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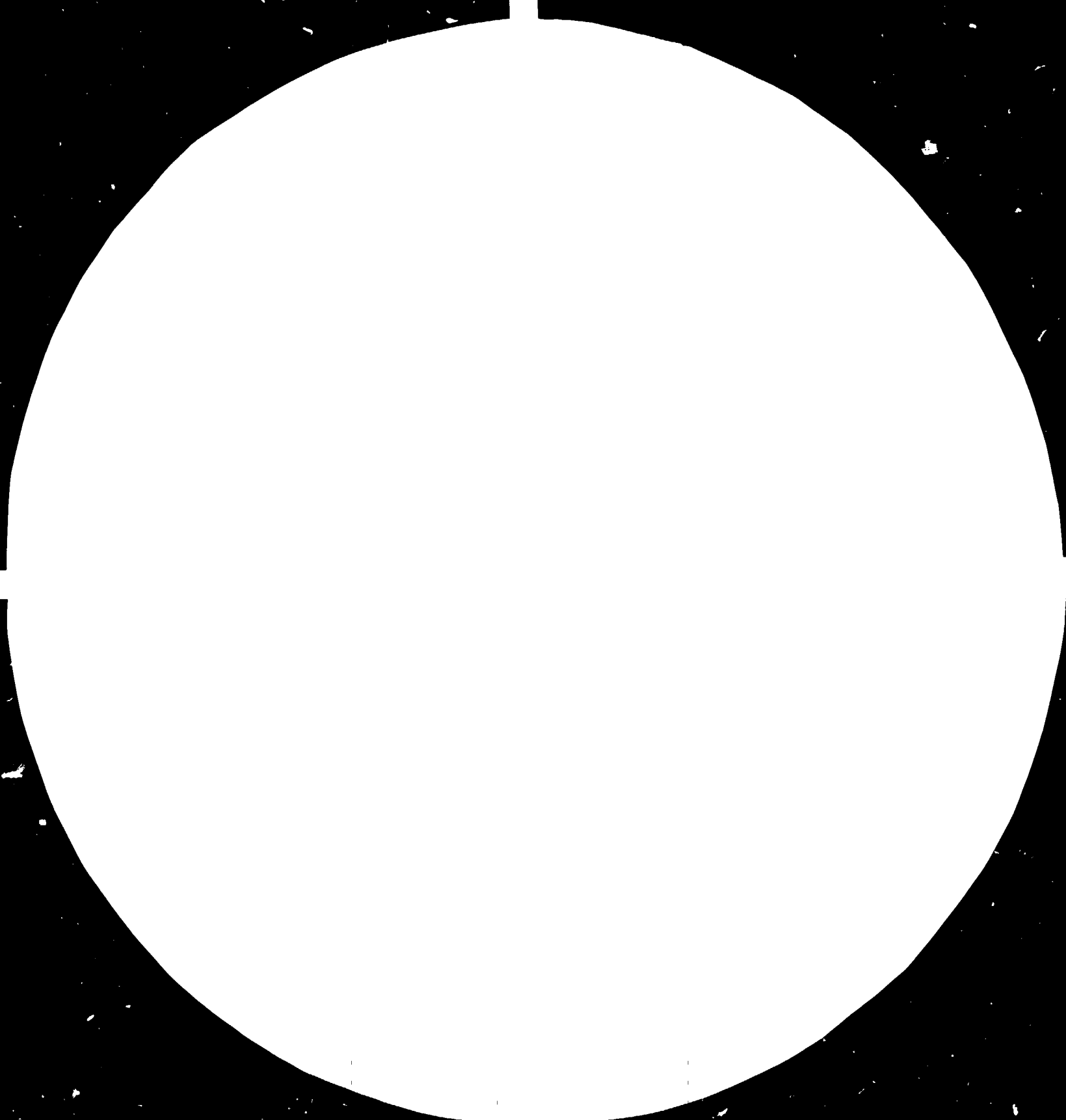
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1.0



1.1



1.25



1.4



1.6

Resolution Test Chart
1.0 1.1 1.25 1.4 1.6

12609

ASSISTANCE TO THE ELECTRONIC INDUSTRY

UC/LIB/83/099

LIBYA

Technical report: Evaluation of tenders for the establishment of a factory
for production of telephone sets and key systems*

Prepared for the Government of the Socialist People's Libyan Arab Jamahiriya
by the United Nations Industrial Development Organization

Based on the work of Edwin K. Machacek,
expert in telecommunication

United Nations Industrial Development Organization
Vienna

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ABSTRACT

To support the national programme for development of electronic industry by introduction of modern methods of production, the Government of the SOCIALIST PEOPLE'S LIBYAN ARAB JAMAHIRIYA represented by the Secretariat of Economy and Light Industries: Electronic Industries Project (E.I.P.) plans, among other projects, to establish a plant for manufacturing above all telephone sets.

