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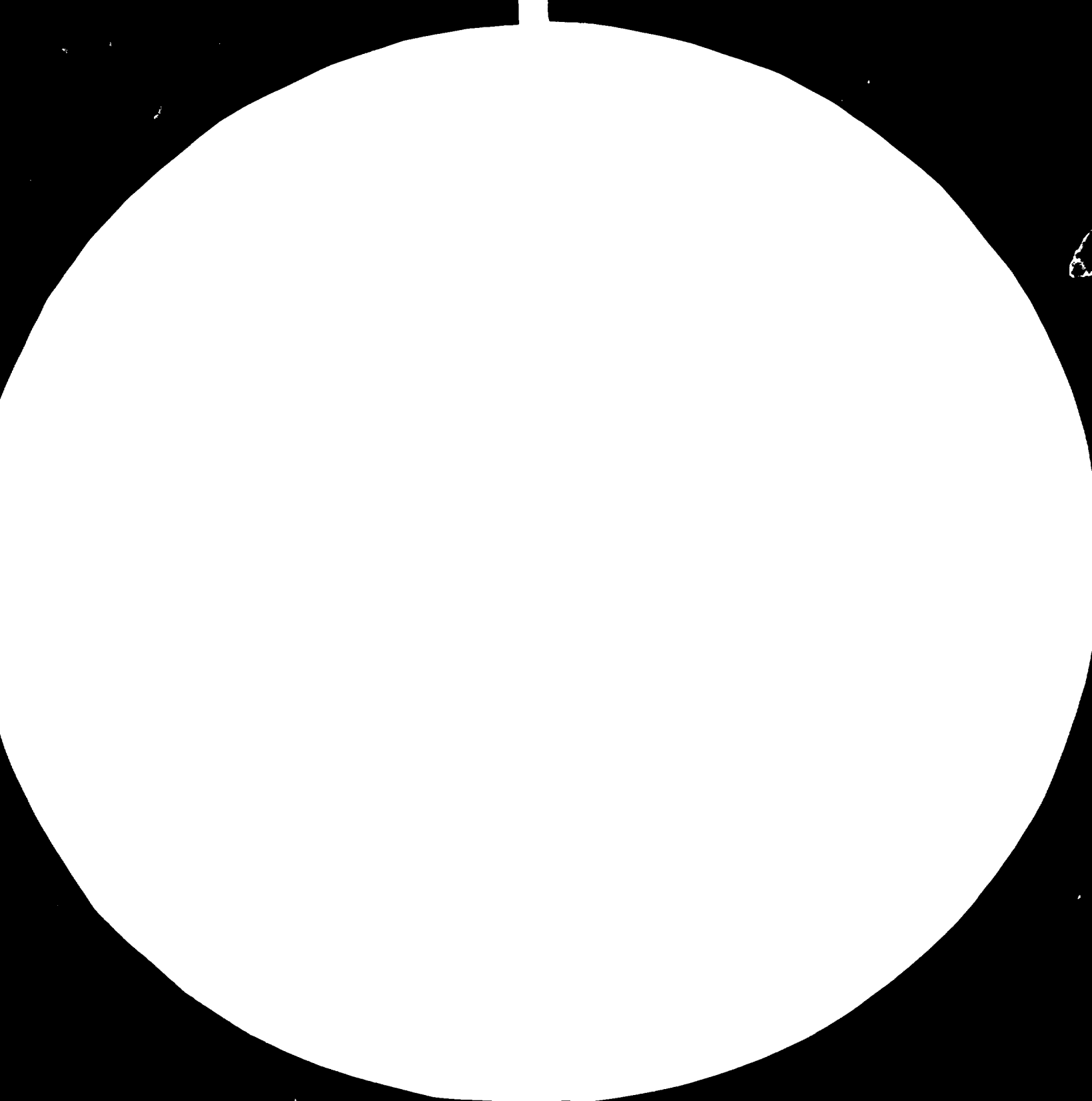
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SAUDI ARABIA.

