
Appendix 1 Major Activity Cases

JICA's menu of cooperation in the field of information and communication technology includes Acceptance of Trainees and Dispatch of Experts as Advisors, Development Studies, Technical Cooperation Projects, and the Dispatch of JOCVs (Japan Overseas Cooperation Volunteers) (for a list of major cooperation projects, see the chart entitled "Relevant Projects in the Field of IT"). The following is a description of JICA's main operations and their characteristics.

JICA Okinawa
International
Centre –
Information
Processing
Personnel Course

1-1 Training at the Okinawa International Centre – Information Processing Personnel Course

This section introduces the Information Processing Personnel Course, a typical example of the various types of training JICA is conducting related to information and communication technology

1-1-1 Background

The Information Processing Personnel Course was launched in FY1985 and has undergone revisions every four years, with 9 types of courses held 12 times a year. Initially, courses used host computers (mainframes), but over the years there has been a shift and currently client server systems are used. In addition, as the Internet has spread worldwide, the need for training in that area has increased, and starting in FY2001, the Centre has added a new course on Web applications and has been increasing its training on technology related to the Internet in every course subject.

1-1-2 Goal of Training

The goal of training is to develop engineers who will be engaged in the development and operation of information systems that are actually used in the field in developing countries.

1-1-3 Course Curriculum

Currently, 9 types of computer courses are held 12 times a year, and in them approximately 140 IT professionals in total are trained every year including: network engineers, web designers, database engineers, system analysts, IT administrators, and IT instructors. Also, MTEC (Multimedia Technology for Education and Communication) trains approximately 25 people

every year in fields such as Multimedia Production for Education and Digital Video Production. The curriculum is established in order to develop engineers and designers who understand overall systems, and for that purpose the subjects taught include a good balance between design, management, and operation. In principle, the aim is to have students acquire general skills that are not dependent on specific software packages or hardware types, and the focus is on a curriculum that emphasizes practical training and exercises. Following is a list of the names of the training courses and the frequency with which they are conducted.

- 1) IT Administrator (1x/yr)
- 2) System Analyst (2x/yr)
- 3) Network Engineer (1x/yr)
- 4) Database Engineer (1x/yr)
- 5) Client Server System Designer (UNIX) (1x/yr)
- 6) Client Server System Designer (PC) (1x/yr)
- 7) Web Application Server System Designer (2x/yr)
- 8) IT Instructor (1x/yr)
- 9) PC Application Designer (1x/yr)

**Human Resources
Development
Projects**

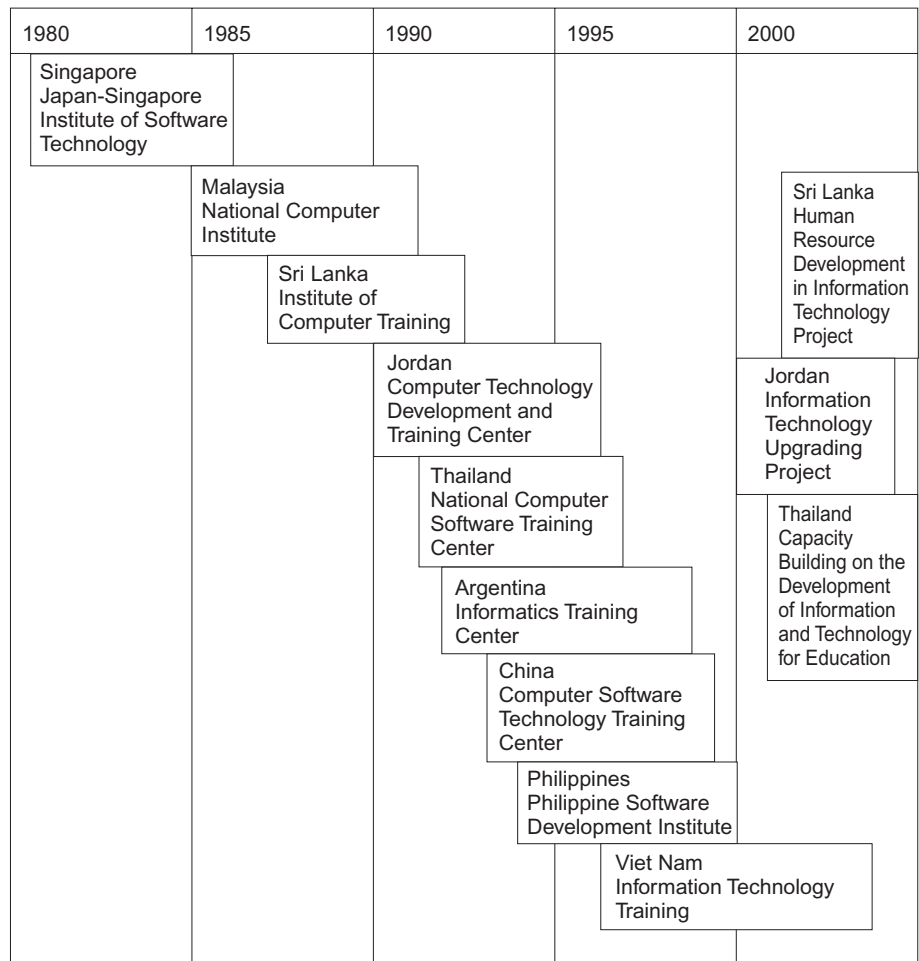
1-2 Human Resources Development Projects

JICA has carried out numerous human resource development projects that meet the needs and level of the recipient country and that are tailored to the technology of the particular period of time, and has contributed to improving IT literacy and eliminating the digital divide (Figure A1-1). In addition to the projects that are currently in progress in Sri Lanka and Thailand, future plans include projects in Myanmar and the Philippines. Characteristic of recent projects is the development and use of educational materials that are available on the Internet, such as in the “Capacity Building of the Development of Information and Technology for Education” in Thailand, and the “Human Resource Development in Information Technology Project” in Sri Lanka. Also, planned projects in Myanmar and the Philippines include content that meets specific needs, such as the hands-on technical transfer of skills that will be useful in competing in the industry. JICA also plans to tackle such issues as the sharing of IT educational materials between projects that are being carried out simultaneously; including JICA Headquarters, coordination between projects through the use of JICA-Net (described later), and the conducting of follow-up on completed projects through the development of educational materials.