To reach this goal 12 reputable international companies from 8 countries have been invited to offer tenders.

It must be stressed that the Secretariat of the E.I.P. prepared extremely competent specifications. Nevertheless only two companies offered tenders. Namely: L.M. ERICSSON of Sweden and TESLA of Czechoslovakia.

The specification for the tenders mentioned above comprises 10 pages concerning "the Project" (T2/82/1), 17 pages of "Instructions to the tenderers" (T1/82/2), 65 pages of "Model contract for the establishment of plant" and a "Model licence, know-how and technique assistance agreement" (T1/82/4, 28 pages).

These details are given even in the abstract to underline how well prepared the specifications have been.

After all, these specifications were based on a "Feasibility Study for the Establishment of Electronic Industries, Progress Report No. 3:2 for Manufacturing of Telephones".

With this study the E.I.P. - collaborating with Swedish Telecommunications International (Swedtel) - fulfilled an excellent work by preparing these specifications too.

Keeping in mind all this, it is not easy to understand that only two companies responded positively to the invitation of offer: L.M. ERICSSON (LME) and TESLA.

But even the two received offers do not comply with the specifications in an adequate way.

Further on figures given in the two offers and in the feasibility study differ up to a ratio of:

*) LME : TESLA : STUDY = E : T : ST = 0,73 : 2,55 : 1,00

For example man power :

E : T : ST = 150 : 522 : 255

Considering all these facts it can only be recommended

1. None of the offers should be accepted in the now existing status.
- but 2. Both of the offers should provide the basis for the further proceedings as explained in chapter II of this report.

Attention: TESLA does not offer a key system but a PABX.

*) LME = E = L.M. ERICSSON
T = TESLA
ST = FEASIBILITY STUDY

INTRODUCTION

As a telecommunication expert under UNIDO - Special Service Agreement (SSA) I arrived in Tripoli on Friday, June 3rd.

I had to assist the Government in the evaluation of tenders for the establishment of a factory for telephones and key systems.

Fields of evaluation were as follows:

- Factory design and layout, production equipment,
- Technical evaluation of proposed products,
- Economic appraisal
- Contractual aspects.

This work was done in close team work with Mr. N. TULTI General Manager of Electronics Industries Project (E.I.P.) in a very cooperative and efficient way. In administrative respects I was helped by Mr. Mohammed BILAL, Secretary of Mr. Tulti.

The working conditions were excellent, even the climatic circumstances were comfortable. (29^o max.)

My accomodation in the Al Wahat-Hotel and meals at the restaurant there were very good.

At the first working day briefings took place at the UNDP field office with:

Mr. Ahmed Botan DHAKKAR ...RR and

Mr. Michele FALAVIGNA ... JOP .

During my stay I got every needed support from the UNDP. Before leaving Libya I reported verbally to Mr. DHAKKAR and Mr. FALAVIGNA on the work done, the findings and recommendations. I gave to the E.I.P. after finishing my work a rough first draft of this report, a copy was sent to the UNDP FIELD OFFICE.

I RECOMMENDATIONS

As the result of the evaluation of the tenders and other pertinent documents the following recommendations can be given: (Reasons are contained especially in chapter II D,E,A of this report)

1. None of the two received offers should be accepted by the E.I.P.^x in the status now reached.
2. Both offers should be taken as a basis for further negotiations.
3. These negotiations should be conducted by Mr.N.TULTI General Manager of the E.I.P.
4. The discussions should take place at the tenderers' factories.
5. An UNDP expert should attend these negotiations.
6. Both tenderers, that means ERICSSON and TESLA respectively, should be obliged to comply very strictly with the E.I.P.'s specifications in form and content when improving their offers.
7. To reach point 6 the E.I.P. should exploit to full advantage the findings and methods of the "Feasibility study for manufacturing of telephones", in this way benefitting the investment already spent.
8. In realization of recommendation 7, this study should be made known (without numbers and findings) as far as possible to the tenderers when fulfilling recommendation No.6. Especially refer to ANNEXES 7 - 15.
9. Types of products to be manufactured should be restricted as far as possible.
10. Every proposal of a tenderer not in direct and close connection with the manufacturing of the chosen product (as stated in chapter II:D,E) should be refused by the E.I.P.
11. Decisions should be made methodically and systematically as stated in chapter II:G.
12. As soon as the tenders had reached an advanced status they should be assessed by UNIDO in economical, financial and contractual aspects. This could be done in Vienna. To prepare this, a preliminary assession of the E.I.P.'s model contract, now available, should take place very soon.
13. The E.I.P. should prefer to reach a contract with L.M. ERICSSON.
14. To assure objectivity the envisaged consultant should not be chosen from a country of which a company was invited to offer.
15. The E.I.P. should try to get some more offers. Assistance of the UNDP is proposed.

