Contribution to Promoting Cancer Epidemiology in Japan and to the Activities of the UICC and Others in Cancer Epidemiology and Prevention

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On the occasion of being awarding the 5th Nagayo Mataro Prize for contributions to promoting cancer epidemiology and international involvement in the UICC (International Union against Cancer), the Monbusho Overseas Field Research (International Scientific Research)-Special Cancer Study and others, it is my pleasure to give a concise description of activities in which I have played a role. My achievements in administration and management are only a small part of the whole of what has been accomplished in cancer epidemiology and prevention, but I hope that a comprehensive coverage of the projects in which it has been my good fortune to participate may provide orientation and suggest priorities for research in the coming decades. I have taken part in many meetings that stimulated the interest of young scientists and physicians in epidemiology and prevention. It can be said that efficient administration and management are indispensable for modern scientific research in order to promote information collection and exchange. I, therefore, humbly hope that my experience may be illuminating.

Key words: Cancer epidemiology — Prevention — Cohort studies — UICC — Developing countries

It was my great honor to be awarded the 5th Nagayo Mataro Prize by the Japanese Cancer Association (JCA) in 2000, for contributions to promoting studies on cancer epidemiology in Japan through organizing a large-scale cohort study for evaluation of cancer risk and also for activities in cancer epidemiology and prevention in the International Union against Cancer (UICC) and other organizations.

I am deeply moved that the JCA has chosen to honor my administration and management of research and prevention activities. It should be noted that Professor Nagayo was the founder and first President of the Cancer Institute, Tokyo, in 1934, and he was the first physician to conduct a cancer patient survey in major hospitals throughout Japan, publishing a monograph including prevalence and mortality statistics for Japan with pathological findings for cancer diagnosed in Tokyo University Faculty of Medicine in 1933. He also analyzed cancers by site, from the viewpoint of epidemiology and clinicopathology. I am, therefore, especially grateful for the prize in his name, which is the highest accolade for cancer epidemiology in Japan.

The editor of the Japanese Journal of Cancer Research (JJCER) has kindly invited me to write a paper to commemorate this award. I was pleased to accept this suggestion, because the reason for the award was not particular scientific achievement, but rather administration and management of research, which is rarely recorded in an official Journal.

The present paper consists of two parts; one on promotion of cancer epidemiology in Japan and the other on international activities.

1. Promoting Cancer Epidemiology in Japan through Organizing a Large-scale Cohort Study on Evaluating Cancer Risks, and Other Activities

Japanese epidemiologists generated an explosion in putative risk factors for cancer around 1980, as increasing numbers of carcinogenic substances were detected by laboratory work and various lifestyle-related risks were identified, mostly by case-control studies.2–9 People were very sensitive to the implications, although the magnitudes of most relative risks were not very high at 1.5 to 3.0, and the absolute risks were estimated to be small. Therefore, we planned a large-scale cohort study having more than 1 million person-years’ observation to provide reasonable answers to which factors might indeed be important in influencing the incidence of cancer by site in Japan. The cost of this massive research project was estimated to be more than 1 billion yen.

I was appointed Chairman of the ad-hoc committee on future planning of cancer epidemiology, and submitted a report to the Steering Committee of the Ministry of Education, Science, Sports and Culture (Monbusho) for Cancer Special Research in 1987 stating that a large-scale cohort study was essential to obtain appropriate evidence on putative risk factors for cancer, and should be given high priority. The following practical plan was drawn up.

