

For discussion  
on 25 November 1999

**Legislative Council**  
**Panel on Environmental Affairs**  
**Strategic Sewage Disposal Scheme**

**Introduction**

This paper provides further information on how the International Review Panel (IRP) is intended to be conducted.

**Background**

2. At the Panel meeting on 28 October 1999, Members considered a paper on the current status of the Strategic Sewage Disposal Scheme (SSDS) Stage I and the way forward for Stages II, III, and IV. Members raised questions about the composition of the IRP, how LegCo members, green groups, and other professional bodies would be involved, and the extent to which Stage I works would be assessed in the review.

**Composition of the IRP**

3. Initial consideration was that the original three members of the previous review panel formed in 1994/95, together with an internationally renowned tunnelling expert and a nominee from the Hong Kong Institution of Engineers, would form the new panel. At the last meeting, Members asked whether the previous panel members could consider possible alternative strategies objectively. Members also noted that the proposed composition of the new review panel was such that the members of the previous panel would constitute a majority.

4. Retention of previous members is proposed because they are familiar with the project and bring with them background experience from the original review. This will expedite the review process: New members will have to spend much time going through the voluminous materials about the project. Moreover these experts have the highest standing internationally and are well respected by their fellow professionals. It is inconceivable that they would compromise their professional standing by not giving their best independent advice. CVs of the three members of the previous IRP are at Annex A.

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5. It is also worth pointing out that the scope of the new international review is quite different from that of the previous review. The previous reviewers were merely asked to examine the work of the government's consultants and determine the environmental acceptability of the recommended strategy. In the new review, the panel will be asked to consider alternatives to the recommended strategy, including distributed treatment approaches and such other alternatives as may be put forward by the community. This is a fundamental difference.

6. However we have recently noted that there has been a change in circumstances of one of the members of the previous IRP which might be seen to have compromised his position were he to sit on the new IRP: we have been informed that a company partly owned by Prof. Poul Harremoes (the Danish expert of the previous IRP) now has a commercial link with the civil engineering contractor who is engaged in the arbitration case with the Hong Kong government on the Stage I tunnelling contract. While we remain confident about the academic independence and personal integrity of Prof Harremoes, in view of this link which might be perceived as a conflict of interest, it is proposed that he should not be invited to be a member of the new IRP.

7. In the light of para 6 above, we propose that Prof Harremoes should be replaced by another internationally renowned wastewater treatment expert. We will seek a nomination from the International Water Association.

8. The new IRP will thus comprise:

- (i) Prof Qian Yi – Mainland expert and member of the previous IRP
- (ii) Prof Don Harlemann – US expert and member of the previous IRP
- (iii) Dr Albert Koenig – Nominated by the Hong Kong Institution of Engineers – CV at Annex B
- (iv) An internationally renowned tunnelling expert - We have approached the International Tunnelling Association, the American Underground-Construction Association, and the British Tunnelling Society for nominations of suitable qualified persons. After initial evaluation of the nominations we will prepare a short list and approach these experts to seek expressions of interest.
- (v) An internationally renowned wastewater treatment expert, as mentioned in para 7 above

## **Community Participation**

9. At the last meeting, Members were keen to know more about how local interest groups could participate in the review process.

10. Local interest groups, including academics, green groups, and professional institutions will be invited to present their views to the review panel. In addition, the Panel on Environmental Affairs will be consulted at key stages of the review. Specifically, it is proposed that:

- (i) An initial public forum will be arranged during which the Administration will explain the review process and answer any queries from the public. Preliminary views from members of the public will also be invited and collected for the information of the IRP.
- (ii) The IRP members will visit Hong Kong and meet local interest groups and the Panel on Environmental Affairs to exchange views and opinions as well as to discuss the arrangements for the public to submit any alternative proposals to the IRP. In the light of the discussion, the Administration will issue a set of Common Guidelines to assist interested parties in preparing their submissions.
- (iii) Following issue of the Common Guidelines, a 3-month period will be allowed for preparation of submissions.
- (iv) Submissions received will be forwarded to the IRP for evaluation.
- (v) Should the IRP consider it necessary, further meetings will be arranged between the IRP and the submission proponents.
- (vi) After the IRP has considered all the submissions and views from the Administration, the public, and other interest groups, and formed their own views and recommendations on the way forward, IRP members will visit Hong Kong to present their findings and recommendations to the Advisory Council on the Environment and the Panel on Environmental Affairs.