Final Report

Prepared for the Government of Saudi Arabia
by the United Nations Industrial Development Organization
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Based on the work of N.K. Widhani,
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United Nations Industrial Development Organization
Vienna

This report has not been cleared with the United Nations Industrial Development Organization which does not, therefore, necessarily share the views presented.

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1.0 ASSIGNMENT

1.1 TERM

The assignment of the Expert in Engineering Industry with the Ministry of Industry and Electricity began on 1 July 1980. His services were transferred from the UN Project in Saudi Consulting House - "Technical Advisory Services to Industrial Studies and Development Centre - SAU/79/009", where he had been assigned as Production Engineer (Mechanical) for many years. The transfer took place on the request of Ministry of Industry and Electricity to assist them in the development and operation of the Technical Services Workshops, the management of which the Ministry took over from the Saudi Consulting House. The assignment of the Expert finishes on 19 January 1984. Beginning middle of October 1980, the Expert was absent from the project for a period of approximately 9 months for health reasons.

1.2 SCOPE

According to the job descriptions for the projects DP/SAU/79/005 and DP/SAU/81/008 the duties of the expert were:

(a) study the engineering industries already established or planned to be established, study trends of demand and other relevant factors and identify specific engineering industries which have development possibilities.

(b) assist in evaluation of feasibility studies and when required prepare terms of reference for studies to be undertaken and advise entrepreneurs in implementing industrial projects.

(c) advise industrial units to recommend improvements in production techniques and assist in introducing modern technology.

(d) assist in planning, establishment and operation of Common Facility Workshops with the object of developing national capability to design and manufacture tools, jigs and fixtures.

(e) prepare specifications of equipment to be purchased by the Government and assist in inviting and evaluating tenders, final selection and inspection of the equipment.

(f) assist the Industrial Cities Department in planning and implementing the programme of new industrial estates; assist the Licencing Department in evaluating the applications and projects for the manufacture of engineering products

1.3 ACTUAL ASSIGNMENT

During the initial period of the assignment, the expert started work according to the duties laid down in the job description. The Expert studied the available information on engineering industrial units already established and planned to be established. Considerable time was spent in identifying some of the products, which appeared to offer scope for investments. Preliminary studies indicated the further need of investigations of the market for the following products:- chrome plated bathroom and kitchen fittings; galvanised malleable iron and forged pipe fittings; small water pumps; storage and material handling equipment; non-stick type of cooking wares; electrical kitchen appliances; fittings for aluminium doors and windows; mortice locks and steel hinges for flush doors; decorative light fixtures; high quality steel furniture, other type of furniture and roll formed profiles from steel strips. While detailed investigations were being carried out on the furniture industry, it was suggested by the concerned Director that this work was not required to be done so as to enable the Expert to concentrate on the Technical Services Workshops. This was further confirmed in the Tripartite Review of the project held in January 1982. As such the Expert's main duties during the remaining term were to assist the Ministry in development and operation of the Technical Services Workshops.

2.0 TECHNICAL SERVICES WORKSHOPS

2.1 HISTORY

Fifteen years back, the team of experts of the UNIDO project in the former Industrial Studies and Development Centre found that the demand for special purpose tools (specially press tools and plastic moulds) of then existing industrial units were being met fully by imports, mostly from Beirut. The development of the units was hampered because of long delays and uncertainties connected with imports. The maintenance of tools caused a bigger problem as the tools had to be sent to Beirut for even minor repairs and rectifications. This caused long interruption in production. It was considered a precarious situation, where a vital requirement of the existing and expected future industrial units depended on foreign sources.

On the recommendation of UNIDO, the Government decided to set up the Technical Services Workshops in Riyadh, Jeddah and Dammam. The machinery and equipment for the Riyadh Workshop was provided by UNDP under the technical assistance programme.