(1) An epidemiologist group should establish a cohort consisting of more than 100 000 inhabitants throughout Japan. Many epidemiologists studying lifestyle-related diseases should be invited to participate in order to gen-
erate a multi-area, multi-researcher cohort study.
(2) The study design should be set up by the Committee of the group.
(3) Basic studies on questionnaires and physical examinations should be carried out in each area with local financing.
(4) The cost of common basic examinations and establishing a blood bank or other biological sample storage facilities should be covered by the Government and other sources of support.
(5) The overall end-results of the cohort study should be reported after 10 years’ follow-up under the name of the Research Committee, not individuals.
(6) Any member of the Research Group, who expected to retire during the period of this study, should recommend a successor to continue the follow-up.
This plan was tentatively accepted by the Steering Committee, although the question of feasibility generated strong argument.
In spite of the long-term nature of the plan, 59 epidemiologists, biostatisticians and public health workers throughout the country proclaimed themselves willing to join in this project. As the study period was long, the objectives and methods to be employed were clearly explained to officers of local governments and the inhabitants participating. Consent from the participants was obtained with signatures on the cover pages of individual questionnaires. Permission for use of serum for future research was also given by donors, and local governments were made aware of the role of serum banks. The cohort, consisting of a total of 125 700 inhabitants in 51 cities and towns throughout Japan, was established for the period of 1988–1990, and an industrial worker cohort of 25 000 in 3 cities was also started at the same time.
A Monbusho Grant-in-Aid for Cancer Scientific Research was awarded for this project for the first 3 years in 1988. The award has now been continued for more than 10 years, through ongoing evaluation of the Monbusho Grant-in-Aid for Cancer Scientific Research triennially. The program of the study is summarized in Table I.10
The Research Committee of the Cohort Study set up several subcommittees to ensure effective control, such as that for evaluating methodology, another for data collection and analysis, the subcommittee for the serum bank, and for an intermediary questionnaire study, and for the industrial cohort. A Committee for Ethical Issues and an Advisory Committee were separately created for reviewing proposals and advising the Research Committee. The latter consisted of distinguished outside oncologists. Each committee fulfilled its responsibility and it was recommended that the members of the Cohort Study should provide health services to the inhabitants of the relevant area continuously in thanks for their cooperation. The meetings of the Cohort Study were held at least twice a year to exchange information and discuss matters arising from the follow-up study. Special lectures and seminars were scheduled to stimulate and educate the members, and individual or small group studies were recommended to improve the quality of the overall study. The mortality rate of the cohort was about 1% per year and the rate for moving out of geographical areas was less than 0.5% per year on average. Thus, about 85% of the initial cohort remained at the end of the study, a very favorable outcome for analysis of data after 10 years.
The age distribution of the cohort at entry was very similar to that of the general population in Japan, and areas were scattered throughout the country. A site visitor from the National Cancer Institute (NCI), USA confirmed the cohort study to be scientifically valid, even if not randomly sampled.
About 50% of the study scientists who participated in 1988–1990 retired over the next 7 years, but the study has been smoothly continued by their successors. Table II summarizes the differences between two large-scale cohort studies on cancer in Japan; the 1965 cohort and the 1988–1990 cohort.

2. Activities of the Japanese Society for Cancer Research (JSCR)
There were few opportunities for cancer epidemiologists to meet at scientific meetings before 1977, except for some small group assemblies. However, after the first seminar on cancer epidemiology and biostatistics in Japan was held in Nagoya in 1977, regular annual assemblies of

| Year       | 1988–1990 | 1991–1992 | 1993–1996 | 1997–2000 | 2001–2002 |
|------------|-----------|-----------|-----------|-----------|-----------|
| Cohort     | Initial survey |           |           | Final period |           |
| Inhabitants| Established cohort | 125 700 | 25 000 50% of cohort | Final analyses | Published report |
|            |           |           | 30% of cohort | Meta-analyses |           |
| Industrial workers | Follow-up (death, incidence, moved out) | Collateral researches in relation to the cohort study by the members |           |           |
epidemiologists and biostatisticians were staged. In 1981, the Japanese Society for Cancer Epidemiology (JSCE) was established as a formal organization with a constitution, and the secretariat was set up at Aichi Cancer Center (Dr. Tominaga was the first secretary-general). I served as the second chairman of the JSCE in 1985, succeeding Dr. I. Shigematsu, and realized the necessity to have an epidemiological association in our own country.

After two years of efforts with my colleagues, the JEA was established in 1991 so that the activities of epidemiological researchers could be promoted. For example, the number of JEA members increased from about 250 at the preparatory meeting in 1990 to 1100 in 1998. Both of the International Scientific Meetings of the IEA in the Asia-Pacific Region in 1991 and the XIV International Scientific Meeting of the IEA held in 1996 at Nagoya gave opportunities for epidemiologists from many countries to meet and interact. An official Journal of the JEA in English was internationally approved and the JEA became a member of the Japan Medical Congress in 1999. Cancer epidemiologists continue to play major roles in the scientific activities and administration of the JEA.

4. International Activities in Cancer Epidemiology and Prevention

Activities in the UICC are divided into two parts, i.e., holding international meetings and secondly, planning and implementing projects, as the Program Chairman for Epidemiology and Prevention (1986–1994), and as a Council member (1994– ).

