MANDERSTAM EXPERIENCE IN THE CHEMICAL AND ALLIED INDUSTRIES

We are a professional organisation, which, during the last three decades, has carried out a large number of assignments for Governments, international organisations, and national agencies and private concerns in over thirty countries.

Our organisation is totally independent and is neither directly or indirectly connected with, nor sponsored by, any financial institutions, manufacturers of equipment, contractors or process licensors. It does not act as an engineering contractor or a supplier of equipment but identifies itself solely with the Client's interests.

Our experience in carrying out assignments in the chemical industry extends over more than fifteen years and includes market evaluations and long-term projections for a wide range of commodities and manufactures, feasibility studies, industrial planning on a national scale and on a sectoral basis in a variety of fields; amongst others petroleum refining and hydrocarbon processing, petrochemcials, polymers, fertilisers, a wide range of inorganic and organic chemicals, mineral and metallurgical products.

Several of these assignments entailed a thorough examination of available and potentially available resources on a national level, the identification of viable new industries geared towards home demands and/or exports, the optimisation of alternative actions and resource utilisation, the phasing of implementation programmes on a realistic basis, taking into account the availability of capital, labour and other inputs, the desirable level of technology and economic development targets of the country.

All the above studies involved, at the onset, a quantitative market assessment (home and export) with an appraisal of the medium/long-term prospects, a key factor when identifying potential new industries.

Our personnel are multi-disciplinary so that we can cover all aspects involved in any given assignment and include economists, market analysts, marketing specialists, process engineers, industrial engineers, chemists, agriculturalists, mechanical, chemical, electrical and civil engineers, systems analysts, statisticians, cost accountants and finance specialists.

In addition to our own permanent staff a panel of associated international experts in specific fields is retained by us and is available when required to supplement our expertise.

Listed below are examples of projects we have undertaken.

1. GOVERNMENT OF THE REPUBLIC OF ALGERIA

A sectoral study was carried out on behalf of UNIDO dealing with the expansion of the vegetable oils, fats and soap industries on a national scale.

2. GOVERNMENT OF THE REPUBLIC OF CYPRUS
"Industrial Opportunity Survey"

The study was commissioned by UNIDO and was geared to the rehabilitation and expansion of the manufacturing sector in the southern part of the Island. A wide range of processed commodities and consumer goods were covered, the accent being on export prospects.

3. GOVERNMENT OF GREECE

Our firm carried out several sectoral surveys in the fields mentioned below:-

a) Survey of the Petroleum Refining and Petrochemical Industries
This sectoral study covered an assessment of current and medium-term demands for a wide range of projects, of existing and planned manufacturing gunnies (including plastics, synthetic rubbers, synthetic fibres, related intermediates and auxiliary products – such as salt, caustic soda/chlorine, chlorinated hydrocarbons, aromatics and their derivatives). Recommendations were put forward towards a rational development programme (4 volumes).

b) Survey of the Fertiliser Industry
This sectoral study entailed the same approach and techno-economic studies such as the one mentioned above, augmented by agro-economic considerations, international trends, suggestions as to price calculation formulae, export potential and marketing, taking into account processing routes and feedstock availability (3 volumes).

c) Survey of the Lignite Mining/Utilisation Resources
A comprehensive survey of mining facilitates and methods, fuel utilisation and intensive future usage for power generation and chemical synthesis.

d) Surveys of the Iron and Steel Manufacturing Sector
Two surveys and in-depth studies were carried out on a national scale with a 5 year period, with functional recommendations regarding the development of this sector.

4. PERTAMINS (INDONESIA)

Several surveys and studies were carried out on the utilisation of the hydrocarbon resources in the country, including natural gas, LPG, refinery by-products, petrochemicals and fertilisers. Our activities developed into engineering work

and management of projects which were implemented or were in the course of being implemented in the country, and extended over some ten years.

5. JAMAICA

A pre-project study was carried out for the Government relating to a petroleum refinery project, with the elaboration of a development.

6. LIBERIA

A technical study and audit of the existing refinery facilities of Liberia Petroleum Refining Co., Monrovia, was recently carried out, with an assessment of their future potential, current assets and commercial operations. A further study of the operation and management of the refinery has just been completed.

7. GOVERNMENT OF LIBYA

Detailed examination of manufacturing processes proposed by a consortium, relating to the production of salt, chlorine/caustic soda, vinyl chloride and PVC. The complex is under construction.

We are also currently acting as consultants to an industrial planning organisation on the development of a range of chemical industries.

8. MAGHREB COUNTRIES

On behalf of UNIDO, a study was undertaken on the development of salt production and chemical derivatives (including chlorine, caustic soda, soda ash, vinyl chloride and PVC), examining the possible co-operation in this field between Tunisia, Algeria and Morocco.

9. MEDITERRANEAN COUNTY (Confidential)

Preparation of specifications and basic data for various units of a proposed refinery of a capacity of 200,000 barrels/day, including off-sites and loading/unloading systems for crude and refinery products.

