OFFICIAL RECORDS
OF THE
WORLD HEALTH ORGANIZATION
No. 161

TWENTIETH WORLD HEALTH ASSEMBLY

GENEVA, 8 - 26 MAY 1967

PART II

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WORLD HEALTH ORGANIZATION

GENEVA

December 1967

MEMBERSHIP OF THE HEALTH ASSEMBLY

LIST OF DELEGATES AND OTHER PARTICIPANTS

DELEGATIONS OF MEMBER STATES

AFGHANISTAN

Delegates:

Dr G. H. WAHEAD, Chief of Preventive Medicine, Ministry of Public Health (*Chief Delegate*)

Dr A. G. AZIZ, Director of Maternal and Child Health, Ministry of Public Health

ALBANIA

Delegates:

Dr A. MIHO, Deputy Director, Tirana Clinical Hospital No. 2 (*Chief Delegate*)

Mr T. NISHKU, Third Secretary, Embassy of Albania in France

ALGERIA

Delegates:

Dr T. HADDAM, Minister of Health (*Chief Delegate*)

Dr R. ALLOUACHE, Secretary-General, Ministry of Health (*Deputy Chief Delegate*)

Dr D. MAMMERI, Medical Inspector of Health

Alernates:

Dr M. EL-KAMAL, Inspector-General of Health, Ministry of Health

Dr A. BENADOUDA, Director, National Institute of Public Health

Mr M. BENALIOUA, Assistant Director of Pharmacy, Ministry of Health; Director, Central Pharmaceutical Stores

Mr R. HANNOUZ, Attaché, Permanent Mission of Algeria to the United Nations Office at Geneva

ARGENTINA

Delegates:

Dr E. A. D. HOLMBERG, Secretary of State for Public Health (*Chief Delegate*)

Dr V. V. OLGUÍN, Director, International Health and Welfare Relations, Secretariat of State for Public Health

Adviser:

Mr O. G. GARCÍA PIÑEIRO, Counsellor, Permanent Mission of Argentina to the United Nations Office and to the International Organizations at Geneva

AUSTRALIA

Delegates:

Dr A. J. FORBES, Minister for Health (*Chief Delegate*)

Sir William REFSHAUGE, Director-General of Health, Department of Health (*Deputy Chief Delegate*)

Dr A. JOHNSON, Chief Medical Officer, Australia House, London

Alternates:

Dr J. S. BOXALL, Director of International Health, Department of Health

Miss J. H. BARNETT, First Secretary, Permanent Mission of Australia to the United Nations Office at Geneva

Dr R. W. CUMMING, Medical Director, Australian Migration Office, Australian Embassy in Greece

Dr A. TARUTIA, Assistant Medical Officer, Department of Health, Territory of Papua and New Guinea

Adviser:

Miss R. A. PERCIVAL, Private Secretary to the Minister for Health

AUSTRIA

Delegates:

Mr F. SORONICS, Secretary of State for Social Affairs, Federal Ministry for Social Affairs (*Chief Delegate*)

Dr K. SCHINDL, Director-General of Public Health, Federal Ministry for Social Affairs (*Deputy Chief Delegate*)

Mr R. HAVLASEK, Counsellor, Federal Ministry for Social Affairs

Alternate:

Mr K. HERNDL, Deputy Permanent Representative of Austria to the United Nations Office and to the Specialized Agencies at Geneva

BARBADOS

Delegates:

Mr C. E. TALMA, Minister of Health and Community Development (*Chief Delegate*)

Mr C. A. BURTON, Permanent Secretary, Ministry of Health and Community Development

Dr Lenore J. HARNEY, Senior Medical Officer

BELGIUM

Delegates:

Professor J. F. GOOSSENS, Secretary-General, Ministry of Public Health and Family Welfare (*Chief Delegate*)

Mr J. DE CONINCK, Counsellor; Chief, International Relations Department, Ministry of Public Health and Family Welfare

Dr M. KIVITS, Medical Adviser, Ministry of Foreign Affairs and Trade

Adviser:

Mr A. WILLOT, Secretary, Permanent Mission of Belgium to the United Nations Office and to the Specialized Agencies at Geneva

BOLIVIA

Delegates:

Dr R. AGUILERA VARGAS, Minister of Public Health (*Chief Delegate*)

Mr R. CAPRILES-RICO, Ambassador; Permanent Representative of Bolivia to the International Organizations at Geneva

Dr J. QUINTEROS CANEDO, Director-General of Public Health

BRAZIL

Delegates:

Dr L. T. MIRANDA, Minister of Health (*Chief Delegate*)

Professor M. J. FERREIRA, Director, Planning Unit, Ministry of Health (*Deputy Chief Delegate*)

Professor A. SCORZELLI, Director-General, Department of Public Health, Ministry of Health

Alternates:

Dr M. BELCHIOR, Executive Director, Committee on International Affairs, Ministry of Health

Mr F. CUMPLIDO, Minister for Commercial Affairs, Permanent Mission of Brazil to the United Nations Office and to the International Organizations at Geneva

Mr J. C. RIBEIRO, Second Secretary, Permanent Mission of Brazil to the United Nations Office and to the International Organizations at Geneva

Dr W. P. PANTOJA, Technical Assistant, Planning Unit, Ministry of Health

BULGARIA

Delegates:

Dr K. IGNATOV, Minister of Public Health and Welfare (*Chief Delegate*)

Dr D. ARNAUDOV, Director, Division of International Relations, Ministry of Public Health and Welfare

Mr D. STAMBOLIEV, Counsellor, Permanent Representation of Bulgaria to the United Nations Office and to the International Organizations at Geneva

Adviser:

Dr V. DENČEV, Deputy Inspector-General of Health, Ministry of Public Health and Welfare

BURMA

Delegates:

Dr THEIN AUNG, Secretary, Ministry of Health (*Chief Delegate*)

Dr PE KYIN, Director of Health Services

Dr LUN WAI, Assistant Director, Rangoon Division, Directorate of Health Services

BURUNDI

Delegates:

Mr A.-M. BAREDETSE, Minister of Public Health (*Chief Delegate*)

Mr I. MAGEREGERE, Director of the Department of Hygiene and of the Central Pharmaceutical Stores, Ministry of Public Health

Dr C. BITARIHO, Director, Prince Regent Charles Hospital, Bujumbura

CAMBODIA

Delegate:

Dr THOR PENG THONG, Director-General of Public Health

CAMEROON

Delegates:

Dr J.-C. HAPPI, Commissioner-General for Public Health and Population (*Chief Delegate*)

Dr E. ELOM NTOUZOO, Deputy Assistant Director, Major Endemic Diseases Service

Dr T. C. NCHINDA, Deputy Director of Public Health, West Cameroon

Alternate:

Dr S. ABANE MBOMO, Chief, Malaria Eradication Service

CANADA

Delegates:

Dr J. N. CRAWFORD, Deputy Minister of National Health and Welfare (*Chief Delegate*)

Mr S. F. RAE, Ambassador; Permanent Representative of Canada to the United Nations Office at Geneva (*Deputy Chief Delegate*)

Professor J. ALAURENT, Director, Institute of Urbanization, University of Montreal

Alternates:

Mrs M. RIDEOUT, Parliamentary Secretary to the Minister of National Health and Welfare

Dr G. J. ISABELLE, Member of Parliament

Mr I. D. BOIGON, Special Architectural Consultant, Toronto, Ontario

Dr J. G. CLARKSON, Deputy Minister of Health, Province of Saskatchewan

Dr B. D. B. LAYTON, Principal Medical Officer, International Health Section, Department of National Health and Welfare

Dr G. K. MARTIN, Executive Director, Public Health Division, Department of Health, Province of Ontario

Advisers:

Mr J. A. BEESLEY, Counsellor, Permanent Mission of Canada to the United Nations Office at Geneva

Mr J. CORBEIL, Third Secretary and Vice-Consul, Permanent Mission of Canada to the United Nations Office at Geneva

CENTRAL AFRICAN REPUBLIC

Delegates:

Mr A. D. MAGALÉ, Minister of Public Health and Social Affairs (*Chief Delegate*)

Mr J.-M. WALLOT, Director of Public Health

Dr S. BÉDAYA-NGARO, Director, Bangui General Hospital

CEYLON

Delegates:

Mr G. S. PEIRIS, Ambassador of Ceylon in the Federal Republic of Germany (*Chief Delegate*)

Dr V. T. Herat GUNARATNE, Director of Health Services (*Deputy Chief Delegate*)

Mr R. C. S. KOELMEYER, Permanent Representative of Ceylon to the United Nations Office and to the International Organizations at Geneva

Alternate:

Dr C. H. MUNASINGHE, Assistant Director of Health Services (Quarantine and Foreign Assistance)

CHAD

Delegates:

Dr A. B. KEÏTA, Chief Medical Officer, Health Prefecture of Chari-Baguirmi (*Chief Delegate*)

Mr B. MANDEKOR, Dentist, Fort-Lamy Polyclinic

CHILE

Delegates:

Mr R. HUIDOBRO, Permanent Representative of Chile to the United Nations Office and to the International Organizations at Geneva (*Chief Delegate*)

Dr C. RISTORI COSTALDI, Chief, Health Protection Department, National Health Service

Alternate:

Mr L. LARRAÍN, Secretary, Permanent Mission of Chile to the United Nations Office and to the International Organizations at Geneva

CHINA

Delegates:

Mr P.-N. CHENG, Ambassador; Permanent Representative of the Republic of China to the United Nations Office and to other International Organizations at Geneva (*Chief Delegate*)

Dr C.-K. CHANG, Director, Department of Health Administration, Ministry of the Interior

Dr T.-C. HSU, Commissioner of Health, Province of Taiwan

Adviser:

Mr Y.-H. LIU, Second Secretary, Permanent Mission of the Republic of China to the United Nations Office and to other International Organizations at Geneva

COLOMBIA

Delegates:

Professor A. ORDOÑEZ-PLAJA, Minister of Public Health (*Chief Delegate*)

Dr R. ACOSTA BORRERO, Director, Ministry of Public Health

Mr J. CERVANTES PINZON, First Secretary, Permanent Mission of Colombia to the United Nations Office at Geneva

Adviser:

Dr P. G. VELÁZQUEZ, Chairman, Colombian Association of Medical Faculties

CONGO (Brazzaville)

Delegates:

Mr S. P. GOKANA, Minister of Public Health, Population and Social Affairs (*Chief Delegate*)

Mr A. KITOKO, Sanitary Engineering and Planning Officer, Directorate of Public Health

CONGO, DEMOCRATIC REPUBLIC OF

Delegates:

Mr E. NGANDU, Secretary-General for Public Health (*Chief Delegate*)

Dr S. MATUNDU-NZITA, Medical Hygiene Officer, Fourth Directorate, Ministry of Public Health (*Deputy Chief Delegate*)

Mr L. MANDIANGU

COSTA RICA

Delegate:

Dr C. A. BLANCO-QUESADA, Adviser on Public Health Affairs, Ministry of External Relations

Adviser:

Professor A. DONNADIEU, Minister Plenipotentiary; Deputy Permanent Representative of Costa Rica to the United Nations Office and to the International Organizations at Geneva

CUBA

Delegates:

Dr R. PEREDA CHÁVEZ, Director, International Relations, Ministry of Public Health (*Chief Delegate*)

Dr J. ALDEREGUIA VALDES-BRITO, Director of Intermediate Medical Education, Ministry of Public Health

CYPRUS

Delegate:

Dr V. P. VASSILOPOULOS, Director-General, Ministry of Health

CZECHOSLOVAKIA

Delegates:

Dr J. PLOJHAR, Minister of Health (*Chief Delegate*)

Professor P. MACÚCH, First Deputy Minister of Health (*Deputy Chief Delegate*)

Dr B. DOUBEK, Deputy Minister of Health

Alternate:

Dr A. PLEVA, International Organizations Division, Ministry of Foreign Affairs

Adviser:

Dr Helena RAŠKOVÁ, Professor of Pharmacology, Charles University, Prague

DAHOMEY

Delegates:

Dr D. BADAROU, Minister of Public Health and Social Affairs (*Chief Delegate*)

Dr J. HOUNSOU, Technical Adviser, Ministry of Public Health and Social Affairs

DENMARK

Delegates:

Dr Esther AMMUNDSEN, Director, National Health Service (*Chief Delegate*)

Mr J. H. ZEUTHEN, Secretary General, Ministry of the Interior (*Deputy Chief Delegate*)

Mr F. NIELSEN, Chief of Section, Ministry of the Interior

Advisers:

Dr A. MAHNEKE, Secretary, National Health Service

Dr E. UHL, Chief Medical Officer, National Health Service

DOMINICAN REPUBLIC

Delegate:

Dr F. HERRERA-ROA, Chargé d'affaires, Permanent Delegation of the Dominican Republic to the United Nations Office at Geneva

Alternate:

Dr M. B. DÍAZ FRANJUL, Counsellor, Permanent Delegation of the Dominican Republic to the United Nations Office at Geneva

ECUADOR

Delegates:

Dr C. ACOSTA VÁZQUEZ, Minister of Welfare and Public Health (*Chief Delegate*)

Dr J. J. CARVAJAL, Deputy Director-General of Health (*Deputy Chief Delegate*)

Dr F. VÁZQUEZ BALDA, Director, Comprehensive Health Planning, Province of Manabí

Alternate:

Dr J. R. MARTÍNEZ COBO, Ambassador; Permanent Representative of Ecuador to the United Nations Office at Geneva

EL SALVADOR

Delegate:

Mr G. A. GUERRERO, Ambassador; Permanent Representative of El Salvador to the United Nations Office at Geneva

ETHIOPIA

Delegates:

Mr Y. TSEGHÉ, Minister of State for Public Health (*Chief Delegate*)

Dr A. WOLDEYES, Director, Princess Tsehai Hospital, Addis Ababa (*Deputy Chief Delegate*)

Dr F. WORKNEH, Menelik II Hospital, Addis Ababa

Alternate:

Mr L. MENGISTE, Director, Training Division, Ministry of Public Health

FEDERAL REPUBLIC OF GERMANY

Delegates:

Professor L. VON MANGER-KOENIG, Secretary of State, Federal Ministry of Health (*Chief Delegate*)

Dr J. STRALAU, Director-General, Federal Ministry of Health (*Deputy Chief Delegate*)

Dr Maria F. DAELEN, Head, International Relations, Federal Ministry of Health

Alternates:

Dr R. VON KELLER, Ambassador; Permanent Delegate of the Federal Republic of Germany to the International Organizations at Geneva

Dr Barbara VON RENTHE-FINK, Director of Public Health; Representative of the Supreme Public Health Officers of the Federal States

Professor E. FROMM, President, Federal Medical Association

Professor H. SEELIGER, Director, Institute of Hygiene and Microbiology, Würzburg University

Advisers:

Dr Eva LINDEMANN, Counsellor, Federal Ministry of Foreign Affairs

Mr G. VON NEUBRONNER, Attaché, Permanent Delegation of the Federal Republic of Germany to the International Organizations at Geneva

FINLAND

Delegates:

Professor N. PESONEN, Director-General, National Medical Board (*Chief Delegate*)

Dr A. P. OJALA, Medical Counsellor, National Medical Board

Advisers:

Mrs E. LIPPONEN, Second Secretary, Permanent Mission of Finland to the United Nations Office and to the International Organizations at Geneva

Mr A. LASSILA, Secretary of Bureau, Ministry for Foreign Affairs

FRANCE

Delegates:

Professor E. AUJALEU, Counsellor of State; Director-General, National Institute of Health and Medical Research (*Chief Delegate*)

Professor P. BOULENGER, Director-General of Public Health, Ministry of Social Affairs

Alternates:

Dr L.-P. AUJOULAT, former Minister; Chief, Technical Co-operation Service, Ministry of Social Affairs

Dr J.-S. CAYLA, Inspector-General of Health; Director, National School of Public Health

