OCCASION

This publication has been made available to the public on the occasion of the 50th anniversary of the United Nations Industrial Development Organisation.

DISCLAIMER

FAIR USE POLICY

CONTACT

Please contact publications@unido.org for further information concerning UNIDO publications.

For more information about UNIDO, please visit us at www.unido.org

UNITED NATIONS INDUSTRIAL DEVELOPMENT ORGANIZATION
Vienna International Centre, P.O. Box 300, 1400 Vienna, Austria
Tel: (+43-1) 26026-0 · www.unido.org · unido@unido.org

17253-E

Distr.
LIMITED

ID/WG.478/11(SPEC.)
3 January 1989

ORIGINAL: ENGLISH

United Nations Industrial Development Organization

Global Preparatory Meeting for the
First Consultation on the Electronics Industry

Grenoble, France, 28 November - 1 December 1988

REPORT*

* This document has not been edited.

V.89-50004

CONTENTS

PREFACE

System of Consultations

1. The Second General Conference of the United Nations Industrial Development Organization (UNIDO), held at Lima, Peru, in March 1975, recommended that UNIDO should include among its activities a system of continuing consultations between developed and developing countries with the object of raising the developing countries' share in world industrial output through increased international co-operation. The General Assembly, at its seventh special session in September 1975, endorsed the recommendation and requested UNIDO to implement it under the guidance of the Industrial Development Board.

2. In May 1980, the Industrial Development Board decided to establish the System of Consultations on a permanent basis, and in May 1982 it adopted the rules of procedure (The System of Consultations, PI/84) according to which the System of Consultations was to operate, including its principles, objectives and characteristics, notably:

- The System of Consultations shall be an instrument through which the United Nations Industrial Development Organization (UNIDO) is to serve as a forum for developed and developing countries in their contacts and consultations directed towards the industrialization of developing countries;

- Consultations would also permit negotiations among interested parties at their request, at the same time as or after consultations;

- Participants of each member country should include officials of governments as well as representatives of industry, labour, consumer groups and others, as deemed appropriate by each government;

- Final reports of Consultations should include such conclusions and recommendations agreed upon by consensus among the participants; the report should also include other views expressed during the discussion.

3. Thirty five Consultations have been convened since 1977 covering agricultural machinery, building materials, capital goods, fertilizers, food processing, industrial financing, iron and steel, petrochemicals, pharmaceuticals, leather and leather products, training of industrial manpower, vegetable oils and fats, and wood and wood products.

4. Through consultation meetings, UNIDO has set up a forum for developed and developing countries dedicated to the industrialization of developing countries. This forum has served to identify obstacles to industrialization and has considered these obstacles from a policy, economic, financial, social and technical point of view. This forum has also been used to monitor trends in world industry, with the result that a number of action-oriented measures towards increasing the share of developing countries in world industrial production have been identified and in some cases implemented. These measures have included policy changes on the part of developed and developing countries, new forms of international industrial co-operation, new concepts for entry into specific industrial sectors; and in addition, technical assistance projects of an innovatory type have been identified and implemented by the relevant arms of the Secretariat (ID/B/341).

INTRODUCTION

5. The Industrial Development Board, at its second session in October 1986 decided to include the First Consultation on the Electronics Industry in the programme of consultation meetings for the biennium 1988 - 1989.

6. In accordance with the above-mentioned decision and the established work programme, the First Consultation on the Electronics Industry will be convened in 1989.

7. In preparation for the First Consultation, this Global Preparatory meeting was convened in Grenoble, France, from 28 November to 1 December 1988.

8. The purpose of the Global Preparatory Meeting was to advise the UNIDO Secretariat on the selection of the issues that might be considered at the First Consultation.

9. Since 1980 UNIDO has carried out several activities related to the promotion of electronics industries in developing countries. These activities have taken the form of expert group meetings and workshops on a regional or sub-regional level, as well as a number of technical assistance projects. Initial preparations for the Consultation thus started with a review of these activities so as to formulate a plan for further action. Based on this review, global studies on the electronics hardware and software industries were carried out in order to:

(a) Appraise the technological, economic and market trends and their implications on the industrial development of developing countries;

(b) Identify entry barriers for newcomers and propose appropriate strategies for coherent development.

(c) Determine the implications of the strategies of main actors and industrial policies of industrialized countries.

