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CONTACT

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**UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION**

Joint UNIDO/UNESCO/IAS* Workshop
on the Use of Personal Computers in
On-line Access to Technological Data Bases

Moscow, USSR, 14-25 May 1990

REPORT**

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*   Institute for Automated Systems
**   This document has not been edited.

CONTENTS

1. RECOMMENDATIONS

1.1.   Due to difficulties caused by lack of appropriate data communication protocols, Member States may take appropriate measures to establish physical data communication networks to enable them to connect with external information sources which include electronic mail, teleconferencing, databases, etc. Ideally telecommunications networks should conform to international standards, X.25, X.75, satellite protocols etc. The recommended procedure should be a joint effort between Member States in co-operation with UNIDO, ITU and other specialized agencies to establish Packet Switching Network (PSN) facilities in order to access and exchange industrial and technological data bases.

1.2.   UNIDO should undertake a study to identify available information resources and compile a directory of public and commercial data bases and CD-ROM data bases which would satisfy the needs of end-users in developing countries covering the areas of industry, science, technology, business, economics, law and other fields of activities of UNIDO. This information should be periodically updated and disseminated through newsletters, bulletins, etc.

1.3.   The national and regional information centers should collect, process and compile pertinent industrial information, as identified by them, for imputing into centralized data bases and for formal exchange through data networks. The type, format and classification of data should conform to standards specified by UNIDO.

1.4.   UNIDO should also advice on standards for functioning of information centers with respect to personal computers, modems, hardware, operating systems, software etc.

1.5.   A programme should be developed by UNIDO/Member States to facilitate regular exchange of information relating to information technologies among international/regional and national institutions/centers through electronic mail, newsletters, bulletins, publications and other modes.

1.6.   UNIDO should implement high priority technical assistance projects aimed at strengthening national and regional information centers in order to ensure their proper functioning. These institutions should be equipped with the requisite facilities to enable access to on-line data bases, and have means to satisfy the information needs of the interested groups/end-users.

1.7.   UNIDO should provide advisory/technical services to information centers in establishing communication networks and data bases.

1.8.   UNIDO should continue to negotiate with commercial as well as public domain data base vendors, software suppliers and CD-ROM producers in order to provide special terms and conditions for INTIB network participants in

(a)   on-line access and rates;
(b)   rights to load locally, allow remote access etc.;
(c)   brokering with respect to country's specific information.

1.9.   UNIDO in co-operation with UNESCO, IAS and other specialized institutes   should organize special workshops and courses, preferably in developing countries, to train decision-makers and end-users in the methodology and operation of teleinformatics such as electronic mail, teleconferencing and modern information technologies. Training manuals should be compiled on the basis of lectures/demonstrations for the use of Member States by UNIDO and other co-operating agencies. To this end, the training programme of present workshop, organized under the auspices of UNIDO/UNESCO/IAS should form the basis of training in Member States and UNIDO should develop a training model in the area of teleinformatics for the developing countries.   The training programme should be periodically reviewed and updated to cover latest developments in software/hardware and information technologies.

1.10.   UNIDO should continue to convene regular meetings and organize workshops in the area of industrial information for national and regional information centers to exchange experiences.

2.   INTRODUCTION

Background Information

2.1 Modern society is growing in a more complex way and its components need more and more information to function. Business, government, research and education   all need to know more to fulfill their purposes in an environment that is continuously being reshaped by new forces. The business environment itself is not just more complex, but also more competitive. Newer and more specific markets, the government presence, and competition at home and abroad have all increased the importance of information fueled activities like planning and marketing.

2.2 No organization contains enough knowledge to make decisions in the face of all these forces. The question arises if it is practical to develop expertise to meet these needs, which are continuously changing. Organizations of all sizes face an ever-growing information shortage.

2.3 This phenomenon forced policy makers at the national level to reconsider existing information policies, usually restricted to scientific information and to expand the scope of such policies to cover the whole-spectrum of information activities.

2.4 The rapid development of the knowledge-based industry, where information, combined with new technology, such as electronics, computers and telecommunications, constitutes an essential component, creates new requirements, and substantially expands the information market. Increasing competition for domestic and foreign markets, the globalization of markets, and the pressure to develop new or improved products and services for increasingly sophisticated users, have greatly stimulated the demand for information. In order to meet those demands UNIDO has developed a computerized system for technology and industrial information. UNIDO's Industrial and Technological Information Bank (INTIB) makes available its information files to INTIB network members including more than sixty agencies in the developing countries. Practical operation of the network system has proved fruitful in on-line access to remote data bases and use of personal computers in technology and industrial services.