In addition, while they are not listed in Figure A1-1, JICA is also assisting projects with high level, specialized content such as in assistance in the creation of IT and electronic engineering curricula for higher education in Poland

through the “Polish-Japanese Institute of Information Techniques” and in Thailand through “Research Center for Communication and Information Technology, King Mongkut’s Institute of Technology, Ladkrabang.”

Figure A1-1 Trends in Human Resources Development Projects



JOCV and Senior Overseas Volunteers

1-3 Japan Overseas Cooperation Volunteers (JOCV) and Senior Overseas Volunteers

As of September 2002, 784 JOCVs and Senior Overseas Volunteers have been dispatched to 68 countries in the field of computer skills related to IT (including former system engineers and computer engineers), and they are in charge of individual projects. Many are assigned to universities where they train instructors and assist with the creation and update of curricula or are posted in government agencies where they provide assistance with the development of work systems. In this way, they are contributing to the development of human resources in IT and improved efficiency and effectiveness through the use of IT.

Also as of September 2002, 296 volunteers have been dispatched to 29 countries to do jobs related to telephone lines and telephone exchanges, and are

contributing step-by-step to the development of communication infrastructure. In recent years, however, the requests received for this type of work are declining with increasing privatization of state-owned telephone companies. So far 24 computer engineer volunteers have been dispatched to the ministries of the central government of Bhutan, and they are carrying out cooperation in constructing database systems.

JICA-Net

1-4 JICA-Net

1-4-1 Background

“Japan’s Comprehensive Cooperation Package to Address the International Digital Divide” was announced at the Kyushu-Okinawa Summit held in July 2000, and it stated that Japan would carry out cooperation in the field of IT.

One of the methods for cooperation announced was the intent to establish IT satellite centers in developing countries as a means of realizing “digital opportunity” in order to promote the use of IT in development assistance and at the same time it stated the aim of establishing a core center in Japan with the function of knowledge base.

By utilizing these IT centers, it is thought that Japan will be able to realize the input of assistance resources without being constrained by time or space and that it can meet the diverse needs of developing countries and improve the efficiency and effectiveness of technological cooperation through the delivery of content that makes it possible to effectively and efficiently transmit know-how.

1-4-2 Goal of Introducing Distance Technical Cooperation

JICA’s traditional technical cooperation has been carried out either by accepting trainees from developing countries to Japan where they have taken lectures or practical training directly from instructors, or by dispatching technical experts from Japan to developing countries. In this way, face-to-face technical transfer has been the mainstream.

JICA has now added to this face-to-face style of technical cooperation the concept of “distance technical cooperation,” or technical cooperation that uses distance learning methods, in its framework of technical cooperation.

By introducing distance technical cooperation, JICA expects to see the following:

- 1) Using IT in carrying out assistance will promote the use of IT and formation of networks in developing countries, and will contribute to the elimination of the digital divide.
- 2) Complementing the usual technical cooperation projects carried out through face-to-face methods either by dispatching experts or through

training in Japan will result in increased effectiveness of technical cooperation. Also, the efficiency of a variety of activities related to ongoing/past technical cooperation will be improved.

- 3) Providing instruction by Japan's human resources who are unable to be dispatched as experts to the field and providing training opportunities to numerous actors in developing countries will enable us to fulfill needs that could not be met under the usual framework for technical cooperation projects.
- 4) By promoting digitalization and systematization of educational materials and teaching methods related to technical cooperation, we can facilitate the consolidation and sharing of know-how and knowledge that is unique to Japan. This will improve the quality of overall technical cooperation.

1-4-3 Scheme Types and Methods for Implementing Distance Technical Cooperation

Distance technical cooperation can be carried out through any of the four schemes listed below, or through a combination of those schemes.

- 1) Providing advice or instruction to actors in developing countries via a TV conference system (Policy Advice/Discussion Type)
- 2) Providing training opportunities for actors in developing countries through a distance learning system (Group Training Type)
- 3) Exchange of opinions and knowledge between those involved in carrying out policy and researchers in Japan and in the developing country over the Internet or via a TV conference system (Forum Type)
- 4) Providing opportunities for interactive learning over the Internet for actors who are registered in advance (WBT Type)