For the last eleven years the Riyadh Workshop continues to provide the industrial units valuable technical services, which are not available elsewhere in the Kingdom. During these years, the capacity of the Workshop has been gradually increased to cope with the increasing demand of the industrial units for tools and other services. The workshop in Jeddah Industrial City was established seven years back and continues to serve the industrial units in Jeddah and Makkah area.

The Dammam Workshop has not been put into operation so far, though the machinery and equipment had been imported long time back. It was decided by the Ministry of Industry and Electricity to use the original building of the Dammam Workshop as a permanent exhibition of products manufactured in Kingdom. When the new

building for the Workshop had been constructed, the Industrial Studies and Development Centre was in the process of conversion and this caused delay in the start of installation work. It is only recently that the work of the installation of machinery and equipment in the Dammam Workshop has been completed. The electrical wiring is now being planned. The regular operation of the Dammam Workshop will have to wait till a qualified engineer and skilled workers have been appointed by the Ministry.

2.2 FUNCTIONS

The workshops are equipped to design and manufacture special precision tools required by the industrial units engaged in the manufacture of metal, plastic and other products. While the production machinery and equipment installed in the industrial unit is generally standard, special tools are designed and manufactured according to the specific requirements of the products to be manufactured. The tools are also the deciding factor for the design and quality of the products manufactured and as such are important for the development of the manufacturing sector of the industry.

The design, development and manufacture of these special tools is a specialised high technology line which requires high technical skills and considerable investment in precision machinery and equipment. It is generally uneconomical and technically not feasible, for individual industrial units to have their own tool manufacturing facilities. Even in the developed countries, the manufacturing units rely to a great extent on specialised tool manufacturers.

In addition to the manufacture of special tools, the workshops are equipped to maintain the production tools of the industrial units. For maintaining the quality of production, the tools require regular maintenance which involves precision operation.

The workshops have also the capacity to manufacture urgently required spare parts for the production equipment. These specific spare parts, which may not be available in the stock with industrial units and may be required for carrying out break-down repairs. The assistance reduces interruptions in production and delays in carrying out breakdown repairs.

2.3 WORK CARRIED OUT

(a) The management of the Technical Services Workshop was taken over from Saudi Consulting House and a little earlier than the arrival of the Expert in the Ministry. As the working of the Workshops was new to the Ministry, the initial efforts were to apprise the then Director of Industrial Cities Department on the activities and problems of the Workshops. For this purpose, notes covering the following subjects were prepared:- objectives of establishing the Technical Services Workshops; history of the Workshops; functions of Workshops and the types of services available to the industry; justification for the Government assistance and the problems being faced by the Workshops.

(b) Advised the Ministry on the procedures for transferring the assets of the three Workshops from the Saudi Consulting House to the Ministry. Organised the valuation of the material stocks and fixed assets.

(c) Before the transfer of the Workshops to the Ministry, Saudi Consulting House, which operates on commercial basis, had fixed higher charging rates for the services provided to the industrial units. These rates continued. The high charging rates created a difficult situation as industrialists reduced utilising services of the Workshops. A detailed note was prepared emphasising the developmental and promotional nature of the Workshop operations, justification for Government assistance and urgent need for reduction of the charges. The charges were subsequently reduced by the Ministry.

(d) Period of one year before the Industrial Studies and Development Centre was actually converted into Saudi Consulting House and the period during which the Saudi Consulting House managed the workshops, was of uncertainty for the workshop programme. The financial allocations in the annual budgets were not made. When the workshops were transferred to the Ministry, there was no financial allocation available. This adversely affected the progress of the two operating Workshops at Riyadh and Jeddah and brought to halt the work of establishing the Dammam Workshop. As a result of the comprehensive notes submitted and follow-up action taken, funds were made available for the installation of machinery and equipment in the Dammam Workshop and for purchase of urgently needed engineering items for the Jeddah and Riyadh Workshops.

