

Information and Communications Policy in Japan 2002 Annual Report

- *Information and Communications Policy*
- *Telecommunications Administration*
- *International Policy and Cooperation*

Note: In line with the Japanese Government reorganization, on January 6, 2001, the Ministry of Posts and Telecommunications (MPT), together with the Ministry of Home Affairs and the Management and Coordination Agency, was integrated into the “Ministry of Public Management, Home Affairs, Posts and Telecommunications (MPHPT).” Please be advised that throughout this report “MPT” on and before January 5, 2001, is currently “MPHPT.” Where an article refers to “MPHPT,” if the article describes a matter occurring on and before January 5, 2001, said “MPHPT” shall be read as “MPT.”

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Information and Communications Policy

I. Deployment of ICT Policy in the 21st Century

1. ICT Strategy Promotion at Government Level

The government established within the Cabinet in January 2001 the "Strategic Headquarters for the Promotion of an Advanced Information and Telecommunications Network Society (IT Strategic Headquarters)" -- with the Prime Minister as the Director-General thereof -- based upon the recognition that promotion of IT Revolution is a strategic matter.

This IT Strategic Headquarters, in addition to deciding upon the basic strategy that is the "e-Japan Strategy" had set in March 2001 its action plan called the "e-Japan Priority Policy Program" that includes 220 specific measures.

Moreover, in June 2002 it reconsidered the "e-Japan Priority Policy Program" that, keeping afresh in mind the situation for Japan in comparison with other nations and the evaluation in light of Japan's results, aiming to truly make the target of "becoming one of the world's advanced IT nations within five years" a reality known as e-Japan Priority Policy Program-2002.

While the "e-Japan Strategy" that is the basic strategy related to IT will be promoted aggressively, the "e-Japan Strategy" will also, based on said e-Japan Priority Policy Program-2002 directing that necessary structural reforms and facilities will be quickly and forcefully realized within five years from year 2001, with the government as a whole led by the IT Strategic Headquarters promote necessary policies on a strategic and focused stance as well as in a speedy manner.

1) e-Japan Strategy

Under e-Japan Strategy, all citizens will use information technology (IT) fully and also make possible an intellectually creative society, which will to the greatest extent allow the aforementioned concept to become a reality. This will be accomplished by concentrating on the four major policy measures of i) building an ultrahigh-speed Internet network and providing constant Internet access at the earliest date possible, ii) establishing rules on electronic commerce, iii) realizing an electronic government and iv) nurturing high-quality human resources for the new era. Furthermore, the promotion effort will be furthered by establishing an environment where the private sector based on market principles can maximize their strengths and setting the target of becoming one of the world's advanced ICT nations within five years.

2) e-Japan Priority Policy Program-2002

"e-Japan Priority Policy Program-2002" will specifically in order to clarify the major policies, after delineating the roles to be played by the public and private sectors, deal with the following five priority areas, namely;

- i) Formation of the world's most advanced information and telecommunications networks
- ii) Enrichment of education/learning and human resource development
- iii) Promotion of e-commerce, etc.
- iv) Putting administration and public fields on an IT basis

- v) Ensuring the security and reliability over advanced information and telecommunications networks

This plan, in addition to the long-term policies included in three-Japan Priority Policy Program, includes a total of 318 measures that meet the three requirements of i) being a policy that aims realize the world's advanced ICT nation within five years, ii) being a policy that realizes necessary structural reforms and facilities quickly and forcefully, and iii) being a policy that in principle have specified goals and dates for attaining said goals.

2. Promotion of central and local electronic governments (e-governments)

1) Establishment of National Strategies

-- The "Program for Promotion of e-

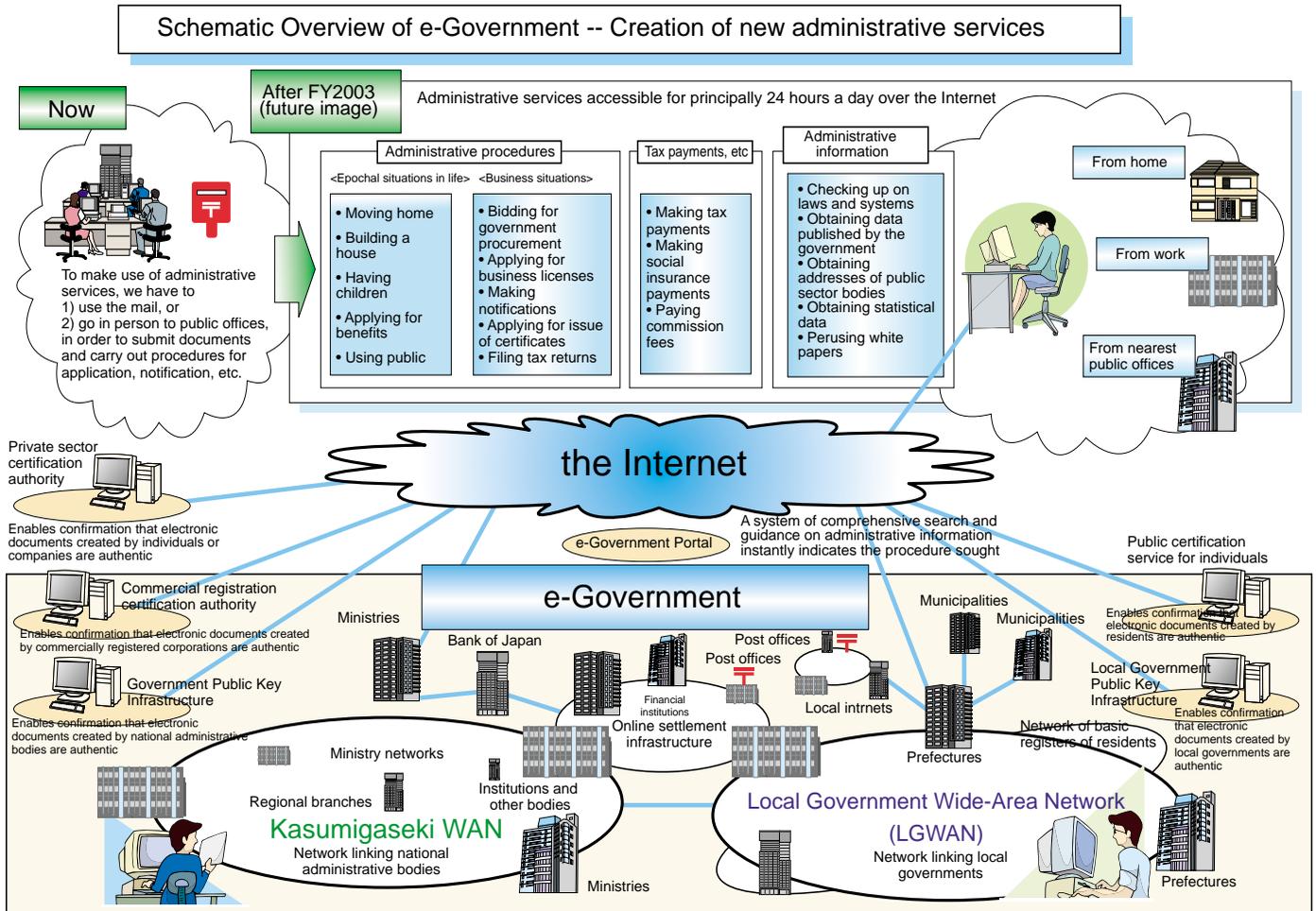
Government at Central and Local Levels" adopted in October 2001 --

Against the backdrop of a global-scale technological advances in the ICT field, Japan is going through a rapid transition to the broadband Internet, digital broadcasting, and highly advanced and diversified information technologies which bring about a structural change in the entire spectrum of socioeconomic activities in Japan, including citizen's life and business activities. At the central and local governments, an extensive effort is underway in order to realize e-governments at national and local levels allowing online public access to government information, online application for issue of certificates/notification and tax declaration/payment via the Internet from home, by making the most of the latest information technology. It would provide access to pub-

lic services with no restrictions in time and place. This initiative would do more than just improve administrative convenience substantially; it would serve as a social infrastructure for citizens and businesses to enjoy benefits of using ICT.

In its "e-Japan Strategy" (adopted by the IT Strategic Headquarters in January 2001), the government positions it as one of the priority policy areas to realize the e-Governments encompassing the central and local governments. Presently, it is promoting a focused reform of operations to bring about a shift to electronic delivery of government information, electronic filing (application, notification, and others), electronic documentation, paperwork elimination, and sharing/utilization of information through information networks, for the purpose of simplifying, and improving efficiency and transparency of administrative manage-

Fig. I-2-1) Central and local electronic governments



ment in line with the "e-Japan Priority Policy Programs" (established by the IT Strategic Headquarters in March 2001 and revised in June 2002) that states full facts about the policies that the government must implement promptly and in a focused manner by clearly stating the strategies.

2) Promotion of e-governments

-- "MPHPT electronic application and notification system" now partially operational --

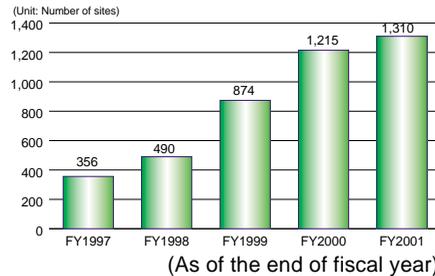
i) Online interaction among citizen, business and government

Online interaction among citizens, business and governments at central and local levels is to improve the quality of government services, e.g., by precisely answering the request for alleviation of burdens on citizens and business in connection with provision of a broad range of government information, administrative procedures and public access to public services by utilizing the Internet, etc. Specifically, this include electronic delivery of government information and electronic filling/application, registration and notification with the government. Of the 13 office and ministries of the government (including their affiliated agencies), all the authorities concerned have opened websites. The number of websites as opened by all administrative agencies of the government as of the end of FY2001 was 1,310 (see Fig. I-2-2)-1).

For progress in online service delivery (application, notification, etc.), according to the "e-Japan Priority Policy Programs," it is planned to bring practically all government services for citizenry online via the Internet by the end of FY2003, as long as services from the central government are concerned.

With the objective of moving ahead of time the schedule of providing online services, sim-

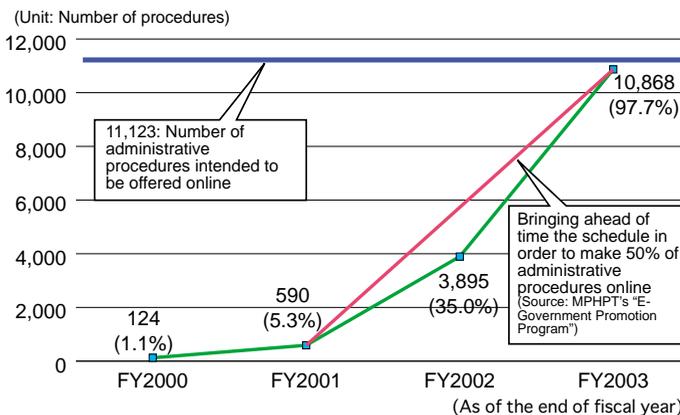
Fig. I-2-2)-1 Number of websites opened by the nation's administrative agencies



plifying and streamlining administrative procedures, the relevant office and ministries will review the existing action plans and bring services online for 7,335 procedures (54% of all) by the end of FY2002, and 13,299 (98%) by the end of FY2003. Also, for applications, notifications, and other statutory formalities, the "Bill Concerning the use of Information and Telecommunications Technology on Administrative Procedures" was submitted to the Diet in June 2002 (carried over the next session) as a legislation to enable electronic administrative procedures, in principle, for all public services, in addition to the conventional means based on paperwork (see Fig. I-2-2)-2).

As a specific effort to offer online public services (application, notification, etc.), MPHPT made the "MPHPT online application/notification sys-

Fig. I-2-2)-2 Number of electronic administrative procedures (application, notification, etc.) brought online by the nation's administrative agencies



* Figures in brackets show a percentage of online administrative services to the services intended to be put online

Source: Prepared with reference to "Program for Promotion of e-Government at National and Local Levels" (Report of the IT Strategic Headquarters in June 2001).

tem" (<http://www.shinsei.soumu.go.jp>) partially operational in March 2002. They began to accept online application for 10 different administrative procedures. They also opened a website to provide a hands-on experience of the online application system in order to deepen understanding among people on the idea of electronic administrative procedures (<http://www.taiken.soumu.go.jp>).

ii) Computerization within administrative agencies

Computerization within administrative agencies will in the first place create a work and information management system using ICT, and improve streamlining and efficiency of operations and enhance administrative management. It also helps establish ICT infrastructure for providing online interaction among public, business and governments. Examples include deployment of information and communications equipment such as PCs, construction of intra-agency and inter-ministerial networks, etc. For PC deployment within the nation's administrative agencies, the number of employees per PC at the end of 2001 was 1.2 across all administrative agencies (except for national university-related ones under the Ministry of Education, Culture, Sports, Science and Technology). This indicates that the effort toward deploying a PC per employee is

steadily progressing. Also, examining by agency category (see Note), at the internal bureaus and departments (0.9 employees per PC) and independent administrative institutions (0.4 per PC), the milestone of a PC per employee has been achieved. In the future, deployment at facilities/institutes (2.2), special institutions and overseas establishments (1.9), and branch offices (1.2) is expected to go forward.

Looking at network connection of these PCs deployed, about 80% of them are networked one way or another, including LAN (77.7%) and

non-LAN connection to hosts (2.2%) as of FY2001. This indicates that there has been much headway in networking within administrative agencies.

Furthermore, as an inter-ministerial network interconnecting LANs of government agencies, the Kasumigaseki WAN was launched in January 1997. It is serving as the ICT infrastructure in exchanging e-mails and sharing information among governmental agencies. By the end of FY2001, about 80% of 57 services for which to introduce paperless work across government agencies by the end of FY2001, including notifications, are now being offered online (including partially online services).

Note: "Internal bureaus and departments" means the Cabinet Secretariat and bureaus as specified under Articles 7 and 20 of the National Government Organization Law (Law No. 120 of 1948). "Facilities/institutions" means the educational and training facilities and correctional institutions as specified under Paragraph (2) of Article 8 of said Law. "Special institutions and overseas establishments" means diplomatic missions and prosecutor's offices as specified under Paragraph (3) of Article 8 of said Law. "Branch offices" means agencies located in each block or prefecture as defined under Article 9 of said Law.

3. Promotion of e-local governments

-- LAN deployment of 90% indicates that an effort within local governments is steadily progressing. --

In tandem with promotion of the e-Government initiative by the central government, local governments are also harnessing the benefits of the leading-edge information and communications technology for improving efficiency, effectiveness and quality of public services, fostering local business and correcting the digital divide between regions. Local governments' efforts toward electronic government are outlined below:

i) Online interaction among public, business and local governments

For online interaction among public, business and local governments, 2,751 organizations opened websites within FY2001, which is up 25.5% over the

previous fiscal year. Examining it by organization category, prefectures have already attained 100% presence on the Internet, and municipalities are still at 83.3%, up 17.3 percentage points over the previous fiscal year.

ii) Computerization within administrative agencies

As for computerization within administrative agencies, PC deployment at local governments in FY2001 was 319,915 units (up 21.3% over the previous fiscal year) in prefectures, 561,721 units (up 45.0%) in municipalities. Construction of intra-agency LANs was 100% in prefectures and 88.6% in municipalities, indicating a rapid progress in deployment. Also, in their intra-agency LANs, all prefectures have "printer sharing," "file sharing," "e-mail" and "electronic bulletin board" functionalities.