^x E.I.P. stands for Secretariat of Economy and light Industries
ELECTRONICS INDUSTRIES PROJECT

II EVALUATION OF THE TENDERS

A. Basic Documents

1. General

The conditions for the tenders were stipulated in a specification prepared by the SOCIALIST PEOPLE'S LIBYAN ARAB JAMAHIRIYA; SECRETARIAT OF ECONOMY AND LIGHT INDUSTRIES; ELECTRONICS INDUSTRIAL PROJECT (E.I.P.)

For this body of the Government further on, the expression "the Secretariat" or "E.I.P." is used only for shortness.

The mentioned specification is dealt with under 3. This document itself is based on the "Feasibility study" which is examined under 2.

2. The Feasibility Study

To remain in pace with the very rapid economic growth and the aim to replace oil as the major part of the Gross Domestic Product (GDP) step by step, many industrial projects have been carried out in the last years or are now in consideration in the SOCIALIST PEOPLE'S LIBYAN ARAB JAMAHIRIYA.

As a part of this general programme the Secretariat of Economy and Light Industries through the E.I.P. has engaged the Swedish Telecoms International (Swedtel) AB to draw up a plan for the establishment of electronic industries in Jamahiriya. In this work Swedtel has collaborated with inter alia Scandiaconsult International.

The results of this work were presented in the "Feasibility study for the Establishment of Electronic Industries". It took about 18 man-months to complete this study. As a part of this study the progress report No. 3:2 deals with the manufacturing of telephones. This report was presented in August 1980.

The expert wishes to emphasize that an excellent work was done by the E.I.P. and Swedtel. Due to this it is recommended that the findings of the study should be taken as a yardstick when assessing the tenders and for all other activities concerning this project.

Therefore most of the experts' recommendations, given in detail in chapter II D,E, are in full coincidence with the "Feasibility Study".

The main findings of this study were:

1. The market for telephone sets will be about 280.000 annually in the 1990ies.

therefore

2. An industrial plant should be built to produce 200.000 telephone sets a year.
3. This goal should be reached within 5 years.
4. The production cost for a set would be about 24.00 LD.

5. The total investment will amount to about 5,5 million LD.

More information in this context is given in ANNEX 1 of this report. The proposed production volume can be seen from ANNEX 2.

As an example for the main product, i.e. the telephone set, the DIAVOX was chosen. This set has been developed by the Swedish Telecommunication Administration and L.M.ERICSSON. An exploded view of this set is given in ANNEX 3. That this model was chosen inasmuch of great importance as the now received ERICSSON-tender is based on the DIAVOX family too.

To give an impression of the quality of the feasibility study the table of contents is given in ANNEX 4.

When giving recommendations concerning the tenders, the way in which economic conclusions are reached is of great importance.

Comparing the tenders with the study it must be said that only in the feasibility study this is achieved in a clear and efficient manner. Therefore the expert will not be reluctant to make his recommendations in accordance with this method.

3. The Specifications

These are divided as follows

(T2/82/1) Part I : The Project

1. Production Programme: Products, Volume, Phases
2. Civil works
3. Production equipment
4. Transfer of Technology: Licence, know-how, training, operation and maintenance

(T1/82/2) Part II : Instructions to tenderers

1. General instructions (Article 1-12)
2. Form of tenders
There is given a table of fixed prices which is of great importance (ANNEX 6 of this report)
3. Form of letter of guarantee

(T1/82/3): Model Contract for the establishment of a plant for the production of telephone equipment.

Some more important articles were cited with their head line:

- Article 2: Object of Contract
- 5: Training of the Secretariat's staff
- 6: Technical Assistance
- 7: Contract Price
- 8: Terms of Payment
- 9: Final Guarantee Deposit
- 10: Time Schedule for the Execution of Contract
- 16: Contractor's Personnel on site and Sub-Contractors
- 17: Supervision of work executing at site
- 18: Erection
- 19: Start up and taking-over tests for plant

- 20: Guarantee period
- 21: Final taking-over
- 33: The Secretariat consulting engineer
- 34: Contractor's representative in S.P.L.A.J.
- 38: Original copies of the Contract

Further on it was specified that the tenderer should prepare 13 Annexes as it can be seen from ANNEX 5 of this report.

(T1/82/4) Model Licence, Know-how and technical assistance Agreement

The most important article and annexes are:

- Article 3 Object of the agreement
- 7 Technical assistance
- 8 Delivery of components
- 9 Quality
- Annex 1 List of licenced products
- 2 Training programme for Libyan Personnel
- 3 Personnel to assist in operation for two years
- 4 Prices for kits, parts and material.

4. Conclusion

As easily can be deduced from the paragraphs above the E.I.P. prepared tenders by specifying the conditions in an excellent manner. This is true in economical, financial and contractual aspects too. Even the volume of the papers (127+120 pages + Annexes, altogether about 250 pages) is impressive.

