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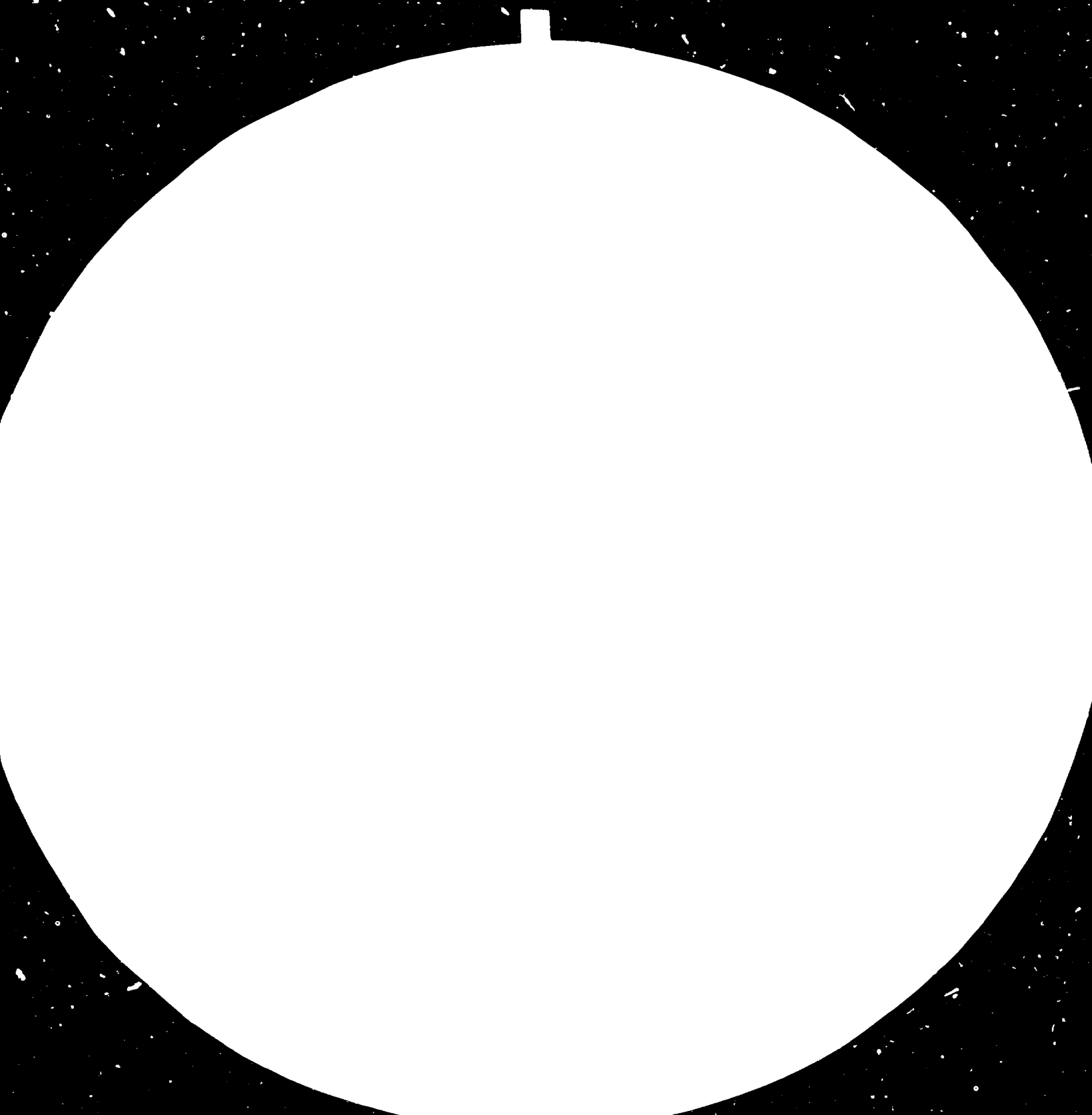
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"The Tenth Round Table of Developing Countries
Industrial Development and Co-operation among
Developing Countries from Small-Scale Industry
to the Transnational Corporations"

Zagreb, Yugoslavia, 15-17 September 1982

Some Experience of [Co-operation between a Yugoslav *
Engineering Organization and Economic Subjects] from
Developing Countries

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** IDC: Institute for Developing Countries.

The unit of Messrs "Hemijska industrija Pančevo" dealing with development and engineering, has developed its activity on the basis of satisfied criterion classified into the following categories: personnel, potential, experience and marketing.

The concept of the organization is based, according to jobs, on four specialized units:

- Programming of development,
- Project engineering,
- Investment construction,
- Joint services.

Each unit includes specialized services qualified for a range of jobs.

Personnel potential includes the specialists, with experience lasting many years, in engineering. It has references to work with a great number of partners on realization of very complex projects.

Work potential possesses possibility for realization of over 350,000 project hours a year and about 1500 man/months services in construction. For great jobs, it can be taken into

account that the potential of "Hemijska industrija Pančevo" consists of up to 1000 experts in the area of fertilizer production, petrochemistry and plastics processing.

The basic principle of work organization rests upon the tasks performed by teams of specialists. Depending on features, scope and kind of work, the teams of specialists of interdisciplinary structure are formed.