11. To allow better interface between the public and the IRP, and to ensure a high degree of transparency in the review process, all meetings will be conducted publicly. In addition, it is intended to appoint an independent local Chairperson to

conduct the public consultations and to oversee fair play. We propose to appoint the Chairperson of the LegCo Panel on Environmental Affairs, Hon Christine Loh as the Chairperson. The government will provide administrative support throughout the review process.

### **Stage I Works**

12. At the last meeting, Members were interested to know the extent to which Stage I of the SSDS would be subject to review.

13. The IRP will be invited to review Stage I as well, not only in terms of engineering lessons learned and their implications for the remaining planned stages, but also in the context of the relative merits of a centralised versus decentralised system. Given that completion of Stage I works will result in significant environmental benefits, that the central sewage treatment works at Stonecutters Island is already in operation, and that nearly 70% of the 23.6 km of Stage I tunnels have already been excavated, that contractual claims would arise if the works were stopped and additional expenditure incurred in maintaining incompleting tunnels, the remaining Stage I works will continue. If the IRP concludes that there is a better alternative to Stages II, III, and IV which would require modifications to works carried out under Stage I, this will be considered by the Administration.

Planning, Environment and Lands Bureau  
November 1999

### **Curriculum Vitae for Professor Qian Yi**

**Qian Yi**, Professor of the Department of Environmental Engineering, Academician of Chinese Academy of Engineering. She was born in Suzhou, Jiangsu province in 1936. She got bachelor degree in Tongji University and got master degree in Tsinghua University. She is the director of State Key Joint Laboratory of Environmental Simulation and Pollution Control, the member of the Environment and Resource Protection Committee of Peoples Congress of China, the member of China Council of International Cooperation on Environment and Development, the member of Executive Committee of World Federation of Engineering Organization, the vice chairman of the General Committee of the International Council of Scientific Unions, the director of the Teaching Directive Committee of National Universities and Colleges on Environmental Engineering. Her major research direction is water pollution control technology and mechanism. She has taken charge of several fields of national key projects such as “Sewage Treatment and Reuse”, “Anaerobic Biological Treatment Technology for High Strength Organic Wastewater”, “Oxidation Pond for Sewage Treatment” and “Technology and Equipment for Industrial Wastewater with High Strength Toxic and Hazardous Organic Pollutants”. She has received National Science and Technology Progress Award (2nd and 3rd class), the science and technology progress award (1st and 2nd class) of State Educational Committee. Her representative works are “Modern Wastewater Treatment Technology”, “The Prevention and Control of Industrial Environmental Pollution”, “Environmental Engineering Handbook” water pollution volume. She has published and presented almost a hundred of articles in national and international journals and academic meetings.

## Curriculum Vitae for Professor Poul Harremoes

Born April 13th, 1934 in Denmark.

Danish citizenship.

Wife and two children.

### Professional address:

Department of Environmental Science and  
Engineering  
Building 115  
Technical University of Denmark  
DK-2800 Lyngby

Telf. +45-45-251599, direct  
Telf. +45-45-251600, secretariat  
Fax +45-45-932850  
Telex 37529 dthdia  
e-mail ph@imt.dtu.dk