10. In addition to the global studies, the Secretariat carried out a number of country case studies on the situation and prospects for the electronics industries in some selected developing countries and the global diffusion of flexible automation technologies.

11. On the basis of the analysis of these studies, the UNIDO Secretariat proposed three issues to the Global Preparatory Meeting, namely:

a) Strategies for Integrated Development of the Electronics Industry;
b) Electronics Technologies in the Service of Development; and
c) Approaches to Software Development and Financing Problems.

I. AGREED CONCLUSIONS AND RECOMMENDATIONS

12. The meeting recognized the following:

1. Due to the wide-ranging effects of electronics on the social, cultural, economic and industrial situation of developing countries, it is inevitable for developing countries to accord this industry the priority it deserves in their national economic policies.

2. The electronics industry is diverse and complex and hence requires a viable selective and flexible approach in its development and improvement.

3. To establish possible entry routes and further development paths of this industry for different developing countries, it is necessary to consider in an articulated manner the market and various utilization and production activities. Thus, the market for telecommunications, industrial electronics, office automation equipment and consumer electronics has to be analyzed to determine the benefits of undertaking activities of maintenance, system integration and software development, assembly, manufacturing of equipment, production of components and microelectronic products.

4. The need to implement a selective and graded protection to the electronics industry in developing countries that will permit an internal competitive environment.

5. The need by governments to develop a coherent strategy that will establish priorities of production taking due consideration of local conditions, national objectives and international environment.

6. The inward or outward-looking development policies for the industry have to be conceived in the framework of an integrated programme that will enhance internal dynamics.

7. The integrated development of the industry should consider, inter alia, the following factors:

a) skills and employment;
b) articulation with respect to other economic sectors;
c) balance of payments;
d) linkage to the world industry;
e) training requirements for mastering use and development of the technologies;
f) research and development needs; and
g) financial requirements.

8) The importance of regional and international cooperation in trade, technology, training and dissemination of information in accordance with the changing trends of this industry.

9) Hardware and software should be considered together due to the increasing importance of the latter in the further development of the industry.

10) Cooperation between industrialized and developing countries as well as among developing countries should be perceived with a view to achieving an orderly development of the industry.

11) Automation in various degrees would become inevitable and therefore it was necessary for developing countries to take into account possibilities for automation in their overall development strategies.

12) The need for automation will first be felt at the level of individual firms whil- formulating their business strategies. However, it will be necessary to take into account the national industrial policies as well as macroeconomic and socio-economic objectives of the country and the international environment.

13) Optimizing the benefits of automation requires establishment of coherent linkages between educational programmes, training, employment, research and development and industry.

14) The need to devise continuous training programmes aimed at gainfully redeploying industrial labour that may be replaced by the automation process.

15) The benefits of automation could also be seen in the light of increased outputs which would result in a process of positive restructuring of the economy.

RECOMMENDATIONS

13. The meeting adopted the following recommendations:

1) Due to the diversity of situations of this industry in developing countries, such as size of internal market and level of national technological capabilities, each country should define its own concrete possible routes of entry and further paths of development matching the market priorities with utilization and production capabilities.

2) In promoting this industry, governments in developing countries should play an active role in creating the necessary environment for attaining adequate levels of competitivity.

3) Developing countries should have medium and long-term plans that include objectives and targets to be achieved, as well as types of products to be promoted and the policies and measures needed for the enhancement of the internal dynamics of this industry. Among the policies and measures, priorities should be given to: training, research and development, exports, imports, technological alternatives, investment and finance.

4) Developing countries should strive to develop expertise in developing application software products tailored to their respective conditions and needs.

5) Regional and international co-operation should be promoted in order to enhance production complementarities that will lead to a better use of resources at the national and regional levels, training programmes for mastering electronics technologies, dissemination of information, research and development, and technology transfer.

6) The introduction of suitable automation technologies in developing countries should be done on a selective basis according to local conditions in each country. In this connection priority for automation may be given to industries exposed to international competition as well as those industrial sectors where domestic supply lags behind potential demand.

7) In promoting automation, developing countries should develop coherent education and training programmes consistent with research and development needs and requirements of industry. Such programmes should also be designed to facilitate retraining of the affected industrial manpower.