Advisers:

Mr J. AUSSEIL, Counsellor on Foreign Affairs, Ministry of Social Affairs

Miss J. BALENCIE, Assistant Secretary, Ministry of Foreign Affairs

Dr L. CAILLARD, Chief, Health Division, Secretariat of State for Co-operation, Ministry of Foreign Affairs

Mr P. DEMONDION, Deputy Director of Public Health, Ministry of Social Affairs

Mrs C. M. HÉLOÏSE, Senior Officer, International Relations Division, Ministry of Social Affairs

Dr H. P. JOURNIAC, Chargé de mission, Secretariat of State for Co-operation, Ministry of Foreign Affairs

Mr M. LENNUYEUX-COMNÈNE, First Secretary, Permanent Mission of France to the United Nations Office and to the Specialized Agencies at Geneva

Dr J. MEILLON, Chief Medical Inspector, International Relations Division, Ministry of Social Affairs

Mr A. PHILBERT, Assistant Director; Chief, International Relations Division, Ministry of Social Affairs

Dr R. SENAULT, Professor of Hygiene and Social Medicine, Faculty of Medicine, University of Nancy

GABON

Delegates:

Mr J. S. MIGOLET, Minister of Public Health and Population (*Chief Delegate*)

Dr P. OBAME-NGUÉMA, Chief Medical Officer for Urban Health Centres, Libreville

Dr O. KEITA, Chief Medical Officer, Nyanga Region

GHANA

Delegates:

Dr E. AKWEI, Director of Medical Services (*Chief Delegate*)

Dr M. A. BADDOO, Senior Medical Officer, Ministry of Health

Mr J. A. KUNTOH, Counsellor, Permanent Mission of Ghana to the United Nations Office and to the Specialized Agencies at Geneva

GREECE

Delegates:

Mr I. A. TZIRAS, Ambassador; Permanent Delegate of Greece to the United Nations Office and to the International Organizations at Geneva (*Chief Delegate*)

Mr G. PAPOULIAS, Deputy Permanent Delegate of Greece to the United Nations Office and to the International Organizations at Geneva

GUATEMALA

Delegates:

Mr A. DUPONT-WILLEMIN, Consul-General; Deputy Permanent Representative of Guatemala to the United Nations Office and to the Specialized Agencies at Geneva (*Chief Delegate*)

Mr A. L. H. DUPONT-WILLEMIN, Vice-Consul of Guatemala in Geneva

GUINEA

Delegates:

Dr O. KEITA, Director of the Minister's Office, Ministry of Public Health and Social Affairs (*Chief Delegate*)

Dr M. CAMARA, Surgeon

GUYANA

Delegate:

Dr C. C. NICHOLSON, Chief Medical Officer, Ministry of Health and Housing

HONDURAS

Delegates:

Dr V. BANEGAS MONTES, Director-General of Medical and Social Welfare, Ministry of Public Health and Welfare (*Chief Delegate*)

Dr M. DE J. ECHEVERRÍA, Assistant Director, " M. Paz Baraona " Health Centre

HUNGARY

Delegates:

Dr Z. SZABÓ, Minister of Health (*Chief Delegate*)

Dr D. FELKAI, Chief, Department of International Relations, Ministry of Health (*Deputy Chief Delegate*)

Alternates:

Mr G. BUDAI, Department of International Organizations, Ministry of Foreign Affairs

Mr J. SAS, First Secretary, Permanent Mission of Hungary to the United Nations Office at Geneva

Adviser:

Professor T. BAKÁCS, Director, National Institute of Public Health

ICELAND

Delegates:

Dr S. SIGURDSSON, Director-General of Public Health (*Chief Delegate*)

Dr J. SIGURJÓNSSON, Professor of Hygiene, University of Iceland

INDIA

Delegates:

Dr S. CHANDRASEKHAR, Union Minister of Health and Family Planning (*Chief Delegate*)

Dr D. CHOUDHURY, Deputy Director-General of Health Services

Alternate:

Mr N. KRISHNAN, Permanent Representative of India to the United Nations Office and to other International Organizations at Geneva

Advisers:

Mr P. GOPINATH, Second Secretary, Permanent Mission of India to the United Nations Office and to other International Organizations at Geneva

Miss K. NATH, Third Secretary, Permanent Mission of India to the United Nations Office and to other International Organizations at Geneva

INDONESIA

Delegates:

Dr H. T. SOEPARMO, Senior Medical Officer, Department of Health (*Chief Delegate*)

Dr H. SOESILO, Director, Municipal Health Services, Djakarta

Adviser:

Dr Séwojo N. PADMONEGORO, Third Secretary, Embassy of Indonesia in Switzerland

IRAN

Delegates:

Dr M. SHAHGHOLI, Minister of Health (*Chief Delegate*)

Dr A. DIBA, Technical Adviser on WHO Affairs, Permanent Mission of Iran to the United Nations Office at Geneva (*Deputy Chief Delegate*)

Dr H. MORSHED, Under-Secretary of State for Parliamentary Affairs, Ministry of Health

Advisers:

Dr A. DARAI, Director-General, Technical Training Department, and Director, International Health Relations Department, Ministry of Health

Dr M. ROUHANI, Director, Medical and Health Services, National Iranian Oil Company

Dr M. H. HAFEZI, Professor of Public Health, National University of Iran

Dr S. AHARI, Professor of Public Health, University of Teheran

IRAQ

Delegates:

Dr F. H. GHALI, Minister of Health (*Chief Delegate*)

Dr J. A. HAMDI, Director-General of Health, Ministry of Health

Dr S. AL-WAHBI, Acting Director of International Health, Ministry of Health

Alternate:

Dr A. E. ARIF, Director-General of Preventive Medicine, Ministry of Health

Adviser:

Dr W. AL-KARAGHOLI, First Secretary, Permanent Mission of Iraq to the United Nations Office at Geneva

IRELAND

Delegates:

Dr J. C. JOYCE, Chief Medical Officer, Department of Health (*Chief Delegate*)

Mr T. J. BRADY, Assistant Secretary, Department of Health

ISRAEL

Delegates:

Mr I. BARZILAY, Minister of Health (*Chief Delegate*)

Dr R. GJEBIN, Director-General, Ministry of Health (*Deputy Chief Delegate*)

Dr S. GINTON, Chief, External Relations, Ministry of Health

Advisers:

Mr J. ALON, Second Secretary, Permanent Mission of Israel to the United Nations Office and to the Specialized Agencies at Geneva

Dr F. NOACK, Ministry of Health

ITALY

Delegates:

Professor G. ALBERTI, President, Senate Committee on Hygiene and Health (*Chief Delegate*)

Mr G. USVARDI, Vice-President, Parliamentary Committee on Hygiene and Health

Professor R. VANNUGLI, Director, International Relations Office, Ministry of Health

Alternates:

Professor L. BELLANI, Director-General of Veterinary Services

Professor F. BELLANTI, Technical Adviser, Ministry of Health

Professor G. A. CANAPERIA, Technical Adviser, Ministry of Health

Professor G. PENSO, Director, Microbiology Laboratories, Istituto Superiore di Sanità, Rome

Professor A. CORRADETTI, Director, Parasitology Laboratories, Istituto Superiore di Sanità, Rome

Professor B. BABUDIERI, Research Supervisor, Microbiology Laboratories, Istituto Superiore di Sanità, Rome

Mr F. CAPECE GALEOTA, Second Secretary, Permanent Mission of Italy to the United Nations Office and to the International Organizations at Geneva

IVORY COAST

Delegates:

Dr B. N'DIA KOFFI, Minister of Public Health and Population (*Chief Delegate*)

Dr I. KONE, Officer in charge of the Directorate of Public and Social Hygiene, Directorate General of Public Health

JAMAICA

Delegates:

Dr C. C. WEDDERBURN, Chief Medical Officer, Ministry of Health (*Chief Delegate*)

Miss J. SLYFIELD, Third Secretary, Permanent Mission of Jamaica to the United Nations Office and to the Specialized Agencies at Geneva

JAPAN

Delegates:

Dr T. SODA, Director, Institute of Public Health, Ministry of Health and Welfare (*Chief Delegate*)

Mr M. NISIBORI, Minister, Permanent Delegation of Japan to the United Nations Office and to the International Organizations at Geneva (*Deputy Chief Delegate*)

Mr Y. SAÏTO, Counsellor and Chief Liaison Officer for International Affairs, Ministry of Health and Welfare

Alternate:

Mr S. KANEDA, First Secretary, Permanent Delegation of Japan to the United Nations Office and to the International Organizations at Geneva

Adviser:

Mr K. AKIMOTO, Third Secretary, Permanent Delegation of Japan to the United Nations Office and to the International Organizations at Geneva

JORDAN

Delegates:

Dr S. K. BURGAN, Minister of Health (*Chief Delegate*)

Dr A. NABULSI, Under-Secretary of State, Ministry of Health (*Deputy Chief Delegate*)

Mr I. ZREIKAT, Honorary Consul, Permanent Delegation of Jordan to the United Nations Office at Geneva

KENYA

Delegates:

Mr J. D. OTIENDE, Minister of Health (*Chief Delegate*)

Dr J. C. LIKIMANI, Director of Medical Services (*Deputy Chief Delegate*)

Dr J. J. THUKU, Senior Medical Officer, Ministry of Health

KUWAIT

Delegates:

Dr A. R. AL-ADWANI, Head, Internal Diseases Unit, Sabah Hospital (*Chief Delegate*)

Dr A. R. A. AL-AWADI, Health Officer, Ministry of Public Health

LAOS

Delegates:

Mr P. PHONGSAVAN, Acting Minister of Public Health (*Chief Delegate*)

Dr K. SAYCOCIE, Director-General of Public Health

LEBANON

Delegates:

Dr N. BERBIR, Minister of Public Health (*Chief Delegate*)

Dr M. KNIO, Chairman, Central Drug Control Board (*Deputy Chief Delegate*)

Miss J. ABDELMASSIH, Senior Officer, International Health Relations Section, Ministry of Public Health

LIBERIA

Delegates:

Dr E. M. BARCLAY, Director-General, National Public Health Service (*Chief Delegate*)

Dr J.-B. TITUS, Adviser and Director, Bureau of Preventive Medicine

LIBYA

Delegates:

Mr O. GIAUDA, Minister of Health (*Chief Delegate*)

Dr A. ABDULHADI, Under-Secretary of State, Ministry of Health (*Deputy Chief Delegate*)

Dr A. M. EL-SHERIF, Director of Section of Curative Medicine, Ministry of Health

Alternates:

Dr M. EL-MAGHUR, Director of Section of Preventive Medicine, Ministry of Health

Dr A. TRESH, Director, Tripoli Central Hospital

Mr K. M. EL MESELLATI, Director, Malaria Eradication Programme, Ministry of Health

LUXEMBOURG

Delegates:

Mr R. VOUEL, Secretary of State for Public Health (*Chief Delegate*)

Dr R. KOLTZ, Director of Public Health (*Deputy Chief Delegate*)

Dr E. DUHR, Inspector of Public Health

Adviser:

Miss G. KOHNER, Legal Adviser to the Government

MADAGASCAR

Delegates:

Mr C. ARIDY, Secretary of State for Social Affairs responsible for Health and Population (*Chief Delegate*)

Dr C. V. RANDRIANARISON, Technical Director, Health and Medical Services (*Deputy Chief Delegate*)

Mr P. RAKOTOMAVO, Administrative Director, Health and Medical Services

MALAWI

Delegates:

Mr M. Q. Y. CHIBAMBO, Minister of Health (*Chief Delegate*)

Dr L. G. EDDEY, Chief Medical Officer, Ministry of Health

Dr S. V. BHIMA, Medical Superintendent

Alternate:

Mr G. N. M'TEGHA, Senior Assistant Secretary, Ministry of Health

MALAYSIA

Delegates:

Mr BAHAMAN BIN SAMSUDIN, Minister of Health (*Chief Delegate*)

Dr M. DIN BIN AHMAD, Permanent Secretary and Director of Medical Services (*Deputy Chief Delegate*)

Dr CHONG CHUN HIAN, Acting Director of Medical Services, Sarawak

Alternate:

Dr T. VISVANATHAN, Deputy Municipal Health Officer, Kuala Lumpur

MALI

Delegates:

Dr S. DOLO, Minister of Public Health and Social Affairs (*Chief Delegate*)

Dr B. FOFANA, Chief, Division of Social and Preventive Medicine, Ministry of Public Health and Social Affairs

MALTA

Delegates:

Dr A. CACHIA-ZAMMIT, Minister of Health (*Chief Delegate*)

Professor C. COLEIRO, Chief Government Medical Officer (*Deputy Chief Delegate*)

Dr R. TOLEDO, Overseas Medical Service

MAURITANIA

Delegates:

Mr B. O. M. LAGHDAF, Minister of Health and Labour (*Chief Delegate*)

Mr A. OULD DIE, Embassy Counsellor (*Deputy Chief Delegate*)

Dr N. RIOU, Director of Public Health

MEXICO

Delegates:

Dr P. D. MARTÍNEZ, Under-Secretary for Health, Secretariat of State for Health and Welfare (*Chief Delegate*)

Dr M. B. MÁRQUEZ-ESCOBEDO, Director-General for Supervision, Secretariat of State for Health and Welfare

Alternate:

Miss M. A. LÓPEZ-ORTEGA, Second Secretary, Permanent Delegation of Mexico to the United Nations Office at Geneva and to the International Organizations with Headquarters in Switzerland

MONACO

Delegates:

Dr E. BOÉRI, Technical Adviser to the Government of the Principality of Monaco; Permanent Delegate of Monaco to International Health Organizations (*Chief Delegate*)

Mr R. BICKERT, Consul-General of Monaco in Geneva

MONGOLIA

Delegates:

Dr B. DEMBEREL, Minister of Public Health (*Chief Delegate*)

Dr P. DOLGOR, Chief, External Relations Division, Ministry of Public Health

Dr L. BUDŽAV, Chief, Division of Planning, Finance and Statistics, Ministry of Public Health

MOROCCO

Delegates:

Dr L. CHRAÏBI, Minister of Public Health (*Chief Delegate*)

Dr A. BENYAKHLEF, Secretary-General, Ministry of Public Health

Mr M. H. NASSAR, Adviser, Ministry of Foreign Affairs

Alternate:

Dr D. ZAARI, Chief Medical Officer, Province of Beni-Mellal

Adviser:

Dr C. NOGER, Director of Technical Services, Ministry of Public Health

NEPAL

Delegate:

Dr Y. R. JOSHI, Director of Health Services

NETHERLANDS

Delegates:

Dr R. J. H. KRUISINGA, Secretary of State for Social Affairs and Public Health (*Chief Delegate*)

Mr J. H. W. HOOGWATER, Director-General for International Affairs, Ministry of Social Affairs and Public Health

Alternates:

Dr P. SIDERIUS, Director-General for Public Health Care, Ministry of Social Affairs and Public Health

Dr J. SPAANDER, Director-General for Health Protection

Miss A. F. W. LUNSINGH MEIJER, Deputy Permanent Representative of the Netherlands to the United Nations Office and to the International Organizations at Geneva

Miss J. SCHALIJ, Directorate General for International Affairs, Ministry of Social Affairs and Public Health

NEW ZEALAND

Delegates:

Dr D. P. KENNEDY, Director-General, Department of Health (*Chief Delegate*)

Mr W. G. THORP, Permanent Representative of New Zealand to the United Nations Office at Geneva

Adviser:

Mr N. H. S. JUDD, Second Secretary, Permanent Mission of New Zealand to the United Nations Office at Geneva

NICARAGUA

Delegate:

Dr A. BONICHE VÁSQUEZ, former Minister of Public Health

Alternate:

Mr A. A. MULLHAUPT, Consul of Nicaragua in Geneva

NIGER

Delegates:

Mr I. ISSA, Minister of Public Health and Social Affairs (*Chief Delegate*)

Dr T. BANA, Director-General of Health

NIGERIA

Delegates:

Dr M. P. OTOLORIN, Chief Medical Adviser to the Federal Military Government (*Chief Delegate*)

Dr G. A. ADEMOLA, Principal Health Officer, Federal Ministry of Health

Mr P. A. L. CHUKWUMAH, First Secretary, Permanent Mission of Nigeria to the United Nations Office and to the other International Organizations at Geneva

Alternate:

Dr A. O. AUSTIN-PETERS, Armed Forces Medical Services

NORWAY

Delegates:

Dr K. EVANG, Director-General of Health Services (*Chief Delegate*)

Dr T. O. IVERSEN, Chief Medical Officer, Municipality of Oslo

Dr F. MELLBYE, Chief Physician, Health Services of Norway

Alternates:

Dr O. H. LIEN, County Public Health Officer, Vadsø

Mr B. JØLDAL, Chief of Section, Health Services of Norway

Adviser:

Mr M. REED, Counsellor, Permanent Mission of Norway to the United Nations Office and to other International Organizations at Geneva

PAKISTAN

Delegates:

Dr M. S. HAQUE, Joint Secretary and Director-General of Health (*Chief Delegate*)

Dr S. MAHFUZ ALI, Assistant Director-General of Health

Dr M. R. ARAIN, Director of Health Services, Bahawalpur, West Pakistan

PANAMA

Delegates:

Dr M. AMADO BURGOS, Ambassador; Permanent Representative of Panama to the United Nations Office at Geneva and to the Specialized Agencies in Europe (*Chief Delegate*)

Dr A. E. CALVO, Director-General, Department of Public Health (*Deputy Chief Delegate*)

Dr O. VELÁSQUEZ, Chief, Department of Ophthalmology, Santo Tomas Hospital

PARAGUAY

Delegate:

Dr D. LOFRUSCIO, Director-General of Health, Ministry of Public Health and Welfare

PERU

Delegates:

Dr P. CARDICH, Director, Health and External Relations Office, Ministry of Public Health and Welfare (*Chief Delegate*)

Mr F. SOLARI SWAYNE, Counsellor, Permanent Mission of Peru to the United Nations Office at Geneva

PHILIPPINES

Delegates:

Dr P. N. MAYUGA, Director, Bureau of Medical Services, Department of Health (*Chief Delegate*)

Dr J. C. AZURIN, Director, Bureau of Quarantine, Department of Health

POLAND

Delegates:

Dr W. TITKOW, Under-Secretary of State, Ministry of Health and Welfare (*Chief Delegate*)

Mr K. KOSTECKI, Director, Department of International Co-operation, Ministry of Health and Welfare

Mr S. TURBAŃSKI, Chief of Section, Department of International Organizations, Ministry of Foreign Affairs

Alternates:

Professor T. L. CHRUŚCIEL, Chief, Department of Pharmacology, Academy of Medicine of Silesia

Dr S. DABROWA, Second Secretary, Permanent Representation of Poland to the United Nations Office and to the Specialized Agencies at Geneva

Adviser:

Professor J. JUST, Chief, Public Hygiene Section, State Hygiene Institute, Warsaw

PORTUGAL

Delegates:

Dr Maria Luísa DE SALDANHA DA GAMA VAN ZELLER, Director-General of Health, Ministry of Health and Welfare (*Chief Delegate*)

Dr J. FERREIRA DA SILVA, Director-General of Health and Welfare, Ministry of Overseas Provinces (*Deputy Chief Delegate*)

Mr F. DE ALCAMBAR PEREIRA, Permanent Representative of Portugal to the United Nations Office and to other International Organizations at Geneva

Alternates:

Dr A. A. DE CARVALHO SAMPAIO, Senior Inspector of Health and Hygiene

Dr A. LOBO DA COSTA, Senior Inspector of Health and Hygiene

Dr L. A. DOS SANTOS GARCIA, Director, Health and Welfare Services, Mozambique

REPUBLIC OF KOREA

Delegates:

Mr DO CHANG KIM, Deputy Minister of Health and Social Affairs (*Chief Delegate*)

Dr PYO WOOK HAN, Ambassador; Permanent Delegate of the Republic of Korea to the International Organizations at Geneva (*Deputy Chief Delegate*)

Dr CHANG HOON KIM, Counsellor, Permanent Delegation of the Republic of Korea to the International Organizations at Geneva

Alternates:

Dr TAEK IL KIM, Chief, Maternal and Child Health Section, Ministry of Health and Social Affairs

Mr YUNG KAK CHUN, International Organizations Section, Ministry of Foreign Affairs

ROMANIA

Delegates:

Professor A. MOGA, Minister of Health and Welfare (*Chief Delegate*)

Mr N. ECOBESCO, Ambassador; Permanent Representative of Romania to the United Nations Office at Geneva and to the Specialized Agencies (*Deputy Chief Delegate*)

Dr M. ALDEA, Secretary-General, Ministry of Health and Welfare

Alternates:

Dr F. DUNA, Director of the Secretariat and of International Relations, Ministry of Health and Welfare

Dr M. POPESCO, Second Secretary, Permanent Mission of Romania to the United Nations Office at Geneva and to the Specialized Agencies

Adviser:

Mr N. STEFLEA, Third Secretary, Directorate for International Organizations, Ministry of Foreign Affairs

RWANDA

Delegates:

Dr I. MUSAFIRI, Médecin général (*Chief Delegate*)

Mr J.-B. BISETSA, Director, Medical District of Gitarama

SAUDI ARABIA

Delegates:

Dr H. ABDUL-GHAFFAR, Deputy Minister of Health (*Chief Delegate*)

Dr S. A. FAKIH, Director, Ajiad Hospital, Mecca (*Deputy Chief Delegate*)

Dr H. B. KIRIMLY, Director-General of Quarantine Services, Jeddah

Alternate:

Dr H. A. AL-SUGEIR, Director, Tuberculosis Centre, Riyad

SENEGAL

Delegates:

Dr P. GAYE, Technical Adviser, Ministry of Health and Social Affairs (*Chief Delegate*)

Dr I. WONE, Director of Public Health, Ministry of Health and Social Affairs

SIERRA LEONE

Delegate:

Dr A. H. THOMAS, Deputy Chief Medical Officer, Department of Health

SINGAPORE

Delegates:

Mr CHOR YEOK ENG, Parliamentary Secretary to the Ministry of Health (*Chief Delegate*)

Dr HO GUAN LIM, Permanent Secretary (Health); Director of Health Services

SOMALIA

Delegates:

Mr M. S. M. DAHIR, Under-Secretary of State, Ministry of Health and Labour (*Chief Delegate*)

Mr A. F. ABRAR, Counsellor and Acting Director, Department of Integrated Medicine, Ministry of Health and Labour (*Deputy Chief Delegate*)

Dr Y. H. AHMED, Ministry of Health and Labour

SPAIN

Delegates:

Professor J. GARCÍA ORCOYEN, Director-General of Health (*Chief Delegate*)

Mr F. BENITO MESTRE, Deputy Permanent Delegate of Spain to the United Nations Office and to the International Organizations at Geneva

Mr E. DE LA MATA GOROSTIZAGA, Secretary-General for Health

Alternates:

Dr L. NÁJERA ANGULO, Technical Secretary, Directorate General of Health

Professor G. CLAVERO DEL CAMPO, Health Adviser, Directorate General of Health

Mr M. JABALA GONZÁLEZ, Secretary, Permanent Delegation of Spain to the United Nations Office and to the International Organizations at Geneva

Dr F. PÉREZ GALLARDO, Director, National Virus Centre

SUDAN

Delegates:

Dr M. A. FATTAH, Under-Secretary, Ministry of Health (*Chief Delegate*)

Dr O. I. OSMAN, Assistant Under-Secretary, Ministry of Health (*Deputy Chief Delegate*)

Dr O. IMAM, Medical Officer of Health, Province of Kordofan

Dr M. M. HASSAN, Senior Paediatrician, Khartoum Hospital

SWEDEN

Delegates:

Dr A. ENGEL, Director-General, National Board of Health (*Chief Delegate*)

Dr M. TOTTIE, Senior Medical Officer, National Board of Health

Advisers:

Mr S.-E. HEINRICI, Head, International Relations Division, Ministry for Social Affairs

Mr H. EWERLÖF, First Secretary, Permanent Delegation of Sweden to the United Nations Office and to the International Organizations at Geneva

Mr H. GRANQVIST, First Secretary, Ministry for Foreign Affairs

SWITZERLAND

Delegates:

Dr A. SAUTER, Director, Federal Public Health Service (*Chief Delegate*)

Mr R. KELLER, Permanent Representative of Switzerland to the International Organizations at Geneva (*Deputy Chief Delegate*)

Dr P. KÜRSTEINER, Assistant Medical Officer, Federal Public Health Service

Alternates:

Dr C. FLEURY, Chief, Infectious Diseases Section, Federal Public Health Service

Mr A. R. HEGNER, Diplomatic Adviser, International Organizations Division, Federal Political Department

Advisers:

Professor M. SCHÄR, Director, Institute of Preventive and Social Medicine, University of Zurich

Dr O. JEANNERET, Lecturer in Preventive and Social Medicine, University of Geneva; Medical Director, Youth Health Service, Geneva

Dr J.-P. PERRET, Assistant Medical Officer, Federal Public Health Service

SYRIA

Delegates:

Dr A.-R. AKTA, Minister of Health (*Chief Delegate*)

Dr A. BUDEIR, Director of International Health Affairs, Ministry of Health

Dr R. BARMADA, Acting Dean, Faculty of Medicine, Aleppo

Adviser:

Dr M. EL-SAYED, Legal Adviser

THAILAND

Delegates:

Dr S. PHONG-AKSARA, Deputy Under-Secretary of State for Public Health, Ministry of Public Health (*Chief Delegate*)

Dr E. NA BANGXANG, Deputy Director-General, Department of Health, Ministry of Public Health (*Deputy Chief Delegate*)

Mr S. VEJJAJIVA, Chief, International Health Division, Ministry of Public Health

Alternate:

Dr C. VATANASUCHART, Assistant Director, Mental Hospitals Division, Department of Medical Services, Ministry of Public Health

TOGO

Delegates:

Dr J. A. OHIN, Medical Inspector; Chief Surgeon, Lomé National Hospital (*Chief Delegate*)

Dr F. G. GLOKPOR, Chief, Research Bureau and Epidemiology Division, Ministry of Public Health (*Deputy Chief Delegate*)

Dr A. NABÉDÉ, Senior Medical Officer, Health Service, Municipality of Lomé

TRINIDAD AND TOBAGO

Delegates:

Dr L. M. COMISSIONG, Chief Medical Officer, Ministry of Health (*Chief Delegate*)

Mr E. SEIGNORET, Counsellor, Permanent Mission of Trinidad and Tobago to the United Nations Office at Geneva

TUNISIA

Delegates:

Mr H. KHEFACHA, Secretary of State for Public Health (*Chief Delegate*)

Mr R. BACHBAOUAB, Permanent Representative of Tunisia to the United Nations Office at Geneva and to the Specialized Agencies in Switzerland (*Deputy Chief Delegate*)

Dr A. DALY, Divisional Medical Inspector; Assistant Director of Administrative Services, Secretariat of State for Public Health

Alternates:

Dr M. BAHRI, Divisional Medical Inspector, Secretariat of State for Public Health

Mr M. NACHI, Attaché de cabinet

Mr S. ANNABI, Embassy Secretary

Advisers:

Mr A. TABKA, Attaché de cabinet, Secretariat of State for Public Health

Mr M. MOUAKHAR, Attaché, Permanent Mission of Tunisia to the United Nations Office at Geneva and to the Specialized Agencies in Switzerland

TURKEY

Delegates:

Dr T. ALAN, Director-General of External Relations, Ministry of Health and Welfare (*Chief Delegate*)

Mr M. SIRMAN, Deputy Permanent Delegate of Turkey to the United Nations Office at Geneva (*Deputy Chief Delegate*)

Mr O. AKSOY, First Secretary, Permanent Delegation of Turkey to the United Nations Office at Geneva

UGANDA

Delegates:

Mr S. K. NKUTU, Minister of Health (*Chief Delegate*)

Dr I. S. KADAMA, Chief Medical Officer; Permanent Secretary, Ministry of Health (*Deputy Chief Delegate*)

Dr D. F. IBANDA, Principal Medical Officer, Ministry of Health

UNION OF SOVIET SOCIALIST REPUBLICS

Delegates:

Professor B. V. PETROVSKIJ, Minister of Health of the USSR (*Chief Delegate*)

Dr D. D. VENEDIKTOV, Deputy Minister of Health of the USSR (*Deputy Chief Delegate*)

Dr G. A. NOVGORODCEV, Chief, Department of External Relations, Ministry of Health of the USSR

Alternates:

Dr L. A. SAKVARELIDZE, Minister of Health of the Georgian SSR

Dr M. A. AHMETELI, Deputy Chief, Department of External Relations, Ministry of Health of the USSR

Professor JU. P. LISICYN, Head, Department of Social Hygiene and Public Health Organization, Second Medical Institute, Moscow

Advisers:

Dr S. I. GONČAROV, Ministry of Health of the USSR

Dr D. A. ORLOV, Ministry of Health of the USSR

Professor V. K. TATOČENKO, Scientific Institute of Paediatrics, Academy of Medical Sciences, Moscow

Mr V. G. TRESKOV, Adviser, Ministry of Foreign Affairs

Dr Marina BANCEKINA, Institute of Social Hygiene and Public Health Organization, Moscow

Mrs A. G. SOKOLOVA, Ministry of Health of the USSR

Professor O. G. ANDŽAPARIDZE, Director, Institute of Virus Preparations, Moscow

Dr I. P. ARZAMASCEV, Head of Department, Chemopharmaceutical Institute, Moscow

Dr Maria D. PIRADOVA, Chief Editor of *Zdorov'e*, Moscow

UNITED ARAB REPUBLIC

Delegates:

Dr M. A. W. SHOUKRY, Under-Secretary of State for Public Health, Ministry of Health (*Chief Delegate*)

Dr H. M. EL-KADI, Under-Secretary of State, Ministry of Health (*Deputy Chief Delegate*)

Dr I. Z. E. IMAM, Director, Virus Research Centre, Agouza Laboratories, Cairo

UNITED KINGDOM OF GREAT BRITAIN AND NORTHERN IRELAND

Delegates:

Mr K. ROBINSON, Minister of Health (*Chief Delegate*)

Sir George GODBER, Chief Medical Officer, Ministry of Health (*Deputy Chief Delegate*)

Dr J. M. LISTON, Medical Adviser, Ministry of Overseas Development

Alternates:

Dr J. H. F. BROTHERSTON, Chief Medical Officer, Scottish Home and Health Department

Mr J. G. QUINTON, Principal, International Division, Ministry of Health

Miss T. A. H. SOLESBY, First Secretary, United Kingdom Permanent Mission to the United Nations Office and to other International Organizations at Geneva

Advisers:

Mr A. A. ACLAND, First Secretary, United Kingdom Permanent Mission to the United Nations Office and to other International Organizations at Geneva

Mr D. J. EASTON, Second Secretary, United Kingdom Permanent Mission to the United Nations Office and to other International Organizations at Geneva

UNITED REPUBLIC OF TANZANIA

Delegates:

Dr C. V. MTAWALI, Principal Secretary, Ministry of Health (*Chief Delegate*)

Dr K. HASSAN

UNITED STATES OF AMERICA

Delegates:

Dr W. H. STEWART, Surgeon General, Public Health Service, Department of Health, Education and Welfare (*Chief Delegate*)

Dr J. C. CAIN, Professor of Medicine, Mayo Graduate School of Medicine, University of Minnesota; Consultant, Mayo Clinic, Rochester, Minnesota

Mr R. W. TUBBY, Ambassador; United States Permanent Mission to the United Nations Office and to other International Organizations at Geneva

Alternates:

Dr Dorothy B. FEREBEE, Medical Director, University Health Service, Howard University, Washington, D.C.