### Business address:

PH-Consult ApS  
Ordruphøjvej 4  
DK-2920 Charlottenlund

Telf. +45-39-639016  
Mobile +45-20-649797  
Fax +45-39-630272

### Private address:

Kulsviertoften 29  
2800 Lyngby

Telf. +45-45-879888  
Fax +45-45-889165

## Education and employment

- |         |   |
|---------|---|
| 1972-   | Full professor, The Department of Environmental Science and Engineering,<br>The Technical University of Denmark.                                  |
| 1969-72 | Associate professor at same place.  |
| 1968    | Visiting fellow for one year at The Department of Sanitary Engineering,<br>University of California, Berkeley, USA                                |
| 1963-67 | Head of The Department of Tracer Studies at The Danish Isotope Centre<br>Part-time lecturer in soil mechanics at The Technical Academy of Denmark |
| 1961-63 | The Technical Academy of Denmark, teaching assistant in water resources and hydraulics  |
| 1962-63 | Højgaard & Schultz A/S, design and construction of dams   |
| 1961    | Military service  |
| 1960    | Research engineer at The Danish Geotechnical Institute  |
| 1959    | Master of Science from Massachusetts Institute of Technology, USA   |
| 1958    | Master of Science as civil engineer from The Technical University of Denmark  |

**Short bibliographic note**

Poul Harremoes, Professor of Environmental Science and Engineering, Technical University of Denmark. Head of the Department.

Prof. Poul Harremoes was born in 1934. He graduated from The Technical University of Denmark, Copenhagen, Denmark, in 1957 and from Massachusetts Institute of Technology, Cambridge, USA, in 1959. Both degrees are in Soil Mechanics on which he taught until 1967 and on which subject he published a Danish textbook which is still in use, now in its fifth edition. But quickly the emphasis changed via water resources to water pollution, in which field he started as head of the Department of Tracer Studies at The Danish Isotope Centre in 1963, among the first to develop methods using radioactive tracers for tracing pollution, dominantly in the sea. Studied as visiting fellow at University of California, Berkeley, USA, from 1967 to 68. In 1969 he took over as head the Department of Environmental Engineering at the Technical University of Denmark and became full professor in 1972. Since then the department has grown to be one of the largest departments (presently 80 employees) of the civil engineering faculty of the Technical University.

Dominating research fields since then have been: oxygen depletion in rivers, nitrification-denitrification and biofilm kinetics applied to wastewater treatment plus the hydraulics of urban storm drainage and related pollution problems plus environmental management. International publications are 230 in number on these issues plus Danish publications, including four textbooks on “Soil Mechanics”, “Theoretical Water Hygiene”, “Water Pollution” (from 1998 available in English on the internet) and “Wastewater Treatment” (in 1998 translated into English, Chinese and Polish) together with other professors at the Department.

Prof. Harremoes was a key figure in the government committees that reshaped the Danish legislation on the environment in the early 70's. He was chairman of the Section on Environment of The Society of Danish Engineers in the years 1974-77. Chairman of The Water Pollution Control Committee, The Society of Danish Engineers, from 1973 to 1983 and again 1993-95. In 1976 the distinguished foreign lecturer of The Association of Environmental Engineering Professors in USA. In 1978 appointed knight by The Royal Danish Court. Past chairman of the Danish National Committee under the International Drinking Water Supply and Sanitation Decade. Past president and honorary member of the International Association for Water Quality (IAWQ). Chairman for nine years of the board of The Water Quality Institute, research institute affiliated to The Danish Academy of Technical Sciences. Founder, chairman of the board and director of consulting company “PH-Consult ApS”. Member of the Danish and the Swedish Academy of Technical Sciences, The European Academy of Science and Art and Honorary member of The Greek Ariston Academy. The Stockholm Water Prize 1992 laureate (150.000 USD) on behalf of the department. Prof. Harremoes has been the initiator, organiser or member of the scientific committee of numerous international conferences. Since 1994 member of the Scientific Committee of The European Environmental Agency.

## **Professional Services and Awards**

### **Current positions**

- 1998- Project director for the EU-project UWREM on Open and Distance Learning.
- 1996- Member of the committee on urban drainage, International Hydrological Programme, UNESCO
- 1996- Member of the project committee for the CINTEM project, which is a collaboration between Danish and Swedish research institutions and companies on modelling and real time control of wastewater systems.
- 1995- Chairman of the scientific committee of The SCIMBIS-project and The MUST-project, both European research collaboration projects between institutions in The UK, France and Denmark on modelling and real time control of sewer systems and treatment plants.
- 1995- Member of the scientific committee of ETNET, European Thematic Network on Water and Environment
- 1994- Member of the scientific committee of The European Environmental Agency of The European Union.
- 1994- Member of the selection board for the annual DADES environmental award (15.000 USD)
- 1992- Member of The Specialist Group: The Groundwater Group of The Danish Environmental Research Programme
- 1985- Director and owner of PH-Consult ApS, Consulting Engineering Company, 8 employees.
- 1974- Member of The Supreme Appeals Tribunal for environmental jurisdiction in Denmark

