

APPENDIX
PARTICIPANT'S BIOGRAPHIES

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1. Sogo OKAMURA

Date of Birth: March 18, 1918
Address: 4-12-15, Numabukuro, Nakano-ku, Tokyo, Japan
Education: Bachelor of Engineering (Electrical Engineering) from University of Tokyo (1940)
Doctor of Engineering (University of Tokyo) (1951)
Present Position: Executive Director, Japan Society for the Promotion of Science (JSPS)
Professor and Dean of Graduate School, Tokyo Denki University
Professor Emeritus, University of Tokyo

Back Ground:

1978-1979 Auditor, JSPS
1951-1978 Professor of Electrical Engineering, University of Tokyo
1975-1977 Special Assistant to the president of University of Tokyo
1973-1975 Dean of Faculty of Engineering, University of Tokyo
Dean of Division of Engineering, Graduate School, University of Tokyo
Head of Engineering Institute, University of Tokyo
1947-1951 Associate Professor of Electrical Engineering, University of Tokyo
1945-1947 Non-regular Staff Member, Faculty of Engineering, University of Tokyo
1940-1945 Technical Officer in Japanese Naval Research Institute
1940 Lecturer, Faculty of Engineering, University of Tokyo
1956-1978 Staff of Radio Research Laboratories, Ministry of Post and Telecommunications
1956-1965 Head of the Millimetric Wave Section of Radio Research Laboratories

Membership (Academic Circle):

Institute of Electronics and Communication Engineers of Japan
1968-1970 Vice President
1971-1972 President
Institute of Electrical Engineers of Japan
1975-1976 Vice President
Institute of Electrical and Electronics Engineers
1972- Fellow
Institute of Television Engineers of Japan
Japan Society of Applied Physics
International Union of Radio Science
1963-1966 Vice Chairman of Commission I
1975-1978 Vice Chairman of Commission A
1978- Chairman of Commission A
1978- Chairman of Japanese National Committee

Government Outside Service

1974- Councilor of Science Council (Ministry of Education, Science and Culture)
1972- Councilor of Technical College Council (Ministry of Education, Science and Culture)
1970-1978 Councilor of Radio Technical Council (Ministry of Post and Telecommunications)
1969- Councilor of Electronics Council (Science and Technological Agency)
1975-1979 Member and Vice-Chairman of Committee for Scientific and Technological Policy (Organization for Economic Cooperation and Development)
1975-1978 Science Adviser, Ministry of Education, Science and Culture

Nongovernment Outside Service

1971- Member of Broadcast Engineering Council (Japan Broadcast Corporation)
1967-1971 Member of Technical Advisory Committee (Nippon Telegraph and Telephone Public Corporation)
1967-1973 Consultant to Electrical Communication Laboratories (Nippon Telegraph and Telephone

Public Corporation)

Main Publication:

Electricity and Magnetism (I, II, III), Iwanami-Shoten Publishers Co. (1968, 1970, 1971)
The Measurement of the IMPATT Diode's Admittance under the Effect of Second-Harmonic Frequency, Trans. IECE Vol. 61-B No. 5, 1978
Atmospheric Attention by Rain at 140 HHZ, Trans. IECE Vol. 60-B No. 4, 1977, by Sogo Okamura and Akio Sonohara
Analysis of Characteristic of IMPATT Diode under the Influence of Harmonic Frequencies, Trans. IECE Vol. 60-B No. 10, 1977, by Masakatsu Naruse and Sogo Okamura
A Fast Detector by Discontinuous Metal Films for the Millimeter Wave through Infrared Range, Trans. IECE Vo. 60-C No. 3, 1977, by Koichi Ijichi and Sogo Okamura

Research Interest:

Detectors for Millimeter Wave and Infrared Ray
Microwave Solid State Devices
Measurement Techniques in the Millimeter Wave Frequencies

2. Akira TEZUKA

Date of Birth: October 24, 1923
Address: 2-6-6-204, Komaba, Meguro-ku, Tokyo
Education: Faculty of Law, University of Tokyo (1953)
Present Position: Professor, Institute for Policy Science, Saitama University (1979-)

Back Ground:

1977-1979 Deputy Director-General, Science and International Affairs Bureau, Ministry of Education, Science and Culture (MESC)
1968-1977 Director, Research Aid Division, Science and International Affairs Bureau, MESC
1966-1968 Director, Teacher Training Division, Higher Education Bureau, MESC
1953-1966 Official, Several divisions, MESC

