
APRIL	KAZURI LTD	014	8300.00			
	"	015	5260.00			
	"	016	24031.50			
MAY	LEATHER DEVELOPMENT CENTRE	017	8777.50	010	1298.00	
	KAZURI LTD	019	23495.90	011	90000.00	
JUNE	AMREF	020	3126.50	012	3126.50	
	HIGHLAND CANNERS LTD	021	19283.50	013	10000.00	
	TOTAL		250696.15		200095.20	50600.95

K.I.R.D.I. - ENGINEERING DEVELOPMENT AND SERVICE CENTRE PERIODICAL ORDERS

PERIOD 1993	DETAILS	INVOICE		RECEIPT		BALANCE KSH
		NO.	AMOUNT	NO.	AMOUNT	
JANUARY	EAST AFRICAN MATCH CO. (K) LTD	032	58960.00	030	7721.15	
				031	16973.50	
FEBRUARY	LEATHER DEV. CENTRE	033	3168.00	032	3168.50	
MARCH	EAST AFRICAN MATCH CO (K)	034	11850.00	034	57980.40	
	KAZURI LTD	035	5951.00	035	5951.00	
	JUA KALI WOMEN TEXTILE PROJECT	036	57980.40	036	10290.00	
	LEATHER DEVELOPMENT CENTRE	037	8712.00	037	18337.00	
APRIL	LEATHER DEVELOPMENT CENTRE	038	898.40	038	8712.00	
	EAST AFRICAN MATCH CO (K)	039	18561.60	039	300.00	
	"	040	8850.00	040	600.80	
				041	2645.80	
				042	18628.80	
				043	11850.00	
				045	58960.00	
MAY				046	450.00	
JUNE	MIU ELECTRIC CO. LTD	041	150.00	047	4080.00	
	LEATHER DEVELOPMENT CENTRE	042	4080.00	048	100.00	
	MALINDI INDUSTRIES LTD	043	13500.00	049	2792.00	
	MINISTRY OF AGRICULTURE	044	35886.00	050	1680.00	
	"	045	37684.00	051	182672.00	
	STRUTS ENGINEERING WORKS	046	2580.00	052	1200.00	
	"	047	2792.00			
	KENYA RECLAIMED RUBBER	048	7775.00			
	WANANCHI ROOFING TILES	049	8640.00			
	SAPE SIKKEMA	050	1680.00			
	WANANCHI ROOFING TILES	051	17280.00			
	ESA INDUSTRIES	053	1800.00			
	COLONEL NJOROGE	054	3396.00			
	TOTAL		312174.40		415091.75	102917.35

ANNEX 6

MEMO

KENYA INDUSTRIAL RESEARCH & DEVELOPMENT INSTITUTE

P.O. Box 30650, NAIROBI

From: Accounts Section	To: The Director
Ref No:	Date: 18 October, 1993

KIRDI - EDSC PROGRESS REPORT

I have attached herewith schedules of Income and Expenditure, collected and expected revenue which show the financial trend of EDSC as at 15/10/93.

G. M. Ngugi

c.c. Chief Technical Adviser (EDSC)

National Project Manager (EDSC)