(e) One of the causes of the deteriorating performance of the two operational Workshops and the delay in commissioning of the Dammam Workshop has been the non recruitment of qualified workshop engineers and skilled workers. A comprehensive note was prepared for making out a case for creation of posts and obtaining sanction from Ministry of Finance for inclusion in the budget of financial year 1402 - 1403H. The note gave a statement of trade-wise requirements of engineers and workers for the three workshops, justification for the posts and detailed job description of each post. The posts were not provided in that year's budget but as a result of the follow-up action taken by the Expert, most of the posts for the three Workshops have been provided in the 1403-1404H year (current year). However, the recruitment procedure has not so far started.

(f) During the assignment, substantial part of the Expert's time was spent in assisting the Ministry in import of materials, components, tools, spare parts and accessories. The work included - finalisation of the specifications, obtaining and evaluating quotations, clarifying technical details, preparation of comparative statements, selection, finalisation of the purchase recommendations and procedures, drafting the purchase orders/contracts and following

the purchase procedures of the Ministry.

(g) The Expert planned the use of standard components and pre-machined tool steel in the workshops. Items were identified and purchase procedure for these items was completed.

(h) The go ahead for starting the installation of machinery and equipment in the Dammam Workshop was given during the end of 1982. The work was commenced in December. The Expert supervised the complete installation of machinery and equipment. The work consisted of the following: visual inspection of all items; checking of the electricals of machines for compliance of with power supply requirements; specifying the requirements of civil works, designing the foundations; (as no contractor could be arranged) arranged the procurement of materials; supervised the reinforcements, shuttering and casting of foundations; procured the foundations bolts and levelling pieces; aligned, precision levelled and grouted all items of machinery and equipment ; supervised the assembly/mounting of the accessories and extra equipment. Designs and specifications of storage equipment were decided and part of this was procured.

(i) In compliance to the desire of Secretary General of the Foreign Capital Investment Committee in the Ministry, studied the technical documentation submitted by M/S WAG for establishing the Arabian Axle Manufacturing Company's trailer axle manufacturing project in Dammam. A detailed note giving comments on the documentation received was prepared and information on the proper technical documentation required was provided.

3.0 FINDINGS AND RECOMMENDATIONS:

3.1 TECHNICAL SERVICES WORKSHOPS

3.1.1 PROBLEMS

The present performance of the Workshops is far below the minimum acceptable level. This has to improve substantially to provide effective service to industry. In spite of the best efforts of all concerned during last years, the performance of Workshops could not be improved. It is evident that the main reason for the Workshops not being able to provide effective services to industry is the inadequate management of the Workshops. The technical management of the such toolrooms is extremely difficult. The design and manufacture of precision tools is highly technical and specialised line and requires higher technical competence when compared to regular factory production. As the Workshops manufacture tools for different products to meet the requirements of diverse manufacturing units, each tool manufactured in the workshop is different. Each time a new situation is faced with regard to the materials required and the production operations to be done. This requires individual attention and technical guidance of an experienced toolroom engineer. The design and quality of tools manufactured is critical as this directly affects the quality of products manufactured by the individual units. To manage the Workshops efficiently, it is essential that the workshop engineers be highly competent and experienced in the field of tool design and manufacture. Unfortunately the two operational workshops do not have any qualified engineer for last many years.

The shortage of skilled workers in Jeddah and Riyadh Workshops creates serious problems. The jobs taken are delayed resulting in complaints from the industrialists. During the last seven years no recruitment has been done, even the workers who have left for good have not been replaced.

The cost per hour of the skilled workers in the Workshops is three times as high as workers of similar skills in the private industry. The reasons for this are:- yearly productive working hours of the Technical Services Workshop workers are 1200 against 1800 in private sector and the total annual cost in emoluments and benefits is twice. The position is made worse because of the low productivity in the Workshops. To keep the charging rates at a reasonable level so that the industrial units take full advantage of the services available, the Ministry has to subsidise heavily the workshop operations.

