Chapter 14

Leadership in Industrial Standardization

In addition to the development of standards related to sampling methods described in Section 13.3, Prof. Ishikawa had achievements in various fields and his each contribution is rich in its contents.

Maybe some people think that Professor Ishikawa's activities in quality control (including QC circle activities), in sampling and in industrial standardization are respectively different matter, however, we believe that he had considered such activities linking with Industrial Standardization due to the following reasons:

(1) Industrial standardization needs activities for the establishment and implementation of standards. The activities are numerous such as establishment of standards, dissemination and education, and implementation (including certification). The standards can be classified into company standards prepared by each company, national standards by each country, and international standards by the world. Establishment and implementation of company standards are carried out by each company under the name of quality control. Unlike company standards, those of national or international standards are required to form a broad consensus and dissemination and education under a rigorous regime. Industrial standardization is a kind of infrastructure to realize QC which is essential for manufacturing high quality goods. That's why industrial standardization is close to QC. The activities toward Industrial standardization are plain even if they require a great effort and perseverance. He thought, in order to promote QC widely, the rationalization of only company standards was not enough, national standards and international standards should also be rationalized. He did his best in these activities because of this noble faith.

(2) He had an idea that the research findings of his study on sampling of bulk material should be adopted in national and international standards in order to use the findings in an actual place. While many researchers believe that their role is only research and application of the findings is rarely carried out. The

professor's conviction, research is complete only when the findings are actually put into practice, drove him further to promote this activity.

(3) At the same point of view with (2), he had made an effort to establish JIS based on his research in statistical methods and QC.

Professor Ishikawa's achievements on industrial standardization are roughly classified into the following:

[Company standard level]

(1) Research on company standards

[National standard level]

(2) Development of Japanese Industrial Standards (JIS)
  1) In the area of quality control
  2) In the area of Sampling

(3) Research for the improvement of the provided content of JIS in general

(4) Dissemination and educational seminars, conferences, publications, Quality Month, etc., covering national standards and standardization in general

[International standard level]

(5) Personal participation in ISO management
  1) Members of the ISO Council and Executive Committee (current Executive Board)
  2) Chairman of the Divisional Council on ISO of the Japanese Industrial Standards Committee

(6) Development of international standards draft
  1) Quality control and statistical methods (ISO/TC 69)
  2) Sampling (ISO/TC 102)

(7) International exchange and cooperation in relation to international standardization
  1) Pacific Area Standards Congress (PASC)
  2) Bilateral exchange with USSR and China

(8) International cooperation for developing countries & Japan International Cooperation Agency group training courses

Industrial standardization in Japan is implemented under the initiative of the

Japanese Industrial Standards Committee (JISC: Standards Division, Agency of Industrial Science and Technology, Ministry of International Trade and Industry). The actual activities in the fundamental and common fields are being promoted by the Japanese Standards Association (JSA) under the guidance of the Standards Division. For these reasons, Professor Ishikawa's activities in industrial standardization took place through activities of JISC and JSA.

(1) and (4) of the activities mentioned above are described in Section 14.1 "Achievements in the Japan Standards Association" in this chapter. Also, (2) and (3) are described in Section 14.2 "Contribution to prepare and rationalize of JIS," and from (5) to (8) are described in Section 14.3 "Impact on International Standardization Activities." Furthermore contents related to sampling of (2) and (5) are described all together in the preceding Section 13.3.

Professor Ishikawa' received the Minister of International Trade and Industry Award in 1969 and the Medal with Blue Ribbon in 1977 to honor his various achievements. Additionally, his works titled "Points for Company Standards" (magazine *Hinshitsu Kanri* (Statistical Quality Control), 1957), *On Japanese Industrial Standards* (Japanese Standards Association, 1962) and *Ideal Product Standard and How to Create It* (Japanese Standards Association, 1968) were awarded the Standardization Literature Prize.