ANNEX 6

KIRDI-EDSC - COLLECTED AND EXPECTED REVENUE AS AT 15 OCTOBER 1993

INV. NO.	DATE	CUSTOMER'S NAME	FEES CHARGED	AMOUNT PAID REC. NO.	AMOUNT PAID KSH.	EXPECTED AMOUNT (KSH)
014	16.4.92	KAZURI LTD P O BOX 24276	8,300.00	011	8,300.00	NIL
-	6.12.91	"	13,300.00	001	13,300.00	NIL
-	8.1.92	"	961.00	002	961.00	NIL
001	16.1.92	"	9,532.00	003	9,532.00	NIL
002	"	"	28,909.00	004	28,909.00	NIL
003	31.1.92	"	1,193.90	006	1,193.90	NIL
004	5.2.92	"	8,300.00	005	8,300.00	NIL
015	16.4.92	"	14,792.00	011	14,792.00	NIL
016	21.4.92	"	24,031.50	"	24,031.50	NIL
018	27.5.92	"	28,909.00	"	28,909.00	NIL
019	28.5.92	"	23,495.00	011& 019	23,495.00	NIL
-	17.9.92	"	35,579.20	020& 027	35,579.20	NIL
031	17.11.92	"	33,947.20	028	16,973.50	NIL
-	11.3.93		Ref EDSC/41 OF 8.3.93	CREDIT	6,683.60	NIL
-	11.3.93	"		036	10,290.10	
035	5.3.93	"	5,951.00	035	5,951.00	NIL
056	27.7.93		11,400.00	057	6,000.00	5,400.00
005	12.2.92	LEATHER DEV. CENTRE	5,228.00	007	5,228.00	NIL
017	18.5.92	KIRDI NEWSITE	8,777.50	016	8,777.50	NIL
033	16.2.93	"	3,168.00	032	3,168.00	NIL
037	23.2.93	"	8,712.00	037	8,712.00	NIL
038	6.4.93	"	898.40		4,080.00	NIL
042	16.6.93	"	3,181.60	047		
006	21.2.92	DATINI MERCANTILE	51,040.00	008	25,500.00	25,540.00
012	19.3.92	P O BOX 45483, NRB.	588.00	NIL	NIL	588.00
008	28.2.92	AMM ENG. WORKS LTD.	2,746.80	009	2,746.80	NIL
010	13.3.92	P.O. BOX 42697, NRB.	7,721.15	030	7,721.15	NIL
011	16.3.92	WORLD BANK/UNDP/FAO/ MIN. OF AGR. NRB.	826.60	NIL	NIL	826.60
0884	8.1.92	P/S MIN OF AGR. P O BOX 30028, NRB	289,185.00	DIRECT BANKING	144,592.50	144,592.50
0931	18.5.92	KARIUGA ORANGE JUICES P O BOX 41598, NRB	1,298.00	010	1,298.00	NIL
020	3.6.92	A.M.R.E.F. P O BOX 30125, NRB	3,126.50	012	3,126.50	NIL
021	29.6.92	HIGHLANDS CANNERS LTD P O BOX 15018, NRB	19,283.50	022	19,283.50	NIL
022	2.7.92	E A MATCH CO (K) LTD	71,943.80	017	35,971.9[illegible]	[illegible] 90
032	27.1.93	P O BOX 82525,	58,960.00	045	58,960 [illegible]	[illegible]
034	7.3.93	"	11,850.00	043	11,850 [illegible]	[illegible]
039	26.4.93	"	18,561.60		NIL	18,561.60
040	"	"	8,850.00		NIL	8,850.00
023	15.7.92	KENYA BUREAU OF STDS P O BOX 54974, NRB.	5,754.90	015	5,754.90	NIL

INV. NO.	DATE	CUSTOMER'S NAME	FEES CHARGED	AMOUNT PAID		EXPECTED AMOUNT KSH
				REC.NO.	KSH.	
PROFORMA -	18-9-92 -	ASSOCIATED ELECT. INDS P O Box 48537, NAIROBI	2,849.00 18,337.00	021 037	2,849.00 18,337.00	nil nil
025 043	12-10-92 16-6-93	MALINDI IND. LTD P O Box 685, MALINDI "	28,628.80 13,500.00	026 042 nil	28,628.80 nil	nil 13,500.00
026	3-10-92	STERLING CRAFT (K) LTD P O Box 25250, NAIROBI	33,947.10	023 031	33,947.10	nil
028	22-10-92	KENYA PORTS AUTHORITY P O Box 95005, MOMBASA	182,672.00	051	182,672.00	nil
036	9-3-93	JUA KALI WOMEN'S TEXTILE PROJECT NRB.	57,980.40	034	57,980.40	nil
PROFORMA 046 047	17-3-93 " 21.6.93 "	STRUTTS ENG. WORKS P O Box 78690, NRB " "	300.00 600.00 2,580.00 2,792.00	039 040 nil 049	300.00 600.00 nil 2,792.00	nil nil 2,580.00 nil
PROFORMA	2-4-93	DELTA TECHNOLOGIES LTD. P O Box 61750, NRB.	2,645.80	041	2,645.80	nil
PROFORMA	7-5-93	TIMBER SHACK - NRB.	450.00	046	450.00	nil
044 045	17-6-93 "	MINISTRY OF AGRICUL. AGR. ENG. DIVISION R.T.D.C. BOX 4 RUIRU	35,886.00 37,684.00	nil nil	nil nil	35,886.00 37,684.00
-	21-6-93	UNION LOCKS(K) LTD.	100.00	048	100.00	nil
048	21-6-93	KENYA RECLAIMED RUBBER	7,775.00	nil	nil	7,775.00
049 051	21-6-93 22-6-93	WANANCHI ROOFING TILES - KARATINA	8,640.00 17,280.00	056	25,920.00	nil
050	22-6-93	SAPE SIKKENA	1,680.00	050	1,680.00	nil
053 PROFORMA	24-6-93 9-8-93	ESA INDUSTRIES "	1,800.00 5,532.00	052 061	1,200.00 5,532.00	600.00 nil
054	25-6-93	COL. NJOROGE	3,396.00	063	3,396.00	nil
024 029 041 055 060	- 30-10-92 9-6-93 22-7-93 13-8-93	MIC ELECTRIC CO. LTD. P O Box 74036, NRB " " "	19,899.60 69,245.00 150.00 6,380.00 1,120.00	018/024 025 nil nil nil	19,899.60 34,625.00 nil nil nil	nil 34,620.00 150.00 6,380.00 1,120.00
- 059 057	12-7-93 28-7-93 26-7-93	G MAINA SAFEPAK LTD. YARNKEN IND. LTD	600.00 18,994.80 16,711.20	058 060 059	600.00 9,497.40 8,500.00	nil 9,497.40 8,211.20