1) International Scientific Meetings for Epidemiology and Prevention

Our aims in holding international meetings were to exchange information and to set up collaborative studies on cancer epidemiology and prevention, especially in developing countries, because of the scarcity of contacts before 1980. Cancer incidences in developing countries have gradually been increasing, concomitantly with the decline in deaths from infectious diseases and/or due to undernutrition since around 1970. Many cancers such as those of the cervix uteri, and upper digestive organs seemed to be largely preventable by introducing modern technology developed in advanced regions of the world. Information exchange, education and transfer of technology and collaboration between developed and developing countries appeared to be the most effective ways to achieve a reverse in the increase in cancer deaths. International meetings inviting experts in epidemiology and prevention and interested parties from developing countries were considered as a first step. I had accepted Dr. T. Hirayama’s request to hold a UICC International Scientific

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Table II. Two Large-scale Cohort Studies on Cancer in Japan

| Establishment in 1965 and 1988–1990 | 1988–1990 cohort | 1965 cohort |
|----------------------------------|-----------------|------------|
| Subjects | Inhabitants in rural areas and cities, ages 39 & over | Inhabitants in rural area, ages 40 & over |
|         | Males and females | Males and females |
| Size and cohort | 125 700 | 265 000 |
| Methods | Questionnaires, at entry and about 60% of the cohort five years later | Questionnaire at entry and 3% samples 6 years later |
|         | Physical exams | Blood chemistry |
|         | Blood exams | No blood bank |
| Items inquired | Many putative risks | Mainly smoking |
|         | Socio-medical factors | Partly dietary habits |
|         | Past & familial histories of diseases and others | |
| End result | Deaths (all cohort), incidence (60% areas) | Deaths only |
| Investigators | Many, multcenter study | Few (central office) |
|         | Retired members choose successors | Supported by the officers of the 29 health centers |
| Collateral studies | Substudies are planned | Non |
| Funding | Mainly, each member responsible to the area | Ministry of Health and Welfare Grant-in-Aids |
|         | Partly Monbusho Grant-in-Aids | |

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epidemiological associations provided venues for discussion of cancer epidemiology and prevention, but this situation gradually became unsatisfactory. The International Epidemiological Association (IEA) had been founded in Europe in 1954 and International Scientific Meetings (ISM) of the IEA have been held every three years to allow participants from various countries to exchange information and explore fundamental problems in depth. I served as a Council member of the IEA for 6 years from 1984, succeeding Dr. I. Shigematsu, and realized the necessity to have an epidemiological association in our own country.

3. Establishment of the Japan Epidemiological Association (JEA)

Carcinogenesis is not simple and cancer is a kind of systemic disease. Cancer epidemiology and prevention require not only oncologists, but also a broad multidisciplinary basis from which to discuss human health and diseases. Several academic meetings sponsored by the Japanese Association of Public Health and other non-oncological associations provided venues for discussion of cancer epidemiology and prevention, but this situation gradually became unsatisfactory. The International Epidemiological Association (IEA) had been founded in Europe in 1954 and International Scientific Meetings (ISM) of the IEA have been held every three years to allow participants from various countries to exchange information and explore fundamental problems in depth. I served as a Council member of the IEA for 6 years from 1984, succeeding Dr. I. Shigematsu, and realized the necessity to have an epidemiological association in our own country.

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Meeting in 1978 and, since I was not familiar with the UICC and cancer epidemiology groups across the world, I visited many countries to meet leading epidemiologists. The first UICC Symposium on Cancer Prevention in Developing Countries at Nagoya, August 1981, was the result, with around 100 specialists from 36 countries participating. Professor S. Hibino, President of the Symposium, made great efforts in formulating the meeting and raising funds, and the meeting was well regarded by the UICC and other organizations. Table III gives a list of the UICC International Meetings which I planned as secretary general, president and/or a fund raiser. I continued to contribute to similar UICC meetings as an adviser, after 1994, when I finished my period as UICC Program Chairman.

2) Projects Planned as Program Chairman

There was no ongoing project in the UICC Epidemiology and Prevention Program in 1985, when I took up the role of Program Chairman, although Programs of Smoking, Education for Professionals and the Public, Cancer Campaigns and Cancer Screening were under consideration. Etiological studies on cancer were the responsibility of IARC and projects for cancer priority setting as National Cancer Projects were the task of the WHO Cancer Unit. Avoiding these areas, I therefore proposed the following projects in 1986–1994, obtaining grants from various sources, because the UICC could not financially support each project at that time.

