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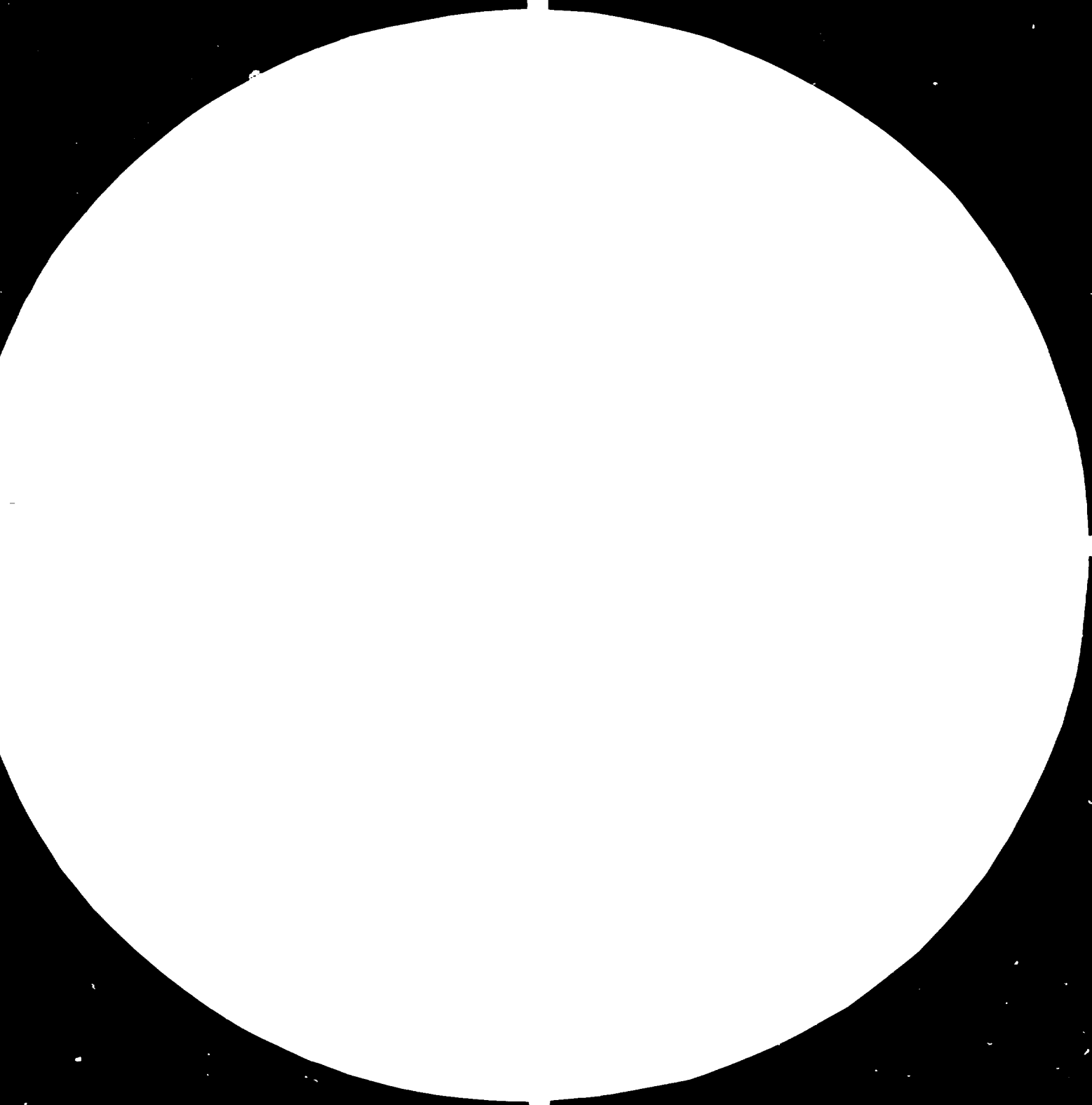

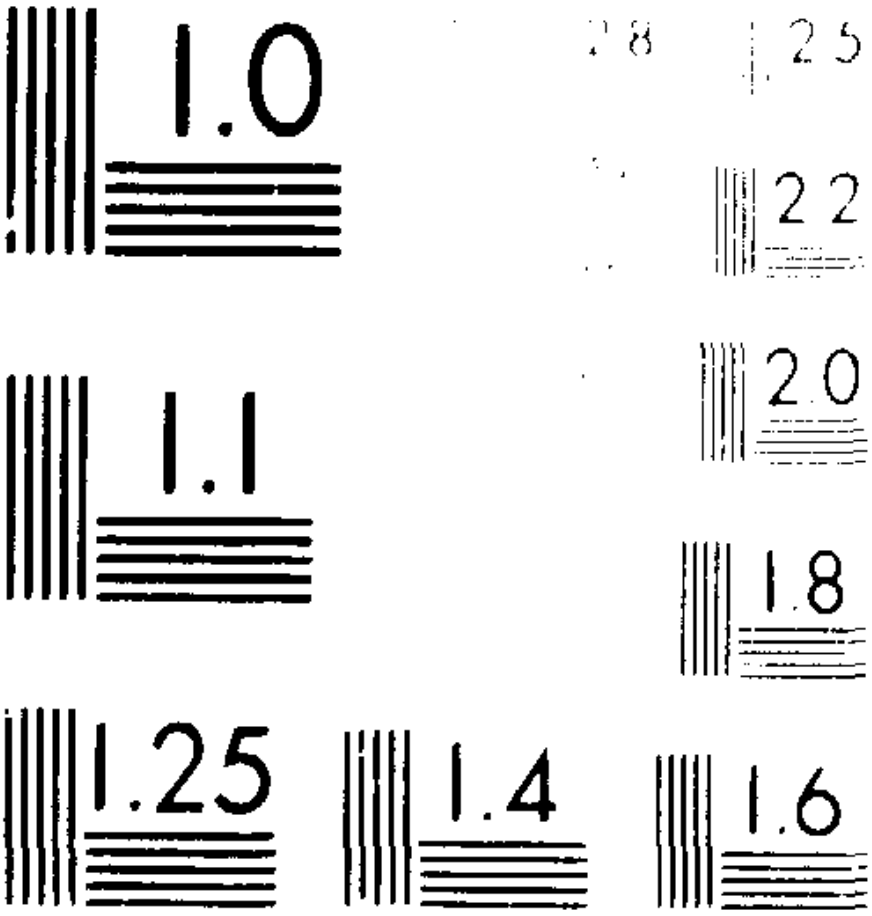
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UNITED NATIONS INDUSTRIAL
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Ethiopia: FINAL REPORT OF UNDP/UNIDO PROGRAMMING MISSION *

TO THE PROVISIONAL MILITARY GOVERNMENT OF SOCIALIST ETHIOPIA *

19 October - [illegible] November 1981

With special reference to the
industrial and allied sectors within the framework of
the UNDP third country programme cycle 1983 - 1986

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I N D E X

PART I

PART I

S U M M A R Y

Findings, Conclusions and Recommendations

(I) The industry sector Country Programme for Ethiopia for the Third Programme Cycle (1983-1986) was elaborated with the assistance of a UNDP/UNIDO Programming Mission which visited the country from 19 October - 6 November 1981. The Mission reviewed the current status of the industry sector and made recommendations regarding on-going projects as well as new projects for financing in the next cycle from the regular IPF or from other sources within or outside the UN System.

Constraints

(II) Among the major constraints experienced by the Ethiopian economy, and particularly by the industrial sector, are the following:

a) a high proportion of illiteracy among the population which limits the capacity for absorbing industrial skills;
b) a lack of technical or technological know-how;
c) a weak physical and institutional infrastructure;
d) poor management;
e) obsolescence of machinery and equipment;
f) inadequate repair and maintenance programmes due mainly to a lack of spare parts;
g) lack of foreign exchange for importing modern equipment, spares and raw material or intermediate goods.

Future Role of the Industry Sector

(III) Next in importance only to the agricultural sector, the industrial sector, according to the Ten-Year Investment Plan 1980/81-1989/90, is to become the "leading sector" or "motive force" for bringing about a structural transformation of the economy and ensuring rapid economic growth. The share of industry in the GDP is to increase from 16% in 1979/80 to 29% by 1989/90.

Programming by Objectives

(IV) The Government's industrial development strategy for the decade of the 1980's has been devised with a set of broad objectives in mind. The Mission reviewed these and consolidated them into 8 Programme Themes representing goals for the industrial sector, namely:

(A) Supply of industrial inputs for agricultural development;
(B) Processing of the output of the agricultural and allied sectors;
(C) Small-scale industries development, rural development and large-scale industries;
(D) Laying the foundation for the development of medium and large-scale industries;
(E) Laying down a strong material and technical foundation for meeting the challenges of the 1990's;
(F) Maximum possible utilization of domestic resources;
(G) Ensuring a balanced, integrated and coordinated pattern of industrial development;
(H) Developing the human resources of the country.

Project Proposals

(V) At the request of the Government, the Mission, in close consultation with several Ministries and other Agencies, translated the above objectives into concrete project proposals. Included among the proposals are those specifically designed to ease at least some of the constraints enumerated under point II above,. Others are aimed towards the objectives of small-scale industry and human resources development, technology transfer, infrastructural improvement, and enhancement of the country's foreign exchange earnings through more intensive and more efficient domestic processing of raw materials. Specific emphasis is also placed on establishing a basis for future engineering and metalworking industries (e.g. a pilot foundry workshop with forge unit; a pilot unit for production of dies and tools, jigs and fixtures etc.)

(VI) The Mission noted that the Government wished to receive a significantly large number of proposals not only for the purpose of the Country Programme, but also in view of the following considerations:

a) the prospects of implementation, at the national level, of the Substantial New Programme of Action for the 1980s for the Least Developed Countries adopted by the United Nations Conference on the Least Developed Countries held in Paris, 1-14 September 1981;

b) United Nations General Assembly resolution A/RES/35/66(B) proclaiming the 1980s as the Industrial Development Decade for Africa, and

c) OAU resolution CM/Res. III (XXXVII) which, inter alia, requests "all OAU Member States to take, with the assistance of the UNIDO and the UNDP, the necessary measures to draw up and implement specific programmes in the context of the Decade at national, regional and sub-regional levels."

(VII) Accordingly, project proposals were formulated under each of the broad objectives / Programme Themes mentioned in point IV above. These are summarized below.

Programme Theme:	A	B	C	D	E	F	G	H	Total
No. of Projects:	4	6	8	7	3	10	7	6	51
Value ($ million):	8.1	5.5	9.9	15.7	3.5	11.7	11.5	4.0	69.9

(VIII) Recommended levels of financing: ($ million)

IPF	:	30.00
UNCDF	:	10.15
UNIDO	:	.9
Others		28.85
Total		69.9

(IX) The recommended level of IPF financing takes into account the following factors:

a) the level of the country IPF for Ethiopia - $112 million (the largest for any country in Africa);

b) the fact that only some 75% to 80% of the $112 million (or $84 million to $90 million) is available for programming for all the relevant sectors;

c) the indication by the office of the Resident Representative of UNDP in Ethiopia that UNDP assistance to Ethiopia during the third cycle would be devoted, almost exclusively, to four sectors: agriculture, industry, human resources development and policy in foreign trade;

d) the fact that in the course of this decade the Government intends to develop industry into the leading sector of the economy.

(X) Project proposals for which co-financing from the United Nations Capital Development Fund (UNCDF) is recommended are contained in Part II Section II. These were discussed without commitment on 4 November 1981 between Mr. Ramsey, Regional Representative of UNCDF in Addis Ababa, and the leader and some of the other members of the mission. The Government, if and when it wishes to pursue any of these proposals, should address its request to the UNCDF through the local office of the Resident Representative of UNDP. No commitment in respect of UNCDF or of any other Agency or Organization is implied by any recommendation in this Report.

IPF versus non-IPF Projects

(XI) The Mission did not deem it desirable to assign a financing source, as between IPF and non-IPF, to each and every project proposal. This matter is left to the determination of the Government in consultation with UNDP. The Mission recommends however, that:

a) on-going projects already under IPF financing and for which continued assistance during the third cycle is recommended (see para. XII) below) should remain under IPF financing.

b) since IPF resources are relatively more assured, they should be utilized for financing projects to which the Government attaches highest priority, unless there are strong reasons for doing otherwise.

Priorities

(XII) The Government of Ethiopia wishes to retain maximum flexibility in assigning priorities to the projects identified in this Report.

The Mission has accordingly refrained from indicating an order of priorities. It is understood that the Government would be prepared to consult UNDP/UNIDO in this respect as and when necessary.

On-Going Projects

(XIII) The Mission recommends continued UNDP assistance, during the Third Cycle, to the following four projects:

		Proposal No.
DP/ETH/77/018	: HASIDA	III. 8
DP/ETH/78/001	: Leather and Leather Products Development	II. 5
DP/ETH/80/013	: Industrial Project Development (Phase II)	VII. 4
DP/ETH/80/005	: Assistance to Development Projects Agency (Phase II)	VII. 1

(XIV) The following two projects should be phased out in favour of the new related ones proposed:

DP/ETH/77/013	: Research and Development in Water Pumping Technology for Rural Areas	I. 2
DP/ETH/79/003	: National Quality Control and Testing Center	VII. 3

SECTION I

INTRODUCTION

A. THE UNDP-UNIDO PROGRAMMING MISSION

1. The Provisional Military Government of Socialist Ethiopia, through the Office of the UNDP Resident Representative in Addis Ababa, formally requested UNDP/UNIDO to field a sectoral Programming Mission for the purpose of advising the Government, and making recommendations to it, on the most effective ways of attaining the country's industrial sector objectives as set forth in its Ten-Year Investment Programme 1980/81 - 1989/90, with particular reference to the period of the Third UNDP Country Programme Cycle for Ethiopia (1983 - 1986). Accordingly, the UNDP-UNIDO Mission visited Addis Ababa from 19 October to 6 November, 1981.

B. TERMS OF REFERENCE

2. The Terms of Reference of the Mission may be briefly summarized as follows:

Within the framework of the Government's policies, programmes and plans, the Mission was to:

- identify priority areas for additional technical assistance;
- formulate a programme suitable for UNDP financing during the next Country Programme;
- identify other technical assistance projects suitable for funding outside the regular IPF allocation, within or outside the UN system.

C. MEMBERS OF THE MISSION

3. The Mission consisted of the following members from UNIDO Headquarters:

- Mr. Martyn Eggough, Chief, Least Developed Countries Section (Team Leader)
- Mr. M. Czub, Senior Industrial Development Officer, Metallurgical Industries Section
- Mr. R.W. Lorenzen, Industrial Development Officer, Training Branch
- Ms. M.A. Martin, Programme Officer, Least Developed Countries Section

- Mr. J. Paschke, Senior Industrial Development Officer, Factory Establishment and Management Section
- Mr. M. Polievktov, Industrial Development Officer, Pharmaceutical Unit
- Mr. A.A. Swamy-Rao, Senior Interregional Adviser on Engineering Industries
- Mr. V. Ukrainets, Industrial Development Officer, Feasibility Studies Section
- Ms. S.H. Yalcindag, Industrial Development Officer, Chemical Industries Branch
- Mr. C. Zimmermann, Senior Industrial Development Officer Institutional Infrastructure Branch

4. The above team was assisted by selected field experts of UNDP/UNIDO and of UNDP/other UN agencies. Some staff members of the Office of the Resident Representative, UNDP Addis Ababa, participated in important discussions between the Mission and Government officials. The Mission was assisted throughout by UNDP/UNIDO Junior Professional Officer, Mr. D. Martz. Mr. Song Lenh Leang from UNDP Headquarters also participated in the work of the Mission covering HASIDA.

D. WORK SCHEDULE AND VISITS

5. The team held discussions with the senior officials of the following Ministries and Commissions:

- The Central Planning Supreme Council
- Ministry of Industry including HASIDA and NPC
- Ministry of Agriculture
- Ministry of State Farms Development
- Ministry of Transport and Communications
- Ministry of Mines and Energy
- Ministry of Health
- Science & Technology Commission
- Ethiopian Centre for Technology

6. The team also held discussions with:

   - UNDP-FAO Country Programming Mission members
   - UNDO-FAO Investment Centre Mission members
   - Regional Coordinator, UNCDF

7. Individual mission members visited and held discussions with the officials of a number of corporations, authorities, committees on specific subjects. A list of persons met during the mission appears in Section V of Part I of this Report.

8. The overall analysis by the Mission, elaboration of the programme themes and formulation of projects are based on the mission members' detailed analysis of a number of policy level technical documentation prepared by the Government of Ethiopia and by UNIDO, the visits and discussions held with various ministries and organizations as highlighted above, briefing by the Office of the Resident Representative, UNDP, and the personal discussions with H.E. the Minister of Industry.

E. ACKNOWLEDGEMENTS

9. The UNDP-UNIDO Programme Mission, on behalf of UNIDO, wishes to thank the Provisional Military Government of Socialist Ethiopia for their kind invitation, and for all the assistance and courtesies extended to the Mission. The Mission is grateful to the officials of the Ministry of Industry, who extended excellent counterpart facilities. Thanks are also due to the officials of various other ministries, commissions, authorities and committees, who provided very valuable information to the Mission.

10. The Mission is grateful to the Resident Representative, UNDP, and all the senior officials of UNDP for their excellent cooperation and assistance rendered to the Mission.

SECTION II

REVIEW OF ON-GOING PROJECTS

A. DP/ETH/77/018 - HASIDA

11. The Government has given highest priority to the development of the handicraft and small-scale industries sectors, which have been neglected in the past. The policy is well justified by the importance of the contribution made by these sectors in the national GDP and of the supply of basic-need products to the population at large. In addition, these sectors also provide altogether about 400,000 jobs.

12. The firm commitment of the Government is reflected by establishing HASIDA as an operational and advisory body to cater to needs of these sectors.

13. HASIDA has received technical assistance from its beginning. The project started in 1978 and was initially a "software" project and the assistance was given towards the institution-building activities. Subsequently, emphasis was slightly shifted to providing hardware as well, and also to providing for cooperative promotion and engineering to do product development and on-the-job training in engineering design.

14. Today HASIDA has a strong and well-structured organization to:

- provide advice in policy issues to the Government;
- promote the formation of handicraft cooperatives;
- regulate the development of those sectors including registration and licensing of enterprises and cooperatives;
- provide industrial extension and support services to the craftsmen, handicraft cooperatives and small-scale industries entrepreneurs;
- provide training facilities and opportunities to the same;
- develop improved production tool and equipment for distribution to those concerned with special emphasis to the handicraft cooperatives in rural and remote areas.

15. HASIDA has well defined policies and management capability to carry out its mandate from the Government. At present, HASIDA has concentrated its efforts and resources more towards the handicraft sector, while their action towards small-scale industries remains to be further emphasized. This is one of the objectives for the year to come.

16. For various reasons, the UNDP/UNIDO technical assistance project to HASIDA (DP/ETH/77/018) did not achieve all the objectives set out in the original project document. However, it has been instrumental in building up and consolidating this organization as an institution, as well as in providing a significant number of its key staff members with skills. Furthermore, there was great satisfaction with the performance and impact of the following inputs:

- expertise in export marketing;
- in cooperative promotion and in engineering;
- group training and fellowships;
- engineering workshop and other logistic equipment.

17. Based on those positive results, a further assistance programme to HASIDA is called for mainly in up-grading the technical capability of the staff through on-the-job training, group training and fellowships. In addition, funds will also be provided for complementing the machinery and equipment of the engineering workshop. Please see Project Proposal No. III. 8.

B. DP/ETH/78/001: Leather and Leather Products Development in Ethiopia

18. The Project Document was signed in 1979. The project was designed to provide country-wide, integrated assistance to the country's leather and leather products sector.

19. The project executing agency is UNIDO; one FAO expert in hides and skins is however, associated with the UNIDO team.

20. The development objective has been determined as the increase of the value-added of the raw material resources by processing an increased share of locally available hides and skins into semi-finished and finished products at a quality to meet the requirements of the local as well as of the export markets.

21. The project counterpart organization is the National Leather and Shoe Corporation (NLSC). The eight modern tanneries and the six footwear manufacturing enterprises under NLSC were the principal beneficiaries of the technical assistance so far. The enterprises improved their product quality and increased their capacity utilization.

22. The project was able to contribute to the more recent successes of NLSC in increasing the number of semi-processed hides and skins exports within the last three years with export earnings from about 19 million Birr in 1979/80 to an estimated 60 million Birr in 1981/82. Moreover, training and assistance in marketing contributed to the NLSC success in exporting 100,000 pairs of shoes and another 100,000 pairs of shoe uppers for the first time in NLSC's history.

C. Industrial Project Development

Phase I : DP/ETH/75/008
Phase II : DP/ETH/80/013

23. The first project phase started in 1976 with the then existing Ministry of Industry, Commerce and Tourism which was charged with the organization of the various industrial sub-sectors and with the development of new enterprises within these sub-sectors. At that time, the operating enterprises were administered by the Ministry of National Resources. The foreign expert team headed by an industrial economist was covering the following sub-sectors: (1) food, (2) textiles, (3) leather (4) building materials.

24. Only after the establishment of the new Ministry of Industry, did the UNIDO sub-sector engineering experts gradually gain access to the

operating industrial enterprises, and thus establish contact with the Ethiopian counterpart-engineers who, for administrative reasons, could not be employed by the Ministry of Industry.

25. After the departure of the team-leader and industrial economist, the Ethiopian Government decided to introduce the functions of a national Project Director, who was identical with the (Acting) Head of the Project Planning and Programming Department.

26. Project revision was signed which indicated that the National Project Director should:
- coordinate and administer all project activities,
- form an integral part of the expert team,
- draw up terms of reference for the individual experts in collaboration with them,
- consult UNDP and UNIDO on policy changes in the terms of reference, in job-descriptions and other major changes related to the project,
- submit to UNDP and UNIDO two semi-annual project progress reports (UNDP - format);
- submit to UNDP and UNIDO a final report at the end of each project phase.

27. In the course of time, the project input gradually shifted from sub-sector level assistance to more concrete, specific assistance at the level of the production corporations and their individual plants. In this way, the steadily increasing short-term expert input of this project achieved better institution building, since technical experts were now in a position to collaborate with their Ethiopian counterparts.

28. This change in the kind of assistance was also reflected in the project document prepared for the second phase of this project which started in April 1980. This project phase included, apart from two industrial sub-sector surveys (metal and chemicals), numerous inputs: the assistance in the analysis of new industrial projects,

the assistance for improved operational performance of existing enterprises and so far still outstanding - the assistance in the establishment of new industrial capacity.

29. In April 1981, a further extension of this project was decided upon on the occasion of a Tripartite Review meeting which indicated that the Ethiopian Government considered the assistance rendered so far a valuable contribution to the growth of the country's industrial sector.

D. ETH/77/013 - Research and Development in Water Pumping Technology for Rural Areas

30. Activities under this project started in September 1977. Basic development work on shallow well hand pumps is considered completed. Their bulk manufacture has now been transferred from the Faculty of Technology to the Workshop of the Ethiopian Water Work- Construction Authority. All project wind turbines (wind mill) are now installed in the field.

31. It is felt that the development of the large (9 m.dia.) turbine (wind mill) with mono pump has been operating satisfactorily and this item is recommended for local manufacture after completio of a wind data survey.

32. It was also noted during the last tripartite review, that the technical staff has by now acquired adequate skills for design and manufacture supervision and have also developed a research capability which should enable them not only to carry on work on existing prototypes but also to initiate research work on new prototypes.

33. Under these circumstances it is anticipated that the project's objectives as defined in the project agreement will have been met as scheduled by July next year.

34. However, the stability of the national team and the definition of the institutional setting for project follow-up are to be considered by the Government if the project's accomplishments are to be preserved and further developed.

35. The counterpart institutional set-up remains unconsolidated and this may affect the successful continuation of project activities and followup by the national team. Also the project management is still too much centered on the present international Chief Technical Adviser.

36. The Tripartite review has made the following recommendation: "Whereas research and development capacity in this field should be maintained and further strengthened in closer association with the Faculty of Technology, preparations for the large-scale manufacture of hand pumps and a wind data survey for wind mills should be resumed as soon as possible in order to ensure the effective utilization of project results."

37. The UNDP-UNIDO Mission, after an indepth study of the project has recommended establishment of a pilot manufacturing programme of wind mill - pumping system with integrated R & D activities. The Mission recommends this as the priority activity to transform already completed R and D into pilot production. This is based on the following reasons:

38. The major emphasis now has been to develop windmill pumping system primarily for community water supply (2,000 persons, 50-100 m deep wells, 20m^3/day capacity, Mono screw pump system with 8-10 m.dia. windmill at 2.5-8 m/sec. windspeed) and also provide water for cattle. A 9 m.dia. windmill and pumping system, which may have a production cost of around 7,000 Birr for the windmill (against 25,000 Birr for imported 7.5 m.dia. windmill) and 4,000 Birr for the pump has been in operation for the past six months.

39. For State Farms (4,000-6,000 ha. each) and peasant agricultural cooperatives (800 ha. each) 8-10 m. dia. windmills will be suitable. However, a centrifugal pump for low lift, up to 10 m. under a discharge of 200 m^3/day, has to be developed.

40. Therefore, a recommended project to establish Pilot demonstration plant with integrated applied R & D is detailed in project proposal No. II. 2.

E. ETH/79/003: National Quality Control and Testing Centre

41. A tripartite review of this project was held on Tuesday, 6 October 1981, and arrived at the following conclusions and recommendations:

(i) It was concluded, that the past slow rate of implementation is attributable mainly to three factors:

a) Delay in the construction work of the laboratory buildings;
b) Weak design of the project document e.g. inclusion of a prerequisite (construction of the laboratory buildings) into the list of project activities;
c) Insufficient exchange of information between the executing agency and the project.

(ii) The executing agency ensures the timely arrival of the laboratory equipment to the project by March 1982. Whereas, efforts should be made to place the equipment orders as soon as possible, arrangements should be made with equipment suppliers to effect payment on 1 January 1982.

(iii) UNIDO provides the Government in advance sufficient information concerning the weight, largeness and technical details of the laboratory equipment to allow preparation for the specific foundation and installation of the equipment.

(iv) UNIDO ensures the timely recruitment of the consultant team at the completion of the laboratory buildings and the arrival of the equipment.

(v) UNIDO makes arrangements for a study tour of the national project director to adequate standardization institutions in Europe including a visit to the sub-contractor in Czechoslovakia as soon as possible. The tour is to be financed out of savings of the present years project budget to be reflected in the forthcoming rephasing.

(vi) The UNIDO representative acknowledges the low level of exchange of information between UNIDO and the project and undertakes efforts to remedy these shortcomings.

(vii) The Government undertakes increased efforts to ensure completion of the laboratory buildings including the foundations by March 1982.

(viii) A work programme is to be worked out between the Chief Technical Adviser and the national project director in concurrence with the UNIDO and the UNDP Representative.

(ix) The tripartite review meeting agreed to extend the contract of the present Chief Technical Adviser by a further year.

(x) The tripartite review meeting unanimously acknowledged the urgency to approve the metrology project as a necessary complement to the present quality control project and, therefore strongly recommends that this project be considered for approval during the forthcoming country programming exercises."

Please see Project Proposal No. VII.3.

F. DP/ETH/80/005: Assistance to the Development Projects Study Agency

42. The Development Projects Study Agency (DPSA) is part of the Government machinery, under the aegis of the Central Planning Supreme Council (CPSC) for carrying out project preparation, appraisal and evaluation.

43. The Ten-Year Development Plan enumerates no fewer than 138 projects, with a combined investment cost of about US $13 billion. Some of these projects are in the pre-feasibility phase, some are already approved but under reappraisal, and some are under implementation during which the necessity of working out new alternatives has emerged. At present the DPSA cannot even hope to master the ever changing circumstances of such an enormous scale of investment-programmes, therefore, it needs not only an adequate number of suitably trained personnel, but the necessary up-to-date technical facilities as well, which will enable it to cope with the situation.

44. The main frame computer with its peripherals, accessories and special UNIDO software that this UNDP project expects to receive promises tremendous advantages to DPSA, - but only if its proper utilization is assured in the form of an assistance for at least two years of intensive internal training of the counterparts in programming techniques, and four years in the general econometric application of the computer in various fields (e.g. project feasibility, financial and statistical analysis, trend and probability calculations, economic and financial modelling as well as optimization problems, project implementation monitoring, network techniques, and so forth).

45. In order to achieve the above mentioned objectives and targets, the Government of Socialist Ethiopia requests the UNDP to include in the next country-programme (1983-1986) an extension of the assistance which is provided presently to DPSA under the project DP/ETH/80/005, with the necessary changes appropriate to the already achieved outputs of the project and to the envisaged increased tasks and requirements.

Please see project proposal No. VII. 1.

SECTION III

A RATIONALE FOR PROGRAMMING THEME DEVELOPMENT

A. THE BASE: ECONOMIC DEVELOPMENT POLICIES

46. The Declaration of Socialism of December 20, 1974, the Declaration of Economic Policy of Socialist Ethiopia of February 1975, the Programme of National Democratic Revolution of April 1976 incorporate the following basic important elements of policy development:

- land reform and nationalization of enterprises in the key sectors of economy;
- establishment of "grass roots" institutions;
- development of effective centralized planning and resources allocation systems;
- harmonious development of private sector and judicious foreign investment promotion.

47. The initial Government macro-economic planning was characterized by yearly campaigns to revive the economic activity after the revolution. The First Year Development Campaign Programme (1978/79) focussed mainly on the development of agriculture, industry and trade. The Second Year Development Campaign Programme (1979/80) had similar objectives with wider sectoral coverage. As a result, the G.D.P. in 1979/80 grew by 5.6%, the agricultural sector by 4.8% and industry by 10.5%. A Third Year Development Plan is currently under implementation.

B. THE TOTAL NATIONAL POTENTIAL FOR DEVELOPMENT

48. The potential for development of Ethiopia could be summarized as follows:

- Agricultural development: land reclamation (from 650 thousand sq. kms. of permanent pastures) and agricultural production extension/intensification (on 140 thousand sq. kms. of cropped or fallow lands).

- Livestock development: improvement of livestock resources (70 million cattle, sheep and goats and 8 million other livestock) and livestock industry promotion (meat, meat products, dairy, dairy products, hides/skins and leather products).

- Marine Industry development: fishing and processing (from 90,000 sq. kms. of potential fishing grounds of Red Sea with an annual potential output of 60,000 tons and Rift Valley Lakes and streams with potential of 27-36 thousand tons of catch).

- Mining Sector and Processing Industry development: (Further development of gold, platinum, salt and minerals mining presently at a limited scale, exploitation of copper, oil and natural gas, potash, iron etc.)

- Highway and Transport Industry development: (transport on present 13,000 km. of all weather roads).

- Hydro-Electric and Electrical Industry development: (to develop the total potential of 56 Billion KW; present figures are only 1.2 Billion KW).

- Processing Industry development: (for domestic consumption and exports: agricultural, livestock, mineral and other natural resources).

- Manufacturing Sector development: (expansion of existing engineering, agro, chemical and construction material industries and establishment of new industries in above sectors including metallurgical sector).

C. TRANSFORMATION OF POTENTIAL TO PRACTICAL TARGETS: TEN-YEAR DEVELOPMENT PLAN

49. The Government of Ethiopia has oriented its first long-term development policy towards a structural transformation through the expansion of the production capacity of its economy.