Government Relations (at Present)

Science Advisor, Science and International Bureau, MESC
Member, Science Information Committee, Science Council, MESC
Member, Recombinant DNA Safety Precaution Subcommittee, Recombinant DNA Committee, MESC

Membership:

1979- Special Research Project on Environmental Science
1977- Japan Society of Science Education
1975- Research Project on Promotion of Scientific Research

Main Publications:

Basic Concept of Science Information System, Gakken, 1979 (In Japanese)
Basic Concept of Science Education, J. of Science Education, 1979, 1980, (in Japanese)

Research Interest:

Science Policy, Science Education Policy, Policy Formation Process, Science Information System

3. Fumio KODAMA

Sex: Male
Address: 324-4 Kamiochiai Apt. #1-802, Yono-city, Saitama-ken, 338 Japan (Phone) 0488-52-2596
Date of Birth: July 11, 1941 (Age: 39)
Marital Status: Married; [three children]
Present Occupational Status:
Associate Professor of Systems Engineering

Graduate School of Policy Sciences
The University of Saitama
(Office Address)
Graduate School of Policy Sciences
The University of Saitama
Urawa, Saitama, 338 Japan
(Phone) 0488-52-2111 Ex. 2784

Research Fellow
The Institute for Policy Science
The University of Saitama
(Office Address)
Urawa, Saitama, 338 Japan
(Phone) 0488-52-2111 Ext. 2762

Education:

April 1960- Department of Mechanical Engineering
March 1964 Faculty of Engineering
The University of Tokyo
April 1965- Department of Mechanical Engineering
March 1969 Graduate School of Engineering
The University of Tokyo

Degrees:

March 1964 B.S. in Mechanical Engineering (The University of Tokyo)
March 1967 M.S. in Mechanical Engineering (The University of Tokyo)
February 1974 Doctor of Engineering (The University of Tokyo)

Previous Professional Backgrounds:

April 1964- Technical Officer, The Ministry of International Trade and Industry, The Government
March 1965 of Japan
Sept. 1967- Research Associate, Studiengruppe für Systemforschung (Heidelberg, West Germany)
Feb. 1969
April 1969- Research Associate, Department of Social Engineering, School of Engineering, Tokyo
April 1973 Institute of Technology
May 1973- Assistant Professor of Systems Engineering, Department of Information Science, College
March 1974 of Liberal Arts and Sciences, The University of Saitama
April 1974- Associate Professor of Systems Engineering, Department of Information Science, College
present of Liberal Arts and Sciences, The University of Saitama
May 1973- Research Fellow, The Institute for Policy Science, The University of Saitama
present
April 1977- Associate Professor of Systems Engineering, Graduate School of Policy Sciences, The
present University of Saitama
Sept. 1978- Fulbright Visiting Associate Professor, Department of Government, Hamilton College
May 1979 (N.Y., U.S.A.)

Publications

[English]

1. *Evaluation of Research Evaluators by the Modified Thrustone Model*, International Seminar of R & D Planning, The Council for Industry Planning, Tokyo, 1967.
2. *A Systems Approach to National Document-Handling Systems for Science and Technology*, Studiengruppe for Systemforschung, Heidelberg (West Germany), 1968.
3. "An Approach to the Analysis of Vocational Education and Training Requirements," *Management Science*.
4. "Multi-Product Production Scheduling in Automated Continuous Process," *Bulletin of the Japan Society of Mechanical Engineers*, Vol. 18, No. 118, 1975, pp. 450-457.
5. "A Structural Analysis of Intra-Regional Communication," *Institute for Policy Science Research Report*, No. 78-1, Saitama University, 1978.

6. "A Framework of Retrospective Analysis of Industrial Policy Based on Dynamic System Theory of Development," *Institute for Policy Science Research Report*, No. 78-2, Saitama University, 1978.
7. "Science and Technology Policy Outlook: Main Trends and Issues-Japanese Case Study," *Prepared for OECD, Directorate for Science, Technology and Industry*, 1980.

[German]

1. *Vergleich von Studien zum Aufbau eines nationalen Informations systems, für Wissenschaft und Technologie in den USA*, Studiengruppe für Systemforschung, Heidelberg (West Germany), 1968.