1-4-4 Structure and Function of JICA-Net

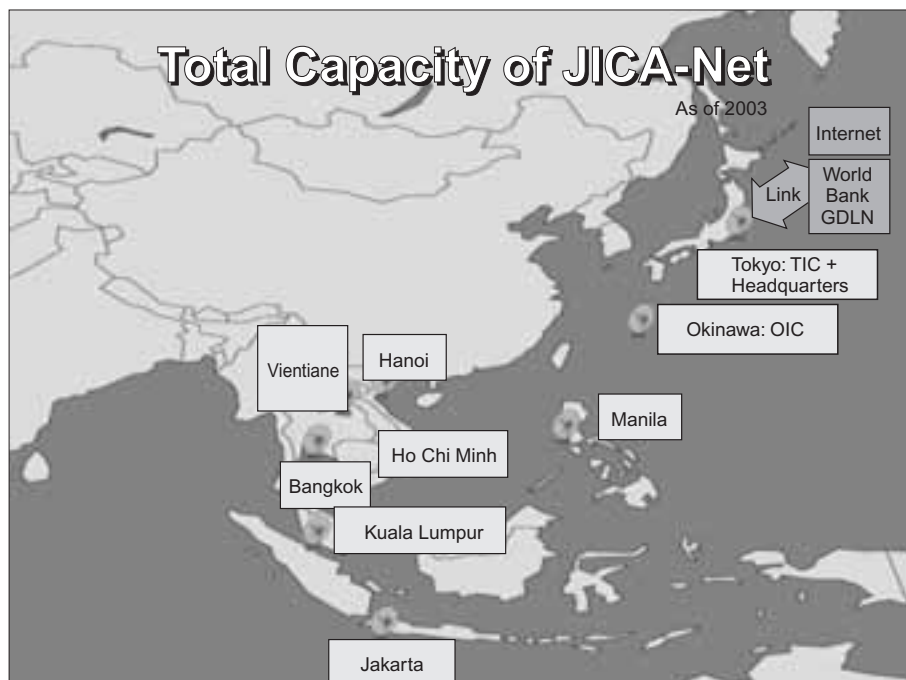
JICA-Net is established in JICA's domestic offices and comprises core centers that have the main function of transmission and satellite centers that are established in JICA's major points of cooperation in developing countries. In FY2001, core centers were established in the Tokyo International Centre and the Okinawa International Centre in Japan, and a TV conference system was set up at JICA Headquarters. Satellite centers have been established overseas in the Indonesia Export Trading Center (IETC), the National Institute of Public Administration (INTAN) in Malaysia, and at the University of the Philippines – Diliman. These core centers and satellite centers form a network of high-capacity transmission lines. In FY 2003 JICA established more satellite centers in Laos, Thailand and Viet Nam. (See Figure A1-2 Total Capacity of JICA-Net.)

The core centers and satellite centers have the function of a facility that

enables live and interactive distance learning and self-instruction for approximately 30 people at one time.

JICA-Net can also be connected to the Center of the World Bank's GDLN (Global Development Learning Network) that is being developed by over 50 countries worldwide, and either network can utilize the other. Through this, distance technical cooperation can be conducted even for countries that do not have established satellite centers by using the local GDLN centers. Moreover, if the recipient country has developed communication infrastructure and a TV conference system in place, it can connect to anywhere else in the world.

Figure A1-2 Total Capacity of JICA-Net



Annex Table: List of Relevant Projects in IT

No	Country	Project Name	Period	Type of Schemes	Mid-term Objective	Characteristics
1. Strengthening Capacity for IT Policy Formulation						
1	Worldwide	International Telecommunication Services	1962-	Acceptance of Trainees	1-1	Training conducted with the goal of improving management techniques targeting personnel involved in management and operations throughout the international communications industry.
2	Worldwide	ICT Executives' Seminar (Info-Communications)	1962-	Acceptance of Trainees	1-2	Training conducted with the goal of deepening the understanding of the importance of telecommunications administration targeting high-ranking officials involved in telecommunications administration or work.
3	Worldwide	Seminar on Telecommunications Management	1993-2000	Acceptance of Trainees	1-1	Training conducted with the goal of improving problem-solving capabilities in management with respect to management methods of the telecommunications administration that will facilitate the transition process from state-owned enterprise through privatization.
4	Indonesia	Telecommunication Policy Advisor	2002-2004	Dispatch of Experts	1-1 1-2	Provides advice on formulating long-term development policies in the field of telecommunications and assistance for telecommunications policy. Specifically, this project plans policy for charges and develops a fair competitive environment for the development of telecommunications infrastructure.
5	Indonesia	Preparation and Improvement of IT Usage Environment	2002-2004	Dispatch of Experts	1-1 1-2	Formulates a basic plan for promoting IT and provides recommendations on specific management rules for the IT industry. Contributes to establishing a framework for managing new telecommunications services, including digital signatures, a certification system, and VoIP.
6	Malaysia	Communications and Multimedia Technology and Industry	2002-2004	Dispatch of Experts	1-1 1-2	Provides advice on formulation of a long-term technological development plan in the fields of communication and multimedia, a long-term plan for fostering industry, and a plan to promote research and development in the fields of communication and multimedia.
7	Malaysia	The Study on Enhancement of Info-Communications Access in Rural Communities in Malaysia	2002-2003	Development Study	1-3 3-1 3-3	Supports the formulation of an action plan of info-communications access in rural communities particularly for the enhancement of Rural Internet Centers (RIC) in the area and provides assistance in the planning and implementation of model projects.
8	Philippines	Telecommunications (Network Planning, Multi-media Communications Information Technology)	2000-2002	Dispatch of Experts	1-1	Provides advice on policy for smooth interconnection between providers and on policy for multimedia communication.
9	Thailand	IT Policy	2000-2001	Dispatch of Experts	1-2 2-1 2-2	Specified the direction of R&D activities and provided advice regarding activities for promoting R&D.
10	Viet Nam	The Study on Telecommunications Development in the Socialist Republic of Viet Nam	1998-1999	Development Study	1-1	Formulated a plan for telecommunications development.
11	Laos	International Telecommunication Service (Administration and Management)	1997-1998	Acceptance of Trainees	1-1	Training conducted with the goal of improving management capabilities in international communication management targeting personnel involved in international communication work.

