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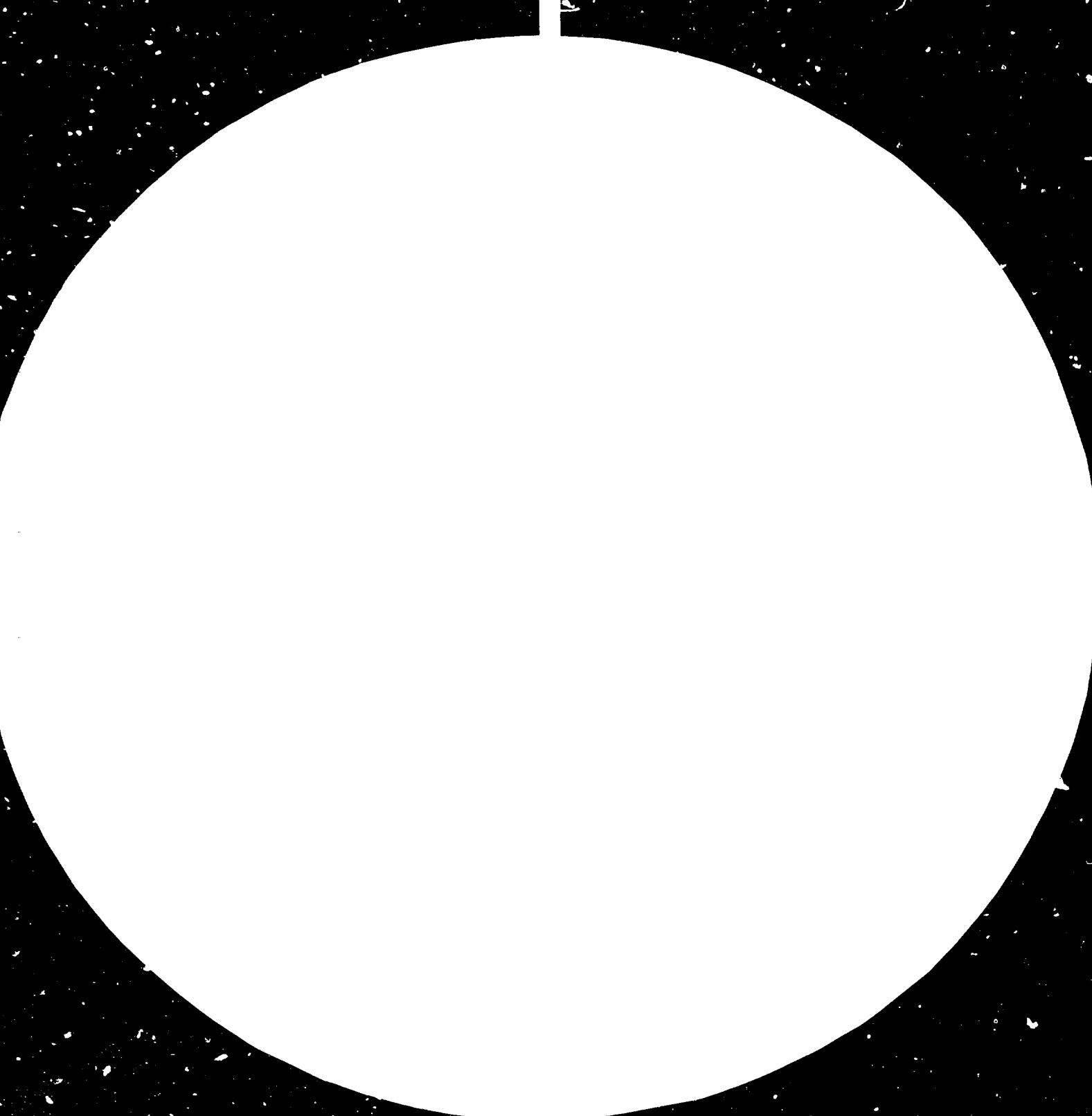
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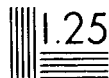
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28