In addition, as a network interconnecting local governments, the "Local Government WAN" is under construction. It is already operational for all prefectures and 12 major cities in Japan. Also, in April 2002, the network has been connected to the "Kasumigaseki WAN." Now, connection is extended to other municipalities in succession. The network is slated for operation for all such organizations within FY2003.

iii) An effort by the central government

As a preparation to offer public services online within local governments, the central government developed the "Framework for Electronic Filing of Application/Notification Pertaining to Local Government Administrative Procedures (Guideline)" (approved in December 2000 by the Inter-Ministerial Council for Promoting the Digitization of Public Administration), in order to sort out issues facing the national government. Also, for public services under their jurisdictions, individual government agencies established action plans to specify when to present standard specifications for individual public services to be put online and when to revise laws and regulations. Fifty-five municipalities have laid down conditions for electronic filing of ap-

plication/notification, and other services (implementation ratio: 1.0%) as of FY2001. FY2002 and FY2003 will see it increase to 3,055 (59.3%) and 4,914 (95.4%), respectively.

4. IT Policy Principles

The diffusion of the Internet and rapid advancement of information and communications technology as well as promotion of the IT Revolution have been social changes that equal the Agricultural Revolution and the Industrial Revolution. Under such changes in circumstances, Japan in the early 21st century is facing various problems such as the environmental issues, urban renewal and population decrease and graying, but the introduction and diffusion of ICT is a major theme that is common to all these fields. That is to say, the promotion of the IT Revolution meeting structural reforms holds the key to the economic revival and continuance of sustainable growth in Japan, making it vital that focused and strategic ICT measures be promoted aggressively.

Under such recognition, the government has adopted the "e-Japan Strategy," under which Japan aims "to become the world's advanced IT nation within five years," as well as its action plan, the "e-Japan Priority Policy Program" and its 2002 program, the "e-Japan Priority Policy Program - 2002."

The grand scheme applies to, based on such strategies and the like, the priority areas to be focused upon in particular for FY2002, enumerating the specific goals and policy outline by concentrating on FY2002 budget.

Concerning the priority areas, as enumerated in the e-Japan Strategy, in order to deal effectively with the IT Revolution, it is vital to develop hardware, software and content as one, where all citizens without regard to geographical restrictions, age groups, bodily conditions and the like can equally realize a society where the benefits of ICT can be enjoyed by said citizens.

Specifically, as for the new social infrastructure for dealing with the IT Revolution, regarding establishment

of ultrahigh-speed network infrastructure and promotion of its use, in particular, human resource development including the nurturing of information literacy, there is a need to aggressively promote the aforementioned while keeping in mind the need to correct gaps in access opportunities or ability to utilize said infrastructure. Moreover, as a propellant of various activities making use of ICT activities based upon such infrastructure, early realization of e-governments is a must. Furthermore, as to promotion of R&D on information and communications technology that supports the IT Revolution, there is a need to proceed while taking heed of the deliberations at the Council for Science and Technology Policy.

From such a standpoint, for FY2002, the following are the five priority areas in FY2002 budget

- i) Establish and promote the use of ultrahigh-speed network infrastructure
- ii) Realize central and local e-governments
- iii) Develop human resources
- iv) Help bridge the digital divide
- v) Promote strategic research and development

5. Advancement of basic Internet technology

In the "e-Japan Priority Policy Program - 2002" and "e-Japan 2002 Program," R&D on technology for promoting the shift to the IPv6-based Internet -- with the target of "becoming the world's most advanced IT nation within five years" -- has been shown to be in need of advancement of basic Internet technology and R&D promotion, not to mention the highlighting to the citizens of the effects of ICT in an easy-to-understand manner by the "e-Japan 2002 Program."

This policy accelerates and promotes the establishment of an environment necessary, such as deciding upon operation rules such as Digital Rights Management (DRM) and security required because of the need to make known the world over the results of deliberations on the status and efficacy

of technology to realize advanced Internet applications for enabling high-level ICT use, for the private sector and others. Further, by showcasing the effects of ICT to the citizens, the demand will be stimulated concerning new applications utilizing ICT.

6. Convergence of communications and broadcasting

Digital broadcasting has close affinity to the Internet, so by combining with the IPv6-based Internet, there will be such merits as improved flow related to a variegated media -- such as content other than those of broadcasting -- in addition to the increasing importance of new services resulting from the convergence of communications and broadcasting. In the "e-Japan Priority Policy Program," as one case of the policy measures for attaining the government objective, the formation of the world's most advanced information and telecommunications network, is the call for the establishment of laws like a "bill concerning

support measures for R&D for promoting services derived from the convergence of communications and broadcasting" will be taken through the Telecommunications Advancement Organization of Japan (TAO), as indicated in the program.

During the 151st Ordinary Diet Session, upon submission, passage on June 2001 and promulgation (to take effect in November 2001) of the Promoting the Development of Technology for the Convergence of Broadcasting and Telecommunication Act by MPHPT took place. Under this act, the objectives of financial support for technological development, by the private sector and others to become the foundation to the convergence of communications and broadcasting technology as well as promotion of facilities used by telecommunications systems, etc. that is in common, and for those developing crucial technology are aimed at the development of converged communications/broadcasting service.

II. Building of an Information Society Open to Everyone

1. Virtual Agency's "Education Computerization Project"

The Virtual Agency is a task force under the direct control of the prime minister, and not otherwise associated with any particular ministry or agency, set up in December 1998 as a solution to deal with the increasing number of issues that fall outside the jurisdiction of ministries and agencies. The Agency identifies concrete goals and schedules.

In December 1999, the Virtual Agency submitted its findings as a final report, describing projects including measures for realizing an electronic government (E-Government) and the "Education Computerization Project."

2. Use of the Internet in schools

Aiming to establish an environment where children can freely use the In-

ternet

Schools have a responsibility to develop in children as high a degree of information literacy as possible, to enable them to live successfully in an advanced information society of the future. Of Japan's public schools, 97.9%, up 16.8 percentage points over the previous fiscal year (FY2000: 81.1%), had access to the Internet by the end of March 2002. There are moves to connect all public schools to the Internet by FY2001, and new National Curriculum Standards will be introduced in FY 2002 that include education in ICT.

MPHPT started a new three-year R&D plan in FY2001 by expanding a network R&D project in the three-year R&D project (two years extended later) since FY1999 and another three-year R&D plan (one year extended later) since FY2000. This R&D plan entitled "R&D on information and communications technology for the School

Internet" is carried out in collaboration with the "future education R&D project utilizing the next-generation ICT" of the Ministry of Education, Culture, Sports, Science and Technology (MEXT).

The objective of this R&D is to carry out R&D on network construction in an age where moving picture information is distributed on a full-scale basis. For the purpose, verification experiments are conducted on research networks that enable 1,540 schools selected from some 40,000 elementary/lower and upper secondary schools to be connected to the high-speed Internet through high-speed access networks.

1,675 schools have been connected to these research networks through R&D projects, which are launched in FY1999 and FY2000.

These research networks, called the "School Internet," consist of about 3,000 schools, 86 regional network centers throughout Japan and the Central Network Center in Mitaka City, Tokyo.

3. Study Group on Network-human Interface" Compiles Report

Human-network Inter-relationship - Toward Prodigiously User-friendly, Highly Satisfactory and Exciting Networked Society

With the advent of a society where information and communications networks surrounding people are expanding and ICT is used by anyone anywhere at anytime, there is a need for viewpoints concerning what kind of information and communications networks are required by consumers.

To this end, MPHPT has been holding the "Study Group on Network-human Interface" (Chair: Prof. HARASHIMA Hiroshi, Interfaculty Initiative in Information Studies and Graduate School of Interdisciplinary Information Studies, the University of Tokyo) since March 2002 in order to study the desirable next-generation "network-human interface" which enables people to enjoy the benefits of ICT. The study group compiled its

outcomes as a report.

Taking into consideration future usage/images of information and communications networks based on the viewpoints above, this report sees objectives and functions of network-human interface as:

Realization of free and comfortable daily-lives supported by information and communications networks (realization of a networked society in which ordinary people can enjoy the benefits of easy-to-use networks);

Free from surrounding dangers and anxieties (realization of a networked society in which anyone can enjoy the benefits of networks without fear); and Creation of new ways of enjoyment through information and communica-

tions networks (realization of a networked society in which everybody can enjoy the benefits of exciting networks).

The report proposes promotion measures, including interdisciplinary R&D on network-human interface by gathering experts in diversified fields and verification experiments with public involvement (in particular the residents), toward the realization of network-human interfaces.

MPHPT will, paying due respect to the report, promote measures for realizing the advanced information and telecommunications network society at an early stage, under which the Japanese nationals can fully enjoy the benefits of ICT in a true sense.

III. R&D to Support Advancement and Diversification of ICT

1. Space Communications R&D Opening up the Future

Space communications has many features such as wide-area coverage, multiple address functionality and disaster-resistance, having until now been used widely in fields such as communications, broadcasting, positioning, etc. supporting the improvement of people's lives. MPHPT, while clarifying henceforth the role of space communications within the advanced information and communications infrastructure to be constructed, will conduct R&D needed henceforth in realizing space communications.

Specifically, i) R&D on quasi-zenith satellite system: R&D for enabling high-precision positioning systems/mobile communications with the area coverage rate of 100% that complement terrestrial mobile communications networks and provide broadband services, ii) Engineering Test Satellite - VIII: ETS-VIII: R&D for enabling high-speed data communications and high-quality (CD level) sound broadcasting, etc. utilizing geostationary satellites for mobile terminals, and iii) "global multimedia mobile satellite communications technology": R&D for enabling communica-

tions of moving pictures, etc. by portable terminals anywhere around the globe by utilizing next-generation low-earth orbit (LEO) satellites, among others, are being carried out.

2. Promotion of construction of GIS

-- Promotion of R&D on key technology necessary for 3-D GIS --

The Geographical Information System (GIS) is a system that integrates electronic map data and ledger data, as well as statistics in different formats, then carries out statistical processing and simulation. Because GIS enables a broader range of economic activities more efficiently and information sharing, applicable fields are urban planning, facilities management, area marketing, information analysis, welfare services, etc.

In addition, 3-D (three dimensional) GIS enables creation of 3-D images of real topography and urban space by adding altitude information. Thus, this can be applied to not only various simulations in specialized fields but also general fields, including walk-through, tourist information with reality, educational fields, etc. 3-D GIS R&D includes information and com-

munications technology such as technology for acquisition, renewal, reproduction, transmission, etc. of 3-D information.

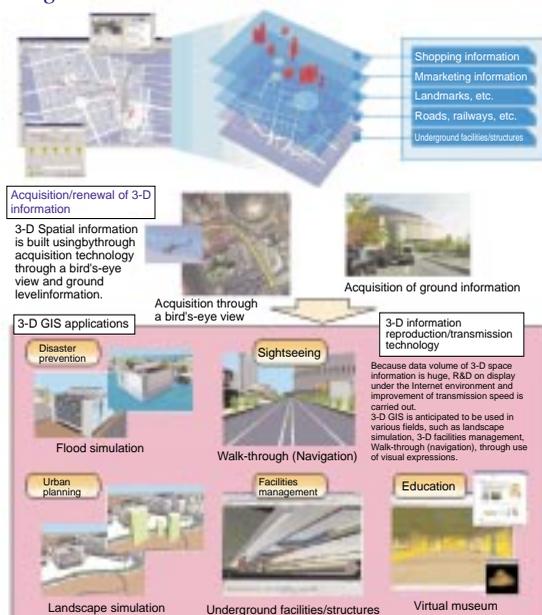
3. Future Prospects of Ubiquitous Network Technology

As networks develop toward higher speed and diversified access methods to networks are enabled, the advent of the "ubiquitous network society," in which high-capacity applications are used, is expected. In Europe and the U.S., industrial, academic and governmental groups have been promoting various R&D projects concerning network technology.

In order to ensure Japan's international competitiveness and to promote strategic R&D under such circumstances, MPHPT had been holding a "Study Group on Future Prospects of Ubiquitous Network Technology" (Chair: Dr. SAITO Tadao, Professor Emeritus, the University of Tokyo) for clarifying a socioeconomic image of the ubiquitous network technology and the technology's impacts, proposes R&D themes to be tackled and promotion measures for the realization since November 2001. In June 2002, the study group compiled its findings as a report.

This report describes that, through

Fig. III-2 3-D GIS



realization of a "ubiquitous network" at an early stage, it is anticipated that creation of new industries and business markets (CY2010: 84.3 trillion yen), contribution to solving various social problems carried over from the 20th century, such as realization of people leading lives in peace, promotion of social participation by people with disabilities and the elderly; coping with environmental issues; etc. are to be achieved.

Moreover, this report proposes that i) promotion of R&D in priority technology areas, such as "Ultrascale chips networking" project, "Anything my terminal" project, "Anywhere networking" project, ii) collaboration with Europe, the U.S. and Asian economies in R&D and international standardization activities, etc., and iii) establishing R&D promotion scheme for industry-academia-government collaboration, such as industry-wide information exchanges and contribution to R&D/standardization activities.

MPHPT will, paying due respect to this report, promote R&D and standardization activities toward the realization of a "ubiquitous network" at an early stage.

4. R&D on ultrahigh-speed photonic network technology

In recent years, transmission of high-volume data (e.g., motion pictures) has been required to the Internet. R&D of ultrahigh-speed photonic network technology is essential for realizing large-capacity data transmission. Ultrahigh-speed photonic network technology enables optical communications throughout the network by means of wavelength division multiplexing (WDM) technology, which multiplexes, in a single optical fiber, different signals on lightwaves with different wavelengths, as well as optical routing technology that does not need optical/electrical signal

conversion. Ultrahigh-speed photonic network technology realizes ultrahigh-speed data transmission by maximizing the transmission capacity of optical fibers.

To create the most advanced information and telecommunications society in the world, MPHPT has been promoting R&D of ultrahigh-speed photonic network technology under a unified academia-industry-government R&D scheme in collaboration with TAO, universities, etc.

5. First Meeting of "Promotion Conference on Quantum Communications Research" Held

On May 28, 2001, in order to promote R&D on quantum communications, MPHPT held the first meeting of the "Promotion Conference on Quantum Communications Research" (Chair: Dr. Leo ESAKI, President, Shibaura Institute of Technology) at MPHPT headquarters, to comprehensively deliberate upon R&D directions and total strategy with participation of experts and researchers.

MPHPT has been promoting integrated and strategic R&D on quantum communications technology, which has potentialities to realize ultrahigh-speed or extremely secure encrypted communications.

The Conference was formed for contributing to smooth and effective promotion of R&D through comprehensive deliberations on the current status, direction, total strategy of R&D among industry-academia-government experts and researchers.

Topics to be deliberated at the Conference are as follows:

- i) Survey on quantum communications R&D trends in Japan and foreign countries
- ii) Comprehensive R&D promotion measures concerning quantum communications
- iii) Evaluation of R&D concerning quantum communications
- iv) Other topics necessary for promoting R&D on quantum communications

6. Toward Diffusion of Time Business

-- "Study Group on R&D of Time Validation and Time-stamping Services" Compiles Report --

Recently, with the rapid spread of electronic commerce transactions and administrative procedures over the Internet, there is an increasing need to accurately know the time at which transactions, applications and the like are performed over networks and to be able to verify the time to a third party. To this end, the development of new technology for improving the reliability of time distribution and the security of time-stamping as well as efforts for promoting dissemination of the time business have become crucial tasks.

Considering these backdrops, since January 2002, MPHPT has held the "Study Group on R&D of Time Validation and Time-stamping Services" (Chair: Dr. OHASHI Masakazu, Professor, Faculty of Policy Studies, Chuo University) in order to study the future image of time validation and time-stamping services in the ICT age, R&D themes, standardization problems, socio-economic effects and promotion policy for standard time distribution and time authentication services ("time business"). In June 2002, the study group compiled its outcomes as a report.

Against these backdrops, after a series of deliberations on the future image of the "time business" and economic effects thereof, the study report group proposes comprehensive promotion measures for this business.

MPHPT will, paying due respect to this report, take necessary measures for dissemination of the "time business."