(1) Evaluation of Primary Prevention of Cancer

Primary prevention programs on cancer had started in the 1970s in various of the economically rich countries, but little effort had been made to establish how effective such measures really were in delaying cancer onset or reducing death. I asked Dr. M. Hakama to act as project chairman, to organize the study team and hold meetings for discussion. A workshop was held in 1986, in Reykjavik, Iceland and he issued a beautiful IARC monograph, this project becoming a joint effort with the IARC, as the IARC recognized that the project was worthwhile and agreed to co-operate with the UICC. The results were evaluated highly in the world as a first trial. A second workshop was scheduled in 1995, and the project is still ongoing.

(2) Nutrition and Cancer

This project was accepted by the Council Meeting in 1987 after hot discussion, as there was still little evidence of an important role of nutrition in cancer in many countries of the world. The first symposium on this project was held at Nagoya in 1989, and the presentations and discussions of recent progress in research on nutrition and cancer revealed significant roles in carcinogenesis. The second symposium was held in 1996, in Nagoya, again, and the nutrition and cancer project has become one of the key UICC activities in primary prevention of cancer.

(3) Chernobyl Follow-up in the Eastern-European Countries

Delegates from Greece and Hungary made a strong request for a project on the after-effects of the Chernobyl disaster in 1986 to be adopted by the UICC Program of Epidemiology and Prevention. There had been a notable lack of scientific study on the late effects of fallout in the surrounding areas, especially in the Eastern-European Countries. The first meeting was held in 1991, in Athens,

Table III. UICC International Meetings of Epidemiology and Prevention

| Year | Month | Event                                                                 | Location          |
|------|-------|----------------------------------------------------------------------|-------------------|
| 1981 | August| The First UICC Conference on Cancer Prevention in Developing Countries | Nagoya, Japan     |
|      |       | President S. Hibino, Secretary General K. Aoki                       | Secretariat       |
| 1981 | August| UICC Smoking Control Workshop                                        | Nagoya, Japan     |
|      |       | Secretariat S. Tominaga & K. Aoki, Japan                            | Delegates from    |
|      | August| Satellite meeting: WHO Meeting on Cancer Statistics in Developing   | Nagoya, Japan     |
|      |       | Nagoya, Japan                                                       | Secretariat       |
|      | December| The Second UICC Conference on Cancer Prevention in Developing       | Kuwait, Japan     |
|      |       | Countries, Kuwait, Japan                                            | Chairman Y. T.    |
|      |       | Tominaga & K. Aoki                                                 | Adviser K. Aoki   |
| 1986 | July  | UICC-IARC Joint Workshop “Evaluating Effectiveness of Primary        | Reykjavik, Iceland|
|      |       | Prevention of Cancer”                                               | Chairman M.        |
|      |       | Hakama, Program Chairman K. Aoki                                    |                 |
| 1986 | October| UICC-Japanese Cancer Association Joint Conference, Regional          | Sapporo, Japan    |
|      |       | Characteristics of Cancer “Current Status of Cancer Research in     | President T. Wada,|
|      |         | Asia, the Middle East, and Other Countries,”                       | Secretariat K.    |
|      |         |                                                                      | Aoki and A. Yachi |
| 1987 | September| UICC-Korean Cancer Society Joint Conference on Cancer Prevention    | Seoul, Korea      |
|      |         | Strategies in Asia-Pacific Region                                   | Chairman J.-P.    |
|      |         |                                                                      | Kim, Korea, K.    |
|      |         | Aoki, UICC                                                          |                 |
| 1989 | November| Satellite Meeting of the 9th APFOCC                                | Lahore, Pakistan, |
|      |         | (Chairman S. A. Askari), UICC Conference of Cancer Prevention in    | Chairman K. Aoki,|
|      |         | Asia-Pacific Region                                                |                 |
| 1989 | November| “How Much Cancer Can Be Prevented by Dietary Change?,”              | Nagoya, Japan     |
|      |         |                                                                      | Chairman C.       |
|      |         | Mettlin, Program Chairman K. Aoki                                   |                 |
| 1991 | August | UICC Symposium on Cancer Prevention in Developing Countries,        | Beijing, P. R.    |
|      |         | Chairmen T.-Z. Zhang, K. Aoki, Beijing, Satellite Meeting of the    | China             |
|      |         | 10th APFOCC, Beijing                                               |                  |
| 1992 | December| UICC-Hellenic Cancer Society Workshop on the Long Term Follow-up    | Athens, Greece    |
|      |         | of the Chernobyl Disaster, Athens Greece, Chairman N.               |                  |
|      |         | Dontas, Program Chairman K. Aoki                                   |                  |
supported by funds from Greece, Japan and others.\textsuperscript{10} It was fortunate that the results showed no significant hazardous effects after 5 years in all countries exposed to the fallout, except the Ukraine and Russia. A second meeting was, however, held 10 years after the accident to confirm the findings. The results were again favorable, and scientists and the people were freed of major worry. Thus, it was a very valuable project of the UICC.