14.1 Achievement in the Japanese Standards Association

(1) Contribution to the Control System Committee (COSCO)

Since the establishment of the Quality Control Committee (current the Control System Committee: COSCO) in 1950 with the purpose of researching quality control systems based on the actual condition in Japanese industries, Professor Ishikawa had engaged in the management of the Committee as a member, chair of the Divisional Council on Standards and chair of the Divisional Council on International Affairs. At the same time, he guided the research projects on specific themes as chief of the subcommittee.

From 1960 to 1972, he researched the concepts of JIS from the point of quality control, especially product standards, as the chief of the Subcommittee on Rationalization of Standards under COSCO's Divisional Council on Sampling

Inspection, and contributed the rationalization of standards. The details on his contributions are described in Section 14.2 (2).

The Subcommittee on Rationalization of Standards continued to study product standards as company standards and compiled its findings in *Ideal Product Standard and How to Create It* which led him to receiving the Standardization Literature Prize by the Japanese Standards Association in 1968.

As chair of COSCO Divisional Council on Standards from 1962 to 1971, he oversaw the development of JIS draft related to quality control in each subcommittee of the Divisional Council. The draft in which Prof. Ishikawa was involved as a chief of Divisional Council and committee member had covered 34 standards including JIS Z 8101 Glossary of terms used in quality control. (The total of JIS standards on quality control is 37.)

After his appointment as head of the newly created Divisional Council on International Affairs in 1971, he directly guided the national committee on ISO/TC 69 (Application of Statistical Methods). (See Section14. 3 (1))

(2) Cooperation to the National Meetings on Quality Control and Standardization

At the National Meeting on Standardization being held since 1958, he served as the executive chairman for the 20th (in 1977) and the 22nd (in1979) meetings. In addition, he was invited as a special guest speaker many times. When National Meeting on Quality Control and Standardization (Q-S National Meeting) held in 1967 for dissemination of quality control and standardization, he worked hard as a member of the executive committee to prepare the meeting program and to manage the event.

(3) Cooperation in seminars

In 1953, Quality Control and Standardization Seminar as quality control educational course for engineers was opened. As a faculty member, he was involved in the planning and management of the seminar as well as directly gave lectures to the participants. Today, the seminar is being held at seven branches in Japan including Tokyo branch, and serves as the core of QC education under the Japanese Standards Association. As of 1991, approximately 38,000 participants have completed the course.

In order to promote QC education for department or section managers, COSCO guidebook preparation subcommittee was set up in 1956. Professor Ishikawa assisted the subcommittee's chair Jou Yamaguchi to prepare the *Quality Control Guidebook*

Parts 1 & 2, and then they were published by the Japanese Standards Association. In 1959, "Quality Control Course for Department or Section Managers" on lodging was started using these guidebooks as a text. Prof. Ishikawa gave lectures as one of the main instructors. As of the end of 1991, 127 courses have been held and roughly 7,700 participants have completed the course.

(Masanobu Kawamura, Executive Director,
Japanese Standards Association)

Memories of Seminar Secretariat

Shigeru Takamizawa

I had a pleasure of meeting Prof. Ishikawa about 30 years ago, in 1960 or 61. At that time, I worked at the office for the Seminar on Quality Control and Standardization at the Quality Control Division, Engineering Department (current Management Engineering Center). One day the professor gave the lecture about how to make the $\bar{x}-R$ control chart in the general course. The lecture was full of humor and fun, filling in the data using a test chip, then plotting the data on a graph. When I was collecting the papers from all the participants after the lecture he said, "Why don't you try correcting the papers for your sake? Please mail them to my home after correction by the designated date."

It took me by surprise to hear that, because to correct the papers was my first experience. I worked late into the night to correct the papers with some advice from my superiors of the office, and mailed him as he said. A couple of days later, I received a phone call and compliments from the professor, however he reminded me that I hadn't submitted my paper yet. I was very surprised at his voice, and of course I thought an office worker didn't need to submit it like participants I almost said that. Fortunately I wrote down some data while I listened to his lecture sitting on a rear seat. Later I turned in the paper like participants.