50. The Ten-Year Development Plan (1980/81 - 1989/90)* is an instrument designed to achieve long-term economic objectives. The primary objectives of the Ten-Year Plan are as follows:

- improving the material and cultural well-being of the people;
- increasing the share of industrial output;
- laying down a strong material and technical foundation;
- conservation and development of natural resources;
- creation of employment;
- bringing about an equitable distribution of the benefits of development;
- expanding the country's foreign exchange earning capacity.

51. The principal targets of the Ten-Year Plan include the following:

- doubling gross domestic product in real terms by 1990;
- providing employment to 5 million people;
- increasing agricultural production by over 60%;
- increasing industrial production four-fold;
- augmenting the country's export earnings in real terms by 2.6%;
- providing health services to 30 million people;
- providing polytechnic education to 9 million children;
- constructing a total of 450,000 houses.

D. ROLE OF INDUSTRY IN STRATEGY FOR REALIZATION OF OBJECTIVES/ TARGETS

52. The Ten-Year Plan has a number of strategies for realization of its objectives and targets. In the majority of cases, it is only through the industrial sector (directly or indirectly) services, and construction that the objectives and targets could be realised.

* The Ten-Year Development Plan has not yet formally been adopted and may be somewhat modified before final approval for the period 1983 - 1993.

53. The direct aspects of the strategies are:

- establishing more industries and expanding the existing industrial production capacity;
- upgrading industrial cooperatives, (provision of machinery, equipment, credits for building, and also provision of technical and managerial assistance) mobilization of people's organizations on a large-scale for work such as small-scale industry development;
- establishing agro-industrial enterprises.

54. The interlinked aspects of the industrial sector with selected strategies are as follows:

- the promotion of cooperativization of peasant agriculture, mobilization of people's organizations for agricultural production, increase of irrigation, etc. calls for appropriate measures to provide industrial inputs for agriculture and industrial processing of agricultural outputs;
- livestock development will call for industrial and veterinary inputs as well as the industrial processing of livestock;
- diversification of exports through investment in export commodities will call for industrial processing of natural and other resources and the application of quality standards;
- expanding and improving transport and communications (roads, vehicles, communication equipment and provision of technical services) calls for technological promotion and self-reliance in related industrial sectors.

55. From an infrastructural point of view, industry has a direct role in certain aspects of the following strategies:

- improving managerial and organizational capacity and training, improving industrial productivity, diversification of exports, etc. This will call for inputs in the form of planning, management, institutional and infrastructural assistance.

E. NATIONAL PRIORITIES, STRUCTURAL TRANSFORMATION AND ROLE OF INDUSTRY

56. The broad development priorities, as laid down by the National Democratic Revolutionary Programme, are the development of agriculture and industry. In this context industry is to play a key role as the leading sector with a significant emphasis on transforming agriculture as the foundation of the country's economy.

57. In order to achieve the target average growth rate of 7.5 percent in G.D.P. under Ten-Year Plan, the annual growth rate in agriculture should reach 4.5% and that in industry (including manufacturing, mining, construction, electricity and water supply) should reach 15.4% and in services 9.5%.

58. The targets established for sectoral performance will result in a considerable structural transformation of the economy. While the share of agriculture in th G.D.P. will decline from around 51% in 1979/80 to less than 35% by the end of plan period, that of the industrial sector will increase from 16% to 29%, the share of services growing only slightly.

59. In accordance with the Government's priority and elaboration, industry, as the motive power for achieving rapid economic development, will increasingly play a greater and leading role in the national economy. The modernization of production equipment, facilities, and technologies, greater emphasis on industrialization beyond the present simple processing of agricultural produce and production of a small range of consumer goods, introduction and development of science and technology for practical application in industry, and training of manpower are but a few prerequisites and/or parallel actions necessary for industrial development.

60. In addition, there is a need to analyse, promote and implement projects with emphasis on industrial interlinkages, industrial infrastructures, projects in power, mining, natural resources and other areas.

61. It is, therefore imperative, as stated in the Ten-Year Investment Programme that much greater investments must be made in the industrial sector in order gradually to increase industry's contribution to the development of the national economy and to ensure its structural transformation.

F. THE INDUSTRIAL SECTOR AND PRIORITIES

62. As detailed by the Ministry of Industry, the overall objectives of the industrial sector - as derived from the objectives of the National Development Plan - may be summarized as follows:
- to satisfy the basic consumption needs of the population;
- to promote and strengthen the small and handicraft industries;
- to establish strong linkage with the agricultural sector;
- to lay the foundation for the medium, large-scale and heavy industries;
- to promote a regional diversification of industrial development;
- to create employment opportunities.

63. The four priority sectors of the Government are agriculture, industry, human resources development and foreign trade. With due consideration to the pivotal role of the industrial sector in the development of the national economy, it is very obvious that the industrial sector should support agriculture, should be one of the major focal points for human resources development and contribute towards a healthy balance of payments position.

G. CRITERIA FOR PROGRAMME THEME DEVELOPMENT

64. Thus, with due consideration to the interlinkages between the national development objectives and the contribution of industry as the leading sector and motive power, and with significant emphasis on the pivotal role of the industrial sector with various allied sectors such as agriculture, natural resources, mining, power, electricity, communication, health etc., the Mission's criteria (not necessarily exhaustive) for programme theme development are summarized below:

- to be within the framework of Government's objectives, priority, targets and strategy;
- to be capable of making a maximum contribution to the national economy;
- to be a nucleus for generating a multiplier effect;
- to focus on higher utilization of existing resources and facilities;
- to be a practical venue for manpower development - training;
- to be capable not only of contributing to present industrial development plans, but also of laying a solid technological, scientific and engineering foundation to meet the challenges of the late 1980's and the 1990's;
- to have interlinkages with other programmes and projects;
- to have an integrated relationship with other related national programmes under the UN system, bilateral programmes and domestic programmes of action;
- to be capable of fostering local capabilities and self-reliance.

From the above criteria, the Mission derived eight Programme Themes which are outlined in the following Chapter.

H. PROGRAMME THEMES

65. With agriculture and industry as the two major sectors, with industry playing the leading role as the motive force, and taking into account the other elements such as human resources development, industrial export promotion and foreign trade in general, the eight programme themes in the industry sector as developed by the Mission are as follows:

I. Industrial Inputs for Agricultural Development
II. Industrial Processing of Agricultural and Allied Output
III. Promotion of Small-Scale Industry, Rural Development and Renewable Sources of Energy
IV. Laying the Foundation for Medium and Large-Scale Industrial Development
V. Laying Down a Strong Material and Technical Foundation for Meeting the Challenges of the 1990's.

VI. Higher Utilization of Existing Resources; Integrated Industrial Development

VII. Overall Interlinked Industrial Development

VIII. Development of Human Resources: Training

SECTION IV

EIGHT PROGRAMME THEMES: SCOPE, INTERLINKAGES AND DIRECTION

A. WHY PROGRAMME THEMES?

66. The Ethiopian Government's priorities, targets and strategies are geared to the effective realization of well-defined national objectives. The industrial sector, as the leading sector and motive power for achieving rapid economic development with particular reference to the structural transformation of the national economy, is considered by the Government as the key sector for development. Therefore, any specific activities and actions conceived, initiated and implemented for realization of the national objectives cannot be in isolation of this central theme.

67. Therefore, the Mission identified "programme themes" in the industrial sector (with direct and also contributory scope) which may be regarded as a broad direction towards realization of the Government's objectives, and consists of a series of interlinked and harmonious activities, within the parameters of the National Development Plan in general and Industrial Development aspects in particular.

B. PROGRAMME THEME INTERLINKAGES

68. These programme themes, have been developed with emphasis on intersectorial linkages as highlighted below:

- between the agricultural and industrial sectors;
- between small-scale industry and rural development;
- between rural development and renewable sources of energy;
- between small/medium industries and overall development of technical capabilities;
- between higher utilization of existing resources/facilities and establishment of basic production/service facilities;
- between potential for industrial development and technological trends;

- between industrial development and contribution to foreign trade (balance of payments);
- between industrial development and human resources development.

69. The industrial aspects of agriculture and the full spectrum of industrial services are considered on a priority basis for development. In this context the "human resources development" and "foreign trade" sectors are incorporated in agriculture and industry programme themes, wherever appropriate, in terms of training and import substitution/export promotion objectives.

C. PROGRAMME THEMES AND PROJECTS

70. With "programme themes" as a broad platform for "approaching" the objectives, a number of "projects" have been identified within each programme theme for "attaining" the objectives. Thus the "projects" so identified and elaborated are not to be considered on an isolated basis, but as a vehicle to transform the "objectives" into a "action programme", with emphasis on modalities of realization of the basic objectives.

71. The eight programme themes and the "objective-oriented" project concepts are detailed below.

I. Industrial Inputs for Agricultural Development

72. Agricultural development cannot take place if appropriate industrial inputs are not provided at the required level to the peasant farming, agricultural production cooperatives and state farming sectors. In this context, the importance of basic industrial inputs such as water, fertilizer, pesticide, agricultural tools, implements, simple machines and power equipment is accepted. The modalities of provision of such inputs is either through imports or through local manufacture at an appropriate level of production. Parallel to the Government's priority of developing the peasant agricultural and agricultural cooperatives

sector, the promotion of the small-scale industries sector and industrial cooperatives should receive equal emphasis.

73. In this context, it must be pointed out that there is no need to undertake basic research, extensive surveys, long drawn out testing. What is necessary is to initiate a practical action programme to locally develop, manufacture and provide to the peasant farmers, the simple tools and equipment that they need now.

74. The Mission has identified and developed projects in the areas of low-cost agricultural tools, implements and simple machinery, pumps and other low-cost water lifting devices, agricultural machinery repair and maintenance programmes, and pesticide formulation plants. The Mission is also of the opinion that the question of establishing a fertilizer bulk blending plant and technology unit calls for further investigation.

75. Industrial processing of agricultural and allied outputs:
Taking into account the Government's objectives on improving the material well-being of the people, developing the national resources, bringing about a more equitable distribution of benefits and strengthening the foreign exchange earning capacity, effecting a structural transformation of the national economy by increasing the share of industrial output, it is imperative that agro-industrial enterprises be established. In this context, the development of local technical capabilities assumes primary importance.

76. The area of activities should include agricultural and forestry products, livestock development and livestock industrial processing and application.

77. With the above priorities and strategies in mind, the Mission has identified and developed a number of projects in the area of industrial processing of wood, leather, meat, meat bi-products and pharmaceuticals based on natural plant species.

II. Promotion of small scale industry, rural development and renewable sources of energy

78. The Government priority for ensuring a structural transformation of the economy includes the establishment of small and rural industries aimed at increasing the material needs of the broad masses of the people and at relatively low cost, while at the same time providing employment. Upgrading the rural production units and industrial cooperatives, mobilizing people's organizations in large scale development work in industry are essential elements in this programme. In this context, development and utilization of renewable sources of energy with emphasis on a higher utilization of available resources and also conservation of existing resources is of paramount importance.

79. Therefore, the Mission has identified and elaborated project concepts in the field of handicrafts and small-scale industry development, strengthening blacksmith/sheet metal worker's voluntary cooperative, low-cost (rural) transport, and development of biomass, solar, mini-hydro, wood based energy sources with emphasis on technology development and local manufacture.

III. Laying the foundation for medium and large-scale industrial development engineering

80. Engineering, metallurgical and chemical industries development is the basis for all industrial development. The Government of Ethiopia has given a priority for laying down a strong material and technical foundation for development. It includes expansion of existing industries, and establishment of more industries with a significant emphasis on export potential as well as import substitution. This will call for establishment of technological formulation in terms of engineering capabilities and metallurgical infrastructure to serve a large number of varied industries.

81. In this context, immediate steps to promote the engineering design capabilities, capacity to provide technical support to industries

through provision of basic and high precision inputs for production machinery and equipment (for example tools, jigs, fixtures, moulds and dies etc.) are to be given priority.

82. The promotion of the pharamaceutical industry to provide better health services to 30 million people and for controlling livestock diseases and exploiting the large livestock potential of the country is of extreme importance.

83. In addition, as the medium and large industrial sectors emerge, they will develop a growing impact on energy. There is, therefore a need to develop the technology and hardware for the conservation of energy in industry.

84. Therefore, the Mission has identified and developed appropriate projects in the areas of engineering design and product development, function/production of tools, jigs and fixtures, upgrading/pilot demonstration plant, establishment of foundry/forge areas, promotion of pharmaceutical industries and conservation of energy in the industrial sector.

IV. Laying down strong material and technical foundation for meeting the challenges of the 1990's

85. The Government's objectives include laying down a strong material and technical foundation for development, training of personnel and measures for strengthening foreign exchange earning, as well as import substitution. The Government wishes to expand existing industries and to establish new ones and to increase the share of industrial output in the total product. The electrical power generating capacity and the expansion of communication and telecommunication technology are given importance. In this context, the development of science and technology for industrial application aiming at raising output and productivity and laying a firm scientific and technical basis for the country's overall development is also of paramount importance.

86. The contribution of the electrical, electronic and metallurgical sectors to the consumer, and of the industrial, agricultural, natural resource, infrastructural and service sectors during the 1990's will assume added importance. It is therefore essential that a modest start is made to establish now the nucleus of a technical activity to be the platform for keeping abreast of technological trends, analysis adaptation and absorption of imported technology, and possibly the conducting of R & D on a modest scale. However, in order to start such an eventual programme, a small "focal point" activity in these fields may be started now. It is to be emphasised that unless a technological start is made today, there will be a continued domestic technological void in the country in the late 1980's and the 1990's. It is also to be pointed out that these programmes are primarily geared to developing local technical competence and will involve a considerable time period to lead to the level of mastery that modern technology will demand.

87. With this thought in mind, the Mission has identified projects in the electrical and electronics sector with emphasis on promotion of ideal technical capabilities, in installation, testing, maintenance and repair, engineering and technical service on a national level together with a modest applied R & D activities. In addition, subject to confirmation of the availability of iron ore and lignite deposits in the country on a techno-economically viable basis, the Mission recommends that steps be taken to establish a mini-steel plant.

V. Higher utilization of existing resources: integrated industrial development

88. The Government has given importance to conserving and developing the natural resources of the country, creating job opportunities, increasing labour and industrial productivity. In this context, the programmes to promote higher utilization of equipment, plant and machinery in the country are to be developed. As there are economically viable gold and ash/brine water resources, there is

a need to promote pilot extraction/production activities in these areas. In addition, as the Government's target is to construct 450,000 new houses in the next ten years, and also to construct irrigation dams, roads, industries etc. there is a need to investigate the utilization or industrial applications of locally available building materials.

89. Therefore, the Mission has identified projects in the area of repair and maintenance (transport fleet, mining equipment, wood working machinery, laboratory equipment, textile machinery, pilot plants (gold, soda-ash, ceramics/clay), and establishment of R & D units (building materials).

VI. Overall interlinked industrial development

90. The Government's priorities, targets and strategies are inter-disciplinary in scope. The activities that are developed and implemented are geared to achieving the objectives. In this context, the industrial sector, as the"leading sector" and the motive power for achieving rapid economic development and for contributing to the structural transformation of the economy will call for a dynamic approach. The industrial sector will have to have a direct influence on the manufacturing sector and to provide an indirect support to those other sectors which contribute to industry. Therefore, appropriate inter-linked actions at the planning, management, implementation and information analysis levels are necessary.

91. The Mission has, therefore, identified a number of projects to strengthen the various relevant Government institutions in general and the industrial sector in particular, in the planning, project development, management, information analysis and project implementation.

VII. Development of human resources: training

92. The Government has given maximum emphasis to the creation of job opportunities, improving industrial productivity, improving managerial and organizational capacity and training of manpower. The overall industrial development activities will call for an integrated development of human resources. Training is the key element.

93. Therefore, the Mission has identified a number of training activities in the various aspects of industrial development.

SECTION V

List of Persons Met During the Mission

1. Central Planning Supreme Council (CPSC)

Ato Philippos W. Mariam	- Head, Industry Department
Ato Gebre-Michael Paulos	- Senior Industrial Expert

2. Ministry of Industry

Ato Tesfaye Dinka	- Minister of Industry
Ato Mamo Bahta	- Permanent Secretary
Ato Tadewos Harege-Work	- Head, Planning, Project and Policy Department
Ato Sileshi Demeke	- Economist, Foreign Economic Relations Unit

3. Handicraft and Small Industries Development Agency (HASIDA)

Ato Selameab W. Tsadik	- General Manager
Ato Ayenew Birhanu	- Head, Industrial Promotion Department
Ato Girma Hunde	- Head, Cooperative Promotion Department
Ato Siyum Zelelew	

4. Ministry of Mines, Energy and Works Resources

Ato Assefa Tilahun	- Permanent Secretary
Dr. Abebaw Endeshaw	- Manager, EIGS
Ato Melaku Beza	- Mines Development
Ato Hadaji Abebe	- Planning and Programming
Ato Wendifraw Bekele	- Economic Geological Survey
Ato Aklilu Assefa	- Industrial Minerals
Dr. Gebhru W. Giorgis	- Energy Committee
Ato Omer	- National Energy Committee

5. Ministry of Transport and Communications

Ato Amure Hibistu	- Head, Planning & Project Studies
Ato Bahre Gessesse	- Chief, Planning Branch
Ato Wolde Giorgis Assefa	- Djibouti Railways
Ato Asmelash Gebreyesus	- Road Transport Authority
Ato Paulos Mulate	- National Freight Transport Corporation
Ato Goshu Abebe	- Ethiopian Telecommunications Authority

6. Ministry of Agriculture

Ato Teshome Tafari	- Head, Project Planning Department
Ato Demissie G.Michael	- Head, Agricultural Extension Development
Mr. M. Tarmat	- Head, Animal Health Section, Animal Research & Development
Ato Girma Belayneh	- Head, Peasant Association and Co-operatives Development Department

7. Science and Technology Commission

Ato Hailelul Tebeke	- Chairman
Ato Izaddin Ali	- Acting Chairman, National Resources Research Council, Ethiopian Science and Technology Commission.
Ato Tesfaye Legesse	- Science and Technology Secretary National Resources Research Council
Ato Fanuel Tadesse	- Research Officer in Housing and Construction Research Sub-Council
Ato Lakew Birke	- Chairman, Food and Agriculture Research Council
Ato Gizachew Shiferaw	- Industry and Technology Research Council

8. Ministry of State Farms Development

Ato Tegenu Yifru	- Head of Planning & Projects Dep.
Ato Yilma Beyene	- Engineering Department

9. Ethiopian Electric, Light and Power Authority

Ato Tamene W. Yohannes	- Head, Planning Department
Ato Wolde Hanna Hailu	- Head, Equipment Maintenance Dept.
Ato Tadesse G.Medhin	- Head, Mechanical Training Unit
Ato Tessema Abaderash	- General Manager
Ato Negessa	- Administrative Department Manager
Ato Ayele Lakew	- Director Training Institute

10. National Woodworks Corporation

Ato Kiflemariam	- Head, Planning
Ato Hunde Kebeba	- Operational Officer

11. National Meat Corporation

Mr. M. Galana	- Head, Planning Department

12. National Textile Corporation

Ato Tekalign Seifu	- Technical Director
Ato Berhane	- General Manager
Ato Belete Rede	- Head, Training & Manpower, Training Section.
Ato Alemay Etru	- Off-Job Training Officer & Manpower Division Officer
Ato Seleshi Berhane	

13. National Metal Works Corporation

Col. Alula Berhane	- General Manager

14. Building Material Corporation

Ato Mendaye Terrefe	- General Manager
Ato Atnaf-Seged Adam	- Head, Engineering Department
Ato Bekele	- Head, Planning Department

15. National Chemicals Corporation

Ato Woldu G. Michael	- General Director
Ato Asrat Bulbulla	- Engineer
Ato Mesfin Fekade	- Senior Economist, Planning Department
Ato Mekonnen Tessema	- Engineer/Technical Department
Dr. Desta Hamito	- Statistician, Planning Department

16. Ethiopian Center for Technology

Ato Shiferaw Jammo	- General Manager
Ato Hailu Sebsibe	- Agricultural Engineer

17. Commission for Higher Education

Ato Billiligne Mandefro	- Commissioner
Ato Muluget Semeru	- Chief Coordinator, Planning & Management
Dr. Agedew Redie	- Head, External Relations & Research

18. National Productivity Centre

Ato Kebede Ali - Head

19. Ethiopian Printing Corporation

Ato Gedlu Jara - Head, Administration & Training

Ato Yilma Adamu - General Manager

20. Ethiopian Standards Institute

Ato Akberom Tedla - General Manager

Ato Negussie Abebe - Head, Weights & Reasures Inspection Sector

21. Development Project Study Agency -

Ato Shifferaw Jammo - General Manager

22. National Food Corporation

Ato Habte Markos Makko

22. Ethioplastic

Ato Seyoum Teffera

National Leather and Shoe Corporation

Ato Getinet W. Giorgis

25. Containers Glass Factory

Ato Hailu Aragaw

26. Addis Ababa University

Dr. Ermias Dagne - Chemical Department

27. Pharmaceutical and Medical Supplies Corporation

Ato Laake Gebre Selassie - General Manager

28. EPHARM

Ato Million	- General Manager
Ato Mengiste-ab	- Head, Techno-Center

29. Ministry of Health

Ato Gebre Amanuel Teka	- Head, Planning Department
Dr. Legesse	- Institute of Patnobiology

30. UNDP

Dr. K. King	- Resident Representative
Mr. J.P. Gernay	- Deputy Resident Representative
Mr. R. Maconick	- Assistant Resident Representative
Mr. H. Mcleod	- Assistant Resident Representative
Mr. D. Martz	- Junior Professional Officer, UNIDO

31. UNIDO Experts

Mr. Klatil	- Shoe Technologist
Mr. W. Scott	- Leather Expert
Mr. Imam	- Shoe Machinery Maintenance Expert
Mr. Borretti	- Wood Industry Expert (ECA)
Mr. C. Banerjee	- Building Materials Expert
Mr. A. Makkonnen	- Joint ECA/UNIDO Industry Division
Mr. Cesca	- Chemical Sub-Sector Expert

32. Other UN Experts

Mr. A. Salim	- ILO
Mr. M. Gertner	- ILO
Dr. J. Walsh	- UNDP/DTCD
Mr. D. Sellwood	- Hides and Skins Expert, FAO
Mr. S. Brandt	- ILO
Mr. J. Donarski	- ILO
Mr. E. Totter	- ILO
Mr. B. Singh	- UNCTAD Senior Adviser

33. FAO Missions

FAO Programming Mission:	- Mr. W.T. Allen
	- Mr. G. Rockliffe-King
	- Mr. S. New
FAO Investment Center:	- Mr. H. Cassati
	- Mr. Paardkooper

34. UNCDF

Mr. S. Ramsey, Regional Co-ordinator

PART TWO

SECTION I

LIST OF PROJECT PROPOSALS BY PROGRAMME THEMES

I. AGRICULTURE - INDUSTRIAL INPUTS FOR AGRICULTURAL DEVELOPMENT.

I.1. Low Cost Agricultural tools, implements and simple machinery: Engineering product Development and batch level manufacturing promotion.

Budget: UNDP : US$ 1.5 million Duration: 4 years.
UNCDF : US$ 1.5 million
Jointly by the Ministries of Agriculture, Industry and WASIDA.

I.2. Assistance to Local Manufacture of Pumps and other Low-Cost Water Lifting Devices including Windmill systems.

Budget: US$ 1.4 million Duration: 3 years
Ministry of Industry/National Metal Works Corporation with Ethiopian Water Works Construction Authority (EWWCA), the Ministry of Agriculture and Ministry of State Farms Development.

I.3. Integrated Repair and Maintenance Workshop and Programme for Agricultural Machinery at Interlinked 3 levels (Central, Regional and Rural).

Budget: UNDP : US$ 1.2 million Duration 3 years
UNCDF : US$ 2.0 million 3 months.
Ministry of State Farms Development (Engineering Department and Agricultural Services and Technical Service Corporation).

I.4. Assistance in Setting-up a Pesticide formulation Plan with a technology development unit.

Budget: US$ 500,000 Duration 2 years

Ministry of Industry/Ethiopian Chemical Corporation.

II. AGRICULTURE Industrial Processing of Agricultural and Allied Outputs.

II.1. Demonstration plant for ENDOD processing.

Budget: US$ 420,500 Duration: 2 years.

Ministry of Health/Institute of Pathobiology.

II.2. Pilot Plant for the Processing of By-Products from the Meat Industry.

Budget: US$ 2,268,000 Duration: 4 years.

Ministry of Industry/National Meat Corporation.

II.3. Regional Research and Training Center for Leather Industry.

Budget: US$ 1.5 million Duration: 3 years.

Ministry of Industry/National Shoe & Leather Corporation.

II.4. Assistance to the Education Programme: Establishment of a Central Joinery Production Unit for new school facilities.

Budget: US$ 262,000 Duration: one year.

Ministry of Education.

II.5. DP/ETH/70/001 Leather and Leather Products Development in Ethiopia.

Budget. US$ 1,025,000 Duration: 3 years.

Ministry of Industry/National Leather and Shoe Corporation.

II.6. Improvement in the Utilization of Secondary Wood Species.

Budget: US$ 95,000 Duration: 6 months.

Wood Utilization and Research Center(WUAR).

III. INDUSTRY: Promotion of Small Scale Industry and Rural Development and Renewable sources of Energy.

III.1. Transformation of Blacksmiths' and sheet metal Co-operative into Pilot Engineering cooperative.

Budget: US$ 500,000 Duration: 2 years 6 months.

HASIDA and existing voluntary Blacksmith and Tinsmith Cooperative at Addis Ababa.

III.2. Low Cost (Rural) Transport Equipment/Vehicles Analysis, Development Pilot Manufacture and Promotion.

Budget. US$ 975,000 Duration 3 years.

Ministry of Industry/National Metal Works Corporation.

III.3. Establishment of Mini-Hydro power-plants in rural areas and promotion of local fabrication of components.

Budget: US$ 300,000 Duration. 2 years

Ministry of Mines and Energy/National Energy Committee with ELPA, EWECA and Ministry of Industry.

III.4. Solar Energy Simple and Intermediate Equipment Development and Pilot Manufacture.

Budget. UNDP US$ 700,000 Duration: 3 Years.

UNCDF: US$ 600,00.

Ministry of Mines and Energy/National Energy Committee with Science and Technology Commission.

III.5. Rural Low Cost improved Kitchen-Stoves Development Pilot fabrication, Extension and Manufacturing Production

Budget: UNDP. US$NIL Duration: 2 years.

UNIDO-UNIDF US$ 200,000

Ministry of Mines and Energy/National Energy Committee with HASIDA and Ministry of Agriculture.

III.6. Establishment of Biomass based Rural Production Demonstration Units.

Budget: US$ 1,520,000 Duration: 2½ years.

Ministry of Mines and Energy/National Energy Committee.

III.7. Assistance in the Development and Application of bio-gas Digesters.

Budget: UNDP-SIS: US$ 20,000 Duration 4 months.

Ministry of Industry/National Energy Committee.

III.8. Handicrafts and Small-Scale Industries Development-Phase II.

Budget: UNDP: US$ 3,340,000. Duration. 3 years.

UNCDF: US$ 1,250,000.

HASIDA

IV. INDUSTRY: Laying Foundation for medium and Large scale Industrial Development.

IV.1. Establishment of a tool and Die, Jig and fixture pilot production unit with a specialized technical service.
Budget: UNDP: US$ 2.0 million Duration 4 years
UNCDF: US$ 1.0 million and 6 months.
Ministry of Industry/ National Metal Works Corporation.

IV.2. Engineering Design, Product Development, Industrial Liaison and Service to Industry. Establishment of a National Center.
Budget : UNDP: US$ 2.0 million. Duration 4 years
UNCDF: US$ 1.0 million. and 9 months.
Ministry of Industry/ National Metal Works Corporation.

IV.3. Energy Conservation Engineering/Technical Advisory Service to Industrial Sector and International Training.
Budget: US$ 795,000 Duration: 2 years.
Ministry of Mines and Energy/National Energy Committee with Ministry of Industry.

IV.4. Rehabilitation and Up grading of the Cast-Iron Foundry of the Ethiopian Railways in Dire-Dawa.
Budget: US$ 1.350 million Duration: 2.5 years.
Ministry of Transport and Communications.

IV.5. Pilot Demonstration Foundry with Integrated Forge Unit(F.F.U)
Budget UNDP US$ 1.4 million Duration: 3.5 years.
UNCDF: US$ 2.8 million.
Ministry of Industry/National Metal Works Corporation.

IV.6. Pilot Foundry with integrated Forge Shop

Budget: UNDP-SIS: US$ 16,000. Duration: 2 months.
Ministry of Industry.

IV.7. Modernization and expansion of existing pharmaceutical Industry.

Budget: US$ 3,341,000 Duration: 3 years.
Ministry of Health/EPHARM.

V. Industry Laying down Strong Material and technical Foundation for meeting the challenges of the 1990's.

V.I. Establishment of a National Electrical Equipment and Appliance Installation, Maintenance, Testing and Engineering Development Unit.

Budget: US$ 1.4 million Duration: 3 years 6 months.
Ministry of Mines and Energy/ELPA.

V.2. Establishment of a National Electronic Equipment Maintenance, Testing, Technical Service and Development cell.

Budget: US$ 1.8 million Duration: 4 years.
Ministry of Transport & Communication/Ethiopian Telecommunication Authority.

V.3. Establishment of an Integrated Mini-Steel Plant.

Budget: US$ 263,000 Duration: 1 year.
Ministry of Industry / National Metal Works Corporation.

VI. Industry. Higher Utilization of existing Resources' Integrated Industrial Development.

VI.1. Strengthening of Truck Transport Vehicles Repair and Maintenance Facilities.

Budget: US$ 1.4 million Duration. 3 years.

Ministry of Transport and Communications/National Freight Transport Corporation.

VI.2. Consolidation and Expansion of Workshop for Repairs and Maintenance of Mining Equipment and fabrication of components at SIDAMO.

Budget: US$ 900,000 Duration 3 years.

Ministry of Mines & Energy/Department of Mines.

VI.3. Assistance to the Planned Central Machinery Workshop: Woodworking Industries.

Budget: US$ 850,000 Duration: 9years 6 months.

Ministry of Industry/Woodworking Corporation.

VI.4. Assistance on Engineering Technical Maintenance of Precision Control, Testing and Analytical Instruments/ Equipment of the Ethiopian Institute of Geological Surveys.

Budget: US$ 400,000 Duration 2 years.

Ministry of Mines & Energy/Ethiopian Institute of Geological Surveys

VI.5. Establishment of a Pilot Gold Extraction Plant.

Budget: US$ 1.3 million Duration: 2.5 years.

Ministry of Mines and Energy.

VI.6. Establishment of Building Materials Research Center.
Budget: US $ 2,050,000 Duration: 4 years
Ministry of Industry/ Building Materials Corporation.

VI.7. Assistance to the Ethiopian Building Materials Corporation.
Budget: US $ 986,000 Duration: 3 years.
Ministry of Industry/Building Materials Corporation.

VI.8. Assistance in the Establishment of a Pilot Soda Ash Production Plant.
Budget: US $ 2,175,000 Duration. 3½years.
Ministry of Industry/Ethiopian Chemical Industry Corporation.

VI.9. Establishment of a ceramic Pilot Plant for the Demonstration of Electrical Household Appliances.
Budget: UNIDO-UNDP US $ 675,000 Duration: 2½ years.
EELPA/Ministry of Mines & Energy.