10748



United Nations Industrial Development Organization

Distr.
LIMITED
ID/WG.346/7
14 August 1981
ENGLISH

Group Meeting on Standardization and Quality Control
in the Industrialization Process of Developing Countries
Arandjelovac, Yugoslavia, 7 - 12 September 1981

THE PART OF SPECIALIZED SOCIAL ORGANIZATIONS OF QUALITY CONTROL IN THE
ECONOMIC DEVELOPMENT OF THE SOCIALIST FEDERAL REPUBLIC OF YUGOSLAVIA*

prepared by

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1. Introduction -- potential

It is known that Yugoslavia was one of the most underdeveloped countries in Europe before the war. Over 80 % of rural population lived on its territory, and a quarter of adults were illiterate. But on that terrain, under difficult conditions were born and grew people who were not reconciled to the life conditions in their surrounding. Some of them looked for a job and learned (trade or school) in developed European countries (SSSR, Germany, France, even Belgium). Some found jobs and learned in rare industrial enterprises which were founded by foreign funds and local owners of large estates. Thus underavailable conditions, extensively, staff potential was created with which the afterwar industrial development in SFRY began.

We should be reminded here that in 1875, the principality of Serbia signed the European Convention about Measures and Measuring System, much before -- under social conditions of that time -- some of the most developed European countries. When a reliable foundation was once established, construction and subconstruction became a logical necessity: immediately after the constitution of the kingdom of Yugoslavia, the so-called Middle Bureau for Measures was founded in 1919, and on 20th January 1945, during the war in which the new, present Yugoslavia was established, its government, constituted during the war, founded the Administration of Measures.

It is also known that Yugoslav economy and infrastructure was destroyed during the war, and that among the total number of human victims there were proportionally most of educated people. All who survived war horror -- unskilled as well as the most specialized -- stood before the reconstruction and construction of economy, and began with the industrial development of their country possessing their own revolutionary, war experience in which the knowledge about the aims of construction of socialistic, self-managing society was created.

The zest of revolution transmitted to the terrain of economy construction of socialistic type, opened the door for the application of new knowledges which allowed faster and more effective construction of industry, and society in whole. Talking about the quality function in relation to that revolutionary zest of construction, one should be reminded that, besides the mentioned Administration of Measures, the Yugoslav Institution for standardization was founded in 1946, and then other structures which took part in the development of the quality function, for example, Yugoslav Productivity Center (founded in 1953), on the initiative and within the activity of the Central Social Planning Institution. Application of JUS standards, besides series of fundamental advantages, allowed the creation of wider quality assurance system, especially in the field of measurement as the basic inspection skill.

In reconstructed and newly built industrial enterprises, the part of inspector was confided to the most skilled and experienced workers. Enterprises that first began to work had significance for further development of industry, and their workers had a strong sense of responsibility for the quality of their own products. That sense and personal satisfaction with fulfillment of responsibility, resulted from the climate produced by efforts of revolutionary construction. One should be reminded that the majority of enterprises in that period was a little better equipped with control and test means than with production ones. Newly built industrial enterprises possessed for that time modern equipment and laboratory means for quality control. Products reliability from that period was out of question. Inspection was based on measurement as per the classic conception of so-called „100 % Inspection“, which

had the responsibility to protect a buyer and firm's name from bad quality. In that period developed forms of preventive existed – acceptance inspection for raw materials and supplies. Phase inspection within the manufacture process preventive was based on the principle of „the first piece“ test, too. Within the first ten years of the afterwar industrial construction, the application of methods of the statistical quality control, sophisticated procedures in measurement, knowledges from the quality economy, except the classic ones, etc., were not known in SFRY.