[Japanese]

Articles

1. "An Evaluation of Mathematical Functions," *Mathematical Sciences*, Vol. 4, No. 8, 1966.
2. "Education and Training in Technical Innovation," *Scientific Asahi*, Vol. 27, No. 3, No. 4, 1967.
3. "System and Social Engineering," *Mathematical Sciences*, Vol. 7, No. 10, 1969.
4. "System Technique: Backgrounds and Methods," *Chuo-Koron*, Vol. 84, No. 11, 1969.
5. "Information Processing Systems," *Mathematical Sciences*, Vol. 8, No. 1, 1970.
6. "Methodologies in Systems Engineering," *Bulletin of Ceramics Society of Japan*, Vol. 5, No. 10, 1970.
7. "Systems Approach to Planning of National Information System for Science and Technology," *Information Management*, Vol. 12, No. 10, 1970.
8. "An Optimal Allocation of the Skilled Labor," *The Japan Society of Systems Engineering*, MCB 7209, 1971.
9. "Basic Thinking in Systems, Engineering," *Journal of the Marine Engineering Society of Japan*, Vol. 8, No. 14, 1973.
10. "A Multi-Product Production Scheduling in Automated Continuous Processes," *Transactions of the Japan Society of Mechanical Engineers*, Vol. 40, No. 336, 1974.
11. "An Analysis of System Design Processes in Introduction of Industrial Robots to Production Line," *The Proceeding of Symposium on Utilization Technique of Industrial Robots*, Japan Industrial Robot Association, 1974.
12. "A Model-Building by Means of System Dynamics in Comparison with Econometrics," *The Proceeding of First Information Science Symposium*, Institute of Information Science, Keio University, 1975.
13. "Directions Towards Making Social System Models More Precise," *The Proceeding of Medical Electronics Symposium*, Institute of Medical Electronics, University of Tokyo, 1977.
14. "A Model-Building of Social System," *Journal of the Society of Instrument and Control Engineers*, Vol. 16, No. 1, 1977.
15. "Accelerate Research and Development for Japanese Economic Growth," *Nippon-Keizai-Shimbun* (The Newspaper of Japanese Economics), May 9, 1978.
16. "System Characteristics of Information System," *Communications of the Operations Research Society of Japan*, Vol. 23, No. 7, 1978.
17. "Organizing the Demands for Technological Innovation," *The Japan Society of Systems Engineering*, MCB 7905, 1979.

Academic and Professional Membership

1. The Japan Society of Mechanical Engineers
2. Operations Research Society of Japan
3. The Society of Instrument and Control Engineers
4. Steering Committee, National Information System for Science and Technology, Science and Technology Agency, Government of Japan (1970-1971)
5. Experts' Sub-committee, The Committee on Environmental Effects, World Energy Conference (1971)
6. Expert Committee of Industrial Technology, Ministry of International Trade and Industry, Government of Japan (1974)
7. Committee for Science and Technology, Economic Planning Agency, Government of Japan (1975)
8. Committee for Social Systems, Ministry of International Trade and Industry, Government of Japan (1976)
9. Steering Committee for Systems Engineering, The Society of Instrument and Control Engineers (1972-1974)
10. Editorial Board of Transactions of the Japan Society of Systems Engineering (1977-present)

4. Kotaro SHIMO

Professor, Institute of Socio-Economic Planning

The University of Tsukuba

Born, March 10th, 1936

Married, with two children

Education

B.Sc, The University of Tokyo, 1959

M.Sc, The University of Tokyo, 1961

British Council Scholarship, The University of Birmingham 1962 ~ 1963

Professional Background

The Ministry of International Trade and Industry, Heavy Industry bureau, 1961 ~ 1967

Japanese Trade Center, Paris, 1967 ~ 1971

Machinery and Information Industry Bureau, MITI, 1972 ~ 1975

Scientific Counsellor, Japanese Delegation to OECD, Paris, 1975 ~ 1979

Senior Officer, Large Scale Project, Agency of Industrial Science and Technology, 1979

Professor, The University of Tsukuba, since 1979

Membership

Japan Society of Precision Engineering

Japan Association for Planning Administration

Research Fellow, Foundation for Advancement of International Science

Publication

Energy Research and Development in the IEA, Journal of the MITI, Sept. 1977

The Future of Motor Vehicles, Journal of the Japan Society of Mechanical Engineers, July, 1975

Research and Development of Visual Information System Journal of the Japan Society of Electrical Engineers, Jan. 1973

The Machine-Tool Industry of the Free World, Journal of the Japan Society of Precision Engineering, April, 1966