(4) Middle East Project

Increased attention has been focused on cancer prevention in the Middle East, after the 2nd UICC Symposium on Cancer Prevention in Developing Countries, Kuwait in 1984,\textsuperscript{19} for which I made efforts to establish a framework in 1983. This meeting promoted cancer registration, epidemiology and prevention in this region, where there had been little activity hitherto. Recently, periodic scientific meetings have been held under the support of the UICC project.

(5) Familial Cancer Project—Prevention Oriented

Not only laymen, but also physicians are worried by familial aggregations of cancer, because there are no effective protective methods. However, it is gradually becoming clear that many cancer cases with familial aggregation are mainly due to environmental factors, which can be avoided. In response to a request from the Swiss cancer league, this project was adopted as a prevention-oriented familial cancer study. The main purpose of the project was to reduce groundless anxiety among people by accumulating scientific evidence. The provisional committee, consisting of 3 persons including myself, has had four successive assemblies at Lugano, Switzerland (1992), at Woods Hole, USA (1992), at Kobe, Japan (1993) and at New Delhi, India (1994) to promote understanding of the aims and stimulate as wide a collaboration as possible, because it seemed rather too early to start on the project itself. The first UICC Symposium on Familial Cancer, however, was held at Kobe, Japan in 1997 due to the efforts of the President Prof. G. Utsunomiya and Japanese oncologists. Dr. S. Tominaga, my successor as UICC Program chairman, took care of the meeting very well. The project, thereafter, was confirmed by the UICC and is continuing.

(6) Cancer Information Exchanges in Developing Countries

I have been fortunate in being able to provide many occasions for exchange of information on cancer, as described above. The meetings held have stimulated many epidemiologists, public health workers and prevention-minded physicians to perform research on cancer epidemiology and prevention (Table III).

(7) Publication of Cancer Statistics in the World

Publications related to cancer statistics in the world, in which I took part as an editor, are listed in Table IV. The monographs on cancer mortality statistics in the world followed the work of the late Professor M. Segi. Other publications are also listed. Most of these monographs were widely distributed as cancer research aids, along the lines pioneered by Dr. Segi.

5. Monbusho Overseas Field Research-Special Cancer Study (Now Known as the International Scientific Study)

In 1985, I was appointed as chairman of the Monbusho Overseas Field Research-Special Cancer Study, which was newly set up as one of the Programs of the 10-Year Strategy for Cancer Control by the Ministry of Education, Science, Sports and Culture. The aims of the project are to detect preventable risk factors and/or effective inhibitory agents and methods through international collaborative studies, especially with developing countries, because it was expected that breakthrough findings might be obtained in etiology and prevention through multidisciplinary comparisons among ethnic groups with different lifestyles and other conditions.

The Steering Committee of the Study was organized and decided the basic policy of the study, as follows: (1) to select themes interesting to both Japan and the counterpart country

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Table IV. Publications of Cancer Statistics in the World