2. Knowledge transfer

The knowledge transfer within the quality control is significant as an example for examination of knowledge transfer in general. Within the period from 1924 – 1926 already, Dr W. E. Shewhart, the creator of statistical quality control, proved by experiments and theoretically completed the theory of statistical quality control, working at his post in the company (the Bell Telephone Co.). Little later, in the period from 1926 to 1932, Dodge and Romig summarized the existing mathematical solutions and developed – experimentally and theoretically – working in their company, the complete sampling theory.

Tempestuous, explosive application of methods and technics which were the field of of statistical control including sampling, began only during the Second World War (from 1942). In the meantime, only sporadic application of that knowledge was recorder, more in Great Britain than in USA, where only in 1937, within broader preparations for possible partake in the war, the inheritance of W. E. Shewhart, Dodge and Romig was evoked.

These facts, in total, size the complexity and subtlety of the knowledge transfer. There should have passed 11 years from the publication of the book containing the complete theory and examples of application of that knowledge intended for the practice of the industrial organisation, up to the more serious reflections and planning of its application. Further, there should have passed 15 years till the beginning of the first application of that knowledge, and the very application has been well planned and wide conducted. Finally, 20 years have passed from the possessing of one complete knowledge till its wide application in practice, and to emphasize it, in specific, very favourable work conditions of the USA total industry for her war efforts.

In the afterwar period, the transfer of knowledge from the field of quality control was explosively effected from USA, Great Britain and Canada to other countries of the world. Those countries possessed a series of new knowledges which were developed from the theory of statistical quality control applied internally, and their experts popularized the application of scientific knowledge from the quality control in other countries, including the underdeveloped countries. The special question is – why USA helped with the intensive knowledge transfer from the quality control and conducted it widely through their experts?

The statistical control was heard about for the first time in SFRY through contacts of Yugoslav experts with experts from USA, who worked together in then founded UN agency for statistics. At that time (1952–1954), the first book in Serbo–Croatian about statistical quality control was born. The first activity of direct knowledge transfer was done by American professor Paul C. Clifford, who was called to hold the lecture about the application of statistical quality control method (autumn of 1952, in Zagreb). The real knowledge transfer from the quality control in SFRY was effected through scholarships, within the period from 1957 to 1964. In that meantime, about 20 Yugoslav citizens used scholarships (3–12 months) for examination of this knowledge in USA. After return to the country, the majority of them began to apply that knowledge in enterprises, and the internal knowledge transfer was begun developing with the help of the Yugoslav Productivity Center and then the Productivity Center of SR Slovenia. Then the use of other possibilities for the knowledge transfer from this field began. For example, about 30 Yugoslavs passed six-months training from the quality control, organized by EOQC in Rotherdam, and some institutions and

economic organizations found it necessary to award scholarships to Masters from this field for foreign schools.

3. Foundation of social-professional organization

The internal knowledge transfer from the quality control was specific in this country, performed with social initiative of professional workers and helped by the mentioned productivity centers and several enterprises, and we can say that a considerable contribution to the development of economy in the broader sense was given to the activities of internal knowledge transfer.

Forms of the internal knowledge transfer from the field of quality control were different but could be summarized as follows: a) organization of several-days-lasting seminar in the enterprise which previously effected the complex advancement of the quality assurance system, b) organization of oneday experience exchange, in a concrete enterprise, too, and c) publication of expert works in the existing journals and other periodicals containing the experience of the application of the quality control methods and techniques.

Seminars in enterprises that have advanced the quality control system are challengeable and have gathered managers and experts of quality control from the biggest enterprises with us. The advantage of such seminars lays in the possibility that a theoretical novelty is being explained by the example of the experiment conducted, and even established control procedure for maintenance of the quality of manufacture, presented in the classroom, and can be visualized in a workshop nearby immediately afterwards. A seminar participant can directly talk with example creators and learn on the spot about the difficulties, dilemmas, corrective activities which have preceded the new quality control procedure now functioning. The organization of such a seminar is a complete task done by an advancer-consultant together with experts of the enterprisehost. The complexity of undertaking and greatness of efforts to be done can be most completely motivated by the final target of such a seminar, and that is a quickened, very rapid internal transfer of the knowledge-experience resulting from the challenge of seminar participants acquired during the process of work.