Research Interest

Reliability and Maintenance Engineering

Energy Research and Development

International Development

Science and Technology Policy

5. Hiroshi INOSE

Professor of Electronic Engineering, and Director of Computer Center

University of Tokyo

Date and Place of Birth

Tokyo, January 5, 1927

Education

Doctor of Engineering, University of Tokyo, 1955

Bachelor of Engineering, University of Tokyo, 1948

Principal Employment, Years, Description

1. 1977 – Present, Computer Center (for nation-wide service), University of Tokyo, Director
2. 1961 – Present, Department of Electronic Engineering, University of Tokyo, Professor
3. 1978 – Present, Ministry of Education, Science and Culture, Japan, Science Advisor
4. 1974 – 1978, Educational Computer Center, University of Tokyo, Director
5. 1974 – 1976, 1978 – 1979, Graduate Course of Electronic Engineering, University of Tokyo, Chairman
6. 1972 – 1974, 1980 – 1981, Department of Electronic Engineering, University of Tokyo, Chairman
7. 1974, Institut für Theoretische Elektrotechnik, Rheinische-Westfälische, Technische Hochschule, Aachen, Germany, Visiting Professor
8. 1969, Program in Computer, Information and Control Engineering, University of Michigan, Visiting

Professor

- 1956 – 1961, Department of Electrical Engineering, University of Tokyo, Associate Professor
- 1956 – 1958, Moore School of Electrical Engineering, University of Pennsylvania, Associate
- 1957, Switching Research Department, Bell Telephone Laboratories, Consultant
- 1954 – 1955, Tokyo Shibaura Electric Co., Engineer

Principal Publications (technical articles and books), Patents

Books

1. H. Inose: *An Introduction to Digital Integrated Communications Systems*, University of Tokyo Press, 1979
2. H. Inose, T. Hamada: *Road Traffic Control*, University of Tokyo Press, 1975

Technical Articles (80 Papers including the following)

1. H. Inose: Road Traffic Control with the Particular Reference to the Tokyo Traffic Control and Surveillance System, *Proc. IEEE*, 64, 7, pp. 1028-1039 (July, 1976)
2. H. Inose: Communication Networks, *Scientific American*, 227, 3, pp. 116-128 (Sept., 1972)
3. H. Inose: Future Prospect of Telecommunications, *Telecommunication Journal* 43, 3, pp. 236-244 (Mar., 1976)
4. H. Inose, Y. Yoshida and Y. Yasuda: A Time Slot Interchange System in Time-Division Electronic Exchanges *Trans. IEEE, CS-11*, 4, pp. 336-345 (Sept., 1963)
5. H. Inose and Y. Yasuda: A Unity Bit Coding Method by Negative Feedback, *Proc. IEE*, 51, 11, pp. 1524-1535 (Nov., 1963)
6. H. Inose and T. Saito: Theoretical Aspects in the Analysis and Synthesis of Packet Communication Networks, *Proc. IEEE*, 66, 11, pp. 1409-1422 (Nov., 1978)

US Patents

1. H. Inose and J. P. Runyon: Time Division Switching System, No. 3172956
2. H. Inose and T. Saito: Time Division Switching System, Nos. 3446917, 3223784, 3461242, 3492435, 3514541
3. H. Inose, H. Fujisaki and T. Saito: Time Division Switching System Network Synchronization, Nos. 348330, 3504125, 3504126
4. H. Inose and T. Aoki: Asynchronous Communication System No. 3562431
5. H. Inose, H. Fujisaki and T. Hamada: Road Traffic Control System, No. 3660812

Principal Professional Activities

- 1981 – Present, Vice President for International Affairs, Communications Society, Institute of Electrical and Electronics Engineers (IEEE)
- 1979 – Present, Vice Chairman, Committee for Scientific and Technological Policy, Organization for Economic Cooperation and Development (OECD)
- 1979 – Present, Member, Council for Industrial Technology, Japan
- 1976 – Present, Member, Council for Post and Telecommunications Policy, Japan
- 1976 – Present, Member, National Committee for UNESCO, Japan
- 1974 – Present, Member, Council for Industrial Structure, Japan
- 1973 – Present, Member, Editorial Board, *Proc. IEEE*, *IEEE*
- 1978 – 1980, Director, Institute of Electronics and Communication Engineers of Japan
- 1976 – 1978, Chairman of the Program Committee, Fourth International Conference on Computer Communication, 1978
- 1973 – 1976, Chairman of the Papers Committee, International Switching Symposium, 1976
- 1974 – 1976, Vice President, Information Processing Society of Japan
- 1965 – 1967, Editorial Director, Institute of Electrical Engineers of Japan