10. SULTANATE OF OMAN

A feasibility study for the production of salt and salt-based chemicals was carried out for the Government of Oman. This recommended the production of salt by solar evaporation of sea water as being cheaper than alternative sources and methods and the project is now awaiting implementation.

11. KINGDOM OF SAUDI ARABIA

A multi-billion dollar industrial zone is being planned at Jubail. We prepared for the Royal Commission for Jubail and Yanbu a study of the establishment of over 140 chemical and manufacturing units based on gaseous and liquid hydrocarbon feedstocks, mineral and metallurgical raw materials and intermediates, covering a wide spectrum of finished projects, many of which are to be destined for export. This entailed technical, economical and long-term market assessments, zoning and infrastructural studies leading to a Master Plan for a phased implementation programme until year 2000.

12. GOVERNMENT OF THAILAND
"The Development of Export Industries" (4 volumes).

This comprehensive study covered the main manufacturing sectors of industry, with an emphasis on those utilising primarily available raw materials. Numerous export outlets were investigated, complemented with techno-economic studies, the required level of investment and the impact on foreign exchange earnings and balance of payments. The study was commissioned by the British Government.

13. GOVERNMENT OF UGANDA

On behalf of UNIDO, a study was carried out for the rehabilitation of a number of industrial sectors, with functional re commendations as to the courses of action to be taken.

14. BRUNEI
(Crown Agents for Overseas Government and Administration)

Studies for the processing of natural gas and the production of nitrogen fertilisers.

15. CANADA
(Arctic Canada Gas Transmission Co.)

Study to examine the recovery and conversion to a transportable form of the gas reserves from King Christian Island on Arctic Canada. Processes were developed and comparative costs established for production of either 15,0000 tons/day methanol as LCF (liquid chemical fuel) or 450 mscf to LNG.

MANDERSTAM EXPERIENCE IN SODA ASH PROJECTS

Manderstam have been concerned with a number of Soda Ash projects over the last twenty years which, in some cases, stemmed from their initial interest in brine and rock salt. The company retains a number of associates, who have spent most of their working lives at ICI Mond Division's Ammonia Soda plant at Winnington in Cheshire, which is where the original Solvay process was developed nearly 100 years ago. Ion the course of their careers they have also been associates with ICI's other Solvay plants at Wallascote, Lostock, Middlewich and Fleetwood in the United Kingdom as well as overseas plants in Mexico, Pakistan and Australia. They have also been concerned with the extraction and processing of natural Trona at Lake Magadi in Kenya.

Recent consulting assignments have included:-

1. EGYPT

   Rehabilitation of Misr Chemicals' Ammonia Soda plant at Alexandria. This plant was built a few years ago by Rumanian contractors and has been plagued by trouble ever since commissioning. The major physical problems were (a) the softness of the local limestone, which led to inefficient lime kiln operation, low CO_2 contents and consequent poor conversion efficiency in the Solvay towers and (b) high ambient temperatures, which affected the crystallisation of sodium bicarbonate. In addition, the original instrumentation of the plant was badly designed, making it very difficult to keep proper control of the process. A four-man team spent two months, working alongside Egyptian counterparts, controlling day-to-day operations. Numerous modifications have been recommended, some of which have still to be implemented but, in the meantime, there has been a considerable improvement in process yield.

2. IRAN

   Study for the rehabilitation of the Soda Ash plant at Shiraz. This plant was built by the same Rumanian contractors as were employed on the Alexandria plant and suffers from many of the same faults. The study was undertaken before the political troubles in Iran and implementation of the recommendations still awaits a more equitable climate. Additional process problems in this plant were, firstly, the gas-fired vertical shaft kilns, which tended to become unstable and, because of the cyclic nature of the process, rapidly affected other sections of the plant, and secondly, the use of gas-fired Secheurs, which were mechanically unsound and developed a number of 'hot spots' which is not a problem with the more usual steam-heated type. Unlike the Alexandria plant, the Shiraz plant uses waste CO_2 from a nearby ammonia plant which certainly makes the control of the process very much simpler.

3. MAGHREB COUNTRIES

Feasibility study for the production of soda ash in the Maghreb Countries.

This was part of a wider study of salt-based chemicals and included the investigation of potential markets in North Africa and the Middle East, as well as the availability and purity of limestone, salt, natural gas and ammonia. Preliminary capital and operating cost estimates were provided, and the problems of transport of raw materials and finished products by rail, road and sea were investigated.

4. UNITED KINGDOM

On behalf of the British Government's Price Commission, a reivew of the UK's soda ash manufacturing facilities was carried out to establish whether an application for an increase in product prices could be justified.

As increasing quantities of soda ash are now being produced from natural Trona, there have been few new Solvay plants built in the last few years and the number of consulting engineering companies with direct relevant experience is strictly limited. Manderstam can reasonably claim to have experience in the following areas, which we consdier essential for any company undertaking the supervision of design and construction of a new Soda Ash plant.