7. Advanced Technology R&D Support system (Telecom Incubation)

The Telecommunications Advancement Organization of Japan (TAO) has been subsidizing part of R&D ex-

penses to ventures, etc. which carry out R&D on leading-edge and original technology in the communications and broadcasting fields (leading-edge R&D subsidization scheme). In FY1999, TAO added an R&D promotion scheme for supporting university-industry tie-ups (university-industry tie-up R&D subsidization scheme) and an R&D promotion scheme for supporting particularly promising technology fields as designated by TAO (priority technology field R&D subsidization scheme). In addition, since FY1999, an R&D promotion scheme for supporting university-industry tie-ups and a scheme for subsidizing R&D in technological fields designated by TAO as promising and growing fields (priority technological fields subsidization scheme) were instituted.

In FY 2001, TAO subsidized eight projects, totaling 129 projects since their introduction.

8. Promoting R&D through use of Japan Gigabit Network

Japan Gigabit Network (JGN) is aimed at conducting research and development of ultrahigh-speed networking and high-performance application technologies such as the next-generation Internet technology, and is an open testbed on a nationwide scale that is from FY1999 being operated by the Telecommunications Advancement Organization of Japan (TAO).

JGN comprises ultrahigh-speed optical-fiber networks with ATM switches (Gigabit Network Link) that have 66 access points nationwide, five Shared Use Research Facilities (Gigabit Laboratories, located in Tsukuba, Keihanna (Kansai Science City), Kitakyushu, Kyoto and Okayama) and Research Centers established for TAO to perform its own research. From October 2001 it has been made IPv6-ready, turning it into one of the world's largest native IPv6 networks (*) and has been conducting R&D on network operation/management technology related to IPv6 and on IPv6-compliant equipment, among other activities.

Note*: a network made up exclusively of IPv6-compliant equipment

Gigabit Network Link and the Shared Use Research Facilities are open to universities, research institutes, private companies and other organizations for a variety of R&D activities for five years from FY1999 through FY2003. The former is rented out free of charge (users pay for network charges from access points to their own facilities) and users of the latter are charged minimum expenses for fuel, lighting and other items.

Latest information is available on the website:

<http://www.jgn.tao.go.jp/>

9. Competitive Funds for promoting R&D on ICT

MPHPT is promoting R&D into unique and innovative ICT on a consignment basis through subsidies for funding excellent R&D themes selected from applicants. To this end, MPHPT invites R&D themes from the public through the following competitive research fund:

[Strategic Information and Communications R&D Promotion Scheme]

In order to create world's leading intellectual property rights, raise the level of Japanese researchers through preparation of a competitive research environment and create world-leading intellectual resources, MPHPT is actively promoting unique and innovative R&D projects in line with the strategic priority targets. To this end, MPHPT is funding the following R&D themes selected from the public proposals:

- i) Top priority Research and Development to be focused upon
- ii) Research and Development for Fostering Researchers
- iii) Research and Development Aimed at Acquiring International Standardization

MPHPT established the following competitive funding systems in the Telecommunications Advancement Organization of Japan (TAO) for promoting R&D into original and innovative ICT, etc. on a consignment basis

through subsidies for funding excellent R&D themes selected from the public.

[Basic Research Promotion Schemes in the ICT Field]

[R&D promotion scheme utilizing Japan Gigabit Network]

[Advanced Technology R&D Support system (Telecom Incubation)]

[R&D promotion scheme for key technologies in the private sector]

Through these competitive research funds in the ICT field, it is expected that not only various leading-edge R&D projects be efficiently and effectively promoted, but also R&D capabilities be enhanced and creation of a competitive R&D environment raise the level of Japanese researchers

10. Methods for Evaluation of R&D on ICT

In order to effectively and efficiently promote R&D in the ICT field, it is required to create a flexible, competitive and open R&D environment, and to efficiently allocate R&D resources with priority. To this end, evaluation of R&D is significantly critical.

With regard to R&D evaluation, in accordance with the "Government Policy Evaluations Act" enacted in June 2001, the Cabinet decided the "Basic Guidelines for Implementing for Evaluation" in December 2001. The "Basic Guidelines for Implementing for Evaluation" describes that in addition to the "Government Policy Evaluations Act" and the "Basic Guidelines for Implementing for Evaluation," the policy evaluation shall be conducted in line with the "National Guideline on the Evaluation for governmental R&D" as decided by Prime Minister in November 2001.

MPHPT, based on those decisions and the law, submitted an inquiry about the methods of evaluation for R&D in the ICT field to the Telecommunications Council, and the inquiry was discussed in the committee of R&D evaluation under the Telecommunications Technology Sub-Council under the Telecommunications Council. In March 2002, MPHPT received

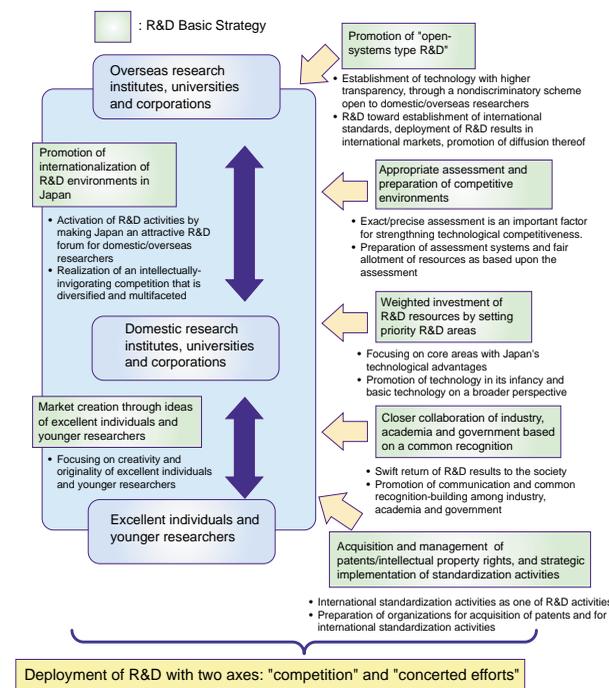
a report, the "Nature of R&D Evaluation Pertaining Info-Communications Technology" compiled by the Telecommunications Council.

Paying due respect to the report, MPHPT developed the "Guidelines for Info-Communications R&D Evaluation," and since FY2002 it has been implemented and operated on a full scale as part of policy evaluation.

11. Approach to national R&D capability

Information and Communications Technologies (ICT) is a key infrastructure of all industries and a core technology in the 21st century. And ICT is a driving force that creates new industries while propelling economic structural reforms as well. Accordingly, countries around the world are actively carrying out R&D in the ICT field. Japan is required to develop a clear strategy and a scheme concerning R&D in the ICT field, in such circumstances, in order to make Japan an attractive country with industrial competitiveness, world's richest cultures and a high-level quality of life, it is required to develop a clear strategy and a scheme concerning R&D in the ICT

Fig. III-11 Points of R&D Basic Strategy



field.

For this, MPHPT established the Committee for developing better R&D system under the Telecommunications Technology Sub-Council in the Telecommunications Council. This committee discussed Japan's desirable R&D system in the ICT field. On August 7, 2002, MPHPT received a report "Desirable R&D System for Ensuring Technological Competitiveness Pertaining to Information and Communications Technology in Japan" from the Telecommunications Council.

12. Dissemination of Time and Frequency Standards

1) Setting standards

In accordance with the Ministry of Public Management, Home Affairs, Posts and Telecommunications Law, etc., the Communications Research Laboratory (CRL), which is responsible for the national standards for time and frequency in Japan, generates the atomic time scale UTC (CRL) by using a group of commercial Cesium atomic clocks. UTC (CRL) is the weighted average of the time of these clocks, and internationally compared on regular basis. It is also used as the

source of Japan Standard Time (JST), which is disseminated by the standard frequency and time signal emission JYJ, and also of frequency calibration service. The frequency accuracy of UTC (CRL) is evaluated by the optically pumped Cesium primary frequency standard (CRL-O1) with the uncertainty of 1×10^{-14} . The evaluated results are reported to the Bureau International des Poids et Mesures (BIPM) and contribute to the International Atomic Time (TAI) and Coordinated Universal Time (UTC). CRL also conducts re-

search on an atomic fountain primary frequency standard, which is expected to be the next-generation primary frequency standard.

2) International comparison of time and frequency

Standard times maintained by each national standard organization are compared with each other, then the results are sent to BIPM and are used for the construction of TAI and UTC. CRL was designated as the node station of the international comparison network in the Asia-Oceania region. Since January 2002, comparison results via the satellite two-way comparison network mainly deployed by CRL were adopted by BIPM, for actually deciding TAI. In this field, CRL carried out basic research on the pulsar time system, time scale algorithm, etc.

3) Dissemination of standards

JST, generated by CRL, is disseminated using standard-frequency and time-signal emissions: JJY-LF (40 kHz) and also JJY-LF (60 kHz). These emissions are used as a reference frequency. The JJY-LF station (40 kHz) on Otakadoya-mountain, located in eastern Fukushima prefecture, has been operational since June 1999. And the JJY-LF station (60 kHz) on Hagane-mountain, located in northern Kyushu district, has been operational since October 2001, resulting in the establishment of a two-station operation system offering the nationwide coverage with high reliability. A set of time codes are superposed on the LF radio signal so that the signal can be used for the automatic time adjustment of radio clocks indicating JST. About 5.8 million units of the radio clocks were sold throughout the country as of the end of FY2001, becoming popular in the society. In response to emerging demand for reliable time over the Internet along with advent of the ICT society, CRL carried out R&D on time validation and time-stamping in collaboration with MPHPT.

CRL is offering frequency calibration service of the frequencies of various equipment as part of standard dissemination activities, in FY2001, such

service was conducted for 30 cases. In addition, CRL is preparing to obtain designation under ISO 17025 Standard for the Accreditation of Calibration & Testing Facilities and to participate in the Mutual Recognition Arrangement (MRA) for national measurement standards and for calibration and measurement certificates issued by national metrology institutes.

4) Others

CRL has been actively contributing to the promotion of R&D exchanges in the Asian region, including the launch of researcher invitation scheme in the time and frequency standard field in Asia.

13. R&D on network security infrastructures

-- Toward promotion of sound advanced information and telecommunications network society --

The work and activities of business and the government have become heavily dependent upon information technology, especially including ICT networks in recent years, and such dependency is expected to become increasingly critical. This gives rise to various issues of concern related to ICT security, such as unauthorized access by hackers/crackers and computer viruses.

Under such circumstances, the "Action Plan for Building Foundations of Information Systems Protection from Hackers and Other Cyberthreats" was adopted by the "Interagency Director-

Generals' Meeting on IT Security" held in January 2000, proposing that each ministry and agency promote R&D on security technology. Furthermore, the "e-Japan Strategy" decided by the "IT Strategic Headquarters" in March 2001 proposed that R&D on key technology concerning information security as specified measures be promoted.

In line with the proposals, since FY2001, MPHPT has been carrying out the following four R&D topics on network security infrastructures:

- i) Network systems security technology: R&D on security technologies necessary for network control, operation and management
- ii) Access systems security technology: R&D on security technologies necessary for detecting and preventing unauthorized access such as DoS attacks (an attack to a computer or network by unauthorized overloading or exploiting of security holes, disabling business activities) and virus
- iii) Information distribution (content) systems security technology: R&D on security technologies necessary for authentication of integrity of content distributed on the network and prevention of tampering, etc.
- iv) Security common element technology/assessment and verification technology: R&D on security technologies necessary for security element technology such as cryptography and security assessment technology through pseudo attacks, etc.

IV. Regional Information Intensification in Promotion of ICT Usage

1. Promotion of Telework/SOHO

Telework (or telecommuting)/small office home office (SOHO) offers a work-style free from confinement to fixed work locations, as enabled by the use of ICT. Not only individuals and businesses, but also society as a whole can benefit from telework/SOHO because it reduces the burden of commuting on workers, improves productivity, realizes a comfortable lifestyle,

enables engagement in work while childrearing, increases job opportunities for the elderly and people with disabilities, and contributes to environmental preservation by making actual travel unnecessary.

In particular, with the rapid penetration of ICT including the Internet and the revision of traditional employment conditions such as lifetime employment and seniority systems, SOHO businesses are emerging and their

number is increasing rapidly as independent businesses that ignore conventional corporate structures.

To promote telework/SOHO, MPHPT has been carrying out the following measures:

- i) R&D on ICT systems contributing to SOHO, etc.;
- ii) Funding scheme for facilities and equipment for telework/SOHO;
- iii) Supporting telework promotional events; and

Meanwhile, the Asia-Pacific Economic Cooperation (APEC) project to compile a "Telework Manual," which was proposed by Japan to promote telework in the Asia-Pacific region, has been completed, and the manual has already been made public.

2. Teletopia project

The Teletopia Project is an initiative aimed at solving a variety of problems in local communities and reinvigorating societies by promoting regional ICT through the introduction of ICT media such as cable TV, the Internet and community broadcasting into designated communities.

Since its launch in FY1985, a total of 203 communities have been designated as Teletopia communities throughout Japan as of the end of March 2002, where a variety of systems have been built to accommodate the special needs of each community including the revitalization of a community, the promotion of local business and the expansion of administrative, educational, medical as well as social welfare services.

3. Projects for narrowing gaps in information and communications

Projects for narrowing gaps in information and communications were earmarked projects in the "public works-related budget" scheme since FY2001 budget.

In the advanced information and telecommunications network society, in addition to the existing infrastructures such as roads and ports, information and communications infrastructures supporting smooth and secure

distribution of information shall be prepared as social capital indispensable for citizen's daily lives and corporate activities.

MPHPT has been implementing the following projects for promoting social capital preparation:

- i) Project for construction of transmission towers for mobile communications

In order to narrow information and communications gaps between regions through expansion of areas where mobile communications services such as cellular telephone services are available, in cases where municipalities construct steel tower facilities for mobile communications in rural less-populated areas, the central government subsidies part of the construction costs.

- ii) Project for eliminating poor reception of commercial TV, AM radio broadcasting and interference on reception in urban centers, in cases where municipalities, etc. construct facilities for eliminating poor reception, the central government subsidies part of the construction costs.

- iii) Project for construction of local intranet key facilities

In order to enhance local education, administration, welfare, medicine, disaster prevention, etc., the central government supports efforts of local governments, etc. to construct high-speed/ultrahigh-speed local public networks with Internet technology

4. Projects for narrowing gaps in information and communications

Projects for narrowing gaps in telecommunications were earmarked projects in the "Life-related priority budget frame" scheme since FY1991 budget.

The scheme as the "Project for Enhancement of Regional and Life-related Information Infrastructure" is a modeling project aimed at enhancing the convenience of people's daily lives, reinvigorating local economies and ac-

celerating the development of ICT infrastructure, by developing and introducing ICT applications to public-sector services. The following projects are being implemented:

1) Regional Intranet Infrastructure Construction Project

The government, from both software and hardware aspects, supports municipalities in rural and less-populated areas that introduce the Internet into public facilities in order to provide residents with two-way administrative services over the Internet.

2) Project for construction of the next-generation local cable TV networks

The government supports local governments, etc. that construct cable TV facilities for providing local residents with indispensable video information, etc. for daily lives.

3) City Central District Revitalization Project Using Multimedia

The government supports local governments, etc. that construct facilities having multimedia functions for exhibitions/training/meeting in order to revitalize city central districts.

4) Information Barrier-free Telework Centers

The government supports local governments, etc. that construct barrier-free center facilities installing ICT equipment, etc. for the elderly and people with disabilities.

5. Okinawa International Information Special District Project

U.S. military bases and facilities are as of now concentrated in Okinawa Prefecture, affecting the islanders' living environment and regional development. Taking this into account, the central government has been taking necessary measures for helping Okinawa Prefecture i) gain economic self-reliance as a regional economy, ii) secure employment, iii) contribute to improvement of the prefectural living standard and iv) develop Okinawa as a region that contributes to Japan's economy and society. MPHPT in FY1996 proposed the "Okinawa Multimedia Special District Project" (the Multimedia Island <MMI> Concept in

Okinawa). Since then, MPHPT has been getting expected results, such as job creation, through a variety of policy measures for transforming Okinawa into an “ICT hub” in the Asia-Pacific region.