Looking back on that time, he was a warm-hearted and considerate professor to encourage me "study together with the participants."

In the autumn of 1987, when the ISO General Assembly and Council meeting were held in Geneva, Switzerland, I was given the opportunity to escort Professor Ishikawa. (Professor Ishikawa, Professor Imaizumi and a few others from Japan attended.)

We had a stopover in Anchorage for refueling after leaving Narita. The professor casually called me when I was waiting at the airport lobby for a few hours of refueling.

Then he gave me a tour around the place. He took out his camera from his bag and took a picture of me against Anchorage Airport. He also took more pictures of me after arriving in Geneva. About a week after returning to Japan, I received a letter from the professor. When I opened the envelope, I found many photos and several small envelopes with each name neatly written on in order to distribute. I wondered how and when he had the time to do this even he was busy every day. I was deeply touched by his warm personality and kindness.

I sincerely extend my deepest condolences for his passing.

(Managing Director, Administration Department,
Japanese Standards Association)

(4) Leadership in the Quality Month

He had contributed as chair of Quality Month Committee since in November 1960, when an event "Quality Month" was held and it was cosponsored by JSA and the Japan Chamber of Commerce and Industry, in order to promote QC throughout Japan. Since its inception, Professor Ishikawa had accepted a lecturer every year as the Quality Month Committee chairman, especially that in local apart from Tokyo with willingness. On the other hand, the Japanese Standards Association took charge of selling goods (such as slogan banners) and planning regional lectures. (See Section 8.6)

(5) Published works in publications related to quality control and standardization

The following works were published by JSA:

Quality Control Guidebook Part 1, 1958
Quality Control Guidebook Part 2, 1958
Ideal Product Standard and How to Create It, 1968
Control Chart, 1968
The New Education: Quality Control Handbook, 1977
The New Education: Quality Control Handbook, 2nd Edition, 1988

14.2 Leading the Development and Rationalization of JIS

The draft of JIS prepared by COSCO, etc. is established as JIS after deliberation at

Expert Committee and Basic Divisional Council as a representative of a nation. Prof. Ishikawa deliberated on JIS related to quality control as a temporary member of JISC from 1952, and moreover, he contributed to establish basic and a wide range of JIS including standard related to quality control as a member of Basic Divisional Council of JISC from 1963.

In 1978, he was appointed as a chairman of the Agricultural Equipment Standardization Policy Committee of the Ministry of International Trade and Industry and worked on the standardization and rationalization of some parts of agricultural implements manufactured and sold by each maker. In the same year, he was also appointed as a member of the Special Committee on Industrial Standardization System Revision.

(1) JIS Development: JIS especially in Quality Control

As of January 1992, JIS related to quality control has 37 standards in 5 categories as shown below. Most of these standard drafts had been developed and deliberated at various subcommittees or Divisional Councils of the Japanese Standards Association (COSCO). Prof. Ishikawa participated in COSCO from the beginning when the research committee was established, and directly or indirectly gave guidance to develop the standard. These JIS related to quality control impacted a lot to raise product quality of industrial products as well as disseminate and develop QC activities in Japan along with the system of JIS mark enacted in 1949.

JIS Z 8101 (Glossary of terms used in quality control) and other standards on terminology: 3/3 (including those related to reliability terms, etc.)

JIS Z 9001 (General rules for sampling inspection procedures) and other standards on sampling inspection: 10/12

JIS Z 9021 (The Control chart method) and other standards on control charts: 2/3

JIS Z 9041 (Presentation and reduction of data) and other standards on data processing: 1/1

JIS Z 9042 (Significance test of difference between the population mean and the standard) and others on statistical estimation and inspection: 18/18

Note: The fraction shown above means: denominator expresses the total number of standards and numerator expresses the standards that Prof. Ishikawa was involved in.