2.5 Now it is universally recognized that an increase in the use of technological and industrial information in INTIB and UNIDO's outside sources for industrial development of the developing countries is possible only if these countries can overcome the lack of trained manpower to maintain effectively microcomputer systems as well as to operate telecommunications networks. One of the most significant needs identified by INTIB in recent time is for training and education in selected industrial information centers in the establishment of a basic telecommunications configuration. This would include concepts of data communications, Public Packet Switching Data Networks, telecommunications software utilization, and general capabilities and services of the various network providers.

2.6 At the latest count, there were over 3000 data bases available for on-line searching throughout the world. Information specialists who have a personal computer, for example, would like to access data bases in their day to day work. The data bases are complex and the commands necessary to get at the information are difficult to use. Information specialists who have the inclination to enter too deeply into the "information world" through on-line access to data bases lack training in translating clients' information needs into the commands necessary to retrieve the information needed from a range of databases.

3. ORGANIZATION

The workshop was jointly organized by the United Nations Industrial Development Organization, United Nations Educational, Scientific and Cultural Organization (UNESCO) and the Institute for Automated Systems (IAS), Moscow. The workshop was attended by 15 participants from 13 countries, one regional organization, one UNIDO consultant as well as two representatives from UNIDO. Annex I contains the programme of the workshop. Annex II contains the list of participants and lecturers/resource persons.

4. OPENING SESSION

4.1 At the beginning of the opening session, Prof. O.L. Smirnov, Director of IAS, welcomed the participants and expressed his Centre's appreciation for the efforts of UNIDO and UNESCO to organize an international workshop in IAS for the first time. He reviewed the composition and activities of IAS, which now includes the CMEA countries and invited other countries to join. IAS has established close relations with many other UN Organizations and is now closely collaborating with UNIDO and UNESCO as a training centre on informatics. He wished the Workshop success and welcomed any requests from the participants to inspect the Centre or to become better acquainted with its activities.

4.2 Mr. B.A. Vinogradov, Representative of USSR Commission on UNESCO and USSR also welcomed the participants. He noted that informatics services are a main component of UNESCO activities in the scientific-technological fields. He emphasized that development of UNESCO services depends on national support and the ability to use information. He thanked IAS for the excellent arrangements and hospitality that would no doubt contribute to the success of the workshop.

4.3 The Representative of Industrial and Technological Information Section of UNIDO welcomed the participants and conveyed to them the greetings and best wishes of the Director-General of UNIDO.

4.4 It was noted that in a recent statement the Director-General of UNIDO pointed out that "one of the causes of economic underperformance in many developing countries has been the failure to respond to the growing importance of industrial and technological information. Ignorance of the sources and value of information or the absence of a strong information base lies at the heart of failure in many developing countries. No nation is self-sufficient in information; international networking offers a way of overcoming that deficiency in a simple and effective manner." The main purpose of this Workshop was to provide the participants with insight into new information technologies, on-line operations and the use of networks. The representative thanked the Soviet host organization - IAS - for the excellent facilities and for their efforts to which they went in organizing this Workshop.

Election of Officers

4.5 The workshop was invited to elect a chairman and rapporteur. The workshop unanimously elected:

- Chairman: Mr. Shang Jianping, Deputy Director, China International Economic Information Centre (CIEIC), Beijing, P.R. China

- Rapporteur: Mr. Abdus Sattar, Director-General,
  Pakistan Computer Bureau, Islamabad, Pakistan

5.   OBJECTIVES OF THE WORKSHOP

5.1 The objectives of the workshop were as follows:

- To train information specialists from developing
  countries in the use of personal computers,
  telecommunications hardware and software for accessing
  remote data bases, electronic mail and teleconferencing
  systems; and

- To stimulate the workshop participants to develop
  computer networks in their own countries.

5.2 The main topics covered by the workshop were:

Fundamentals of teleinformatics;

Computer networks and telecommunications equipment;

Use of computer graphics and PC wordprocessing possibilities
for on-line access to data bases;

On-line access to selected data bases around the world;

On-line access to economic information data bases of the USSR;

On-line access to UNESCO mainframe data bases;

Financial implications of on-line access versus other
information technologies;

Demonstration on access to UNIDO/INTIB data bases;

Mailbox and teleconferencing systems;

Intermediary systems and other computer-aided utilities;

Operations research and cost-effectiveness analysis of on-line
information systems;

Micro CDS/ISIS in information technology systems; and

Compact disks in information technology.

5.3 A representative of UNIDO presented the services offered by
UNIDO in general, and by INTIB in particular, in the field of
industrial and technological information. She emphasized the need
to strengthen industrial and technological information services of
national and regional information centers in order to meet the

requirements of developing countries in the area of modern information technologies.