No	Country	Project Name	Period	Type of Schemes	Mid-term Objective	Characteristics
12	Laos	The Study on the Telecommunications Development in Lao P.D.R.	2001-2002	Development Study	1-1	Formulated a telecommunications development plan.
13	Laos	Advisor on Telecommunication Policy to the Cabinet Office (Communication)	2000-2003	Dispatch of Experts	1-1 2-2	Provides support on IT policy making and implementation, support on developing and carrying out ordinances related to IT, and guidance and recommendations on implementing telecommunications development plans.
14	Laos	General Advisor for Telecommunications Network Development and Management	2002-2004	Dispatch of Experts	1-1	Supports the creation of a scenario for a basic development plan in developing telecommunications, supports diffusion of the concept of public communication services, and supports the establishment of a management framework for state-owned telecommunications enterprise.
15	Mongolia	Master Plan Study for the Development of Rural Telecommunication System in Mongolia	2002-2003	Development Study	1-3 3-1 3-3	Formulates a master plan for the development of rural telecommunications systems and carries out a feasibility study.
16	Central Asia	Telecommunication Business Management	1993-2001	Acceptance of Trainees	1-1	Training conducted with the goal of improving management of the telecommunications industry in Central Asia as it makes the transition from planned economy to market economy. This training introduces know-how and business management information from Japan's telecommunication policy and business management.
17	Africa	Telecommunications Executives' Seminar (African Countries)	1997-1999	Acceptance of Trainees	1-2	Training conducted with the goal of strengthening the importance and deepening the understanding of telecommunications administration targeting high-ranking officials involved in telecommunications administration or work in African countries.
18	Ethiopia	Study on Telecommunications Development Plan in Ethiopia	2001-2002	Development Study	1-1	Formulated a master plan including expansion of the communication network to rural areas with low diffusion rates and carried out a feasibility study on the implementation of priority projects.
2. Development of Human Resources in IT						
19	Worldwide	Information Processing Personnel (Instructor)	1985-	Acceptance of Trainees	2-1	Since 1985 JICA has trained engineers from numerous countries on the development and operation of the information systems actually used in the field.
20	Worldwide		1965-	JOCV, SV	3-1	System engineers and computer skill volunteers have carried out human resource development in many countries at the grass-roots level.
21	Worldwide	Vocational Training Instructors (Information & Computer Engineering)	1993-	Acceptance of Trainees	2-1	Training conducted with the goal of qualitatively improving skills and techniques targeting mid-level engineers involved with vocational training in information and computer engineering.
22	Worldwide	Telecommunication(s) Standardization	1995-	Acceptance of Trainees	2-2	Training conducted with the goal of improving frameworks, administrations, organizations and technology for standardization targeting engineering and administrative officials who are involved in standardization of telecommunications.
23	Worldwide	Telecommunications Policy and Regulations	2000-	Acceptance of Trainees	1-2 2-2	Training conducted for policy makers in the field of telecommunications on the necessity of deregulation, the reform of Japan's telecommunications system, telecommunications business laws, mobile communication systems and trends, information and communication resource management, and management of telecommunications providers.

No	Country	Project Name	Period	Type of Schemes	Mid-term Objective	Characteristics
24	Worldwide	Information Technology for School Teachers (and Staff)	2001-	Acceptance of Trainees	2-1	Training conducted with the goal of contributing to the creation of a network between Japan and other participating countries in the field of education. This course teaches educators at the primary and secondary school level about how computers work and helps them to learn basic ways of using computers.
25	Malaysia	The National Computer Institute	1985-1990	Technical Cooperation Project	2-1	Human resource development at the National Personnel Authority / National Computer Institute (NCI). The focus of the project was on system development using hosts.
26	Malaysia	The Malaysia AI System Development Laboratory	1995-2000	Technical Cooperation Project	2-1	Project involved transfer of artificial intelligence (AI) system development technology and the joint development of diagnostic, design, and program models. Evaluation of diagnostic models, particularly in the field of medicine, were high.
27	Philippines	Philippines Software Development Institute	1995-2000	Technical Cooperation Project	2-1	Carried out with the objective of enabling staff to hold their own training courses on UNIX-based client server systems. Content included IT curriculum design development, SQL Server, Access, computer networks, and multimedia.
28	Singapore	The Japan-Singapore Institute of Software Technology	1980-1985	Technical Cooperation Project	2-1	This is an example of success in transferring and ensuring the sustainability of IT skills through training courses, and the impact of this project has also spread to neighboring countries.
29	Singapore	Technical Cooperation Project on the Japan-Singapore AI Center	1990-1995	Technical Cooperation Project	2-1	Training courses, seminars, development of AI system prototypes, etc.
30	Thailand	The National Computer Software Training Center	1991-1996	Technical Cooperation Project	2-1	Targeted general skills in hosts and PCs in COBOL and C languages.
31	Thailand	The Research Center for Communication and Information Technology (ReCCIT), King Mongkut's Institute of Technology, Ladkrabang (KMILT), The Kingdom of Thailand	1997-2002	Technical Cooperation Project	2-1	Targeted 59 counterpart researchers and the project included mobile communication, satellite communications, wireless communication, signal transmission systems, information science, multimedia and virtual research, communication networks, communication circuit design, mixed signal processing, biomedical signal and image, electromagnetic compatibility, microelectronic devices R&D, control and mechatronics, and electromechanical engineering.
32	Thailand	The Project of Capacity Building on the Development of Information Technology for Education (ITEd)	2002-2005	Technical Cooperation Project	2-1 4-2 5-1	This project is a new type of cooperation through collaboration with JOCVs that is being expanded to five rural locations with the purpose of developing web based training (WBT) materials, improving IT literacy for teachers, and establishing a system for accreditation of IT training.
33	Viet Nam	The Viet Nam Information Technology Training	1997-2002	Technical Cooperation Project	2-1	Conducted 96 courses on establishing operation and management systems at posted places mainly using UNIX-based client server systems. Improved skills of counterparts and introduced new technology through seminars.
34	Viet Nam	The Training Capability Strengthening Project on the Posts and Telecommunications Training Center No. 1, The Socialist Republic of Viet Nam	1999-2004	Technical Cooperation Project	2-1	Project to foster trainers who are knowledgeable in the latest technologies and training management in the field of telecommunications and to transfer curriculum and educational development methods for practical training.
35	China	The Computer Software Technology Training Center	1993-1998	Technical Cooperation Project	2-1	Project to transfer technology including UNIX and AI to counterparts. Servers and workstations were used as the main equipment in open systems.