| Year | Title                                                                 | Publisher                                      | Location      |
|------|-----------------------------------------------------------------------|------------------------------------------------|---------------|
| 1981 | “Cancer Mortality and Morbidity Statistics, Japan and the World”     | ed. M. Segi, S. Tominaga, K. Aoki and I. Fujimoto | Japan Scientific Societies Press, Tokyo |
| 1984 | “Cancer Mortality Statistics in the World”                           | ed. M. Kurihara, K. Aoki and S. Tominaga        | University of Nagoya Press, Nagoya |
| 1985 | “UICC Cancer Mortality Statistics in the World 1950–1985”            | ed. M. Kurihara, K. Aoki and S. Hisamichi       | University of Nagoya Press, Nagoya |
| 1987 | “Changing Cancer Pattern and Topics in Cancer Epidemiology: In Memory of Professor Mitsuo Segi” | ed. M. Kurihara, K. Aoki, R.W. Miller and C. Muir | Japan Scientific Societies Press, Tokyo |
| 1992 | “Death Rates for Malignant Neoplasms for Selected Sites by Sex and Five-Year Age Group in 33 Countries 1953–1957 to 1983–1987” | ed. K. Aoki, M. Kurihara, N. Hayakawa and S. Suzuki | University of Nagoya Coop. Press, Nagoya |
| 1994 | “Cancer Mortality and Morbidity Statistics, Japan and The World—1994” | ed. S. Tominaga, K. Aoki, I. Fujimoto and M. Kurihara | Japan Scientific Societies Press, Tokyo |

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Promotion of Cancer Epidemiology and Prevention
(2) to select studies leading to cancer prevention
(3) to select objectives for which appreciable results could be obtained within 3 years
(4) to organize interdisciplinary study teams
(5) to find capable counterpart researchers and to set up practicable and feasible plans for both sides
(6) to transfer technology, to offer training and to support the counterpart’s study
(7) to consider the priority of authorship carefully when publishing the results, avoiding conflicts

These principles were relatively simple and proved effective.

Many distinguished works have been presented at Symposia of this program, held every year, to publicize the study results and exchange information between the members of the projects. International symposia were also held twice in Tokyo in 1986 and in Nagoya in 1989, inviting the collaborators from counterpart countries. This project is still continuing, with valuable results.

**DISCUSSION**

The functions of administration and/or management of modern scientific research are to provide comprehensive plans, target research, and to select priorities for research at the national, or problem level. Ongoing evaluation of study results is also essential so that large-scale research can be accomplished effectively. Management committees can give orientation to studies, allowing recognition of their value and place in the current research stream.

My contributions to administration and management of cancer epidemiology for the last two decades have been all too limited, even though many colleagues have supported me in various ways. However, I am very pleased to have seen remarkable developments in cancer epidemiology and an increasing number of young scientists joining in, in spite of poor salaries, and the low priority generally given by granting bodies. These younger epidemiologists are now meeting the challenge of newly emerging problems. Collaborative studies of epidemiology and prevention between developed and developing areas and Japan are on the increase. It is my hope that this may be partly due to our previous efforts in holding international scientific meetings on epidemiology and prevention.

The UICC Program of Epidemiology and Prevention is clearly not comprehensive and may be perceived to be biased, because major work on smoking, education, screening and etiological studies was avoided to ensure no conflict with other programs already established. The difficulty in fund raising forced limits to the direction and number of projects. However, all those that I proposed have achieved a good reputation in the UICC and other organizations, and have met with special approval in less developed countries. Most are still continuing long after my retirement as Program Chairman in 1994, and fortunately Dr. S. Tominaga from Japan was elected my successor responsible for Epidemiology and Prevention. I was very proud to receive from the UICC president and secretary-general a certificate of appreciation at the 16th World Cancer Congress, New Delhi, India in 1994 and am happy to be able to continue to serve the UICC as a council member, contributing to key work in administration and management.

It is very gladdening that the Monbusho Overseas Field Research (now International Scientific Research) Special Cancer Study, has received high evaluation from the relevant countries, not only for the projects, but also the policy of collaboration I outlined here. I would like to add a little about the after effects of the projects. In Zhong-He, Liaoning Province, P. R. China, as well as Chiang-Mai, Thailand, Jakarta, Indonesia and Chennai, India, systematic studies on cancer epidemiology and prevention have been continued by the counterparts themselves, producing many quality findings and international respect. This can be said to be a cultural legacy left by Japanese researchers.

I served the IEA as President in 1993–1996 and held its International Scientific Meeting in 1996, where many papers on cancer epidemiology and prevention were presented and discussed. A satellite meeting of the UICC Symposium of Molecular Epidemiology on Cancer was organized on the same occasion, which introduced the participants to new approaches to research for cancer prevention. I have been very lucky to have been involved in so many scientific programs with so many colleagues, too numerous to mention here. I would like to take this opportunity to express my sincere gratitude to all the oncologists and the others not only in Japan, but also throughout the world, who have provided help, opportunities and great support in finance and materials, and intellectually. Most studies on epidemiology and prevention must be collaborative by their very nature. This prize should ideally have been given to a group active in the epidemiology field, but I have been persuaded to accept it personally, after receiving strong encouragement by colleagues. There still remains a kind of pain in my heart, however, although they say it will foster epidemiology in Japan. I would like to quote here a Waka, a Japanese poem consisted of 31 syllables, composed by General Hayao Shimamura, the Chief of the General Staff of the Japanese Combined Fleet in 1905, after victory in the Japan-Russian War, that is,

*Morotomo ni Tateshi Isao wo Onore nomi
Yo ni Utaawaru Na koso Turakere*

(It gives me anguish to think that the brilliant light is thrown on my name alone, although the glory of the victory rests on the collaboration of all the crew.)