8) UNIDO and other relevant international organizations should extend assistance in the implementation of the above recommendations in particular training, research and development, dissemination of information, regional studies especially for Africa and Latin America and promotion of regional and international co-operation.

9) The meeting recommended that the First Consultation on the Electronics Industry should consider the following issues:

a) Strategies for Integrated Development of the Electronics Industry including software.
b) Electronics Technologies in the Service of Industrial Development.

10) The meeting further recommended that, with respect to the first issue, namely, "Strategies for Integrated Development of the Electronics Industry including software", the following aspects, among others, should be taken into consideration:

- Integration of the electronics industry in the national economy (selectivity, policy re-orientation, balance of payments, etc);
- Market characteristics (telecommunications, industrial controls, informatics, consumer products, components);
- Indigenous production and technological capabilities (utilization, assembly, manufacture, etc);
- Policies and measures for promoting import-substitution and/or export-oriented development;
- Regional and interregional co-operation (production complementarities, information exchange etc.);
- International co-operation (transfer and enhancement of technology, research and development etc).

11) With regard to Issue 2 on "Electronics Technologies in the Service of Industrial Development", the meeting recommended that the following aspects be taken into consideration:

- selection of alternative technologies;
- socio-economic adjustment;
- training needs for the mastery of electronics technologies;
- repair and maintenance requirements.

II. ORGANIZATION OF THE MEETING

14. The meeting was attended by 72 participants from 21 developing countries, 3 industrialized countries and a representative of the United Nations International Trade Centre and the General Agreement on Trade and Tarriffs (GATT)1/.

1/ Annex I: List of Participants

15. The opening ceremony was addressed by the representative of the Government of France, Mr. Daniel Maitre - Chef de la Mission Internationale, Ministère de l'Industrie; the representative of the Prèfecture de l'Isère, Mr. Peres - Sous Prèfet Chef de Cabinet; representative of the City of Grenoble, Mr. Gascon - Premier Adjoint, and the Director of the System of Consultations, on behalf of the Director-General of UNIDO.

16. Following the opening ceremony, the meeting elected the following officers of the bureau:

Chairman:	Georges Pierron (France)
Rapporteur:	Behram H. Wadia (India)
Vice-Chairmen:	Ambeu Yenon (Côte d'Ivoire)
	Ricardo Zermeno-Gonzalez (Mexico).

17. The following agenda was adopted:

1. Opening of the meeting by the representative of the Government of France;
   Opening speech by the representative of UNIDO.
2. Election of officers (Chairman, Vice-Chairmen and Rapporteur)
   Adoption of the Agenda;
3. The Global Electronics Industry
4. Electronics as an export industry
5. Electronics as a domestic industry
6. Strategies for newcomer developing countries to enter the electronics industry
7. Approaches to Software Industry Development
8. Factory Automation Technologies: Impact on global industrial structure
9. Selection of issues for the Consultation
10. Discussion and adoption of the report

III. SUMMARY OF DISCUSSIONS

18. A number of participants referred to the problem of the diversity of situations in developing countries, which implied the need to define a method that takes into account the size of the markets and the objectives of the countries concerned.

19. One participant enquired about the importance of electronics in developing countries in relation to other economic sectors.

20. Two participants underlined the importance of a global approach to the development of the electronics industry, as well as great care in defining policies.

21. One participant stated that the introduction of neo-liberal policies had affected the industry's development and it was difficult to follow a solely export-oriented policy, therefore, both approaches should be considered.

22. Several participants stated that, because of the industry's strategic character, political will was necessary. Some participants considered that, due to its high-tech nature, it was necessary to adopt a long-term view of the industry because, in many cases, more than two decades would be needed to master it.

23. Some participants believed that it was still possible to enter the industry through assembling, while others considered that mastering software constituted the future. One participant considered that one of the most appropriate routes would be to specialize in assembling semi-conductors and to take advantage of international co-operation, however, he emphasized that this entry route had led to few openings for local industry.

14. A participant stressed that the special characteristic of the electronics industry was its development dynamism based on the market/consumption tandem and that it had a high profit potential. He considered that all countries should participate in the industry, while at the same time being aware of possible market saturation.

25. Another participant regretted the rivalry among developing countries to attract investors. He also expressed regret at the competition among industrialized countries.