Principal Honors

1. Second Marconi International Fellowship in 1976
2. Japan Academy Prize in 1979
3. IEEE Fellow, 1978
4. Foreign Member of the American Philosophical Society in 1979
5. Foreign Associate of the National Academy of Sciences (USA) in 1977

6. Hitoshi OSAKI

Date of Birth: January 10, 1933
Education: Faculty of Law, Kyoto University (Bachelor of Law) 1955
Present Position: Deputy Director-General
Science and International Affairs Bureau
Ministry of Education, Science and Culture (MESC)
Background: Director of General Affairs Division, Minister's Secretariat (1977-1979)
Director of University Division (1971-1976)
Membership: Institute for Democratic Education (IDE)
Government Outside Service/Nongovernment Outside Service: _____
Main Publication: "Private University" in *Higher Education in Japan*
Tokyo: Dai-Ichi Hoki, 1968
"University Reformation and National Policy" in *University Reformation*
Tokyo: The Simul Press, Inc. 1979
Research Interest: University and National Policy
Science Policy

7. Teiichi SATO

Date of Birth: October 15, 1941
Education: B.S. (Law), Kyoto University, 1964
Present Position: Director of Financial Affairs Department, Administrative Bureau, University of Tokyo
Background:
1964- Professional, Ministry of Education, Science and Culture
1964-67 Private School Promotion Division
1967-71 Unit Chief, Financial Affairs Division
1971-73 Director, Teachers' Personnel Division (Fukuoka Prefecture)
1973-74 Deputy Director, Personnel Division
1974-79 Deputy Director, University Education Division
1979-80 Deputy Director, Budgeting and Accounting Division
1980- Director, Financial Affairs Department (University of Tokyo)
Research Interest: Science Policy

8. Irwin M. PIKUS

Personal data: Born April 21, 1936, Philadelphia, Pennsylvania
Married December 20, 1959
One child, born May 13, 1964
Education: B.S. Physics, Drexel Institute of Technology
M.S. Physics, University of Pennsylvania
Ph.D. Physics, Temple University
J.D. Law, Temple University
Experience:
1979-Present Director, Division of Strategic Planning and Policy Analysis; National Science Foundation, 1800 G St., NW, Washington, DC
1975-1979 Deputy Director, Office of Technology Policy and Space Affairs; U.S. Department of State, Washington, DC
1973-1975 Attorney and technical consultant, private practice, Philadelphia, Pennsylvania
1966-1973 Senior Scientist, Environmental Studies, General Electric Company, Space Sciences Laboratory, Valley Forge, Pennsylvania
1962-1965 Staff Scientist, Budd Company, Physical Research Laboratory, Downingtown, Pennsylvania

1958-1962 Senior Engineer, Advanced Communications Division, Radio Corporation of America, Camden, New Jersey

9. Harvey AVERCH

Assistant Director for Scientific, Technological, and International Affairs

Dr. Harvey Averch became Assistant Director for Scientific, Technological, and International Affairs (STIA) in June 1977. In this position he is responsible for the development, coordination, direction, and evaluation of programs under the Divisions that comprise STIA: Policy Research and Analysis, Science Resources Studies, International Programs, and Science Information.

Dr. Averch joined the National Science Foundation in 1971. He was the first Director of the Division of Social Systems and Human Resources in the Research Applied to National Needs (RANN) Directorate. In 1974 he advanced to the position of Deputy Assistant Director for Analysis and Planning at which time he designed RANN's planning and evaluation system. In 1976 he was nominated by the President and confirmed by the Senate as Assistant Director for Science Education.

Prior to his NSF appointment, Dr. Averch was associated with the Rand Corporation in Santa Monica, California, for ten years. He served as Senior Staff Economist, Director of Studies on Economic Development in the Phillippines and as Co-Director of the Rand program on Urban Structure and Policy Analysis. He also has taught at the University of California at Los Angeles, the California Institute of Technology, and the Rand Graduate Institute.

A native of Colorado, Dr. Averch Graduated from the University of Colorado summa cum laude with an A.B. in economics in 1957. He was awarded a Ph.D. in 1962 at the University of North Carolina where his major fields of study were economic development, advanced economy theory, and mathematical economics.