The first seminar with us was organized in June 1965, by mutual efforts of „Industrija alata („Tool industry“) in Trebinje (where the advancement of quality assurance system was effected during last two years) and Yugoslav Productivity Center. That three-days-lasting seminar followed 42 participants, 29 of them were managers for quality control in bigger Yugoslav enterprises, which had not so far applied sophisticated knowledges. Afterwards, participants of the seminar made serious efforts to apply new methods of quality assurance in their enterprises and presented successful examples during the following one-day-lasting experience exchange.

The one-day-lasting experience exchange of experts for quality control was done by the initiative of Productivity Center of SR Slovenia together with the relevant enterprise. That activity was repeated 3-4 times a year, always in an other enterprise and about different themes, 1-3 of them, within a different range. For example, the theme could be of narrower scope („remuneration of inspectors in metal-processing industry“), but of very wide intantion „application of statistical quality control in processing industry“.

During the period up to 1972, 124 titles were published in specialized periodicals in this country, and they represented a contribution to the exchange of experiences about the application and gain to knowledge-skill within the quality control.

Successful internal transfer of knowledge and skill interested a considerable number of experts from enterprises, who very gladly accepted the idea of foundation of national socialprofessional organization, primarily called THE YUGOSLAV COMMITTEE FOR QUALITY, founded in June 1965. It was not a professional organization before which one could take professional exams, which took care of the social status of its members and similar,

because there were no such needs there. In that sense, a professional organization in this country essentially differed from similar organizations in other countries. Global aims of that social-professional organization of inspectors, as written down in its statute, related to the advancement of application and the transfer of knowledge from quality control field, in professional-business and social sense equally

Main activities of our national organization, repeating cyclically, are: a) annual conference, being organized every year on the actual motto theme, b) issue of professional journal „Quality“ (quarterly journal so far), and c) sections work on maintenance of the knowledge and experience transfer.

YUGOSLAV ASSOCIATION OF ORGANIZATIONS OF QUALITY ADVANCEMENT – JUSK, the title under which our national social-professional organization has been working since 1970, has grown and been developed from its foundation through the work contents and organizational structure, imitating the constitution of SFRY. Namely, our Association has branches which are competent for the performance of work contents in each socialistic republic and region, separately. The mentioned annual conference is their joint action, and sections work is maintained and advanced by individual republic associations. The biggest joint action has been the action of QUALITY YEAR which is to be further reported.

For creation of the idea about social and professional part of our national organization, we shall herewith quote an excerpt from contents of XV Yugoslav conference with the motto theme QUALITY – FACTOR OF ECONOMIC STABILIZATION being prepared for 13th–14th October this year in Beograd:

„The introductory report QUALITY UNDER CONDITIONS OF STABILIZATION will be read by Zvone Dragan, the vice-president of the Federal government. PRICE POLICY AND QUALITY is the theme which will be covered by Anton Polajner, the president of the Federal Price Control Bureau, and the president of Trade Council of Yugoslavia, Jon Srbovan, covers the theme INFLUENCE OF ECONOMIC CONDITIONS ON QUALITY. Metod Rotar, the Federal Minister of Foreign Affairs, will read the report on the theme QUALITY AS FACTOR OF EXPORT, the theme STANDARDIZATION AS ELEMENT OF STABILIZATION is the subject of report of Vukašin Dragojević, the director of Federal Institution for Standardization, and finally, – for plenary session of conference, the theme INFLUENCE OF SCIENCE AND TECHNOLOGICAL INNOVATION ON PRODUCTS QUALITY by Dr Slavoljub Urošević, the professor of the School of Economics in Beograd. Those are the themes and reporters for discussion during this year's conference on the first, plenary day of work. On the second day, the conference will work within sections, separated. For this year's conference, preparations have been made by: Pharmaceutical section, Aeronautical, Car and Chemical sections, Tourist section, Section of Food Industry and specially sections of Lumber Processing, Textile and Building Industry.