Please refer to Chapter 13 for JIS development related to sampling and general

rules for permissible tolerance of chemical analysis and physical test.

(2) JIS rationalization

In addition to JIS development, professor Ishikawa researched "concepts of JIS." His accomplishments had effected a lot on the content of existing JIS.

The professor had frequently said, "Don't trust specifications" and "If you see JIS, don't think it is true." He didn't criticize without proof but said it based on scientific approach. Moreover, he had proposed on improvement method. As mentioned in Section 14.1, he engaged in the following research projects as the head of the Subcommittee on Rationalization of Standards under the Japanese Standards Association's COSCO.

He conducted a sampling study of JIS's all quality standards from category A to Z, executing exhaustive analysis into their content and identifying problems. Furthermore, he uncovered the expected problems when JIS would be applied in practice and reconsidered them.

The problems that had emerged as a result are summarized as follows:

- A considerable number of JIS are not practical.
- All the items of JIS are hardly rational.
- Standardization has not been executed on JIS as a whole.

As a starting point for considering these problems, the subcommittee wrote a report concerning the items of JIS and their content after several deliberations. It had taken 5 years for the deliberations and the number of the meeting was 57 times in total. Moreover, the reference materials for the deliberation and minutes grew into huge volumes.

The professor was going to submit this report to the Japanese Industrial Standards Committee, the JIS deliberation body, as a written opinion, however, the administrative authorities were concerned about the problem of JIS, which was written in the first half of the report, might be paid attention. For this reason, the report was issued as an 80 pages improvement proposal with the vague title "On Japanese Industrial Standards" and distributed only to COSCO members.

After that, a special committee was established in JISC and discussed about JIS quality standards based on improvement proposal "On Japanese Industrial Standards." Then in 1964, *Publication of Product Standards under JIS* was published. This had been

featured as reference material in the existing JIS Z 8301 (Rules for the layout and drafting of Japanese Industrial Standards) and had influence on the rationalization of the specified contents of JIS. In 1962, *On Japanese Industry Standards* won the standardization Literature Prize from JSA.

Additionally, it must be noted that some members, who attended this discussion, from universities, enterprises, or government organizations, etc. took an active part in dissemination and promotion of QC, later became QC experts. This is the treasure for the subcommittee.

P.S. The atmosphere of the discussion at the monthly committee and the annual study camp was just like Ishikawa Dojo. (Masanobu Kawamura)

In Memory of Professor Ishikawa

Masanobu Kawamura

It was in 1956 that I worked at the office of the Subcommittee on Rationalization of Standards in which Prof. Ishikawa was a chief. The subcommittee and the duties of the office turned out to be my training ground for having Professor Ishikawa's intensive advice.

His first lesson was "to write minutes in detail." Since it was a time when tape recorders weren't available, I always needed to concentrate during the meetings. The real problem for me was the professor's pronunciation, especially his word endings. On some occasions, I needed time to guess what he said. Later, I was able to understand what he said without any trouble. Probably, I began to understand his way of thinking and his QC-based approach through this guessing habit, not because I got used to his pronunciation.

Another Ishikawa quote, "It is the office fault if the manuscripts are not collected in time," also remains in my heart. Although Prof. Ishikawa turned in his manuscripts without fail, some people submitted over the due date. As he quoted, if the office worker thinks that the manuscripts are absolutely necessary for committee deliberations, the manuscripts can be collected in time. I was convinced like that.

He used to say, "How can you implement QC if you can't drink 'sake'?" I wasn't very fond of drinking at that time but eventually I was able to drink with the professor. I learned a lot over 'Sake' and received his encouraging words (just what I thought), "do a better job."