Dr Helen B. TAUSSIG, Professor of Paediatrics, Johns Hopkins University, Baltimore, Maryland

Dr C. L. WILLIAMS, Director, Office of International Health, Public Health Service, Department of Health, Education and Welfare

Dr B. F. MATTISON, Executive Director, American Public Health Association

Advisers:

Mr E. M. KENNEDY, United States Senate

Mr M. R. LAIRD, House of Representatives

Mr N. SMITH, House of Representatives

Dr B. D. BLOOD, Associate Director, Office of International Health, Public Health Service, Department of Health, Education and Welfare

Dr G. D. DORMAN, Secretary-Treasurer and Trustee, American Medical Association

Dr A. L. FRECHETTE, Commissioner of Public Health, Massachusetts Department of Public Health, Boston

Miss B. C. GOUGH, First Secretary, United States Permanent Mission to the United Nations Office and to other International Organizations at Geneva

Dr C. P. HUTTRER, Biomedical Attaché, United States Permanent Mission to the United Nations Office and to other International Organizations at Geneva

Dr M. D. LEAVITT, Deputy Assistant Secretary for Science and Population, Department of Health, Education and Welfare

Dr M. H. MERRILL, Deputy Assistant Administrator, Office for War on Hunger, Agency for International Development, Department of State

Mr M. A. POND, Assistant Surgeon General for Special Projects, Public Health Service, Department of Health, Education and Welfare

Dr R. A. SMITH, Chief, Office of Planning, Office of International Health, Public Health Service, Department of Health, Education and Welfare

Dr J. H. VENABLE, Director, Georgia Department of Public Health, Atlanta

Mr J. R. WACHOB, Second Secretary, United States Permanent Mission to the United Nations Office and to other International Organizations at Geneva

UPPER VOLTA

Delegates:

Dr S. TRAORE, Minister of Public Health and Population (*Chief Delegate*)

Dr I. J. CONOMBO, Director-General of Public Health, Population and Social Affairs (*Deputy Chief Delegate*)

Dr T. L. YOUL, Chief Medical Officer, Dédougou Medical District

Adviser:

Dr A. BARRAUD, Chief Medical Officer for Urban Health, Bobo-Dioulasso

VENEZUELA

Delegates:

Dr C. L. GONZÁLEZ, former Minister of Health and Welfare; Technical Adviser, Ministry of Health and Welfare (*Chief Delegate*)

Dr D. CASTILLO, Assistant Medical Officer to the Director of Public Health, Ministry of Health and Welfare

Mr J. M. CARRILLO, Deputy Director, Malaria and Environmental Health Division, Ministry of Health and Welfare

Adviser:

Mr J. de J. CORDERO CEBALLOS, First Secretary, Permanent Delegation of Venezuela to the United Nations Office and to the Specialized Agencies at Geneva

VIET-NAM

Delegates:

Dr TRAN LU Y, Secretary of State for Health (*Chief Delegate*)

Dr NGUYEN VAN THIEU, Assistant for Foreign Aid, Secretariat of State for Health

Dr TRUONG MINH CAC, Deputy Director-General, Secretariat of State for Health

Alternates:

Mr HUYNH MINH QUANG, Adviser, Secretariat of State for Health

Mr NGUYEN VAN THANG, Chargé de mission, Secretariat of State for Health

Mr TRAN DUY NINH, Chief, Private Office of the Secretary of State for Health

Advisers:

Mr LE VAN LOI, Permanent Representative of the Republic of Viet-Nam to the International Organizations at Geneva

Mr PHAM VAN TRINH, Third Secretary, Permanent Mission of the Republic of Viet-Nam to the International Organizations at Geneva

WESTERN SAMOA

Delegate:

Mr E. LUAMANUVAE, Minister of Health

YEMEN

Delegates:

Dr A. A. AL-HURAIBI, Directorate of Health Services, Ministry of Health (*Chief Delegate*)

Mr A. TARCICI, Ambassador; Permanent Representative of Yemen to the United Nations Office at Geneva and to the Specialized Agencies in Europe

YUGOSLAVIA

Delegates:

Mr D. KOSOVAC, Federal Secretary for Health and Social Affairs (*Chief Delegate*)

Dr H. KRAUS, Director, Federal Institute of Public Health (*Deputy Chief Delegate*)

Professor R. GERIĆ, Deputy Federal Secretary for Health and Social Affairs

Advisers:

Dr I. MARGAN, Assistant Secretary, Secretariat for Health and Social Affairs, Croatia

Mr J. BRAJOVIĆ, Director, International Relations Division, Federal Secretariat for Health and Social Affairs

Mrs M. KANDIJAŠ, First Secretary, Secretariat of State for Foreign Affairs

Miss Z. ILIĆ, Second Secretary, Permanent Mission of Yugoslavia to the United Nations Office at Geneva and to the Specialized Agencies in Europe

ZAMBIA

Delegates:

Mr D. C. MWIINGA, Minister of Health (*Chief Delegate*)

Dr M. M. NALUMANGO, Permanent Secretary, Ministry of Health (*Deputy Chief Delegate*)

Dr D. W. BRAITHWAITE, Provincial Medical Officer, Ministry of Health

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Mr H. G. FLETCHER, Chief, External Relations, United Nations Office at Geneva

Mr V. FISSENKO, External Relations, United Nations Office at Geneva

Mrs W. J. E. DE BOIS, External Relations, United Nations Office at Geneva

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Mr M. ANSAR KHAN, Narcotics Division, United Nations Office at Geneva

United Nations Children's Fund

Sir Herbert BROADLEY, UNICEF Consultant in the United Kingdom of Great Britain and Northern Ireland

United Nations Relief and Works Agency for Palestine Refugees in the Near East

Dr M. SHARIF, Director of Health

Mr R. COURVOISIER, Director, European Office

United Nations Development Programme

Mr R. P. ETCHATS, Representative in Europe

2. Development of the Smallpox Eradication Programme

Agenda, 2.5

Dr PAYNE, Assistant Director-General, introducing the report of the Director-General on development of the smallpox eradication programme, said that it would be noted from section 1 of that report that almost all the projects for 1967 had been activated and that plans for projects to begin in 1968 were already well advanced. The figures given for the incidence of smallpox at the foot of page 1 of the document should be amended to read " During 1966, 65 512 cases were reported compared with 64 321 cases for 1965...", to agree with the revised figures given in the tables at the end of the document. The world incidence of smallpox had decreased during the last three years and was expected to be even lower in 1967, but there had been sharp increases in some provinces of India in the early part of 1967. The major endemic foci continued to be South-East Asia, certain parts of South America, and Africa south of the Sahara.

The appropriation of special funds for smallpox by the Nineteenth World Health Assembly had provided an impetus which had met with a gratifying response. All the regional committees had indicated their full support. A regional plan for eradication within five years had been developed in the Americas; at least twenty-four countries in Africa would have embarked on eradication efforts by the end of 1967; and most countries in Asia would intensify present efforts or initiate systematic vaccination by the end of the year. Substantial bilateral assistance had been offered by the United States of America (for programmes in nineteen West and Central African countries), and by the Union of Soviet Socialist Republics, which was providing vaccine on a bilateral basis to several major endemic countries and had also offered seventy-five million doses of vaccine to WHO. Other offers of vaccine had been received from a number of countries, as shown in Table 8 of the document. WHO staff and consultants had visited most of the endemic countries during 1966 to initiate planning for the intensifying of the global eradication effort. Special emphasis had been placed on the need for ensuring the participation of the basic health services, for the adequate supervision and assessment of the programme, and for surveillance schemes.

The provision of adequate supplies of fully potent freeze-dried vaccine continued to be a difficult problem. Steps being taken to meet it included assistance, in co-operation with UNICEF, to endemic countries in the expansion or development of vaccine production facilities; contractual arrangements with experienced producers to assist and advise producing laboratories in endemic areas; and the solicitation of vaccine donations.

Training courses for national programme staff were planned on an inter-regional basis. It was also planned to open other smallpox virus reference centres, such as the one established in Moscow in 1966. The testing of vaccines from various producers continued

to be carried out in Denmark and the Netherlands and would shortly be undertaken in Canada. Scientific groups would be convened to deal with technical matters pertinent to the whole programme and with research.

The difficulties in achieving global smallpox eradication must not be underestimated, but the initial stages augured well for the future.

Dr WATT, representative of the Executive Board, said that the Board had studied the report of the Director-General on development of the eradication programme covering the first year in which it had been financed under the regular budget of the Organization, in conformity with the decision of the Nineteenth World Health Assembly. The Board felt that the plans and development outlined in the report were encouraging but had wished to stress, in the draft resolution recommended in its resolution EB39.R20, both the importance of smallpox as a worldwide disease and the need for bilateral or multilateral assistance to those countries in which smallpox was endemic. The willingness of the World Food Programme to collaborate in the eradication programme gave hope that assistance might yet be received from other still unexplored sources. The Board had felt that the programme would require continued analysis and scrutiny both by itself and by the Health Assembly.

Dr NA BANGXANG (Thailand) said that it was clear from the report which areas of the world were endemic foci of smallpox and which areas were non-endemic. He believed that the cause of endemicity, particularly in South-East Asia, was mainly that large parts of the population did not receive successful vaccination; and that the solution was to revaccinate every year for five or six years continuously. The danger to countries in which the disease was not endemic came from the importation of infected cases; consequently every effort should be made to channel aid, both financial and in supplies and personnel, to the countries which were the main endemic foci. He hoped that WHO would consider using the funds available for the provision of land and water motor-vehicles for vaccinating teams, and for supplies of freeze-dried vaccine in small cold-storage boxes.

It was gratifying to know of the bilateral assistance made available by the United States of America to West and Central African countries; he hoped that similar assistance might be offered to some of the countries in South-East Asia which presented a smallpox threat to their neighbours. Smallpox had been eradicated in Thailand with the assistance of WHO and UNICEF, but continuing vigilance was necessary because of the risk of imported infection.

Dr GONZÁLEZ (Venezuela) expressed great satisfaction at the clarity and objectivity of the Director-General's report. He said that his country had had no indigenous cases of smallpox for a number of years, but recognized the global importance of the disease, due to its capacity for international spread. The cost of maintaining a permanent surveillance service was high, but such a service was necessary if a country was to remain free of the disease.

He welcomed the part of the report which stated that particular attention was to be paid to obtaining the active participation of the general health services from the initial stages of the programme. That was essential to avoid the programme being just another vaccination campaign, followed eventually by an epidemic recrudescence as a result of the disease being imported into a susceptible population and of the failure of the health services to keep a proper level of immunity and to maintain the required system of epidemiological vigilance. Certainly, smallpox eradication in endemic areas was feasible, but it should not be regarded as an easy job. It was necessary to have financial, administrative and technical resources which, combined with hard work, should bring success within reach.

The meeting rose at 5.30 p.m.

FOURTH MEETING

Tuesday, 16 May 1967, at 9.30 a.m.

Chairman: Dr A. H. THOMAS (Sierra Leone)

1. Development of the Smallpox Eradication Programme (continued)

Agenda, 2.5

Professor SCORZELLI (Brazil) said that although smallpox was an endemic disease in Brazil, with periods of epidemics, it was hoped that a decisive victory over it would be won in a few years. Antismallpox vaccination had begun in 1804, but not until the present had such an intense campaign been undertaken.

The work in vaccination had, in the past few years,

taken on the character of a massive campaign, intended to catch up on delays and to assure the conditions necessary to a well-conducted routine guaranteeing results.

On the basis of experience gained in that campaign, a plan of vaccination was made which concentrated especially on the north-eastern region of the country. Numbers of unvaccinated people from that region migrated to more economically developed parts of the country, thus endangering the success of the campaign. The migrating population had to be protected against all the prevalent diseases so that, at the same time, the protection of the areas in which they settled was ensured.

Though the smallpox campaign was a relatively simple procedure by comparison with the technical aspects of the campaigns against other diseases, the great diversity of economic, social and geographical conditions in Brazil made it necessary to take into account many elements in order to obtain results from the resources employed.

As a whole, Brazil was a developing country, but the stages of development varied from region to region. In some of the more advanced cities, for example, sanitation standards were as good as those in developed countries. It was in the backward areas that smallpox was strongest; there it was necessary to overcome many difficulties, beginning with the population's disregard for the importance of the disease, of which the predominant form was variola minor.

Other problems encountered were unfavourable administrative conditions and a lack of financial resources.

An agreement with PAHO had been entered into which made possible an increase in the production of vaccine, now in surplus supply in the three laboratories producing it.

The resources at the disposal of the campaign included jet injectors made available by PAHO and the Atlanta Communicable Disease Center as well as the Ministry of Health, but those resources were still inadequate. The Government was prepared to exchange its surplus vaccine for another form of aid from the international organizations or from other countries.

Technical possibilities had been shown by the disappearance ten years ago of *Aedes aegypti*, and previously of *Anopheles gambiae*. Malaria had been reduced to one-fortieth of its former strength. At the beginning of the century great victories over communicable diseases had been achieved with Oswaldo Cruz. Brazil had much experience in combating yellow fever, for which vaccines were produced and sent to other countries. On the American continent and elsewhere Brazilian technicians made an important contribution to work in public health. For Brazil, the most important item in the campaign against communicable diseases was not technical assistance but equipment.

His Government considered it important to foster a common spirit, uniting not only the peoples of the Americas but those of other continents in the campaign against disease and in the achievement of health.

Dr EL-KAMAL (Algeria) said that for nearly four years smallpox eradication had ceased to be a difficult problem for Algeria. During that time no cases had been reported. Regarding consolidation, the situation was favourable in that the Pasteur Institute of Algeria had undertaken several months ago the preparation of freeze-dried vaccine which would permit of vaccination during the hot season. Thanks to equipment provided by UNICEF the preparation of that vaccine had been possible. From next summer the Algerian Government would be able to offer to WHO a million doses of vaccine.

Dr SAUTER (Switzerland), referring to the effectiveness of the different kinds of vaccines, said that the more freeze-dried vaccine was used, the more it was seen that persons revaccinated even several times with lymph vaccine to which they had not reacted, had a clear reaction to vaccination with freeze-dried vaccine. That efficacity indicated that lymph vaccine should be replaced, not only in tropical countries but everywhere, by freeze-dried vaccine. The institute in Berne which was the only producer of smallpox vaccine in Switzerland intended to abandon the production of lymph vaccine. Freeze-dried vaccine could be stored in large amounts at low cost. The institute undertook to keep in reserve for the health authorities of the country one million doses, regularly renewed, at a cost of a few thousand francs per year.

Smallpox was again menacing countries where it was not endemic. The reporting of two imported cases in a neighbouring country, who had been in contact —during a journey—with Swiss residents, had occasioned rapid detection and revaccination, and no secondary cases had resulted.

The Government of Switzerland, convinced of the importance of the smallpox eradication programme, continued to support that programme. It hoped soon to provide a gift to WHO of several million doses of freeze-dried vaccine.

Dr BRAITHWAITE (Zambia) said that, as a result of severe attacks of smallpox during 1963, producing a total of 1881 cases, a country-wide attack had been undertaken in 1964 which involved the vaccination of whole districts and the investigation of major outbreaks. There had been 2214 cases in 1964, but, as the

foundations of the programme had then been laid, by 1965 the number of cases had been reduced to 528, and eradication was being prepared. Early in 1966 a seminar had been held at Kitwe at which a WHO smallpox adviser was present, and the eradication programme had been instituted on that occasion. As the result of the introduction of a three-year vaccination plan the number of cases had been reduced to 63 in 1966.