Approaches for Systematic Planning of Development Projects / Information and Communication Technology

No	Country	Project Name	Period	Type of Schemes	Mid-term Objective	Characteristics
36	Sri Lanka	The Project for Human Resource Development in Information Technology through Capacity Building of University of Colombo School of Computing	2002-2005	Technical Cooperation Project	2-1	Project including a wide range of content such as strengthening IT-related skills and technologies and training counterparts in multimedia, computer networks, information system management and operation, database management and operation, and developing WBT content developers and IT trainers as well as improving research and development.
37	Argentina	The Informatics Training Center in the Argentine Republic	1991-1996	Technical Cooperation Project	2-1	Trainer's training carried out on C++, Oracle, Word, Lotus and other programs with the goal of enabling counterparts to conduct UNIX-based C/S training courses on their own.
38	Paraguay	The Telecommunications Training Center	1992-1997	Technical Cooperation Project	2-1	Developed engineers by assisting with 11 training courses that enabled the staff of the state-owned telecommunications enterprise to use digital technology.
39	Jordan	The Computer Technology Development and Training Center Project	1990-1994	Technical Cooperation Project	2-1	Targeted general skills in hosts and PCs in COBOL and C languages.
40	Jordan	Information Technology Upgrading Project	1999-2002	Technical Cooperation Project	2-1	A project associated with the technical innovations at the computer training and research center (No. 39 of this chart) with the main goal of switching over from hosts to client servers. Broad content included LAN, UNIX, HTML, JAVA, VB, and C++.
41	Poland	The Polish-Japanese Institute of Information Techniques	1996-2001	Technical Cooperation Project	2-1	A research project that increased the number of students and moved the university hospital. High-level project content had a strong electronics engineering component. Through the project laboratories were developed for system design engineering, information and communication engineering, and intelligent techniques in control.
3. Improvement of Communication Infrastructure						
42	Worldwide		1965-	JOCV, SV	3-1	Volunteers working with telephone lines and exchanges contributed to the development of communication infrastructure at the grass-roots level in many countries.
43	Philippines	The Project for Improvement of Earthquake and Volcano Monitoring System	2001-2003	Grant Aid	3-1 4-2	Develops a network for monitoring natural disasters (earthquakes and volcanoes) through the use of computers and communication.
44	Angola	Project for Rehabilitation of the Telecommunications Network in Luanda, Republic of Angola	1996-1997	Grant Aid	3-1	Improved a telephone network involving two telephone exchanges. Provision of plasticized cables, exchange boards and ducts and manholes.
4. Improvement of Efficiency and Effectiveness of Every Sector through the Use of IT						
45	Worldwide	Remote Sensing Technology	1977-	Acceptance of Trainees	4-2	Training conducted with the goal of learning basic technologies such as digital data processing and analysis and to introduce the latest technology trends targeting researchers who are investigating the use of remote sensing data that is obtained from observation satellites.
46	Worldwide	Government Information System(s)	1990-1997	Acceptance of Trainees	4-1	Training conducted with the goal of human resource development for people using administrative information systems that utilize GIS.
47	Worldwide	Financial Industry Information Systems	1994-	Acceptance of Trainees	4-2	Training conducted with the goal of human resource development for the provision and improvement of infrastructure related to financial information systems for ongoing expansion in developing countries.

No	Country	Project Name	Period	Type of Schemes	Mid-term Objective	Characteristics
48	Worldwide	Agricultural Information System Techniques	1996-	Acceptance of Trainees	4-2	Training and practice on agricultural information processing technology and its usefulness as a network for communication
49	Worldwide	Management of Natural Resources and Agricultural Production by GIS (Geographic Information System)	2000-	Acceptance of Trainees	4-2	Training conducted with the goal of teaching the basic concepts of GIS through practical use targeting researchers, administrators, and agricultural technology teachers who are involved with the management of agricultural production.
50	Worldwide	Seminar on Police Info-Communications	2002-	Acceptance of Trainees	4-2	Training conducted for high-ranking police including practical training on the use of the system being used by the Japanese police, with an aim of helping them to realize the importance of the system and facilitating the exchange of information related to law enforcement in each country.
51	Asia Pacific Region	Application of Information and Communications Technology to Statistical Processes	1980-	Acceptance of Trainees	4-2	Training for mid-level statistical personnel in the governments of countries in the Asia-Pacific Region. Training designed for practical skill acquisition in areas such as electronic data processing and software.
52	Indonesia	Image Processing Laboratory for Oil and Gas Study	1989-1994	Technical Cooperation Project	4-2	Technical transfer of remote sensing technology for survey of resources, including digital image processing and other techniques.
53	Indonesia	The Environmental Management Center in Indonesia	1993-1997	Technical Cooperation Project	4-2	Technical cooperation for environmental monitoring and environment information systems.
54	Indonesia	Study on Improvement of the Customs System in the Republic of Indonesia	1997-1999	Development Study	4-2	Analysis of information system for customs, requirement study, definition of demand conditions, design of system outline, creation of system design manual, test planning, design for introduction, and creation of plan for use.
55	Indonesia	Establishment and Capacity Building of Regional Export Training and Promotion Centers	2002-2006	Technical Cooperation Project	4-2	Improves literacy including use of computers in training and obtaining information using the Internet.
56	Malaysia	Study on the Establishment of the River Basin Information System in Malaysia	1996-1998	Development Study	4-2	Formulated a master plan for the development of an information system for the management of Mekong River, constructed a pilot system for a model river, and conducted a feasibility study on the river region information system.
57	Malaysia	Project on Networked Multimedia Education System	2001-2005	Technical Cooperation Project	4-2	Human resource development for teachers and engineers for distance education and developed multimedia educational materials.
58	Malaysia	The Study on Enhancement of Intellectual Property Administration Capacity through Utilization of Information Technology	2002-2003	Development Study	1-2 4-1	Develops a pilot system to improve the efficiency of intellectual property administration and formulates recommendations on further improved efficiency through the use of information technology.
59	Philippines	Modernization of Industrial Property Administration	1999-2003	Technical Cooperation Project	1-2 4-1	Developes a system for patent administration, developes a framework for organizational management, and transfers patent review methods.
60	Thailand	The Industrial Property Information Center	1995-2000	Technical Cooperation Project	1-2 4-1	Developed patent administration system and maintained developed organizational management framework. Also disclosed information over the Internet. This project was a pioneer project for similar projects that have since been carried out in the Philippines and in Vietnam.