Now I remember the joy when we received the Standardization Literature Prize for

the two accomplishments by the subcommittee, *On Japanese Industrial Standards* and *Ideal Product Standard and How to Create It* Finally I could drink "*Sake*," however, I am reflecting upon my immature QC. I pray from the bottom of my heart that his soul may rest in peace.

(Executive Director, Japanese Standards Association)

14.3 Impact on International Standardization Activities

The International Organization for Standardization (ISO) is developing international standards with International Electrotechnical Commission (IEC). This international standards are increasingly important along with the global expansion of trade. Professor Ishikawa made the following contributions in relation to ISO:

1. He served as a member of the Divisional Council on ISO of the Japanese Industrial Standards Committee (JISC) from 1963 and the head of the same council from 1977 until his death. He participated in Japanese policymaking on ISO, and greatly contributed there.
2. As a head of the national mirror committee for ISO/TC 69 (Applications of statistical methods) since 1971, he contributed to the development and deliberation on international standards draft of statistical methods, including quality control.
3. In the field of sampling of iron ores, etc., (ISO/TC 102), he made great contributions to the development of the international standard (See Section 13.4).
4. He was a member of the ISO Executive Committee from 1981 as well as a member of the ISO Council as representative of Japan. He contributed widely not only to specialized fields but to the management of entire ISO.
5. He dedicated himself to establishing a national mirror committee for ISO/TC 176 (Quality assurance) which developed ISO 9000, the international standard on quality assurance systems.

In addition to his achievements through ISO, he made a great contribution to international standardization activities such as a member of the China-Japan Standardization Exchange Council from 1981, the vice-chairman of the International Standardization Forum from 1986, as well as submission of the written opinion and

compiling the opinions from respective countries as the chair of the National Mirror Committee at Pacific Area Standards Congress (PASC) from 1978.

(Yawara Tomiyama,
International Standardization Cooperation Center,
Japanese Standards Association)

Prof. Kaoru Ishikawa and the Development of International Standards†

Jacques F. M. Gillis

"Both national and international standards must be established for the purpose of promoting quality control.

Although these standards should be used as reference, they must be set up at a high level as well as satisfy consumer needs that is expressed in words as 'required quality.' The standards must be the product of all efforts in order to attain the consumer needs."

These are the words stated by Professor Kaoru Ishikawa at the TQC International Seminar, ISO/TC 102 (Iron ore and direct reduced iron) held in Brazil, of which I also had been charged until last 2–3 months. At ISO, the professor left numerous contributions as a chair of a committee in which I did not belong.

As he proceeded with his presentation, he gave a conceptual illustration of the details of his philosophy on company-wide quality control, and the points were made clear.

Standards are merely basic reference, therefore, it is necessary for companies to set up their target, much higher level to enhance competitiveness.

The first meeting of the committee to which I belonged was held in Tokyo, and I served as a secretary of the committee. This was the meeting where I met Professor Ishikawa again. It was in the autumn of 1986 when I received another important lesson from the great professor. Although it was an informal assembly, I remember what he said.

"The most important point in developing a standard is accuracy... not like a

† This article has been translated from the Japanese version back into English, since the original one written in English is missing.

newspaper report. Every word must be selected rigorously and should have good enough reason."

As time goes on, I am convinced anew that he was right.

(Bureau de Normalization, Belgium, Secretary General/CONI,
Former Secretary for ISO/TC 102/SC 5)

(1) ISO/TC 69

Standardization of statistical terminology and symbols were proceeded in ISO/TC 69 (Applications of statistical methods), and the recommended standard R645 (Statistics terms and symbols) was established in 1967. In the 1970s, the terms were revised and the following subcommittees (SCs) and working groups (WGs) were organized, which accelerated their activities.

SC 1 Terminology and Symbols
SC 2 Interpretation of Statistical Data
SC 3 Application of Statistical Methods in Standardization
WG A Acceptance Sampling
WG B Application of Precision Data

Later, WG A was promoted to SC 5, and WG B to SC 6. Additionally, SC 4 Statistical Quality Control was established.