The provisions of the specifications, especially the "instructions to tenderers" the "model contract" as well as the "model agreement" have not been analysed in an exhaustive way by myself up to now. It is assumed that these documents meet all requirements of the E.I.P. Nevertheless they should be assessed by UNIDO in economical, financial and contractual aspects exhaustively.

B. Invitations for Offers

As can be seen from the list below there have been invited 12 companies from 8 countries.

- 1-L.M.ERICSSON
Stockholm Sweden
- 2-NIPPON ELECTRIC COMPANY LTD
Tokyo Japan
- 3-SIEMENS A.G.
München West Germany
- 4-THOMSON CSF
Gennevilliers France
- 5-GEC TELECOMMUNICATIONS LTD.
Coventry England
- 6-INDUSTRY FACE STANDARD S.P.A
Milano Italy
- 7-TELEFONBAU UND NORMALZEIT GMBH
Frankfurt am Main West Germany
- 8-MITEL CORPORATION
Kanata Ontario Canada
- 9-TMC DIVISION
Malmesbury England
- 10-OKI ELECTRIC INDUSTRY CO.
Tokyo Japan
- 11- TELIC ALCATEL
Fresnes Cedex France
- 12-TESLA
Praha Czechoslovakia

C. Responses to the Invitation

1. General

Though the E.I.P. had prepared extremely competent specifications as can be seen from chapter A, and 12 reputable international companies from 8 countries (chapter B) have been invited, only two of them brought in offers. These were L.M.ERICSSON of Sweden and TESLA of Czechoslovakia.

2. Main figures given in these two offers

	L.M.E. X1)	TESLA X2)	STUDY X3)
Total Investment	Alt 2:32,220.SEK	31,385,400 USD	5,542 LD
Total partners	" :150	522 ^{X4)}	205 X5)
Building	2010 sqm	not given	5800
Area	5900 sqm	"	
Rate	1 SK = 0,0396 LD	1 USD = 0,296 LD	-
Total Investment in mill LD	1,276	9,290	1,456

- X1) Alternative 2 = not only assembling in the last phase
- X2) not clear what included
- X3) Included: civil works, building, office equipment, vehicles, consulting, sundries, production equipment.
Feasibility study: Chapter II A 2
- X4) ?telephone factory
- X5) 174 telephone factory

D. Evaluation of the Ericsson offer

1. Comprehensive evaluation

This offer is very superficial, so it seems to be an offer of courtesy only.

The tenderer himself declares that "the time has been too short .. to present a complete offer which in all respects fulfills your specifications and requests. Further more there are several questions which need negotiations and discussions.."

In order to prove how superficial this tender is, let me give an example: As the key system is provided AVH 302 and none, absolutely none, information has been given to the Secretary what kind of product that should be. Only after time-consuming interrogations it became clear that AVH 302 is the Ericsson- internal-code for the known DIAVOX 406 key system. The same is valid for DBA and the DIAVOX family of telephone sets.

The tender comprehends only some 35 pages of elaboration and about 35 pages of advertising material. Because all of this, the E.I.P. has already informed ERICSSON that their offer does not comply with the specification and as such does not qualify for further consideration. A deadline has already been given. (June 25th) But to close this paragraph with a positive aspect it should be conceded that the proposed DIAVOX products -as far as can be evaluated up to now- are of very good quality.

2. Reference (Identification)

BO/EIS/OB Arne Boeryd ISL

O/MC/LY

Signature: Ericsson International System AB
Rolf Granstrom

Date: 12.4.83

3. Recommendations

3.1. General

The most important aim should be to get the offer improved in such a way that it complies with the specification.

Further on one of the main goals, especially when beginning the production, should be to concentrate on as few products as possible. Therefore of all members of the offered DIAVOX-set-family, when ever possible, only one type should be taken in further consideration. The same holds for the key system.

Inasmuch as the next step of getting improved offers in concerned, it is recommended to restrict all deliveries in consideration, as far as possible, too. A fire alarm system e.g., now in some way dealt with in the TESLA offer, should be sorted out in any case. Only by following this idea it will become possible to compare the two corrected offers.

3.2 Recommendations on the products:

Telephone DBA 102 (pushbutton decadic) should be the only sets one to be produced.

DBA 101 (rotary) should be produced only if it is more than 30% cheaper than DBA 102.

DBA 103 (DTMF) should be sorted out.

125 (two line) "

150 (secretarial) "

Key DIAVOX 406 (2-4/3-6) should be the only one in systems production (internal code AVH 302-2)

Diavox 824 (4-8/8-25) should be sorted out

General: Sockets and Plugs: as proposed

After having gained adequate experience it would not be very difficult to vary decisions on the products chosen according to the recommendations given.

3.3 Recommendations on Alternative 1 and 2, as proposed by the tenderer:

To avoid confusion and to get the offers comparable the E.I.P. should insist on the plan now in consideration that means to remain on phases I to IV.