### **Past positions and awards**

- 1996 Organiser of the international conference: "Biofilm systems", Copenhagen
- 1996 Recipient of the Samuel Jenkins gold medal for meritorious achievements in water quality research and international collaboration
- 1995 Organiser of the international conference: "Sensors in wastewater systems", Copenhagen
- 1995 Appointed life-time member of The European Academy of Sciences and Art.
- 1995 Chairman of the EU-delegation EU-China Collaboration on Environment and Sustainability during a three week mission to China
- 1994-97 Adviser to The Environmental Protection Department of The Hong Kong Government. Member of an International Review Panel on projects regarding interceptors, wastewater treatment and marine disposal, total cost: 2 billion USD.
- 1994-97 Member of the board of The Training and Assessment Centre of EERO, Wageningen, The Netherlands.
- 1992-95 Chairman of The Water Pollution Control Committee of The Society of Danish Engineers.
- 1993-96 Consultant to WATERCARE, The City of Auckland, and BECA-



- STEVEN, consulting engineers, New Zealand on interceptors and wastewater treatment
- 1993-96 Consultant to the city of Malmo, Sweden, on the role of weather radar for real time control of sewer system and treatment plant.
- 1993 Adviser to The City of Sao Paulo, Brazil, on wastewater treatment.
- 1992-96 Member of The Council of The European Environmental Research Organisation.
- 1992 Life-time honorary membership of IAWQ (former IAWPRC).
- 1992 The Stockholm Water Prize 1992 laureate (150.000 USD) as representative of The Department of Environmental Engineering.
- 1991-92 Member of an International Review Panel for the evaluation of research performance at Civil Engineering Faculty of The Royal Swedish Technical University
- 1991 Chairman of the jury panel at the Consensus conference for the evaluation of the results of the “Water Action Plan” for abatement of water pollution in Denmark.
- 1990-1994 Chairman of the IAWQ Specialist Group on Biofilm Systems
- 1990 Adviser to The Metropolitan Water Sewerage and Drainage Board on pollution from sewer overflows, Sydney, Australia.
- 1990-91 Member of International Review Panel for the wastewater treatment plant in Wellington, New Zealand.
- 1990 Awarded lifetime membership of The Royal Swedish Academy of Engineering Sciences
- 1990-93 Member of the management committee for the “SIMBIOSE”-project, collaboration between French and Danish companies for wastewater treatment using biofilmreactors.
- 1989-98 Chairman of the Process Group for the design basis for the Lynetten treatment plant for nutrient removal from wastewater from The City of Copenhagen.
- 1989-91 Member of the committee for the design and construction of the Lynetten treatment plant for nutrient removal from wastewater from the City of Copenhagen.
- 1989-93 Member of the executive committee of the Council of the Research Institutes under The Danish Academy of Technical Sciences.
- 1988 Appointed knight of the first order by The Royal Danish Court.
- 1988-91 Member of the board of the N&R-group, consulting Engineers
- 1987 Member of the expert panel at the Consensus conference for the evaluation of the political initiatives to abate pollution of the Danish waters, the so called “Water Action Plan”.
- 1987 Received award of the year from The Swedish Association for Water Hygiene
- 1987-93 Chairman of the steering committee for the “HYPRO”-project, collaboration between Scandinavian companies and research institutions regarding nutrient removal using sludge hydrolysis for denitrification.
- 1987-90 Chairman of The ad-hoc Committee on Water Technology, The Society of Danish Engineers.