No	Country	Project Name	Period	Type of Schemes	Mid-term Objective	Characteristics
61	Viet Nam	The Project on Modernization of Industrial Property Administration	2000-2004	Technical Cooperation Project	1-2 4-1	To develop a patent administration system and a framework for organizational management, and transfer methods for patent examination.
62	Laos	The Establishment of GIS Base Map Data for Mekong River Basin in Lao People's Democratic Republic	1997-2001	Development Study	4-2	Developed a geographic database that would become the base map for GIS in order to support environmental conservation in the Mekong River Basin in Laos.
63	China	Education System for Chinese Patent Information Retrieval System Development	1986-1990	Technical Cooperation Project	4-1	A project for developing an education system for patent information retrieval including host operation and Chinese character processing.
64	Mongolia	ICT Advisor in Education Section	2001-2003	Dispatch of Experts	4-2	Provides advice on formulating a plan for increasing IT education, introduces the Japanese curriculum for IT, and provides technical support for creation of educational content.
65	Bhutan	Projects to Establish Information Systems	2001-	JOCV, SV	4-1	JOCVs, SVs, and Senior Volunteers are dispatched to the major agencies and ministries of the country such as the Ministry of Finance and the Royal Audit Authority and are carrying out cooperation that includes the creation of databases.
66	Argentina	Population Statistics Project in Argentine Republic	1995-2000	Technical Cooperation Project	4-2	Constructed a population statistics information data system and a statistical processing system and network in model provinces that are indispensable in the planning of improved social welfare and medical services.
67	Argentina	Regional Geologic Mapping with Advanced Satellite Sensors	2001-2005	Technical Cooperation Project	4-2	Provides training on data exchange and the basic concepts of remote sensing by environmental sensing satellites, introduces hyper-spectral remote data analysis, and provides guidance on methods of using satellite data in geologic mapping.
68	Paraguay	Proyecto de Mejoramiento del Mercado Central de Abasto de la Ciudad de Asuncion	1981-1988	Technical Cooperation Project	4-2	Developed an information system between the retail market and the central wholesale market as a part of a project to improve the operation of the latter.
69	Turkey	Geologic Remote Sensing Project	2002-2006	Technical Cooperation Project	4-2	Provides training to familiarize counterparts with new hardware and software, GIS-based integrated spatial analysis, and Support for Technical Training Program for Third Countries.
70	Ghana	Computer System Engineering	2002-2003	Dispatch of Experts	4-2	Following the Project for the Improvement of Maternal and Child Health Care Services, this study provides current training and operation, diffusion, and development of computer system.
71	Madagascar	The Establishment of a Database for Geographic Information Systems of the Capital Area in Madagascar	1997-1999	Development Study	4-2	With the goal of developing basic information required to formulate city plans in order to improve living conditions in the capital, this study created geographical data on the capital city and surroundings and developed a GIS database.
5. Improvement of Efficiency and Effectiveness of Assistance through the Use of IT						
72	Japan, Philippines, Indonesia, Malaysia, and countries with GDLN	JICA-Net	2002-	Technical Cooperation Project-Independent Projects	5-1 5-2 5-3 4-2	This is a mechanism for carrying out distance technical cooperation. It has a both a TV conference system and an e-Learning system that can be used separately or in combination. Also able to connect to the GDLN of the World Bank.
73	Fiji	Information and Communication Technologies (ICTs) Capacity Building at the University of the South Pacific (USP-Net)	2002-2005	Technical Cooperation Project	5-1 5-2 5-3	Development of content used in multimedia technology, development of educators in the field of IT, and support for research and development. Countries in the South Pacific region also benefit from these projects.

Appendix 2 Basic Check List

Below is a basic check list of the most representative indicators used for understanding the conditions and degree of the use of IT in a country.

In order to accurately understand the current conditions of the use of IT, it is necessary to also understand the communication infrastructure map and the speed of its lines, the national budget for IT, the ratio of the IT industry in a country's GDP, the state of creation of a master plan by the government, and the progress already made in that plan. Here, the list of indicators is limited to relatively accessible items.