3.4. Recommendation on the manufacture:

It should be agreed as is stated under "Summary of activities to be proformed in Libya" by the tenderer. However corrections have to be made after more information has been kept. Flowcharts should concentrate on the chosen products.

- 3.5. Recommendations on personnel requirements
- 3.6. " " investments in manufacturing equipment
- 3.7. " " training and assistance

For 3.5. to 3.7. is valid:

To get a solid base for evaluations and decisions on these points direct negotiations between the E.I.P., say Mr. Tulti, at the Ericsson plant are suggested. To give the tenderer the possibility to be well prepared, it is recommended that he should be informed on the methods and findings of the feasibility study in advance. But to take the tenderer unbiased all relevant figures should be blanked out.

3.8. Recommendations on building

Keeping in mind what is stated in 3.1. all equipment not in direct need for the production, e.g. canteen equipment, should not be contained in the improved offer. Direct negotiations as mentioned above could solve this problem best.

3.9. Recommendations on budgetary

Well based figures which are calculated in an absolute transparent method are all important. It is therefore recommended that the tenderer gets the forms prepared out of the study and which can be found in ANNEX 7 to 13 of this report.

In pressing the tenderer to complete this forms, transparency, uniformity and comparability should be reached. The "Income Statement", "Rates" and "Balance sheet" given now in the offer may be correct but they are in no case transparent.

4. Conclusion

Offer: Formally not so elaborated than the Tesla offer, even less complying with the specialifications of the E.I.P.

Products: More advanced and more promising for the future than the Tesla products.

Investment: The Tesla offer is crucial higher.

Therefore: Especially due to the last two reasons as far as can be seen from the not very clear content of the offer now, it is recommended:

	The Ericsson offer should be given preference	
	over the Tesla offer, but should not be accepted.	
	Ericsson has to get more interested to reach	
	a contract.	

A summary of the recommendations is given in chapter I.

Key system Automatic exchange USR 2/9/2:
Attention! This is no key system but a PABX !!
But if chosen by the E.I.P. it should be the only
system to be produced.
Intercomsystem RMTS: should be sorted out
Executive system SS 82 "
Other Door opener "
products Broadcasting transmitter SRV "
Gas tight heater "
Radio-telephone-system "
Sundry material "
Sockets and Plugs as proposed
General After having gained adequate experience it would
not be very difficult to vary decisions on the
products chosen according to the recommendations
given.

3.3. Phases

Because the tender is in accordance with the specification of the E.I.P. there are no recommendations.

3.4. Recommendations on manufacture: flowcharts of the chosen products should be submitted.

3.5. Recommendations on personnel requirement

3.6. " " investment in manufacturing equipment

3.7. " " training and assistance

Please refer to the corresponding paragraphs in chapter D and the following remarks there as stated under: "for 3.5. to 3.7. is valid:"

3.8. Recommendations on building

3.9. " " budgetary

Please refer once more for 3.8. and 3.9. to the corresponding paragraphs in chapter D.

4. Conclusion

Because of chapter II D 4 is analogously valid :
|| The Tesla offer should not be given preference over the ||
|| Ericsson offer, and not be accepted. ||

A summary of the recommendations is given in chapter I.

F. Findings

To give an impressive survey the most impressive findings are given in catch words only.

Not enough offers received.

Both offers are unclear in many respects.

Too many products and sundries have been offered.

Both offers do not comply adequately with the E.I.P.'s specifications.

G. Further Proceedings

1. General

Most of the actions to be undertaken can easily be induced out of the recommendations made in chapter I and II D,E.

Therefore in this paragraph some kind of guideline is given only. This guideline and the next steps to be undertaken are as follows:

The two offers already received are to be corrected by the tenderers so that they are in full coincidence with the E.I.P.'s specifications. The content of the offers should be restricted as far as possible to the products and their manufacture. Subsequently all vague items of the corrected offers have to be cleared in direct negotiations between the E.I.P. and the tenderers. This could be done in the best efficient way at the tenderers' factories. Only there a reliable impression of the offered product and the methods of production proposed could be achieved. This would be a good base for the selection. To broaden this base the E.I.P. should try to get some more offers, perhaps with the help of the UNDP. Even new companies should be invited.

2. Decision techniques

To put decisions on an objective base -as far as really possible- and to be not too much encumbered by feelings or preoccupations, some kind of decision techniques should be made use of.

For instance a good application would be to decide whether a key system or a PABX should be produced. In this case it is recommended to proceed systematically and methodically in 5 steps as follows.

1. A list of all aspects to be taken in account should be prepared. In our example this list would contain:
 - features relevant for the user
 - cost of production
 - price possible to be obtained
 - maintainability
 - dependability
 - a.s.o.