Furthermore, based on the results of the MMI project, the “Okinawa International Information Special District Project,” which accelerates the realization of “ICT hub” and invites domestic and overseas ICT-related industries into Okinawa, was proposed by the final report of “Okinawa Economic Build-up Plan” (approved by the “Okinawa Policy Council” in August 2000). The “Okinawa Economic Build-up Plan” proposes various measures for helping the islands gain economic self-reliance.

MPHPT has been deploying, in a multifaceted and multilayered manner, a wide range of policy measures for realizing the “Okinawa International Information Special District Project,” based upon the following five promotion measures:

- 1) Constructing a Global Internet eXchange (IX) for building an ICT hub in the Asia-Pacific region
- 2) Advancing regional ICT networks
- 3) Inviting, clustering and fostering domestic and overseas ICT-related industries and research institutes
- 4) Concentrating domestic and overseas content and applications

6. Telecom Venture Business Fund

In May 1998, the “Telecom Venture Business Fund” (or Telecom Investment Enterprise Cooperative) was established with the aim of spawning new telecommunications and broadcasting businesses.

The Fund is giving financial assistance to “new telecommunications and broadcasting businesses” who is given authorization by the Minister for Public Management, Home Affairs, Posts and Telecommunications under the “Law for Promoting Specified Telecommunications and Broadcasting Businesses.” The new business with authorization that is newly established

or is within five years since its inception and with a capital of one billion yen or less (where a juridical person who has Type I telecommunications business permission shall be a juridical person with capital of 1.5 billion yen or less) can be given capital investment from the Fund. The upper limit of capital investment per authorized business is 200 million yen or up to 30% of the total capital.

7. Promotion of New ICT Applications R&D (Multimedia Pilot Town Project and others)

Via the Telecommunications Advancement Organization of Japan (TAO), MPHPT will conduct follow-up R&D, winning cooperation from enthusiastic local governments, universities and private companies, for new ICT applications and realizing further advanced ICT system based on basic technology which has been developed in designated communities under pilot projects.

Through these activities, MPHPT will create new demand for a variety

of multimedia model towns which will produce new lifestyles, and contribute to a socioeconomic revolution toward an advanced information society.

8. ICT human resources training project support scheme

In FY2001, MPHPT established an “ICT human resources training project support scheme” with the purpose of contributing to making Japan a nation with abundant ICT human resources through training of human resources with expertise, technical knowledge and skills in the rapidly growing ICT field. Under this scheme, MPHPT subsidizes part of necessary costs for ICT human resources training projects implemented by third sectors. In FY2001, MPHPT selected 25 projects. Until FY2005, MPHPT will actively implement trainings on necessary expertise for personnel in charge of specialized technical services, including designing of telecommunications systems, broadcast program production in the broadband age.

V. Contribution to Development of the Global Information Infrastructure

1. Promotion of international standardization

The International Telecommunication Union (ITU) is a specialized agency of the United Nations in charge of telecommunications issues, whose objectives are promotion of international cooperation for improving telecommunications as well as rational use, promotion and provision of technical support for developing countries, and enhancing efficiency of telecommunications services. At ITU, the Telecommunication Standardization Sector (ITU-T) and the Radiocommunication Sector (ITU-R) are implementing standardization activities. MPHPT, through ITU, is engaging in the promotion of international standardization.

In order to promptly implement standardization activities (approval of Recommendations) in response to rapid changes surrounding the ICT environment, working methods are being reviewed.

From September through October 2000, the World Telecommunication Standardization Assembly (WTSA-2000), the general meeting of ITU-T held every four years, was held in Montreal, Canada. The meeting accepted the introduction of new procedure enabling rapid adoption of Recommendations utilizing electronic methods for technical Recommendations not related with regulatory or policy issues, or, Alternative Approval Process (AAP). Through the introduction of AAP, the time period needed for approval procedures of almost all ITU-T Recommendations is enabled to

be shortened to two to three months. In addition, in order to promptly implement standardization activities meeting market needs, a working method proposed by Japan that upon submission of a targeted system standardization activities with priority start within a short time of period is under deliberations.

ITU-T is collaborating with other standardization organizations, for instance, upon adoption of Recommendations, ITU-T is avoiding unnecessary overlap in and accelerating standardization activities through reference to standards developed by the Internet Engineering Task Force (IETF), a forum for Internet standards, and the Third-Generation Partnership Project/Third-Generation Partnership Project 2 (3GPP/3GPP2), a mobile communication standardization forum.

ITU-R is carrying out amendment to the Radio Regulations, studies on issues concerning radio communications technology/operation, adoption of Recommendations and frequency allocation/registration. At present, ITU-R has been deliberating technical studies on radio communications under seven Study Groups by technological field, SG 1: Spectrum management, SG 3: Radiowave propagation, SG 4: Fixed-satellite service, SG 6: Broadcasting services (terrestrial and satellite), SG 7: Science services, SG 8: Mobile, radiodetermination, amateur and related satellite services and SG 9: Fixed Service; and ITU-R established the Radiocommunication Advisory Group (RAG) that revises priorities of ITU-R works and strategies, and evaluates progress of working plans, for reviewing working methods of ITU-R as a whole.

Japan has been contributing to ITU-R activities through assuming of one SG Chair, three SG Vice-Chairs and many other posts, submitting many contributions toward formulation of Recommendations, and participation of many experts in SGs, etc.

At the sixth Working Party 8F - (SG8) held in Tokyo in October 2001, as one of Japan's recent efforts, it was

agreed to adopt the basic concepts of IMT-2000 and systems beyond IMT-2000 proposed by Japan as a basis for discussion; Japan's Dedicated Short Range Communications System as a joint proposal of ASTAP's nine countries was submitted to WP8A (SG8), then a new draft Recommendation based on the joint proposal was adopted at the SG8 meeting held in November 2001.

Japan is actively contributing to technical studies, such as at the SG6 meeting held in Geneva in October 2001, it was decided that planning parameters of Japanese system (ISDB-T) are added to the Recommendation of planning standard for terrestrial television broadcasting.

2. Promotion of the Asian Info-communications Council (AIC)

Based on Japan's proposal, the Asian Info-communications Council (AIC) was established in FY1988 aimed at supporting the sound development of the telecommunications infrastructure, contributing to socioeconomic development and improving the quality of life in each member country.

AIC, initially started with four countries (Japan, the Republic of Korea, the Philippines and Singapore) was expanded to nine countries with the participation of China, Indonesia, Malaysia, Thailand and Vietnam. A total of 102 organizations participating in AIC include telecommunications administrations, carriers, communications equipment manufacturers, universities and other related organizations.

So far 27 conferences of AIC have been held. By designating a five-year period from April 1998 to March 2003 as the third AIC term, AIC has launched new extensive joint experiments on Internet Protocol (IP), Wireless Local Loop (WLL) and other items. In October 1999, the name AIC was changed from the Asian ISDN Council to the Asian Info-communications Council, in order to respond to the latest technological trends.

At the 27th AIC Conference in

Chiangrai, Thailand, it was decided to continue AIC activities for further five years starting April 2003 after the third term.

The AIC joint experiments are anticipated contributing to the development of Asian ICT infrastructures and the revitalization of the Asian economy.

3. Promotion of the APII Testbed Project

The Asia-Pacific Information Infrastructure (APII) Testbed Project is aimed at contributing to regional economic development by promoting the construction of ICT infrastructure in the Asia-Pacific region.

The practical promotion of the project began on February 13, 1997 when MPT opened the APII Technology Center (APII-TC) in the Kansai branch of the Communications Research Laboratory (CRL) in Kobe, Hyogo Prefecture. The center is equipped with advanced ICT experimental facilities, which include an ATM-backed network that serves as the hub for international joint studies on the ICT infrastructure that are being conducted in the Asia-Pacific region.

The project members are conducting internationally joint R&D projects and experiments on next-generation technologies, such as IP over satellite, IPv6 and the next-generation Internet, as well as application technologies that include telemedicine and distance learning, to mention just a couple. The APII Technology Center has also been providing training to multimedia info-communications experts who will be required to develop the next-generation network in the Asia-Pacific region.

In 2002, the JICA training program (eight countries) and an APT training course (10 countries) on the next-generation Internet technology were conducted with support of CRL and MPHPT at APII-TC.

Note: A testbed is an experimental network for conducting verification experiments in order to develop networking and application technologies.

4. Promotion of satellite application experiments

Since October 1997, MPHPT has been organizing the "Satellite Application Experiments Promotion Conference," chaired by Dr. YASUDA Yasuhiko, Professor at the School of Science and Engineering, Waseda University. One of this Promotion Conference's missions is to support three high-data rate (HDR) satellite communications experiments jointly conducted by Japan and Europe, Japan and the U.S., and Japan and the Republic of Korea, that are to verify the feasibility of HDR satellite communications technologies over an advanced ICT infrastructure. Another mission is to promote experiments on satellite-based applications in Japan.

1) Roles and structure of the Promotion Conference

The Promotion Conference is comprised of experienced and knowledgeable persons, satellite communications carriers, communications equipment manufacturers, satellite communications users, interested organizations, etc. Its purpose is to create a satellite testbed necessary for the experiments and to contribute to the smooth promotion of satellite communications experiments using the testbed.

2) Experiment plan

i) The Japan-U.S. experiment group

As part of G7's "Global Interoperability of Broadband Network" (GIBN) project, this experiment is promoted by the Communications Research Laboratory (CRL) and the U.S. National Aeronautics and Space Administration (NASA) as key actors, in collaboration with industries (communications businesses, manufacturers, etc.) and universities.

As Phase I, the "high-definition video postproduction experiment" was conducted in March 1997 with success. In May 2000, as Phase II, various communications experiments were made by expanding transmission capacity to 155 Mbps and using ATM high-speed satellite links with success.

ii) The Japan-Europe experiment group

A group representing the Japanese side in the Japan-Europe Joint HDR Satellite Communications Experiments is also part of GIBN. Experiments (Japan-Europe Gamma: JEG, which links Japan and Europe via HDR satellite circuits) are carried out primarily by the CRL and the European Space Agency (ESA), in collaboration with the ESA-led GAMMA (Global Architecture for Multi-Media Access) project.

In Phase I (from July 1997 through November 1999) of the project, various experiments utilizing 2Mbps links were successfully closed.

iii) The Japan-Republic of Korea experiment group

At a Japan-Republic of Korea Bilateral Consultation held in April 1995, Japan's proposal to conduct the International Joint High-speed Communications Experiments linking Asian countries/areas gained consensus. Based on the High-Data Rate Satellite Communications Experiment Project agreed with Korean Ministry of Information and Communication in September 1997, in Phase I between November and December 2000, various experiments were successfully conducted using 45Mbps links. In Phase II from November 2001, experiments using 155 Mbps links started. During the 2002 FIFA World Cup™, high-definition live video of games transmitted via HDR satellite circuits were displayed on large screens. The dramatic effects of the experiments attracted attention from around the world.

iv) The national Satcom application experiment group

The group, in February 1998, conducted experiments on 3D ultrahigh-definition video transmission at the 18th Nagano Winter Olympic Games.

experiment known as the POST-PARTNERS (Post-Pan-Pacific Regional Telecommunications Network Experiments and Research by Satellite) Project. The purpose of this project is to promote technology transfer, human resource development and the diffusion of satellite communications in the region.

Many countries in the Asia-Pacific region are made up of a multitude of islands with populations spread out over a wide area, and with insufficient transportation and communications networks. In such a region, satellite links are an extremely effective means of communications and are expected to play an essential role in building the Asia-Pacific Information Infrastructure (APII) network of the future.

As the very first project of the POST-PARTNERS, a joint experiment was conducted in January 1997 between Japan and Thailand. Since then, a variety of experiments had been conducted including a measurement of the characteristics of satellite radio-wave propagation for studying basic satellite communications technology, a multimedia satellite communications experiment using 1.5 Mbps satellite links, a Tele-education experiment by holding an international workshop at which reports on the current status of each country's communications and cultural affairs were provided, and a Telemedicine experiment in which medical images were transmitted. Since then, Thailand, Indonesia, Malaysia, Fiji and the Philippines participated in the project. In February 2002, the project was closed because the purpose was successfully achieved.

From now on, MPHPT is going to develop comprehensive promotion measures for international joint experiments in order to propel deployment of international broadband platforms.

5. POST-PARTNERS Project

MPHPT, in cooperation with countries in the Asia-Pacific region, had been promoting an international joint

VI. Preparation of “Information Barrier-Free” Environment

1. R&D for imaging technology for advanced telemedicine

The Telecommunications Advancement Organization of Japan (TAO) carries out R&D on technology concerning moving picture natural vision (the next-generation image display/transmission system), which reproduces superrealistic images with true color, gloss and texture, based on multispectral imaging beyond the RGB-based systems, the foundation of current imaging systems. The system is expected to be applied to many areas including telemedicine, electronic museum, electronic transaction, etc.

2. Measures for the Diffusion of Websites Friendly to Everyone

In FY2001, MPHPT, in order that the elderly and people with disabilities can easily access to websites and understand the content thereof, created a system with functions to check and improve the accessibility of websites. In FY2001, MPHPT conducted verification experiments of the system. Based on the verification experiments, the ministry will complete the system and widely open the system to the public

3. Information Barrier-free Telework Center Construction Project

For the purpose of promoting expansion of the job opportunities and self-reliance by utilizing ICT for the elderly and people with disabilities, MPHPT has been supporting local governments, etc., constructing ICT systems, etc. and constructing Information Barrier-free Telework Centers that expand opportunities for the elderly and people with disabilities to participate in society since FY1998. By FY2001, five projects have been conducted throughout Japan.

4. Development and deployment of ICT system supporting self-reliance and social participation of the elderly and people with disabilities

MPHPT, through TAO and with the cooperation of local governments, etc., has been carrying out R&D for realizing ICT systems with advanced functions required in the welfare field to help the elderly and people with disabilities. The systems expected to be realized include: wide-area care support systems, which enable efficient provision of care services and regional welfare information, etc., and the next-generation visiting-care support systems with which nurses, etc., can get the latest care information at the homes being visited.

5. Subsidies to R&D on ICT and broadcasting services for the elderly and people with disabilities

Since FY1997, to private enterprises,

etc. conducting R&D on ICT and broadcasting services for the elderly and people with disabilities, MPHPT, through TAO, has been granting subsidies to cover part of R&D expenses as the “Subsidy for R&D on ICT and broadcasting services for the elderly and people with disabilities.” As of the end of FY2001, 78 such grants have been made. In addition, in order that opinions of people with disabilities, etc. will be reflected on R&D toward more meaningful R&D, MPHPT has been holding opinion exchange meetings between private enterprises conducting R&D with the subsidies and users of the ICT equipment since FY2000.

6. Study Group on Accessibility for the Elderly and People with Disabilities

Since FY2001, MPHPT has been granting subsidies to entities who provide telecommunications/broadcasting services or conduct R&D on new first ever services for the elderly and people with disabilities. Telecommunications relay service, Internet-Braille conversion service, etc. for the elderly and people with disabilities are objects of the subsidization.

VII. Promotion of Content Distribution

1. Creating market for content distribution

Although the progress of digitalization of broadcasting and widespread use of the broadband Internet is expanding demands for content, the distribution thereof has not been fully facilitated. However, thus far smooth content distribution has not been realized due to lack of transaction rules governing copyright (copyright and neighboring rights) concerning network use and other reasons.

Under these circumstances, the “Study Group on the Formation of Network Distribution Market of Digital Content” has been held since Feb-

ruary 2001 for the purpose of studying structural / technological issues and practical measures for construction of a copyright management system required upon forming a smooth content distribution market, etc. based upon the recognition of current trends and problems of content distribution. The group has compiled its findings as a report in July 2002.