With the formation of these subcommittees and working groups, it was necessary for Japan to actively correspond to internationalization. In 1971, the Divisional Council on International Affairs was formed under COSCO of JSA, and Professor Ishikawa was appointed its head.

Until his death, he attended over 100 meetings of the councils and played a leadership role in the deliberations about the result of the study at the 6 subcommittees corresponding to SC of ISO.

At present, 16 ISO standards have been established, and of which Japan took change of preparing draft for 4 standards. In addition, Japanese opinion has been applied in various parts of other standards.

After attending a meeting in Paris for the first time, Professor Ishikawa took charge of activities inside Japan, and positively let middle age or younger members attend ISO meetings. Probably he had the intention to develop international human resources in the

area of international standardization and quality control. As a result, some members succeed in international meetings, such as Mr. Tsuneo Yokoo (currently special part-time lecturer at the Union of Japanese Scientists and Engineers) serving as a chair of SC 5/WG 3 and Mr. Takashi Miyazu (present Nishi-Tokyo University). The TC 69 meeting was held in Tokyo in 1985, having 42 participants, including 26 from overseas. The meeting was a great success and led Japanese status more enhanced in this field.

(Masanobu Kawamura)

(2) Professor Ishikawa's activities at the ISO Council and Executive Committee

Since 1969, Japan has been a member of the ISO Council that holds management authority of the organization. Prof. Ishikawa had been working exhaustively as a chair of the Divisional Council on ISO of the Japanese Industrial Standards Committee since 1977, attending ISO Council meetings (either in Geneva or in the host country) held every year and the ISO General Assembly simultaneously held with the Council Meeting every 3 years (1979 in Geneva, 1982 in Toronto, 1985 in Tokyo and 1988 in Prague). He attended a total of 12 Council Meetings from the 31st meeting in 1977 to the 42nd. In addition, he was appointed a member of the Executive Committee [reorganized as Executive Board from 1986], one of the committees of the ISO Council, in 1981. Since then, he had given advises, to the Council regarding all areas, including organization, budget, etc., and a great contribution to the organization as the leading Japanese representative.

Moreover, the ISO General Assembly in Tokyo was held in September 1985, with approximately 450 participants in total, including representatives from 60 countries and 13 from International Organizations. Prof, Ishikawa not only attended the official events like General Assembly/Council meetings, but also energetically worked for the basic plan, deliberation on time schedule, action plan, and budget approval, from the preparation stage as Vice Chairman of the ISO General Assembly Tokyo Organizing Committee. General Assembly in Tokyo made great success because of Prof. Ishikawa's contribution as a chair of the Divisional Council as well as Vice Chairman of the Organizing Committee.

On the death of Professor Ishikawa, ISO Secretary-General Dr. L. D. Eicher immediately sent a telex to express his deepest condolences and his great appreciation to the numerous contributions to ISO. (Yawara Tomiyama)

The Path We Walked Together

Hidehiko Higashi

The Agency of Industrial Science and Technology was established in August 1948, and its standards division was in the middle of developing a draft of the industrial standardization law. The legislative bill was regulated about the Japanese Industrial Standards (JIS) and the JIS Marking System (conformity assessment systems based on quality control conducted by manufacturers). The bill was completed in January of the following year and was submitted to the Diet.

It was around the same time that the Union of Japanese Scientists and Engineers (JUSE) was preparing for the opening of the Statistical Quality Control Seminar, and selecting overseas materials as texts with a rush led by Mr. Shigetoku Baba. The standards division possessed US standards and UK standards, etc., that's why I became involved in the preparatory work. This was an opportunity to meet Mr. Kaoru Ishikawa.