Dr. Averch has authored and co-authored numerous publications in the areas of economic development, education, urban affairs, and international affairs. He is co-author of *How Effective is Schooling? A Critical Review of Research* and *The Matrix of Policy in the Philippines*. With Leland Johnson he established the first mathematical models of the effect of rate-of-return regulation on the firm. Dr. Averch has also published articles on R&D management and on research utilization.

Dr. Averch has received a number of honors and fellowships, including the Ford Foundation Dissertation Fellowship, 1961; University of North Carolina Fellowship, 1958; Fellow, Institute of Strategic Studies; Phi Beta Kappa; and is listed in the American Men of Science. Dr. Averch received the Foundation's Meritorious Service Award in 1973 and the Distinguished Service Award in 1977. In 1979 Dr. Averch was elected Chairman of the US/Israel Binational Science Foundation.

Dr. and Mrs. Averch and their two children reside in Reston, Virginia.

10. Deal WOLFLE

Born March 5, 1906, Puyallup, Washington

Education: B.S. University of Washington, Seattle, 1927; M.S. 1928; Ph.D., The Ohio State University, 1931

Married Helen Morrill, December 28, 1929; 3 children

Present Position: Professor Emeritus, University of Washington, 1976 –

Professional Experience:

Instructor in Psychology, Ohio State University, 1929-32; Professor of Psychology, University of Mississippi, 1932-36; Examiner in Biological Sciences, University of Chicago, 1936-39; Assistant and Associate Professor of Psychology, 1938-45; Civilian Training Administrator, U.S. Army Signal Corps, 1941-43; Technical Aide, Office of Scientific Research and Development, 1944-46; Executive Secretary, American Psychological Association, 1946-50; Director, Commission on Human Resources, 1950-54; Executive Officer, American Association for the Advancement of Science, 1954-70, Acting Editor 1955, and Publisher of *Science* 1956-70; Professor of Public Affairs, University of Washington, 1970-76.

Government Relations:

Consultant or member of advisory committees to the Departments of Commerce (1961-62, 1968); Defense, (consultant, 1943-63; member, Scientific Advisory Board, Air Force, 1953-57; member, Defense Science Board, 1957-61); Health, Education, and Welfare (National Advisory Mental Health Council, 1960-64, National Advisory Health Council, 1965-66); Labor (1961-63); National Aeronautics and Space Administration (1963, 1966); National Science Foundation (various divisional and advisory committees, 1950-); President's Science Advisory Committee (member, Educational Panel, 1958-59; member Panel on Scientific and Technical Manpower, 1957-61; chairman for U.S., Joint US-USSR Working Group on the Training and Utilization of Scientific, Engineering, and Technical Personnel, 1973-79); Organization for Economic Cooperation and Development, 1957-61, 1968-71); UNESCO (1954, 1960-62); and others.

Books:

Factor Analysis to 1940, 1941; America's Resources of Specialized Talent, 1954; (Editor) Symposium on Basic Research, 1959; Science and Public Policy, 1959; (with others) The Graduate Education of Physicians, 1966; (Editor) The Discovery of Talent, 1969; (With others) The International Migration of High Level Manpower, 1970; The Uses of Talent, 1971; The Home of Science: The Role of the University, 1972; (With others) The State of Academic Science: Background Papers, 1978.

Honors:

D. Sc. Drexel University 1956, The Ohio State University, 1957, Western Michigan University, 1960; Presidential Certificate of Merit, 1948; U.S. Air Force Exceptional Service Award, 1957; Alumnus Summa Laude Dignatus, University of Washington, 1979.

Address:

Graduate School of Public Affairs, University of Washington, Seattle, Washington 98195 (Phone (206) 543-8154); and 4545 Sand Point Way N.E., Seattle, Washington 98105 (Phone (206) 525-1173).

11. M. Kent WILSON

Director, Office of Planning and Resources Management

Dr. Wilson was born in Salt Lake City, Utah on December 22, 1920. He received a B.S. degree from the University of Utah in 1943 and a Ph.D. from the California Institute of Technology in 1948. From 1948 to 1956, he was a member of the faculty at Harvard University and in 1956 became Chairman of the Department of Chemistry at Tufts University. During 1954-55 he was a Guggenheim Fellow and Fulbright Scholar at King's College in London.

Dr. Wilson has been an editor of *Spectrochimica Acta* since 1963 and is a member of the Optical Society of America and the American Chemical Society. His recent publications are primarily concerned with molecular spectroscopy and molecular structure.

From 1966-1974, Dr. Wilson was Head of the Chemistry Section in the Research Directorate of the National Science Foundation. Subsequently he has held various administrative positions at NSF and currently is Director, Office of Planning and Resources Management.