Based on this report, with regard to production and distribution of broadband content, in order to realize the “e-Japan Strategy” at an early stage, since FY2002 MPHPT will implement two measures, namely, i) measures for preparing an environment for creating the content market by the private sector,

and ii) measures for complementing / strengthening content distribution.

Specifically, the following measures are being taken:

1) "Development and verification of clearance system of copyrights"

In collaboration with other ministries, a market environment in which copyrights of broadband content such as broadcast programs are dealt between the right holders and the users will be developed and verified.

2) "Development and implementation of technologies for supporting broadband content distribution"

A verification field of large-capacity digital video content such as broadcast programs stably distributed over the high-speed Internet will be provided for R&D of relevant technologies supporting the distribution of broadband content.

3) "Development and verification of broadband content distribution in the educational field"

Along with progress in deployment of broadband platforms in school, in order to introduce ICT into education through making the most of such platforms, systems tailored to educational use for ensuring security and providing functions to authentication, billing, distribution on networks shall be verified for promoting the distribution of broadband content in classrooms.

2. Advancement of the environment for content production and archives

In order to promote early diffusion of terrestrial digital broadcasting, toward relevant broadcast programming production facilities, etc., special tax incentives, no- or low-interest loans from the Development Bank of Japan, and guaranteed obligation by the Telecommunications Advancement Organization of Japan (TAO) based on the "Advanced Television Broadcasting Facility Promotion Temporary Measures Law" enforced in November 1999.

Since FY1999, TAO has been carrying out R&D on i) systems that digitalize programming libraries which collect and keep broadcast programming, connect such libraries, then enable retrieval/reproduction of broadcast programming from remote places at high speed, and ii) systems that effectively reproduce and provide comparatively short broadcast programs upon remote request.

In addition, since FY1999 TAO has been conducting R&D on advanced telecommunications system that enable efficient production of diversified HDTV broadcast programs in Okinawa Prefecture.

ing to penetrate all households, unbundling of content and broadcasting facilities is not appropriate.

iii) Restructuring of business environments to meet the new age

- It is essential to introduce a new scheme for flexibly responding to anticipated business tie-ups, etc. among businesses, and review the existing regulatory classification in consideration of future technological innovations.

iv) Promotion of digitalization of terrestrial broadcasting

- (1) Digitalization of terrestrial broadcasting has a significant meaning on the ICT strategy.
- (2) The government shall actively promote digitalization of terrestrial broadcasting as a national strategy, and tie-ups with broadcasters, manufacturers, etc.

v) Ensuring good-quality content, human resource development, etc.

- (1) From the perspective of realizing culturally rich life and the viewpoint that in the ICT society, supply of abundant and high-quality content and creation of the content distribution market have important significance for the national strategy, it is vital to promote production and distribution of good-quality content.
- (2) It is critical to promote human resource development in the field of content production.

vi) Viewer/listener-oriented policy

- (1) With one eye toward a future ubiquitous network society, it is vital to further strengthen service deployment considering viewers/listeners.
- (2) It is essential even for viewers/listeners to improve capabilities to utilize and opt for various information provided by media.

Action Plan for the Promotion of Digital Broadcasting

1. Specific efforts by interested parties

- A. Terrestrial TV broadcasters will:
 - i) implement the plan, without a hitch, that terrestrial digital broadcasting

VIII. New Deployment of Broadcasting Policy

1. Interim report of from the "Roundtable Conference on Future Aspects of Broadcasting in the Age of Broadband"

i) Basic stances

- (1) Deliberations are to be held on prospects for broadcasting five years to 10 years down the road.
- (2) Considering the progress being made in the two key fields of broadbandization and digitalization of broadcasting it is appropriate to set clear ways forward.

ii) Reorganization of relationship between broadcasting and commu-

nications, and their roles

- (1) Broadcasting and communications for citizens are fundamentally different in their social functions. It is difficult to consider that the differences will disappear after a lapse of five to 10 years from now.
- (2) The relationship between broadcasting and communications is not alternative but a relationship which complements one another, and the synergy of the relationship will realize much higher level of services for citizens.
- (3) Now that higher social functions of terrestrial broadcasting are continu-

- is to start by the end of 2003 in the three major metropolitan areas of Kanto, Kinki and Chukyo, and in the other areas by the end of 2006, and analogue broadcasting is to be terminated by 2011.
- ii) aim at high-definition broadcasting for more than 50 percent of the weekly broadcasting hours in the initial period when the service is started, and after that period, aim at increasing the ratio.
- B. Terrestrial digital radio broadcasters will:
start test broadcasts for practical use in Tokyo and Osaka in the fall of 2003.
- C. BS TV broadcasters will:
- i) make efforts to further diffuse BS digital broadcasting in Japan, including the introduction of attractive broadcasting contents and the implementation of a joint campaign to publicize the merits of digital broadcasting.
- ii) aim at broadcasting BS digital programs using a transmission capacity of more than 22 slots, fully utilizing the merits of digital broadcasting, for more than 75 percent of prime time (between 7:00 p.m. and 11:00 p.m.) by the end of 2003. These programs are mainly high-definition programs, and among the others are interactive programs and program-based data broadcasting.
- D. CS TV broadcasters will:
work to diffuse digital broadcasting by increasing the number of a wide variety of programs utilizing its merits through various efforts such as cooperation among platforms.
- E. Cable TV broadcasters will:
aim at offering a digital retransmit service without a hitch when terrestrial digital broadcasting is launched within a service area, ensuring the enhanced digital retransmit of BS digital broadcasting.
- F. Receivers makers and retailers will:
- i) aim at promptly introducing the receivers intended both for satellite digital broadcasting and terrestrial digital broadcasting into markets and ensuring smooth supply of inexpensive digital broadcasting re-

ceivers for high definition broadcasting.

- ii) sell terrestrial broadcasting receivers, having consumers (citizens) known of when digital TV broadcasting will start and when analog TV broadcasting is being terminated.
- iii) start a technical discussion as soon as possible by parties related to digital broadcasting on the targeted ratio of television sets capable of receiving digital broadcasting in devices newly manufactured, and draw a conclusion.
- G. Local authorities will:
- i) encourage active utilization of terrestrial digital broadcasting in the promotion of e-municipalities.
- ii) cooperate to have residents known of the policy for changing the analog frequencies and accompanying measures.

2. Promotion of a publicity campaign by a council

It is necessary to set up a council consisting of the above-described parties and other people from a wide range of fields, to ensure the smooth promotion of the digitalization of broadcasting and to roll out a campaign vigorously to have citizens know of this.

3. Government's efforts

It is necessary for the government to implement timely and appropriate measures for having citizens known of the merits of digitalization as a national policy, its schedules, etc. and providing active support for smooth digitalization.

4. Follow-up

Regular follow-up to the action plan is required to conduct.

2. Report of "Study Group Concerning Cable Television in the Broadband Age"

In recent years, cable TV has been steadily growing as a comprehensive information and communications infrastructure that provides multiple channel broadcasting service for retransmitting BS broadcasting and CS

broadcasting, in addition to terrestrial broadcasting, community broadcasting and Internet access services.

However, besides recent progress in digitalization of broadcasting, with the rapid progress in broadbanding of the telecommunications field, the situation surrounding cable TV are drastically changing.

Specifically, with the age of full-scale digital broadcasting has come, as exemplified by the progress of digitalization in satellite broadcasting, the launch of terrestrial digital broadcasting in 2003, etc. Along with rapid penetration of diversified broadband services, such as ADSL, FTTH, video distribution services utilizing IP technology are emerging.

Against these backdrops, as stated in the "e-Japan Priority Program - 2002," the government is aiming to make Japan "the world's most advanced IT nation until CY2005," through digitalization of broadcasting and diffusion of the high-speed/ultrahigh-speed Internet throughout Japan, etc. Cable TV is also anticipated to play a major role for attaining this target.

Thus, for the purpose of deliberating future promising images of cable TV and challenges toward further development of cable TV as we face the broadband age, among others, MPHPT has been holding the "Study Group Concerning Cable Television in the Broadband Age" since December 2001, and established two working groups, the "Business Strategy Working Group" and the "technology Working Group." In July 2002, the Study Group compiled its findings as a report containing the followings:

- Promotion of digitalization of cable TV
In order to facilitate digitalization of broadcasting media as a whole, it is critically important to promote digitalization of cable TV, to which one household out of four households subscribes. In addition, it is also essential to raise public awareness concerning advantages of digital broadcasting.
- Promotion of widening of cable TV service areas and networking

thereof

In order to add higher value to cable TV through implementation of digitalization and new additional services, it is indispensable to address widening of cable TV service areas and networking thereof

- Construction of business support platforms

In order to supplement management capacity of each business, it is necessary for the industry as a whole to prepare business infrastructures commonly needed for each business. In particular, it is vital to i) develop/construct a business support platform to operate all necessary systems for management/operation of a Conditional Access System (CAS), and ii) develop/introduce more advanced security technology.

- Development of guidelines concerning environment for use of cable Internet

It is vital for the cable TV industry to develop and publicize guidelines concerning network conditions and security policies, so as to prepare an environment in which users can enjoy cable TV with ease-of-use.

- Strengthening of activities toward unified specifications in the communications field

User needs for communications applications through use of cable TV networks will increase. Thus, it is vital for the industry to strengthen activities toward unified specifications for communications-related technologies.

3. Approaches for promotion of digital terrestrial broadcasting

Digitalization of terrestrial broadcasting will drastically change the viewer mode, in which viewers to date are forced to receive broadcast unilaterally, and bring about new viewer modes, in which viewers will actively interact with broadcasters. This will result in considerable benefits for viewers through unprecedented advanced and multifaceted broadcasting services (high-definition pictures without ghosts, closed-captioned/explana-

tory broadcasting for the elderly and people with disabilities, interactive service by improved affinity to communications services, pictures suitable for reception by a mobile terminal unit). In addition, it is also expected to bring a significant economic repercussion and effective utilization of radio waves. Now, digitalization is becoming global trends.

In the three major metropolitan areas of Tokyo, Kinki and Chukyo in Japan, the full-scale digital terrestrial TV broadcasting is to be commenced until 2003, while in other locations, the full-scale digital terrestrial TV broadcasting is expected to be operational until the end of 2006.

Upon digitalization of terrestrial broadcasting, the analog frequency is to be changed by the required change in frequencies in use allocated for the existing analog broadcasting so as to ensure frequencies necessary for the transition to digital broadcasting. In response to this change, antennas and transmitters are to be replaced and tuned at both the broadcaster and viewer sides.

To this end, the "Law to Amend the Radio Law" came into force in June 2001 to cover costs for the analog frequency change support. Thanks to this Law, costs for necessary works to implement the analog frequency change are allowed to be covered by the country through subsidization and other support measures with the budget allocated from the Spectrum User Fee.

In July 2001, in order to facilitate the transition to the terrestrial digital broadcasting and diffuse/develop thereof, the National Terrestrial Digital Broadcasting Promotion Conference was established, aiming at promoting joint study on the implementation process of the transition to the terrestrial digital broadcasting among commercial broadcasters, Japan Broadcasting Corp. (NHK), MPHPT and local terrestrial digital broadcasting promotion conferences.

At the Conference, toward the efficient and smooth implementation of the analog frequency change support

measures, deliberations on methods for the transition, estimations of the transition cost and approaches to the transition were made. In August 2002, the Conference compiled a plan containing approaches to the transition.

In addition, in July 2002 the "Panel on Future Image of Broadcasting in Broadband Age," an advisory body to the MPHPT minister, adopted an "Action Plan for Promoting Digital Broadcasting." This action plan stipulates targets to be attained by each stakeholder, including terrestrial TV broadcasters, satellite broadcasters, receiver manufacturers, equipment suppliers, local public entities and administrations, for further promoting terrestrial digital broadcasting.

In the three major metropolitan areas of Tokyo, Kinki and Chukyo, where terrestrial digital broadcasting will start at the end of CY2003, MPHPT has started receiving license application for terrestrial digital broadcasting stations since November 2002. The ministry will take appropriate measures for i) implementing the analog frequency change support measures in a rapid and concentrated manner, ii) strengthening public awareness campaigns on social significance of digital terrestrial broadcasting, merits for audiences, schedules for termination of analog broadcasting, etc., and iii) promoting digitalization of cable TV facilities including satellite master antenna television, etc.

In line with the "Provisional Measures Law for Promoting Construction of Advanced Television Broadcasting Facilities (effective in November 1999)," for the purpose of diffusing digital broadcasting at an early stage through reduction of initial facilities investment burden on broadcasters, broadcasters are allowed to receive tax incentives and financial supports in cases where the MPHPT Minister approves broadcasters' facilities construction plans. This scheme will help audiences benefit from digitalization of broadcasting at an early stage. As of September 20, 2002, 23 broadcasters are accredited under this scheme.

With regard to terrestrial digital

sound broadcasting, in September 2001, the Digital Radio Promotion Association was granted preliminary licenses for two commercial test stations, commercial test broadcasting will be commenced around autumn 2003 in Tokyo and Osaka districts.

4. Approaches for diffusion of digital satellite broadcasting

-- Approaches to diffusion of satellite digital broadcasting --

1) BS digital broadcasting

Since it started in December 1, 2000, BS digital broadcasting is not only providing the digital high-definition TV broadcasting with realistic sensations, but is also providing broadcasting services capitalizing on digital features, including a variety of versatile and convenient data broadcasting and digital sound broadcasting that offers CD-quality sound. The number of subscriptions to BS digital broadcasting services as of the end of August 2002 is 3.14 million households, including subscriptions via cable TV.

2) East longitude 110 degree CS digital broadcasting

CS digital broadcasting has been offered by using three CSs (in the geostationary orbits at East longitude 124, 128 and 144 degrees). In addition to them, a CS (N-SAT-110) at East longitude 110 degree, the same orbit location as the second digital BS-4 satellite, started its CS digital broadcasting operation in March 2002. Utilizing this new CS broadcasting, two facility-supplying broadcasters and 18 program-supplying broadcasters have commenced their operations one by one, including interactive broadcasting service with digital storage function as first ever highly functional service.

3) "Study Group Concerning Satellite Broadcasting"

Aiming at deliberating desirable future satellite broadcasting and promotion methods for the time being with the advent of digital broadcasting via BS and East longitude 110 degree CS, since March 2002 the "Study Group Concerning Satellite Broadcasting"

(Chair: Mr. TAGAYA Kazuteru, Vice-President for Education, Chiba University) has been convened with the members from experts, broadcasters, manufacturers and consumers. This Study Group in July 2002 compiled its findings as an interim report on the following matters:

- i) Status of satellite broadcasting as mass media and the direction of its development
- ii) Desirable promotion methods of satellite broadcasting as a whole
- iii) Desirable promotion methods of BS digital broadcasting
- iv) Desirable promotion methods of CS digital broadcasting

This interim report describes that broadcasting is to be digitalized in the future, thus, the most urgent task is to diffuse digital broadcasting in the satellite digital broadcasting area; and with respect to desirable termination methods of satellite analog broadcasting with 15 million subscribers, it is vital to provide consumers with correct and appropriate information on the study results based on desirable future satellite broadcasting as a whole and the sense of the subscribers.

5. Progress Report of a "Study Group on Broadcasting Policy"

-- First Report of "Study Group on Broadcasting Policy" Released --

MPHPT launched the "Study Group on Broadcasting Policy" (Chair: Prof. SHIONO Hiroshi, Department of Correspondence Graduate Studies, University of East Asia) in May 2000 with the objective of studying overall broadcasting policies based on the changing environment surrounding broadcasting, including the progress of digitalization in all broadcasting media and the advancement of the Internet. On December 21, 2001, the study group compiled its findings as the initial report on desirable management structures for subsidiaries of Japan Broadcasting Corp. (NHK), services offered over the Internet by NHK and other matters.