Items/Indicators		Unit	Calculation method	Remarks
Basic National Information				
1	Population	People	millions	
2	Urban population Ratio of urban population	People %	millions Urban population/Total population	
3	GDP	\$		
4	GDP growth rate	%	Growth rate for one year or several years	
5	Number of engineers and researchers	People	Number per million of engineers and researchers involved in R&D	
Communication Infrastructure and Access				Fixed telephone lines are a valuable part of the communication infrastructure in terms for IT. Knowing the conditions of a country in this area is very valuable since they determine the capacity for activity. In addition, if GIS type materials in which maps and data are combined to make it easy to grasp the multi-faceted expansion of communication infrastructure throughout a country, this is invaluable data in terms of providing assistance that takes rural areas into consideration. With the development and popularization of ADSL, the old analog lines are now being reconsidered for broadband (high-speed lines), again emphasizing the importance of such information. Mobile phones are now being used as information terminals that can be connected to the Internet, in industrialized nations particularly in Japan. These will also become the main means of communication in developing countries, and rapid technological innovations are expected to continue in the future.
6	Main telephone lines	telephones	Number of fixed telephone lines per 1000 people	
7	Main telephone lines (capital city zone)	telephones	Number of fixed telephone lines per 1000 people	
8	Facility expenses for main telephone lines	\$	Facility expenses for fixed telephone lines	
9	Number of mobile telephones	telephones	Number of mobile telephones per 1000 people	
10	Cost of local telephone call	\$	Charge for a local call (3 min.)	
11	Cost of international telephone call	\$	Charge for an international call to the U.S. (3 min.)	

Items/Indicators		Unit	Calculation method	Remarks
United Nations Development Programme (UNDP) Indicators				
12	Human Development Index (HDI)			These are methods originally developed by the UNDP in order to express the conditions of human resource development and of technology.
13	Technology Achievement Index(TAI)			
IT Devices, Internet Literacy				
14	Computer ownership	computers	Number of computer owners per 1000 people	These are the items most directly connected with understanding the usage conditions of IT. It is difficult to establish a specific indicator for measuring IT literacy, however the number of people who use the Internet is an effective indicator of the existence of literacy required to access the Internet. Internet connection fees are a measurement of whether it is possible to popularize the Internet in terms of cost, when compared to a country's GDP and other factors.
15	Computers connected to the Internet	%	Ratio of computers connected to LANs or WANs	
16	Internet users	People	Number of people who use the Internet	
17	ISP (Internet Service Provider) Fees	\$	Monthly fees for connecting to ISP	
18	Communication fees associated with connecting to the Internet	\$	Monthly communication fees for connecting to the Internet	

*For details on the methods used to calculate the Human Development Index (HDI) and the Technology Achievement Index (TAI), see UNDP (2001)

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Development Objectives Chart on Information and Communication Technology (1)

Development Objectives		Mid-term Objectives		Sub-targets of Mid-term Objectives		Examples of Activities	
1 Strengthening Capacity for IT Policy Formulation Formulation of national IT strategies	1-1 Establishment of Telecommunications Policy Number/rate of service subscribers Scale of telecommunications industry Degree of liberalization	Support for Improvement of Management of State-owned Enterprise Decline in number of waiting applicants Improved balance in state-owned income and expenditures Increase in amount invested in infrastructure Regulations on Private Monopolies Decline in number of waiting applicants Improvement in capital structure (percentage of government-owned capital) Increase in amount invested in infrastructure Increase in amount of foreign input Introduction of Market Principle Number of new market entries Increase in the scale of the telecommunications industry Decline in the price of communications Establishment of Direction and Policy for Fostering IT Industry Existence of laws or government policies Existence of exclusive organizations Establishment of Systems to Protect Intellectual Property Rights Existence of laws related to protection of intellectual property rights Existence of exclusive organizations Development of Policy Makers (High Level Human Resources) Existence of laws related to protection of intellectual property rights Existence of exclusive organizations Establishment of Policy to Promote Development of Infrastructure in Rural Areas Increase user rates in rural areas Improvement in IT Literacy Existence of policies to improve literacy Increase user rates among the poor Literacy surveys Establishment of Laws for User Protection Existence of laws or government policies Establishment of Dispute Settlement Organizations Existence of exclusive organizations User Education User protection environment Expansion of Content Number of Web pages created in the own country Number of times content is accessed Development of IT Engineers Number of network engineers Number of database engineers Number of Web engineers Number of security engineers Increasing and Improving Educational Institutions Number of specialized in IT schools Number of IT related instructors	Support the formulation of national development plans Improve the management of the state-owned enterprise Support the formulation of policies for the shift over to privatization Support the establishment of a system for regulations on providers (administering service levels and established charges) x Support the formulation of policies for foreign input x Support policies that promote private investment x Support the formulation of policies for input of foreign capital x Support deregulated market entry Support the formation of a competitive market (monitoring system on actions by the former monopolistic provider that would block new market entry) Advice on the direction of fostering the IT industry x Creation of policies on IT-related privatization Creation of policies on IT-related investment promotion x Creation of policies on IT-related foreign investment Support for developing and enforcing ordinances related to information and communication Support for developing laws related to protection of intellectual property rights x Support for establishing and operating organizations for protection Support and training for development of high level human resources Support the introduction of systems to encourage rural development (Universal Service) Promote the use of the Internet Systems to encourage services that provide relief to vulnerable groups x Training for related personnel Development of security systems x Development of systems to protect personal information x Development of systems to protect consumers x Development of systems to prevent unauthorized access x Establishment and operation of dispute settlement organizations x Support and training for user education Transfer Web content creation technology Transfer multimedia content creation technology Promote the creation of local content Transfer network technology Transfer database technology Transfer Web technology Transfer security technology Creation of content for technical transfer Use of JICA-Net in technical transfer x Support for creation of local fonts and FEFPs x Support for technology to create low-cost PCs Promotion of the use of open and free software Vocational training (technical transfer of skills useful for competing in the industry, occupational skills training) Technical transfer of other special information technologies (including AI, CAD/CAM, GIS, GPS) Develop facilities for IT-related education Provide IT-related equipment and materials Support research and development (R&D) Support degree program courses Develop instructors for IT				
				1-2 Establishment of Policy to Foster IT Industry Scale of the IT industry Market share of IT-related industries Amount of private sector IT investment Importance of the IT industry in the national economy	Increase in amount invested in infrastructure Increase in amount of foreign input		
				1-3 Establishment of Policy to Eliminate Domestic Digital Divides Regional differences in Internet use Regional differences in fixed and mobile telephone subscription IT use by vulnerable groups (the poor, disabled, women)	Increase in amount invested in infrastructure Increase in amount of foreign input		
				1-4 User Protection Number of claims and handled claims against related organizations	Increase in amount invested in infrastructure Increase in amount of foreign input		
				2-1 Development of Engineers and Instructors Supply and demand conditions in each technical field Standards for technical level	Increase in amount invested in infrastructure Increase in amount of foreign input		
				2 Human Resources Development in IT Fulfill the demand for national IT objectives	Increase in amount invested in infrastructure Increase in amount of foreign input		