26. Several participants recognized that the electronics industry had become an inescapable reality and that it formed part of the nature of current and future development era. They also recognized that there was no single strategy for entering the industry; it depended on the internal situation in each country or group of countries.

27. It was emphasized that the question of import substitution or of export should not mean losing sight of the structural nature of the industry, and that implied an integrated, balanced/articulated approach.

28. Some participants considered that, in order to achieve integrated development, it was necessary to take into account aspects such as employment, national technological capacity, and the electronic industry's contribution to the links among the various sectors of the economy, as well as the impact on introduction of new forms of such products in international markets. This implied that an integrated programme should not be based on a purely technological approach but should also take into account social, economic and financial aspects.

29. A number of participants emphasized that, within the framework of an integrated approach, it was important to choose sub-sectors and specific products, taking due account of the financial constraints facing the majority of countries.

30. Many participants acknowledged that in this case there was no close link between the opening of markets and competition. Therefore, advance opening of markets could affect the competitivity of local enterprises.

31. Several persons recognized the importance of the role to be played by the State in this connexion so as to ensure promotion of the electronics industry, not only for protection but also to support training, research and development, preferential procurement policies etc.

32. Many participants recognized the importance of international and regional co-operation, but within the context of an integrated approach to development of the industry.

33. Subcontracting of products and software was acknowledged to be a means of entering the industry, although it was also considered that assembly likewise constituted a possibility. Some participants believed that countries already present in the electronics industry should turn to industrial electronics so as to strengthen and reinforce their positions.

34. One participant considered that there were several ways of participating in the international market: establishment of a national industry for the national market, co-operation in developing local export enterprises, as well as co-operation in creating free zones with the aim of attracting foreign investment.

35. Many participants referred to the need to promote demand by creating a climate favourable to the consumption of electronic products (in schools, government offices, etc.).

36. Price structure and productivity were essential elements in creating a satisfactory level of competitivity in products.

37. All participants recognized the importance of training and expressed the hope that UNIDO would play an important role in this connexion.

38. After having considered the three agenda items proposed by the Secretariat, participants suggested combining items 1 and 3 (strategy for the electronics and software industry). The second item would be electronics in the service of industrial development, which would lay greater emphasis on the use of electronics. These two items would be submitted to the First Global Consultation on the Electronics Industry to be held at Valletta (Malta) in October 1989.

39. With regard to agenda item 1, participants expressed the hope that emphasis would be given inter alia to aspects such as integration of the electronics industry in the national economy, markets (telecommunications, general public, components, etc.), commercial strategies (import substitution and promotion of exports), promotion policies and international co-operation.

40. One participant wished to see emphasis laid on the importance of the technological constraints linked to the sector's development. Another participant referred to the constraints placed upon small countries.

41. A participant considered that import substitution strategies should not be dissociated from export promotion strategies.

42. In connexion with agenda item 2, it was proposed to take into account the socio-economic impact consequent upon the introduction and implementation of the electronics industry, to determine training requirements for the mastering of technologies, as well as requirements for maintenance and repair, and finally to choose alternative technologies.

43. One participan. underlined the problems specific to small countries and expressed the hope that they would not receive the same treatment as larger developing countries. All participants recognized that there was no universal model for entering the electronics industry and that each country had to draw up its own strategy in accordance with its needs and specificities.

Differences according to the size of markets were one of the variables to be taken into consideration.

44. One participant expressed the hope that emphasis would be laid on the active role to be played by the State in promoting the electronics industry: in addition to tariff protection problems, stress should be laid on the promotion of small and medium-sized enterprises because of their capacity for adaptation.

45. A participant stated that governments should be made aware of the importance of the electronics industry as an inescapable reality, as well as the restructuring it entailed.

46. Finally, participants expressed the hope that UNIDO would organize regional meetings on electronics, especially for Latin America and Africa.