VI.10. Design and Initial Operation of Special Equipment Maintenance, Management Systems in two Selected Textile Model Plants.
Budget US $ 990,000 Duration: 2.5 years.
Ministry of Industry/National Textile Corporation.

VII. Industry: Overall Interlinked Industrial Development

VII.1. Assistance to the Development Projects Study Agency Phase II.
Budget: US $ 2,643,600 Duration: 4 years.
Central Planning Supreme Council/DPSA.

VII.2. Strengthening of Planning Capacity in the Ministry of Industry.
Budget: US $ 420,000 Duration: 2 years.
Ministry of Industry.

VII.3. Ethiopian National Metrology Center.
Budget: US $ 841,500 Duration: 2 years.
Ethiopian Standards Institute.

VII.4. Industrial Project Development, phase II.
Budget: US $ 4,825,000 Duration: 4 years.
Ministry of Industry.

VII.5. Design and Start-up of a spare parts Management System for the Government Truck-fleet.
Budget: US $ 975,000 Duration: 2 years.
National Road Transport Corporation.

VII.6. Integrated Electronic Data Processing Systems at Ministerial and Industrial Level.
Budget: US $ 1,082,000 Duration: 3 years.
Ministry of Industry.

VII.7. Industrial Project Implementation Management.
Budget: US $ 740,000 Duration: 3 years.
Ministry of Industry.

VIII. Industry Development of Human Resources Training.

VIII.1. Development of a National Scheme of Industrial Training.
Budget US $ 900,000 Duration: 3 years.
Ministry of Industry.

VIII.2. Strengthening the Training Institute of the Ethiopian Electric, Light & Power Authority (EELPA).
Budget: US $ 725,000 Duration. 2 years.
Ministry of Mines and Energy.

VIII.3. Industrial Training Advisory Services (ITAS) for the training of trainers.
Budget: US $ 575,000 Duration: 3 years.
Ministry of Industry

VIII.4. A Comprehensive Training Plan for Integrated High-Level Industrial Training Abroad with a proposed Scheme for Developing Copper Mining Industry Personnel within Ethiopia.
Budget. US $ 805,000 Duration. 3 years.
Ministry of Mines and Energy.

VIII.5. Model and Instruction Center for Printing at Management, Supervisor and Operator levels.
Budget: US $ 730,000 Duration 2.5 years.
Ethiopian Printing Corporation.

VIII.6. Strengthening the Textile Training Center's Capacity to provide high level Technical and Management Training for a Corporation network.
Budget: US $ 270,000 Duration 2 years.
Ministry of Industry/National Textile Corporation.

SECTION II

LIST OF PROJECT PROPOSALS RECOMMANDED FOR UNCDF CO-FINANCING

1. DP/ETH/80/008 Low Cost Agricultural tools, implements and simple machinery - Engineering product Development and batch level manufacturing production.

Budget:			Duration:
	UNDP	US$ 1.4 million	4 years.
	UNCDF	1.5 million	
	Total	2.9 million	

Government Implementing Agency: Joint implementation by the Ministry of Agriculture and Ministry of Industry and HASIDA.

2. Integrated Repair and Maintenance Workshops and programme for agricultural machinery at inter-linked three levels.

Budget:			Duration:
	UNDP	US$ 1.2 million	3 years
	UNCDF	2.0 million	3 months
	Total	3.2 million	

Government Implementing Agency: Ministry of State Farms Development/Engineering Department and Agricultural Service and Technical Service Corporation.

3. Pilot Demonstration Foundry with integrated Forge Unit (F.F.U.)

Budget:			Duration:
	UNDP	US$ 1.4 million	3½ years.
	UNCF	2.8 million	
	Total	4.2 million	

Government Implementing Agency: Ministry of Industry/ National Metal Works Corporation (NMC).

4. Handicrafts and Small-Scale Industries Development. Phase II.

Budget: UNDP US$ 3,340,000 Duration: 3 years.
UNCDF 1,250,000
Total 4,590,000
Government Implementing Agency: HASIDA

5. Establishment of a tool and Die, Jig and Fixture Pilot Production Unit with a Specialized Technical Service Unit.

Budget: UNDP US$ 2.0 million Duration: 4years and 6 months.
UNCDF 1.0 million
Total 3.0 million
Government Implementing Agency: Ministry of Industry/National Metal Works Corporation (NMWC).

6. Solar Energy, Simple and Intermediate Equipment Development and Pilot Manufacture.

Budget: UNDP US$ 700,000 Duration: 3 years
UNCDF 600,000
1,300,000
Government Implementing Agency: Ministry of Mines and Energy/ National Energy Committee in cooperation with Science and Technology Commission.

7. Engineering Design, Product Development, Industrial Liaison and Service to Industry: Establishment of a National Center.

Budget: UNDP US$ 2.0 million Duration: 4 years and 9 months.
UNCDF 1.0 million
Total 3.0 million
Government Implementing Agency: Ministry of Industry/National Metal Works Corporation. (NMWC).

ETHIOPIA

PART III

3 November 1981

PROJECT PROPOSALS

SUMMARY PROJECT PROPOSAL No.I. 1.

PROJECT TITLE

DP/ETH/80/008 - LOW COST AGRICULTURAL TOOLS, IMPLEMENTS AND SIMPLE MACHINERY - ENGINEERING PRODUCT DEVELOPMENT AND BATCH LEVEL MANUFACTURING PROMOTION

GOVERNMENT PRIORITY AREAS/OBJECTIVES/TARGETS/ STRATEGY :

- Improving considerably the material and cultural well being of the people.

- Effecting a structural transformation of the national economy by increasing the share of industrial output in the total product, and thereby achieving self-sustained and self-reliant development.

- Creating job opportunities.

- Laying a strong material and technical foundation for development.

- Increasing agricultural production by over 60%

- Increasing industrial production fourfold.

- Increasing the productivity of peasant agriculture.

- Employing, as far as possible, labour intensive techniques of production in agriculture, small-scale industry.

- Raising substantially labour productivity.

- Upgrading existing industrial cooperatives through provision of technical and managerial assistance.

- Establishing more industries, expanding existing industrial enterprises, and removing their constraints.

. GOVERNMENT IMPLEMENTING AGENCY:	- JOINT IMPLEMENTATION BY THE MINISTRY OF AGRICULTURE AND MINISTRY OF INDUSTRY AND HASIDA (Note: The modalities of joint operation, the complementarity aspects of contribution and nomination of one Ministry as implementing agency for "administrative purposes", with the second Ministry nominated as the "corporating" Ministry are to be determined later)	
. EXECUTING AGENCY:	- United Nations Industrial Development Organization (UNIDO)	
ESTIMATED DURATION PROJECT:	- 4 years	
. STARTING DATE:	- March 1982	
TOTAL ESTIMATED PROJECT COST:	- UNDP	US$ 1.4 million
	UNCDF	US$ 1.5 million *
		US$ 2.9 million
GOVERNMENT COUNTERPART CONTRIBUTION IN KIND:	; (To be determined)	

A. BACKGROUND INFORMATION AND JUSTIFICATION

(i) The broad development priorities as laid down in the National Democratic Revolutionary Programme of the Provisional Military Government of Socialist Ethiopia are the development of agriculture as the foundation of the country's economy and of industry as the leading sector.

(ii) The provision of industrial inputs for agricultural development is regarded as a priority area. In this context, the accelerated supply to the peasant farmers/agricultural cooperatives of improved locally produced low cost agricultural tools, implements and simple machines is necessary if the objectives are to be realised.

(iii) The Ministry of Agriculture is charged with the responsibility of promoting and developing the peasant agricultural sector which contributes more than

* Subject to Government request and UNCDF approval

75% of total food production of the country. The Ministry of Agriculture is in direct contact with the peasant farmers and agricultural cooperatives through a number of agricultural projects. The agricultural Extension Department has two mechanical workshops (Bako and ARDU) and under World Bank/IFAD/SIDA 16C million Birr aid for "Minimum Package Programme No. 2" (1981-1983), 2.5 million Birr was allocated to pilot production and supply of improved agricultural tools and implements. 550 harrows, 440 carts, 150 threshers, 440 seed treaters, 11,175 ensets were produced during the past year. The Ministry of Agriculture is formulating a very large programme of supply of a full range of low cost agricultural tools, implements and simple machines to a large number of farmers during the "Minimum Package No. 3 (1984-86) Programme. This will call for practical cooperation with the Ministry of Industry and a novel approach to "out corners", avoid long drawn research and academic testing procedures and embark upon an applied engineering product development and manufacturing promotion programme.

(iv) The Ministry of Industry and HASIDA are charged with the responsibility of industrial development. The National Metal Tool Company is producing forged tools. There are a number of rural/small scale industrial manufacturing implements which are of low quality. There is a need to develop an integrated programme to strengthen the metal working/mechanical engineering units and rural/small scale fabrication units to produce on a batch level basis a number of agricultural tools, implements and simple machines to meet the requirements of peasant farmers/cooperatives, under Ministry of Agriculture's "Minimum Package No. 3".

(v) Therefore, the Government of Ethiopia requests the assistance of UNDP/UNIDO for the realization of these objectives.

B. DEVELOPMENT OBJECTIVES

- To assist the Government of Ethiopia in the harmonious development of the agricultural and industrial sectors with emphasis on achieving self-sufficiency in food production through provision of industrial inputs for agriculture in general and agricultural tools, implements and simple machinery in particular with priority consideration to the peasant farming sector and appropriate level of existing manufacturing infrastructure in the country.

- Within this context, to develop the technical capabilities of the country by mobilizing the past experience in low cost agricultural machinery development, and by enhancing the technical potential to undertake quick applied development, and rationalized performance analysis and accelerated local manufacture with interlink between engineering product development and actual shop floor manufacture at rural/small/medium scale industry level.

- To develop domestic engineering and technological capabilities in the field of product design and manufacture of appropriate agricultural tools, implements and simple machinery.

- To identify the gaps among existing manufacturing facilities for the local production of agricultural tools, implements and simple machinery.

- To launch an accelerated programme to provide the peasant farmers with much needed, locally-manufactured low cost agricultural tools, implements and simple machinery at an early date.

C. IMMEDIATE OBJECTIVES

- To establish an organized institutional framework involving Ministry of Agriculture, Ministry of Industry and HASIDA to formulate and implement a viable programme to provide the peasant farmers/agricultural production cooperatives with locally manufactured low cost agricultural tools, implements and simple machinery.

- To organize a technology transfer and technical absorption programme for a joint mission of Ministry of Agriculture/Ministry of Industry/HASIDA and selected manufacturers from rural/cooperative and small/medium scale level - through a study tour - to selected African countries (for example Kenya, Tanzania, Zambia, Zimbabwe) and selected countries of Asia (for example India, Pakistan, Philippines, Thailand) with a view to (a) see appropriate agricultural tools, implements and simple machinery, (b) examine different levels of manufacturing technology, (c) select and procure 5-8 units of each selected items for local development/manufacture.

Other immediate objectives are to:

(i) Strengthen the workshop facilities at ARDU and Bako of the Ministry of Agriculture enabling them to be able to undertake the engineering adaptation of the prototypes secured from other developing countries.

(ii) In this context and on a parallel basis to strengthen selected rural/ cooperative small scale production units, medium/large factories to undertake relevant engineering/technical adaptation - on a preliminary basis - of the prototypes secured from other developing countries, for possible domestic manufacture.

(iii) Concurrently, to provide 2-3 sets of each prototype obtained from other developing countries to selected progressive farmers/agricultural co-operatives for usage, comments and contribution of ideas for adaptation.

(iv) A ARDU-Bako workshop, 3 level manufacturers and progressive farmers/ cooperatives joint programme on first step adaptation of each implement after one season of operation.

- Pilot production of 300-500 units of modified tools, implements and simple equipment each at ARDU-Bako workshop through strengthened workshop physical facilities.

- Practical field performance analysis by a large number of farmers/cooperatives (around 300 units) under the programme of Ministry of Agriculture's "Minimum Package Programme No. 2 and 3".

- Based on the evaluation of experience batch level production of a large number of selected products by selected rural/small production units (HASIDA) and medium/large mechanical/agricultural machinery production factories. (National Metal Works Corporation). The appropriate production units are to be strengthened accordingly.

- Supplying such improved tools, implements and simple machines to a large number of farmers under Ministry of Agriculture's "Minimum Package Programme No. 3" and extension work by the Ministry of Agriculture.

- Continued and enhanced production programme (as appropriate) by manufacturing units and supply/sales/credit/extension/demonstration/training to the peasant

farmers/cooperatives in usage under a national programme with joint participation by Ministry of Agriculture and Ministry of Industry.

- Advice and guidance - if called for - to the agricultural machinery long-term research and basic testing programmes of the Agricultural Research Institute.

D. PROJECT OUTPUT

- An organized national institutional framework consisting of Ministry of Agriculture, Ministry of Industry and HASIDA) to provide the Ethiopian peasant farmers locally produced (at appropriate level of production scale/level) full range of low cost agricultural tools, animal driven implements and simple machines from primary tillage to harvesting including seedling, fertilizer/pesticide application and irrigation.

- Provision of selected 10 - 15 low cost locally produced appropriate products to a significantly large number of peasant farmers/cooperatives within the framework of "Minimum Package No. 2" and approposed "Minimum Package No. 3".

- An integrated programme of product adaptation jointly by ARDU-Bako workshop/manufacturers/progressive farmers/agricultural cooperatives.

- Pilot production of selected improved production by ARDU-Bako workshop and field performance analysis within the framework of Ministry of Agriculture "Minimum Package Programme No. 2/3".

- Strengthened selected rural scale workshop of HASIDA and medium/large production units of National Metal Works Corporation.

- Batch level production of a significant number of low cost tools, implements and simple machines by appropriate manufacturers.

- Supply of significant number of locally manufactured selected improved low cost agricultural tools, implements and simple machines to a large number of Ethiopian peasant farmers and cooperatives within the framework of Ministry of Agriculture's "Minimum Package No. 3".

(Note: The project output may also include: A programme to advise and guide appropriate Ethiopian agricultural institutions in their programme of agricultural mechamzation research and long-term basic field research and testing).

E. PROJECT INPUT

(a) UNDP - IPF		(b) Possible Supplementary Source of Finance - UNCDF	
- EXPERTS (International experts, consultant and locally hired experts: Ethiopian nationals)	US $700,000		
- SUB CONTRACT (including local sub contract within the country: Ethiopian organizations)	US $100,000		
- TRAINING (practial training to achieve well defined objectives on a time schedule basis.)	US $100,000		
- EQUIPMENT (For engineering design prototype and engineering adaptation)	US $400,000	- EQUIPMENT and critical raw material (for prototype and batch level production to meet "Minimum Package No.3"	US $1.5 million
- MISCELLANEOUS (limited to practical operational support only)	US $100,000		
TOTAL UNDP-IPF	US $1,400,000	TOTAL UNCDF	US$1.5 million

(Note: It is recommended that during 1982, under UNDP-IPF a sum of $200,000 be allocated to hire one short-term consultant, 3 local experts, implement first local sub contract, organize first study tour and procure prototypes from selected developing countries)

3 November 1981

SUMMARY PROJECT PROPOSAL No. I. 2.

PROJECT TITLE:

ASSISTANCE FOR THE LOCAL MANUFACTURE OF PUMPS AND OTHER LOW-COST WATER LIFTING DEVICES INCLUDING WINDMILL SYSTEMS

GOVERNMENT PRIORITY AREAS/OBJECTIVES/TARGETS/STRATEGY

- Improving considerably the material and cultural well being of the people.
- Creating job opportunities.
- Increasing agricultural production by over 60%.
- Increasing industrial production four-fold.
- Providing basic health service to cover 85% of the rural population.
- Improving livestock population.

GOVERNMENT IMPLEMENTING AGENCY

Ministry of Industry.
National Metal Works Corporation in cooperation with the Ethiopian Water Works Construction Authority (EWWCA),
the Ministry of Agriculture and the Ministry of State Farms Development.

EXECUTING AGENCY

United Nations Industrial Development Organization (UNIDO)

ESTIMATED DURATION OF PROJECT

3 years and 3 months

STARTING DATE

June 1982

TOTAL ESTIMATED PROJECT COST

US $1.4 million

GOVERNMENT CONTRIBUTION IN KIND

To be determined

A. BACKGROUND AND JUSTIFICATION

(i) DP/ETH/77/013 - Research and Development in Water Lifting Devices and Windmill Technology for Rural Areas: This project developed and tested a number of hand pumps, windmills and suitable pumps. Testing of hand pumps has been successfully completed and limited production has already started in EWWCA.

(ii) The project DP/ETH/77/013 is located at the University of Addis Ababa and is executed in cooperation with the Mechanical Engineering Department of the Faculty of Technology and the Ethiopian Water Works Construction Authority. The major emphasis now has been to develop windmill pumping systems primarily for community water supply (2,000 persons, 50-100 m deep wells, 20 m^3/day capacity. Mono screw pump system with 8-10 m.dia. windmill at 2.5-8 m/sec windspeed) and also provide water for cattle. A 9 m.dia. windmill and pumping system, which may have a production cost of around 7,000 Birr for the windmill (against 25,000 Birr for imported 7.5 m.dia. windmill) and 4,000 Birr for the pump has been in operation for the past six months.

(iii) For State Farms (4,000-6,000 ha.each) and peasant agricultural cooperatives (800 ha. each), 8-10 m. dia. windmills will be suitable. However, a centrifugal pump for low lift, up to 10 m. under a discharge of 200 m^3/day, has to be developed.

(iv) The Government wishes to establish a pilot manufacturing plant to manufacture these pumps and windmill systems and also undertake the necessary applied development work. Therefore, the Government wishes to secure UNDP/UNIDO assistance.

B. DEVELOPMENT OBJECTIVES

To assist in the maximum utilization of water resources for community, livestock and agriculture through development of appropriate technology and production of hardware and promote rural entrepreneurship.

C. IMMEDIATE OBJECTIVES

- A techno-economic analysis on product demand and potential and establishment of pilot manufacturing programme.
- Establishment of a pilot manufacturing plant on pumps and windmill systems (8-10 m. dia. windmill, Mono screw pump) for community usage.
- Applied R & D and prototype development on matching centrifugal pump for agriculture.
- Promotion of windmill pumping systems for community and agricultural usage.
- Training of personnel.
- Entrepreneurship promotion.

D. PROJECT OUTPUTS

- Transformation of applied R & D and initial prototype fabrication activities of project DP/ETH/77/013 to pilot production.
- Continued applied R & D on specific problems.
- Extension, entrepreneurship development and training.

E. PROJECT INPUT

- Experts:	US$	400,000 (including local experts)
- Subcontract:		200,000
- Fellowships:		100,000
- Equipment:		600,000
- Miscellaneous:		100,000
Total	US$	1,400,000

ETHIOPIA

3 November 1981

SUMMARY PROJECT PROPOSAL No. I. 3.

1. PROJECT TITLE

INTEGRATED REPAIR AND MAINTENANCE WORKSHOPS AND PROGRAMME FOR AGRICULTURAL MACHINERY AT INTERLINKED THREE LEVELS
(Central, Regional and Rural Levels)

2. GOVERNMENT PRIORITY OBJECTIVES/TARGET/STRATEGY

- Laying down a strong material and technical foundation for the building of socialism.
- Conservation of foreign exchange.
- Increasing agricultural production by over 60%.
- Mobilizing people's organization on a large scale for development work such as agricultural production.
- Improving managerial and organizational capacity and training of manpower.

3. GOVERNMENT IMPLEMENTING AGENCY

Ministry of State Farms Development (Engineering Department and Agricultural Service and Technical Service Corporation).

4. EXECUTING AGENCY

United Nations Industrial Development Organization (UNIDO)

5. ESTIMATED DURATION OF PROJECT

3 years and 3 months.

6. STARTING DATE

October 1982

7. TOTAL ESTIMATED PROJECT COST

UNDP	US$ 1.2 million
*UNCDF	US$ 2.0 million
Total	US$ 3.2 million

8. GOVERNMENT COUNTERPART CONTRIBUTION IN KIND

To be determined.

A. BACKGROUND AND JUSTIFICATION

(i) The Ministry of State Farms Development, by virtue of its large-scale operations in the cereal growing areas, has achieved partial mechanization in cotton and oil seed growing areas but certain harvesting operations are still manual. The operations have grown from 73,000 ha. in 1969 to around 350,000 ha at present. There are a seed multiplication enterprise, on agricultural equipment and service corporation and four agricultural corporations.

(ii) There are around 60-70 state farms, (each 4,000 ha is irrigated and 6,000 ha is rainfed), and each has around 50 tractors. The repair and maintenance facilities have been found inadequate now with enlarged fleet of tractors and equipment. Therefore the Ministry has completed an analysis on establishment of integrated workshops at 3 levels.

(iii) The Central Workshop will have an equipment investment of 3.5-4.5 million Birr, the regional workshops (5-7 units) will have equipment investments of 2.0-2.5 million Birr each and rural workshops (60-70 units) will have equipment investments of around 0.8-1.0 million Birr each.

(iv) The civil engineering part of the Central Workshop is in progress and existing regional workshops are to be strengthened. The Government wishes UNDP/UNIDO assistance in establishing a model workshop and repair maintenance programme.

* Subject to Government request and UNCDF approval

B. DEVELOPMENT OBJECTIVES

To assist the country in the agricultural development through an integrated programme on maintenance of the appropriate large scale industrial input (agricultural machinery and equipment) and thus save foreign exchange and also train local personnel.

C. IMMEDIATE OBJECTIVES

- To assist in the establishment of the Central Workshop and expansion of 1-2 regional workshops through provision of equipment.

- To assist in formulation and implementation of an integrated repair and maintenance programme.

- To train local personnel in workshop technologies.

- To promote local technical competence.

- To develop a programme to assist peasant agricultural cooperatives as appropriate.

D. PROJECT OUTPUTS

- A fully operational Central Workshop and interlinked 1-2 regional workshops.

- Development and implementation of an integrated repair and maintenance programme.

- Better utilization of equipment, higher productivity and savings in foreign exchange.

- Trained core of technical personnel.

- Rendering assistance to peasant agricultural cooperatives.

I. PROJECT INPUT

UNDP IPF		Possible Supplementary Sources of Finances UNCDF	
Experts:	US$ 400,000		
Subcontract:	75,000		
Training:	75,000		
Equipment:	600,000	Equipment:	US$ 2.0 million
Miscellaneous:	100,000		
Total UNDP IPF:	US$ 1,250,000	Total UNCDF:	US$ 2,000,000

(Note: Recommended 1982 IPF allocation: US$ 30,000)

ETHIOPIA

SUMMARY PROJECT PROPOSAL No. I. 4.

Project Title	:	Assistance in Setting up a Pesticide formulation Plant with a technology development unit.
Government Priority Area	:	Increasing industrial production facilities and mobilizing people's organizations on a large scale for such development as soil and water conservation, agricultural inputs production and strengthening foreign exchange earning capacity.
Government Implementing Agency	:	Ministry of Industry/Ethiopian Chemicals Corporation.
Executing Agency	:	UNIDO
Estimated Duration of Project	:	2 years
Total Estimated Project Cost	:	US $500,000.
Government Counterpart Contribution in kind	:	(to be determined)

A. Background and Justification

The Minimum Package Programme (MPP) of Ethiopia aims at raising the production and incomes of small farmers spread over a large part of the country with minimum reliance on scarce resources. Though the second phase of MPP, it is expected to cover 440 of the 550 "weredas" in the country and to increase the linkage capacity with the farming population to around 70%. In addition, the MPP II is designed to introduce/ increase the usage of main agricultural inputs as fertilizers, improved seed, pesticides and improved farm implements.

In 1975/1977, over 600 MT of 10% DDT dust and 10 MT liquid pesticides were distributed to the Extension and Project Implementation Department's field areas. With the introduction of various types of pesticides, the consumption has been steadily increasing both in terms of quantity and value. The recent projections indicate that pesticide consumption will increase to 6,208 MT in 1992 resulting in higher unit prices and improved effects.

Various pesticides such as Thiodan 35% EC, DDT 75% WP; DDT 25% EC, Melathian and others are yearly being imported by the Agricultural Marketing Corporation, however, the fluctuations in the world market prices are adversely affecting the seasonal supply/ distribution programmes and foreign exchange commitments.

At present the Ministry of Industry is planning to start the pre-investment phase of the Pesticide Formulation Plant Project, which was delayed for some years due to other economic priorities.

Therefore, government is at this stage seeking UNDP/UNIDO technical assistance.

B. Development Objective

To assist the government in laying out a foundation to develop its technological and technical production capabilities to provide service at national level to meet the requirements of the agricultural sector through industrial inputs.

C. Immediate Objectives

(i) To determine the technical, economic and financial viability of the project and to update/finalize the feasibility study on the basis of the earlier studies.

(ii) To asses the present status and future trends of demand for the various types of pesticides in consultation with the user and concerned government organization.

(iii) To identify specifications of the types, foreign sources, quantity and volumes of ingredients to be formulated locally.

(iv) To assist in the partial development, selection and acquisition of the technology for local formulation and packaging of pesticides.

(v) To establish a team of trained local experts responsible for the implementation of the project throughout its investment stages, technology development and production planning requirements of the industry.

D. Project Outputs

(i) An updated feasibility study.

(ii)A list active ingredients for local formulation.

(iii) A formulation and packaging technology partially developed and to be sychronized to larger scale industrial operations.

E. Project Inputs

	US $
Experts	150,000
Training	180,000
Equipment(suplementary/ lab-testing)	150,000
Miscellaneous	20,000
	500,000

ETHIOPIA

SUMMARY PROJECT PROPOSAL No. II.- 1.

Project Title	:	Demonstration Plant for Endod Processing
Government Priority Areas	:	(i) improving considerably the material and cultural well being of the people. (ii) developing the natural resources of the country. (iii) providing Basic Health Services for some 85% of the rural population (about 30 million people); (iv) conserving the country's foreign exchange.
Government Implementing Agency	:	Ministry of Health/Institute of Pathobiology
Executing Agency	:	UNIDO
Estimated Duration of Project	:	2 Years
Starting Date	:	1983
Total Estimated Project Cost	:	US $420,500
Government Counterpart Contribution in kind	:	(to be determined)

A. Background and Justification

Schistosomiasis, or Bilharziasis is one of the most widespread parasitic diseases in tropical countries and is a threat not only to the general well-being of the people but also to the economic development of the affected countries. Schistosomiasis is believed to affect up to 300 million people in the world, with another half billion people being potentially exposed to it. Schistosomiasis is caused by small parasitic blood flukes transmitted by water snails. There is no single and effective method of controlling Schistosomiasis. Even with the most effective curative drug, it would be impossible to control the disease effectively as long as the source of infection remains uncontrolled. Although several molluscicides have proven effective in killing the disease-bearing snails, their widespread use in developing countries is greatly limited because of their high cost. (For instance, the cost of the very effective molluscicide Bayluscide is over US $20,000 per ton).

It has been discovered, however, that Endod berries (Endod is the Ethiopian name for phytolacca dodecandra) possess properties that kill the disease-bearing snails. Research carried out by the Institute of Pathobiology has shown that by a single fermentation step a mixture

of crude saponins with a high activity of up to 2 ppm can be obtained from defatted Endod Berries. While further research work on selecting the most effective types of Endod and of Endod cultivation under different soil and climatic conditions is going on with the assistance of the Netherlands Government, it would be of benefit to Ethiopia and other developing countries to start with a pilot scale production of molluscicides from Endod Berries.

B. Development Objectives

(i) to promote a national Schistosomiasis control programme by making available inexpensive molluscides;

(ii) to contribute to Schistosomiasis control through TCDC (Technical Cooperation among Developing Countries);

(iii) to assist the country's export possibilities.

C. Immediate Objectives

(i) to develop an appropriate technology for pilot and industrial scale, Endod processing aimed at obtaining active molluscicides

(ii) to formulate quality standards for the relevant raw materials and finished products;

(iii) to set up a demonstration plant for obtaining compounds with a high molluscicide potency;

(iv) to develop a technology for the production of Endod-base soaps with an effective detergent potency.

D. Project Outputs

(i) Establishment of a pilot plant for integrated utilization of Endod Berries for the production of molluscicides and Endod-based detergents;

(ii) setting up of primary drying facilities at the rural level;

(iii) elaboration of quality standards for raw materials and finished products;

(iv) pilot scale production of the above products;

(v) training of local personnel.

Project Inputs:

		US $
Experts and short-term consultants	20 m/m	120,000
Training (fellowship programme)	25 m/m	37,500
Equipment		250,000
Miscellaneous		5,000
Total		420,800

ETHIOPIA

3 November, 1981

SUMMARY PROJECT PROPOSAL No.II. 2.

Project Title	:	Pilot Plant for the Processing of By-Products from the Meat Industry
Government Priority Areas	:	(i) Maximum utilization of domestic raw materials. (ii) Improvement of the material and cultural well-being of the people. (iii) Promotion of self-sustained and self-reliant development. (iv) Job creation and domestic acquisition of new skills. (v) Conservation of foreign exchange resources.
Government Implementing Agency	:	Ministry of Industry/National Meat Corporation
Executing Agency	:	UNIDO
Estimated Duration of Project	:	4 years
Starting Date	:	February/March 1982 depending on availability of funds for the preparatory assistance phase.
Total Estimated Project Cost	:	US $2,268,000
Government Counterpart Contribution in Kind	:	(To be determined)

A. Background and Justification

Ethiopia has the largest livestock population in Africa (70 million heads of cattle, sheep and goats). There are 12 abattoirs in the country each with a capacity of more than 100 heads of cattle per day. The one in Addis Ababa alone handles 600 heads of cattle per day. Eight new slaughterhouses are expected to be set up during the Ten-Year Programme period. Thus, a large variety of animal waste products which constitute basic raw materials for the production of a number of essential pharmaceuticals and other biochemical products are available locally. The abattoir in Addis Ababa alone can yield as many as 500 kg pancreas daily. Pancreas is an extremely important animal-derived raw material for the production of such pharmaceuticals as trypsin, chymotryptin, panerectin, insulin and other drugs. By simple hydrolysis of mixture consisting of panuch, ventziells and pancrease and with subsequent purification by water treatment, a large amount of high quality peptone which is an

important biochemical product for light industry can be easily produced. Gelatin, required for pharmaceutical and food industries, with a yield of 55 - 68% can be manufactured from Bone collagen. Mucous membrane is raw material for manufacture of pepsin for medical purposes as well as for food industry. It can be produced by using relatively simple technology. Blood can also easily be utilized for obtaining blood hydrolizates for veterinary use and for medical purposes. All the above products are not only required for local consumption but are in great demand on the international market. At present this important, locally available raw material is not being properly utilized. Therefore, the setting up of a pilot plant for processing by-products from slaughterhouses and abattoirs would be of real benefit to the country and would provide a nucleus for an integrated industrial production and utilization of these indigenous raw materials.

B. Development Objectives

a) Industrial-scale exploitation of waste products from the meat industry.

b) Strengthening and expanding foreign exchange earnings through the import-substituting local manufacture of pharmaceuticals from local animal-derived raw materials.

c) Job creation and acceleration of acquisition of local technical skills.

d) Promotion of allied industries.

e) Provision of essential drugs to the population.

C. Immediate Objectives

a) To commence semi-industrial scale utilization of by-product from slaughterhouses;

b) To develop local technological capability for the utilization of waste products from meat industry;

c) To transfer to the local economy an appropriate technology for the industrial processing of the above by-products;

d) To formulate quality standards for the raw materials;

e) To organize proper collection and storage of the applicable raw materials;

f) To train a sufficient number of local personnel for the proper running of a pilot plant as well as for further development of this branch of industry;

g) To produce pharmaceuticals and biochemical products both for local consumption and for export.