Examples of Activities:
 = JICA has considerable experience
 = JICA has certain experience
 = JICA has experience as a component of projects
 x = JICA has little experience

Development Objectives Chart on Information and Communication Technology (2)

Development Objectives		Mid-term Objectives	Sub-targets of Mid-term Objectives	Examples of Activities	
3 Improvement of Communication Infrastructure Plan for improvement of communication network	2-2 Development of Policy Makers	3-1 Provision of Communication Infrastructure Telephone diffusion rate Number of people able to use the Internet	Technological Improvement in the Field of Communication Technology Number of engineers in communication network maintenance Number of engineers in high-speed communication network	Technical transfer of communication network maintenance Technical transfer of high-speed communication networks	
			Development of Administrative Human Resources Number of personnel to be trained per administrative organization	Human resource development training of administrators at the actual working level	
			Provision of Backbone Network Degree of potential communication capacity Network reliability	x Introduction of a public communication backbone Increase communication infrastructure x Support the introduction of third generation mobile phones Rehabilitation of old lines x Installation of VSAT Installation of other specific purpose communication networks	
			Provision of Access Network Transmission quality Rate of diffusion of fiber optics	Advance the development of fiber optics x Installation of Internet Exchanges (IX) x Support introduction of IPv6	
			Provision of Infrastructure in Rural Areas Resolving the issue of regions with no telephones Promotion of regional industry	Increase in telecommunications infrastructure x Installation of VSAT x Expansion of communication region through partnerships with the private sector	
			Expansion of Access Points Number of access points	x Establishment of access points	
			High-speed Communication Transfer speed Areas available with Broadband Distance available with Broadband	x Technology transfer of xDSL, FTTH x Promotion of change to xDSL, FTTH	
			Provision of Public Access Points Number of public access points Number of public access point users Increase in hours of use at public access points	Installation of public telephones x Village phone Establishment of MCTs (Multipurpose Community Telecenters) Establishment of Internet kiosks x Development of IT hardware at public facilities in communities (government agencies and ministries, local governments, educational institutions)	
			4-1 Promotion of e-Government Plans for using IT in governments	Electronic Filing of Administrative Procedures Number of application and notification procedures available online Introduction of electronic bidding/in infrastructure	x Support for electronic filing of application and notification procedures x Support for introducing an electronic bidding system
			4 Improvement of Efficiency and Effectiveness of Every Sector through the Use of IT	4-2 Promotion of the Use of IT in Every Sector (such as health care, medicine, education)	Streamlining Government's Internal Processes Degree of diffusion of networks between government agencies Systemization of administrative work
Citizen Participation in Policy Making	x Citizen participation in development studies x Proactive publication of the activities of policy advisors				
Promotion of e-Learning Rate of diffusion of e-Learning	Use of JICA-Net Provision of equipment and materials for distance education				
Support for Content Creation	Support for using IT in educational materials				
Promotion of the Use of IT as a Tool for Statistics and Analysis	Support for developing systems for statistics and analysis x Support for improving the IT literacy of users Use of JICA-Net				
Other Specific Use of IT	x Diffusing networks for food sanitation and safety Remote sensing (GPS, GIS) Disaster warning systems Distance medicine Environmental monitoring Other				

Examples of Activities:

- = JICA has considerable experience
- = JICA has certain experience
- = JICA has experience as a component of projects
- x = JICA has little experience

Development Objectives Chart on Information and Communication Technology (3)

Development Objectives		Mid-term Objectives		Sub-targets of Mid-term Objectives		Examples of Activities	
5 Improvement of Efficiency and Effectiveness of Development Assistance through the Use of IT	5-1 Dissemination and Transfer of Existing Knowledge	Dissemination and Transfer of Knowledge through Distance Training	Increase and improve digitized educational materials	Number of distance lectures and seminars held	Number of WBT courses held	Populization and transfer using remote methods (including JICA-Net) Courses using TV conferencing x Creation of a library on the Internet Web Based Training with learning management	Packaging of educational materials through JICA-Net Systemization of sector-specific knowledge Creation of digital educational materials for each project
	5-3 Use of IT in Project Implementation	Systematization of Knowledge and Know-how	Distance Discussions and Consultations	Systematization of sector-specific knowledge Consensus-building through TV conferences			

Examples of Activities:
 = JICA has considerable experience
 = JICA has certain experience
 = JICA has experience as a component of projects
 x = JICA has little experience