List of Participants

Global Preparatory Meeting for the First Consultation on the Electronics Industry, Grenoble, France, 28 Nov. to 2 Dec. 1988

Barbados	Mr. Earlyn E. Shuffler General Manager Atlantis Submarine Ltd. Carlisle House P.O. Box 394 Bridgetown, Barbados
Brazil	Mr. Edson Fermann Technical Assistant FIESP Av. Paulista 750, 1. andar CEP-01310 Brazil
China	Mr. Wei Dianyuan Deputy Division Chief Department of International Co-operation Ministry of Machinery and Electronics Industries Sanlihe Beijing, China
Côte d'Ivoire	M. M. Ambeu Yenon Directeur formation et information Sécretariat général à l'informatique B.P. V22 Abidjan, Côte d'Ivoire
Cuba	Mr. A. Orta Rodriguez Jefe Departmento Desarrollo de instituto sistemas automatizados y tecnicas computación INSAC c/o UNDP Apt. Postal 4138 La Havana, Cuba
Ethiopia	Mr. Bekure Desta Ayalew Electrical Maintenance Engineer National Metal Works Corporation c/o UNDP P.O. Box 5580 Addis Ababa, Ethiopia

France

M. Salvatore Amodeo
Formateur
GIFOP
15, rue des Frères Lumière
B.P. 1227
68054 Mulhouse

Mme. Colette Aubry-Salmon
Direction relations internationales
Fédération des industries électriques et électroniques
11 rue Hamelin
75783 Paris Cédex 16, France

M. Pierre Avril
Chef du Bureau de la coopération bilatérale
France TELECOM
Périsud 7 Boulevard Romain Rolland
92123 Montrouge Cédex

M. Robert Blanc
Comité d'expansion économique de l'Isère
14 rue Dominique Villars
38000 Grenoble

Mlle Christine Brochet
Direction des Nations Unies et des organisations internationales
Ministère des Affaires Etrangères
37 Quai d'Orsay
Paris

M. Robert G. Cahu
Ingénieur conseil, Système d'information
18 rue de la Baume
38180 Seyssins

M. Gilbert Challeil
Industrial and technical cooperation
BULL
7 Ave. du Val de Fontenay
94133 Fontenay s/Bois

M. Bernard Chaume
Service commercial
CGEE ALSTHOM
13 rue Antonin Reynaud
92309 Levallois-Perret Cédex

M. Jean-Claude Corniou
Délégué général adjoint (Syntec informatique)
3 rue Léon Bonnat
75016 Paris

M. Gabriel Coron
Directeur
Fédération des industries électriques et
électroniques (F.I.E.E.)
11 rue Hamelin
75783 Paris Cédex 16

Mme. Arlette Demay
Assistante de Sessions
Agence pour la coopération technique, industrielle et
économique (ACTIM)
64 rue Pierre Charron
75008 Paris

Mme Laure de Mondragon
Chef de service technologies de l'information/CFCE
Centre francais du commerce extérieur (CFCE)
10 Avenue d'Iéna
75116 Paris

M. Brice Dusuzeau
Direction de la cooperation DCSTD
Ministère des Affaires Etrangères
34 Rue La Perouse
75016 Paris

M. Henri Evanno
Directeur commercial
Schlumberger Instruments
5, rue Daguerre
42000 St. Etiénne

M. Jacqmin
Responsable de transfert de technologie
LCC Thomson France
50, rue Jean Pièrre Timbaud
B.P. 13
92400 Courbevoie Cédex

M. P. Judet
Institut de recherche économique et de
planification (IREP)
B.P. 47
F-38040 Grenoble Cédex, France

M. Jean Pierre Le Calvé
Directeur du marketing
CROUZET S.A.
25, rue Jules Vedrènes
26027 Valence Cédex

M. Daniel Maitre
Chef de la Mission Internationale
Service des Industries de Communication et de Services
Ministère de l'Industrie
30-32 Rue Guersant
75017 Paris Cédex 17

M. Moncef Mlouka
Directeur de recherches
INRIA
route des lucioles, Sophia Antipolis
06560 Valbonne, France

M. Georges Pierron
Secrétaire general
Centre d'Etudes supérieures en électricité,
électronique et informatique
58 rue de Lisbonne
75008 Paris

M. Pouyet
Président
Université des sciences sociales de Grenoble
B.P. 47
38040 Grenoble Cédex

M. Stéphane Prazuck
Conseiller en développement de CITEC - CEHESS
CEHESS Technologies
4 bis, rue d'Antony
- Silic 164
94533 Rungis Cédex

CITEC
8a, rue J. Jauris
92130 Issy-les-Moulineaux

Mme Catherine Santini
Chef de Service
Agence pour la cocpération technique, industrielle et
économique (ACTIM)
66 rue Pierre Charron
75008 Paris

