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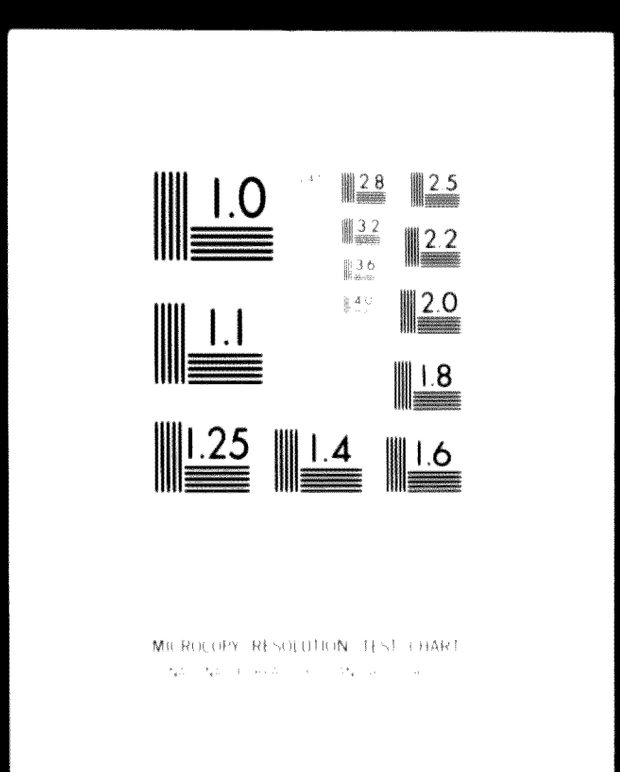

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PROJECT INFORMATION SHEET

United Nations Industrial Development Organization

IND-10-71

SECOND ASIAN MEETING TO
PROMOTE INDUSTRIAL PROJECTS[1/]

SINGAPORE, 3-11 November 1971

TOLUENE DI-ISOCYANATE

COUNTRY	India
PROJECT	Manufacture of toluene di-isocyanate Total investment: US $ 9,750,000 Capacity: 5,000 tons per annum initially
FOREIGN CONTRIBUTION REQUIRED	- Equity $ 700,000 - Loan/suppliers credit $ 600,000 - Know-how

1/ Sponsored by: The Economic Commission for Asia and the Far East (ECAFE)
The United Nations Industrial Development Organization (UNIDO).

IMPORTANT NOTICE

The basic purpose of this meeting is to provide an Exchange or Market Place for the initiation of contacts on specific industrial projects between their proponents from the Asian countries and potential suppliers of capital, finance, equipment or know-how, as the case may be, from the industrialized countries.

This Project Information Sheet has been prepared as a basis for such contacts. Its purpose is not to present detailed information about the project but to provide the recipient with an outline sufficient to determine tentative interest in principle. Any further available information on the project will be furnished on request to interested parties at the Meeting.

Experience has shown that industrialists frequently prefer to carry out their own further investigations in detail into projects in which they are interested, but assistance from UNIDO in these matters can be rendered to the Asian country concerned on request.

This Information Sheet contains only the information supplied to UNIDO by the proponent of the Project. UNIDO can therefore take no responsibility for its accuracy.

TOLUENE DI-ISOCYANATE

I. INTRODUCTION

. The Project*

The project is for the manufacture of toluene di-isocyanate (TDI) with an initial capacity of 5,000 tons per annum in Gujarate State, India. This chemical is made from toluene, nitric acid, sulphuric acid, light naphtha and chlorine - all these raw materials being available indigenously. The operation will be a fully integrated one with the manufacture of the intermediates like dinitrotoluene, toluene diamine, hydrogen and phosgene. This chemical, TDI, is converted into synthetic foam material by reaction with another component chemical and catalysts in special machines. Such foamed material is an excellent substitute for foamed rubber and has much wider applications due to lighter weight, ability to adhere or laminate to other materials like textiles, wood, etc. Special products with foamed structure inside and a continuous skin of special designs can be molded and applied extensively as furniture components, structural partitions, etc. The foam can also be sprayed on to surfaces and provide excellent insulation for cold or hot conditions. The Indian production can also cater to smaller demands in the neighbouring countries. Later expansion of the project will include another closely related chemical MDI, which is used for more rigid type foam applications and also includes manufacture of nitric acid from amonia for captive consumption.