- 1986-1992 Member of The Water Council, The Ministry of Environment, The Danish Government, chairman in 1991-92.
- 1986-89 Member of the board of the COWI-foundation
- 1986-90 President of The International Association for Water Pollution Research and Control. (Later renamed International Association for Water Quality)
- 1986- Invited member of The Danish Society of Managing Directors.
- 1986-90 Honrary member of the Aquatech Committee, Amsterdam.
- 1985-95 Chairman of the board of The Water Quality Institute, research institute affiliated to The Danish Academy of Science, 120 employees.
- 1985-87 Chairman of the committee for analysis of the technical and management problems of the treatment plant Lynetten, The City of Copenhagen.
- 1985-91 Member of the Danish National Committee for The International Water Supply Association.
- 1984-90 Initiator of development and chairman of the board of MOUSE Joint Venture, computer programme package for urban storm drainage, now sold world wide.
- 1984-90 Member of The Management Committee of EWPCA.
- 1984-87 Chairman of The Technical and Scientific Committee of EWPCA
- 1983-95 Chairman of The Committee on Urban Storm Drainage of The Water Pollution Control Committee, Denmark.
- 1983-86 Member of The Board of The Society for Computer Application in Civil Engineering, The Danish Academy of Technical Sciences
- 1983-87 Chairman of The Danish National Committee under The International Drinking Water Supply and Sanitation Decade
- 1983 Advisor on marine pollution problems off Sydney, The Metropolitan Water Sewerage and Drainage Board, Australia
- 1983 Organiser of an IAWPRC-conference: "Rain Fall as the Basis for Design and Analysis of Urban Run-off".
- 1982 Co-organiser of an IAWPRC-conference: "Anaerobic Treatment of Wastewater in Fixed Film Reactors"
- 1882-87 Technical advisor to research projects at The Mamara Research Institute, Turkey.
- 1981-87 Vice-chairman and chairman of The Joint IAHR-IAWPRC Committee on Urban Storm Drainage.
- 1981-92 Co-founder of The European Water Pollution Control Association, EWPCA, and member of the council.
- 1980-86 Member of the board of The Danish Isotope Centre, research institute affiliated to The Danish Academy of Science.
- 1980-84 Member of the council of The Danish Academy of Technical Sciences. Vice-chairman of the section on hygiene.
- 1979 Visiting professor at The Technical University of Istanbul, one month on WHO assignment.
- 1978 Appointed knight by The Royal Danish Court.
- 1978 Organiser of an IAWPRC-conference: "Kinetics of Wastewater Treatment"
- 1978 Awarded lifetime membership of The Danish Academy of Technical

- Sciences.
- 1978-86 Vicepresident of The International Association for Water Pollution Research and Control, IAWPRC. Member of The Executive Committee. Chairman of the Committee on Regional and Specialised Conferneces
- 1978-82 Chairman of The Nordic Research Committee on Urban Hydrology, sponsored by The International Hydrological Programme.
- 1978-84 Technical judge at The Supreme Arbitration Court for Civil Engineering Construction.
- 1977-80 Member of the board of The Danish Microbiological Society
- 1976 Appointed the distinguished foreign lecturer of 1976 by The Association of Environmental Engineering Professors. One month lecture tour of USA giving lectures on nitrification-denitrification and biofilm kinetics.
- 1975 Organiser of IAWPRC-conference: "Nitrogen as a Water Pollutant"
- 1973-83 Chairman of The Water Pollution Control Committee of The Society of Danish Engineers.
- 1973-74 Member of The Danish Agricultural Science Foundation.
- 1973-76 Chairman of The Steering Committee for a multidisciplinary project on the eutrofication of Lake Esrum
- 1973-79 Member of The Commission on Bio-and Environmental Research, The Danish Technical Science Foundation.
- 1972-80 Member of The Joint Pollution Research Committee for The Danish Science Foundations. 1977-80 chairman.
- 1972-81 Chairman of The Working Group on Codes for Statistical Criteria for Water Quality Parameters, The Society of Danish Engineers.
- 1970-73 Member of The Water Management Sector Group of OECD, Paris.
- 1970-77 Member of the board of The Environmental Engineering Group, The Society of Danish Engineers. 1974-77 chairman.
- 1970-80 Member of the board of Editors of the periodical "VAND"
- 1970 Received industrial award for research on nitrogen removal from wastewater.
- 1969 Consultant to The World Health Organization Concerning pollution of Manila Bay, Philippines.
- 1969-81 Chairman for The Danish National Committee and member of the governing board of The International Association for Water Pollution Research.
- 1969-71 Member of The Pollution Control Council, The Danish Government, chairman of The Committee on Water Purification.
- 1967 Consultant to The International Atomic Energy Agency concerning tracer studies for the city of Rio de Janeiro
- 1967-74 Member of the board for The Committee on Industrial Wastewater, later renamed The Water Quality Institute, research institute affiliated to The Danish Academy of Science.
- 1967 Scholarship for a one year study in USA, financed by The Danish Technical Science Foundation. Visiting fellow at University of California, Berkeley.
- 1958 Fulbright Scholarship and research assistantship at MIT