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REFERENCES

1) Nagayo, M. Statistical study on carcinoma in Japan. *Gann (Jpn. J. Cancer Res.),* 29 (Suppl.), pp. 1–128 (1933) (in Japanese).

2) “Persons at High Risk of Cancer. An Approach to Cancer Etiology and Control,” ed. J. F. Fraumeni, Jr. (1975). Academic Press Inc., New York.

3) “Scientific Foundations of Oncology,” ed. T. Symington and R. L. Carter (1976). William Heinemann Medical Books Ltd., London.

4) “Inorganic and Nutritional Aspects of Cancer,” ed. G. N. Schrauzer (1978). Plenum Press, New York.

5) “Genetic and Environmental Factors in Experimental and Human Cancer,” ed. H. C. Gelboin, B. MacMahon, T. Matsushima, T. Sugimura, S. Takayama and H. Sugano (1980). Japan Scientific Societies Press, Tokyo.

6) “The Causes of Cancer. Quantitative Estimates of Avoidable Risks of Cancer in the United States Today,” ed. R. Doll and R. Peto (1981). Oxford University Press, Oxford.

7) “Environmental Mutagens and Carcinogens,” ed. T. Sugimura, S. Kondo and H. Takabe (1981). University of Tokyo Press, Tokyo.

8) Hirayama, T. Non-smoking wives of heavy smokers have a higher risk of lung cancer; a study from Japan. *Br. Med. J.*, 282, 183–185 (1981).

9) “Life-Style and Mortality: A Large-Scale Census-Based Cohort Study in Japan,” ed. T. Hirayama (1990). Karger, Basel.

10) Aoki, K. Report of the Research Committee of the Ministry of Education, Science, and Culture on evaluation of risk factors for cancer. *J. Epidemiol.,* 6, S107–S113 (1996) (in Japanese).

11) Hirohata, T. The foundation of the Japan Epidemiology Association. *J. Epidemiol.,* 1, 1 (1991).

12) “Recent Progress in Research on Epidemiology. Japan and Other Countries,” ed. R. Sasaki and K. Aoki, *J. Epidemiol.,* 2 (Suppl.), pp. s1–s243 (1992).

13) “Epidemiological Research in Japan, Historical Perspectives and Selected Major Studies,” ed. K. Aoki, *J. Epidemiol.,* 6 (Suppl.), pp. s1–s204 (1996).

14) “Epidemiology of Global Health in a Changing Environment,” ed. Y. Ohno, *J. Epidemiol.,* 6 (No.4, Suppl.), pp. s1–s244 (1996).

15) “Cancer Prevention in Developing Countries,” ed. K. Aoki, S. Tominaga, T. Hirayama and Y. Hirota (1982). University of Nagoya Press, Nagoya.

16) “Evaluating Effectiveness of Primary Prevention of Cancer,” ed. M. Hakama, V. Beral, J. W. Cullen and D. M. Parkin (1990). IARC, Lyon.

17) “Recent Progress in Research on Nutrition and Cancer,” ed. C. J. Mettlin and K. Aoki (1990). Wiley-Liss, New York.

18) “Workshop on the Long Term Follow-up of the Chernobyl Disaster,” ed. UICC and Hellenic Cancer Society (1996). Hellenic Cancer Society.

19) “Cancer Prevention in Developing Countries,” ed. Y. T. Khogali, A. Omar, A. Jorgov and S. Ismail (1986). Pergamon Press, Oxford.

20) “Epidemiology and Prevention of Cancer,” ed. R. Sasaki and K. Aoki (1990). University of Nagoya Press, Nagoya.

21) Nakamura, A. “Biography of Admiral Shimamura,” Kadokawa Pocket Edition (2000). Kadokawa Co., Tokyo (in Japanese).