3.1.2 FUTURE MANAGEMENT OF WORKSHOPS

It is felt that a critical stage has come when it is desirable to take a decision about the future management of the Workshops. Problems are being faced in operating the Workshops efficiently and providing effective services to the industrial units. The Ministry is helping and supporting the Workshop programme by subsidising heavily the operations. However, the efficient management of the workshops requires flexible administrative procedures, especially with regard to the recruitment and purchases.

In view of the situation explained, the Ministry is considering either of two alternatives. The first is to form a semi-Government corporation to develop and manage the Workshops, but this process may be time-consuming and there is good possibility that the objectives desired may not be achieved. The second, is to turn over the Workshops to the private sector. It is understood that in the past a number of industrialists have offered the Ministry and Directors of Industrial Cities to take over the Workshops and run them on a commercial basis.

In case it is decided to transfer the Technical Services Workshops to private entrepreneurs, the following may be kept in view while negotiating:-

(a) It is in the interest of industrial development that quality tools are available to the industrial units at a reasonable prices. This will provide effective incentive to existing and new industrial units to take up the local manufacture of new products which are being imported. In many industrial units, by changing the tools on the basic production equipment, other products can be manufactured. This helps in better utilisation of the production equipment and some products which are otherwise uneconomical to manufacture can be economically manufactured locally.

(b) Due to highly technical and difficult nature of the tool manufacturing operations and the maximum limits on charging rates that the private industrialist managing the workshops can be allowed to charge, there may be tendency for him to reduce the tool making operations and increase the repair and machining work (the later being more profitable). As tool manufacturing services are not available elsewhere in the Kingdom, it may have to be ensured that priority is given to services of design, development, manufacture and maintenance of special tools required by industrial units. Moreover the development of technical know-how in this field in the Kingdom is very important. Besides this, the objective of establishing and managing the Workshop by the Government was to progressively reduce industry's dependence on foreign sources for this vital requirement.

Provided the necessary technical skills could be available, it would be desirable to increase the scope of services to be provided to industry. Some of the services demanded by industry are: installation/erection, repair, and overhauling of the production equipment; assistance during breakdowns; fault detection and repairs in electricals of production equipment; selection of tooling etc.

3.2 GENERAL

(a) Investigation to identify the engineering products which have potential for economic manufacture locally are handicapped because of the non-availability of up-dated market information. It is felt that the industrial development will be helped if the activities of market investigations/surveys at the Saudi Consulting House and Saudi Industrial Development Fund are co-ordinated by the Ministry and information passed at no cost to entrepreneurs/investors.

(b) There appears to be urgent need for a programme for assisting the development of small and medium scale industry, specially in the smaller towns. It appears that Saudi Industrial Development Fund and Saudi Consulting House tend to concentrate on the development of large scale sector, thus creating a gap for assistance available for the development of small scale industry sector. In view of the relative small size of the market for many products in the Kingdom, well organised and mechanised small and medium scale industrial units offer good scope. This sector is of much interest to entrepreneurs who are otherwise well qualified to manage industry but have limitations of finance. Moreover, at this stage of industrial development, it is quite difficult to identify, by the small entrepreneurs of their own, the products which can be economically manufactured in the Kingdom. The suggested programme may also assist in modernising the production processes in the industrial units which were established before 1974/1975 period and had

installed labour intensive equipment and are not capable to manufacture the quality products currently in demand.

(c) The development of engineering industry in the Kingdom has not been so well and it may be desirable to consider actions to help the growth of this sector. There are a number of products, the total market of which may justify the establishment of domestic manufacturing units. However, due to free imports and customers' natural preference for imported products, such domestic units can never get sufficient market for economical manufacture. Perhaps no where else in the world the variety and designs of any product available in the market are so large. If such situation continues, domestic manufacture for those products may never be possible and the manufacturing technology will never be brought in. The reputed manufacturers abroad being sure of the market for their products for a long time to come are reluctant to give the know-how for domestic manufacture. It may be desirable to consider special protection for some domestic products - specially those which require sophisticated manufacturing technology.