## **DONALD R. F. HARLEMAN**

Ford Professor of Environmental Engineering, Emeritus; Senior Lecturer, Department of Civil & Environmental Engineering, Massachusetts Institute of Technology, Cambridge, MA. 02139

### Teaching and Research Areas

Environmental Engineering; Fluid Transport Processes and Biogeochemical Transformations in Rivers, Reservoirs, Lakes, Estuaries and Coastal waters; Innovative Water and Waste Treatment Technologies.

### Education

B. S. Civil Engineering (1943) Pennsylvania State University  
M. S. Civil Engineering (1947) Mass. Institute of Technology  
Sc.D..Civil Engineering (1950) Mass. Institute of Technology

### Professional Record

Design Engineer, Curtis-Wright Corporation, Columbus, Ohio (1944-45)  
Research Assistant and Research Associate, Hydrodynamics Laboratory, M.I.T. (1945-50)  
Assistant Professor of Hydraulics, M.I.T. (1950-56)  
Associate Professor of Hydraulics, M.I.T. (1956-62)  
Visiting Professor, California Institute of Technology, Pasadena, CA (1962-63)  
Professor of Civil Engineering, M.I.T. (1963-75)  
Visiting Engineer, Delft Hydraulics Laboratory, The Netherlands (1965, summer)  
Senior Visitor, Department of Applied Mathematics and Theoretical Physics, University of Cambridge, England (1968-69)  
Visiting Scientist, International Institute for Applied Systems Analysis, Vienna, Austria (1977-78)  
Head, Water Resources and Environmental Engineering Division, Department of Civil Engineering, M.I.T. (1972-83)  
Director, Ralph M. Parsons Laboratory for Water Resources and Hydrodynamics, Department of Civil Engineering, M.I.T. (1973-83)  
Ford Professor of Environmental Engineering, M.I.T. (1975-90)  
Ford Professor of Environmental Engineering, Emeritus (1991-)

### Prizes and Awards

Hydraulics Award, Boston Society of Civil Engineers (1955)  
Research Prize, American Society of Civil Engineers (1960)  
Desmond Fitzgerald Medal, Boston Society of Civil Engineers (1967)  
Guggenheim Fellowship, University of Cambridge, England (1968-69)  
Senior Postdoctoral Fellowship, North Atlantic Treaty Organization (1968-69)  
Karl Hilgard Prize, American Society of Civil Engineers (1971)  
J. C. Stevens Award, American Society of Civil Engineers (1973)  
Karl Hilgard Prize, American Society of Civil Engineers (1973)

Elected to membership in the National Academy of Engineering (1974)  
Outstanding Alumnus Award, College of Engineering, Pennsylvania State University (1979)  
First Hunter Rouse Hydraulic Engineering Lecture, A.S.C.E. (1980)  
Wesley W. Horner Award, American Society of Civil Engineers (1983)  
Resident Scholar, Rockefeller Foundation, Bellagio, Italy (1985)  
Alumni Fellow, Pennsylvania State University (1987)  
Honorary Member, Boston Society of Civil Engineers (1987)  
Honorary Member, American Society of Civil Engineers (1989)  
Clemens Herschel Award, Boston Society of Civil Engineers (1990)