In addition to vaccination of one-third of the population each year, vaccination was carried out at the rural health centres, so that mothers could protect their children without delay. Schools were visited and new pupils vaccinated.

Neighbouring countries had been advised of the programme in the hope that they would carry out similar programmes along their borders with Zambia at the time when work was being done in border areas.

Legislation was being amended to provide for the three-yearly smallpox vaccination and to make it compulsory; all those entering Zambia were required to have a certificate of vaccination against smallpox.

Dr BROTHERSTON (United Kingdom of Great Britain and Northern Ireland) said that four outbreaks of variola minor had been reported in England and Wales during 1966. There had been no connexion between those outbreaks and the origins had been undetermined.

By commenting on that experience he wished to draw attention to the technical difficulties and new methods of dealing with variola minor. In nearly all cases the illness had been mild and difficult to diagnose clinically. Electron microscopy had proved valuable as a screening procedure. The advantages claimed for that method over the gel diffusion test were that it was more rapid, more sensitive when only small amounts of material from lesions were available and, in some cases, enabled a positive diagnosis of chickenpox to be made without delay.

He thanked the Director-General for his most interesting and valuable report and referred to the importance of assessment. The problems associated with mass health campaigns were well-known—if they were uncritically deployed great effort, much time and many resources could be wasted. Pressure to achieve great numbers of vaccinations could lead to some people being vaccinated over and over, while groups of the population at greatest risk were left untouched. With the smallpox eradication programme those things should no longer happen, for there were checks recommended for assessment and evaluation.

He welcomed the statement in the report that those in charge of policy continued to develop specific methods and criteria for evaluation. Constant checking and assessment were as necessary a feature of the smallpox eradication campaign as its mass application.

Dr CHANDRASEKHAR (India) said that India's eradication programme had been launched towards the end of 1962. The decline of the disease was reflected in the figures for 1966, when 31 900 cases and 8325 deaths had been reported as against 83 423 cases and 26 360 deaths in 1963. During 1966 and 1967 (to the present) most cases had been reported from six states and action was being taken to detect and correct errors and omissions.

Until 1 March, 69.58 million primary vaccinations and 430.35 million revaccinations had been carried out. A vaccine testing centre had been established at the National Institute of Communicable Diseases in New Delhi. Action was being taken to enforce the use of freeze-dried vaccine for the purpose of international certificates.

Stress was now being given to vaccination of the " left-outs ", including children and migrating population, by house-to-house verification of the family register. The programme would gradually be integrated with the basic health services—the only way to keep track of about twelve and a half million infants born annually. It was extremely difficult to cover all the elements of a population scattered over half a million villages in the vast subcontinent.

Dr RISTORI (Chile) said that his country had been free of smallpox for the last forty-five years, with the exception of three incidents in 1944, 1950 and 1959. The persistence of the disease in Latin America, including border countries, had obliged Chile to maintain high levels of immunity, especially in its frontier provinces, where the rate of vaccination was 100 per cent.; in the central provinces it was about 60 per cent.

The number of vaccinations had been increasing since 1960, amounting annually to more than 1 300 000 in a total population of nine million.

Recently, an agreement had been signed with PAHO which would strengthen the work the national health services had been developing as part of the smallpox eradication programme of the Americas. Its objectives were to maintain immunization of not less than 80 per cent. of the population in each of the departments of the country and in each age-group; to develop a national epidemiological surveillance service; to produce freeze-dried vaccine in sufficient quantities for the country's needs; and to train personnel in the techniques of vaccination, case detection, epidemiological investigation and prevention measures.

His country welcomed the campaign launched by WHO for the eradication of smallpox and the recom-

mendation of the Executive Board that all countries intensify their programmes in an effort to achieve early eradication.

Dr DOUBEK (Czechoslovakia) said that the Director-General in his report on the smallpox eradication programme had informed the Committee that in 1967 cases had been imported into Europe from South-East Asia, where there had been a sharp increase in incidence despite the efforts of the last four years. The first case since 1925 had been imported into his country. No secondary cases had appeared, thanks to effective anti-epidemic measures.

Through the assistance of individual donor countries, mainly the USSR and the United States of America, effective efforts for smallpox eradication could be undertaken. But the present extent of aid might not be adequate—only a few developed countries gave assistance to the programme. Eradication of smallpox within the next ten years was also in the interest of developed countries. Postponement of efforts would mean an increase of financial needs and would weaken the programme.

From the report before the Committee it was evident that progress had been achieved in the Americas and also in Africa. But the information from South-East Asia, especially from India, was worrying. He stressed that it was the concern of all countries to help.

If eradication was to be achieved the difficulties inherent in establishing maintenance and surveillance activities must not be underestimated.

He commended the report, especially the chapter on eradication methodology, as representing a wide and soundly-based programme.

He thought that a specially prepared, comprehensive manual, setting forth the principles and technical considerations of the eradication programme, would be helpful in assisting countries to solve difficult problems in the planning of smallpox programmes, in the development of surveillance activities, in methods of operation, in assessment, and in laboratory procedures.

Dr IMAM (United Arab Republic) said he supported the draft resolution recommended by the Executive Board in its resolution EB39.R20, as well as the Director-General's report on the development of the smallpox eradication programme. His country was situated at the cross-roads of communication between Asia, Africa and Europe, and although smallpox had been absent since 1952 the threat of the disease was always present. Very active quarantine measures were taken to detect and isolate suspected cases, especially in ships passing through the Suez canal. Case detection was supported by laboratory diagnosis.

He hoped that WHO research would lead to a single strain of virus for vaccine production, instead of the variety of strains used by different manufacturers, since that would facilitate the application of WHO standards for the vaccine. Such standards were difficult to apply at present.

He requested that WHO should distribute information concerning all the laboratory methods used in the diagnosis of smallpox and any new development in those techniques, as well as the standard reagents, to all the diagnostic virus laboratories. That would greatly help in active case detection, especially in countries continually threatened by smallpox. His delegation strongly supported the continuous training of local personnel in endemic areas in order to ensure continuation of the smallpox eradication programme, and to enable revaccination of the population to be carried out every three or four years as recommended.

He informed the Assembly that his country still held out its offer of one million doses of dried smallpox vaccine for the use of the WHO smallpox eradication programme.

Dr ALDEA (Romania) pointed out that the report showed that, in the course of 1966, countries where smallpox had been considered to have been eradicated for a long time had not been exempt from a recrudescence of the disease and that the rapid increase of travel posed serious problems for health authorities. He noted that, in order to justify the eradication programme, the gravity of the disease was mentioned—that being the concern of national health authorities—without, however, mention being made of the socio-economic implications, which he considered to be an important element in accelerating the eradication campaign, as much for the attention accorded it by national authorities as for an increase in bilateral or multilateral aid.

The eradication of smallpox was primarily a problem of good organization. He wished to stress again, in the light of experience in Romania, that the solution of the problem could not be found in the use of mobile teams. They were too costly and their results too weak Control should be based on the training of local personnel—recruited where possible from people having easy access to the population—the development of public health education and steps to ensure the necessary quantity of good quality vaccine.

He shared the doubts expressed by Sir George Godber in the Executive Board regarding the dangers of reactions and post-vaccination complications, especially in mass vaccination. For that reason he considered that priority should be given to the rapid development of vaccine quality research programmes,

which would lead to reduction in cost and facilitate the treatment of the population.

Dr MUNASINGHE (Ceylon) said he noted that it was stated in the report that 75 per cent. of the cases of smallpox had been reported by countries in the South-East Asia Region, but that Ceylon and Thailand had not recorded indigenous cases for over three years.

His country was now in the maintenance phase. Vaccination had been made compulsory by the vaccine ordinance of 1886. Since then the annual average number of cases had come down from 1161 to 309. The vaccination ordinance laid down that all children over three months of age should be vaccinated. Vaccination was mainly carried out by health inspectors and midwives. One health inspector was appointed for a population of 10 000 to 15 000 and one midwife for a population of 5000 to 7000. Those health personnel provided total coverage of the country.

No attempt had yet been made to revaccinate children starting school, nor had attempts been made to revaccinate the adult population. Although smallpox was no longer a problem in the country, strict precautionary measures had to be applied owing to cases occurring in neighbouring countries. Strict quarantine measures were applied to visitors from abroad and a valid certificate of vaccination against smallpox was required for entry into the country. Those arriving from infected areas, in spite of possession of a valid certificate of vaccination, were kept under surveillance for fourteen days. Liquid vaccine in accordance with WHO requirements was still being used.

Professor PENSO (Italy) said that he would confine his remarks to the section of the report devoted to research. He noted that, among the research studies envisaged, there was only one that concerned vaccine: that on " the choice of strains for vaccine production ".

There was at present theoretically only a single official virus vaccine strain—that established in 1962 by the Expert Committee on Biological Standardization—which constituted the international standard of reference for smallpox vaccines. Preparation of that vaccine was confined to the International Laboratory for Biological Standards at the Statens Seruminstitut, Copenhagen, and was intended to define the comparison of national standard preparations used for the manufacture and laboratory control of smallpox vaccines. That showed the need for all the smallpox vaccines in use throughout the world to be equal or at least similar, as they should be prepared with a single type of vaccinal virus, even if they came from different strains. The origin of the different stocks was unknown, but some vaccine strains were more pathogenic to man than others, and there was no confirmation that strains producing stronger local lesions provided greater protection than those producing slight clinical reactions. The least pathogenic strains were preferable providing they gave adequate immunization. Italy had undertaken a comparative study of commercial smallpox vaccines in use throughout the world. Among those there were at least two or perhaps three types of virus vaccine.

He had mentioned that research work firstly to demonstrate the need for new research work on smallpox vaccine and secondly to invite the Director-General to introduce into the research programme a comparison of virus vaccine from different strains. His delegation considered that such research could supply valuable information on the true antigenic value of various viruses used in the preparation of vaccines and on the pathogenic property of the different smallpox vaccines in use in the world.

Mr NISHKU (Albania) said that there had been no case of smallpox, not even an imported one, in his country for a long time and steps had been taken to ensure that international travellers as well as the population of the country were vaccinated. They employed their own liquid vaccine manufactured in the country. Children were first vaccinated at the age of eight months, then revaccinated between the ages of six and seven, eleven and twelve, and eighteen and nineteen.

Professor CHRUSCIEL (Poland) said he thought that there was a need to continue assistance or co-ordinate efforts for the furtherance of the smallpox eradication campaign. Although his country had carried out no scientific research in that context, it was most interested in WHO's efforts. He felt that the campaign should be intensified and provided with further material and financial aid.

At the Nineteenth World Health Assembly Poland had promised assistance and he was happy to mention that two station wagons had been supplied for the eradication programme. Further help in the form of teams of physicians would be readily forthcoming.

He emphasized the need for the use of local resources and the development of health education in endemic areas.

Dr BÉDAYA-NGARO (Central African Republic) stated that in the eight years from 1959 to 1966 more than 2 600 000 smallpox vaccinations had been carried out in the Central African Republic, with happy results. Over a period of eleven years there had only been (in 1962) fifty-nine smallpox cases, with nineteen deaths, during the period of an epidemic beyond the country's frontiers. In 1963 there had been three imported

cases and in 1964, twenty-four cases, of which ten cases had been hospitalized and only one had been fatal. In 1966 there had been four suspect cases which, thanks to the services of the Pasteur Institute, had been shown to be severe cases of chickenpox.

The Central African Republic's wide frontiers, some of which were contiguous to endemic zones in which control was poor, obliged it to participate to the full in the eradication campaign. It was intended to vaccinate one third of the population every year in each of the five endemic zones. Some 270 000 doses of freeze-dried smallpox vaccines for each of the first three years would be needed. But the vaccination of the population as a whole would be integrated into a general inoculation programme covering measles and yellow fever between the ages of six months and six years, smallpox and BCG between seven and nine years, and smallpox and yellow fever over ten years of age.

Finally, he wished to express his thanks to the Fund for Aid and Co-operation for the ten trucks they had promised for the vaccination campaign.

Dr GJEBIN (Israel) said that Israel had remained free from smallpox for the past sixteen years, thanks to a continuous maintenance programme and the maintenance of an acceptable immunization level. A system had been introduced whereby one or two consultants with wide experience of the diagnosis of smallpox were ready for prompt clinical examination of a suspected case.

Israel was now considering postponing the primary vaccination to the first month of the second year of life to avoid the risk of complications and because there was a national basic smallpox immunity due to repeated vaccinations of different age-groups and generations.

Israel had recently succeeded in producing first batches of human specific immune globulin and also the first supplies of liquid smallpox vaccine specially needed for jet-injector administration. A field trial had confirmed the advantages of that method for mass inoculation.

Dr VENEDIKTOV (Union of Soviet Socialist Republics) stressed the importance attached to the consideration of smallpox eradication at the Twentieth World Health Assembly, in view of the fact that just a year previously the Assembly had resolved to intensify the programme so as to complete it within the ten years 1967-1976. It had been estimated that for the eradication of smallpox 180 million dollars would be needed, of which 30 per cent. would have to be found by the Organization and 70 per cent. by the countries carrying out eradication campaigns or from other sources, such as bilateral aid. The first of the ten years had begun and at present the Assembly had to consider the programme of work for the second year. There could be no delay, because of the need to work against time.

The Soviet Union, which had initiated smallpox eradication in the world, attached great importance to the programme and was deeply concerned that it should be completely successful. Therefore, as at the last Assembly, his delegation drew attention to the need (*a*) for a precise determination of objectives of the programme, and in particular for a clear definition of the term " eradication of smallpox ", applied to a given country, to a group of countries, and to the world; (*b*) for a careful study of the strategy of the global programme, and (*c*) for a close calculation of the essential resources, in vaccine, personnel and finance, needed for completing the campaign within ten years. It was necessary to know exactly what contribution would be forthcoming from WHO and other international organizations and from countries that were interested in eradicating smallpox from their territories or that were providing assistance to other countries.

The Soviet delegation considered that, unless the general plan of the eradication campaign was very carefully prepared, it would run into great difficulties that would perhaps compromise its success. Careful account had to be taken of all the lessons to be learnt from the setbacks experienced in the malaria eradication programme, so as to avoid repeating the same mistakes. His delegation noted with pleasure the increased activity deployed by the WHO Secretariat and in particular by its Smallpox Eradication unit. The report before the Committee was a good one, and the Secretariat had prepared methodically for leadership of the programme, although the specialists on his delegation would have certain comments to make.

On looking back on the fifty years' experience in smallpox eradication in the Soviet Union, it appeared, in retrospect, that the passing, in 1918—a very hard year for his country—of a law making smallpox vaccination compulsory had been vital for the success of the enterprise. His delegation wished to draw the attention of countries engaged in the fight against smallpox to the importance of introducing such a law.

At the Nineteenth World Health Assembly the Soviet delegation had announced that the Soviet Union was making a further gift to the Special Account for Smallpox Eradication of 75 million doses of dried smallpox vaccine conforming to international standards and having given proof of its effectiveness under many different conditions. A certain amount of vaccine had already been sent to various countries, with WHO's agreement, but a considerable quantity was still available. Unfortunately, the Organization

was still making insufficient use both of Soviet vaccine and of Soviet specialists, who had been, were, and would always be ready to take a most active part in all stages of planning, in determining strategy, in the conduct of the campaign and in assessment of the international programme. The smallpox reference centre in Moscow, whose Director, Professor Andžaparidze, was a member of his delegation, was prepared to establish contact with all interested organizations.

The Soviet Union would also continue its bilateral assistance to smallpox eradication. In that connexion, in 1967, 100 million doses of dried vaccine would be provided to India.

Finally, the Soviet delegation fully supported the resolution recommended by the Executive Board in its resolution EB39.R20, and considered that the amendment proposed by the delegation of Kuwait (see page 250) merited attention.

(For continuation of discussion, see section 3 below.)