6. WORKING SESSIONS

Theoretical Presentations

6.1 The main items on the agenda were lectures on fundamentals of teleinformatics, covering technical review: hardware, software, data base technology, computer networks, telecommunications protocols and standards; applications areas: teleconferencing; electronic mail; data retrieval systems; and modern training techniques: computer-aided training systems.

6.2 Day-to-day evaluation of the workshop was given by the participants as a feed back.

Demonstrations and training sessions:

6.3 Demonstrations/Training were made on:

o   Teleconferencing System;

o   Computer-Aided Training Systems;

o   General Electric PC Mail Box and Business Talk Systems;

o   Access to selected data bases (DIALOG, ORBIT, VINITI, CINTI, IAS, CMEA and UNIDO) all over the world;

o   Access to UNIDO's Industrial Development Abstracts (IDA) data base and UNITC, UNICC and UNIENET networks;

o   Access to ACADEMNET network;

o   Use of Personal Computers in Information Retrieval;

o   Micro-computer version of UNIDO/INTIB Data Bases: Technology Suppliers Data Base (Offers of Technology, Joint Venture Opportunities and Requests of Technology), Industrial Development Abstracts (IDA), Industrial Development Domestic Abstracts (IDAA), Automated Directory System, Industrial Inquiry Data Base, INTIB National Focal Points/Nodes Data Base (NODE) and the National Industrial Statistics Programme (NISP);

o   Micro CDS/ISIS data bases of IAS;

o   Use of optical recognition system;

o   Intermediary Systems; and
o   Compact disks in information technology.

7.   ADOPTION OF THE REPORT

7.1   After detailed discussions, the workshop adopted the Report.
The workshop made a strong recommendation to UNIDO and the Member
States for early implementation of the activities suggested at the
workshop.

8.   ACKNOWLEDGEMENTS

8.1   The participants of the workshop expressed its deep
appreciation for the efforts made by UNIDO, UNESCO, and IAS for the
organization of the workshop and offered special thanks to IAS for
providing excellent host facilities.

9.   CLOSING SESSION

Deputy Director-General of UNIDO thanked the participants for
attending the workshop, stating that their recommendations have
provided useful inputs to the forthcoming UNIDO/INTIB programmes
for several years to come.   He distributed   certificates to the
participants at the end of the workshop.

WORKSHOP PROGRAMME

Monday, 14 May 1990

10.J0 - 11.00	- Participants registration
1].00 - 11.30	- Opening ceremony
	- Welcome address
	by the Director, IAS O.L. Smirnov
	by Representative of B.A. Vinogradov
	USSR Commission on
	UNESCO
	Speech by UNIDO
	Representative
11.45 - 12.30	Election of Chairman
	and Rapporteur
	Presentation on workshop
	objectives by UNIDO
	Representative
	Discussion
14.00 - 15.30	Lecture on fundamentals O.L. Smirnov
	of teleinformatics IAS
16.00 - 17.30	Lecture continued Y.A. Savostitsky
	Discussion

Tuesday, 15 May 1990

09.00 - 11.00	Lecture on use of V.E.Teremetsky
	networks for on-line SOVAM Teleport
	access and modern
	telecommunications
	hardware/software
11.30 - 12.30	Lecture on management V.V. Vasilcov
	information systems IAS
	(MAP/TOP standards for
	geographically
	distributed heterogeneous
	hardware/software)
14.00 - 15.30	Lecture on V.A. Serdjuk
	teleconferencing systems IAS
16.00 - 17.30	Practical training in V.A. Serdjuk
	teleconferencing systems IAS
	Discussion

Wednesday, 16 May 1990

09.00 - 11.00	Lecture on use of A.V. Mikhailov
	personal computers in IAS
	information retrieval
11.30 - 12.30	Practical training on S .I. Pirin
	use of personal IAS

	computers in information retrieval	
14.00 - 15.30	Lecture on UNIDO/INTIB technological data bases by UNIDO Representative	
16.00 - 17.30	Practical training on UNIDO/INTIB Data Bases by UNIDO Representative Discussion	

Thursday, 17 May 1990

10.00 - 12.00	Lecture and demonstration of mailbox system	E. Haberbush UNIDO consultant
12.00 - 13.00	Presentation on informatics tools use for information support of research and environmental monitoring	Mr. T. Sankey UNESCO
15.00 - 16.30	Practical training in mailbox system	E. Haberbush UNIDO consultant