M. Pierre Schmeitzky
Directeur Export
CIFOP
15 rue des Frères Lumière
B.P. 1227
68054 Mulhouse Cédex

M. Remi Turcat
T.R.T
88 rue Brillat-Savarin
75013 Paris

M. Jacques Vaccari
Délégué général
Union des industrie métalliques et électriques
de l'Isère
49 Chemin du Vieux Chêne
B.P. 79
38240 Meylan Cédex

M. Michel Vigezzi
Direction UFR Faculté des sciences économiques
Université II Grenoble
B.P. 47
38040 Grenoble Cédex

M. Pedro Zoydo Crespo
Chef de projet, Groupe de coopération international
TELEMECANIQUE ELECTRIQUE
7 rue Henri Becquerel
B.P. 323
92508 Rueil Malmaison Cédex

Germany Fed.Rep.

Dr. Paul-Albert Ruhr
Vice Managing Director
German Electric and Electronic Manufacturers'
Association (ZVEI)
P.O. Box 70 12 61
D-6000 Frankfurt a.M. 70, FRG

Guatemala

Mr. Enrique Ruiz
Director
School of Electrical Engineering
University of San Carolos
Ciudad universitaria zona 12
Guatemala City, Guatemala

India

Mr. Bharat B. Bhatia
Development Officer for Electronic Industry
Ministry of Industry - DGTD
New Delhi 110011, India

Mr. Muralidhar Gaddam
Scientific Officer/Engineer
Nuclear Power Corporation of India Ltd.
Barc Complex
Trombay, Bombay 400085, India

Mr. Basrur Vivekanandrao
Senior Manager (Production)
Bharat Heavy Electricals Ltd.
Hyderabad 500 032, India

Dr. Behram H. Wadia
President, Behram Wadia and Associates
77 Koregaon PK
Poona 411001, India

Indonesia

Mr. Yoni Cahyono
Agency for the Assessment and Application of Technology (BPPT)
Directorate for the Assessment of Industrial Process Technology
Jl. Mh. Thamrin No. 8
Jakarta 10340, Indonesia

Mr. Risaldi Kasri
Representative of Indonesian Investment Board
UNIDO Investment Promotion Service
118 rue de Vaugirard
75006 Paris, France

Mr. Slamet Sudarto
Team Project for the Mineral Resources Development
Agency for the Assessment and Application of Technology
BPPT
Mh. Thamrin No. 8
Jakarta 10340, Indonesia

Mr. Sardjono Sudjono
Head of Industrial Production Development Division
Directorate for Electrical Equipment and Electronic Industry
Jl. Gatot Subroto Kav. 52 - 53
Jakarta, Indonesia

Italy

Ms. Anna Covino
I.C.E.P.S.
Via Cola di Rienzo 11
Roma, Italy

Kenya

Mr. G.S. Oyuga
Research Officer, Engineering Division
KIRDI
P.O. Box 30650
Nairobi, Kenya
Telegrams: REDEV Nairobi

Malaysia	Ms. Mardziah Abd. Aziz Director Electric and Electronics Industries Malaysian Industrial Development Authority P.O. Box 10618 50720 Kuala Lumpur, Malaysia
	Mr. Swee Seang Goh Senior Training and Investigation Officer National Productivity Centre P.O. Box 64 Jalan Sultan 46904 Petaling Jaya, Malaysia
Malta	Mr. Francis A. Mifsud Assistant Head Technical Division Malta Development Corporation House of Catalunya M'Xetto Road Valetta, Malta
Mauritius	Mr. Chandrakumar Seebah Representative of Mauritius UNIDO Investment Promotion Service 118 rue de Vaugirard 75006 Paris, France
Mexico	Mr. Ricardo Zermeño-González Director for Electronic Industry Secretaría de Comercio y Fomento Industrial Apartado Postal 20-370 CPO 1000 Mexico D.F., Mexico
Morocco	M. Bousselham Hilia Chef de Division de l'industrie électrique et électronique Ministère du Commerce et de l'Industrie Rabat, Morocco
Nigeria	Amos A. Fashina Chief Lecturer Electrical Engineering Department Yaba College of Technology c/o UNDP P.O. Box 2075 Lagos, Nigeria