Refer to the outline of the first report at the MPHPT website:

http://www.soumu.go.jp/joho_tsusin/eng/Releases/Telecommunications/news011221_4.html

IX. Technological Development in Digitalization

1. Formulation of digital broadcasting method in cable TV

The technical standard for digital cable TV system (64QAM), allowing delivery of four to six times more TV programs than with the analog cable TV system, was established in December 1996; since July 1998, some cable TV operators have been offering digital cable TV broadcasting.

Also, retransmission method of the terrestrial digital broadcast programming, BS digital broadcast programming and East longitude 110 degree CS digital broadcast programming via cable TV have been developed as follows:

1) Retransmission of terrestrial digital broadcast programming via cable TV

In April 2000, the technical standards of cable TV transmission methods for terrestrial digital TV which will be started from 2003, were developed. The outline of the standards is as follows:

- i) Technical standard for transmission method of the terrestrial digital broadcasting without converting either modulation (OFDM) or receiving frequencies at a cable TV broadcasting facility (pass-through using the same frequency)
- ii) Technical standard for converting receiving frequencies into optional ones before transmission (pass-through using frequency conversion)

2) Retransmission of BS digital broadcasting via cable TV

In exact timing with the inaugura-

tion of BS digital broadcasting from December 2000, a technical standard for retransmitting multiple transport streams (TS) such as

Table IX-1 Transmission methods for digital cable television

Transmission method	Features
64QAM modulation method	Transmission speed: 29Mbps Bandwidth: 6MHz
Pass-through method	Transmitting data without changing the modulation method. i) Terrestrial digital broadcasting (OFDM) ii) BS digital broadcasting (PSK)

East longitude 110 degree CS digital broadcasting efficiently and reliably by using the digital cable TV broadcasting system (64QAM) (Multi-TS transmission system), was established in August 2000 so that retransmission via cable TV of a variety of broadcasting media including BS digital broadcasting may be allowed.

3) Retransmission of East longitude 110 degree CS digital broadcasting via cable TV

In step with the launch of East longitude 110 degree CS digital broad-

casting in March 2002, a technical standard for retransmitting single transport streams (TS) such as East longitude 110 degree CS digital broadcasting efficiently and reliably by using the digital cable TV broadcasting system (64QAM) (TS division method transmission system), was established in March 2002 so that retransmission via cable TV of a variety of broadcasting media including East longitude 110 degree CS digital broadcasting may be allowed.

X. Approaches to “Server-type Broadcasting”

1. Study on “server-type broadcasting” systems

1) What is “server-type broadcasting”

As transmission signals of digital broadcasting have high affinity with those of already digitalized communications networks, interactions between the two media are easily realized. So, in BS and CS digital broadcasting, two-way programming services are attained through interactions between broadcast waves and communications networks with receivers installed communications functions.

In recent years, along with rapid progress in technologies concerning digital storage media, large-capacity storage devices have already been put on the market, which enable long-time storage of digital video signals. Such digital devices will be effectively used for providing services in digital broadcasting.

As such, with digitalization of broadcasting as a turning point, utilization of communications and content storage functions at the receiver side

opens a path to realize a new type of broadcasting, “server-type broadcasting.” Through active use of large-capacity storage functions, this “server-type” broadcasting is enabled to transmit content with metadata of content with “rights protection information” indicating, and terms and conditions such as the number of copies allowed. Anticipated types of services to be realized are as follows:

- i) Viewing types without restrictions of broadcast hour, such as reproduction from already stored part while recording content, shortened reproduction of stored content
- ii) Viewing types to meet viewers’ tastes, such as retrieval of scenes, digested viewing
- iii) Versatile use of content with ease-of-use for content providers and viewers through full protection of property rights
- iv) Services enabling reproduction after storing large-volume video, etc. aired for long time through use of narrow bands in transmission band of broadcast waves

2) Study on “server-type broadcasting”

Considering the abovementioned situations, on June 25, 2001, MPHPT inquired of the Telecommunications Council (Chair: Mr. YOSHIHISA Akiyama, Chairman, Kansai Electric Power Co., Inc.) of “technical requirements for digital broadcasting systems utilizing large-capacity storage functions.” The Council established the “Server-Type Broadcasting System Committee” (Chair: Prof. HATORI Mitsutoshi, the National Institute of Informatics) of the Telecommunications Technology Sub-Council for deliberating “server-type broadcasting.”

Major themes to be studied are as follows:

- i) Total system configuration
 - a) Service models of “server-type broadcasting”
 - b) Reference models of transmitters and receivers
- ii) Transmission system
 - a) Content transmission system and storage control system on assumptions of reproduction after storing
- iii) Metadata
 - a) Specific contents of information to be transmitted as metadata
 - b) Data structure, description system, transmission system and storage control system of metadata
- iv) Rights protection method
 - a) Types of information (rights protection information) to be transmitted for protecting content rights, coding methods and transmission system
 - b) Measures for making compliant with conditions contained in rights protection information at the receiver side
- v) Access control system

Conditional access control system which controls reproduction and secondary use of content stored in receivers per scene, content, channel, etc.

3) Current status of deliberations on “server-type broadcasting”

There is a fear that regardless of will of rightful content owners, copies with the same quality when directly view-

ing aired original content are possible without limit through use of digital storage devices. Thus, the rights protection method was studied prior to the total system of “server-type broadcasting,” then a partial report was released in March 2002. The “rights protection method” is to be realized in a manner as follows:

- i) Conditions for use of content are coded as rights protection information, which contains the number of copies to be allowed, etc., and aired with content on the broadcast waves.
- ii) The sender side of broadcasts, who manage a key to code content, etc., provides the key to receivers com-

pliant with conditions for use as contained in rights protection information.

- iii) Receivers can output content to external devices in limited cases only where such external devices are compliant with conditions for use as contained in rights protection information. In this case, the rights protection information shall be output together with the content in question.

After the partial report, the Server-Type Broadcasting System Committee is further studying other conditions toward the final report around autumn 2002.

target fiscal year, it will be pursued to realize a system that automatically adds closed captions to most recorded programs in a short time. Meanwhile, in FY2000, MPHPT built a verification system with more practical functions for the system under development, and conducted evaluation jointly with the Ministry of Health and Welfare (the current Ministry of Health, Labor and Welfare).

3) “Study Group on the Next-Generation Closed Caption”

Since September 2001, MPHPT has been holding the “Study Group on the Next-Generation Closed Caption” (Chair: Dean KIYOHARA Keiko, School of Media Science, Tokyo University of Technology) in order to study future closed-caption production in the digital age where convergence of communications and broadcasting is in progress, including effective measures thereon and closed captioning of live programs. In April 2002, the study group compiled its findings as a report.

In this report, the following proposals are contained:

- In order to diffuse closed-captioned content, broadcasters shall steadily implement their own closed-captioned broadcast expansion plans and revise the target ratios.
- Broadcasters shall attach the same closed-captions to digital broadcast programs as to analog broadcast programs.
- Broadcasters shall add closed captions to digital broadcast programs exclusively for digital broadcasting.
- In order to diffuse closed-captioned broadcast receivers, it is necessary to establish an environment in which consumers may easily purchase them.
- Manufacturers shall attach closed-captioned broadcast reception functions on all digital broadcast receivers.

[Public sector]

- In line with expansion policy for closed-caption content, the administration shall revise the “diffusion targets of closed-captioned broadcasting,” when necessary.

XI. Measures for the Elderly and People with Disabilities

1. Improvement of broadcast programming for people with visual and hearing disabilities

Assisting the equal access opportunity for people with disabilities

Improving broadcasting for people with visual and hearing disabilities is an important task for realizing equal opportunities to access information. In particular, as for people with visual and hearing disabilities, there may be an increase in the number of people with hearing disabilities along with the process of aging, from now on, so the number of those people is seen rising in reflection of the aging society. In FY1997, MPHPT amended the Broadcast Law, etc. to introduce a non-binding target for closed-captions, etc. Likewise, MPHPT has been promoting broadcast programming with closed captions, narrated explanations and sign languages, including development and publication of “diffusion targets of closed-captioned broadcasting,” aiming at the addition of closed captions to all broadcast programming available for closed captions by the end of FY2007. The ratio of air time for closed-captioned broadcast programming to total air time for all broadcast programming feasible for

closed-captions has been increasing year on year. Further efforts to increase the ratio are anticipated.

1) Promoting the creation of TV programming with closed captions and narrated explanations

Based on the “Law for Promoting Businesses that Facilitate the Use of Communications and Broadcasting Services by the People with Disabilities,” MPHPT, through TAO, is subsidizing programming suppliers who produce TV programming with closed-captions, etc., up to the half of the expenses, from FY1993. The subsidy in FY2001 was about 450 million yen.

2) R&D on TV program production technologies for people with visual and hearing disabilities

TAO is conducting R&D on technologies of producing programming for people with visual and hearing disabilities. From FY1996 through FY2000, TAO conducted R&D on systems that automatically create and add closed captions for TV broadcast programming whose content can be easily summarized, and all of whose voiced content is scripted (such as news and information programs). From now on, setting FY2003 as the

- The administration shall manage the progress in implementing closed-captioned broadcast expansion plans.
- The administration shall continue

to support production of closed captions.

- The administration shall raise public awareness on closed captions, receivers, etc.

XII. Policy Measures for Internationalization

1. Promotion of Broadcast Program Exchange

1) Purpose

Developing countries with insufficient program production capacity need foreign programs with high quality.

As part of Japan's effort for contributing to the broadcasting industry in developing countries, MPHPT is promoting a project granting subsidies for providing high-quality Japanese educational programs for developing countries.

2) Outline of the policies

MPHPT is providing subsidies to the Japan Media Communications Center, a foundation providing Japanese broadcast programs to foreign countries, to partially cover the foundation's costs for translating and editing educational programs that are sent to developing countries.

3) Achievements

- Number of programs stored in the library: 1,004
- Number of programs provided: 4,003
- Number of countries provided with programs: 63
- Total subsidies from MPHPT between FY1991 and FY2001
- Total of actual amount: 1,037 million yen
- FY2002 budget: 58 million yen

2. Current status of international TV and radio broadcasting

Along with rapid globalization of information transmission, it has become more important to gain foreigners' understanding and trust to Japan, as well as to provide information necessary for Japanese nationals in for-

eign countries. It is required to continuously transmit information on Japanese culture and society, in addition to positions and propositions of Japan to the international society, as well as to provide information concerning security of each region and entertainment programs. Strengthening and promoting international broadcasting is one of the goals of broadcasting administration.

1) International TV broadcasting

The international TV broadcasting carried out by the NHK (NHK World TV), using PanAmSat satellites (PAS-8, PAS-9, PAS-10), HOTBIRD satellite and Echo satellite, covers almost the entire world. In October 1999, 24-hour broadcasting was started.

In addition to news programs, Japanese-language education programs were started, and the air time of broadcasting in English were expanded.

2) Distribution of TV programming and video materials to abroad

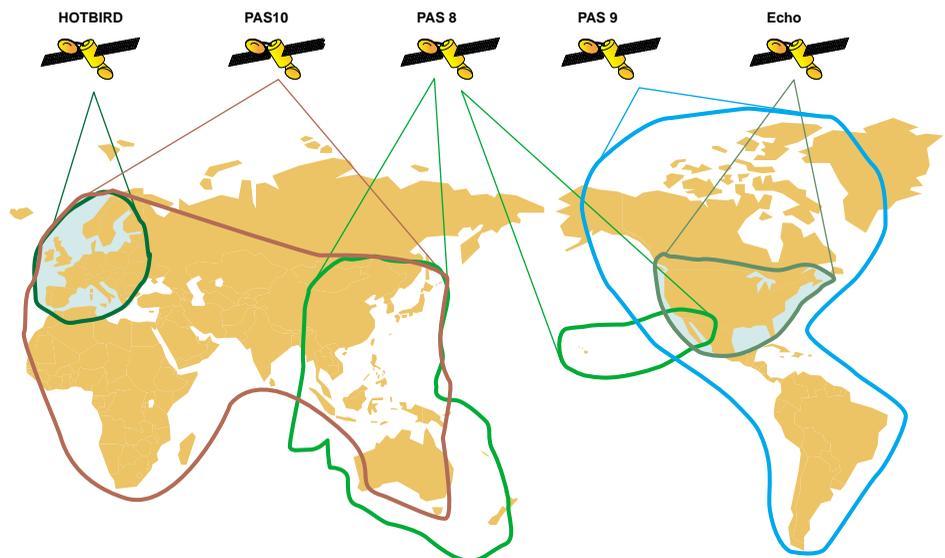
Commercial broadcasters, etc. are distributing broadcast programming, news materials and sports programs to foreign broadcasters, cable TV, hotels and business offices, using satellite communications and fiber-optic communications circuits. NHK, using PanAmSat satellites, is distributing to foreign broadcasters, cable TV operators, etc.

In particular, the program distribution to Asia region is constantly increasing in the number of programming providers, air time and countries.

3) International shortwave broadcasting

In international sound broadcasting by shortwave, the ordered broadcasting in accordance with the provisions of the Broadcast Law was provided to all the world and 17 regions using 22 languages, carrying reports and analyses concerning the state's important policies and the government's view on international issues. The ordered broadcasting, combined with voluntary broadcasting of NHK, the sum of broadcast hours of the voluntary broadcast and the ordered broadcast in FY2001 was 65 hours a day. In FY2001, 2.1 billion yen was granted from the Japanese government to NHK as the cost for the ordered broadcasting.

Fig. XII-1 International TV Broadcasting (NHK)



Telecommunications Administration

Policies under the jurisdiction of the Telecommunications Bureau, etc.

I. Information and Communications Usage Environment in the 21st Century

1. Establishment of Telecommunications Business Dispute Settlement Commission

-- Strengthening of resolution function of disputes between telecommunications carriers --

The Telecommunications Business Dispute Settlement Commission was established on November 30, 2001, as a special body in order to expeditiously and effectively settle disputes over issues such as interconnection between telecommunications carriers.

The Commission is independent of the departments of the Ministry of Public Management, Home Affairs, Posts and Telecommunications (MPHPT) in charge of issuing permits and approvals. And the Commission consists of five commissioners appointed by the Minister for MPHPT with the consent of both the Houses of Representatives and Councilors. A secretariat under the Commission's direct control is established to assist the Commission in its activities.

The function of the commission is as follows:

i) Mediation (assen) and Arbitration (chusai)

Mediation (assen) and arbitration

Table I-1 Activities of Telecommunications Business Dispute Settlement Commission (Nov. 30, 01-Nov. 5, 02)

1. Mediation (Assen) cases

Application	Concluded	Mediating
24	24 (terminated 1) (settled 23)	0

2. Arbitration (Chusai) cases

None

3. Reports to MPHPT

Inquiry from MPHPT	Report to MPHPT	Under deliberation
3	3	0

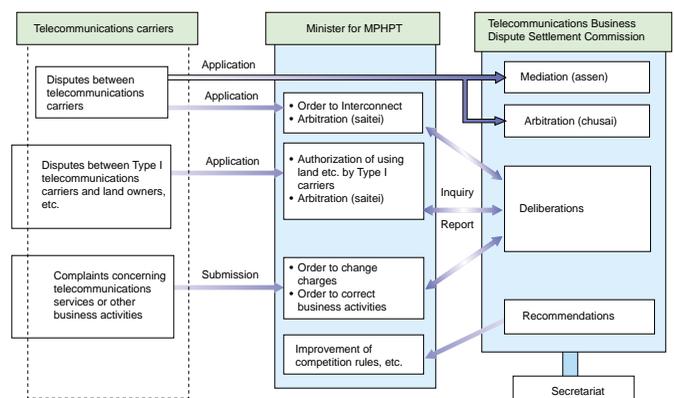
Issues (1. ~ 3.)

i. Interconnect or not	1
ii. Payment on interconnection	17
iii. Collocation	4
iv. Construction on interconnection	1
v. Operation of facilities	2
vi. Propriety of business	1
vii. Using of lands, etc.	1

*Recommendation to MPHPT: 2

Recommendation	Date
Recommendation to improve the collocation rules	Feb. 26, 2002
Recommendation on setting proper charges concerning interconnection	Nov. 5, 2002

Fig. I-1 Functions of Telecommunications Business Dispute Settlement Commission



(chusai) are conducted by the Commission's members who are appointed by the Commission.

ii) Inquiry and Report

The Minister for MPHPT inquires the Commission before making administrative dispositions, such as orders or arbitrations (saitei) concerning interconnection of telecommunications facilities. The Commission deliberates the matters and submits a report to the Minister.

iii) Recommendation

The Commission makes recommendations on new competition rules to the Minister for MPHPT based on knowledge gained in dealing with actual disputes.