Friday, 18 May 1990

09.00 - 11.00	Lecture on data bases all over the world	U. Richardson DIALOG Inf. Serv. USA and E.M. Petrova IAS
11.30 - 12.30	Practical training on access to data bases all over the world	U. Richardson and
14.00 - 15.30	Practical training on access to CMEA data bases	N.O. Deeva

Monday, 21 May 1990

09.00 - 11.00	Lecture on on-line data bases of Soviet economic information	L.A. Poliakov IAS
11.30 - 12.30	Practical training on mailbox	E.M. Petrova
14.00 - 15.30	Lecture on CMEA countries computer network and data bases	T.V. Prokhorova
16.00 - 17.30	Practical training on access to CMEA data bases Discussion	N.O. Deeva

Tuesday, 22 May 1990

09.00 - 11.00	Lecture and demonstration of Bulgarian scientific and technological data bases	N. Stoljanova CINTI, Bulgaria
11.30 - 12.30	Practical training on micro CDS/ISIS data bases of IAS	M.V. Sukharev IAS
14.00 - 15.30	Lecture on optical character recognition and word processing technologies for data bases	S.V. Marchenko IAS
16.00 - 17.30	Practical training on use of optical recognition system	V.Y. Smith IAS
	Lecture on ACADEMNET and demonstration	A.I. Strebkov IAS

Wednesday, 23 May 1990

09.00 - 11.00	Lecture on computer aided training systems	V.A. Serdjuk IAS
11.30 - 12.30	Practical training on computer-aided training systems	V.A. Serdjuk
14.00 - 15.30	Legal regulation of technological information exchange all over the world	B.V. Kuprianov IAS
16.00 - 17.30	Lecture on cost-effectiveness analysis of on-line information systems	Y.A. Savostitsky IAS
	Discussion	

Thursday, 24 May 1990

09.00 - 11.00	Lecture on intermediary systems	V.N. Shaurov IAS
11.30 - 12.30	Practical training on intermediary systems	Y.R. Panteleev IAS
14.00 - 15.30	Practical training on compact disks in information technology	E.N. Muratova IAS
16.00 - 17.30	Meeting to formulate workshop recommendations	

Friday, 25 May 1990

09.00 - 10.00	Round table discussion on draft recommendations
10.00 - 12.30	Finalization of draft report
14.00 - 15.30	Adoption of the workshop report
16.00 - 17.30	Closing ceremony

LIST OF PARTICIPANTS/LECTURERS/RESOURCE PERSONS

ALGERIA

BOUKSOUA, Mohamed
Director
Information and Documentation
ENORI
Ravin Sidi Yahia
BP 56 - Hydra

Tel: 601544
Tlx: 66261 ENORI DZ
Fax: 213-2-590301

CHINA, P.R.

SHANG, Jianping
Deputy Director
China   International   Economic
Information Centre (CIEIC)
Ministry   of   Foreign   Economic
Relations and Trade
B-12 Guanghua Road
Jiangumen Wai
Beijing
Post code: 100020

Tel: 5051549
Tlx: 222579 CIEIC CN
Fax: (861) 5051571 and 5051572

LI, Ji
Vice-Director
Computer Center
Scientech   Information   and
Publications
Ministry   of   Machinery   and
Electronics Industries
22 Baiwanzhuang Road
Beijing 100037

Tel: 8317766 Ext. 641
Tlx: 222557 STIP CN
Fax: (861) 8311613
Cable: 8283

CZECHOSLOVAKIA

GOSMAN, Svatoslav
Informatics Specialist
Institute for Technical Development
and Information (UTRIN)
P.O. Box 1023
11356 Praha 1

Tlx: 122725 UTRI C
Cable: UTRIN PRAHA

ECUADOR

AUGUSTO DELGADO, V. Ortega
Industrial Consultant
CENDES
Garcia Aviles 217 y 9 de Octubre
Guayaquil

Tel: 308500
Tlx: 3603 CENDES ED

ETHIOPIA

SIRAK, Gebre Yohannes
Head, Computer Center
Ministry of Industry
P.O. Box 704
Addis Ababa

Tel: 519016
Tlx: 21301 EPPSC ET

GHANA

VILLARS, John Anowie
Project Coordinator
GHASTINET
Council of Scientific and Industrial
Research (CSIR)
P.O. Box M32
Accra

Tel: 777655
Tlx: 3027
Fax: 233-21-773043

SEY, Adwoa
Research Officer
Technology Transfer Centre (TTC)
Council of Scientific and Industrial
Research (CSIR)
P.O. Box M32
Accra