2. All items of this list have to be put in a row in such a way that the most important aspect is put in the first line and the least important item in the last.
Once more this should be done methodically:
Divide all aspects in two parts i.e. more important or less important. Put the less important aspects aside for the present. Now repeat this sorting out with all aspects first judged as more important. In doing so repeatedly e.g. having a list of X items, after $\lg X$ steps the most important item is found (\lg stands for logarithmus dualis).
The advantage of this process is, that only binary decisions -more or less important- have to be made.
3. The next step will be some kind of first evaluation. Each item of our list will now score some points of value. We will name these points V.P. = Value Points. The first line of our list may be worth 100 V.P. and the last one but 1 V.P. In accordance with the importance of every item the lines between will get their V.P. In this way we will get a scale, a yardstick, to evaluate our product.
4. This step will be to look at the percentage of fulfilling each item by the product of competitor A and B. E.g. let's consider the possibility to produce our key set or PABX in Libya. If the key set can be produced up to 80% and the PABX only to 30% then the key set will score 80 points -now we will name these points fulfillment points F.P.- and the PABX will get only 30 F.P.
5. To go further with our procedure:
Multiply V.P. times F.P. and you will get Evaluation Points called E.P.:
$$V.P. \times F.P. = E.P.$$
6. If you add up now all E.P.s for each item you will get the Total Points T.P. for them.
$$\sum E.P. = T.P.$$

To summarize:

- step 1 : List up all important items
- 2 : Building a row of these items
- 3 : Giving Value Points V.P.
- 4 : Appropriation of Fulfillment Points F.P.
- 5 : Calculation of Evaluation Points E.P.
- 6 : Summing up to get Total Points T.P.

I hope it is agreeable that in the process proposed we can get decisions or recommendations which are objective as far as possible.

Feasibility Study
SUMMARY

ANNEX 1

The Project

To establish an industrial plant in the Jamahiriya for production of telephones, line selectors and jacks. The proposed annual production volume is 193,000 sets of telephones, and as by-products 1,000 line selector systems and 400,000 jacks.

Market Capacity

By 1990 the market need is estimated to 280,000 telephone sets. The proposed production volume will thus satisfy 69 % of the market need.

Production Costs

The production costs just before the expiration of the duty grace period are 23.100 LD for a telephone set, 1,184.600 LD for a line selector system and 0.210 LD for the jack. After the expiration of the duty grace period the costs are 27.300 LD, 1,398 LD and 0.250 LD respectively.

Investment and Proposed Allocation

The total investment, (manufacturing equipment and building works) will amount to 5,542,000 LD. 5,062,000 LD of this amount will be required in foreign currency. An allocation of 5,100,000 LD will be sufficient to cover the maximum net cash-flow deficit, which occurs during the second year of operation and to give a reserve of about 450,000 LD.

Economic Viability

In the opinion of the consultant the project is economically feasible.

The economic value added in Libya will after the start-up period amount to 2,548,000 LD annually.

The net cash-flow of the project becomes positive during the second year of operation. The cumulative cash-flow becomes positive during the fifth year of operation, meaning that the investment will be recuperated during the fifth year.

Co-operation

The consultant recommends the EIC to enter into a licence agreement with an international telephone producer to get access to product and production know-how.

Implementation

The implementation schedule of the project is divided into the following main parts:

- the design, training and construction period (eighteen months)
- a one year introduction period, Phase I during which telephone subunits are assembled into finished telephone sets. The production programme is limited to 40,000 telephone sets annually
- a one year intermediate period, Phase II, during which insertion of PC-board starts and the product programme is supplemented with line selectors. The production programme is expanded to 97,000 telephone sets and 500 line selector systems
- a second one year intermediate period, Phase III, during which assembling of bell mechanism and plug are added, and the assembly of jacks is introduced. The production programme is further expanded to 153,000 telephone sets, 1,000 line selector systems and 200,000 jacks
- the final and advanced stage, Phase IV, during which production of plastic and metal details is introduced and the production programme expanded to the level of the ultimate goal.

Manpower

For the final and advanced stage the project will require

- unskilled labour: 143 partners
- skilled labour: 31 partners
- management and staff: 31 partners

Location

The consultant recommends that the plant be set-up in the greater Tripoli area. Such a location would give low costs for the distribution of the finished products, and close connection with an effective import harbour.

ANNEX 2

Production Volume

A suitable production programme is:

PRODUCT	ANNUAL OUT-PUT			
	Year 1	2	3	4
Telephone sets	40,000	97,000	153,000	193,000
Line selectors				
- central units	-	500	1,000	1,000
- power supply units	-	500	1,000	1,000
- telephone sets	-	3,000	7,000	7,000
Jacks	-	-	200,000	400,000

These volumes are suitable from the production point of view. Such a volume will in 1990 satisfy almost 70 % of the need for telephones in the Jamahiriya.

DIAVOX

The front cover (A) as well as all other covering sheets are made of ABS-plastic material using injection moulding techniques. Different colours on front cover are available. The front cover can be assembled separately at end-user. The front cover is attached by two screws pushed up from the underside of the telephone case. This makes it easy to change front covers.

