

EXPERIENCE IN GLASS

1.0 INTRODUCTION

1.1 GENERAL

This is an outline of Mandertam's glass experience in the markets for and the production of glass containers, tumblers and tableware products throughout the world.

1.2 SPECIFIC EXPERIENCE

The Manderstam Group possesses considerable specialist marketing, economic and technical expertise in the glass container and tumbler/tableware industries which has enabled us to successfully carry out market surveys, feasibility studies, specifications and project implementation gained in over 50 years of world wide experience but particularly in Africa and the Middle East where we have offices in Kampala, Qatar, Bahrain, Abu Dhabi and Saudi Arabia. We hold a current database on retail/wholesale consumption and distribution for Saudi Arabia and the G.C.C. region.

We are also carrying out assignments throughout Eastern Europe and have knowledge of the emerging economies and the projected demands for glass products in Europe.

From 1995 - to date we have carried out and updated a world survey of glass markets. We have also prepared for the design and international tender documents to a 110 tonnes/day glass plant including conducting the contract negotiation with 4 short-listed contractors/suppliers.

1.3 INTERNATIONAL PROFESSIONAL CONSULTANCY

The Manderstam Group is an International Professional Consultancy Group, established in 1941, which in the course of the last five decades has implemented a large number of assignments. Most of the work of the Group is carried out beyond the borders of the United Kingdom, in more than 40 different countries throughout the world. Clients have included the World Bank, EEC, UN, IBRD, UNIDO, APDF, IFC, ADB, Regional Development Banks, Governments, National Agencies and private companies.

We have carried out assignments in a wide range of disciplines including glass manufacturing, food, pharmaceuticals, agriculture, mechanical handling, petroleum refining, petrochemicals, inorganic and organic chemicals, fertilisers and pesticides, steel production, pollution control, textiles and railway engineering.

The services provided range from market survey, feasibility and investment studies leading to finance being made available, through to the preparation of tender documents, adjudication, construction, supervision, plant commissioning, staff recruitment, management and training.

Industrial engineering and other technical expertise within the permanent staff of the Manderstam Group is reinforced by mechanical, instrument, electrical and civil engineers, economists, market analysts, statisticians, accountants and financial analysts who are also on the permanent staff. The Group is thus able to give a fully comprehensive service.

The Manderstam Group is one of the few remaining international consultancy groups which can genuinely claim to be absolutely independent and have no connections, or traditional operating patterns, either directly or indirectly, with any contractor, supplier of plants and equipment, manufacturers of products or Licensor of processes. Because of its complete independence, the Manderstam Group operates solely in the best interests of the Client.

1.4 OUR COMBINED EXPERIENCE

Our experience in glass manufacturing in Africa and Middle East regional development includes:

- feasibility studies;
- industrial planning;
- industrial location studies;
- market studies;
- engineering design and layout;
- project management and supervision;
- socio-economic studies;
- environmental impact studies.

1.5 SERVICES PROVIDED

Manderstam International Group provide a comprehensive range of consultancy services, from the project inception stage and feasibility studies to project engineering and co-ordination of the implementation.

1.5.1 Market Studies

- Evaluation of past trends;
- Analysis of price structure, marketing and distribution system;
- Product substitution factor;
- Competition from imported items, consumer's preference;
- Packaging aspects (cost, attractiveness, etc);
- Transport systems and costs;
- Medium and long-term home demand forecasts;
- Export potential (countries of destination, handling at harbour, internal and sea freight costing, pricing of products).

1.5.2 Techno-Economic Studies

These cover most of the industries mentioned above and incorporate the following main aspects and considerations:-

- Evaluation of resources (physical and human);
- Choice of technology and manufacturing process best suited to the case;
- Assessment of input requirements and operating costs;
- Site selection;
- Assessment of capital costs;
- Financial analysis of the project;
- Economic analysis of the project;

- Sensitivity and risk analysis;
- Projected revenue and expenditure statements, balance sheets.

1.5.3 Project Engineering - Co-Ordination of Implementation

- Preparation of specifications and tender documents (mechanical, civil and structural, electrical, instrumentation);
- Detailed comparative evaluation of offers;
- Pre-contractual negotiations;
- Advice on the selection of the most suitable bidder;
- Assistance to the client in contract finalisation;
- Supervision/co-ordination of contractor's design, fabrication of equipment, its testing;
- Procurement services for all equipment purchased on behalf of the Client;
- Co-ordination of plant construction, start-up and commissioning;
- In situ training of key personnel and skills;
- Advice of marketing.

1.6 OUTLINE OF RECENT EXPERIENCE OF PROJECTS OF A SIMILAR NATURE

1.6.1 Reference list

Within the Manderstam Group and its glass manufacturing associates, glass manufacturing technology has been designed and supplied to the following companies in developing markets and introducing new technology:-

<u>Company</u>	<u>Country</u>	<u>Date</u>
Owens Illinois	USA	1961
Sylvania GTE	USA	1970
Sasaki Glass	Japan	1973
Hyderabad Lamps	India	1973
Metal Lamp	India	1982
Piakah Tubes	India	1983
Sylvania & Laxman	India	1985
Rao Insulating	India	1986
Rongcheng Glassworks	PR China	1986
Kalpansa Lamps	India	1987
Sylvania & Laxman	India	1987
Nadir Figueiredo	Brazil	1987
Yangzhou Glass Factory	PR China	1988
PT Sibalec	Indonesia	1988
Nanjing Glass Factory	PR China	1989
Hi Tech Quartz	Taiwan	1989
ECE Industries	India	1989
Apar Limited	India	1990
Donghai Glass Factory	PR China	1990
Prakash Tubes	India	1990
Nan Xiang	PR China	1991
Omer Glass	Pakistan	1991
Surya Roshni	India	1992
Orissa Lamps Limited	India	1992
MLC Industries Limited	India	1993
Surya Roshni	India	1993
CG Glass	India	1994
Trans India Lamps	India	1994
GE Lighting	India	1994
GE Apar Lighting	India	1994
Denden Glass Works	Eritrea	1995-to date