D. Project Outputs

a) A pilot plant for processing by-products from meat industry.

b) Quality control and product development facilities.

c) A supply of pharmaceuticals and biochemical products for food and for the leather industry.

d) A cadre of trained Ethiopian technicians in the production of pharmaceutical and biochemical products from the meat industry.

E. Project Inputs

a) Experts - Chief Technical Adviser, Industrial Biochemist, Industrial Pharmacist, Industrial Bacteriologist, Quality Control Expert, Plant Engineer, Short-term Consultants	70 m/m	US $448,000
b) Training - Study tours and fellowships	30 m/m	US $100,000
c) Equipment		US $1,700,000
d) Miscellaneous		US $ 20,000
Total		US $2,268,000

F. Remarks

In the course of discussion of the above project, Mr. Galana, Head of the Planning Department of the Meat Corporation, informed the UNIDO mission that the Corporation had already approached other UN Agencies for assistance in carrying out a preliminary techno-economic survey for the establishment of a pilot plant for processing by-products from the meat industry. However, since UNIDO is responsible for rendering assistance to developing countries in all areas of industry and for several years had been implementing quite similar projects elsewhere it was desirable that UNIDO should be the Executing Agency for this project and right from the very beginning of the life of the project. If requested, UNIDO would be in a position to start the project with a preliminary assistance phase.

In the course of theimplementation of the first phase, it is proposed to send a team of experts to carry out the following tasks:

- Assess the current and potential needs of the country for biochemical products derived from slaughterhouse by-products as well as their export possibilities.

- Evaluate the availability of these by-products in terms of quality and quantity, existing facilities for their collection, storage, and treatment and suggest the most efficient method of retrieving the best quality raw materials.

- Prepare a draft of the proposed pilot plant, including production programme, capacity and technology, plant layout, quality control, research, development and ancillary facilities.

- Advise on a suitable technology for the immediate and long-term production needs.

- Suggest specifications for buildings, other civil works and utilities.

- Prepare a list of equipment with specifications for both production and quality control as well as research and development.

- Provide a list of process licensors that could be requested to bid for setting up the plant as well as for providing necessary know-how and equipment.

- Provide an economic analysis of the financial implications of the plant, including an assessment of fixed capital, pre-production and operating cost requirements.

- Make an assessment concerning the time required for the completion of plant construction, equipment installation and the time schedule up to the running tests phase.

- Evaluate alternative sites for the establishment of the pilot plant and make recommendations on the best location.

- Make recommendations on the local management staff and manpower required for production, maintenance and quality control.

- Survey training needs and prepare a training programme including study tours, fellowships and in-plant training schemes.

- Determine Government inputs required for the implementation of the next phase.

- Provide a techno-economic survey on the establishment of the proposed unit and make recommendations on the implementation of the next phase.

ETHIOPIA

3 November 1981

SECTOR PROJECT PROPOSAL No. II. 3.

Project Title	:	Regional Research and Training Center for Leather Industry
Government Priority Areas	:	Augmenting Ethiopia's export earnings and increasing industrial share in total product.
Government Implementing Agency	:	National Leather and Shoe Corporation/ Ministry of Industry
Executing Agency	:	United Nations Industrial Development Organization (UNIDO)
Estimated Duration of Project	:	3 years
Starting Date	:	1984
Total Estimated Cost	:	- US $ 1.5 million
Government Counterpart Contribution in Kind	:	(To be Determined)

A. Background and Justification

Ethiopia has the largest animal population of all African countries. with about 26 million heads of cattle, 24 million heads of sheep and 18 million heads of goats. During recent years, Ethiopia export earning from semi-processed hides and skins increased from 1978/79 (1.9 million pieces - 18 million Birr) to 1981/82 (5.0 million pieces - 60 million Birr). Moreover, the National Leather and Shoe Corporation (NLSC) was successful in two international bids for leather shoes (110,000 pairs during 1980/81) and for shoe uppers (100,000 pairs during 1981/82). NLSC presently operates eight modern tanneries with a total animal capacity of about 330,000 hides and 11 million skins. In view of the existing animal population, the tanning capacity could be raised to 2 million hides and 15 million skins.

NLSC also operates six major footwear enterprises with a large variety of proposals and product qualities. NLSC is also in the process of establishing an export-oriented joint venture for the production of leather bags, wallets, purses, etc.

Therefore, Ethiopia is a favourable location for a Regional Research and Training Center for leather Industry since the opportunities for propagating and testing research findings in a controlled manner are feasible. The existing industry as well as the organized rural and urban population provide a unique opportunity not only for easy dissemination of research findings but also for collecting primary information for research work.

The establishment of the above regional and training center is, therefore, recommended and fully justified.

B. Development Objectives

The organized collection, preparation, training and part-processing of hides and skins into finished products meet similtaneously several development objectives such as:

- equitable regional distribution of benefits of development,
- increasing industrial production (based on local raw material),
- augmenting the export earnings,
- providing additional employment.

The proposed Research and Training Center will accelerate the development of the leather industry in its merber countries.

C. Immediate Objectives

The immediate objectives of this project to assist in the establishment of research and training facilities which could serve to

- improve the quality of hides and skins supplied to the industry,
- adapt foreign technologies towards practical needs of local industry,
- investigate the possibilities of promoting indigenous training materials,
- design and undertake training programmes for industrial employees.

D. Project Outputs

UNIDO already assisted in the establishment of a number of comparable research and training centers for leather industry and will provide assistance through experts and direct financial assistance also for the

- design of such center,
- organization and initial operation,
- research and quality testing equipment.

E. Project Inputs

The project input elements can only be determined on the basis of more advanced considerations regarding final size, functions, principle tasks, etc. Therefore, the inputs are indicated in one global figure for expert, training and equipment:

Total from 1984 - US $1,500,000

SUMMARY PROJECT PROPOSAL No. II. 4.

Project Title	:	Assistance to the Education Programme - Establishment of a Central Joinery Production Unit for New School Facilities.
Government Priority Areas	:	The Government's objectives in the education sub-sector is to achieve universal generaly polytechnic education to grade 8 level by 1993/94, and to provide proper schools and teaching facilities for grades 9 to 12.
Government Implementing Agency	:	School Construction and Maintenance Service - Ministry of Education.
Executing Agency	:	UNIDO
Estimated Duration of Project	:	12 months
Starting Date	:	1983
Total Estimated Project Cost	:	US $ 262,000
Government Counterpart Contribution in kind	:	(to be determined)

A. Background and Justification

The country's ten-year programme for 1980'1984 - 1983/1990 includes an ambitious plan for the improvement of education facilities, and envisages the construction of over 16 000 schools by communities and 1800 by direct labour. Also, 113 Higher general Polytechnics, 41 Extended polytechnics and 26 Technical Vocational Schools will be built.

At present all Joinery items required in the school building programme are purchased from a number of small workshops which are ill-equipped and inefficiently operated. As a result, serious problems are experienced in the performance and durability of doors, windows and shutters installed in new school buildings.

In order to overcome those problems it has been proposed that a central Joinery workshop be established within the school construction and Maintenance Service of the Ministry of Education with the aim of producing the joinery requirements concerning school facilities.

B. Development Objectives

(i) to contribute towards satisfying the goals of the country's medium-term education programme in terms of school facilities.

(ii) to contribute towards the rational utilization of the country's timber resources.

C. Immediate Objectives

The overall immediate objective of the project is to assist the School Construction and Maintenance Service of the Ministry of Education in Addis Ababa in establishing a Central Woodworking Workshop for the production of main Joinery items - windows and doors - required for the establishment of new school facilities.

The immediate objectives of the project may be more explicitly stated as follows :-

(i) to standardize dimensions and construction of windows, shutters and doors.

(ii) to identify in cooperation with WUAF the timber species most suitable for joinery construction.

(iii) to determine most suitable seasoning and treatment techniques.

(iv) to introduce appropriate wood machining processes.

D. Project Outputs

(i) Commencement of workshop operation.

(ii) training of 4 Trainers in wood processing and workshop management.

(iii) training of 12 machine operators.

(iv) regular production activities.

E. Activities

Activity No 1

Joinery Production

- Woodworking expert (12 man/months)

Tasks such as prototype making, pilot batch-production of selected items as well as training of trainers will be carried out under this activity.

Activity No 2

Selection of timber species

- Wood Technology Consultant (3 man/months)

Under this activity a review will be made of available information on timber species occurring in Ethiopia with a view to selecting those most suitable to Joinery production - with particular emphasis on secondary species. Basic machining tests will be carried out in this respect.

Activity No 3

Joinery Standardization

- Standardization Consultant (4 man/months)

Under this activity standardization will be carried out with respect to dimensions, construction methods and processing techniques.

Activity No 4

Wood Seasoning and Preservation

- Wood Treatment Consultant (2 man/months)

Under this activity appropriate wood treatment methods will be identified with respect to air seasoning and pressure treatment[1] of Joinery components.

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[1] A pressure impregnation cylinder is already in operation at the school construction and Maintenance Service Unit for the treatment of building poles.

Project Inputs

		Duration m/m	US $
Personnel			
	Woodworking Expert	12	75.600
	Standardization Consultancy	4	25.200
	Wood Technology Consultant	4	18.900
	Wood Treatment Consultant	2	12.600
	Total cost of personnel component		132.200
Equipment			
	Expendable equipment		2.000
	Non-expendable equipment		125.000
	Total equipment component		127.000
Miscellaneous			
	Operation and maintenance of supplied equipment		600
	Reporting costs		1.000
	Sundry		2.000
	Total miscellaneous component		3.600
	Grand Total		262.800

Description of Government inputs

Personnel

One full-time counterpart to each international expert

Production materials and other supplies

Equipment other than woodworking machinery

Land and buildings

land 2.500m^2

factory building shade 200m^2

timber storage shade 200m^2

factory services 150m^2

ETHIOPIA

3 November 1981

COUNTRY PROJECT PROPOSAL No.II 5.

Project Title	:	Leather and Leather Products Development in Ethiopia (continuation of ongoing project DP/ETH/78/001)
Government Priority Areas	:	i) Increasing the share of industrial output in the total product-processing local raw materials resources. ii) Augmenting export earnings.
Government Implementing Agency	:	National Leather and Shoe Corporation
Executing Agency	:	United Nations Industrial Development Organization (UNIDO)
Estimated Duration of Project	:	3 years (during new CPC!) plus project continuation during 1982
Starting Date	:	1983
Total Estimated Cost	:	- US $1,025,000
Government Counterpart Contribution in kind	:	(To be Determined)

A. Background and Justification

On the basis of Ethiopia's large animal population, the National Leather and Shoe Corporation (NLSC) with its eight modern tanneries and six major footwear manufacturing plants has great potential for further growth and product diversification.

During the last three years, NLSC not only succeed in increasing the export of semi-processed hides and skins from 1.9 million to 5.0 million pieces, but also successfully competed in foreign markets and is exporting for the first time leather shoes and leather uppers in the order of 100,000 pairs each.

NLSC is also in the process of establishing with foreign cooperation an export-oriented enterprise for theproduction of leather bags, wallets, purses, etc.

A foreign cooperation for design, production and export of leather garments is already envisaged by NLSC.

The dynamic and systematic development of NLSC as one of the most important local raw material processing and partly exporting enterprises justifies the continuation of the UNDP/UNIDO technical assistance which is being sought by NLSC also during the next Country Programme Cycle.

B. Development Objectives

Tanning and part-processing of an increasing share of raw hides and skins into finished products does meet simultaneously several development objectives:

- increasing industrial production (based on local raw material),
- augmenting the export earnings,
- providing additional employment.

C. Immediate Objectives

The immediate objectives of this project are to offer assistance towards the NLSC goals of converting an increasing share of raw hides and skins supply of Ethiopia into finished leather and leather products by:

- further transfer of know-how through fellowships and in plant training,
- preparation and implementation of pilot projects for leather board out of tannery leather waste and for leather garments,
- consideration of the viability of operating new industrial capacity for training, and for the production of shoes, shoe components (glue) and tannery chemicals.

D. Project Outputs

One long-term expert combined with temporary short-term consultants and sub-contracted international consulting firms will analyse the possibility of increasing and diversifying NLSC's production facilities.

Moreover, pilot plants for leather board and leather garments respectively will be established.

An estimated total of five man-years of fellowship combined with in-plant training will offer the required transfer of know-how.

E. Project Inputs

The elements of the estimated project input can be summarized as follows:

	Total (from 1983) US $ equivalent
Experts	350,000
Sub-Contracts	250,000
Training	105,000
Equipment	300,000
Miscellaneous	10,000
Total	1,015,000

ETHIOPIA

3 November 1981

SUMMARY PROJECT PROPOSAL No.II.6.

Project Title	:	Assistance to the Development of the Forest Industries Sector - Improvement in the Utilization of Secondary Wood Species.
Government Priority Area	:	To conserve and develop the natural resources. The main objective for the development of the Forestry Sector is to improve the efficiency of production activities and to expand the utilization of forest resources.
Government Implementing Agency	:	Wood Utilization and Research Centre (WUAR) of the Forest and Wildlife Development and Conservation Authority (FAWDCA).
Executing Agency	:	United Nations Industrial Development Organization (UNIDO).
Estimated Duration of Project	:	Six months
Starting Date	:	As soon as possible
Total Estimated Cost	:	US$95,000
Government Counterpart Contribution in Kind	:	(To be determined)

A. Background and Justification

The Ethiopian woodworking industry is experiencing increasing difficulties in fulfilling its timber output requirements. The forest resources area being gradually depleted and receeding farther away, the timber exploitation suffers from a lack of expanded infrastructure. This has resulted in a net deficit in the supply of the raw material to the wood processing industry as well as in a considerable increase of timber prices.

In view of the above, the Forestry Authority has assigned high priority to the improvement of the utilization of Secondary Wood Species, in order to increase the percentage of standing volume of timber taken from natural forest. Consecuently, the main objective of the Wood Utilization and Research Centre (WURA) consists in investigating the properties and processing characteristics of Secondary Wood Species.

Some work on the selection of published data on such species has already been done at WURA. For less documented species, working methods for the collecting of material from the forest and testing of mechanical properties have already been done.

B. Development Objective

To promote the utilization of forest resources.

C. Immediate Objectives

The overall objective of the project is to develop on a pilot basis, an integrated programme of practical research work in order to determine the working properties of selected secondary wood species.

The immediate objectives of the project are as follows:

(a) Testing of physical and mechanical properties;

(b) Determining air-drying and Kiln-drying requirements;

(c) Determining optimum wood-preservation methods.

D. Outputs

A report establishing detailed analysis and conclusions on physical, mechanical and wood treatment requirements of selected species.

E. Activities

Activity No. 1

Wood Technology

- Wood Technologist (6 m/m)

This activity consists in conducting tests with respect to physical and mechanical properties of selected species. Additional testing equipment will be provided under the project.

Activity No. 2

Wood Treatment

- Wood Seasoning and Preservation Consultant (6 m/m)

The activity consists in conducting wood treatment tests by utilizing the existing experimental dry-Kiln unit at WURA and adopting simple wood preservation methods.

F. Inputs

	M/M	US$
10 Personnel		
10-01 Wood Technologist	6	37,000
10-02 Wood Treatment Consultant	6	37,000
19 Total cost Personnel Component		75,600
40 Equipment		
41 Expendable material (Wood preservatives, technical publications and general supplies)		3,000
42 Non-expendable equipment (supplementary testing equipment)		15,000
49 Total Equipment component		18,000

		US$
50	Miscellaneous	
52	Reporting costs	800
58	Sundries	400
59	Total Misc. Component	1,200
99	Grand Total	94,900
	say	95,000

ETHIOPIA

3 November 1981

SUMMARY PROJECT PROPOSAL No. III. 1.

PROJECT TITLE: TRANSFORMATION OF BLACKSMITHS' AND SHEET METAL COOPERATIVE INTO PILOT ENGINEERING COOPERATIVE

GOVERNMENT PRIORITY OBJECTIVES/TARGETS/ STRATEGIES

- Improving considerably the material and cultural well-being of the people.
- Effecting a structural transformation of the national economy by increasing the share of industrial input in the total product, and thereby achieving self-sustained and self-reliant development.
- Creating job opportunities.
- Bringing about a more equitable distribution of the benefits of development.
- Increasing industrial production four-fold.
- Mobilizing peoples organizations for development.
- Employing as far as possible labour intensive techniques of production.
- Improving managerial and organizational capacity and training of manpower.
- Upgrading existing cooperatives through technical and managerial assistance.

GOVERNMENT IMPLEMENTING AGENCY: EASIDA
In cooperation with existing voluntary Blacksmith and Tinsmith cooperatives in Addis Ababa.

EXECUTING AGENCY:	-	United Nations Industrial Development Organization (UNIDO)
ESTIMATED DURATION OF THE PROJECT:	-	2 years 6 months
STARTING DATE:	-	March 1983
TOTAL ESTIMATED PROJECT COST:		US $500,000
GOVERNMENT CONTERPART CONTRIBUTION IN KIND:	-	To be determined

1. BACKGROUND INFORMATION AND JUSTIFICATION

(i) There are around 700 voluntary cooperatives of different product groups (Blacksmiths, sheet metal, carpet, wood working, jewellery, tailoring etc.) in the country including 80 in Addis Ababa. These deal with all simple products. There are such cooperatives of blacksmiths, and sheet-metal workers in the metal working sector. These cooperatives have been formed by the existing individual backsmiths and sheet metal workers without any direct involvement from the Government nor any significant assistance. The products are sold directly to the customer or to Government departments without any middlemen.

(ii) For example the backsmith's cooperative in Addis Ababa has around 100 workers who produce share point for local plow, hand shovel and pickaxe etc. A sheetmetal workers cooperative in Addis Ababa with around 40 workers produces domestic utencils, charcoal stoves, frying pans etc. A galvanized sheet metal cooperative in Addis Ababa produces feed and water troughs for chicken, bucket, water can, small and medium bins etc. The Government in general and Ministry of Industry and EASIDA in particular are interested now to upgrade the traditional and primitive technology and transform them to more efficient cooperatives.

(iii) HASIDA has formulated a proposal to transform an existing backsmith's cooperative into a pilot engineering cooperative. It is being considered by the Government now. The Addis Ababa backsmiths' cooperative may be selected for such a pilot project. The pilot project is to be a sort of joint venture between cooperative and HASIDA. HASIDA would provide expertise and assistance during the transition period of 1-2 years. Upon the completion of the project, the cooperatives would take over the project, assets and a part of the project cost (building and equipment provided under the project) under an appropriate agreement. The Metal Tools Factory (under the metal corporation) is expected to lend some assistance in the choice of products in demand, complementary to their own production, possibly subcontracting for sale and provision of some raw material in the form of metal scraps. HASIDA has carried out preliminary technical study of requirements and benefits. The proposed blacksmiths industrial engineering is expected to increase the labour productivity (value in Birr/Worker) by three times. Therefore, the Government requests UNDP/UNIDO assistance in the realization of this important project. In this context, it should be noted that this project will be interlinked to the ILO executed HASIDA project and the full assistance of the ILO expert on industrial cooperatives will be incorporated in the implementation of this project.

B. DEVELOPMENT OBJECTIVES

To promote the overall techno-economic development of the country through upliftment of the technical capabilities at the basic levels of economy and infrastructure of the country.

C. IMMEDIATE OBJECTIVES

- To consolidate the existing backsmith/sheetmetal workers activities and establish a pilot engineering workshop.

- Introduction of simple and intermediate appropriate machine tools, equipment and production techniques without upsetting the socio-economic systems of workers.

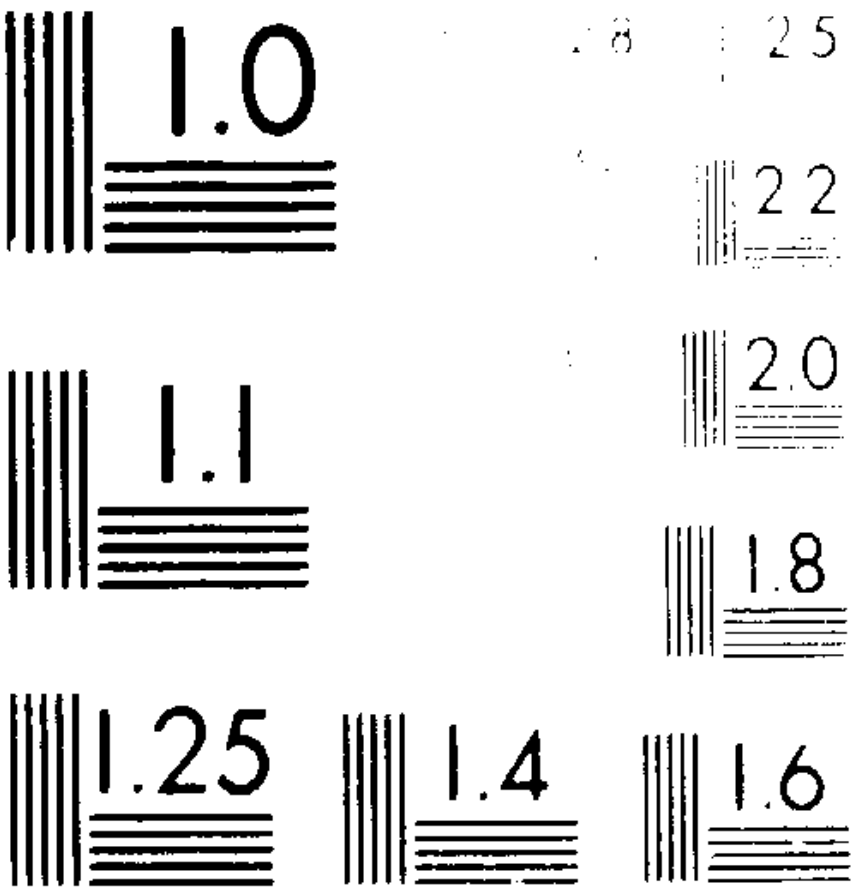
- Assistance in cooperative engineering activity to develop improved products.

D. PROJECT OUTPUTS

- A model pilot plant
- A model Backsmith and sheetmetal workers cooperative programme
- Improved production techniques
- Extension services
- Better marketing
- Training

E. PROJECT INPUTS

	US $
Experts	125,000
Sub-contract	50,000
Fellowships	25,000
Equipment	275,000
Miscellaneous	25,000
Total	500,000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SUMMARY PROJECT PROPOSAL No. III. 2.

Project Title	:	Low Cost (Rural) Transport/Vehicle: Analysis, Development, Pilot Manufacture and Promotion
Government Priority Areas/ Objectives/Targets Strategy	:	Improving considerably the material well-being of the people. - Laying down a strong material and technical foundation - Bringing about a more equitable distribution of the benefits of development as between the relatively developed and the underdeveloped regions of the country - Providing Employment - Introducing judicious labour intensive production techniques - Development of Technology.
Government Implementing Agency:	:	Ministry of Industry/National Metal Works Corporation
Executing Agency	:	United Nations Industrial Development Organization (UNIDO)
Estimated Duration of Project	:	3 Years
Starting Project	:	March 1983
Total Estimated Project Cost:		US$975,000.-
Government Counterpart Contribution in Kind	:	To be determined

A. Background Information and Justification

(i) Ethiopia is a large country with over 30 million people. The major means of national transport is by Road and Rail. The urban major transport means is automobile and public transport system. The rural transport means is primarily animal driven carts.

(ii) The major gap is a means of transport for the individual and for small groups which should be low cost, simple and preferably not based on petroleum fuel. It would be ideal if a human powered vehicle could be developed to meet the requirements of the urban middle class/poor as well as of the rural population. In this context improved animal drawn carts may also be explored. The bicycle, moped and simple three wheelers could also be explored.

(iii) Thus there is a need to investigate this important sector, identify most viable products, establish specification and performance parameters, and undertake a programme on development and pilot manufacture and promotion. If the results lead to a possible investment programme in terms of commercial manufacture, there is a need to undertake such a techno-economic analysis and to pave the way for realization. Therefore, the Government requests UNDP/UNIDO assistance for the realization of these objectives.

B. Development Objectives

To assist the Government in improving the material well-being of the people through provision of low cost means of transport, and in the process, to promote industrialization at an appropriate level.

C. Immediate Objectives

- To conduct an overall analysis on low cost transport equipment/vehicle possibilities in Ethiopia and formulate specification parameters, preliminary demand.

- To organize a programme for Ethiopian Senior Technical Officers to visit selected developing countries to acquaint themselves with existing products/technology and investigation in possible technology transfer.

- To carry out an indepth consultancy techno-economic analysis on the most suitable product/products for local development, pilot fabrication, testing and extension.

- To formulate a programme for local manufacture at an appropriate level.

D. Project Outputs

- Establishment of specifications for the most viable low cost transport equipment/vehicle.
- Locally developed and fabricated products.
- Guidelines for a local manufacturing programme.
- A trained core of people to take further action.

E. Project Inputs :

	US$
Experts	175,000.-
Sub-contract	200,000.-
Training	100,000.-
Equipment	450,000.-
Miscellaneous	50,000.-
Total:	US$975,000.-

[illegible]

[illegible] November 1981

[illegible] PROJECT PROPOSAL No. III. 3.

Project Title : Establishment of Mini Hydro Power Plants in Rural Areas and Promotion of Local Fabrication of Components.

Government Priority Objectives/ Targets/Strategy :

- Improving considerably the material and cultural well-being of the people.
- Conserving and developing the natural resources of the country.
- Bringing about equitable distribution of the benefits of development between the relatively developed and the underdeveloped regions of the country.
- Promoting rural industrialization and agricultural development.
- Construction of micro-dams and their effective utilization.
- Development of science and technology.
- Renewable energy sources

Government Implementing Agency	: Ministry of Mines and Energy/National Energy Committee in co-operation with the Ethiopian Electric Light and Power Authority (EELPA), Ethiopian Water Works Construction Authority and Ministry of Industry.
Executing Agency	: United Nations Industrial Development Organization (UNIDO)
Estimated Duration of Project	: 2 years and 9 months
Starting Date	: June 1983
Total Estimated Project Cost	: US$800,000
Government Counterpart Contribution in Kind	: (To be determined)

A. Background and Justification

(i) Ethiopia has around 56 billion kW hydro electric potential. However, only around 2% is tapped now. Less than 10% of the population is provided with electricity.

(ii) There are many small rivers and low head falls in the country. 5-7 mini hydro plants are operating in

the country and they were installed a long time ago. Under UNDP assistance, a mini hydro feasibilitity study in under progress in 3 areas. Preliminary analysis in 8 other areas through French bi-lateral aid is proposed. By 1990, the basic analysis on sites will be completed.

(iii) The Government wishes to establish a pilot mini-hydro plant in a suitable area and conduct analysis on possible local fabrication of some components for mini-hydro plants for other sites and promote local fabrication. Therefore, the Government requests UNDP/UNIDO assistance for the realization of its above objectives.

B. Development Objectives

To assist in the effective utilization of the country's natural resources and promote the well-being of the population of the rural community. To develop rural industries and agriculture through technological application of renewable sources of energy.

C. Immediate Objectives

- To conduct techno-economic analysis and prepare a Project Report on the establishment of a pilot mini-hydro plant in a selected areas.
- Establishment of a mini-hydro plant.
- Analysis and promotion of local fabrication of feasible components.
- Training of local personnel.

D. Project Outputs

- Establishment of a pilot mini-hydro plant.
- Analysis and promotion of local fabrication of components.

E. Project Inputs

	US$	
Experts:	160,000	
Subcontract:	340,000	(includes some equipment)
Training:	50,000	
Equipment:	300,000	
Miscellaneous:	50,000	
Total	US$ 800,000	

ETHIOPIA

SUMMARY PROJECT PROPOSAL No.III. 4.

Project Title	:	Solar Energy: Simple and Intermediate Equipment Development and Pilot Manufacture
Government Priority Areas	:	(i) Laying down a strong material and technical foundation for the building of the country. (ii) Conserving and developing the natural resources of the country (energy) (iii) development of science and technology. (iv) training of technical personnel.
Government Implementing Agency	:	Ministry of Mines and Energy National Energy Committee in co-operation with Science and Technology Commission.
Executing Agency	:	UNIDO
Estimated Duration of Project	:	3 years
Starting Date	:	March 1983
Total Estimated Project Cost	:	US$ 700,000 UNCDF: US$ 600,000
Government Counterpart Contribution in kind	:	(to be determined)

A. Background and Justification

Development of solar enery technology has been given priority by the "National Energy Committee of Ethiopia". Some applied R & D work has been undertaken by the University of Addis Ababa. The Government has established a programme for solar radiation data with meteorological services. Testing of imported photovoltaic pump is under consideration. Arrangement has been made to secure a thermal pump system. A solar water heater hes been locally made and tested against an imported one.

Preliminary analysis has indicated that there are two possibilities:

a) Development and local manufacture of simple and intermediate solar equipment, such as water heaters for urban use, solar dryers tor selected crops, thermal pumps;

b) Development of local technological competence in keeping abreast with international technological trends, absorption of imported technology.

The Government wishes to establish a solar energy focal point in the form of a development and Pilot Plant. The Government wishes to secure UNDP /UNIDO assistance in this area.

B. Development Objectives

To promote rural and technological development in the field of non-conventional sources of energy and accelerate self reliance.

C. Immediate Objectives

i) to evaluate the applied R & D, existing designs and prototypes of solar equipment.
ii) to adapt the designs and establish a pilot manufacturing programme and undertake demonstration and analysis.
iii) to train local persons in applied R & D and production of simple and intermediate equipment.

D. Project Outputs

i) analysis of potential.
ii) applied R & D programme.
iii) prototype development.
iv) pilot manufacture.
v) field testing and analysis.
vi) manufacturing promotion.

Project Inputs

(A) UNDP IPF		(B) Possible supplementary Fiances UNCDF	
Experts:	US$ 200,000		
Subcontract:	200,000		
Fellowships:	50,000		
Equipment:	100,000	Equipment:	US $ 600,000
Miscellaneous:	50,000		
Total UNDP IPF:	US$ 700,000	Total UNCDF:	US $ 600,000

ETHIOPIA

3 November 1981

SUMMARY PROJECT PROPOSAL No. III. 5.

Project Title	:	Rural Low-Cost Improved Kitchen Stoves: Development, Pilot Fabrication, Extension and Manufacturing Promotion
Government Priority Areas/Objectives Targets/Strategy	:	(i) Improving considerably the material and cultural well-being of the people. (ii) Conserving and developing the natural resources of the country: (energy/wood). (iii) Creating job opportunities for gainful employment. (iv) Upgrading small manufacturing cooperatives.
Government Implementing Agency	:	Ministry of Mines and Energy/ National Energy Committee in cooperation with HASIDA, Ministry of Agriculture etc.
Executing Agency	:	United Nations Industrial Development Organization (UNIDO)
Estimated Duration of Project	:	2 years
Starting Date	:	Proposed - June 1982
Total Estimated Project Cost	:	US $ NIL*
Government Counterpart Contribution in kind	:	(To be Determined)

A. Background Information and Justification

a) In Ethiopia, bio-mass based energy accounts for 96% of the total traditional energy consumption. Wood is the major source of this traditional energy, providing the basic energy requirements of the rural people, primarily for cooking which accounts for more than 80% of the rural energy consumption.

b) Thus around 20 million cubic meters of fuel wood is used in Ethiopia per year. Due to drought, lack of afforestation programmes, and continuous depletion of forests for firewood, the country is

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* (Note: possible alternative sources of finance : UNDP US $200,000)

facing a serious shortage of fire wood/charcoal. The present open fire, "three brick", cooking construction has an efficiency of less than 8%. Through improved kitchen stove construction, a significant amount of fuel wood could be saved. In order to develop such a low-cost improved kitchen stove and assist in its local manufacture in the small-scale sector, the Government requests UNIDO's assistance.