### Professional Society Affiliations

#### American Society of Civil Engineers

Hydraulics Division: Chairman and member of Executive Committee (1962-67)

Engineering Mechanics Division: Chairman, Committee on Stratified Flow (1968)

Committee on Society Fellowships: Chairman (1972)

#### American Geophysical Union

Member of Sections of Oceanography and Hydrology

#### American Society of Limnology and Oceanography

Member

#### Boston Society of Civil Engineers

Chairman, Hydraulics Section (1961)

Member, John R. Freeman Fund Committee (1977-)

#### Federal Power Commission

Member, Task Force on Technical Aspects of Technical Advisory Committee on Conservation of Energy (1972-73)

#### International Association for Hydraulic Research

Member of Board of Editors: Journal of Hydraulic Research

Member of Committee on Fundamentals (1972-75)

#### National Academy of Engineering

Member, Committee on Power Plant Siting, (1970-71)

Member, Committee on Glen Canyon Environmental Studies Review (1986-87)

Member, Committee on Wastewater Management for Coastal Urban Areas (1990-93)

#### National Academy of Sciences

Member, Panel of Geophysics of Estuaries of the Geophysics Study Committee (1975-78)

Member, Committee on International Relations, USSR and Eastern Europe (1978-81)

Water Pollution Control Federation, Member

### Review Boards and Panels

Chairman, Modelling Evaluation Group for EPA Chesapeake Bay Eutrophication Control Program (1984-)

Member, Peer Review Board for Mass. Water Resources Authority (MWRA),

re-assessment of wastewater treatment facilities needed to complete the Boston Harbor cleanup (1994-95)

Member, MWRA Modeling Evaluation Group for Boston Harbor /Mass. Bay water quality study (1992-95)

Member, Mamala Bay (Honolulu) Study Group to develop alternative wastewater management strategies and environmental risk assessments for improvement of Bay water quality (1993-96)

Advisor to Pan American Health Organization and National Water Authority of Mexico on wastewater treatment and disinfection necessary in Mexico City to protect public health (1994-)

Member, World Bank study of appropriate wastewater treatment technologies for Central and Eastern Europe (1992-95)

Member, International Review Panel appointed by government of Hong Kong to review and advise on wastewater treatment and ocean outfalls for Hong Kong Harbor cleanup (1994 -)

Advisor to State of Sao Paulo, Brazil on urban flooding and innovative wastewater treatment planning (1995 -)

Bench and full plant tests of chemically enhanced primary treatment at Ipiranga WWTP

Member, Environmental Impact Assessment Panel, advising the Consorzio Venezia Nuova on impacts of the movable gates designed to protect the City of Venice against flooding (1996-)

In Charge, World Bank Project. Demonstration of low-cost nutrient removal for municipal wastewater in Rio de Janeiro, Brazil

### Patents

U. S. Patent No. 3,938,599 (January 27, 1976) : with G. H. Jirka, "Submerged Multiport Diffusers for Cooling Water Discharge."

U.S. Patent No. 5,543,056 (August 6, 1996) with Susan Murcott, "Method of Drinking Water Treatment with Natural Cationic Polymers."

**Curriculum Vitae for Dr Albert Koenig**

**Name:** Albert Koenig

**Education:**

***Cornell University, Ithaca, NY, U.S.A. (1972 - 1976)***

M.S. in Agricultural Waste Management, 1974

Thesis: "Heat generation during aerobic oxidation of concentrated organic wastes" (under R. C. Loehr).

Ph.D. in Environmental Engineering, 1976

Thesis: "Effects of anaerobically digested sewage sludge application on chemical properties of soils with emphasis on distribution of zinc and cadmium forms" (under A. Wm. Lawrence).