2. Second Report on Desirable Pro-Competitive Policies in the Telecommunications Business Field for Promoting the IT Revolution

On February 13, 2002, MPHPT received the second report on "Desirable Pro-Competitive Policies in the Telecommunications Business Field for Promoting the IT Revolution (Inquiry No. 29 of 2000)" from the Telecommunications Council (Chair: Mr. AKIYAMA Yoshihisa).

Outline of the second report on Desirable Pro-Competitive Policies in the Telecommunications Business Field for Promoting the IT Revolution.

Refer to website:

http://www.soumu.go.jp/joho_tsusin/eng/Releases/Telecommunications/news020213_1.html

3. Final Report on Desirable Pro-Competitive Policies in the Telecommunications Business Field for Promoting the IT Revolution

On August 7, 2002, MPHPT received the Final Report on "Desirable Pro-Competitive Policies in the Telecommunications Business Field for Promoting the IT Revolution (Inquiry No. 29 of 2000)" from the Telecommunications Council.

Outline of the Final Report on Desirable Pro-Competitive Policies in the Telecommunications Business Field for Promoting the IT Revolution

Chapter 1. Basic Concept Concerning Desirable Pro-Competitive Policies in the Future

1. Current Market Trends in the Telecommunications Business Field

- (1) Taking into account remarkable technological innovations in the info-communications field in recent years, the stream of broadband has been accelerating as exemplified by the shift from conventional networks tailored for each service toward high-speed, large-capacity access networks (always available) commonly based on Internet Protocols.
- (2) In specific terms, a sharp rise in the number of subscribers to DSL services (34-fold increase over one year); new entries into the fiber-optic access services by new carriers, including power utility companies (themselves); and many new entries of IP telephony providers.
- (3) In addition, with respect to the mobile communications field, the launch of the third-generation (3G) mobile telecommunications system; PHS service which provides flat-rate data communications service, new services through wireless LANs and so on.
- (4) Along with the development of IP and broadband, the vertical-integration business model, etc. covering multiple business fields has emerged. Moreover, in business domains on the fringe of the telecommunications services, new business such as CDN (Content Delivery Network) and iDC (internet Data Center) are already about to be diffused.
- (5) It is necessary to investigate, from the point of view of maximizing user benefit, the desirable pro-competitive environment, flexibly

matching such environmental changes as the development of IP, broadband and so on.

2. Trends in New Pro-competitive Policies in Major Countries

- (1) In the U.S., as to the pro-competitive policies in the broadband age the Federal Communications Commission (FCC) has been considering whether to maintain pro-competitive policies through the market mechanism or to switch to a policy that places priority on encouraging industry. FCC recognizes that the broadband service market needs to be defined and an assessment made as to whether or not incumbent local exchange carriers (ILECs) have the significant market power in that market. Careful monitoring of these deliberations is required.
- (2) In April, 2002, the EU adopted the New Directive (2002/21/EC) on a Common Regulatory Framework for electronic communications networks and services within the EU territories (by July 24, 2003, all Member States of the EU must adopt national legislation implementing those new Directives). Under the Directive, in order to minimize the regulatory levels, definition of markets, including the broadband market, are given priority, so as to clarify applicable regulatory frameworks.

3. Basic Concept Concerning Desirable Pro-competitive Policies in the Future

- (1) Firstly, it is important to further promote new entries into the market and to ensure that a fair and competitive environment is in place. Specifically, it is necessary to open the bottleneck facilities further and to stimulate both facilities competition and service competition through promotion of aggressive new entries.
- (2) Secondly, it is essential to bolster consumer protection through administration procedures. In other

words, it is vital not only to maximize user benefits by promoting competition, but also to promptly formulate specific measures to create an environment wherein users can independently make a reasonable choice from diversified and complicated services.

- (3) Thirdly, it is necessary to examine measures that need to be taken to introduce new pro-competitive frameworks to suit the IP age. It is essential to conduct fundamental reviews on the competitive framework itself including the business categorization, considering the fact that the network and market structures have been changing along with the development of IP and broadband, and that the present business categorization does not necessarily mesh with the reality of competition among carriers.

Chapter 2. Active Implementation of Pro-Competitive Policies

1. Promotion of New Entries

- (1) It is vital to stimulate competition in both facilities and services through further promotion of new entries and emergence of the diversified "competitive axis."
- (2) In order to stimulate the facilities-based competition by promoting new entries, it is necessary to prepare an environment tailored to further diversification of local loops and trunk networks regardless of wired/wireless or fixed/mobile networks. In addition, it is vital to promote service competition by opening functions of access networks, etc.

2. Promotion of Pro-competitive Policies to Open up Networks

2-1. Resale for PSTN

- (1) To identify and organize such items as: subject resale services; matters pertaining to contracts; necessary activities for a resale carrier; opening of the operation support system

(OSS) enabling necessary activities for the resale carrier; and major prerequisites for the system development.

- (2) Based on the abovementioned organization, the result of NTT East/NTT West's pro forma calculation of the costs pertaining to the system development is about 84 billion yen. However, the estimates of the development cost in various cases, e.g., under certain conditions excluding the MYLINE (dialing parity) function, the NTT East/NTT West's estimates are about 40 billion yen. The time period necessary to develop the system is 2 to 3 years.
- (3) The discount rate ranges from 17.6% to 27.0% according to the estimate wherein the sales cost that is not included in the resale cost is excluded from the total cost. In practice, however, the costs pertaining to the system development/operation are to be added the estimate.
- (4) Thus, carriers who wish to start the resale business shall request NTT East and NTT West for the resale based on their own business judgment by taking into account the abovementioned factors, and shall negotiate with the parties concerned. When NTT East or NTT West declines to participate in the negotiation, the carriers may request the administration to issue an order to start such negotiations. In this case, the administration shall make a decision by taking into account the merits of the resale for PSTN and the rapid changes in the environment surrounding telephone services.

2-2. Relationship between Interconnection Charges and User Charges

- (1) In order to make the interconnection charges more reasonable, it is appropriate to examine the relationship between the interconnection charges and user charges upon authorization for the interconnection charges. The same examination shall be conducted in cases where a competitor, etc. submits complaints

or opinions or where the relationship between interconnection charges and user charges is deemed to be unreasonable after notification of user charges is received.

- (2) Internet-related services, in particular, DSL services, etc. shall be appropriate as a subject for the examination.
- (3) When the relationship between the interconnection charges and the user charges is inappropriate, it shall be deemed adequate to reduce the interconnection charges in principle. In addition, upon examination, the current status of the price competition in the market and trends in the market shares of NTT East and NTT West shall be taken into account.

2-3. Access to OSS

- (1) With respect to access to the OSS (Operation Support System), the issues to be discussed in depth are i) an automatic notification system of the conformity confirmation result, ii) automatic notification of names of services not to be shared with DSL services, iii) automatic notification of telephone subscribers' information [i), ii) and iii) above are for DSL services], iv) disclosure of detailed information on the schedule of interoffice transmission optical line facilities construction, v) disclosure of information on the number of interoffice transmission optical line facilities unable to be interconnected, vi) disclosure of information on a specific plan such as floor expansion of buildings [iv), v) and vi) above are for interoffice transmission optical line facilities], vii) disclosure of information on the approximate period required for interconnection, viii) disclosure of information on the different route, and ix) disclosure of information on the arrangements and progress of the construction work of local optical line facilities [vii), viii) and ix) above are for the local optical line facilities].
- (2) The methods of cost sharing among carriers including NTT East and

NTT West shall be in accordance with the benefit principle as a general rule.

- (3) With respect to the disclosure of telephone subscribers' information and personal information protection, NTT East and NTT West shall stipulate in the tariffs that they may disclose telephone subscribers' information to carriers interconnected, and make said tariffs public. However, in cases where a telephone subscriber clearly stipulates that he or she does not want proprietary information to be disclosed NTT East and NTT West shall ensure that measures are taken to prevent the disclosure of such information.

3. Measures to Deal with Structural Issues

- (1) It is important to flexibly deal with changes in the market, monitoring i) the implementation situations of fair competition promotion measures including the preparation of the asymmetrical regulation, etc., ii) the implementation situation and the results of the coming competition rules, iii) whether firewall measures are observed by NTT East and NTT West since reorganization; at the same time, watching the progress in competition in the local telecommunications markets from various aspects.
- (2) In addition, with regard to structural-separation pro-competitive policies (structural separation of wholesale/retail units held by NTT East and NTT West), careful deliberations thereon shall be continued, taking into account of the merits/demerits and trends in foreign countries.

Chapter 3. Improvement of Consumer Protection Administration

1. Significance of Consumer Support Measures and Current Status Thereof

- (1) In order to maximize consumer ben-

efits through the very significant expansion of service availability for users derived from development of competition in the telecommunications market, consumers are encouraged to make a rational choice by eliminating information asymmetry against telecommunications carriers, at the same time, an appropriate safety net should be prepared that immediately remedies troubles involving consumers.

- (2) At present, along with the widespread deployment of advanced and diversified telecommunications services among Japanese people, troubles involving consumers concerning Internet-related services, etc. are increasing. The number of consultations and complaints filed with MPHPT, the National Consumers Affairs Center of Japan and other related organizations is also increasing.
- (3) To this end, comprehensive consumer support measures in the telecommunications field shall be strengthened. MPHPT shall i) formulate comprehensive policies for consumer support, ii) introduce and apply necessary institutional frameworks, and iii) make collaborative efforts with the relevant ministries and organizations. Telecommunications carriers shall promote appropriate approaches in establishing a consumer support system and adopt strengthened measures.

2. Specific Measures to Strengthen Consumer Support

- (1) One priority that needs to be addressed is the development of capable persons able to help consumers make a rational choice concerning a variety of rapidly changing telecommunications services, and give consumers advice that contributes to solving troubles concerning telecommunications. To this end, MPHPT, telecommunications carriers, etc. shall cooperate with the National Consumers Affairs Center of Japan or local governments to foster expertise for them on tele-

communications consultants, etc. who provide counselling for consumers. In addition, in order to promote widespread use of IT by Japanese people, introduction of a system to certify "communications service planners" by the private sector will be useful; thus, a conference consisting of interested parties to deliberate upon the practical system shall be established.

- (2) In order to promote the diffusion of information that helps consumers in choosing telecom activities, telecommunications carriers and telecommunications carriers associations shall develop industrial self-regulation guidelines containing items to be informed to consumers of new services that are deemed to have a social impact, in particular best-effort type services. As for MPHPT, there is a need to improve the provision of information to consumers via its website, etc., such as a portal site function to provide a variety of IT information. Furthermore, upon conclusion of a contract pertaining to telecommunications services, appropriate frameworks that ensure explanation of important items, etc. to consumers shall be studied further.
- (3) In order to activate consumer counselling procedures, with regard to the submission system of complaints/opinions and dispute-settlement systems as provided for under the Telecommunications Business Law, there is a need to promote effective use of those systems and ensure transparency thereof, such as publication of dispute resolution manuals by MPHPT. It is essential to strengthen collaboration among relevant organizations through establishment of a liaison committee on a regular and on-going basis consisting of MPHPT, the National Consumers Affairs Center of Japan, telecommunications carriers, consumer groups, etc. In addition, there is a need to conduct a study by the government and telecommunications carrier associations on the estab-

lishment of a counselling unit to accept complaints and consultations on telecommunications; in this case, step ahead measures such as ADR (alternative dispute resolution: i.e., mediation, arbitration, etc.) functions shall be put in perspective.

- (4) Where flexible regulatory frameworks are introduced, with respect to consumer support measures in the telecommunications field, industrial voluntary efforts to support consumers shall be strengthened based on the concept of compliance practice. To this end, industrial self-regulation guidelines shall be developed by telecommunications carriers, in collaboration with telecommunications carriers associations and the administration.

Chapter 4. Direction of New Competition Frameworks

1. Changes in Market Environment and Necessity of Reviewing Competition Frameworks

- (1) The present categorization of Type I and Type II telecommunications businesses has been a basic structure of competition frameworks in the telecommunications business field. This categorization based on a clear standard has effectively promoted competition to date.
- (2) However, corresponding to the recent changes in market structures and network structures brought about by the development of IP and broadband and the emergence of new business models, the time is ripe to comprehensively review the present competition frameworks.

2. Basic Viewpoints Related to Review of Competition Frameworks

Upon examination of new competition frameworks in the telecommunications business field, the following three points shall be recognized as basic viewpoints:

- (1) Lowering the overall level of regulation in order to encourage compe-

tion through the emergence of diversified business models, freely combining a variety of networks and services;

- (2) Creating systems for supplementing market mechanisms from the viewpoint of ensuring fair competition and protecting consumers (business model neutrality and technological neutrality are necessary); and
- (3) Ensuring due process and transparency.

3. Desirable New Competition Frameworks

- (1) With regard to desirable new competition frameworks, it is necessary to examine the fundamental regulatory frameworks, such as entry/exit regulations and public utility privilege (namely, rights-of-way; "ROW" hereinafter) directly linked with the entry regulations; at the same time, other existing systems (regulations on services for end users, interconnection rules, ensuring universal service, telecommunications number, technical standards, essential communications, etc.) shall be comprehensively and systematically examined.
- (2) Regarding the entry regulations, the present Type I and Type II business categories shall be abolished, and the entry regulations shall be drastically relaxed (abolition of permission system pertaining to Type I business). Further studies including legislation are necessary to fix the entry regulation systems (enabling business entry by registration or notification), considering that measures to ensure fair competition and protection of consumers shall be taken prior to the new entry when necessary.
- (3) However, the General Type II business may be started only by notification under the present system. Even under new regulatory frameworks, special treatment shall be given to carriers with a negligible social impact, for example, enabling such carriers to enter only by notifi-

cation.

- (4) As for ROW, in order to facilitate smooth deployment of network infrastructure by telecommunications carriers, it is necessary to remain the system of granting the right. In specific, further studies shall be made on the introduction of a new scheme to grant ROW based on application from carriers after examination of business plans by amending the present systems where ROW is directly linked with the entry regulations, taking into consideration consistency with other laws and regulations.
- (5) With respect to market exit regulations, permission for changes of business, and transfer/takeover, merger/break-up, inheritance of business operations, it is appropriate to shift from the present permission/authorization systems to notification systems. However, along with the shift of the market exit regulations to prior notification systems, obligation of prior announcement to users on market exit shall be studied.
- (6) With regard to not-for-profit telecommunications business (e.g., run by local public entities, etc.), there is a need to study on imposing minimal regulations such as ensuring of secrecy of communications and conformity with technical standards.

4. Matters to Be Studied in Line with Shift to New Frameworks

- (1) In line with abolition of Type I and Type II businesses categories, the entire structure of the Telecommunications Business Law shall be reviewed. In particular, as for services for end users, regulatory frameworks shall in principle be considered separately from networks, so that each carrier can flexibly offer services.
- (2) Specifically, it is appropriate that in principle obligation to establish charges/tariffs for providing services shall be lifted and contracts are to be concluded through negotiations between parties concerned.

However, from the viewpoint of consumer protection, mechanisms for ensuring sufficient provision of information to users on contract, and issuing orders to improve business activities or to change charges shall be required.