. Main Components

Proposed plant capacity - 5,000 tons per annum of toluene di-isocyanate (TDI).

Location - Baroda or Vapi in Gujarat State (India).

Total investment US $ 9.7 million.

. Project Presented by

AMAR DYE-CHEM LIMITED,
Rang Udyan, Sitladevi Temple Road,
Mahim, Bombay 16 (India)

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* This project is presented as submitted by the proponents with a minimum of editing.

. Foreign Contribution Required

Foreign contribution specifically to cover know-how/licence and any import of equipment. Expected to be of the order of 10% of total investment for know-how/basic engineering and licences and 10% for equipment. Equipment supplies may be covered by suppliers credit or loans instead of investment.

II. COMMERCIAL ASPECTS OF THE PRODUCT

- Total Domestic Consumption

Estimated for 1970 is about 300 tons valued at 2 million rupees; consumption is severely restricted due to foreign exchange shortage and is restricted to one processing unit.

- Present Sources of Supply

Local production - nil. Imports - from W. Germany or U.K. mainly.

- Projected Consumption

Several new processing units are now approved and expected to go into production in 1971 and 1972 and consumption may increase to 3,000 tons in 1973/74 if indigenous supplies are assured and grow rapidly thereafter. Projected consumption would further increase rapidly when the other component - polyols - is also available from indigenous sources sometime in 1975. Potential market is 6,000/8,000 tons within 3 to 4 years after start-up of indigenous production.

- Existing Production Facilities

Nil.

III. PHYSICAL ASPECTS

. Size of Land and Buildings

About 10 hectares land. Buildings and civil work about 10% of investment.

. Availability of Labour

Readily available. Present rates are $40 to $60 per month for skilled and $20 to $30 per month for unskilled.

. Raw Materials

	Baroda A	Vapi B
Toluene	at site	120 miles
98% Nitric Acid	240 miles	120 miles
Chloride	at site*	15 miles
Light Naphtha	at site*	120 miles
Sulphuric Acid	5 miles	15 miles

* at a later stage and meanwhile transport 200 miles approx.

Final choice between the two locations will be made at the time of preparation of detailed project report.

. Infrastructure

Site is well connected by road/rail and a government agency is already engaged in providing infrastructure like water supply, waste disposal, service roads and housing.

. Utilities

Will be provided as part of the project within the overall investment mentioned.

IV. ECONOMIC ASPECTS

. Economic Motivation of the Project

Potential market and reduction in consumption of natural rubber for foam products. Application for textiles, furniture, housing, etc. not yet developed.

. Special Reasons why Projects Should Appeal to Foreign Investor

Potential market in India is very large and raw materials are all indigenous. Products from TDI have to be made locally as they are very bulky and can be transported only at a high cost.

V. FINANCIAL ASPECTS

- Composition of Investment (rough estimate in US $)

	Local Cost	Foreign Exchange	Total
Pre-investment costs	300,000	-	300,000
Assets			
Land	100,000	-	100,000
Building	800,000	-	800,000
Machinery*	6,800,000	1,200,000	8,000,000
Estimated working capital	400,000	100,000	500,000
Total	8,400,000	1,300,000	9,700,000

* Erected with all services and the utilities and estimated costs of import duty, know-how/engineering and technical service.

- Proposed Financing Plan (rough estimate in US $)

	Local Cost	Foreign Exchange	Total
Equity	2,800,000	700,000	3,500,000
Loan capital / Suppliers credit	5,600,000	600,000	6,200,000
Total	8,400,000	1,300,000	9,700,000

VI. ADDITIONAL RELEVANT INFORMATION

- Proposed Legal Structure

  Public limited company.

- Documentation

  A feasibility study has been made and can be shown during discussions.

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