3. Development of the Smallpox Eradication Programme (resumed)

Agenda, 2.5

Dr SCHINDL (Austria) associated himself with the remarks made by the delegate of Switzerland concerning the greater effectiveness and suitability for storage of freeze-dried vaccine, production of which was getting under way in Austria. It was hoped that its use would reduce the number of cases of encephalitis and other complications.

Participation in vaccination by the population in his country was unsatisfactory in spite of the fact that vaccination of infants and revaccination of schoolchildren was legally obligatory. In 1965 only 57.6 per cent. were covered by vaccination, and only 53.3 per cent. by revaccination among those liable.

That unsatisfactory situation resulted from a few annual cases of post-vaccinal encephalitis, which were used by the antivaccinationists as propaganda against the campaign. A symposium of experts on post-vaccinal encephalitis, with international participation, was planned to be held in Vienna in November 1967, to which WHO would be asked to delegate an expert.

He would again like to ask WHO to attempt to persuade all international airlines to provide the competent health authorities with their passenger lists immediately after the introduction of a quarantinable illness when requested to do so, and not several days afterwards.

Dr AL-AWADI (Kuwait) said that the report on the smallpox eradication programme would constitute an important basic document for any future discussion.

After a period of several years during which there had been no smallpox cases in Kuwait, forty-one cases had occurred in 1967—an occurrence which served to prove the great importance of constant vigilant surveillance. The outbreak had started on 16 March, with an adult female case diagnosed as a case of chickenpox. Unfortunately medical personnel when not in contact with smallpox sometimes tended to overlook it. The fact that there had been an epidemic of chickenpox and measles in the country at the same time had made diagnosis more difficult, and by the time the first case had been diagnosed there were several others. By 2 May 1967 there had been forty-one cases of the disease, which was of variola major type. Of those, twenty-eight were children and thirteen adults—six female and seven male. There had been seventeen deaths—three adults and fourteen children, of whom nine were below the age of one year. One-third of all cases had been from contact with the first case and one-third from other contacts also originally diagnosed as chickenpox cases. The remaining third were mainly bedouin who wandered unrestricted across the boundaries between Kuwait, Iraq, Syria and Saudi Arabia, and limitation of whose movements was one of the great difficulties.

Vaccination had been intensified in a short period, some people having been vaccinated twice or even three times. Some of the first vaccines used had failed to produce positive results and it had been necessary to obtain a second batch from the Netherlands and revaccinate. Intensive surveillance had then been carried out to discover those who had escaped vaccination. The bedouin in particular had attempted to avoid it, and strict measures had had to be taken: the police had visited them very early in the morning while they were still in bed, and had vaccinated them by force. The situation was now under control, no reports of any new cases having been received since 2 May.

In order to make more specific the draft resolution contained in resolution EB39.R20, his delegation proposed the addition of the following new operative paragraph 2:

2. RESOLVES:

(*a*) to urge the governments of the countries whose eradication programmes are progressing slowly to adopt prompt measures to eliminate any administrative difficulties that may be hampering their campaigns, and to give the highest possible priority to the provision of funds, personnel, and supplies needed to complete those campaigns as soon as possible;

(*b*) to recommend to the governments that special care is taken in the preparation of smallpox vaccine to ensure that it meets the purity and potency requirements established by WHO, and that in the endemic countries freeze-dried vaccine should be preferred;

(*c*) to urge the countries where migrant sections of their populations constitute a constant threat

[1] Transmitted to the Health Assembly in the Committee's first report and adopted as resolution WHA20.14.

of inter-state transmission of the disease, to initiate or intensify a strict surveillance programme of this group of the population;

(*d*) to recommend that until such time as smallpox is no longer a worldwide problem the countries where the disease has been eliminated try to establish maintenance programmes and epidemiological surveillance services.

The existing operative paragraphs 2 and 3 would then become 3 and 4.

The meeting rose at 11.50 a.m.

FIFTH MEETING

Tuesday, 16 May 1967, at 2.30 p.m.

Chairman: Dr A. H. THOMAS (Sierra Leone)

1. First Report of the Committee

At the invitation of the CHAIRMAN, Dr MAYUGA (Philippines), Rapporteur, read out the draft first report of the Committee.

Decision: The report was adopted (see page 528).

2. Development of the Smallpox Eradication Programme (continued)

Agenda, 2.5

Dr BADDOO (Ghana) congratulated the Director-General on the report on the smallpox eradication programme. A campaign aiming at the eradication of smallpox within five years had been launched in Ghana in February 1967, with the assistance of the United States of America. The campaign had started well but the problem of the health education of the public had arisen, and staff were now being trained for that work. Continued supplies of freeze-dried vaccine and equipment would be needed to ensure the successful completion of the programme, but the assistance offered by WHO and bilateral agencies was encouraging.

He had pleasure in supporting the draft resolution recommended by the Executive Board.

Dr ALAN (Turkey) said that it was regrettable that smallpox still existed, in spite of an existing proven preventive treatment. He was fully aware, however, of the problems facing the endemic areas.

There had been a slight outbreak of smallpox in Turkey in 1943 and afterwards there had been no cases until 1957, when a localized outbreak, which had been traced to an imported case, had occurred; since then there had been no further cases. Vaccination was compulsory, was systematically applied and had proved very effective. Even doctors who had qualified twenty years or more previously were no longer familiar with smallpox; they merely learned and knew how to carry out routine vaccination.

Although Turkey was not affected by the disease, his country supported the smallpox eradication programme and hoped that it would be more vigorously carried out. Samples of vaccine from the Institute of Public Health in Ankara had been sent to WHO for testing and, if it was acceptable, Turkey would offer 50 000 doses each year.

He supported the draft resolution recommended by the Executive Board in its resolution EB39.R20, with the additional paragraph proposed by the delegation of Kuwait at the previous meeting.

Dr FELKAI (Hungary) said that the result of the first phase of the smallpox eradication programme started by WHO in 1958 had been a satisfactory diminution in the number of declared cases. However, the present figures of 50 000 to 80 000 cases a year—with 20 000 to 25 000 deaths—showed the need for the eradication campaign which would in turn entail a need for a vast increase in the output of freeze-dried vaccine.

In Hungary, 400 000 revaccinations had been performed in Budapest after one case of smallpox had been notified; nearly one-third of those holding international vaccination certificates had been revaccinated successfully; five cases of encephalomyelitis had been notified. In order to prevent the importation of smallpox, there was a permanent health control at the airport of Budapest and regular health control of Danube shipping; health control on railways was brought into force only if there was immediate danger of importation of smallpox from a nearby country.

The Soviet Union had assisted in the development of a modern diagnostic laboratory by the loan of a specialist consultant; in case of an outbreak due to

importation, a prepared programme came into effect, specialists of the epidemiological service had been trained and a team of workers from the communicable disease hospital was always ready. It might be desirable for WHO to establish a team of specialists that could be made available to any country, normally free from smallpox, which had an outbreak due to an imported case. The vaccine used in Hungary over the last forty years, and tested more recently by one million vaccinations in the United Arab Republic and Poland, gave perfect protection and very little reaction. Should this vaccine, however, be required in another country, it might be desirable for a Hungarian team to assist in determining its suitability under local conditions.

He concluded by supporting the draft resolution recommended by the Executive Board.

Dr ZAARI (Morocco) said that the report of the Director-General gave a very comprehensive review of the problems of smallpox eradication, both in the attack and the maintenance phase, which would be of great interest to all countries. Morocco was at the stage of maintenance: the population was vaccinated every four years and there had been no case of smallpox since 1947. He wished to express his gratitude to UNICEF, which had supplied a machine for freeze-dried vaccine to the Pasteur Institute in Casablanca.

It appeared from the report that the major difficulties encountered in eradication campaigns were supply of vaccine and training of personnel. He believed that it would not be wise to increase unduly the number of centres producing vaccine, though it was desirable that at least one country in each region should have such a centre. With regard to training, it was very important that each country should ensure the integration of its trained personnel in the basic health service.

He was hopeful that the eradication campaign would succeed and he would support any action in favour of that campaign.

Dr SIDERIUS (Netherlands) said that worldwide smallpox eradication was a major public health issue. The success of the programme was mainly a matter of sufficient financial means and mobilization of technical resources and expert knowledge. The Director-General's report gave a sound basis for action; and the disappointing results of the programme in certain areas should be a stimulus to further research and to the mobilization of combined resources for the achievement of total eradication within five to ten years. With regard to the duration of the campaign, he referred again to the question asked by his delegation to the Nineteenth World Health Assembly, [1] namely whether the Secretariat could prepare comparative estimates of the approximate costs involved by short or long-term campaigns.

The report of the Director-General referred in general terms to the need for continuing vaccination in countries where smallpox had been under control for many years. He wondered whether the continuance of vaccination was really necessary if there were an adequate surveillance mechanism and competent personnel ready to deal with any localized outbreak. It might be that the risk and expense of repeated vaccinations outweighed their value. If that were so, supplies of vaccine from such countries might be made available to countries where the disease was endemic.

He fully supported the draft resolution recommended by the Executive Board and assured the Committee that his country would continue to provide technical assistance to the campaign and, if possible, would also supply freeze-dried vaccine.

Dr BUDŽAV (Mongolia) said that WHO had accomplished useful work in connexion with the smallpox eradication programme. His delegation was prepared to approve the proposed programme for smallpox eradication in the programme and budget estimates for 1968, while expressing the hope that the resources would be used to the best advantage.

Smallpox had been eradicated in Mongolia in 1940. Previously the disease had been widespread, affecting nearly the whole population, and with a high percentage of fatal cases. Smallpox had been eradicated by vaccinating the whole population, and for almost thirty years the country had been free from the disease. It was worth noting that eradication had been achieved at a time when the health services were not so well developed as at present. Great assistance had been received from the Soviet Union.

Experience in Mongolia showed that, with a sufficient effort on the part of the national health services and the help of other countries, smallpox could be eradicated, even in developing countries where the health services were not yet strong, provided the whole population was vaccinated.

Efforts should not be relaxed and the smallpox eradication programme should cover the whole world. It was unfortunate that morbidity from smallpox was still high in the South-East Asia Region. In his country revaccination was being carried out to increase the immunity of the population and measures were being taken to prevent the reintroduction of the disease into the country.

Dr ELOM NTOUZOO (Cameroon) said that the report of the Director-General was both comprehensive and encouraging. The manual on the principles and technical considerations of the eradication pro-

[1] *Off. Rec. Wld Hlth Org.*, **152**, 293.

gramme would be most useful, as would the seminars and fellowships for training personnel. He also welcomed the initiative of the World Food Programme; among other things, there were great difficulties in supplying adequate food to vaccinating teams in the bush.

One of the chief problems in Cameroon was the health education of the population to persuade them to accept vaccination, since it was not compulsory. Solutions to that and other problems were facilitated by close co-ordination and exchange of views with neighbouring countries, which therefore were a very important factor in the success of an eradication campaign.

Dr MERRILL (United States of America) said that the progress made in the eradication campaign was encouraging. He was glad to note the plans for expansion in 1968 and the stress laid in the report on the need for increased effort if the campaign was to be successful. As the programme expanded, WHO must of necessity continue to play a leading role, but it might be wise to consider the financial implications. At the Nineteenth World Health Assembly, the estimated cost of the programme for 1967 had been given as US $22 million, of which $6 600 000 would be international assistance; the estimated cost for 1968 was $31 million, of which $7 700 000 would be international assistance. Since the proposed budget of WHO for 1968 included only $2 800 000 for the eradication programme, almost $5 million of international funds would have to be found from other sources.

The United States of America was proud to help through its programmes of bilateral assistance, and noted with satisfaction that other countries were also making special contributions. But many more must join in this special effort if the funds were to meet requirements, as was emphasized in operative paragraph 2 of the draft resolution recommended by the Executive Board.

The report of the Director-General showed that the reported cases of smallpox in some countries had increased over the previous year. The lesson was clear: the programme now launched must continue without slackening until eradication was completed. He hoped that WHO would make a realistic assessment of its needs in the 1969 budget to ensure the continued impetus of the campaign.

He supported the draft resolution recommended by the Executive Board, and was prepared to accept the amendment to it proposed by the delegation of Kuwait, provided two minor alterations were made: in paragraph 2 (*b*), the word " preferred " at the end of the paragraph should be replaced by " used "; and in paragraph 2 (*d*), the words " try to " should be deleted.

Dr NICHOLSON (Guyana) said that one of the striking points in the very interesting report of the Director-General was that seventy-one cases of smallpox had occurred in 1966 in the United Kingdom of Great Britain and Northern Ireland—the home of Jenner who had evolved the technique of vaccination. This was a clear pointer to the need for continued vaccination of all populations until the danger of imported infection had been finally eradicated.

There had been no smallpox in Guyana since the turn of the century, which led to a certain complacency in the population; but all babies and young children were vaccinated at health centres and clinics. This was an appropriate moment to thank the Government of Venezuela for the vaccine which it supplied to Guyana.

He supported the draft resolution recommended by the Executive Board with the amendments of the delegations of Kuwait and of the United States of America.

Dr JOSHI (Nepal) said that the eradication programme initiated during the year in his country was meeting with serious transport difficulties owing to the terrain, and also difficulties in obtaining trained personnel. Attempts to protect the population by vaccination, which had now been made compulsory, often met with objections on religious grounds. The help of WHO and UNICEF was much appreciated, but financial assistance would be needed if the campaign was to succeed. It was possible that the shortage of personnel might be alleviated if those technicians already trained to carry out BCG vaccination could also vaccinate against smallpox; such a procedure would reduce the operating costs, but would take time to implement.

Dr HAFEZI (Iran) said that smallpox had been eradicated from Iran some time ago, partly owing to the improvement of the general health of the population but mainly by vaccination and revaccination. A programme of routine prevention would be maintained with vigilance measures and prompt quarantine for any imported case. The experience and technical knowledge gained in the control of smallpox would be willingly shared with any country requesting such assistance.

He supported the draft resolution recommended by the Executive Board with the proposed amendments.

Dr NABULSI (Jordan) said that smallpox had been eradicated from his country in 1957, but the geographical position created a special situation, since thousands of pilgrims passed through the country

every year. Consequently the mass vaccination of the entire population was repeated at intervals of three years (in addition to vaccination of all babies at three months). The liquid vaccine produced by Jordanian laboratories was of high quality, but the production of freeze-dried vaccine would soon be started. His country would offer three million doses of vaccine annually to any country needing it. He noted that WHO had set up a reserve of vaccine to meet urgent requests, but thought that the amount was too limited and should be increased.

He supported the draft resolution recommended by the Executive Board, as amended by the delegations of Kuwait and of the United States of America.

Dr HAQUE (Pakistan) said that WHO was to be congratulated upon its work throughout the world to eradicate smallpox. He had, however, heard some expressions of concern at the situation in South-East Asia and therefore wished to point out that in large countries, with a population of over fifty million and a low *per capita* income, there was a tendency for smallpox to persist. However, the ratio of cases to the number of population in such countries revealed a significant reduction in the incidence of the disease, not only in South-East Asia but also in other regions where smallpox was endemic.

Pakistan, whose borders extended for many thousand miles, was in a special position since East Pakistan, with a population of over one thousand per square mile, was in South-East Asia while most of West Pakistan, with a population of 200 to 300 per square mile, was in the Middle-East area. Following the initiation of a smallpox campaign in 1962, the number of cases of smallpox in East Pakistan had dropped—from 80 000 in 1958 to 43 in 1964.

In 1965 and 1966, however, there had been an increase in the number of cases, probably due to inadequate supervision. The smallpox eradication activities had therefore been integrated into the malaria eradication services, which provided good facilities for supervision, and malaria workers had been asked to vaccinate the people when they visited the small villages once a month to take blood slides. Even so, only 80 per cent. of the population had been covered, since not every villager had made himself available for vaccination. It had also been estimated that, in areas from which smallpox had supposedly been eradicated, 25 000 people out of one million had not been vaccinated. Total coverage, as well as adequate maintenance and supervision, were essential if the world was to rid itself of smallpox. It was also important—but difficult—to ensure co-ordination of the various services both at the provincial and at the federal level. Nevertheless, despite difficulties, the gap between the birth and vaccination rates was being bridged in Pakistan.