B. Development Objective

To improve the living standards of the rural people through the provision of better low-cost appliances, to conserve national resources as well as foreign exchange.

C. Immediate Objectives

a) To secure information on the work already done in the field of improved cooking stoves in Africa.

b) Identify the most suitable one and develop locally adapted prototypes.

c) Test and conduct socio-economic analysis.

d) Assist in pilot fabrication and extension.

e) Develop rural small-scale enterprenership.

D. Project Outputs

a) Improved cooking stove
b) Training
c) Local fabrication
d) Rural small-scale enterprenership promotion

E. Project Inputs

	US $
Experts	80,000
Sub-contact	50,000
Training	10,000
Equipment	50,000
Miscellaneous	10,000
Total	200,000

ETHIOPIA

3 November 1981

SUMMARY PROJECT PROPOSAL No. III. 6.

Project Title	:	Establishment of Biomass-Based Rural Production Demonstration Units
Government Priority Areas	:	- To conserve and develop natural resources - To improve the material and cultural well being of people - To counteract the negative effects of deforestation on general development, - To contribute to forestry development through natural resource conservation and research - To develop science and technology for practical application in both agriculture and industry in order to raise output and productivity and to lay a firm scientific and technical basis for the country's overall development
Government Implementing Agency	:	Ministry of Mines and Energy/Ethiopian National Energy Committee
Executing Agency	:	UNIDO
Estimated Duration of Project	:	2½ years
Starting Date	:	January 1983
Total Estimated Project Cost	:	$ 1,520,000

A. Background and Justification

1) The search for conventional and alternative sources of energy will demand considerable financing in the immediate future. Exploration for oil, gas or coal has yet to be undertaken on a country-wide basis. The programme of the National Energy Committee (NEC) envisages an intensification of exploration, research and development of conventional and new and

renewable energy resources including biomass, solar, wind and small-scale geothermal energy.

ii) Traditionally, biomass, especially firewood, is being used in the country for cooking and heating purposes in the rural areas. The excessive and random usage of firewood has resulted in the deforestation of some regions, erosion of land and silting.

iii) biomass sources which may be economically utilized are mainly coffe husk, cotton seed shells, cotton seed cake, saw mill and lumbering residues, other prevalent wastes of agricultural and industrial products are being used effectively as fodder or fertilizer.

Annual tonnage of these organic residues are not available. However annual tonnage of coffee husks is estimated at 90,000 tons per year.

iv) Annually, 180,000 tons of charcoal is used inefficiently for a variety of domestic, agricultural and small industrial applications in urban and rural areas. To produce this amount of charcoal 1,800,000 cubic meters of firewood is consumed annually. At the same time the price of firewood continues to increase tremendously.

v) The Ethiopian National Energy Committee (NEC) has already started research and development studies and installed twelve bio-gas demonstration units around Addis Ababa and the gas generated (from 6 to 8 cubic meter) digesters) is being used for lighting and heating purposes in rural homes.

vi) Presently, NEC is planning to start similar activities to develop a technology, to facilitate small-scale ethanol production in rural areas. The domestic and agricultural production and usage of ethanol is expected to result in considerable savings in gasoline consumption in rural areas. The Government, has requested assistance from UNIDO to ensure proper management, and to develop appropriate low-cost technologies for biomass energy conversion and usage.

B. Development Objectives

- To develop renewable sources of energy that are suitable for rural applications and compatible with programmes on rural and agricultural development.
- To develop technologies suitable for energy recovery from biomass in rural areas.

C. Immediate Objectives

- To develop a technology to increase firewood yield, and other technologies utilizing agri-wastes not competitive with traditonal agricultural inputs for increased charcoal production.
- To establish a unit (or units) in rural area to demonstrate suitable technology and application of charcoal production kilns, as well as kiln design and construction.
- To establish a unit (or units) in a rural area to demonstrate the technology for the production of charcoal through pelletizing and briquetting techniques, using other biomass sources such as coffee husks and cotton seed shells.
- To identify other sources of biomass available in rural areas, which can be utilized as domestic and agricultural energy source.
- To establish a pilot scale demonstration unit of pyrolitic conversion of rural wastes to produce gas, pyrolytic liquids "oil", and charcoal.
- To develop a technology suitable for small scale ethanol production in rural areas utilizing agricultural fermentable wastes and to set up a pilot unit.
- In all these area of pilot units/technology, investigate and promote local development and manufactures of "hardware" - especially fabricated components, sheet metal items, mechanical parts and other elements, utilizing the existing engineering production facilities.
- To train a group of Ethiopian technicians abroad, in the various areas of biomass conversion technologies.

D. Project Outputs

- A study identifying biomass sources in Ethiopia, those which are not competitive with traditional agricultural inputs in rural areas.
- A pilot demonstration unit for charcoal production from firewood (kiln design construction and operation).

- A technology developed to produce charcoal from coffe husks, cotton seed shells etc. and a pilot unit for milling, drying and compressing those wastes into pellets and briquettes.
- A pilot plant for pyroltytic conversion of biomass.
- A pilot unit for production of ethanol from rural wastes
- A programme for local development and manufacture of "hardware" necessary to extend the pilot activities to an enlarged national action programme.
- Twelve technicians trained to operate the established biomass production units.

E. Project Inputs	US$
Experts	240,000
Subcontract*	250,000
Training	130,000
Equipment (Laboratory and Pilot Plant)	850,000
Miscellaneous	50,000
Total	1,520,000

*Activities regarding pilot plant equipment, design, manufacture, installation and performance test to be covered under subcontract.

ETHIOPIA

3 November 1981

SUMMARY PROJECT PROPOSAL No. III. 7.

Project Title	: Assistance in the Development and Application of bio-gas Digesters.
Government Priority Area:	: The Development of Science and Technology for practical application in both agriculture and industry in order to raise output and productivity and to lay a firm scientific and technical basis for the country's overall development.
Government Implementing Agency	: Ministry of Industry/Ethiopian National Energy Committee.
Executing Agency	: UNIDO
Estimated Duration of Project	: 4 months
Starting Date	: As soon as possible
Total Estimated Project Cost	: US$ 20,000 (UNIDO - SIS Fund)

Government Counterpart
Contribution in Kind : (To be determined)

A. Background and Justification

The Ethiopian National Energy Committee (NEC) is actively involved in research and development of biogas technology. Under NEC's support and supervision the University of Addis Ababa and Awassa Agricultural Development Institute set-up their own biogas units and are presently carrying out further research activities on biogas generation from rural organic wastes.

In order to create awareness of people, in the applications of biogas, NEC, also provided four small farming units with biogas digesters of Chinese type, and these farms are presently utilizing biogas for domestic heating and lighting purposes.

NEC is planning to install twelve more digesters in 1982, to monitor their performance at different ecological areas. The majority of these digesters will be installed in Asmara near the existing dairy farms and near Mekele.

Mekele is the area which is currently facing serious deforestation problems and promotion of biogas generating units in Mekele is expected to contribute in reducing the fire wood consumption resulting from increasing charcoal production.

The urgently needed UNIDO assistance will support NEC's 1982 rural area biogas Programme.

B. Development Objective

To assist in promoting rural energy programmes through the development of a technology and techniques of application on biogas generation from organic wastes.

C. Immediate Objectives

- To identify the requirements of a plant to manufacture the necessary parts and components for biogas generation and application.
- To investigate and set-up design, manufacture and operation techniques for biogas digesters.
- To identify types of animal and agricultural wastes available in rural areas for biogas generation.
- To train local personnel in the installation and operation of biogas digesters.

D. Project Outputs

- Local design and technology developed for rural area biogas generation from organic wastes.
- Local technicians trained in installation and operation of biogas digesters and in installation of biogas distribution lines and equipment.

E. Project Inputs

	US$
Expert in biogas technology	20,000
Total	20,000

ETHIOPIA

3 November 1981

SUMMARY PROJECT PROPOSAL No. III. 8.

Project Title	:	Handicrafts and Small-Scale Industries Development Phase II
Government Priority Areas	:	The National Democratic Revolution Programme as well as the Ten-Year Investment Programme give highest priority in so far as industry is concerned, to handicraft and small scale industry development in the country. The goal is to mobilize indigenous skills and capital resources, to create employment opportunities in urban and rural areas. Furthermore, both small-scale industry and handicrafts should complete large scale industries and agriculture and bring about decentralization of industries in the country.
Government Implementing Agency	:	HASIDA
Executing Agency	:	UNIDO
Estimated Duration of Project	:	Three Years (1983 - 85)
Starting Date	:	January 1983
Total Estimated Project Cost	:	US $3,340,000
Government Counterpart Contribution in kind	:	(To be determined)

A. Background and Justification

In recognition of the importance of the development of handicrafts and small-scale industries, the UNDP started its programme of technical assistance to HASIDA in 1978 (DP/ETH/77/018). For a variety of reasons the technical assistance project did not achieve all the objectives set for it in the original project document. Moreover, HASIDA was meanwhile entrusted with additional responsibilities and duties. At present HASIDA has well-defined policies and the necessary management capability to carry out its mandate. However, the technical capability in a number of activity areas still needs to be strongly supported for further improvements.

B. Development Objectives

In accordance with the economic and social policies adopted by the Government, highest priority in the industry sector has been given to handicraft and small scale industry development. The objectives are:

- to increase the industrial production of basic needs for the population at large;

- to create employment opportunities in the urban and rural areas through the use of labour-intensive, capital-saving production methods;

- decentralization of industry and a more equal distribution of employment and income.

C. Immediate Objectives

a) To up-grade the skills of the national personnel of HASIDA.

b) To strengthen the operational ability of some functional units.

c) To up-grade and complete the technology centre to carry out on-the-job-training, the development of production techniques as well as product design and development.

d) To provide sufficient skills and equipment for an active industrial extension service to up-grade the production of industrial producer cooperatives as well as small-scale industries on a countrywide basis.

Specifically the assistance should be focussed on the:

- cooperative promotion department,
- small-scale industry promotion department,
- marketing department,
- technology centre.

D. Project Output

a) A cadre of trained local technical personnel.

b) A team of industrial extension services personnel.

c) Equipment valued at US $1.5 million

E. Project Inputs

	US $
Experts	1,400,000
Sub-contract	-
Training	400,000
Equipment	1,500,000
Miscellaneous	40,000
Total	3,340,000*

F. * Remarks

The above project includes specialised expertise for up-grading handicraft cooperatives into industrial producers cooperatives. It is envisaged to apply to the UNCDF for grants of about US $1,250,000 for financing the required equipment for a number of pilot industrial production cooperatives.

ETHIOPIA

SUMMARY PROJECT PROPOSAL No. IV. 1.

Project Title	:	Establishment of Tool and Die, Jig and Fixture Pilot Production unit with a Specialized Technical Service Unit
Government Priority Areas	:	(i) laying down a strong material and technical foundation for the country. (ii) Strengthening and expanding the foreign exchange earning capacity. (iii) increasing industrial production fourfold. (iv) raising substantially local productivity. (v) establishing more industries... . provision of technical services... . (vi) development of science and technology. (vii) assistance to small and industrial co-operatives. (viii) training of personnel.
Government Implementing Agency	:	Ministry of Industry. National Metal Works Corporation.
Executing Agency	:	UNIDO
Extimated Duration of Project	:	4 years and 6 months.
Starting date	:	February 1983
Total Estimated Project Cost	:	US$2.1 million (note: possible supplementary financial sources: UNCDF: US$ 1.0 million).
Government Counterpart Contribution in kind	:	(to be determined)

A. Background and Justification

Although Ethiopia has a number of medium/large scale industries under 14 corporations and a number of small scale industries, there is a major problem with respect to labour productivity, quality of product and cost. In the engineering production and certain allied sectors, availability of the correct production technology, facilities and equipment plays the major role in production of quality products.

In this context, the application of jigs, fixtures, tools, dies and moulds are the most important for improved production. Therefore, a tool room is the basis for all production units in the engineering sector.

There is a need to develop Ethiopia's design and fabrication capabilities in this important field not only to serve existing industries, but also to render service to future industries. Therefore, the Government wishes to secure UNDP/UNIDO assistance in the realization of this objective.

B. Development Objectives

(i) to promote the country's engineering and institutional potential with a view to achieving accelerated selfreliance in the industrial field through local technical manpower development in tool design and development with emphasis on industrial liaison, commercialization and assistance to small and medium industries.

(ii) to make maximum use of existing facilities for commercial manufacture and institutional training through rationalization of physical and technical manpower resources, harmonization of complimentary work programmes and establishment of appropriate inter-linkages.

(iii) to reduce the country's dependence on foreign technology and the consequent drain of its foreign exchange.

C. Immediate Objectives

(i) to analyse the country's needs and annual demand for tools dies, jigs and fixtures and the magnitude and scope for specialized engineering services need by the local industry.

(ii) to establish a National Centre for tool and die, jig and fixture design and manufacture, and the provision of specialized engineering service to industry.

(iii) to establish a joint industrial liaison/commercialization programme between the Unit and the country's industries and provide better service to industry with emphasis on small and medium industries.

(iv) to establish a rationalized technical training programme with emphasis on giving practical training at the Unit and industry.

(v) to establish a joint industrial advisory panel with membership from the country's industries, appropriate institutions and organizations and concerned ministries to advise and assist in programme development and on future activities.

D. Project Outputs

(i) establishment of a Unit for the production of tools and dies, jigs and fixtures and other critical parts.

(ii) Creation of an engineering design and development, training and industrial liaison programme with respect to tools, dies, jigs and fixtures and special spare parts.

(iii) In-service training of local technical personnel and trainees in various aspects of tool and die, jig and fixture design and manufacure.

(iv) A meaningful linkage in the work programme between design/development and production.

(v) Establishment of an industry-oriented Technical Advisory Committee to assist and advise the project to transform their activities to meet the actual needs of the country's industrial sector.

E. Project Inputs

(a) UNDP IPF			(b) Possible Supplementary Sources of Finance UNCDF	
Experts:	US$	800,000		
Subcontract:		400,000		
Training:		100,000		
Equipment:		700,000	Equipment:	US$ 1,000,000
Miscellaneous:		100,000		
Total IPF:	US$	2,000,000	Total CDF:	US$ 1,000,000

ETHIOPIA

3 November 1981

SURVEY PROJECT PROPOSAL No. IV. 2.

Project Title : Engineering Design, Product Development, Industrial Liaison and Service to Industry: Establishment of a National Center.

Government Priorities/ Objectives/Targets/ Strategy :

- Laying down a strong material and technical foundation for the country.
- Strengthening and expanding the country's foreign exchange earning capacity.
- Increasing industrial production fourfold.
- Development of science and technology in industry.
- Establishing more industries.
- Providing technical service
- Training of local personnel.
- Assistance to small industries and industrial cooperatives.

Government Implementing Agency : Ministry of Industry/ National Metal Works Corporation.

Executing Agency	: United Nations Industrial Development Organization (UNIDO)
Estimated Duration of Project	: 4 years and 9 months
Starting Date	: January 1982
Total Estimated Project Cost	: US$ 2.0 million (Note: Possible supplementary sources of finance: UNCDF: US$ 1.0 million
Government Counterpart Contribution in Kind	: (To be determined)

A. Background and Justification

(i) Ethiopia has a number of medium/large scale manufacturing plants under its 14 corporations in the various sectors. There are also a number of small scale enterprises and co-operative production units. The Government also wishes to embark upon a judicious industrial development programme with equal emphasis on investment promotion and foreign technology as well as strengthening of domestic technology and engineering capabilities. In both respects, there is a need to development and adaptation of products, components and production processes.

(ii) In this context, there is a need to promote product diversification and production expansion in the existing industries as well as to promote new industries. Therefore, applied R & D institutions can play an important role in this area. Establishment of an engineering design and industrial liaison activity will bridge the important gap regarding commercialization of applied R & D and entreneurship promotion.

(iii) This will also call for the development of a programme to identify specific R & D programmes which have a potential for commercialization, and the establishment of an industry-oriented activity aimed at transforming specific applied R & D projects into manufacturing projects through engineering techniques.

(iv) Such a programme needs to be established as a new unit or Centre. It is highly desirable that a modest programme be established within an existing industrial or infrastructural facility, with a design office, drawing office, prototype fabrication workshop, industrial liaison unit and technical training unit. The Government wishes to secure UNDP/UNIDO assistance for the realization of this objective.

B. Development Objectives

- To promote the country's engineering and institutional potential with a view to achieving accelerated self-reliance in the industrial field through local technical manpower development in engineering design and development with emphasis on industrial liaison, commercialization and assistance to small and medium industries.

- To promote maximization of existing facilities in commercial manufacture and institutional training through rationalization of physical and technical manpower facilities, harmonization of complimentary work programmes and establishment of appropriate inter-linkages.
- To decrease the country's dependence on foreign technology and the resulting drain on its foreign exchange.
- To increase the country's self-reliance in the area of development of domestic technological and engineering potential through improved quality of production and upgrading of technical skills.
- To transform local applied research and development into commercially viable projects, and to promote local manufacturing through industrial liaison.
- To provide techno-economic and engineering services and promote entrepreneurship,

C. Immediate Objectives

- Establishment of an engineering Centre with engineering design and prototype fabrication with workshop facilities.
- Development of a programme to identify specific R & D Programmes which have a potential for commercialization.
- Establishment of an industry oriented activity to transform specific applied R & D projects through engineering techniques.
- To establish a joint industrial liaison/commercialization programme between the unit and the country's industries, and to provide better service to industry, particularly to small and medium industries.
- To establish a rationalized technical training programme with emphasis on practical training at the unit and industry.

- To establish a joint industrial advisory panel with membership from the country's industries, appropriate institutions and organizations and relevant ministries to advise and assist in programme development and on future activities.

C. Project Outputs

- Establishment of a Center consisting of an engineering design office, prototype fabrication workshop and research and development unit and staff with industry-oriented technical personnel.
- In-service training of institutional technical personnel in the art of applied R & D commercialization, with special emphasis on engineering techniques and techno-economic approaches.
- Establishment of an industry-linked programme to transform specific applied R & D projects to local manufacturing activities.
- Establishment of an inter-disciplinary technical advisory committee to assist and advise the R & D institution on modalities of commercialization of applied R & D and entrepreneurship promotion in the country.

D. Project Input

(a) UNDP - IPF		Possible Supplementary Finances: (b) UNCDF
Experts:	US$ 700,000	
Subcontract:	300,000	
Fellowships:	100,000	
Equipment:	800,000	Equipment: US$ 1,000,000
Miscellaneous:	100,000	
Total IPF:	US$ 2,000,000	US$ 1,000,000

ETHIOPIA

SUMMARY PROJECT PROPOSAL No. IV. 3.

Project Title	:	Energy Conservation, Engineering/Technical Advisory Service to Industry and Industrial Training.
Government Priority Areas	:	(i) laying down a strong technical foundation. (ii) conserving and developing the country's resources: energy. (iii) increasing idustrial production fourfold. (iv) increasing labour productivity. (v) improving managerial and organizational capacity and training of manpower. (vi) establishing more industries, expanding existing industrial enterprises and removing their constraints. (vii) provision of technical and managerial assistance. (viii) development of science and technology for practical application in industry. (ix) Conserving foreign exchange.
Government Implementing Agency	:	Ministry of Mines and Energy/ National Energy Committee in cooperation with Ministry of Industry
Executing Agency	:	UNIDO
Estimated Duration of Project	:	2 years
Starting Date	:	March 1983

Total Estimated Project Cost — US$ 795,000

Government Counterpart Contribution in kind — (to be determined)

A. Background and Justification

The government of Ethiopia attaches great importance to the effective utilization of energy resources. The National Energy Committee is involved in undertaking and coordinating in this field. A national energy planning exercise is being carried out.

The conservation of energy in industry is a subject of concern to the government. Conservation measures in industry has three approaches:

a) policy elements - Government regulations, incentives, penalty, long term benefits, etc.

b) Industrial sectorial elements - total process technology, process planning, machinery selection, plant layout etc.

c) Factory level elements such as instrumentation, heat recovery, boiler efficiency, steam and condensation systems etc.

However, the most important aspect is to train local personnel in advising and assisting in the 'hardware" aspect of energy conservation with emphasis on adaptation of equipment and systems. Therefore, the Government requests UNDP/UNIDO assistance in development of local capabilities in this field.

B. Development Objectives

To assist the Government in the formulation, development, organization and implementation of integrated programme of energy conservation aimed at a more efficient utilization of energy and thereby achieving a significant reduction in the foreign exchange requirements for the import of oil.

C. Immediate Objectives

(i) to assist the Government in establishing a "National Industrial Energy Conservation Technical Unit" with local technicians.

(ii) to assist the Unit in rendering advisory services with emphasis on initiating, formulating, coordinating, implementing and monitoring integrated energy conservation programme in industry.

(iii) to develop appropriate programmes at policy, institutional and factory levels with emphasis on information and dissemination of knowledge, technical advisory services, applied R and D, training to support above objectives.

(iv) to conduct training in heat recovery, boiler plant consideration, instrumentation, process improvement, improved combustion and other important topics.

D. Project Outputs

(i) development of the local technological capabilities in the formulation co-ordination, implementation and monitoring of a national industrial conservation programme.

(ii) An integrated energy conservation team at the responsible Ministry dealing with matters of energy.

(iii) establishment of guidelines at the policy, institutional and factory level to achieve the Government objectives for a significant reduction of foreign exchange requirements for fuel oil imports.

(iv) creation of an inter-ministerial national energy conservation panel to develop national options and policy decisions with reference to industry.

F. Project Input:

	US $
Experts	15,000
Sub-contract	614,000
Fellowships	25,000
Equipment	125,000
Miscellaneous	16,000
Total	795,000

ETHIOPIA

3 November, 1981

SUMMARY PROJECT PROPOSAL No. IV. 4.

Project Title	:	Rehabilitation and Up-grading of the Cast Iron Foundry of the Ethiopian Railways in Dire Dawa
Government Priority Areas	:	(i) Effecting a structural transformation of the national economy by increasing the share of industrial output in the GDP (ii) Improving the country's transportation facilities. (iii) Strengthening the foreign exchange position of the country.
Government Implementing Agency	:	Ministry of Transportation and Communication
Executing Agency	:	UNIDO
Estimated Duration of Project	:	2.5 years
Starting Date		III Quarter 1982
Total Estimated Project Cost	:	US $1.350 Million
Government Counterpart Contribution in kind		(To be determined)

A. Background and Justification

a) At present Ethiopia faces an acute problem of shortage of spare parts particularly for the engineering, textile and cement industries. Transport companies are also hampered by inadequate supplies of spare parts due to the restricted availability of foreign exchange.

b) Available data suggest that at present up to 22.500 tons of cast spare parts valued at US $80 million are being imported annually.

c) There is practically no domestic production of quality castings in spite of the fact that the Cast Iron Foundry in Dire Dawa has 50% of unutilized capacity.

The Foundry became operational about 40 years ago and its poor and worn-out equipment now needs to be at least partly replaced by some new and more appropriate machinery.

d) Rehabilitation of the foundry could easily and quickly lead to the production of an additional output of about 500 tons of castings per year, valued at a minimum of US$2.0 million.

e) If only in consideration of the fact that with a capital outlay of US $1.3 million output valued at US$2.0 million can be produced, this project deserves very high priority. It will make possible increased casting production utilizing the existing productive facilities.

B. Development Objectives

a) Within the general context of the development of the Ethiopian economy, the project aims ultimately at strengthening the industrial and agricultural sectors by undertaking the domestic production of currently imported cast spare parts and cast implements and thereby improving the transportation network of the country.

b) It will also up-grade the skills of Ethiopian workers and technical staff, implement appropriate foundry technologies in melting, moulding, heat-treatment etc., and help save on foreign exchange outlays.

C. Immediate Objectives

a) To develop and produce various castings used as spare and construction parts by engineering, cement, textile, food-processing and other industries and also meet the cast spare parts requirements of machinery and equipment in mining, construction, transport, land development and agricultural sectors;

b) To modernize the existing facilities of the Cast Iron Foundry in Dire Dawa through the installation of modern complementary equipment and laboratory facilities;

c) To implement improved technologies of melting and casting of alloy cast irons including modification and heat-treated alloys, heavy-duty cast grades, etc.;

d) To identify the needs for spare parts and/or cast tools and implements by categories based on their technical properties, such as chemical composition, machining tolerance, mechanical properties, shape, dimensions, construction, etc. and to elaborate a detailed catalogue of the parts recommended for manufacturing.

e) To serve as "ad-interim" supplier of cast spare parts for the country industries based on international production techniques and quality standards, particularly in the period prior the establishment of a Pilot Demonstration Foundry projected by the Ministry of Industry.

f) To provide in-plant training for the technical personnel, workers and supervisors from the project and from other shops.

D. Project Outputs

a) Rationalized demand analysis of cast spare parts requirements of priority sectors and allied sectors.

b) A strengthened and rehabilitated foundry with additional production capacity of 500 tons/year.

c) Local production of selected cast spare parts.

d) Trained manpower in various aspects of foundry technology and cast spare parts production.

e) Approximately US $1.5 million foreign exchange savings.

E. Project Inputs

Project Personnel

- Foundry Expert/Project Coordinator	30 m/m
- Expert in pattern-making	12 m/m
- Expert in industrial design	12 m/m
- Consultants (quality control, heat-treatment, laboratory methods)	6 m/m
Total	60 m/m

Training

- Study tour	2 m/m
- Fellowships	12 m/m
- In-plant group training	30 m/m

Sub-contracts

a) Identification and classification of spare parts requirements.

b) Engineering design on reconstruction of the Foundry.

c) Procurement and installation of the equipment of which the following are envisaged:

- induction melting furnace, 2000 kgs, cap.
- cupola of diameter about 0.8 m with heat-recovery system/or alternatively a rotary drum furnace with carbonising attachment,
- metal holding furnace (for modification processes of alloy cast iron),
- heat-treatment facilities,
- transport equipment,
- testing laboratory for moulding materials,
- mechanical laboratory, including metallographic section.

ETHIOPIA

3 November 1981

SUMMARY PROJECT PROPOSAL No. IV. 5.

Project Title	:	Pilot Demonstration Foundry with Integrated Forge Unit (P.F.U.)
Government Priority Areas	:	(i) Technical foundation for the building of socialist economy and development of Metallurgical Industries. (ii) Conserving the country's foreign exchange earnings. (iii) Provision of cast accessories for constructing 45,000 new housing units a year. (iv) Job creation.
Government Implementing Agency	:	Ministry of Industry/National Metalworks Corporation (NMWC)
Executing Agency	:	UNIDO
Estimated Duration of Project	:	3.5 years
Starting Date	:	2nd. Quarter 1982
Total Estimated Cost	:	IPF - US $1.4 million CDF* - US $2.8 million Total US $4.2 million
Government Counterpart Contribution in kind	:	(To be determined)

A. Background and Justification

a) At present, the production of castings in Ethiopia is relatively very small in relation to the growing demand from the industrial sector. Besides, there is no production of forgings at all.

At the same time, there appears to be an undetermined quantity of scrap metal, particularly iron and steel, scattered all over the country. Meanwhile, the metallurgical shops experience serious shortage of scrap to feed their melting facilities. The country

* CDF - Capital Development Fund administered by UNDP Headquarters, New York.

is facing acute shortages of spare parts in various industrial branches, including the engineering, textile and cement industries. Transport companies also suffer from inadequate supplies of spare parts due to foreign exchange constraints. It is estimated that the country currently imports 22,500 tons of cast spare parts a year valued at US $80 million.

b) As a result, the Government has been actively considering the possibility of establishing a foundry-forge-mechanical unit with a capacity of above 2,000 tons of cast and forged parts per year, mainly to meet the demands of the local engineering, metal, cement and agriculture industries.

Preliminary studies on the establishment of a foundry section integrated with a forge-shop were undertaken by the Government and UNIDO in 1979 and 1980 and the functions envisaged for it identified.

B. Development Objectives

a) To strengthen the industrial and agricultural sectors by providing them with essential inputs metal castings, forgings, spare parts and tools.

b) To develop local skills in the production of these items.

c) To strengthen the country's foreign exchange position through import-substituting domestic production of these items.

C. Immediate Objectives

a) To establish and start operating a modern, well-equipped Pilot Demonstration Foundry complete with a Forge Unit and integrated machinning facilities, laboratories, etc. and with an annual capacity of about 800 tons of grey iron castings, 200 tons of non-ferrous cast alloys and 1,000 tons of steel forgings.

b) To produce a cadre of trained technical and managerial personnel to run the foundry.

D. Outputs

a) A well equipped Pilot Demonstration Foundry with a Forge Unit of the capacity of 2,000 tons/year of cast and forged parts.

b) A cadre of skilled workers and technical staff.

c) Annual output of cast and forged parts to the value of US $10.5 million.

d) Annual savings in foreign exchange of approximately US $6.0 million.

E. Project Inputs

Experts 90 m/m

- Foundry Expert/Project Coordinator
- Metallurgical Expert in Forge Techniques
- Civil Engineering Expert
- Pattern/Dies Designer
- Expert in Metal Scrap Processing
- Consultants

Sub-Contracts

- Engineering design of an enterprise for scrap processing and the concept of national network for scrap collecting.

- Identification of cast and forge parts to be manufactured by the F.F.U. along with the provision of related technical documentation, including tooling, patterns dies plates, etc., quality control procedures and recommended technological processes.

- Complete engineering design, including civil engineering drawings and architectural design.

- Installation of equipment, operational instructing and training of the workers, operators etc., and commissioning the productive sections of the F.F.U.

Training

- Senior study tour for the Foundry Manager (Project Manager) and his Technical Staff Members to visit modern forge shops and foundries and to become acquainted with appropriate processes and equipment - 8 m/m

- Fellowships and technical study or briefings mainly for laboratory assistant, melting foremen, tool-maker, maintenance personnel, e.g. mechanics, electricians etc. - 40 m/m

- In-plant regular training of the personnel of about 70 persons, will be undertaken after the F.F.U. becomes operational.

Equipment

All the main and auxiliary equipment and machinery, including the required installations and accessories, such as transformers, water pumps, air-compressors, cranes, trucks, etc. will be the subject of negotiations with UNDP Headquarters, and financial provision from UN Capital Development Fund.

The overall cost of the equipment is roughly estimated at US $2,800,000 (FOB prices of 1981).

Total Inputs - US $1.4 million

ETHIOPIA

3 November 1981

SUMMARY PROJECT PROPOSAL No. IV. 6.

Project Title	:	Pilot Foundry with Integrated Forge Shop (Advisory - Consulting Service)
Government Priority Areas	:	(i) Technical foundation for the building and development of new industrial branches (foundry and metallurgical industries). (ii) Structural transformation of the national economy by increasing the share of industrial output. (iii) Achieving self-sustained and self-reliant development of the economy (import substitution)
Government Implementing Agency	:	Ministry of Industry
Executing Agency	:	UNIDO
Estimated Duration of Project	:	2 months
Starting Date	:	1st Quarter 1982
Total Estimated Cost	:	SIS US $16,000
Government Contribution in kind		(To be determined)

A. Background and Justification

Due to a lack of foundry and forge productive facilities in the country, the Government has undertaken a number of pre-investment studies on the establishment of a multi-purpose foundry shop (of a pilot demonstration type) combined with a forge section.