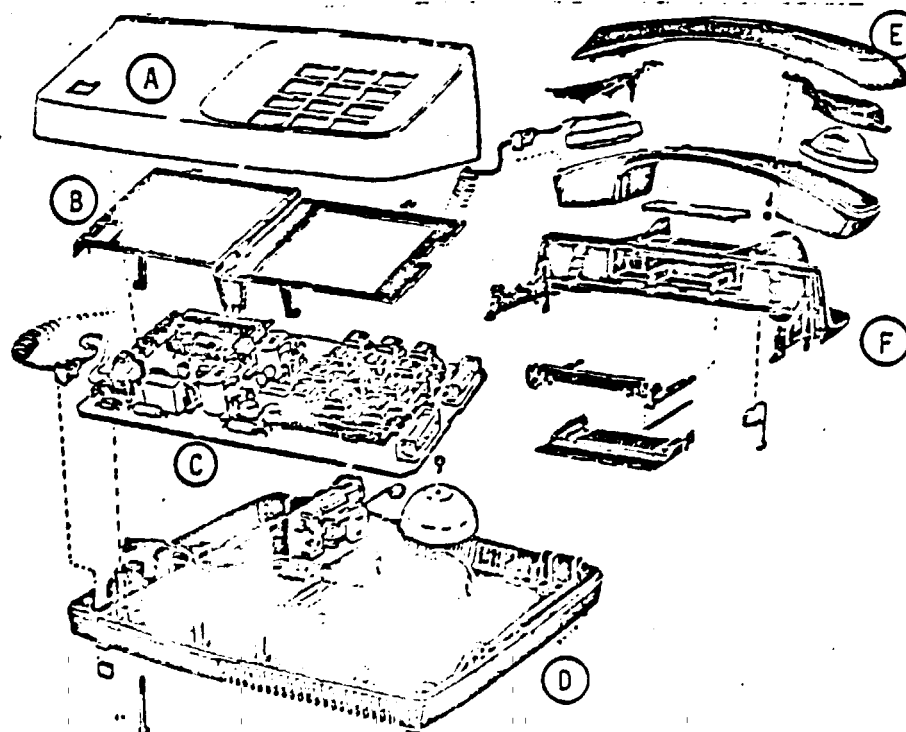
The cover plate (B) of plastic is intended to protect the components on the printed board when the front cover is removed from (or not yet mounted on) the telephone. The cover plate is equipped with numbers for the connections.

The printed circuit board (C) contains the components for the basic functions and serves as connection unit for the various interior parts in the telephone set as well as connection to external line.

The base section (D) has outside attachment points for small feet, it has also screws bushings for the bell mechanism and bell domes.

The handset (E) contains upper shell plastic cup, microphone unit, earphone and lower shell. Through advanced production technology deviations in shape, particularly in the joint between the upper and lower shell, can be kept at a minimum.

The rear cover (F)



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A N N E X E S

To Modelcontract

Annex

- (1) Production equipment specifications.
- (2) Production capacity.
- (3) Itemised price list.
- (4) Spare parts: specs, quantities, and prices
- (5) Technical documents.
- (6) Design of civil works
- (7) Proposed factory site
- (8) Training programmes
- (9) Training expenses.
- (10) Technical assistance:
personnel qualifications, job descriptions, numbers, periods,
expenses.
- (11) Form of letter of credit.
- (12) Form of letter of guarantee.
- (13) Procedures for handing-over tests.

Item	Description	Foreing Currency	Libyan Dinnars
I-	For provision of sufficient spare parts for two years operation on shift basis CIF landed, Libyan Port.
J-	For company income tax and Jihad Taxe as specified in Article No.(22) of Model of contract. For each and all levies to comply with tender documents are to be included in the prices mentioned above including other taxes and levies inside S.P.L.A.J. as specified in Article 22 Para.....of Model Contract
GRAND TOTAL:	
<p>NOTE: Rate of Exchange: L.D.=</p> <p>N.B.1- Taxes,levies and duties to be paid and borne by the contractor as specified in Article 22 of the Model Contract are considered as included in the above prices. Taxes,levies or duties not covered by the Tender Price are to be specified hereunder.</p> <p>2- Rate of exchange for comparison between Tenders shall be the rate of exchange at the date of opening the Tenders, published by the Central Bank of Libya.</p>			