When the "Sampling Research Group" was formed in 1952 at JUSE as Chairman Mr. Ishikawa, the standards division supported the activities of this group under the Mining Industry Test and Research Subsidy Program. In the hearing held at Tokyo Industrial Laboratory, I explained about the necessity of this research from the point of view of QC. The research results were adapted later into JIS on the sampling methods for iron ore, manganese ore and coal, which generated huge profits in trade.

Japan's proposal based on this effect prompted to form ISO/TC 102 (Iron ore and direct reduced iron), and its first meeting was held in Tokyo in March 1963 as Chairman Mr. Ishikawa. Mr. Ishikawa was hugely committed to this TC work, and completed ISO 3081 and many other international standards. He also succeeded as the head of the Divisional Council on ISO of the Japanese Industrial Standards Committee and a member of ISO's Executive Committee (EXCO). Furthermore, his contributions to international standardization were huge. As I work on standardization throughout my life, he was an invaluable asset for me. I sincerely extend my deepest condolences for his passing away. (Executive Advisor, Japanese Standards Association)

(3) Pacific Area Standards Congress (PASC)

In order to promote real international standardization, reflecting the opinions of the US, Asia, Oceania and other parts of the Pacific region to International Standards Activities previously led by Europe, the Pacific Area Standards Congress was established in 1973 and still engages in various activities. Since 1977 when Prof.

Ishikawa became the head of the Divisional Council on ISO, he had attended almost every meeting of the Congress with a chief of the Divisional Council on IEC. He contributed to build the foundation of the activities of today's PASC.

(Yawara Tomiyama)

11th Pacific Area Standards Congress (Seoul, 1986)

(4) Group Training Course for the Japan International Cooperation Agency

Professor Ishikawa had a great interest in standardization and dissemination of quality control in developing countries and paid attention especially to young people who represent the next generation.

Commissioned by the Overseas Technical Cooperation Agency (OTCA, the predecessor of the current Japan International Cooperation Agency or JICA), the Japanese Standards Association commenced a three-month industrial standardization and QC training course for developing countries. Professor Ishikawa was involved in this training course from its planning stage and taught them as a chief. With the establishment of Japan International Cooperation Agency (JICA), the course was transferred to JICA from 1974. Under its commission, JSA has been organizing the "Industrial Standardization and Quality Control" group training course every year. Professor Ishikawa continued to take charge of chief lecturer and worked hard to let the trainees understand the essentials of TQC activities in Japan.

The trainees were deeply moved by his passionate guidance as well as having direct lecture from "Dr. Ishikawa, the founder of the QC circle and the world authority

on TQC." They asked so many questions that the schedule often spilled over because the professor explained in great detail for each question. He arranged his schedule even though he was busy and made up class, therefore he made a phone call to the concerned people by himself.

I remember every trainee holding the textbook autographed by Professor Ishikawa, as it was his precious thing.

With the rapid industrialization taking place chiefly in the ASEAN region, interest in quality is also on the rise. I am certain that Professor Ishikawa would be most pleased to see the trainees who participated in the course, as well as other courses hosted by the Asia Productivity Organization (APO), United Nations Industrial Development Organization/Association of Overseas Technical Scholarship (UNIDO/AOTS), etc., in which he was involved, becoming prominent figures in various fields.

Today, remarkable industrialization is under way having ASEAN as core and high attention was getting to be focused on quality. Under this situation, the trainees of this course as well as of the other course like the Asia Productivity Organization (APO), United Nations Industrial Development Organization/Association of Overseas Technical Scholarship (UNIDO/AOTS), etc. in which he was involved, related to Prof. Ishikawa are active in ASEAN member countries. Prof. Ishikawa would be happy if he saw their activities.

The course at JICA marked its 22nd anniversary in 1989. Under its regulations, the course became an object of review. Due to its great popularity, however, the course restarted as a new course, with a new course title "Practical Course on TQC & Standardization Activity In Practice II," under Professor of Science University of Tokyo, Noriaki Kano who was prof. Ishikawa's former student, as program coordinator.

(Yawara Tomiyama)