Some of the studies have been carried out by foreign companies covering all the techno-economic aspects of the future investment.

The project concept has been analysed and found to be not only feasible but also desirable particularly in light of its import substitution possibilities.

In view of the rapidly growing demand for spare parts by the engineering, metal-working and other industries, the Government would like to start implementing this project as soon as possible.

Implementation cannot commence, however, until the required technology and equipment have been determined by the studies referred to above.

The Government, therefore, requests UNIDO assistance in evaluating the studies already conducted, paying particular attention to capital requirements, availability and properties of local raw materials, production process, manpower requirements, equipment needs, etc.

B. Development Objectives

To create a modern foundry and forge industry as a means of providing a technical foundation to the productive sectors of the economy.

C. Immediate Objectives

To advise the Government on the choice of technology for the establishment of a pilot foundry with an integrated forge shop.

D. Outputs

A report to the Government of Ethiopia containing recommendations on the choice of technology and equipment for the establishment of a pilot foundry with an integrated forge shop.

E. Project Inputs

One Metallurgical Foundry Expert for 2 man/months.

Summary Project Proposal No. IV.7.

Project Title:	Modernization and expansion of existing pharmaceutical industry
Government Priority Areas:	The project will meet the main objectives laid down in the Ten-Year Plan, i.e. to improve considerably the material and cultural well being of the people, to promote the development of small- and medium-scale industries, to create job opportunities and to develop local skills, to provide Basic Health Services of 85% of the rural population or about 30 million people.
Government Implementing Agency:	Ministry of Health, EPHARM
Executing Agency:	United Nations Industrial Development Organization (UNIDO)
Estimated duration of project:	3 years
Starting Date:	Beginning of 1982
Total estimated cost:	US$3,341,800
Government counterpart contribution in kind:	(to be determined)

A. Background and Justification

The modern pharmaceutical industry in Ethiopia started in 1964, pharmaceutical manufacturing technology being dosage form formulation. At present the total production floor area of the pharmaceutical plant (EPHARM) is about 700 m^2. The factory is capable of producing approximately 80 items of essential drugs, the present production capacity of each dosage form being as follows:

(a) tablets - 400,000,000
(b) capsules - 110,000,000
(c) injectables - 5,000,000
(d) antibiotics - 6,000,000
(e) syrups - 100,000 litres
(f) ointments - 75,000 kg.

Since the revolution, annual production of pharmaceuticals has been increased considerably. Now the production capacity is practically fully utilized. The number of employees has reached about 300, and all management and supervision is now being carried out by locally trained pharmacists. However, although the variety and quantity of products is constantly growing, and annual sales have increased to about US$6 million, local formulation is capable of supplying only about 20% of the country's total consumption needs, a ratio far below the countries effective demand for essential drugs. The present per capita consumption is US$0.8, perhaps the lowest figure in the world. Imports of intravenous fluids alone are now costing the country as much as US$1.5 million yearly, in spite of the fact that Ethiopian Pharmaceuticals Manufacturing processes the Basic Technology in this field and is producing Lactate Ringer's Injection. Proposals for commencing local production of intravenous fluids have been under consideration since 1975. The Cost/Benefit ratio for setting up facilities for the production of intravenous fluids with a capacity of 1,000,000 Bags per year (single shift) is estimated to be 33%. Such a facility will create job opportunities for about 50 persons. There is also a possibility of expanding the existing formulation plant and increasing its production capacity by replacing some of the present equipment (such as tablet compressors, driers, mixers) and installing Packaging Machinery, for which there is a first priority need. Considering the vital role of the Ethiopian pharmaceutical industry in maintaining the health of the population, there is an urgent need to start the modernization and expansion of the existing pharmaceutical plant and to establish new facilities for the production of Intravenous Fluids, the latter being a top priority. It is, perhaps, of equal importance to the country to make available veterinary drugs, almost all requirements of which are presently being met through imports. At present EPHARM can produce only a few antibiotics for veterinary use such as penicillin and streptomicin. Taking into account that Ethiopia has the largest livestock population in Africa (70 million cattle, sheep, goats) the demand for veterinary drugs in the country is huge. The Government has given high priority within the agricultural sector to raising the quality of the livestock through the provision of veterinary services and the control of livestock diseases. In order to achieve this objective it is essential to considerably expand the local production of veterinary drugs by establishing production facilities specially designed for this purpose. Bearing in mind that the technology and quality standards for producing veterinary drugs do not differ too much from those for producing pharmaceuticals, it is advisable to attach this to the existing pharmaceutical plant. This will permit fuller capacity utilization of common facilities such as the quality control laboratory and other utilities.

B. Development Objectives

(i) To contribute to the improvement of the country's social health services.

(ii) To bring about self-sufficiency in the manufacture of essential ready-made drugs most commonly used in Ethiopia

(iii) To provide Basic Health Services to 85% of the population, i.e. to about 80 million people.

(iv) To promote employment and development of local manpower and technical skills.

C. Immediate Objectives

(i) To formulate and implement a new programme with a view to increasing the local production of pharmaceuticals from the existing level of 20% of total drug consumption in the country to 50%;

(ii) To make available to the population the most important essential drugs;

(iii) To produce veterinary drugs in accordance with priority needs;

(iv) To transfer appropriate technology for the production of drugs for both human and veterinary use and to introduce Good Manufacturing Practices;

(v) To train sufficient numbers of local personnel for further development of the pharmaceutical industry.

D. Project Outputs

(i) Establishment of a plant with a capacity of 1,000,000 bags of intravenous fluids per year (one shift);

(ii) Modernization and expansion of existing production facilities for the manufacture of various modern dosage forms;

(iii) Strengthening the quality control and product development department;

(iv) Setting up of facilities for the production of veterinary drugs;

(v) Provision of international experts/consultants;

(vi) Training of local personnel through study tours, fellowship programmes and on-the-spot training.

E. Project Inputs

(i) Experts 112 m/m US$716,800

Chief Technical Adviser, Industrial Pharmacist, Processing Engineer, Mechanical Engineer, Quality Control Expert, Short Term Consultants

(ii) Training 60 m/m US$100,000

Training will cover the following fields: management, processing and adaptation of technology, plant operations, maintenance and repair of equipment, quality control, study tours

(iii)	Equipment	US$2,500,000
(iv)	Miscellaneous	US$ 25,000
	Total	US$3,341,800

F. Remarks

All work within the existing pharmaceutical plant is being carried out by local personnel under supervision of local qualified pharmacists. There are 9 local pharmacists and 12 chemists who run the factory. Since nationalisation in 1975, the number of employees has been increased from 130 to 330. During the same period, the management has considerably increased the volume of dosage formulation. The company has the basic technology for the production of almost all types of modern dosage forms. Thus, all the necessary conditions exist for undertaking immediately the implementation of a modernization and expansion programme of pharmaceutical formulation in Ethiopia. It is proposed, therefore, to send a team of experts comprising an industrial pharmacist with wide experience in the design and establishment of a pharmaceutical formulation industry, an industrial technologist with extensive experience in manufacturing various dosage forms and a quality control pharmacist with experience in testing pharmaceutical products and in-process control to accepted international standards, to carry out the following preliminary work which is required for successful implementation of the above large scale project:

- to assess the current and potential needs of the country for essential drugs as well as veterinary drugs, and prepare a 10-year production programme;
- to evaluate existing production facilities, quality control laboratory and research and development department;
- to evaluate buildings already available and propose necessary modifications to make up a newly established production programme;
- to suggest specifications for additional buildings required for a complete implementation of the new production programme;
- to furnish a list of process licensors that could be requested to bid for providing necessary technology and know-how as well as for supplying equipment;
- to prepare a plant layout;
- to prepare a detailed list of equipment with specifications both for production and quality control as well as for research and development;
- to make an assessment of the time required for completing the erection of new buildings and the installation of different items of equipment, and suggest a corresponding time schedule for the implementation of the next phase;
- to make recommendations with regard to local management and technical staff and manpower required for production, packaging, maintenance and quality control;
- to survey training needs and prepare a detailed training programme including fellowships, study tours and in-plant training schemes.

ETHIOPIA

3 November 1981

SUMMARY PROJECT PROPOSAL No. V. 1.

Project Title : Establishment of a national electrical equipment and appliance installation, maintenance, testing and engineering development unit.

Government Priority Areas/ Objectives/Targets/Strategy : - Laying down a strong material and technical foundation for the building of socialism
- Creating job opportunities for gainful employment
- Reducing foreign exchange requirements
- Increasing industrial production fourfold and agricultural production by over 60%
- Improving technical capabilities

Government Implementing Agency : Ministry of Mines and Energy/ Ethiopian Electric Light & Power Authority (Technical Equipment Service and Maintenance Department)

Executing Agency : United Nations Industrial Development Organization (UNIDO)

Estimated Duration of Project	: 3 years 6 months
Starting Date	: January 1983
Total Estimated Project Cost	: US$1.4 million
Government Counterpart Contribution in Kind	: (To be determined)

A. Background and Justification

(i) Ethiopia has a large number of electrical equipment in industries, in the public sector and in the consumer distribution sectors. This equipment services the agricultural, industrial, mining, transport and allied sectors. With regard to electrical appliances, the consumer demand created in recent years is expected to grow.

(ii) The Ethiopian Electric Light & Power Authority operates a variety of imported electrical equipment and a start has been made to produce locally appropriate consumer appliances such as electric ceramic baking plates, pots, etc.

(iii) There is no national focal point for the promotion of the electrical engineering, equipment and appliance aspects, with special reference to installation, repair and maintenance, testing and local adaptation and development.

(iv) It is very necessary that a solid technical foundation should be laid now to develop the Ethiopian technical capabilities to meet the technical challenges of the 1990's. Therefore the Government wishes to secure UNDP/UNIDO assistance in initiating such a programme on a modest basis.

B. Development Objectives

(i) To assist the Government in laying a foundation to develop its technical manpower capabilities to provide service at a national level and to meet the technical challenges of the 1990's in the field of electrical equipment, appliances and engineering.

(ii) To establish a focal point to maintain, test electrical equipment and appliances, render technical service on a national basis, develop national capabilities to absorb imported technology and also develop local applied R & D potential.

C. Immediate Objectives

- To assist the Technical Equipment Service and Maintenance Development of EELPA to establish a unit with the following facilities:

(i) Transformer repair and maintenance shop with testing facilities for 15 kV plant systems.

(ii) Motor and generator repair and maintenance shop with testing facilities for up to 1500 kV sets.

(iii) Industrial, commercial and domestic appliance equipment assembly repair and maintenance shop.

(iv) Set up a primary Standards Laboratory and appropriate equipment to expand the scope of activities of the present Meter Laboratory.

- Develop a national repair and maintenance, testing and technical service to industry.
- Conduct modest applied R + D.
- Train local technical personnel.

D. Project Output

- Formulation of a national programme in the electrical equipment and appliance field.
- Setting up appropriate electrical workshop and laboratory.
- Development of a national consultancy and technical service capabilities.
- Trained technical core manpower.

E. Project Inputs

	US$
Experts:	320,000
Subcontract:	80,000
Training:	100,000
Equipment:	800,000
Miscellaneous:	100,000
TOTAL	$1,400,000

SUMMARY PROJECT PROPOSAL No.V. 2.

Project Title	:	Establishment of a National Electronics Equipment Maintenance, Testing, Technical Service and Development Cell
Government Priority Areas/Objectives/ Targets/Strategies	:	(i) Laying a strong material and technical foundation for the building of socialism. (ii) Increasing industrial production. (iii) Conservation of foreign exchange. (iv) Improving managerial capacity and training of manpower (v) Expanding and improving communications, expansion of telecommunication services and provision of technical services.
Government Implementing Agency	:	Ministry of Transport and Communications (Ethiopian Telecommunication Authority - Technical Sector: Maintenance Coordination Division of Operations Department and Engineering Department)
Executing Agency	:	United Nations Industrial Development Organization (UNIDO)
Estimated Duration of Project	:	4 years
Starting Date:	:	October 1982
Total Estimated Project Cost	:	US$1.8 million
Government Counterpart Contribution in kind	:	(to be determined)

A. Background and Justification

a) Electronic equipment and instruments are used in Ethiopia by the Ethiopian Telecommunication Authority and the Geological Survey Institute. During the next few years, there are possibilities of a selective introduction of electronic equipment, and instruments in the industrial sector. Although there are no known plans for local manufacture of electronic equipment, there are potentials for assembly and eventual local manufacture of selected components for selected products, such as radios, etc.

b) There exists a Telecommunication Electronic Technician Training Centre (UNDP assisted) and a sub-regional microwave network of communication.

c) There is a need to initiate an integrated programme to develop a technical awareness in Ethiopia in the field of the electronics sector and form a nucleus of technical personnel who would become the focal point for promotion of electronic equipment application, maintenance and testing activities. In this context, such a group should also be capable of analysis of imported technology, local adaptation and applied R & D. In other words, an integrated facility and a technical group are to be developed to lay the foundation for achieving technical competence in this field on a national scale during the 1990's. Therefore, the Government requests UNDP/UNIDO assistance for development of such local technological capabilities.

2. Development Objectives

To assist the Government in building up local technological capabilities in vital sectors with a view to laying a solid foundation to meet the technological challenges in the coming years. In this context, to build up a group of maintenance, testing, development engineers capable of absorbing imported technology and developing local technologies in the electronics field.

C. Immediate Objectives

a) To transform the technical department of the Ethiopian Telecommunication Authority into a national focal point in the electronics field.

b) To establish an electronics equipment maintenance, testing and development unit.

c) To develop such a unit to be capable of rendering technical service to all other ministries/departments and industries in the electronics sector.

d) To initiate modest applied R & D programme.

e) To train local personnel.

D. Project Output

a) Establishment of a national Electronics Equipment Unit.

b) Rendering technical service in maintenance and testing.

c) Formulation of trained technical personnel.

d) Modest local R & D capabilities.

E. Project Inputs -

	US $
Experts	600,000
Sub-contract	200,000
Training	200,000
Equipment	700,000
Miscellaneous	100,000
Total	1,800,000

(Note: Recommended 1982 allocation - US $50,000)

ETHIOPIA

3 November, 1981.

SUMMARY PROJECT PROPOSAL No. V. 3.

Project Title	:	Establishment of an Integrated Mini Steel Plant
Government Priority Areas	:	(i) Development of the natural resources of the country. (ii) Structural transformation of the national economy by increasing the share of industrial output in the GDP. (iii) Laying of a strong technical foundation for the building of iron and steel industry.
Government Implementing Agency	:	Ministry of Industry/National Metalworks Corporation
Executing Agency	:	UNIDO
Estimated Duration of Project	:	1 year
Starting Date	:	January 1983
Total Estimated Cost	:	US$263,000
Government Counterpart Contribution in kind	:	(To be determined)

A. Background and Justification

a) The market demand in Ethiopia for steel is expected to rise dramatically in the years ahead. At present, steel consumption is of the order of about 100,000 tons/year against current production of 10,000 tons/year. The shortfall is covered through imports costing an average of about some US $6.5 million annually. In the next 5 to 10 years steel imports alone will cost the nation between US $10 million and US $15 million annually due to rising steel prices. The expenditure on imported steel over the 1980s decade will drain away some US $90 - 100 million in foreign exchange reserves. These figures provide in a nutshell the current/projected position of steel demand and supply.

b) Ethiopia has some well-proven deposits of medium to high-grade iron ore and further exploration/prospecting/proving operations are being stepped up. Present indications are as follows:

- Iron ores (Mei Nejo reserves) - hematite/magnetite in Wollega region - reserves around a million tons.

- Quartizite type of siliceous iron ores - high in silica (iron content 35-40% - reserves - 12 million tons).

- Limonitic types of iron ores - reserves estimated at a million tons, limitic coal deposits exist in Nejo area (ash content 10 - 16%) - reserves not fully estimated so far but are assessed at a million tons.

c) Granted that the current state of knowledge regarding Ethiopia's iron ore and lignite deposits needs to be further augmented by further prospecting/proving, there is no reason, scientific or commercial, why the currently known/proved resources cannot be investigated for sponge production for the steel industry. Under the circumstances, the Government is advised to fully and expeditiously investigate the large-scale use of the existing mineral reserves for sponge/steel production. The foregoing forms the background to and justification for this project.

d) This project is based on a large demonstration scale investigation on the production of sponge iron using indigenous iron ores and lignite after their prior beneficiation and carbonization respectively and preparation of a detailed project report including a comprehensive techno-economic evaluation. Representative tonnage scale samples of iron ore deposits and of lignite reserves will need to be investigated for:

- Benificiation and agglomeration of the iron ores to yield high grade concentrate.

- Carbonization of the lignite at optimum temperature to yield lignite coke.

B. Development Objectives

To provide the basic inter-sectoral linkage and primary heavy infrastructural input needed as a foundation to assure the sound growth of the total economy and to contribute to self-sufficiency in steel products and technology.

C. Immediate Objectives

a) Establishment of an integrated Mini Iron & Steel Industry based on local natural resources (power, water, manpower) and indigenous raw materials (iron ores, lignite, fluxes etc.) through the application of appropriate direct reduction technology for sponge production and steel making in the country.

b) Provision of adequate guidance and techno-economic evaluation to the Ministry of Industry and related decision-making bodies of the Government for the dynamic growth of the Iron & Steel Industry in Ethiopia.

D. Outputs

A detailed project report including comprehensive techno-economic evaluation and demonstration scale investigations on all technical/industrial parameters, etc., for the establishment of the integrated Mini Iron and Steel Industry in the country based, inter alia, on direct

reduction of indigenous iron ores and lignite resources to produce highly metallized sponge iron for steel production in electric ore steel furnace shop. This detailed project report will be completed by a firm of international consultants, who will be contracted by UNIDO for undertaking investigations on a Demonstration Scale, based on established broad Terms of Reference. The report will recommend the choice of an appropriate technology based on the Demonstration Scale, and formulate/delineate the necessary technological/industrial parameters.

E. Project Inputs

Sub-contract - of a techno-economic study on the choice of appropriate technology applicable to the direct reduction process in Ethiopia and mineral resources available (iron-ores, lignite etc.)

F. Remarks

The Ministry of Mines and Energy has strong reservations about the implementation of this project concept for the following reasons:

a) identification of the iron ore deposits is not yet complete: therefore, the exact magnitude of the deposits is not yet known;

b) the cost of in-land transportation of the ore samples for further testing may exceed the amount of Eth. Birr 1.2 million (equivalent US $600,000);

c) a final decision on exploitation of the ore deposits has not yet been undertaken by the Government;

d) in case a positive decision is eventually taken in 1981, all the preparatory work for running the mines, i.e. roads, construction works, installation of machinery, etc., would be completed only in 2 - 3 years time, therefore, this proposal should not be considered as having a high priority at this time.

RECOMMENDATIONS:

1) The project proposal may be included in the list of UNIDO projects following further consultations and clarification of the above objections between Mr. N. Nijhawan, UNIDO Inter-regional Adviser, who is backstopping the project in question, and the Ethiopian Government Authorities concerned.

2. UNIDO will submit its comments by 15 November.

ETHIOPIA

3 November 1981

SUMMARY PROJECT PROPOSAL No. VI. 1.

Project Title	Strengthening of Truck Transport Vehicles Repair and Maintenance Facilities
Government Priority Areas/Objectives/ Targets/Strategy	(i) Bringing about a more equitable distribution of the benefits of development as between the relatively developed and the under-developed regions of the country. (ii) Providing employment to about 5 million persons and reducing under-employment. (iii) Expanding and improving transport services, vehicles and the related facilities.
Government Implementing Agency	Ministry of Transport and Communications/ National Freight Transport Corporation
Executing Agency	: United Nations Industrial Development Organization (UNIDO)
Estimated Duration of Project	: 3 years
Starting Date	: October 1982
Total Estimated Project Cost	US $1.4 million
Government Counterpart Contribution in kind	: (To be Determined)

A. Background Information and Justification

a) The Ministry of Transport and Communications has 12 sub-sectors, Road, air, railways and marine transport constitute the major sectors. Road transport accounts for 90% of national passenger and goods traffic. The National Freight Transport Corporation, Public Transport Corporation and Road Transport Authority (regulatory body) are the major agencies.

b) Truck transport is the most important distribution system in Ethiopia. There are around 5,600 trucks in the country of which 25% are owned by the National Freight Transport Corporation (NFTC) and the rest by the public. The country is divided into five zones and each zone has its own truck fleet. More than 50% of the truck traffic is in Zone No. 5, which is from Addis Ababa to the port of Assab. Zone No. 6 is fuel truck service distribution all over the country.

c) An effective repair and maintenance programme is one of the priority areas of NFTC to provide prompt and reliable service in public and private sectors. NFTC is in the process of establishing a Central Repair and Maintenance Garage in Addis Ababa and 5 regional workshops in 5 major towns. The Central Workshop will have an investment of around 7 - 9 million Birr with a machine tools and equipment component of around 3 - 4 million Birr. The planned total work force is around 500, of whom 50 - 60 are technical staff and 8 - 10 senior engineers. The workshop will have various departments for specialized services. The Government wishes to secure UNDP/UNIDO assistance in the organization of the Central Workshop, development of regional workshops and for developing an integrated workshop operation and repair and maintenance techniques and testing facilities.

B. Development Objectives

To contribute to the socio-economic development of Ethiopia by strengthening the distribution system through organized repair and maintenance programmes with a view to providing reliable services and achieving significant savings in foreign exchange.

C. Immediate Objectives

a) To assist in the establishment of integrated repair and maintenance facilities in the Central Workshop.

b) To promote complementarity between the Central and the regional Workshops.

c) To assist in the establishment of testing facilities.

d) To assist in workshop and work programme organization and develop integrated repair and maintenance systems.

e) To train local personnel.

D. Project Outputs

a) Establishment of a Central Workshop and related regional network of workshops.

b) Introduction and operation of testing facilities and techniques.

c) Development of integrated repair and maintenance programme.

d) Training of key personnel.

E. Project Inputs -

	US $
Experts	400,000
Sub-contract	100,000
Training	100,000
Equipment	700,000
Miscellaneous	100,000
Total	1,400,000

(Note: Recommended 1982 allocation US $60,000).

ETHIOPIA

3 November 1981

SUMMARY PROJECT PROPOSAL No. VI. 2

Project Title	:	Consolidation and Expansion of Workshop for Repair and Maintenance of Mining Equipment and Fabrication of Components in Sidamo
Government Priority Areas/Targets/Strategy		i) Effecting a structural transformation of the national economy by increasing the share of industrial output and thereby achieving self-sustained development. ii) Reducing foreign exchange commitments. iii) Conserving and developing natural resources of the country. iv) Improving managerial and organizational capacity and training of manpower.
Government Implementing Agency	:	Ministry of Mines and Energy/Department of Mines
Executing Agency	:	United Nations Industrial Development Organization (UNIDO)
Estimated Duration of Project	:	3 years
Starting Date	:	January 1983
Total Estimated Project Cost	:	US$900,000
Government Counterpart Contribution in kind	:	(To be Determined)

A. Background Information and Justification

a) Ethiopia has a significant endowment of mineral resources on which effective identification and exploration work has been undertaken only during the past few years. Although gold and platinum are the only minerals mined at present, there are good prospects also for the possible exploitation of zinc, potash, copper, lignite, iron and many ceramic minerals. At present surface mining is common, but mechanized and sub-surface mining is likely to be introduced in the next few years.

b) In Sidamo (500 km from Addis Ababa) the gold mines have 2 small workshops. There are around 15 dumpers, 15 bulldozers, 2 excavators, 2 washing plants, a 1,500 kw hydro power plant, 3 generators, 40 - 50 km pipeline and 20 Diesel pumps (75 - 80 HP average). The two small workshops (total 90 workers) manufacture bolts and nuts, shafts and some parts for excavators, fabricate washing plants, structural items, wheel barrows and other items.

c) The Government wishes to secure UNDP/UNIDO assistance towards consolidation of the two workshops into a single Central Workshop for repair and maintenance and to strengthen its parts production and fabrication capabilities to meet the increasing mining activities in future years.

B. Development Objectives

To assist the country in its endeavour for higher utilization of natural resources through enhancing its equipment utilization and maintenance capabilities and thus reducing its requirements for foreign exchange.

C. Immediate Objectives

a) Consolidation of 2 small workshops in Sidamo Province into a single workshop at the most convenient location and transformation of the facilities into a Central Workshop.

b) Organization of an integrated repair and maintenance programme.

c) Strengthening the capability for producing more parts and components, and fabricating possible structures and mining equipment products.

d) Training local personnel.

D. Project Output

a) An integrated Central Workshop with better repair and maintenance and component production capabilities.

b) A rationalized programme of repair and maintenance.

c) Trained personnel.

E. Project Inputs -

	US $
Experts	350,000
Sub-contract	50,000
Training	50,000
Equipment	400,000
Miscellaneous	50,000
Total	900,000

ETHIOPIA

3 November 1981

SUMMARY PROJECT PROPOSAL No. VI. 3

Project Title	: Assistance to the Planned Central Machinery Workshop: Wood Working Industries
Government Priority Areas/ Objectives/Targets/Strategy	: - Improving considerably the material and cultural well-being of the people - Conserving and developing the natural resources of the country - Reduction of foreign exchange requirements - Increasing industrial production fourfold - Raising substantially labour productivity - Training of manpower.
Government Implementing Agency	: Ministry of Industry/ Ethiopian Wood Working Corporation
Executing Agency	: United Nations Industrial Development Organization (UNIDO)
Estimated Duration of the Project	: 2 years 6 months

Starting Date : January 1983

Total Estimated Project Cost : US$850,000

Government Counterpart Constribution in Kind : (To be determined)

A. Background and Justification

(i) The Ethiopian Wood Working Corporation has 7 production units: ECAFCO, Addis (Chip Board); WANZA, Addis, with sub-units at Awash and Jimma (joinery, windows); ENTERPRISE, Addis, with sub-unit at Jimma (plywood); ETHARSO, Addis (hard-and softboard); WANZA, Addis (household and office furniture); 3F, Addis (funiture-Jobbing) and TELLEFSEF, Addis (furniture-utility).

(ii) At present there are 7 small maintenance workshops, one under each unit. The majority of plants are facing frequent mechanical breakdowns. Although it is generally due to the old age of the machinery and equipment involved, the lack of maintenance and workshop technology is also a major contributor to this situation.

(iii) The Government wishes to re-organize the 7 small repair and maintenance workshops and transform one of them into a Central Workshop with a view to providing a rationalized repair and maintenance service. This will call for supplementary workshop machinery and expertise in workshop technology, repair and maintenance and training of technical personnel. The Government wishes to secure UNDP/UNIDO assistance for the realization of this objective.

B. Development Objectives : To assist the country in the beter utilization of existing natural resources with special emphasis on production technology and maintenance of equipment and thus save foreign exchange and improve production.

C. Immediate Objectives :
- To analyse the existing 7 small workshops and develop a programme of rationalization and transformation of one of them into a Central Workshop.
- To strengthen the Central Workshop with appropriate machinery and equipment.
- To establish an interlinked programme for repair and maintenance and technical service to all production units.
- To promote efficient workshop technology.
- To train personnel.

D. Project Outputs :
- Establishment of a Central Repair and Maintenance Workshop.
- Implementation of an interlinked repair and maintenance programme.
- Improved workshop technology.
- Training of personnel

E. Project Inputs

		US $
Experts:		275,000
Subcontract:		125,000
Training:		50,000
Equipment:		350,000
Miscellaneous:		50,000
Total	15%	850,000

ETHIOPIA

SUMMARY PROJECT PROPOSAL No. VI. 4

Project Title	:	Assistance on Engineering and Technical Maintenance of Precision Control, Testing and Analytical Instrument/Equipment of the Ethiopian Instiute of Geological Surveys.
Government Priority Areas	:	(i) Conserving and developing the natural resources of the country. (ii) increasing the country's export earnings. (iii) exploration and exploitation of mineral resources. (iv) expansion and development of related industries.
Government Implementing Agency	:	Ministry of Mines and Energy. Ethiopian Institute of Geological Surveys.
Executing Agency	:	UNIDO
Estimated Duration of the Project	:	2 years
Starting Date	:	March 1983
Total Estimated Project Cost	:	US$ 400,000
Government Counterpart Contribution in kind	:	(to be determined)

A. Background and Justification

The government of Ethiopia accords high priority to the exploration and exploitation of the country's mineral resources. The Geological Survey Institute is involved in various activities such as regional mapping, economic geology, hydrology, chemical analysis and geophysical analysis.

The problem of engineering and technical maintenance of the precision instruments has become a major one. There are control, analytical and testing instruments (electromagnetic, electrical, electronic) which require a programme on training in repair and maintenance and some critical spares. The Government wishes to secure UNDP/UNIDO assistance in solving this problem.

B. Development Objectives

To assist the country in the development of its potential to be self-reliant in maintenance technology, reduce foreign exchange commitments and train personnel.

C. Immediate Objectives

(i) to analyse the techno-economic problems in repair and maintenance of equipment.

(ii) to strengthen the existing engineering and technical maintenance cell.

(iii) to develop an integrated repair and maintenance programme.

(iv) to train personnel.

D. Project Output

(i) A fully equipped precision instrumentation repair and maintenance cell.

(ii) Reduction of the number of "out of commission" instruments.

(iii) Trained personnel.

E. Project Inputs -

Experts/Consultants:	US $ 80,000
Subcontract_:	50,000
Training:	40,000
Equipment:	200,000
Miscellaneous:	40,000
	Total US $ 400,000

ETHIOPIA

3 November 1981

SUMMARY PROJECT PROPOSAL No. VI. 5.

Project Title	:	Establishment of a Pilot Gold Extraction Plant
Government Priority Areas	:	(i) Developing the natural resources of the country. (ii) Expanding the foreign exchange earning capacity of the country
Government Implementing Agency	:	Ministry of Mines and Energy
Executing Agency	:	UNIDO
Estimated Duration of Project	:	2.5 years
Starting Date	:	1st. Quarter, 1983
Total Estimated Cost	:	US $1.3 million
Government Contribution in kind	:	(To be determined)

A. Background and Justification

a) The Adola mining area of Ethiopia has been a gold-producing region for 30 years. Several geological surveys in the area have led to the discovery of two primary gold deposits of commercial quantities.

b) It has been confirmed that the gold content in the quartz veins in the area varies from visible grains to very fine gold flakes.

Since the quantity of recoverable gold depends on the method of mining and the efficiency of extraction, the need for establishing an efficient modern plant equipped with the required laboratory facilities has been recognized.

c) The project is intended to integrate all current research and explcitation activity with a view to rationalizing and intensifying gold production in the country.

B. Development Objectives

Developing the country's gold ore resources generating national income through the commercial explcitation and marketing of the country's gold deposits.

C. Immediate Objectives

a) To introduce an efficient gold extraction process by establishing a pilot plant for the purpose, complete with the necessary equipment and laboratory facilities.

b) To transmit modern gold extraction and refining skills to Ethiopian technical staff.

D. Project Outputs

a) Pilot Gold Extraction Plant with laboratory facilities.

b) A set of guidelines on standardization and quality control methods.

c) Increased gold output.

d) A cadre of trained technical personnel.

E. Project Inputs

Project Personnel

- Mineral Processing Expert/Project Coordinator		30 m/m
- Expert on gold extraction techniques		18 m/m
- Civil Engineering Consultant	locally employed	10 m/m
- Personnel for installation works (mechanic, electrician)	locally employed	12 m/m
Sub-total		70 m/m

Training

- Study tour	2 m/m
- Fellowships	24 m/m
Sub-total	26 m/m

Sub-contracts

- Complete engineering design
- construction of building

Equipment

- Crushers
- Grinders
- Mills
- Amalgamation equipment
- Laboratory accessories
- Cynidation equipment
- Others.