Philippines	Mr. Bienvenido P. Catahan Chief Investments Specialist, Electronics Dept. Board of Investments 385 Sen Gil J. Puyat Avenue Makati, Metro Manila, Philippines
	Mr. Noel Q. Macaraig Chief Design Engineer/R+D Supervisor Computer Engineering Corporation 3F Seddco I. Bldg. Cor. Rada and Legaspi Sts. Legaspi Village Makati, Metro Manila, Philippines
	Mr. Quintin A. Palileo Administrator, Semiconductor Electronics Industry Foundation Inc. Seifi - 3rd Floor, Electra House 115 - 117 Esteban Street Legaspi Village Makati, Metro Manila, Philippines
	Mr. Rumel C. Panaligan Process Engineer Integrated Microelectronics Inc. Km 22 South Express Way East Service Rd. Cypang Muntinlupa, Metro Manila, Philippines
	Mr. Joselito V. Tanseco Production Manager APA Electro Industrial Systems #38 Sct. Borromeo St. Diliman, Quezon City Metro Manila, Philippines
Senegal	M. Alioune Sarr Ingénieur travaux informatiques/Chef de projet SONACOS B.P. 3750 Dakar, Senegal
Thailand	Mr. Katiya Greigarn Technical Manager VIPTEL Co. Ltd. 140 Wireless Road Kian Gwan Bldg. (5th Floor) Bangkok 10500, Thailand

Mr. Prasert Khemthong
Electrical Engineer
Siamkraft Industry Co. Ltd.
19 Saeng-Xuto Road
Tapha, Banpong
Rajburi 70110, Thailand

Mr. Visanu Thammetta
Engineering Manager
Elinthai Ltd.
4269 Sukumvit
Bangkok, Thailand

Tunisia

Mr. Mohamed Chaouch
Directeur, Industries lourdes
Ministère de l'Industrie et du Commerce
1035 Tunis, Tunisia

Mr. Mohamed Salah Chiboub
Ingénieur
Agence de promotion de l'Industrie (API)
c/o UNDP
P.O. Box 863
1035 Tunis, Tunisia

USSR

Dr. Stanislav Cheremnuh
Head of Personal Computer Laboratory
Central econ-math inst.
Krasickov Street 32
117418 Moscow, USSR

Venezuela

Mr. Francisco Vivas
Chief, Electronics Dept.
Ministerio de fomento
Caracas 1062-A, Venezuela

Yugoslavia

Mr. Slavoljub Jovanovic
Menaging Director
Ei Semiconductors
Bul. Veljka Vlahovica 80-82
Yu-18000 Nis, Yugoslavia

Consultants:	M. Seifeddine M. Bennaceur 17, rue Paul Bert F-75011 Paris, France
	M. Jean Chaponnière Institut de recherche économique et de planification (IREP) B.P. 47 F-38040 Grenoble Cédex, France
	M. Marc Humbert c/o GERDIC 7, place Hoche F-35000 Rennes, France
	M. R. Tiberghien Institut de recherche économique et de planification (IREP) B.P. 47 F-38040 Grenoble Cédex, France
UNCTAD/GATT	Mr. Nikolas Semin Senior Market Development Officer International Trade Centre UNCTAD/GATT 54-56 rue de Montbrillant CH-1202 Geneva 10, Switzerland

Annex II

LIST OF DOCUMENTS

Title	Number	
Software Industry: Development Approach	ID/WG.478/1(SPEC)	E
Global Study on World Electronics	ID/WG.478/2(SPEC)	E/F/S
The Electronics Industry in the ASEAN countries Summary and Principal Conclusions	ID/WG.478/3(SPEC)	E/F/S
The Electronics Industry in the ASEAN countries Indonesia	ID/WG.478/4(SPEC)	E/F/S
The Electronics Industry in the ASEAN countries Philippines	ID/WG.478/5(SPEC)	E/F/S
The Electronics Industry in the ASEAN countries Malaysia	ID/WG.478/6(SPEC)	E/F/S
The Electronics Industry in the ASEAN countries Singapore	ID/WG.478/7(SPEC)	E/F/S
The Electronics Industry in the ASEAN countries Thailand	ID/WG.478/8(SPEC)	E/F/S
Discussion Paper: Possible Issues for the First Consultation on the Electronics Industry	ID/WG.478/9(SPEC)	E/F/S
The Electronics Industry in Tanzania	ID/WG.478/10(SPEC)	E