The facts being presented herewith are sufficient to characterize the part and contents of work of Yugoslav social-professional organization of quality control, whose target is the *advancement* of quality of products and services.

4. Quality year

Yugoslav Association of Organizations for Quality Advancement started a general national action of QUALITY YEAR – 1972/1973, whose activities were being done during 18 months. For the performance of that action the following facts were significant:

- Josip Broz Tito, the President of SFRY, was the protector of Yugoslav action QUALITY YEAR.
- Federal Parliament brought the resolution of QUALITY YEAR, as of general national social action.

- That action was coordinated by the COUNCIL OF QUALITY YEAR, whose president was the premier of Federal Government, Mr. Džemal Bijedić, secretary of the council was appointed by Federal Government, and members of council were delegated by Republic governments, so they represented all regions of Yugoslavia.

- The very action was prepared during the previous two-years period within which a voluminous STUDY OF ACTION OF QUALITY YEAR was written, which contained the programme of action, based on detailed analysis.

- Yugoslav Association of Organizations of QUALITY Advancement was the initiator and the main performer of the activity of QUALITY YEAR.

- Within the activity of QUALITY YEAR, a four-days-lasting work of XVII CONGRESS EOQC with the motto theme QUALITY AND SOCIETY, was organized in Beograd in June 1973.

In his own opinion, this author of the theme has no right to estimate successfulness, results of Yugoslav action QUALITY YEAR, because he has been one of the main performers of its activities (as the president of JUSK). Our QUALITY YEAR has had broader social creation of climate „for quality“ – for global aim. Such aim requires enough time and conditions „for quality“ to estimate its realization. Probably the programme of this year's conference of JUSK proves the realization of such aim. We add herewith that one of the best realized results achieved in the sphere of education, and also – that the qualification structure has been essentially improved by employment of educated people for jobs of quality assurance in industrial enterprises. But, of course, the main result of Yugoslav action of QUALITY YEAR is – the development of social component of quality function, which has followed.

5. Instead of conclusion

At the beginning of sixties, the professor Juran from USA picturesquely represented the quality function as a resultant of forces parallelogram composed of its technical and managing components. That thesis amounted to the proof that the quality function was a resultant of number of activities of technical nature (measurements, statistical quality control, reliability estimation . . .) on one side, and activities of managing nature (analysis of losses for quality and direction of corrective activities, organization of preventive, staff training, estimate of efficiency of quality assurance system . . .) on the other side. The idea then, that with the quality function as a resultant, the result could be achieved only in case of balanced management of performance of both types of activities, arose a simple proof – when there was no activity from one of the components, there was no resultant, and the result that could be achieved by performance of activity of only one component, but not in the desired direction, remained. This opinion had formerly been valid for production and service enterprises. To the matter experts, professor Juran had, with this analogy, visualized possible events in practice in a simple way, without many words.

At the beginning of sixties (1964), the Japanese began to conduct a broad social action of QUALITY MONTH, as a permanent continuation of the action of QUALITY YEAR.

Later, many countries have conducted their actions of quality year. National actions of quality year, with results they have been started for and results that are achieved, have proved the existence and necessity of development of quality function in social sense. Thus, in the same time with learning of quality function on the enterprise level, there is the quality function on the level of one national economy or social community, being composed of economic activities component, on one side, and a component of social activities of quality assurance, on the other side. The component of quality function economic activities on the level of society refers to activities which are daily

effected in enterprises. Its social component refers to legal regulative and social stimulus, meaning the protection of buyer from uncorresponding quality of products and services, refers to regulations and social stimulus for quality function development in enterprises, as well as to deepening of return team with ideas and obligations (in social sense) to quality advancement, between sphere of turnover and sphere of turnover. These attitudes are proved by the permanence of work of Yugoslav Association of Quality Advancement.