12. Ronald M. KONKEL

Currently Science, Technology, and Space Counsel, Committee on Commerce, Science and Transportation, U.S. Senate

Direct professional staff of the Subcommittee on Science, Technology, and Space, responsible for general oversight of civilian science and technology activities of the Federal government, with legislative jurisdiction for NASA, research and development activities of the Department of Commerce and related activities.

Previous experience:

Deputy Division Chief, Energy and Science Division, Office of Management and Budget (OMB), Washington, D.C. (1978-1980)

Branch Chief, Science and Space Programs Branch, OMB (1974-1978)

Senior OMB budget examiner on energy R&D programs of the Atomic Energy Commission (1972-1974)

Program analyst (economist) in the Office of the Comptroller, NASA Headquarters, Washington, D.C. (1969-1972)

Program analyst in the Office of Manned Space Flight, NASA Headquarters (1966-1969)

Cost analyst (also participant in Federal Management Intern Program) at the Johnson Spacecraft Center, Houston, Texas (1964-1966)

Social Studies teacher, Southeast High School, Wichita, Kansas (1961-1962)

Education

Bachelor of Arts (History), Wichita State University, 1961

Master of Arts (Economics), Tulane University, 1968

Personal/professional

Born, Winona, Minnesota, February 16, 1939

Married, three children

Member, American Economic Association

American Association for the Advancement of Science

Avid interest in personal computers and their applications

13. Franklin A. LONG

Dr. Franklin A. Long, Professor Emeritus of Chemistry and Henry Luce Professor of Science and Society at Cornell's Program on Science, Technology and Society, is actively involved in research on Science, Technology and Industrialization sponsored by the Department of State and on Technology Choices in Developing Countries sponsored by the National Science Foundation. He has done extensive work with the Republic of Korea in their quest for industrialization, and in 1975 was awarded the Order of Civil Merit and Dongbaeg Medal from the President of the Republic of Korea for contribution toward the development of science and technology in Korea. He has participated in conferences and written extensively on the subject of science, technology and develop. He attended the Third Inter-Congress of the Pacific Science Association in July 1977 Bali, Indonesia and contributed an article entitled "Effective Organizations for Acquisition and Modification of Technology for Development" published in a book of their Proceedings; he co-authored an article in *Science and Technology Policy*, 1977, entitled "Policy and Research Strategies for Science and Technology in Developing Nations". He is author of an article entitled "Science and Technology in India: Their Role in National Development", in *Perspectives on India*, Hohn Mellor, editor and numerous other articles. He is co-editor of "Appropriate Technology and Social Values: A Critical Appraisal", Ballinger, 1980. He is also currently Co-Chairman for the U.S. of the Indo-U.S. Subcommittee on Education and Culture.

Long's other field of major interest is arms control and defense policy. He is author of many articles in this field and is co-editor of *The Genesis of New Weapon Decision Making for Military R&D*, Pergamon Press, forthcoming.

Addresses: 608 Clark Hall
Program on Science, Technology and Society
Cornell University
Ithaca, New York 14853
429 Warren Road
Ithaca, New York 14850

Present Position: Henry R. Luce Professor of Science and Society, Professor of Chemistry, Emeritus

Born: July 27, 1910 – Great Falls, Montana, USA

Education: B.A., M.A., University of Montana, 1932; Ph. D in Chemistry, University of California at Berkeley, 1935

Marital Status: Married; two children

Background:

Academic Service

1935-36 Instructor, Chemistry, University of California, Berkeley

1936-37 Instructor, Chemistry, University of Chicago

1937- Professor, Chemistry, Cornell University

- 1950-60 Chairman, Department of Chemistry, Cornell University
- 1956-57 Faculty Trustee of Cornell University
- 1963-69 Vice-President for Research and Advanced Studies, Cornell University
- 1969-73 Director, Program on Science, Technology and Society, Cornell University
- 1969- Henry R. Luce Professor of Science and Society, Cornell University
- 1976-79 Director, Peace Studies Program, Cornell University
- 1979- Henry R. Luce Professor of Science and Society; Emeritus, Cornell University