Large jobs are performed by including the specialized units into a larger system. Within the system, a pyramid of teams and units is formed to carry out the overall job.

Organizational aspects, skill, experience, knowledge of work system of foreign engineering companies, available capacities and possibility of covering of a wide range of jobs are assumptions of expressed possibility and justification of appearance on the markets of other countries, including developing ones.

The main characteristics of appearance on the markets of developing countries (DCs) are as follows:

- Appearing in co-operation with associations in our country, such as Chamber of Commerce, committees, business societies and the like;
- Appearing together with domestic economic associations, such as engineering organizations, equipment manufacturers, organizations for erection and constructions, scientific institutions, banks, etc.
- Realization of co-operation in the field of technology, expert assistance in the domain of production, personnel training and the like, are carried out jointly with production organizations and proprietor of technology.

In organizational sense, the appearance on the markets of DCs means the application of contemporary principles of a modern engineering with dominant characteristics:

- Organization of execution according to job and task;
- Organization according to specialties;
- Team work whereby basic aspect of co-operation is formation of joint teams of experts;
- Targets of joint work are training of investor's team to overtake organizationally and professionally production and maintenance of process plants upon their completion.

The basic areas of appearance on the markets of DCs form the spectrum with the following most important activities:

- project and engineering services including licence and know-how;
- specification, choice and equipment procurement at home and abroad,
- uniting all kinds of construction works, the choice of the best constructors for specific jobs, contracting of jobs and execution of work of construction management, supervision and quality control;
- personnel training in process plants in operation and in units for maintenance, as well as during execution of job on site;
- preparation for start-up, start-up and running-in of process plants;
- rendering of the various technical services connected with the choice of technology, organization of the site, organization of the enterprise and the like.

On the basis of modern developed organization and concepts of business appearance in DCs a large number of contacts, co-operation and realization of projects have been made in several DCs. To mention some examples:

- The training of Iraqi experts for operation in petrochemical plants has been organized, programmed and performed. The aim was to enable the trainees to take part directly in all major operations of production process. Engagement of mentors from immediate production for each trainee, everyday execution control and mutual discussions, and advancement of system and methods of work guaranteed good results;
- Making engineering documentation, manufacture of equipment and erection of essential components in ammonia plant were realized in Algeria.

The talks on overtaking jobs in respect to start-up of the ammonia plant, and urea plant were held. The commercial proposals for some storages of liquid gases were made.

- In addition, the concept of co-operation and proposals for start-up of oil refinery and utilities were worked out;
- In Egypt, the construction of the plant for manufacture of plastic pipes according to system of consulting engineering - i.e. the project from the study, choice of technology through equipment engineering, construction and performance tests - should be commenced;
 - The negotiation on jobs to be performed in other countries, such as construction of a complex in Nigeria or personnel training for Indian partner, etc. are being held.

It has been noticed that:

- The principle of equality in the job and joint work on its realization represent prerequisites for a successful realization;
- The efforts to render to the foreign partner, during the training, the vital and experienced knowledges as much as possible are appraised as positive ones. Friendly relations on work and out of it have created friendship of long duration and confidence between the partners;
- The system applied in job realization, along application of the most up-to-date methods of planning and execution and the principle of mutual agreeing upon all relevant activities is accepted by our partners very well;
- Principle of forming of joint expert teams in order to implement the project is very desirable. Besides, the investor is qualified to over-take, independently, the future jobs;
- The decision to engage local performers, according to investor's wish, for execution of activities is always welcomed;
- The wishes of partners from DCs that, during project realization, develop embryos of own engineering organizations and production capacities for equipment are acceptable;
- Joint, i.e. with other Yugoslav firms, previously agreed appearance, with strictly defined tasks and division of work and competence, makes more favorable impression on the partners than separate and partial one no matter how the latter correct may be.

Some difficulties, as based on our experience, have arisen from the co-operation with the partners from DCs, such as:

- Often, partners have not clearly defined the task and on the basis of rather insufficient information they expect the proposal of realization to be made. Such requirements cause expenses with compensation risk. In addition, during discussions and realization, the scope of task often changes representing an additional misunderstanding.

Our suggestions in order to overcome these problems consist of two-phased distribution of job: the phase of condition survey, definition and joint acceptance of project and the phase of project realization. Already at the first phase the joint team for job execution should be formed;

- Information provided by investor is not only incomplete but also supplied late.

Formation of joint teams already in the first phase can remove this problem, too;

- A few of our own technologies that can be offered and possibilities for application of a great number of foreign technologies make troubles in transfer of licence, frequently due to relation between our partner from a developing country and licensor;

- Finance, by nature, is the problem for itself. The co-operation being described herein, suffers from the misunderstandings due to prejudice of our partners, considering that our services should be at the level of world's quality but considerably under the world's prices. In

addition, from case-to-case, the problems of guarantees, application of regulations, insurances and penals occur. The misunderstandings about arbitrary determination can be mentioned too.

Last but not least, the accomplishment of co-operation with the partners from DCs causes the domestic problems, such as the defining of the way of appearance with other domestic partners, of the so called leader of job, the problem of regulations, and so on.