***University of the Philippines, Los Banos, Philippines (1969 - 1971)***

B.S.A.E. in Agricultural Engineering, 1972

***Fujen University, Taipei, Taiwan (1966 - 1968)***

Certificate in Chinese Language

***University of Agriculture, Vienna, Austria (1962 - 1966)***

First and Second State Examination in Agricultural Engineering

**Professional Experience:**

***University of Hong Kong (1992 - date)***

Associate Professor of Environmental Engineering

Courses taught:

Fundamentals concepts and measurement techniques of water pollution;

Solid and hazardous wastes;

Environmental impact assessment of civil engineering projects;

Municipal and industrial wastewater treatment;

Water supply engineering;

Industrial wastewater treatment;

Solid and hazardous waste management engineering;

Environmental impact assessment of engineering projects;

Pollution studies I: solid wastes;

Pollution studies II: solid waste pollution control

Solid waste management

***SGP-VA Energie - und Umwelttechnik Ges.m.b.H. (new company due to reorganisation of Voest-Alpine AG), Linz, Austria (1991 - 1992)***

Senior Engineer, Technology Development of Mechanical/Biological Solid Waste Treatment Systems

***IP Institut fuer Projektplanung GmbH, Stuttgart, Federal Republic of Germany (1989 - 1991)***

Environmental Adviser to Ministry of Industry, Bangkok, Thailand, for Thai-German Technical Cooperation Project on “Environmental Advisory Assistance to the Agro-Industry”, commissioned by GTZ

Subprojects carried out included:

- Biogas production from distillery waste;
- Oil recovery from palm oil mill effluent;
- Oil and protein recovery from tuna canning plants;
- Wastewater treatment and by-product recovery in slaughterhouses;
- Chromium recovery from tannery effluents

***Voest-Alpine AG, Linz, Austria (1984 - 1989)***

Project Manager, Solid Waste Management/Composting Coordinator of Research and Development of Solid Waste Engineering/Composting

***University of Zulia, Maracaibo, Venezuela (1978 - 1984)***

Associate Professor in Sanitary Engineering

Coordinator of Graduate Program of Environmental Engineering

Courses taught:

- Physical, chemical and biological aspects of natural waters;
- Introduction to wastewater treatment;
- Biological wastewater treatment;
- Industrial wastewater treatment;
- Introduction to environmental engineering

***University of Delaware, Newark, Del., U.S.A. (1977 - 1978)***

Assistant Professor in Civil Engineering

Courses taught:

- Introduction to engineering;
- Biological aspects of environmental engineering;
- Industrial wastewater management;
- Hydrology

***Cornell University, Ithaca, NY, U.S.A. (1972 - 1977)***

Teaching Assistant

Research Assistant

Assistant Professor in Civil and Environmental Engineering

Courses taught:

- Environmental quality engineering;
- Water quality control engineering;
- Chemistry of water and wastewater;
- Environmental quality laboratory;
- Industrial waste management;
- Solid waste management

***Fujen University, Taipei, Taiwan (1968 - 1969)***

Instructor of German

**Membership in Professional Organisations:**



Chartered Institution of Water and Environmental Management (UK)  
International Association on Water Quality (UK)  
Water Environment Federation (USA)  
Abwassertechnische Vereinigung e. V, (Germany)  
Association of Environmental Engineering and Science Professors (USA)  
International Solid Waste Association (DK)  
Hong Kong Institution of Engineers, Fellow (HK)  
Hong Kong Waste Management Association (HK)

**Public service and appointments:**

Referee, Waste Management & Research, Official Journal of the International Solid Waste Association;  
Member, first Accreditation Panel for Environmental Monitoring and Audit;  
Professionals of the Hong Kong Institute of Environmental Impact Assessment (HKIEIA);  
Chairman, Environmental Division, Hong Kong Institution of Engineers, 1998-1999;  
Committee Member, Environmental Division, Hong Kong Institution of Engineers, 1995-;  
Member of Executive Committee, Hong Kong Waste Management Association, 1994-1998;  
Honorary Research Fellow of the Institute for Natural Resources and Waste Management, Hong Kong Baptist University, 1998-99;  
Member, Appeal Board Panel under the Waste Disposal Ordinance, Hong Kong SAR Government, 1998-2001;  
Member, Governing Council of Hong Kong Quality Assurance Agency, 1998-;  
Vice-chairman, Board of German Swiss International School Association, 1993-;  
Director, German Swiss International School Foundation, 1996-;  
Supervisor, German Swiss International School, 1994-.