INV. NO.	DATE	CUSTOMER'S NAME	FEES CHARGED KSH.	AMOUNT PAID REC.NO.	KSH.	EXPECTED AMOUNT KSH
061	13-8-93	MOTOR CRANKSHAFT G.	300.00	062	300.00	nil
062	25-8-93	MR AKANGA - KIRDI	300.00	nil	nil	300.00
064	14-9-93	BRIDGE AGENCY	7,772.00	nil	nil	7,772.00
065	"	EMCO STEEL WORKS	1,980.00	068	1,980.00	nil
066	16-9-93	AGROTECH MACHINERY LTD.	8,886.00	065	8,886.00	nil
067	17-9-93	WIRE PRODUCTS LTD.	5,953.40	066	5,953.40	nil
PROFORMA	27-9-93	TIMBER SHACK	5,688.00	067	5,688.00	nil
068	12-10-93	AFROTECH MACHINERY LTD.	13,524.00	070	13,524.00	nil
069	"	YANKEN INDUSTRIES LTD.	10,140.00	nil	nil	10,140.00
070	"	"	10,704.00	nil	nil	10,704.00
071	13-10-93	MR R ONDIGO - KIRDI	240.00	nil	nil	240.00
072	"	MR S SIKKEMA - KIRDI	350.00	070	350.00	nil
073	"	MR J O NYAGILO - KIRDI	10,645.25	nil	nil	10,645.25
			1,506,940.50		1,068,805.00	438,135.45

KIRDI-EDSC - INCOME & EXPENDITURE FOR THE PERIOD FROM 1-9-93 TO 15-10-93

INCOME	PARTICULARS	REC. NO.	AMOUNT	SUB-TOTAL	TOTAL KSH
Sundry Revenue 3-6-11(2)	Col Njoroge	063	3,396.00		
	Afrotech Mach.	065	8,886.00		
	" "	070	13,524.00		
	Wire products Ltd	066	5,953.40		
	Timber shack	067	5,688.00		
	Emco Steel Works	068	1,980.00		
	Mr. S. Sikkema	069	350.00		
				39,777.40	
Interest on Bank 3-6-11(3)	NBK-Har/Ave	-		832.95	40,610.35
EXPENDITURE		**VR. NO**			
Purchase of clients materials 3-6-11(6)	Cast iron rods	023		925.00	
Purchase of stationery 3-611(11)	Envelopes and papers	"		7,000.00	
Maint. of office Equipment 3-6-11(14)	Cost of toners	026		11,004.00	
Maint. of lab. Equipment 3-6-11(15)	Hand taps	023		875.00	
Maint. of bldgs 3-6-11(16)	Padlock	"		1,900.00	
Telephone Exps. 3-6-11(17)	Telex charges	029		3,089.20	24,793.20
			Balance		15,817.15

Factors to Consider during Visits to Foreign Engineering Centers

1. Was Center established within an "Associated Model" concept, e.g. does it have a multi-ownership, multi-financed or multi-managed structure?

2. If so, was the format established at the center's inception or was it gradually implemented?

3. Which institution took the lead role in the center's implementation? How was it done? (Steps 1,2,3, ... etc.)

4. What is the center's present market - for whom does it provide its products and/or services? The private sector? Other parastatals? Others?

5. Does the center perceive itself as a provider of engineering products and services within a 'developmental' program, a 'research' program, or a commercial 'jobbing' basis catering to the individual orders of industrial firms? Or a mix of the above?

6. Did the center achieve its present production characteristics (5, above) initially, or did it evolve into them through necessity? Please explain.

7. Is the center at present on a self-sustaining basis? If not, what is the source of its financing?

8. Major types of machines in center?

9. Major types of products and services produced?

10. What is the center's mandate?

Backstopping officer's comments

1. Under very difficult circumstances, the expert has clearly articulated and highlighted the key management issues with regard to the potential self-sustainability of EDSC under the "Associative Model" concept involving three elements: (a) financial ties with potential donors, (b) managerial ties with other institutions, and (c) possible membership ties with EDSC clients.

2. It is clear from the report that certain preconditions are necessary for a successful phase 2 of the project. All key parties concerned, i.e. MTT and T, private industry, and the industrial associations, agree that there is a critical need for an engineering and manufacturing service centre such as EDSC in Kenya. All, including Mr. Canellas, agree that it cannot continue under the present configuration.

Some of the critical elements that have to be addressed are:

- EDSC autonomy from KIRDI;
- A commercially oriented management direction for EDSC;
- Major upgrading of engineering and manufacturing know-how of its personnel;
- Establish business ties with industrial associations such as KEDS, KSPX and KAM. These could take two forms: (a) participation of these associations on the supervisory board of EDSC, and (b) establishing these associations as clients through upgrading the quality and reliability of EDSC services.

3. We believe that a phase 2 must address the above critical issues because it must lay the foundation upon which some degree of self-sustainability is established at EDSC.