ETHIOPIA

3 November 1981

SUMMARY PROJECT PROPOSAL No. VI. 6.

Project Title	:	Establishment of a Building Materials Research Center
Government Priority Areas	:	(i) Conservation and development of the country's natural resources. (ii) Creation of job opportunities and productive employment. (iii) Strengthening and expanding of foreign exchange earnings. (iv) Construction of 45,000 new housing units per year. (v) Development of science and technology as a basis for the country's overall development. (vi) Diversification of the economy.
Government Implementing Agency	:	Ministry of Industry/Building Materials Corporation
Executing Agency	:	UNIDO
Estimated Duration of Project	:	4 years
Starting Date	:	January 1983
Total Estimated Project Cost	:	US $2,050,000
Government Counterpart Contribution in kind	:	(To be determined)

A. Background and Justification

The building materials industry in Ethiopia occupies an important place in the country's economy given the enormous need for low-cost housing for the masses of the people including those in urgent need of resettlement. It is also a labour-intensive industry and, therefore, are with considerable job-creation possibilities.

In the last two years, the Ethiopian Building Materials Corporation made modest attempts to develop building materials industry, but its efforts were hampered by a variety of factors including a lack of skilled manpower and inadequate technologies.

To overcome these difficulties, appropriate technologies must identify a systematic search for already known technologies available elsewhere which could be adapted to the local environment, and to carry out applied research as necessary in this field. With this in mind, the Ministry of Industry is seriously considering centralizing the research activities in this field and is, therefore, seeking technical assistance for the establishment of a Research Center to service the Building Materials Industry.

B. Development Objective

To build up the country's technological capability in the area of building materials development.

C. Immediate Objectives

To establish a Building Materials research center capable of carrying out the following functions:

- raw material investigations and testing,
- development of technological processes appropriate to local natural resources, needs and priorities,
- collection and dissemination of technological information in the field of building materials development,
- provision of consultancy services in all aspects of the industry including energy use and its conservation,
- training of personnel at all levels,
- conducting studies in support of low-cost housing schemes.

D. Project Outputs

A Research Center in service of the building materials industry, comprising laboratories, pilot plant(s), training facilities, information center, library, offices, equipment and staff.

E. Project Inputs

		US $
Experts	81 m/m	510,000
Sub-contracts		160,000
Training		
- Fellowships	120 m/m	240,000
- Study Tours	20 m/m	50,000
Equipment		1,050,000
Miscellaneous		40,000
Total		2,050,000

ETHIOPIA

3 November 1981

SUMMARY PROJECT PROPOSAL No. VI. 7

Project Title	:	Assistance to the Ethiopian Building Materials Corporation
Government Priority Areas	:	Setting and or strengthening of manufacturing units in the building materials sector for the processing of domestic raw materials.
Government Implementing Agency	:	Ministry of Industry/Building Materials Corporation
Executing Agency	:	UNIDO
Estimated Duration of Project	:	3 years
Starting Date	:	January 1983
Total Estimated Project Cost	:	US $986,000
Government Counterpart Contribution in kind	:	(To be determined)

A. Background and Justification

The Ten-Year Investment Programme of Ethiopia envisages the development of the building materials sector in order to increase supply of locally produced goods and to reduce the country's foreign exchange commitments. The Building Materials Corporation has identified the glass, cement and low-cost building materials industries as needing special assistance in order to achieve efficiency of production

At present there is no sheet glass manufacturing plant in Ethiopia to meet the increasing local demand for sheet glass. Moreover, the massive housing construction programme envisaged in the Ten-Year Investment Programme is such that the demand for cement will rise very sharply in relation to planned new cement factories. In the rural areas, houses constructed with local materials are of poor quality and durability.

In all of the above three areas there is need for a systematic investigation, in depth studies and technology-oriented research activities to improve the existing situation and to develop local expertise to solve production problems.

B. Development Objectives

a) To provide assistance in improving and securing the industrial exploitation of locally available raw materials for new and existing building materials industries.

b) To strengthen the construction sector, which suffers from acute shortages of low-cost building materials, by strengthening its main supplies of inputs.

c) To improve urban and rural housing in the country.

C. Immediate Objectives

1. Glass Industry

- To prepare a techno-economic study for the establishment of a sheet glass factory;

- To assess the quality and quantity of raw materials available for the manufacture of sheet glass;

- To assist in selecting the technology and in finalizing contractual arrangement for sheet-glass production;

- To train technical personnel for the operation of glass factories.

2. Cement Industry

- To establish a corps of highly qualified Ethiopian Cement experts to assist the Ethiopian cement industry with consultancy, advisory and trouble-shooting services;

- To provide modest equipment spares.

3. Low-Cost Building Materials Industry

- To promote the efficient utilization of limestone, diatomite and volcanic puzzolannes in Ethiopia.

- To establish techniques and suitable technologies to serve the utilization of hydrolic lime and puzzolannes/hydraulic blinders as substitutes for portland cement for rural housing;

- To train local personnel to introduce new lines production technology/firing techniques and in making use of local agricultural wastes (coffee husks) as fuel.

D. Project Outputs

1. Glass Industry

- A techno-economic study, evaluating the economic viability of selected technologies and qualitative and quantitative analysis of local raw materials and providing terms of reference for inviting international tenders.

- Five Ethiopian engineers trained in sheet glass technology.

2. Cement Industry

- Ten trained Ethiopian engineers.

3. Low-Cost Building Materials

- An inventory and assessment of locally available low-cost building materials.
- Small scale proto-type kilns designed and manufactured to demonstrate local technologies for producing binding materials.
- Ten trained Ethiopian technicians to conduct demonstrations of techniques for the production of low-cost building materials.

E. Project Inputs

	US $
1. Glass Industry	
Experts	128,000
Training/Fellowships	75,000
Supplementary Lab. Equipment	40,000
Miscellaneous	12,000
Sub-Total	255,000
2. Cement Industry	
Experts (training)	168,000
Training/Fellowships	240,000
Equipment	30,000
Miscellaneous	12,000
Sub-Total	450,000
3. Low-Cost Building Materials	
Experts	126,000
Training/Fellowships	50,000
Equipment	80,000
Miscellaneous	25,000
Sub-Total	281,000
Total	986,000

F. Remarks

The above project is proposed mainly to provide urgently needed technical assistance in three specific building materials industries. Its objectives are however complementary to those of the Building Materials Research Center which is proposed as a separate project within the Building Materials Corporation.

ETHIOPIA

3 November, 1981

SUMMARY PROJECT PROPOSAL No. VI.82.

Project Title	:	Assistance in the Establishment of a Pilot Soda Ash Production Plant
Government Priority Areas	:	i) Strengthening and expanding the foreign exchange earning capacity of the country, through establishment of new industries based on domestic raw materials; ii) Import substitution; iii) Economic diversification; iv) Economic self-reliance and self-sufficiency.
Government Implementing Agency	:	Ministry of Industry/Ethiopian Chemical Industry Corporation
Executing Agency	:	UNIDO
Estimated Duration of Project	:	3½ years
Starting Date	:	November 1982
Total Estimated Project Cost	:	US $2,175,000
Government Counterpart Contribution in kind	:	(to be determined)

A. Background and Justification

Soda ash is a chemical product with numerous applications. Its importance is similar to that of sulphuric acid, caustic soda, hydrochloric acid, chlorine and some other basic inorganic chemical compounds.

Ethiopia imports approximately 6,000 tons of soda ash per year at a total estimated annual cost of around US $3,600,000. The glass and bottle making factory in Addis Ababa is the major user of the imported soda ash, and production of glass is scheduled to increase over the coming years. The Ethiopian Chemical Corporation, in cooperation with the Geological Survey Institute of the Ministry of Mines and Energy has started preliminary investigations on the alkaline properties of the Rift Valley lakes, and a meteorological station is at present collecting data on climatic changes in the area of Lake Shalla and Lake Chitu. The Ethiopian Chemical Corporation is planning to establish a pilot-plant for soda ash production at the site of Lake Chitu which will provide a basis for the development of the required skills and technical know-how for a future large-scale industrial operation.

B. Development Objectives

- To introduce Soda Ash Production Technology into the country;
- To increase the exploitation of local natural resources;
- To create skilled industrial manpower;
- To improve the country's foreign exchange earning capability.

C. Immediate Objectives

- To carry out a study to assess the techno-economic feasibility of producing soda ash from the brine waters of Rift Valley lakes;
- To analyse the possibility of utilizing solar and geo-thermal energy resources at the same area for the purpose of such a project;
- To select the technology and determine the production capacity of the pilot plant based on the results of the above study;
- To establish a soda ash pilot-plant;
- To train Ethiopian technicians in this field.

D. Project Outputs

Phase I

- A techno-economic study to assess the possibility of qualitative and quantitative suitability of the brine waters of the Rift Valley lakes.
- Elaboration of the technology and preparation of specifications of the equipment needed for the pilo-plant operations and for laboratory tests.
- Three trained Ethiopian engineers in the field of soda ash production technology.

Phase II

- A pilot soda ash production plant;
- A group of 10 to 15 Ethiopian technicians trained to operate the pilot-plant.

E. Project Inputs

Phase I	US $
Experts	60,000
Training	
Fellowships	25,000
Study-tour	15,000
Equipment (Supplementary Lab. for testing)	40,000
Miscellaneous	15,000
Sub-total (Phase I)	155,000

Phase II	
Experts	180,000
Sub-contract (design, testing, and installation of equipment)	250,000
Training	60,000
Equipment	1,500,000
Miscellaneous	30,000
Sub-total (Phase II)	2,020,000
Total	2,175,000

F. Remarks

In preparing the draft project document serious consideration should be given to the desirability of sub-contracting the activities regarding equipment design and delivery, installation of the pilot-plant as well as trial and performance tests - all with due emphasis sub-contractors' guarantees of smooth running operations for at least 6 months at the planned effective capacity.

ETHIOPIA

SUMMARY PROJECT PROPOSAL No. VI. 9.

Project Title:	Establishment of a Ceramic Pilot Plant for the Manufacture of Electrical Household Appliances
Government Priority Areas:	- increasing industrial production facilities, - increasing foreign exchange earning capacity through import substitution, - creating job opportunities and skilled manpower, - improving the material and cultural well being of people.
Government Implementing Agency:	Ethiopian Electric Light and Power Authority
Executing Agency:	UNIDO
Estimated Duration of Project:	2½ years
Starting Date:	January, 1983
Total Estimated Project Cost:	US $ 675,000
Government Counterpart Contribution in Kind:	(To be determined)

A. Background and Justification:

In the house of an Ethiopian, one is likely to find a ceramic plate "mitad" - with a circular diameter of 60 cm. with cover, for baking the national bread (Injera), and a "dist" - a ceramic pot with a lid for cooking the national stew (wat). Baking and cooking heat is generally provided by fire-wood. However, the cost of fire-wood has increased tremendously in recent years, making the use of electricity now more economical. Consequently the Ethiopian Electric Light and Power Authority (ELPA), with a view to developing greater utilization of electrical energy, has undertaken investigations on possibilities of manufacturing electrical "mitads" that are safe, economical and reliable in performance.

The investigations have resulted in a design and production process for the manufacture of both the mitad and the dist. To date, ELPA received limited financial assistance from the Swedish Government

with which it has sub-contracted the Italian National Institute for Ceramics Technology (RTEC) to:

- investigate the electrical and mechanical characteristics of various locally available ceramic raw materials;

- develop an appropriate technology, and identify equipment with design specifications required for a pilot-plant which is expected to produce 10,000 mitads and 100,000 dists per year.

The results of RTEC's investigations will be available at the end of 1982, and ELPA is urgently in need of further technical assistance which will provide continuity to the project leading to the establishment of a pilot-plant.

B. Development Objectives:

To develop a suitable technology for the local manufacture of ceramic heating and cooking electrical appliances and to improve the efficiency of local ceramic raw materials and fire-wood utilization.

C. Immediate Objectives:

- To establish a ceramic pilot-plant for the pilot production of domestic electrical cooking and heating appliances and in the process provide or improve domestic technical design and production know-how;

- To train Ethiopian technicians in the field of ceramic technology and production techniques.

D. Project Outputs:

- A pilot-plant and 10 local technical personnel trained in the field of ceramic production technology, and in the design and production of domestic electrical cooking appliances.

E. Project Inputs:

	US$
Experts	90,000
Sub-contract for additional testing	25,000
Equipment for pilot-plant raw material and quality control testing	470,000
Training	60,000
Miscellaneous	30,000
Total	675,000

F. Remarks:

Possible alternative financing sources: UNDP or UNIDF

ETHIOPIA

3 November 1981

SUMMARY PROJECT PROPOSAL No. VI. 10.

Project Title	:	Design and Initial Operation of Special Equipment Maintenance Management Systems in two Selected Textile Model Plants
Government Priority Areas	:	Increasing industrial production of consumer goods (through reduced downtime of production equipment).
Government Implementing Agency	:	National Textile Corporation
Executing Agency		United Nations Industrial Development Organizations (UNIDO)
Estimated Duration of Project	:	2.5 years
Starting Date	:	1983
Total Estimated Cost	:	US $990,000
Government Counterpart Contribution in Kind	:	(To be Determined)

A. Background and Justification

This textile industry in Ethiopia, under the National Textile Corporation (NTC), is the largest industrial sub-sector in Ethiopia with valuable and sophisticated production equipment. Both the old and the new equipment can only be kept operational and thus productive with a maximum effort in (preventive) maintenance.

NTC is aware of this fact and, therefore, already started some cooperation with the National Productivity Center (NPC) which trained mechanical engineers and introduced a simple maintenance organization in one department of the integrated Akaki Textile Mill.

According to NPC's own indications and NTC's experience with NPC, however, specialized outside expertise is required to design and introduce the operation of maintenance management systems and required engineering and mechanical skills to periodically, and efficiently service the mostly sophisticated precision equipment for textile fibre processing. Properly maintained textile equipment not only produces more products for local consumers but also turns out higher quality products. This later point is particularly important in view of the efforts of the Ethiopian Government to increase exports and to enter into new markets.

The planned design and introduction of operational maintenance management systems in two "pilot plants" of NTC near Addis Ababa (Akaki Textile Mill and Adei Abeba Cotton Factory), both around 20 years old with several reinvestments and/or expansions, should serve as model plants for the later introduction of these maintenance management systems in the other 12 enterprises of NTC with the exclusive help of trained, national engineers.

Considering the importance of Ethiopia's textile industry which converts mainly local raw material into partly exportable consumer goods, the proposed technical assistance projects is justified.

B. Development Objectives

The provision of sufficient and suitable quality clothing for increasing the local living standards of the people as well as for increasing the country's export earnings are the general objectives of this project.

C. Immediate Objectives

NTC will design, introduce and operate maintenance management systems tailor-made to their existing machinery of different age and origin in two model textile plants near Addis Ababa.

The experience gained during the proposed technical assistance project will enable Ethiopian engineers and counterparts of foreign experts to subsequently introduce similar maintenance management systems into the other NTC plants.

D. Project Outputs

For one integrated cotton processing textile mill (Akaki) and for one spinning mill (Adei Abeba) (preventive) maintenance management systems will be designed and introduced for all equipment for spinning preparation, spinning and - where applicable - for weaving preparation, weaving and finishing equipment.

Three suitably trained and experienced Ethiopian mechanical engineers will after the project be able to introduce new systems also into other NTC plants.

In Akaki Textile Mill, the systems will be designed and finally operated with the help of small, electronic data processing equipment.

The mechanical maintenance workshops of the two model plants will be inspected and all missing equipment and tools for (preventive) maintenance will be enumerated together with cost estimates for procurement.

E. Project Inputs

The above technical assistance is multi-disciplinary and requires the exact timely input of diversified although necessarily compatible

expertise. In these cases, sub-contracting of a reputable, specialized consulting firm is recommended.

The areas of expertise will comprise:

1. textile and mechanical engineering,
2. workshop management and operation,
3. organization/information system,
4. electronic data processing hard and software.

The elements of the project input are:

	Total (from 1983) US $ equivalent
Sub-contract	850,000
Training	50,000
Equipment	75,000
Miscellaneous	15,000
Total	990,000

ETHIOPIA

SUMMARY PROJECT PROPOSAL NO. VII. 1.

PROJECT TITLE:	Assistance to the Development Projects Study Agency - Phase II
GOVERNMENT PRIORITY AREA(S):	Project Preparation
GOVERNMENT IMPLEMENTING AGENCY:	The Development Projects Study Agency (DPSA) Central Planning Supreme Council
EXECUTING AGENCY:	United Nations Industrial Development Organization (UNIDO)
ESTIMATED DURATION OF PROJECT:	Four years
STARTING DATE:	January, 1983
TOTAL ESTIMATED PROJECT COST:	US$2,643,600
GOVERNMENT COUNTERPART CONTRIBUTION IN KIND:	(To be determined)

A. Background and Justification

In 1970 the population of Ethiopia was estimated at 31 million, of which only 14% lived in urban areas.

The Government of Socialist Ethiopia has launched three annual developing campaigns (1979-81) oriented towards the alleviation of urgent problems facing the country. These campaigns have not only contributed to the reconstruction and stabilization of the national economy but have also served to identify major constraints as well as strategies for redressing them.

As the DPSA is part of the Government machinery, under the aegis of the Central Planning Supreme Council, for carrying out project preparation, appraisal and evaluation.

In performing these duties during the third country programme period, the staff of the DPSA, in spite of their growing expertise and sophistication will continue to need the assistance of expatriate experts.

The ongoing project DP/ETH/80/005 has already laid the groundwork in this regard.

The ten-year development plan enumerates no fewer than 138 projects, with a combined investment cost of about US$13 billion. Some of these projects are in the pre-feasibility phase, some are already approved but under reappraisal, and some are under implementation during which the necessity of working out new alternatives has emerged. At present the DPSA cannot even hope to master the ever changing circumstances of such an enormous scale of investment programme, therefore, it needs not only an adequate number of suitably trained personnel, but the necessary up-to-date technical facilities as well, which will enable it to cope with the situation.

The mainframe computer with its peripherals, accessories and special UNIDO software that this UNDP project expects to receive promises tremendous advantages to DPSA, - but only if its proper utilization is assured in the form of an assistance for at least two years of intensive internal training of the counterparts in programming techniques, and four years in the general econometric application of the computer in various fields (e.g. project

feasibility, financial and statistical analyses,trend and probability calculations economic and financial modelling as well as optimization problems, project implementation monitoring, network techniques, and so forth).

In order to achieve the above-mentioned objectives and targets, the Government of Socialist Ethiopia requests the UNDP to include in the next country programme (1983-1986) an extension of the assistance which is provided presently to DPSA under the project DP/ETH/80/005, with the necessary changes appropriate to the already achieved outputs of the project and to the envisaged increased tasks and requirements.

B. Development Objectives

To contribute to the development efforts of the country by strengthening and developing the capabilities of the Development Projects Study Agency of the Central Planning Supreme Council (DPSA) for designing, screening, selecting, evaluating and implementing of national priority projects and to assist the DPSA with personnel and equipment in an effort to achieve the targets set by the Plan.

C. Immediate Objectives

(a) To transform DPSA into a capable, self-reliant and self-sustaining institution thereby enabling it to cope with the national tasks of project identification, preparation, assessment and evaluation, and of training its own staff in these activities.

(c) To establish a computer centre at the DPSA, for speeding up the selection process of suitable projects, and for providing the analytical information necessary for Government decisions.

D. Project Outputs

(a) Continuously updated records of all the priority projects described in the ten-years development plan;

(b) portfolios of new investment projects;

(c) assistance to the ministries, public institutions and mass organization in the area of project design, preparation, evaluation and implementation;

(d) ministries and public institutions capable of carrying out pre-investment studies; and

(e) a computer centre at the DPSA.

E. Project Inputs

Experts	US$ 2,025,600
Subcontract	70,000
Training	388,000
Equipment	80,000
Miscellaneous	80,000
Total	2,643,600

ETHIOPIA

3 November 1981

SUMMARY PROJECT PROPOSAL No. VII. 2.

Project Title	:	Strengthening of Planning Capacity in the Ministry of Industry
Government Priority Areas	:	Industrial Planning
Government Implementing Agency	:	Ministry of Industry
Executing Agency	:	United Nations Industrial Development Organization (UNIDO)
Estimated Duration of Project	:	2 years
Starting Date	:	1984
Total Estimated Project Cost	:	US $420,000
Government Counterpart Contribution in kind	:	(To be determined)

A. Background and Justification

One of the most urgent tasks facing the Government is the identification of measures and the formulation of plans aimed at the gradual removal of the constraints and bottlenecks which are delaying the industrialisation in Ethiopia. In this connection the preparation and implementation of short-term plans (such as Development Campaigns), as well as of medium and long-term plans requires sufficient practical, outside expertise.

The availability of reliable statistical data at the micro (plant) as well as at the macro-level is essential for the planning, coordinating and monitoring function of the Ministry of Industry.

In view of the improved data collection and processing at the industrial plant level, more updated and reliable information is reaching the Ministry of Industry. These data will make it possible to substantially raise the level and sophistication of economic analysis and preparation of industrial plans.

It is, therefore, justified to assist the Ministry of Industry in determining the new level of industrial planning and to determine the kind and level of information which could be obtained with the help of electronic data processing equipment possibly to be installed in the Ministry (See under F Remarks).

B. Development Objectives

Support the Government effort to establish realistic targets for the future industrial development on the basis of proven practices of economic and industrial sector planning.

C. Immediate Objectives

The immediate objectives can be summarized as follows:

- introduction of adequate techniques for preparing short-term, medium-term and long-term plans for industrial development,
- strengthening national staff in industrial planning and in determining required information through on-the-job training, fellowships and seminars.

D. Project Outputs

About three national economists will be assisted in determining the outline, the depth and the respective durations (periods) of planning in the light of the prevailing local conditions and Government objectives.

The economists will also be assisted in establishing programming systems and requirements for information to meet the above planning requirements.

The on-the-job training will be complemented by overseas fellowships.

E. Project Inputs

The project inputs have been designed on the assumption that improved information and planning data will gradually become available from the electronic data processing unit to be established under the proposed UNDP/UNIDO technical assistance project "Electronic Data Processing Systems at Ministrial and Industrial Level".

Total Inputs (from 1984)

	US $ Equivalent
Experts	375,000
Training	30,000
Equipment	10,000
Miscellaneous	5,000
Total	420,000

F. Remarks

This project will be complemented by the other three project proposals for technical assistance for the Ministry of Industry:

a) Electronic Data Processing Systems at Ministrial and Industrial level,
b) Industrial Project Implementation Management, and
c) Industrial Project Development.

SUMMARY PROJECT PROPOSAL No. VII. 3.

Project Title	:	Ethiopian National Metrology Centre
Government Priority Areas	:	Standardization and quality improvement of locally manufactured products to enhance their marketability both domestically and internationally.
Government Implementing Agency	:	The Ethiopian Standards Institute (ESI)
Executing Agency	:	UNIDO
Estimated Duration of Project	:	2 years
Starting Date	:	January 1983*
Total Estimated Project Cost	:	US $841,500*
Government Counterpart Contribution in kind	:	(To be determined)

A. Background and Justification

Commerce and industry are important to the economic development of Ethiopia. They require, however, the establishment and implementation of precision measurements to guarantee the metrological quality requirements of industrial products and to provide accurate standards for the sale or purchase. Industrial measuring instruments must be maintained at a high degree of precision to meet the national standard specifications and quality requirements.

B. Development Objectives

To introduce into the country legal metrology activities including inspection and verification of weighing and measuring instruments to guarantee uniformity of performance.

C. Immediate Objectives

a) To establish within the Ethiopian Standards Institute (ESI) a National Metrology Center and to set up, equip and operate testing laboratories in the following fields

- length measurement
- mass measurement

* The project starts in 1982. An amount of US $492,100 is required for that year (1982) over and above the indicated US $841,550 which is for 1983 and 1984.

- volume measurement
- electrical units measurement
- time and frequency measurement
- temperature measurement

b) To develop and provide calibrated control standards for the office of weights and measures.

c) To provide calibration service for control standards to be maintained by the regional Weights and Measures offices.

D. Project Outputs

a) Fully equipped and operational metrology laboratories in the fields mentioned under "Immediate Objectives".

b) Standard test procedures to satisfy established standards.

E. Project Inputs (for 1983 and 1984)

	US $
Experts	235,650
Sub-contracts	-
Training	78,000
Equipment	520,900
Miscellaneous	7,000
Total	841,550

F. Remarks

See footnote on Page 174

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3 November 1981

SUMMARY PROJECT PROPOSAL No. VII. 4.

Project Title	:	Industrial Project Development, Phase II (on going project)
Government Priority Areas	:	Expansion and development of manufacturing industries, balancing of industrial capacities; increasing the contribution of industry to the GDP; human resources development.
Government Implementing Agency	:	Ministry of Industry
Executing Agency	:	United Nations Industrial Development Organization (UNIDO)
Estimated Duration of Project	:	4 years
Starting Date	:	1983 (after continuation during 1982)
Total Estimated Cost	:	US $4,825,000
Government Counterpart Contribution in kind	:	(To be Determined)

A. Background and Justification

The Ministry of Industry, after a thorough consideration of the alternatives to stop, phase-out or reorient this ongoing project, decided to continue the project with gradually reduced component of long-term experts and an increased component in training. The latest project revision resulting from the April 1981 project Tripartite Review Meeting (TRM) which was subsequently submitted for approval to the Central Planning Supreme Council will now be given priority and attention by H.E. the Minister of Industry himself.

In addition to the planned project outputs resulting from the TRM of April 1981, the Ministry of Industry handed to the UNIDO Programming Mission a supplementary "Aide Memoire" dated October 1981, in which several additional technical assistance requests are summarized. These requests should form part of the ongoing project, however, beginning only together with the new Country Programming Cycle from 1983.

In view of the fact that the Ministry of Industry decided also to request technical assistance in the area of strengthening its planning capacity complemented by another project for assistance in economic and industrial data collection and preparation with electronic data processing facilities, the Government decision to continue the above, ongoing project after its reorientation is recommendable and justified.

D. Development Objectives

The development objective of this project is to improve capacity utilization and operational performance as well as to increase and diversify primarily the consumer goods production of manufacturing industry, mainly in the five industrial branches, namely in textiles, food, building materials, chemicals and metal products.

C. Immediate Objectives

The immediate objectives of the project from 1983 will be the human development through study tours and follow-ships for existing and new industrial projects, the diversification and development of one industrial sub-sector accelerated factory establishment including quick start-up for reaching full production without delay, as well as rehabilitation of existing industrial enterprises through short-term consultancy.

D. Project Outputs

The project outputs already now to be identified will comprise the following main elements:

- trained key-personnel for at least 7 industrial projects,
- one industrial sub-sector survey,
- preparation of establishment and/or relocation of at least 10 industrial enterprises.

A certain number of expected, however, not yet finally decided, outputs of this project has been indicated by the Ministry of Industry and is, therefore, reflected in the estimated project budget.

E. Project Inputs

The project inputs have been determined on the basis of the envisaged project extension according to the findings during the Tripartite Review in April 1981 and the additional requests submitted with the "Aide Memoire" - Supplement of the Ministry of Industry of October 1981. The values reflect UNDP/UNIDO standard cost.

The elements of the project are:

	1982	from 1983	Total
		US $ Equipment	
Experts	375,000	1,775,000	2,150,000
Sub-contract	-	200,000	200,000
Training	160,000	2,460,000	2,620,000
Equipment	95,000	340,000	435,000
Miscellaneous	4,000	50,000	54,000
	634,000	4,825,000	5,459,000

F. Remarks

This project will be complemented by the other three project proposals for technical assistance to the Ministry of Industry:

1. Integrated Electronic Data Processing Systems at Ministerial and Industrial level.

2. Strengthening of Planning Capacity in the Ministry of Industry, and

3. Industrial Project Implementation Management.

ETHIOPIA

3 November 1981

SUMMARY PROJECT PROPOSAL No. VII. 5.

Project Title	:	Design and Start-up of a Spare Parts Management System for the Government Truck Fleet
Government Priority Areas	:	More equitable regional development and increased industrial output by Further Specialization (possible through quick and reliable road transport).
Government Implementing Agency	:	National Road Transport Corporation
Executing Agency	:	United Nations Industrial Development Organization (UNIDO)
Estimated Duration of the Project	:	2 years
Starting Date	:	1983
Total Estimated Cost	:	US $975,000
Government Counterpart Contribution in kind	:	(To be determined)

A. Background and Justification

In Ethiopia 90% of the total transport volume is handled by road on a system of some 30,000 km of which 11,000 km are all-weather roads including 3,600 km asphalted. The National Road Transport Corporation (NRTC), a public corporation under the Ministry of Transport and Communication, presently operates 888 vehicles (truck, trailers and tankers), about 14% of the total number of vehicles existing in the country. The NRTC truck fleet is composed of nine vehicle models of four different manufacturers. Almost 10,000 different kinds of spare are being stored in operational centers in Addis Ababa (main store), Addis Ababa - Kara-Kore, Asmara, Dire Dawa and Gonder, new stores are planned in Assab, Jimma, Awassa and Dessie.

At present, a new central garage complex with a new spare store is under construction and will be inaugurated around mid-1982. The new spares store in Addis Ababa will again be the central store for the country; at the Addis Ababa garage complex all major repairs will be performed. The other four existing and four additional, planned regional spare parts stores will only keep those spares in limited variety to enable defective trucks to reach the central garage in Addis for major repair and overhaul. The network of spare parts stores, however, is not only of importance to the National Road Transport Corporation (NRTC) operation but also for the about 5,500 privately owned and operated trucks for which spares are being provided.

The availability of spare parts for trucks is essential to the maintenance of an efficient transport system in the country; moreover, the composition and quantity of the items imported and stored depends upon the amount of capital in foreign currency required.

The proposed design and establishment of a new integrated spare parts management system will, therefore, not only assist in keeping the tight and minimum amount of spares in the regional and central spare parts stores; it will also contribute to optimizing and rationalizing the spare parts imports and to saving foreign currency. Therefore, this project is expected to pay for itself and thus is considered justified.

B. Development Objectives

The more equitable distribution of development benefits between relatively developed and under-developed region in Ethiopia as well as the transport of import and export goods between the sea-port Assab and the central area around Addis Ababa secured through efficient and reliable truck transport.

C. Immediate Objectives

In connection with the present erection of a new central truck repair workshop with central spare part storage facilities and with the extension/modernization of a regional spare parts stores network, a newly designed spare parts management system should not only improve the supply of necessary spares but also reduce the capital requirements for the procurement storage of spares.

D. Project Outputs

The project outputs will be the following main elements:

- analysis and recommendations concerning the kinds and numbers of spares to be stored in the central as well as in the regional spares stores,
- proposals for optimal physical handling and storage/shelfing of spares in all spare stores, partly based on already existing facilities,
- proposals for optimal store administration and spare parts procurement system,
- after agreement with the national counterpart on the systems initially to be operated manually, introduction of electronic data processing hardware and software.

E. Project Inputs

The analysis of different kinds of spares with the aim of standardization requires automotive engineering inputs, the selection of the equipment for the physical handling and storage of spares requires

the input of an engineer experienced in internal transport and storage facilities. The integrated storage management and procurement syster requires inputs of a specialist in organization/information flow. Finally, electronic data processing hard and software expertise is required. This inter-disciplinary approach, with exact timing of individual inputs, requires sub-contracting to an international, experienced and reputable consulting firm.