Table No. 1

MATERIALS AND INPUTS - PHASE I

Annual Cost

ITEM	QUANTITY	UNIT PRICE	THOUSAND LD		
			FC x)	LC x)	TOTAL
Direct materials					
Components for telephone sets	40,000 kits				
Components for line selectors	-				
Components for jacks					
Freight to Libyan harbour					
Freight insurances					
L/C					
Port handling					
Freight to plant					
Auxiliary materials					
Spares					
Tools					
Utilities					
Electricity					
Other					
Sundries					
TOTAL					

x) FC stands for Foreign Currency
and LC for Libyan Currency;
both are expressed in LD

xx) FOB European harbour

Table No. 2
MATERIALS AND INPUTS - PHASE II
Annual Cost

ITEM	QUANTITY	UNIT PRICE	THOUSAND LD		
			FC x)	LC x)	TOTAL
Direct materials					
Components for telephone sets	37,000 kits				
Components for line selectors					
- Telephones	3,000 kits				
- Power units	500 sets				
- Central units	500 kits				
Jacks	-				
Freight to Libyan harbour					
Freight insurances					
L/C					
Port handling					
Freight to plant					
Auxiliary materials					
Spare parts					
Tools					
Utilities					
Electricity					
Other					
Sundries					
TOTAL					

x) FC stands for Foreign Currency
and LC for Libyan Currency;
both are expressed in LD

xx) FOB European harbour

Table No. 3
MATERIALS AND INPUTS - PHASE III
Annual Cost

ITEM	QUANTITY	UNIT PRICE	THOUSAND LD		
			FC x)	LC x)	TOTAL
Direct materials					
Components for telephone sets	153,000 kits				
Components for line selectors					
- Telephones	7,000 kits				
- Power units	1,000 sets				
- Central units	1,000 kits				
Jacks	200,000 kits				
Freight to Libyan harbour					
Freight insurances					
L/C					
Port handling					
Freight to plant					
Auxiliary materials					
Spares					
Tools					
Utilities					
Electricity					
Other					
Sundries					
TOTAL					

x) FC stands for Foreign Currency
and LC for Libyan Currency;
both are expressed in LD

xx) FOB European harbour

Table No. 4
MATERIALS AND INPUTS - PHASE IV
Annual Cost

ITEM	QUANTITY	UNIT PRICE	THOUSAND LD		
			FC x)	LC x)	TOTAL
Direct materials					
Components for telephone sets	193,000 kits				
Components for line selectors					
- Telephones	7,000 kits				
- Power units	1,000 sets				
- Central units	1,000 kits				
Jacks	400,000 kits				
Freight to Libyan harbour					
Freight insurances					
L/C					
Port handling					
Freight to plant					
Auxiliary materials					
Spares					
Tools					
Utilities					
Electricity					
Other					
Sundries					
Total during duty grace period					
Duties on imported materials, 25 %					
Total after duty grace period					

x) FC stands for Foreign Currency
and LC for Libyan Currency;
both are expressed in LD

xx) FOB European harbour

Table No. 6

PERMANENT LIBYAN MANAGEMENT AND STAFF

Annual Cost in LD

YEAR		1		2		3		4 and ONWARDS	
DEVELOPMENT PHASE		I		II		III		IV	
PARTNER	ANNUAL COST PER PARTNER	NUMBER	COST	NUMBER	COST	NUMBER	COST	NUMBER	COST
General Manager	7,500 LD								
Secretary	3,600								
Production Manager	6,500								
Store Manager	5,000								
Clerk	4,500								
Supervisor	4,500								
Assistant	3,600								
Industrial Engineering Manager	6,000								
Engineer	5,400								
Supervisor	4,500								
Quality Control Manager	6,000								
Supervisor	4,500								
Planning and Purchasing Manager	6,000								
Assistant	4,800								
Secretary	3,600								
Sales Manager	6,000								
Accountant Manager	6,000								
Clerk	4,800								
Personnel Manager	6,000								
Secretary	3,600								
Receptionist	3,000								
R & D Manager	6,000								
Engineer	4,800								
TOTAL									

Table No. 8
ADMINISTRATIVE OVERHEADS
Annual Cost in LD

YEAR	1	2	3	4 and ONWARDS
DEVELOPMENT PHASE	I	II	III	IV
Communication				
Travels				
Insurances				
Office Supplies				
Vehicle Maintenance				
Sundries				
TOTAL ANNUAL COST				

Table No. 9

INVESTMENT

Amounts in thousand LD

YEAR	1			2			3						
DEVELOPMENT PHASE	CONSTRUCTION PERIOD			I			II			III			
CURRENCY	FC	LC	TOTAL	FC	LC	TOTAL	FC	LC	TOTAL	FC	LC	TOTAL	TOTAL
Buildings													
Factory 4,000 m2 (500 LD/m2)													
Office 700 m2 (600 LD/m2)													
Welfare 800 m2 (600 LD/m2)													
Outdoor Works													
Reserve													
Subtotal Building and Civil Works													
Production Equipment													
POB European harbour													
Freight to Libya													
Freight Insurances													
L/C, Port Handling, Freight to plant													
Erection													
Subtotal Production Equipment													
Office Equipment													
Vehicles													
Consulting Services													
Sundries													
TOTAL													