Freeze-dried vaccine was used in East Pakistan and liquid vaccine in West Pakistan. There had been virtually no change in the number of cases in recent years, probably owing to poor quality vaccine in some instances and to recrudescence of the disease. Another factor was the unauthorized movement of large numbers of people across Pakistan's extensive borders —a problem which it was difficult to know how to tackle. Vaccination area by area, which had been suggested, was not a practical proposition for Pakistan, where two million babies were born every year.

While the help Pakistan had received from WHO and UNICEF was much appreciated, the amount involved was very small. Countries with a high incidence of smallpox had a low *per capita* income and could not bridge the gap between the birth and vaccination rates without assistance. It had therefore been gratifying to hear that the United States of America had already helped certain countries in that connexion.

The best time for vaccination, in his opinion, was before the child was able to walk. Experiments which were being carried out in Pakistan had shown that the majority of babies vaccinated shortly after birth and again at one year gave a reaction in both instances. It was difficult to know, therefore, which gave the better protection: vaccination at three or four days after birth or vaccination after one year.

Among other points that had emerged from his country's experience of smallpox eradication was, first, that conditions at hospitals for infectious diseases, which were poor in most countries, should be improved; secondly, that in the endemic areas WHO should help to establish diagnostic laboratories; and, thirdly, that in a smallpox eradication programme, priority should be given to areas with a high density of population and to those where the disease was most prevalent.

The health authorities in Pakistan were to embark on a smallpox eradication programme—in East Pakistan at the end of 1967, and in West Pakistan in 1968.

Lastly, he informed the Committee that strict measures were applied in Pakistan to people leaving the country. A recent order provided for immediate revaccination at the port of exit if the health officer considered it necessary. To date, no case of smallpox had been exported from Pakistan, and out of a population of 103 million there was an incidence of 6000 cases of smallpox. Pakistan would continue to do its utmost to bring about total eradication.

Professor SENAULT (France) said that he would confine his comments, at that stage of the debate, to

certain points raised in the document before the Committee.

His delegation had been gratified to note that WHO headquarters was preparing a number of technical documents to help the Regional Offices to organize their smallpox eradication programmes, particularly since there was no guarantee that any country would not be exposed to the risk of reintroduction of the disease. Moreover, it was important to provide the younger generation of doctors with detailed information about smallpox since they knew little of the disease, particularly in Europe.

He supported the research programme as outlined in the report and, in particular, the statement that activities for the development of the most practical methods of laboratory diagnosis would be carried out in conjunction with the responsible WHO reference centres. Since many countries could not afford their own facilities for laboratory diagnosis, it would be extremely helpful if international organizations could provide them with information about methods that gave good results, were easy to apply, and economical.

Further to the comments made by the delegate of Pakistan, he considered that a major mass vaccination campaign should be carried out during the maintenance phase of smallpox eradication. He agreed that, as stated in the report, it was the newborn and the migrants that posed the problem.

In connexion with the vaccination of the newborn, he noted that in a number of countries the vaccination programme covered young mothers who, of course, transmitted certain antibodies to their children. Since no definite information was available about the length of potency of such antibodies, the Organization's experts should carry out studies to determine the duration of placental immunization.

Health education was obviously essential in all countries—even in those where smallpox had been eradicated—if reintroduction of the disease was to be prevented. One only had to recall the fear aroused by the epidemic that had occurred a few years earlier in France to realize the need for intensive development of health education.

Lastly, he expressed his delegation's support for the draft resolution recommended by the Executive Board.

Dr AL-HURAIBI (Yemen) said that the data on the incidence of smallpox in the report showed that there had been a considerable increase in the number of cases of the disease between 1964 and 1966, and also that many parts of the world were not exempt. Obviously, the programmes carried out had not been sufficiently effective and steps should be taken to prevent a serious problem arising. A smallpox eradication programme should be tailored to the conditions and needs of the country concerned, and, for that purpose, detailed studies should be made of each endemic area.

In his own country, smallpox occurred sporadically, mainly as a result of cases imported from neighbouring countries or from other parts of the world. Generally, the areas affected were in the eastern, western and northern parts of Yemen, which were considered to be continually at risk. With WHO assistance, a smallpox eradication programme had been initiated in those areas, using mobile teams. Although more than half a million people, mainly of school age, had been vaccinated, smallpox still constituted a major threat to the country.

The difficulties confronting countries in planning a smallpox eradication programme were primarily financial and administrative; for instance, lack of transport and equipment, and inadequate arrangements for surveillance, inter-country action and systematic reporting of detected cases.

In conclusion, he expressed support for the resolution recommended by the Executive Board with the amendment proposed by the delegation of Kuwait and, in particular, for paragraph 2 (*b*) of the Kuwaiti amendment regarding the quality of vaccine.

Dr HAMDI (Iraq) said that he was pleased to note that in 1967 twenty-four African countries were receiving assistance in their smallpox eradication programmes both from WHO and under bilateral arrangements. It was to be hoped that such assistance could be extended to other countries. Thanks were also due to UNICEF for its participation in the programmes.

Recalling that, during the plenary meeting, his delegation had requested WHO to assist the protectorates and sheikhdoms of South Arabia and to study their health problems, he said that the Iraqi Government was prepared to provide technical assistance, medical supplies and health personnel. WHO had in fact already provided those States with smallpox vaccine and had appointed a medical officer to assist them. Ways of rendering further assistance were under study.

The last smallpox epidemic in Iraq had occurred in the winter of 1956, when 2000 cases had been reported. Compulsory vaccination of all new-born infants had been introduced as well as a plan for mass vaccination of the population every four or five years. Since then, no case of smallpox had been detected. In 1961, the first organized mass vaccination had been carried out, covering about seventy per cent. of the population. In 1967, another campaign had been carried out with special emphasis on the newborn and on pre-school and primary-school children. In

certain rural areas and in some of the densely populated and urban regions, house-to-house vaccination had been started and was still in progress. It was hoped to cover about seventy to eighty per cent. of the population. Lymph and freeze-dried vaccines were being used, both of which were produced by the Serum and Vaccine Institute in Baghdad.

The Iraqi delegation would support the Executive Board's recommended resolution, with the amendment proposed by the delegation of Kuwait.

Dr DA SILVA (Portugal) said that significant progress had been made by his country in smallpox eradication. In European Portugal the disease was no longer a problem; nevertheless, the health authorities remained alert and vaccination of the population was still required.

While smallpox was virtually non-existent in Angola, as would be seen from the figures in Table 4 of the report, there were still a few cases in Mozambique, although not of sufficient number to give cause for concern. There were no reported cases in the statistics for Portuguese Guinea, given in Table 3. Mass vaccination campaigns were still being carried out in those areas, however, in order to secure the highest degree of immunity for the population. In accordance with the principles of WHO, that policy would be pursued in the interests of the worldwide eradication of smallpox. But it was clear that Portugal's present position in the Organization would not allow the co-ordination of smallpox eradication programmes as was desirable. For that, bilateral agreements were necessary, and also collaboration between neighbouring countries, without which the risk of the disease being reintroduced could not be lessened. Until the time that such action became possible again, however, his Government would not relax its efforts.

Dr BADAROU (Dahomey) said that Dahomey, where smallpox was endemic, was one of nineteen African countries participating in an eradication campaign under the aegis of the United States Agency for International Development and with the assistance of WHO. The results of the campaign started in April 1967 and conducted jointly with the measles programme had been encouraging. It would last for about two to three years but, in the interests of good planning, some thought should be given to the maintenance phase without further delay. If the execution of the campaign itself was difficult—because of the requirements in men and material and the need to vaccinate practically the whole population—the maintenance or the consolidation phase was even more so, particularly for developing countries such as Dahomey.

The difficulties were due, of course, to the inadequacy of the basic health services; ways of promoting their development should therefore be considered forthwith so that the maintenance phase of the smallpox—and of the malaria—eradication programmes would be facilitated. WHO, the various socio-economic organizations, and the developed countries could all be of invaluable help in any campaign for the eradication of endemo-epidemic diseases in the developing countries, and particularly in Africa. Every effort should be made to ensure that the smallpox eradication programme was crowned with success and to see that Africa was not, once again, labelled a " problem area ".

His delegation would vote for the resolution recommended by the Executive Board and for any other resolution emphasizing that the development of the basic health services was an essential component of the smallpox eradication programme.

Dr CRAWFORD (Canada) said that it was encouraging to note from Tables 3-7 of the report that out of a total of 1 342 million people in smallpox endemic and neighbouring countries, 805 million had been vaccinated. Somewhat paradoxically, however, those tables also gave rise to a certain feeling of discouragement, since they indicated that 537 million people had not been vaccinated and, it could perhaps be assumed, never had been. The figures, although incomplete, were particularly significant since they related to the areas of the world where smallpox control was a real problem. The Committee might therefore wish to request the Director-General to encourage the Regional Directors and the representatives of the various countries concerned to estimate, as nearly as possible, the number of people who had not been vaccinated. At the outset, of course, the estimates would be highly inaccurate but, as time went on and the reporting system improved, they would become more reliable. Such information would be of invaluable assistance in the assessment of progress made in the war against smallpox.

Dr CONOMBO (Upper Volta) said that the reason for the sharp rise in the number of reported cases of smallpox in Upper Volta in 1966, as reflected in Table 3 of the report, was that, owing to lack of resources, the vaccination campaign initiated in 1963 had had to be discontinued in 1965. For that reason, he considered that it was essential for a global reserve fund to be held at headquarters to help Member States, should they so request, in such eventualities.

Upper Volta had sufficient trained personnel to carry out vaccination but could not afford the necessary quantities of vaccine, the facilities to conserve it, or the transport. In 1966, therefore, there had been hardly any vaccinations. In 1967 a vaccination campaign covering the whole country would be carried out with the help

of the United States Agency for International Development which was to supply Upper Volta with vaccine and vehicles, and WHO, which was to arrange for petrol on favourable conditions. To both organizations he expressed his thanks.

Lastly, referring to paragraph 4 (*a*) of resolution WHA19.16 of the Nineteenth World Health Assembly, he was gratified to note the arrangements made to cover the cost of supplies and equipment needed to implement the smallpox eradication programme in individual countries.

Professor PENSO (Italy) recalled that he had already spoken on the importance of certain basic research on smallpox eradication at the morning meeting. In the report before the Committee a whole section was devoted to the research contemplated by WHO, but he noticed that basic research was not mentioned in the resolution recommended by the Executive Board. The Italian delegation therefore proposed that in the draft resolution recommended by the Executive Board in its resolution EB39.R20 there be inserted a new subparagraph 3 (*b*) which would read:

(*b*) to intensify the research programme; and

The present subparagraph (*b*) would then become (*c*).

Mr GOKANA (Congo, Brazzaville) said that after the smallpox epidemics of the years 1962-1965, the health authorities of his country had managed to reduce the incidence of the disease, and even to control it: only two cases of smallpox had occurred during 1966, and it was hoped that they were imported cases. Apart from mass campaigns undertaken by mobile teams, vaccinations were given in maternal and child health centres and in schools.

Since the country was small and underpopulated, and the roads reasonably good, smallpox should not present a problem. Nevertheless, in a neighbouring country, with which the Congo (Brazzaville) shared a frontier along which no sanitary control was possible, an epidemic had been raging for years, and this presented a continual threat.

His delegation would support the draft resolution recommended by the Executive Board, with the amendments proposed by the delegates of Kuwait and Italy.

Dr VÁZQUEZ (Ecuador) congratulated the Director-General on the excellent presentation of the report, from which it would be seen that there had been no case of smallpox in Ecuador since 1965. At present the maintenance phase was supervised by health centres in urban areas, supported by mobile teams operating in rural areas under a general immunization programme which included vaccination against whooping-cough and diphtheria, in addition to smallpox.

Under this programme, 80 per cent. of infants under one year and 20 per cent. of those belonging to other age-groups were vaccinated, and this prevented the introduction of the disease from neighbouring countries where it was still endemic. In order to ensure this coverage, considerable health education had been carried out so as to obtain the maximum co-operation and overcome the natural opposition in rural areas. Medical officers were constantly asked to report suspect cases, but it was necessary to improve laboratory methods of diagnosis, as smallpox had frequently been confused with chickenpox. In this respect, the co-operation of WHO and other international organizations was requested.

The delegation of Ecuador supported the resolution recommended by the Executive Board, with the amendments proposed by the delegations of Kuwait and the United States of America.

Dr BANA (Niger) said that extensive smallpox vaccination had been started in 1967 in Niger. Between 2 February and 30 April, mobile teams had visited some 805 villages, vaccinating 689 902 individuals. That had been done with the help of the United States Agency for International Development and of WHO, which had even furnished petrol and spare parts for cars. He would take the opportunity of expressing his country's thanks to those two organizations.

With reference to the amendment submitted by the delegation of Kuwait, paragraph 2 (*a*) of which urged the countries whose eradication programmes were progressing slowly "to give the highest possible priority to the provision of funds, personnel, and supplies needed to complete those campaigns", he would ask whether the authors of the draft had realized that the countries in question were in that position precisely because they lacked funds. The delegate of Upper Volta had just spoken of the shortages that existed in the developing countries. He would therefore ask the delegation of Kuwait to delete that part of its amendment.

Under paragraph 2 (*b*) of the same amendment, governments were asked to ensure that the smallpox vaccine met the purity and potency requirements established by WHO. He would like the phrase to be amended to ask the governments producing smallpox vaccine to ensure the quality of their product. The receiving countries were only too happy to accept what was offered to them.

He drew attention to the co-ordination between countries with common frontiers, a problem that had also been raised when malaria was discussed. In practice such co-ordination was often difficult, and had to go through official channels—a lengthy procedure. Moreover, political difficulties could often

hold up negotiations for months. For that reason, he wondered whether an international organization such as WHO could not study the practical aspects of obtaining such co-ordination. He realized the difficulties for WHO, but difficulties would probably always be encountered at national level, and without the co-ordination to which he had referred, no programme could be effective.

Lastly, with regard to research, he believed that too much importance was given to fundamental research, which was costly. Most delegations from the developing countries would, he thought, support him in suggesting that fundamental research should be left to the rich countries, which could communicate their results to WHO, while the poor countries concentrated on operational research. As a doctor, he regretted having to express such an opinion, but the situation in the developing countries was such that they must use their budgets to best advantage.

Dr BAHRI (Tunisia) said that for the last twenty-five years smallpox had not been a problem in his country, thanks to two factors.

First, smallpox vaccination had become a routine. All new-born infants were vaccinated in maternal and child health clinics and in rural centres; so were children entering primary and secondary school. In addition, one-fifth of the population was vaccinated every year. Only freeze-dried and glycerinated vaccine was used. The " take " rate for primary vaccinations was six to seven per cent. higher in the case of freeze-dried vaccine but it produced stronger general and local reactions. The vaccination of more than 1 200 000 inhabitants a year was carried out during a period of a month to forty-five days, usually during the cold season.

The second factor was that the vaccination of new-born babies had practically become a ritual. Moreover, vaccination was obligatory at birth, on school entry, and every five years. The Tunisian authorities believed that the efficiency of vaccination depended on routine character, periodical total coverage, and speed in execution.

He was in favour of the resolution recommended by the Executive Board, with the amendments proposed by the delegations of Kuwait, the United States of America, and Niger.

Mr ABRAR (Somalia) said that his country was free from smallpox, but the risk of reintroduction called for close vigilance, and vaccination teams periodically toured the borders with Ethiopia, Kenya and French Somaliland. The global eradication efforts were welcomed, and the programme was fully supported.