The elements of the required project input are estimated as follows:

	Total (from 1983)
	US $ equivalent
Sub-contract	750,000
Training	25,000
Equipment (EDP/Project cars)	175,000
Miscellaneous	25,000
Total	975,000

ETHIOPIA

3 November 1981

SUMMARY PROJECT PROPOSAL No. VII. 6.

Project Title	:	Integrated Electronic Data Processing Systems at Ministerial and Industrial Level
Government Priority Areas	:	Structural transformation of national economy by increasing share of industrial output (through quick and effective support of Government/Ministry of Industry based on updated, reliable economic data).
Government Implementing Agency	:	Ministry of Industry
Executing Agency	:	United Nations Industrial Development Organization (UNIDO)
Estimated Duration of Project	:	3 years (at Ministry level)
Starting Date	:	1983
Total Estimated Cost	:	US$1,082,000
Government Counterpart Contribution in kind	:	(To be Determined)

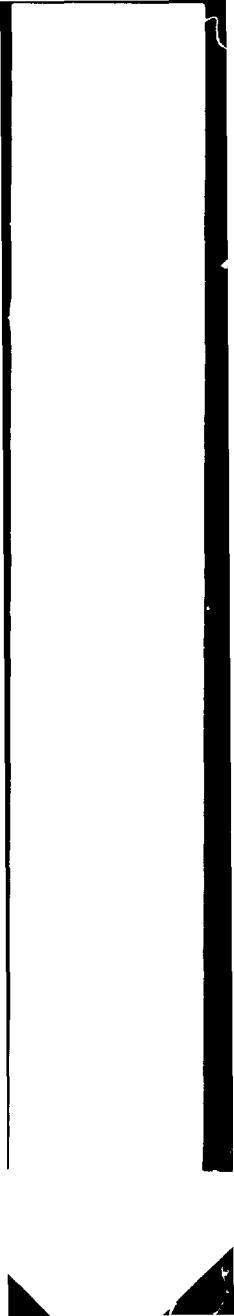
A. Background and Justification

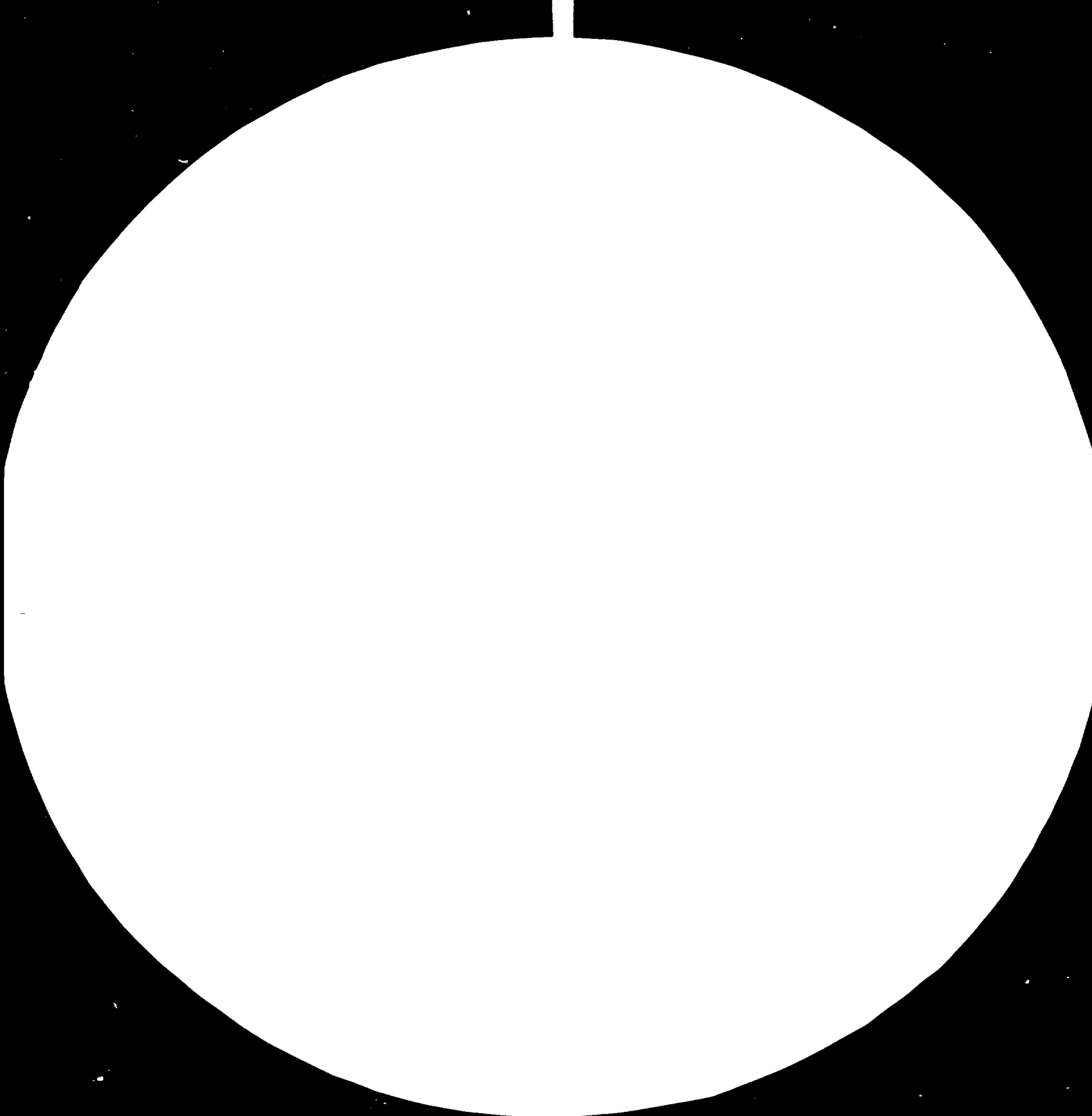
The new generation of electronic data processing equipment (computers) combines low-cost with high performance and can be installed and operated in normal offices (without air-conditioning and dust filtering of the air).

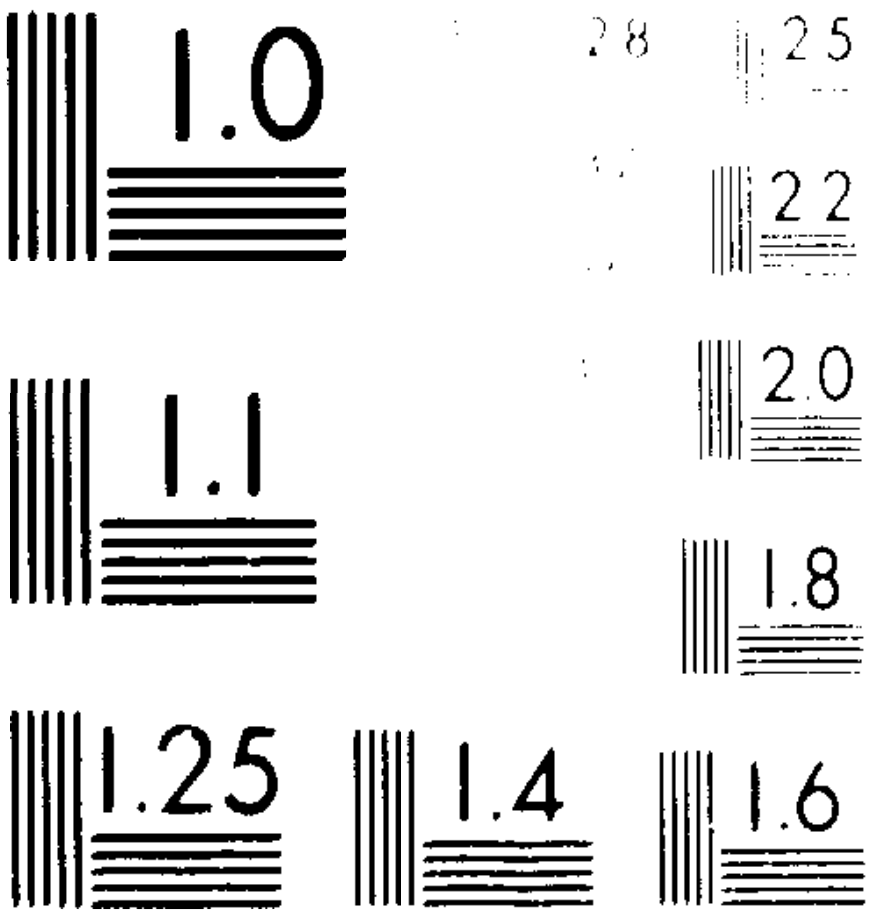
At factory and Corporation level, these modern small and mini-computers can be used for almost instantaneous access to management information data such as accounts receivable and payable, payroll, and time control, inventory control, procurement and marketing information, budgeting and financial control, financial and cost accounting, production performance etc.

The Ministry of Industry can obtain valuable, updated information by consolidating information from the industrial production enterprises or Corporations with the help of electronic data processing equipment.

Several government entities and industrial production units are now considering the advantages of installing and operating small computers; it is therefore timely for the Ministry of Industry to take the lead and establish not only computing facilities for the own sectoral planning and analysis but also to offer guidance and advice on the application and standardization of computing facilities at the industrial level.



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In this context, the early limitation of the number of different makes of computers through coordination and advice to potential users of computers by a specialized unit within the Ministry of Industry will result in great benefits to the country. Such computer unit in the Ministry of Industry should offer its service for the entire Ministry, demonstrate hardware to interested industrialists and offer programming and repair services.

The resulting advantages of computer-application at all levels of the industrial sector fully justify the proposed assistance for establishing a central computer unit at the Ministry of Industry.

B. Development Objectives

The development objectives of this project is to improve the capacity utilization andoperational performance as well as to increase and diversify primarily the consumer goods production of manufacturing industry through timely and most suitable policy measures introduced by the Ministry of Industry designed on the basis of updated, reliable information.

C. Immediate Objectives

The immediate objectives of the project are initially the availability of more recent data for the Ministry's economic planning and industrial production measures. The introduction of compatible computing facilities within the industrial sector of Ethiopia will gradually show better management decisions at micro-level and lead to an integrated sectoral information system with resulting consolidated sectoral information.

D. Project Outputs

The project outputs will comprise the following main elements:

- one unit within the Ministry of Industry for internal computing tasks and promotion and demonstration of modern computer hardware,
- standardization and limitation of different computer makes to be introduced in Ethiopia or at least with the industrial sector to facilitate future vertical integration as well as computer hardware service and repair functions,
- reference computer software library for (standardized) industrial management information systems,
- consultancy on industrial computer application with initial training on suitable software adaptation and/or new programming.

E. Project Inputs

The small-scale computer unit in the Ministry of Industry will require demonstration, operation and class rooms: the UNDP-inputs

could be summarized as follows:

	Total (from 1983) US $ equivalent
Sub-contracting	750,000
Training	50,000
Equipment	270,000
Miscellaneous	12,000
Total	1,082,000

F. Remarks

This project proposal will be complemented by the other three proposals for technical assistance for or through the Ministry of Industry:

1. Industrial Project Development,
2. Strengthening of Planning Capacity,
3. Industrial Project Implementation Management.

ETHIOPIA

3 November 1981

SUMMARY PROJECT PROPOSAL No. VII. 7.

Project Title	:	Industrial Project Implementation Management
Government Priority Areas	:	Structural transformation of national economy by increasing the share of industrial output in total product (through accelerated establishment of new industrial capacity).
Government Implementing Agency	:	Ministry of Industry
Executing Agency	:	United Nations Industrial Development Organization (UNIDO)
Estimated Duration of Project	:	3 years
Starting Date	:	1983
Total Estimated Cost	:	US$740,000 (See also para. F)
Government Counterpart Contribution in kind	:	(To be determined)

A. Background and Justification

The identification, establishment and subsequent operation of additional industrial capacity in developing countries are the main stages of the efforts for industrialization. While much attention is given to investment projects until the investment decision, many industrial projects lose their viability after the positive investment decision due to poor design, negotiation and organization and cost overruns, primarily due to delayed completion and start-up of production.

In Ethiopia, an increasing number of smaller and large industrial investment projects have been approved and are entering and passing through their implementation and start-up stage. The limitation of the period for plant erection and start-up until reaching production at capacity is frequently more important for saving investment cost through reduced inflation impact and reduced financial cost during plant erection than savings obtained, e.g. through lengthy negotiations with suppliers and contractors on price reductions.

In order to assist investors during the plant erection and start-up, national expertise in this complex techno-economic subject of (industrial) project implementation management should be created in Ethiopia as soon as possible. Since the Ministry of Industry is interested in promoting these skills, technical assistance in the field of project implementation management is recommended and justified for the creation of a nucleus of this national expertise.

B. Development Objectives

The development objective of this project is to increase and diversify primarily consumer goods production capacity of manufacturing industry.

C. Immediate Objectives

The immediate objectives of the proposed project are to gradually reduce the time required for plant erection and start-up through application of modern project implementation management systems and this not only to reduce the investment cost but also to accelerate the process of industrialization.

In the future, the Ministry of Industry will be in a position to offer valuable assistance to industrial plants and corporations undertaking investment projects.

D. Project Outputs

About five national counterparts together with foreign experts will analyse and "accompany" real, ongoing investment projects to familiarize themselves with all individual main stages of plant erection such as:

- (civil) engineering design,
- financial and time planning,
- civil contracting/equipment procurement,
- civil construction,
- personnel recruitment and training,
- plant comissioning and start-up,
- production build-up with reaching production at capacity.

The material counterparts will subsequently be guided to develop one set of systems most suitable for the management and/or supervision of industrial capacity erection and operational start-up of projects under local conditions.

The national counterparts will finally be able to select and utilize manual as well as electronically operated project implementation management systems according to the size and complexity of the investment project at hand.

E. Project Inputs

The project inputs have been designed on the assumption that the necessary electronic data processing hardware will be made available under the simultaneous technical assistance project "Integrated Electronic Data Processing Systems at Ministerial and Industrial Level",

The main elements of project input are therefore:

	Total (from 1983) US $ equivalent	
Experts	580,000	
Training	50,000	
Equipment (including EDP-software)	100,000	(See "F Remarks")
Miscellaneous	10,000	
Total	740,000	

F. Remarks

This project will be complemented by the other three project proposals for technical assistance to the Ministry of Industry:

1. Strengthening of Planning Capacity of the Ministry of Industry.
2. Industrial Project Development.
3. Electronic Data Processing Systems of Ministerial and Industrial Level

In case project proposal No. 3 will not be implemented, electronic data processing hardware of a value of about US $60,000 will have to be added to the above equipment component budget.

ETHIOPIA

3 November 1981

SUMMARY PROJECT PROPOSAL VIII.1/

Project Title:	Development of a National Scheme of Industrial Training
Government Priority Area:	Training of Manpower Geared to the Development Requirements of the National Economy with particular reference to the Industrial Sector
Government Implementing Agency:	Ministry of Industry
Executing Agency:	UNIDO
Estimated Duration of Project:	Three Years
Starting Date:	1983
Total Estimated Project Cost:	$ 900,000
Government Counterpart Contribution in Kind:	(To be determined)

A. BACKGROUND AND JUSTIFICATION

1. The New Delhi Declaration and Plan of Action, adopted during the Third General Conference in January 1980, contains a number of mutually supporting recommendations for action by the developing and developed countries as well as by UNIDO in the field of Human Resources Development.

2. Training is now generally regarded as investment, and is as important economically as investment in physical assets. The development of an integrated training programme in Ethiopia is, therefore, intended to meet the short and medium term training requirements of existing plants to increase their productivity. It is also intended to generate those new and specialized skills urgently needed for the implementation of Ethiopia's Third Phase Development Plan (1983-1986).

3. An insufficient cadre of high level technical and managerial personnel is a major constraint to the achievement of Ethiopia's economic and industrial development plans.

4. Training capacities to produce the manpower required do not exist in the present industrial training programme.

B. DEVELOPMENT OBJECTIVES

A programme of training needs for the various sectors of industry has become a fundamental objective of the Ethiopian Government. The ultimate objective of the project is to stimulate and strengthen the country's efforts to generate new and specialized skills for higher level technical and managerial personnel in order to meet the needs of existing plants as well as those of implementing the country's Third Cycle Development Programme (1983-1986).

C. IMMEDIATE OBJECTIVES

1. To identify priority areas and sectors for which training needs are deemed most urgent;

2. To estimate the trained manpower requirements in each industrial sector;

3. To assess and strengthen the existing training capacities within the country to meet the needs identified and to develop comprehensive project proposals for assistance accordingly;

4. To assist the Government in the integration and co-ordination of assistance activities in the field of industrial training provided by bilateral international organizations, agencies and other sources;

5. To recommend ways and means by which existing training programmes can be improved and expanded including new approaches, activities and programmes such as: a) up-grading the operating skills of graduate professionals in industry through well designed in-plant and on-the-job-training programmes designed to meet specific identified needs and to prepare these professionals to occupy higher posts in their enterprises; b) exposing the professionals from industry to modern industrial techniques and technologies applied in industrialized and other developing countries by sending them abroad for practical training.

D. PROJECT OUTPUTS

1. A comprehensive national industrial training programme for the first five years of the Ten Year Plan will be designed and recommended to the Government. Recommendations will be based on a more accurate and up-to-date assessment of quantitative and qualitative industrial training needs, of existing and planned local training facilities, and overseas training facilities/opportunities; and will include specific action plans for implementing the programme, estimates of resources required (local/international) and an approximate timetable/schedule for implementation. Recommendations will emphasize strengthening/utilization of existing and planned local facilities to the extent possible so as to encourage/develop self-sufficiency in the area of industrial training.

2. Establishment of a special unit in the Ministry of Industry to assume

responsibility for monitoring and evaluating the implementation of the training programmes and policies adopted for the industrial branches. It will also be the function of this Unit to encourage and facilitate liaison between industry and sources of training opportunities both within and outside the country.

3. A series of short-term training programmes will be designed to meet specific, identified training needs. These programmes will include individual fellowships, group training programmes, study tours and seminars.

4. Formulation of a second phase programme outlining the future training needs of the country.

5. Elaboration of appropriate training programmes in accordance with identified priority needs.

6. Implementation of a comprehensive training scheme to cover the entire industrial sector including programmes for the expansion and improvement of existing training activites.

7. Adaptationto the particular conditions of Ethiopia techniques and methods for industrial training used in developed or other developing countries.

8. Establishment of a special unit within the Ministry of Industry to serve as a focal point for the formulation and implementation of programmes and policies in the field of industrial training.

9. Provision of training equipment to meet the needs of existing training programmes.

E. PROJECT INPUTS	US$
Experts	350,000
Training	400,000
Equipment	140,000
Miscellaneous	10,000
Total	$ 900,000

ETHIOPIA

3 November 1981

SUMMARY PROJECT PROPOSAL No. VIII. 2.

Project Title	:	Strengthening the Training Institute of the Ethiopian Electric, Light and Power Authority (EELPA)
Government Priority Areas	:	Management development
Government Implementing Agency	:	Ministry of Mines and Energy
Executing Agency	:	UNIDO
Estimated Duration of Project	:	Two years
Starting Date	:	1983
Total Estimated Project Cost	:	US $725,000
Government Counterpart Contribution in kind	:	(To be determined)

A. Background and Justification

A number of developing countries have adopted industrialization as the key to their economic and social development. However, an industrialization programme of any magnitude needs a power generating capacity that is ahead of the consumption requirements of the industrial and other economic and social sectors.

In this connection, Ethiopia's future expansion of the power industry will require additional trained manpower to keep pace with anticipated industrial growth. To this end, the Ethiopian Electric Light and Power Authority (EELPA) anticipates the need for a four-fold expansion in the training capacity of the EELPA Training Institute.

B. Development Objectives

Developing the human resources necessary to enable the power generating industry to provide the power resource to support the goals and targets of the Ten-Year Plan such as a four-fold increase in industrial production and the construction of 45,000 new housing units a year.

C. Immediate Objectives

To strengthen and expand the training capacity of the EELPA Training Institute in order to enable it to meet the needs of EELPA

for more and better trained personnel at all levels.

D. Project Outputs

At the end of the project, it is expected that BELPA's Training Institute will have:

1. A training capacity to meet the anticipated manpower and supervisory/managerial personnel required for the expanding power industry as required to keep the power industry ahead of other industrial sectors.

2. A cadre of well-trained instructors drawn from the ranks of BELPA's engineers and/or senior level technicians.

3. A cadre of training officers who have the capacity for conducting training-of-trainers programmes to meet the needs of the Institute and its parent body and, if necessary, mobile training units and other institutes.

4. An organized, functioning, and continuing training service that meets the BELPA In-Service Training needs, including a curriculum development capability.

5. A well-equipped and maintained audio-visual services unit that is capable of meeting the services and production needs of all instructional staff of the Institute, including mobile training units.

E. Project Inputs

	US $
Experts	290,000
Training	200,000
Equipment	225,000
Miscellaneous	10,000
Total	725,000

SUMMARY PROJECT PROPOSAL No. VIII. 3.

Project Title	:	Industrial Training Advisory Service (ITAS) for the Training of Trainers
Government Priority Area	:	Training of Trainers for Industrial Manpower Development
Government Implementing Agency	:	Ministry of Industry
Executing Agency	:	UNIDO
Estimated Duration of Project	:	3 Years
Starting Date	:	1983
Total Estimated Project Cost	:	$575.000
Government Counterpart Contribution in kind	:	(To be determined)

A. Background and Justification

The New Delhi Declaration and Plan of Action reaffirmed that developing countries should continue to consider industrialization as a key element in their efforts for rapid economic and social development and stressed the importance of the development of human resources for industrialization. The Ten-Year Investment Plan of Ethiopia is based on a similar strategy.

One of the targets on the Ten-Year Investment Plan is to increase industrial production four fold. This implies a quantum increase in the number of new, that is untrained, workers in the industrial labour force during the Plan period. Consequently a major programme of manpower training will become a primary necessity. Training has come to be recognised as an investment and not an expenditure because quality training substantially raises productivity, decreases accidents and maintenance problems, and provides a social climate that is conducive to the attainment of the nation's goals.

Ethiopia has many training facilities which, given quality assistance on a selective basis, could contribute substantially to the overall national objective of greater productivity in the industrial sector.

B. Development Objectives

- To enlarge the national capacity for human resources development
- To enhance the productivity of the industrial sector
- To expand industrial output.

C. Immediate Objectives

To strengthen the training capabilities of a number of selected industrial training institutions by inaugurating incorporating in them a training-of-trainers function.

D. Project Outputs

1. A cadre of well trained trainers/instructors for selected industrial training centres;

2. An increased technical capacity within the training centres;

3. Training facilities, including equipment, software and necessary learning aids;

E. Project Outputs

	US$
Experts	292.000
Training	100.000
Equipment	175.000
Miscellaneous	8.000
Total:	575.000

SUMMARY PROJECT PROPOSAL No. VIII. 4.

Project Title	:	A Comprehensive Training Plan for Integrating High-Level Industrial Training Abroad with a Proposed Scheme for Developing Copper Mining Industry Personnel within Ethiopia
Government Priority Areas	:	(i) Training of industrial manpower. (ii) Exploration and exploitation of domestic natural resources (in this case copper)
Government Implementing Agency	:	Ministry of Mines and Energy
Executing Agency	:	United Nations Industrial Development Organization (UNIDO)
Estimated Duration of Project	:	Three Years
Starting Date	:	1983
Total Estimated Cost	:	US $805,000
Government Counterpart Contribution in kind	:	(To be determined)

A. Background and Justification

Ethiopia has a long history of mining. However, the copper industry for industrial development has not been a priority field of development. The present and future condition of world markets justify the Government's consideration for expanding the copper industry potential of the nation.

However, the pool of well-trained mining engineers is almost negligible when compared with the potential needs of the industry in the next few years. Additionally, the source for obtaining the required manpower for the anticipated industry growth is generally from abroad. To a large extent, industrial training in this area is of a rather sophisticated nature and now needs to be made available to upper level industrial personnel. A considerable share of such training can only be offered in highly industrialized countries. In order to produce the required trained manpower in line with the Government's development plan for exploration and exploitation of this sector of the nation's resources, it becomes a priority area for developing manpower resources.

B. Development Objective

Conserving and developing the natural resources of the nation are elements that bear upon strengthening and expanding the foreign exchange earning capacity of the country. The need to expand a given sector and remove specific constraints, i.e. limited manpower resources, has many implications when one considers the capacity needs of a specified sector's plan to undertake an ambitious programme of development with limited numbers of qualified high level field trained personnel. The removal of these constraints becomes a primary objective of the industry.

C. Immediate Objectives

The immediate objectives of this project concept are three-fold:

a) Development of a plan to relieve the existing shortage of high-level qualified personnel for the industrial sector.

b) To train and/or retrain key senior-level field-oriented technologists and/or engineering personnel and formulate a scheme to utilize their new-found skills.

c) To develop a long-range integrated training scheme to support the field personnel that will become effective as industrial needs become relevant.

D. Project Outputs

a) A field-oriented management team whose membership will cover at least three different areas of resource development in the industrial sector of the copper mining industry, and all of whom will have undergone refresher training with on-site fieldwork experience directly related to their area of specialization.

b) A planned approach to industry-oriented technical field training to transform engineer/technologist personnel for operational level, mining engineering work in the copper mine industry resulting in a group (10 - 20) retrained individuals who are prepared to assume field operations activity.

c) A plan for developing a transfer of technology twinning arrangement with a selected foreign institute/university and a local institution to be identified by the Ministry in order for Ethiopia to develop its own capacity to produce a sufficient number of field-oriented engineers for the industrial sector and thus become competitive on the world market.

d) A plan for an integrated training scheme to prepare field assistants that are well founded in the appropriate technology. The plan will include an outline for a training package concept approach to instructor training including:

i) A comprehensive curriculum focussed on both theoretical and field experiences in the appropriate technologies;

ii) Training aids development and implementation;

iii) Training equipment (A-V) to implement i) and ii) above;

iv) A performance-oriented criterion referenced evaluation scheme to establish accountability in the overall training plan.

E. Project Inputs

	US $
Experts	50,000
Training	750,000
Miscellaneous	5,000
Total	805,000

ETHIOPIA

SUMMARY PROJECT PROPOSAL No. VIII. 5.

Project Title	:	Model and Instruction Center for Printing at Management, Supervisor and Operator Levels
Government Priority Areas	:	Human development (through intensified efforts to provide high - quality printed teaching material for the literacy campaign)
Government Implementing Agency	:	Ethiopian Printing Corporation
Executing Agency	:	UNIDO
Estimated Duration of Project	:	2.5 years (+1 preparatory year for establishing new premises)
Starting Date	:	Mid - 1983
Total Estimated Project Cost	:	us $ 730,000
Government Counterpart Contribution in kind	:	(to be determined)

A. Background and Justification:

Ethiopia's printing capacity before the revolution was sufficient to meet the demand of the about two million literates in the country. After the start of the literacy campaign, however, large quantities of printed teaching material was required. This demand could only be met by a "crash" - instruction programme of the Ethiopian Printing Corporation (EPC) for printing operators. This crash-programme produced 120 "graduates" since 1979. Although the duration of each of the three courses always increased, the quality of the printed products steadily decreased. Moreover, the shortage of managerial and supervisor personnel became increasingly apparent.

The shortage of management personnel is particularly serious in a job-shop kind of activity like the print-shop, where production Planning and co'ordination of the several production steps are essential.

In addition, EPC faces increasing difficulties in finding traditional printing equipment and spares for this equipment in the market. Meanwhile, printing technology is rapidly changing in favour of electronic type-setting, which is more efficient. This trend, however, does not only require the introduction of this new equipment to literate operators - also older illiterate operators of traditional printing machines will have gradully to be replaced.

It therefore becomes obvious that the need to return to higher quality printed products, the introduction of modern composition and offset printing equipment and the lack of qualified personnel at all levels requires technical assistance. The proposed project is urgently needed and fully justified.

E. Development Objectives

The development of Ethiopia can only be accelerated by an increased number of educated, literate nationals who can be engaged in all sectors of the economy. The production of good quality printed teaching material is therefore a precondition for economic development.

C. Immediate Objectives

The immediate objectives of the project is to increase the number of management and operating personnel.

The higher qualification of personnel will result in a larger production of higher quality printed teaching materials partly through:

- better organization, production planning and personnel management, and
- introduction of higher, new more efficient technology together with a skillful operation.

D. Project Outputs

During the 12 months preparatory period, suitably designed premises for a Printing Center will be constructed and equipped to perform two paralled courses of 12 months duration each with 40 participants in offset printing and composition respectively.

In addition, four national counterparts (2 for offset printing and 2 for composition) will receive suitable substantive and psychological guidance from international experts. The national counterparts will thus be able to continue the courses after the termination of the project.

E. Project Inputs

The estimated inputs, especially the necessary equipment, are budgeted taking into account expected inflation until delivery:

	Total (from mid-1983) US$ equivlent
Experts	420,000
Training	20,000
Equipment	280,000
Miscellaneous	10,000
	730,000

ETHIOPIA

SUMMARY PROJECT PROPOSAL No. VIII. 6.

Project Title	:	Strengthening the Textile Training Center's Capacity to provide High Level Technical and Management Training for Corporation Network.
Government Priority Areas	:	Human Resources Development, Through the Training of Trainers.
Executing Agency	:	UNIDO
Estimated Duration of the Project	:	Two years
Starting Date	:	1983
Total Estimated Project Cost	:	$270,000
Government Counterpart Contribution in kind	:	(To be Determined)

A. Background and Justification

Many Developing Countries continue to consider industrialization as a key element for their rapid economic and social development. Industrialization requires an available and trained work force. To maintain a production level in keeping with the goals of the nation, a well trained and supervised manpower structure needs good managers and high level technicians. In this connection, Ethiopia's National Textile Corporation has added a Training section in the form of a Textile Training Center.

This Center is to become the hub of a training network for the textile industry. This responsibility calls for a training function that is well managed and capable of developing: 1) training officers 2) instructors, 3) training programmes, 4) training materials, and 5) training leadership/services, both locally and in selected provincial centers, which are to be focused at high level senior technicians and managerial staff. The role the Textile Training Center is expected to play in the overall scheme for industrialization will result in greater utilization of Ethiopia's Human Resources in the textile industry.

B. Developing Objectives

The Textile Corporation one of the largest consumers of Human Resources in Ethiopia, is faced with an industrial system lacking the adequate means for providing in-service training to the various levels of personnel. Such a large work force must have well trained managers., supervisors, engineers, technologists, machine operators, etc.

C. Immediate Objectives

The immediate objectives of the project is to provide the Textile Training Center with the capacity to develop, organize, and maintain a training function focusing on high level technical and management training.

D. Projects Outputs

The Textile Training Center will have:

- 1) A training management and training officer capacity to develop, organize, and maintain an in-service training training network for the textile corporation including a mobile training unit.

- 2) A Cadre of trained personnel coming from the ranks of senior level technicians and/or management who will be the focal point of training programmes at each of the textile factories and who is well founded in curriculum development, instructional materials development, methology and techniques of instruction.

- 3) A well equipped and maintained audo-visual service unit capable of meeting the services and production needs of all instructional staff of the Centers' training network.

E. Project Inputs:	US$
Experts	130,000
Training	55,000
Equipment	80,000
Miscellaneous	5,000
Total	270,000