Tel: 775351
Tlx: 2665 STAR GH

INDIA	CHINNAPPA, Sita Lakshmi Joint Director National Informatics Centre Planning Commission A-Block, Lodi Road Kendriya Karyalaya Parisar New Delhi - 110 003 Tel: 362359 Tlx: 031-61274 NICS IN Fax: 011-91-11-362489
INDONESIA	SYARIF, Tata Head Centre for Data Processing and Analysis (PUSDATA) Ministry of Industry Jalan Gatot Subroto 52-53 Jakarta - Selatan Tel: (62-21) 512194 Tlx: 62475 DEPIND IA Fax: (62-21) 512194
D.P.R. OF KOREA	YANG, Yeng Nam Chief, Computer Section Central Scientific and Technical Information Institute (CSTII) Wasandong, Sosong District Pyongyang
MONGOLIA	MUNKHZUL, Dary Head, Information Service Section Centre of Scientific and Technical Information St. Colarova-49 Ulan Bator Tel: 72924 Tlx: 236
PAKISTAN	SATTAR, Abdus Director-General Pakistan Computer Bureau Block 'B' Benevolent Fund Building, Zero Point Islamabad Tel: 817113 Tlx: 5791 CAB PK

PHILIPPINES

SANTAMARIA, Manuel O.
Director
Management Information Service
Department of Trade and Industry
361 Sen. Gil Puyat Avenue
Makati, Metro Manila

Tel: 8177408
Tlx: 14830 MTI PS
Fax: (632) 8179698 and 8174974

AFRICAN REGIONAL CENTRE
FOR TECHNOLOGY

NAGERI, Michael William
UN Expert
Industrial/Technological Information
African Regional Centre for Technology (ARCT)
ARCT Avenue
Cheikh Anta Diop
BP 2435 Dakar
Senegal

Tel: (221) 257712
Tlx: 61282 SG
Fax: (221) 257713

UNIDO CONSULTANT

HABERBUSCH, Edmund
UNIDO Expert
General Electric Ges.m.b.H.
1040 Vienna
Austria

Tel: 5059711
Tlx: 136314
Fax: 5057022

UNIDO

ARAOZ, Alberto
Deputy Director-General
Department for Industrial
Promotions, Consultations and
Technology (DIPCT)
United Nations Industrial
Development Organization (UNIDO)
P.O. Box 300
A-1400 Vienna
Austria

Tel: 00-43-1-21131 ext. 3730
Tlx: 135612 UNO A
Fax: 00-43-1-2307584

PODSHIBYAKIN, Vladimir
Chief
Industrial and Technological
Information Section United Nations
Industrial Development Organization
(UNIDO)
P.O. Box 300
A-1400 Vienna
Austria

Tel: 00-43-1-21131 ext. 3691
Tlx: 135612 UNO A
Fax: 00-43-1-2307584

RALSTON, Joy Barbara
Industrial Information Officer
Industrial   and   Technological
Information Section
United   Nations   Industrial
Development Organization (UNIDO)
P.O. Box 300
A-1400 Vienna
Austria

Tel: 00-43-1-21131 ext. 3700
Tlx: 135612 UNO A
Fax: 00-43-1-2307584

WORKSHOP LECTURERS/RESOURCE PERSONS

INSTITUTE FOR AUTOMATED SYSTEMS (IAS)	O.L. Smirnov Director Institute for Automated Systems (IAS) 2a Nezhdanova Street Moscow, 103009 USSR

Tel: 229-78-46
Tlx: 411809 IPAS SU
Fax: 7-095-2293237

Y.A. Savostitsky
Deputy Director

L.A. Poliakov
Head of Laboratory

V.A. Serdjuk
Head of Laboratory

V.K. Shaurcv
Head of Laboratory

V.V. Vasilcov
Head of Laboratory

S.V. Marchenko
Scientific Secretary

V.D. Novikov
Senior Research Fellow

E.M. Petrova
Deputy Head of Laboratory

Y.R. Panteleev
Senior Research Fellow

N.O. Deeva
Senior Engineer

V.Y. Smith
Senior Research Fellow

E.N. Muratova
Leader Engineer

A.I. Strebkov
Deputy Head of Laboratory

M.V. Sukharev
Engineer

B.V. Kupriyanov
Engineer

A.V. Mikhailov
Engineer

S.I. Pirin
Engineer

T.V. Prokhorova
Engineer

SOVAM TELEPORT (USSR/USA V.E. Teremetsky
COMMUNICATION JOINT VENTURE) Director-General

CENTRAL INSTITUTE FOR N. Stoljanova
SCIENTIFIC AND TECHNICAL CINTI Specialist
INFORMATION (CINTI) Bgv. G.A. Nassev 52-a
 Sofia
 Bulgaria

 Telex: 22404

DIALOG INFORMATION SERVICE U. Richardson
 Dialog Information Service
 USA