Non-Government Outside Activities

- 1942-45 Research Supervisor, Explosive Research Laboratory of NDRC, Pittsburgh, PA
- 1947-74 Member, Board of Trustees, Associated Universities, Inc., New York
- 1975- Honorary Member, Board of Trustees, Associated Universities, Inc., New York
- 1943- Visiting Chemist and Consultant, Brookhaven National Laboratories
- 1960-67 Member of the Committee on Chemistry and Chemical Technology of the National Research Council;
- 1965-67 Chairman
- 1961-68 Member of the Editorial Board of the *Journal of Physical Chemistry*
- 1978- Member of the Editorial Board of *Science Magazine*
- 1964-75 Member, Board of Directors, *Bulletin of the Atomic Scientists*
- 1967-74 Member, past Chairman, Committee on Chemistry and Public Affairs, American Chemical Society
- 1967-71 Member, International Continuing
- 1975- Committee, Pugwash Movement
- 1969- Member, Board of Directors, Exxon Corporation
- 1978-79 Member, Board of Directors, Carrier Corporation
- 1979- Member, Board of Directors, United Technologies Corporation
- 1969- Trustee, Alfred P. Sloan Foundation
- 1970- Guggenheim Fellow, Max Planck Institute for Physical Chemistry, Goettingen, Germany
- 1971-77 Director, Arms Control Association
- 1972-76 Co-Chairman of the Joint U.S.-Korea Advisory Committee for Science, NAS
- 1976- Vice-President for Physical Sciences, American Academy of Arts and Sciences

Government Service

- 1941-45 Consultant, National Defense Research Committee, Office of Scientific Research and Development, Washington, DC
- 1953-59 Consultant, Ballistics Research Laboratory, Department of the Army, Aberdeen, MD
- 1956-60 Member, Science Advisory Board, Department of the Air Force, Washington, DC
- 1953-63 Chairman of the Chemistry Advisory Committee of the Air Force Office of Scientific Research
- 1961-66 Member, President's Science Advisory Committee, Washington, DC
- 1962; 63 Assistant Director for Science and Technology, U.S. Arms Control and Disarmament Agency, Washington, DC
- 1963-73 Consultant, U.S. Arms Control and
- 1977- Disarmament Agency
- 1974- Member, Indo-U.S. Subcommission on Education and Culture
- 1977- Co-Chairman, U.S.
- 1976- Member, NSF Advisory Panel for Policy Research Analysis

Membership:

- Phi Beta Kappa; Sigma Xi
- American Chemical Society, 1938-
- National Academy of Sciences, 1962-
- American Association for the Advancement of Science, 1963-
- Council on Foreign Relations, 1964-
- American Academy of Arts and Sciences, 1965-

Author:

Contributed numerous articles on chemistry, science and public affairs, and arms control and disarmament to books, journals, encyclopedi and reference works. Editor "Arms,

Defense and Policy and Arms Control, Norton, 1975.

Awards:

1948	U.S. Medal of Merit
1975	Order of Civil Merit, and Dongbaeg Medal, from the President, Republic of Korea, for contributions toward the development of science and technology in Korea

14. **Walter A. HAHN**

Walter A. Hahn has attended New York, American, and Syracuse Universities and holds degrees in physical science and public administration. Following release from active duty in World War II as a Naval Reserve officer, he was employed as research administrator for the Office of Naval Research. In 1949, Hahn joined the staff of the National Academy of Sciences-National Research Council to work in the area of Undersea Warfare. Eight years of industrial experience in planning and operations research was gained with the General Electric Company. Returning to public service he joined the National Aeronautics and Space Administration as its Director of Management Analysis. In 1964, he transferred to the Department of Commerce where he was head of policy planning in the Weather Bureau and its successor, the Environmental Science Services Administration. In 1969, Hahn was appointed Deputy Assistant Secretary of Commerce for Science and Technology, a position he held until selected as Senior Research Associate on the White House National Goals Research Staff. Upon completion of the NGRS effort he returned to the Department of Commerce as its Director of Policy Analysis. Transferring from the Executive Branch in 1971 to the Legislative, he now serves in his present position as Senior Specialist in Science, Technology, and Futures Research with the Congressional Research Service of the Library of Congress. In 1975, Hahn, on a "reverse sabbatical" leave was Visiting Professor of Public Technology Policy and Engineering in the Program for the Social Management of Technology at the University of Washington. A frequent lecturer and contributor to professional journals, Hahn is active in The Institute of Management Sciences, National Conference on the Advancement of Research, American Society for Public Administration, World Future Society, and the International Society for Technology Assessment which he served as its founding President. He has been elected a member of the National Academy of Public Administration and to the Board of Directors of the U.S. Association for the Club of Rome.