His delegation was in favour of the resolution recommended by the Executive Board, with the amendments proposed by the delegations of Kuwait and the United States of America.

Dr KONE (Ivory Coast) said that in his country the smallpox programme had been the first to be implemented on independence. The disease had been endemic throughout the country, and 4000 cases had been registered in 1960. At present, after six years of effort, the results were satisfactory: although three cases had been diagnosed in 1965, not one case had been discovered in 1966. The National Institute of Hygiene was responsible for the eradication of smallpox; it employed two separate groups of five specialized mobile teams which toured the entire country and never left a village until at least 80 per cent. of the population had been vaccinated. Their task was greatly facilitated by the collaboration of the administrative and political authorities in the localities visited and by the work of health education teams (the population understood the importance of vaccination and turned out *en masse* whenever the teams arrived). During the past six years the dry vaccine from Paris had given entire satisfaction. By 31 December 1966, 8 248 525 vaccinations had been given.

Since the beginning of 1967 the United States Agency for International Development had furnished freeze-dried vaccine; that assistance had been particularly appreciated, since it had permitted an eradication campaign in frontier districts, hitherto not covered. In the maintenance phase routine vaccinations were given in health centres and in the maternal and child health centres. Since 1961 vaccination had been obligatory: certificates had to be presented by children on entering school, and employers were responsible for the vaccination or revaccination of their employees. In addition a strict control ensured that international vaccination certificates were produced at airports and ports. Unfortunately frontier control was still difficult, but the results so far achieved, and the initiation of eradication campaigns in the frontier regions, promised success.

His delegation fully supported the resolution recommended by the Executive Board.

Dr HAQUE (Pakistan) said that he supported the Executive Board's recommended resolution, with the amendments proposed by the delegations of Kuwait and the United States of America.

The importance of maintenance had been stressed, and no eradication programme could succeed without it. He therefore suggested that in paragraph 2 (*d*) of the Kuwaiti draft amendment, after the word " eliminated ", there should be added the words " or where a smallpox eradication programme is proceeding ".

Professor SCORZELLI (Brazil) supported the draft resolution recommended by the Executive Board, with the amendments proposed by the Kuwaiti and United States delegations.

Dr PAYNE, Assistant Director-General, said that, with the Chairman's permission, he would comment on certain general aspects of the discussion and then ask Dr Henderson of the Smallpox Eradication unit to deal with the technical points that had been raised.

He wished to emphasize that, as far as the Secretariat was concerned, it had been a most valuable discussion, in the course of which a number of excellent suggestions had been made and important information given about the situation in the various countries. The Director-General would study the report of the discussion in great detail. It was clear that everyone present recognized the gravity and difficulty of the problems that had to be faced, but already sufficient information was available to show that a concentrated effort should lead to success.

One important point had been made by the delegate of the USSR, who had stressed the need to define clearly (1) what was meant by " eradication "; (2) the strategy that the Organization was adopting in order to achieve that objective; and (3) the resources that would be required in order to do so. The definition on which the Organization was working at the moment was the one laid down by the Expert Committee on Smallpox in its first report,[1] and was recorded in the minutes of the Executive Board at its thirty-ninth session. The strategy was being worked out in detail; a manual on smallpox eradication was being prepared and would be reviewed by a scientific group to meet in October 1967.

As would be clear to all delegations, international aid was the key to success in the present enterprise. Two governments—those of the USSR and the United States of America—had already given very considerable assistance to a number of countries. Other countries had offered aid in the form of vaccine and, to a limited extent, transport; and at the present meeting yet more countries had expressed their willingness to contribute. As had been emphasized by the United States delegation, however, the gap between what WHO could provide and the total international assistance believed to be necessary was still large. He would earnestly request the help of all countries that were in a position to give it.

The greatest need was for highly potent freeze-dried vaccine; too often where use had been made of glycerinated lymph (which might be perfectly potent when preserved under optimum conditions) the programmes had turned out to be failures. WHO was ready to provide testing facilities for countries embarking on the production of freeze-dried vaccine to ensure that it met the requirements laid down. Again, in connexion with eradication campaigns, the use of the jet injector gave a very great advantage, but it required a vaccine of optimum purity, without pathogenic bacteria, and preferably with hardly any bacteria at all. He urged the few laboratories in the world that were capable of producing vaccines of such a degree of purity to increase their production, so that the use of jet injectors could be extended.

It appeared from several of the statements made that one of the most difficult problems in smallpox eradication was to ensure adequate coverage of certain difficult groups (particularly pre-school children and migrant populations) and in densely populated areas—the more dense the population, the more complete must be the coverage, if transmission was to be stopped.

The co-ordination of programmes, both within countries and between countries, had been mentioned by many of the delegates. WHO was convening a number of regional meetings in 1967 and 1968, with that in view. But co-ordination also required accurate and prompt reporting and the exchange of information, particularly between contiguous countries. Through publication of reports regarding the occurrence of smallpox and the progress of the programme in different areas, WHO hoped to facilitate global and regional co-ordination of the programme.

The importance of bringing the basic health services into the programme from the beginning had been emphasized, and of course they would be essential in the maintenance phase. During the attack phase, however, smallpox teams would be needed in many areas and these should be constituted and trained in such a way that they could eventually be incorporated into the basic health services.

The importance of assessment, surveillance and maintenance had been repeatedly stressed; the report before the Committee set out some considerations in that respect. He would emphasize, however, that the mere enumeration of vaccinations performed was inadequate as a means of assessment, as the experience reported by certain delegations showed. Assessment procedures must, in fact, be very carefully designed.

As regards diagnosis of smallpox, the Organization was studying the most reliable methods to be used under different conditions and was considering the development of a network of national or regional centres where diagnostic facilities could be provided.

Another point, raised by several delegations, was the question of emergency aid. WHO was endeavouring to replenish and increase its stocks of vaccine

[1] *Wld Hlth Org. techn. Rep. Ser.*, 1964, **283**, 24.

for immediate dispatch in case of emergency, and was also purchasing a number of jet injectors for use in emergency vaccination programmes. As an illustration of what could be done, he stated that within thirty-six hours after a request for help had been received from a country in the Eastern Mediterranean Region, a medical officer with vaccine had arrived on the spot.

Regarding the long-term costs of the programme, it was not possible to provide a more detailed estimate than was given in the report until further information was received from the endemic countries, but WHO was actively accumulating that information.

In connexion with research, he indicated that it was not possible to draw a sharp distinction between " fundamental " and " applied " research, but there was a spectrum of research activities ranging from the fundamental to the wholly applied. Smallpox research would be directed to the solution of problems that had become apparent and urgent as a result of experience of the programme.

Dr HENDERSON, Smallpox Eradication, referred to the question of post-vaccinal complications and continued vaccination in non-endemic countries. The question was not a simple one. Post-vaccinal complications did occur, as all delegates knew; but how frequently they occurred was difficult to say without comprehensive studies. Different strains of vaccine were in use, and quite limited data were available on only a few of them. It was apparent, however, that with certain vaccine strains there were more complications than with others. Against the risk of complications must be set the risk of importation of disease. The problems of a country immediately adjacent to an endemic area were very different from those of a country far removed from such an area. The pattern of importation of cases was such that very frequently cases were not recognized until the third or fourth " generation "; in such cases a well-vaccinated population might serve to confine the spread of infection. There were also the question of the greater risk of primary vaccination among adults than among children, and other considerations relating to epidemic control. The risks were different for each of the non-endemic countries, but a better knowledge of the frequency of complications was essential.

A point had also been raised with respect to combined vaccination programmes. Studies had shown that BCG and smallpox vaccine could be administered simultaneously, both with safety and with efficacy. The same was true of smallpox and measles vaccines, and of smallpox and polio vaccines. Much of the cost of a vaccination programme was incurred in reaching the population—in providing the necessary personnel and transport. If more than one vaccine could be given at the same time, it would certainly seem to be of value.

Reference had been made to the desirability of annual revaccination. Several investigations, to which the delegate of Pakistan had referred, had recently been made during outbreaks in Asian countries; they indicated that incidence was highest in children, and that in 80 per cent. of the cases the person had never been vaccinated; in the remaining 20 per cent., most had not been vaccinated for three to five years. This, with other studies, had indicated that smallpox vaccine provided quite a long-term immunity. Rather than emphasizing annual or frequent vaccination, it should be recognized that the fundamental problems were: (1) the use of fully potent freeze-dried vaccine, (2) the vaccination of those who had never been vaccinated, and (3) vaccination in densely crowded areas. The age of vaccination had been alluded to by the delegate of Israel, who said that his country postponed vaccination until after the first year of life; as he had noted, this was a satisfactory procedure in a non-endemic country. However, in endemic countries, the problem of smallpox in children under the age of one was serious; a number of studies conducted in Singapore, Taiwan, India, and certain other areas, showed that vaccination from the time of birth was a safe and efficacious procedure, provided that vaccine of good potency was used.

A further point was the need for research. Despite the fact that smallpox vaccine was the oldest immunizing agent, much less was known about it than about many more recently developed vaccines. Comparatively few laboratories were working on the problem. Probably the most intensive and comprehensive studies were being carried out in the USSR, and appropriately the Moscow laboratory had been designated as the first of the WHO regional reference centres. Important studies were also being conducted in Italy, in the Netherlands, and in a few other countries. In 1967 particular attention would be directed towards the encouragement and development of additional studies in those and other laboratories. The amount of money devoted to research was not large, and in many instances the brunt of the cost would be borne by the government in question. WHO's task would be to co-ordinate, discuss and encourage research. In early 1968 a group would be convened to deal specifically with the development, co-ordination and assimilation of research activities.

He would add, in parenthesis, that a " reference strain " had been developed: that was not a standard strain of vaccine but a potency standard for testing purposes. Consideration must and would be given to the evaluation of vaccine strains in order to recommend the best possible strain or strains of vaccine virus.

Lastly, he noted the need for the development of better national and regional diagnostic centres, a need that had been stressed by many delegates. That was particularly important as the incidence of smallpox declined. Early in 1968 WHO intended to focus attention on that problem, and hoped to be able to investigate the different diagnostic methods which could be applied in those countries where virus laboratory services were limited, as well as in those where more sophisticated methods, such as electron microscopy and immuno-fluorescent techniques, were possible.

The meeting rose at 5.30 p.m.

SIXTH MEETING

Wednesday, 17 May 1967, at 9.30 a.m.

Chairman: Dr A. H. THOMAS (Sierra Leone)

1. Development of the Smallpox Eradication Programme (continued)

Agenda, 2.5

The CHAIRMAN said that as the discussion on agenda item 2.5, Development of the smallpox eradication programme, had been concluded the Committee had now to consider the draft resolution recommended for adoption by the Health Assembly in the Executive Board's resolution EB39.R20. He reminded them that there was an amendment proposed by the delegate of Kuwait and other amendments by the delegates of Niger, Pakistan and the United States of America. Those delegations had met informally and had agreed to submit the following single draft amendment, which would constitute a new operative paragraph 2:

2. RESOLVES:

(*a*) to urge the governments of the countries whose eradication programmes are progressing slowly to adopt prompt measures within their available resources to eliminate any administrative difficulties that may be hampering their campaigns, and to give the highest possible priority to the provision of funds, personnel, and supplies needed to complete those campaigns as soon as possible;

(*b*) to recommend to the governments which are producing smallpox vaccines that special care be taken in the preparation of smallpox vaccine to ensure that it meets the purity and potency requirements established by WHO, and that in the endemic countries freeze-dried vaccine should be used;

(*c*) to urge the countries where migrant sections of their populations constitute a constant threat of inter-state transmission of the disease, to initiate or intensify a strict surveillance programme of this group of the population;

(*d*) to recommend that until such time as smallpox is no longer a worldwide problem the countries where the disease has been eliminated or where an eradication programme is proceeding establish maintenance programmes and epidemiological surveillance services.

Operative paragraphs 2 and 3 of the draft resolution recommended by the Executive Board would become paragraphs 3 and 4 respectively.

There was also a proposal by the Italian delegation to add the following text as a new subparagraph (*b*) to operative paragraph 3 of the draft resolution recommended by the Executive Board:

(*b*) to intensify the research programme; and

Paragraph 3 (*b*) of the resolution recommended by the Executive Board would then become 3 (*c*).

Professor SENAULT (France) pointed out an ambiguity in the last sentence of the French text of the proposed new paragraph 2 (*b*). He suggested that the part which read " par l'OMS, et d'utiliser le vaccin lyophilisé dans les pays d'endémicité ", be amended to read " par l'OMS, et aux gouvernements des pays d'endémicité d'utiliser le vaccin lyophilisé ". The English text was correct as it stood.

Dr AL-AWADI (Kuwait) said he wished to thank his colleagues for their co-operation in formulating the draft amendment. He was in sympathy with the French delegation's desire to change the text of the French version of the draft amendment. He wished to take the opportunity to express his Government's gratitude for the prompt aid and assistance furnished by WHO and by neighbouring countries during the outbreak of smallpox in Kuwait in 1967.

Dr BERNARD, Assistant Director-General, Secretary, considered that the French delegation's amendment would improve the French text. The original English required no change as the matter was one of form and not of substance.

The CHAIRMAN said that in the absence of any objection to the amendment that had been proposed, he would assume that it was approved.

It was so agreed.

Decision: The amendment proposed by the delegations of Kuwait, Niger, Pakistan and the United States of America to the draft resolution recommended by the Executive Board in its resolution EB39.R20 was approved.

The SECRETARY, referring to the amendment proposed by the delegation of Italy, said he wished to draw attention to the fact that the proposed new subparagraph on the research programme would be numbered 4 (*b*), in view of the approval by the Committee of the amendment of the delegations of Kuwait, Niger, Pakistan and the United States of America.

The CHAIRMAN said that, as there were no further comments, he assumed that the Italian delegation's amendment met with the approval of the Committee.

Decision: The amendment proposed by the delegation of Italy to the draft resolution recommended by the Executive Board in its resolution EB39.R20 was approved.

The CHAIRMAN asked the Committee to consider the following draft resolution, which was the resolution recommended by the Executive Board in its resolution EB39.R20 for adoption by the Twentieth World Health Assembly, with the agreed amendments:

The Twentieth World Health Assembly,

Having considered the report of the Director-General on the smallpox eradication programme; and

Noting that smallpox continues to represent a serious world health problem notwithstanding the progress being made in the global eradication programme,

1. INVITES countries where the disease is still present to initiate or intensify their programmes leading to the eradication of smallpox as soon as possible;

2. RESOLVES:

(*a*) to urge the governments of the countries whose eradication programmes are progressing slowly to adopt prompt measures within their available resources to eliminate any administrative difficulties that may be hampering their campaigns, and to give the highest possible priority to the provision of funds, personnel and supplies needed to complete those campaigns as soon as possible;

(*b*) to recommend to the governments which are producing smallpox vaccines that special care be taken in the preparation of smallpox vaccine to ensure that it meets the purity and potency requirements established by WHO, and that in the endemic countries freeze-dried vaccine should be used;

(*c*) to urge the countries where migrant sections of their populations constitute a constant threat of inter-state transmission of the disease, to initiate or intensify a strict surveillance programme of this group of the population;

(*d*) to recommend that until such time as smallpox is no longer a worldwide problem the countries where the disease has been eliminated or where an eradication programme is proceeding establish maintenance programmes and epidemiological surveillance services;

3. REQUESTS Member States and multilateral and bilateral agencies to provide technical, financial and other support for programmes in endemic countries, particularly in the form of freeze-dried vaccine, transport, and equipment; and

4. REQUESTS the Director-General:

(*a*) to continue to elaborate and implement the detailed plan, including the co-ordination of all international, bilateral and national efforts, with the objective of achieving global smallpox eradication in a pre-determined time;

(*b*) to intensify the research programme; and

(*c*) to report further to the Executive Board and the World Health Assembly.

Decision: The draft resolution was approved.[1]