- (3) In addition, with regard to dominant carriers with market power, obligations shall be imposed, to establish charges/tariffs of the services where said carriers are assumed to have market power, and to provide said services based on said charges/tariffs. However, contracts pertaining to said services based on negotiations are also to be allowed. Furthermore, in order to open up platform functions such as authentication and charging inseparable from said services, necessary measures shall be studied.
- (4) It is necessary to define each appropriate sub-market, taking into consideration features and substitutability of each service in end user service markets, and to evaluate market powers in said sub-market. As for desirable scheme of regular effective competition review (market analysis), a specialist panel shall be established for detailed study. In addition, the regulatory authority shall be empowered with strengthened and improved market monitoring functions.
- (5) With respect to interconnection rules, rules focusing on bottleneck facilities indispensable for other carriers to interconnect are still essential. However, the coverage and regulatory measures on designated facilities shall, if necessary, be reviewed based on the progress of competition in the market.
- (6) With regard to ensuring of the universal service, assignment of telecommunications numbers, conformity with technical standards, ensuring of essential communications, etc., desirable regulatory frameworks for maintaining and ensuring those schemes shall be studied further. The technical standards shall be reviewed comprehensively, fully taking into account the diffu-

sion of best-effort type services.

Chapter 5. Toward Development of New Pro-Competitive Policies

- (1) It is desirable to construct new regulatory frameworks where the present Type I and Type II businesses categories are abolished so that carriers can freely deploy their business and problems in light of fair competition and consumer protection can be immediately eliminated.
- (2) To this end, the government shall start i) drafting a necessary bill to amend relevant laws concerning new competition frameworks right away, and ii) studying more concrete measures of effective competition review, new methods for assigning telecommunications numbers, comprehensive review of the technical standards, etc.
- (3) It is necessary to improve consumer protection administration as combined policies with pro-competitive policies. Thus, the establishment of a conference concerning a qualification system for supporting consumers, the development of industrial self-regulation guidelines by telecommunications carriers associations, etc. shall be studied without delay.
- (4) The highest strategic priority shall be given to the development of the telecommunications market in order to promote Japan's structural reform and improve its international competitiveness. In addition to the radical transformation of the abovementioned pro-competitive policies, there is a need to develop new comprehensive IP policies from multifaceted perspectives including i) promotion of R&D including realization of a ubiquitous environment, ii) promotion of widespread deployment of broadband platforms without uneven distribution, and iii) tie-up and collaboration for enhancing international competitiveness among the government, academia and industry, etc.

4. Final Report of the "Study Group on New Business Models and the Grand Design of Competitive Environments for the New Information and Communications Era"

On June 6, 2002, the "Study Group on New Business Models and the Grand Design of Competitive Environments for the New Information and Communications Era" (Chair: Mr. HAMADA Junichi, Professor, Interfaculty Initiative in Information Studies, and Graduate School of Interdisciplinary Information Studies, the University of Tokyo) compiled its outcomes as a final report, "How Competitive Environments in the Telecommunications Business Field Should Be Established in the Broadband Age."

Refer to the website at:

http://www.soumu.go.jp/joho_tsusin/eng/Releases/Telecommunications/news020606_2.html

5. Guideline for Use of Utility Poles, Ducts, Conduits, etc. in the Telecommunications Field

With the viewpoint of further facilitating construction of outside plants (transmission line facilities) by Type I telecommunications carriers, MPHPT amended the "Guideline for Use of Utility Poles, Ducts, Conduits, Etc. in the Telecommunications Field" (effective since April 1, 2001), which contains rules, etc. on one bundling, and started to apply the amended Guideline.

6. Report Compiled by the Study Group on Long-Run Incremental Cost Model

MPHPT has been holding the "Study Group on Long-Run Incremental Cost (LRIC) Model" since September 2001, in order to review the LRIC model (a calculation methodology for

	Current model (Interconnection charge in FY2002)	Revised model
GC interconnection (telephone)	4.50 yen/3 min.	4.13 yen/3 min. (-8.2%)
ZC interconnection (telephone)	4.78 yen/3 min.	5.21 yen/3 min. (+9.0%)
Local loop transmission (for PHS)	1,239 yen/circuit	1,229 yen/circuit (-0.8%)

Note 1: In the case where the cost of FRT is transferred to the local loop:

GC interconnection: 3.75 yen/3 min. (-16.7%)

ZC interconnection: 4.83 yen/3 min. (+1.0%)

Local loop transmission (for PHS): 1,336 yen/circuit (+7.8%)

Note 2: Figures in parentheses indicate increase or decrease ratios to the interconnection charges in FY2002.

Note 3: The calculation results are based upon forecast traffic data in FY2001. Therefore the results may be changed when it is replaced by the actual traffic data in FY2001.

interconnection charges between telecommunications carriers). In March 2002, the Study Group compiled its findings as a report.

1) Background

With regard to the Japanese interconnection rules, the Study Group on Long-Run Incremental Cost (LRIC) Model was established in March 1997 so as to establish the LRIC Model. In September 1999, the Study Group compiled a report through analysis of models in other countries, invitation of public model proposals, detailed studies for developing a technical model, etc.

Upon receipt of the report of 1999, the Ministry of Posts and Telecommunications (currently MPHPT) inquired of the Telecommunications Council about a new calculation methodology for the interconnection charges in September 1999. Upon receipt of the report concerning this inquiry in February 2000, the Telecommunications Business Law was amended in May 2000; then, the calculation method for the interconnection charges pertaining to some designated telecommunications facilities was changed from the actual costs method to the LRIC method.

On the other hand, this report recommends that: i) the revision of the model shall be started at the earliest possible stage, then, ii) it is appropriate that the revised model would be applied after the model implementation period (FY2000 through FY2002). And in the course of the revision, the

following items are pointed to be reviewed:

- i) Treatment of feeder remote terminal (FRT) and other non-traffic sensitive (NTS) costs;
- ii) Economic service life;
- iii) Logic and input data; and
- iv) Local loop cost.

2) Revision of the Model

Based on this background, the "Study Group on Long-Run Incremental Cost Model" was reestablished in September 2001, consisting of experts in telecommunications engineering, economics and cost accounting. This study group established three Working Groups (WGs) corresponding to the program modules ("Local Loop WG," "Switching, Interoffice, Wire Center Building and Land WG" and "Expense WG"). Those WGs were composed of members from domestic and foreign telecommunications carriers. At the study group meetings, issues postponed by the former study group and new issues raised by opinions through the invitation of public comments had been discussed. A draft report was released on February 1, 2002 and public comments on it were invited. As a result of this invitation, 22 comments in total were submitted including those from domestic and foreign telecommunications carriers and foreign governments.

On February 22, 2002, a workshop concerning the draft revised model was held. Participants included invited foreign experts and foreign government agencies (experts from the

U.K. and representatives of embassies of the U.S., the U.K., Germany in Japan and the Delegation of the European Commission in Japan). They had consultations with some members of the Study Group. About 50 audiences were attended from domestic and foreign telecommunications carriers, etc.

The report was compiled on March 8, 2002.

3) Calculation result based on the revision model

This report shows calculated costs of interconnection using the revised model. According to these calculation results, the zone center (ZC) interconnection cost is higher than the cost based on the existing model due to the revision of the calculation method of the amount of investment into toll switches, etc., while the group center (GC) interconnection cost has decreased.

Moreover, this report points out the following matters:

- i) It is necessary to pay close attention to traffic trends that affects the cost calculation since the volume of traffic passing through local switches in the first half of FY2001 decreased.
- ii) It is necessary to carefully deliberate on the pricing matter when considering transferring the cost of FRT to the local loop, since there is a possibility of an increase in subscriber line charges.

7 Enactment of the Law on Restrictions on Liability for Damages of Specified Telecommunications Service Providers and Right to Demand Disclosure of Identity Information of the Sender

Along with development of the Internet, social problems have been caused by illegal and harmful information distributed on the Internet, such as libel, defamation and slander on websites, BBS, etc., as well as information violating intellectual property rights, etc. Consequently, the "Law on

Restrictions on Liability for Damages of Specified Telecommunications Service Providers and Right to Demand Disclosure of Identity Information of the Sender," stipulating necessary rules, etc. for liabilities, was enacted at the 153rd Diet Session, so that providers, etc. can take prompt and appropriate actions toward infringement of other's rights through posting of information on websites and BBS over the Internet. The Law came into force in May 2002. MPHPT has been implementing adequate operation of the Law by supporting efforts to prepare related guidelines.

8 Enactment of the Law Concerning Adjustment, Etc. of Transmission of Specified Electronic Mail

With respect to unsolicited/malicious e-mails, which are sent to consumers' mobile telephone (cellular phone, PHS) terminals, etc. without consent with the purpose of advertisement, publicity, soliciting, etc., MPHPT requested in April 2001 cellular telephone and PHS carriers to report the current status of the problems and countermeasures taken by them, and compiled and publicized the results of their reports in May 2001. In January 2002, MPHPT publicized necessary policies and technical countermeasures to suppress and prevent transmission of unsolicited e-mails, as compiled by the "Study Group on Methods for Dealing with Nuisance (Unsolicited) E-mail."

After those measures, at the 154th Diet Session a bill was submitted by Diet members, which provides for opt-out policy that requires senders of unsolicited e-mails to inform recipients of their names, etc. and not to send unsolicited e-mails to consumers who clearly expressed their denial; said bill passed the Diet.

The law, "Law Concerning Adjustment, Etc. of Transmission of Specified Electronic Mail," came into force in July 2002.

In line with the law, MPHPT has been taking necessary measures, such

as designation of designated organizations, collection of necessary information and sending of warning e-mails.

9. Outline of complaints/consultations toward telecommunications services in FY2001

MPHPT has been accepting complaints toward telecommunications services at the telecommunications consumer consultation centers established in the ministry. MPHPT is requesting telecommunications carriers, etc. to improve, if necessary, their business practices based on complaints/consultations accepted from consumers. In addition, toward growing social concerns/problems, MPHPT instructs service providers to take specific countermeasures, raise public awareness thereon, and prepares necessary regulatory frameworks.

During FY2001, the number of complaints/consultations accepted by the telecommunications consumer consultation center was 7,383, a 56% increase (2,642) over the previous fiscal year. The total number of complaints/consultations accepted by the telecommunications consumer consultation centers at Regional Telecommunications Bureaus and the MPHPT Headquarters was 13,581, a 115% increase (7,257) over the previous fiscal year (6,324).

Analyzing content of complaints/consultations accepted, along with rapid growth and widespread use of the Internet, complaints/consultations concerning the Internet are on the rise. The following cases are typical: troubles on Digital Subscriber Line (DSL) services (2,990); so-called international information provision services (883), e.g., while using the Internet, connected to international telephone service without the user's knowledge, billed international phone call charges without recollection of having done so; unsolicited e-mail (198); "one-ring" calls (190), etc.

10. Measures for Internet Governance

-- Japan's contribution to infrastructural advancement of the In-

ternet --

In order to ensure that a range of social and economic activities such as e-commerce can be deployed over the Internet, which is called the "network of networks" for connecting a huge number of computers around the world, there is a need to secure interconnectivity on a global scale.

1) Internet governance

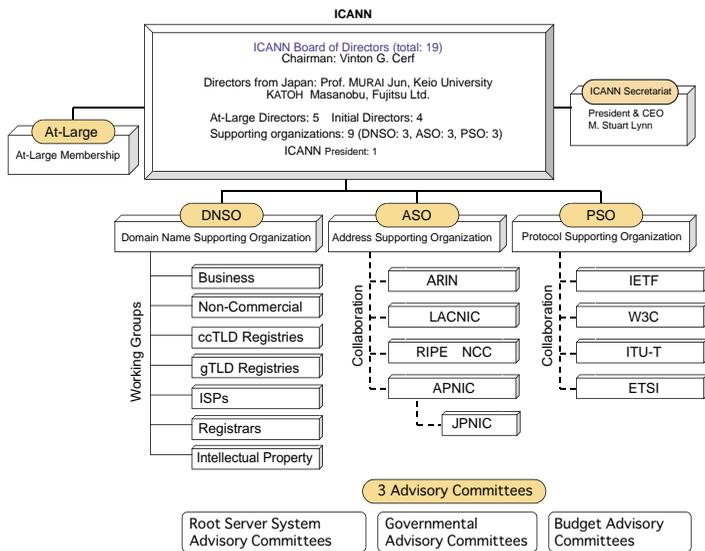
IP addresses (numeric identifiers assigned to each equipment on the network) and domain names (interpreted IP addresses into characters which humans can read; a domain name and an IP address correspond one by one) are assigned to each equipment as their "addresses" on the Internet, for exchanging information over the Internet (toward computers, etc. which connect to the Internet). These are the basic factors of communications over the Internet, and their administration under the unified rules, which govern assignment thereof on a global scale, in general called "Internet Governance" in that it means the "governing of the entire Internet for smoothly functioning thereof."

At present, deliberations on "Internet Governance" are conducted mainly at the Internet Corporation for Assigned Names and Numbers (ICANN), an international non-profit organization, that administers domain names and IP addresses and decides policies thereof.

In Japan, Japan Network Information Center (JPNIC), which was established for carrying out Internet-related research, survey, education and awareness campaigns, conducts registration and management of IP address and deliberations on domain name systems and technological aspects concerning the management of ".jp" domain names. Services for registration and management of JP domain names ending with ".jp," were transferred from JPNIC to Japan Registry Service Co., Ltd. (JPRS) in April 2002.

Policies and deliberations on "Internet Governance" are gaining in importance upon formulating new frameworks and dispute resolutions con-

Fig. I-10-1 ICANN



cerning domain names. Thus, Japan's active participation into those efforts contributes to construction of stable and effective Internet usage on a global scale and leads to development in domestic Internet usage.

2) ICANN's organization and Japan's presence

ICANN is consisting of the Board of Directors, a supreme organ, three supporting organizations, which carry out studies on IP addresses, domain names and protocols, four Advisory Committees and the At-Large memberships, etc. (Fig. I-10-1) Of the four Advisory Committees, MPHPT, as Japan's only formally registered member, participates in the Governmental Advisory Committee (GAC) consisting of accredited representatives of each national government, striving to establish an international cooperative environment, including the Asia-Pacific region.

In the ICANN Board of Directors comprising 19 directors, two Japanese are elected as directors. From the standpoint of Japan's international contribution to "Internet Governance," it is essential for Japan to actively support and participate in such international activities concerning the Internet.

3) gTLDs and ccTLDs

Domain names used to specify IP

ccTLDs, such as ".jp," are assigned country-by-country.

gTLDs administered by some private companies, such as VeriSign Global Registry Services (VeriSign GRS) and NeuLevel, Inc., can be obtained through registrars in Japan and overseas. On the other hand, ccTLDs are managed by each country's registry (ccTLD registry), and various domain name schemes are being reviewed, for instance in February 2002, introduction of ".JP" domain names without restrictions on the number that can be registered by any individual, group, or organization. The ".jp" domain names can be obtained from JPRS and registrars, which are generally Internet service providers in Japan (ISPs) and conclude contracts with JPRS.

4) Internationalized domain names (IDNs)

The Domain Name System (DNS) hitherto are in principle based on the English language. For the purpose of increasing Internet users among the general public, it is crucial that the domain names be comprehensible and easy-to-use for Japanese users. In response to requests from users in non-English speaking countries and regions, ICANN is carrying out studies on introduction of Internationalized Domain Name (IDN), also known as "multilingual domain names," which uses non-English characters for Japa-

nese and other languages containing characters other than the alphanumeric system. At present, the Internet Engineering Task Force (IETF), an international standardization organization covering the Internet, is conducting technological standardization activities on the internationalized domain name. Apart from the standardization activities, in November 2000 VeriSign GRS started registration for the multilingual "gTLD" domain names including Japanese and in February 2001 JPNIC also started registration for Japanese ".jp" domain names.

Toward practical use of internationalized domain names, it is necessary to ensure that stable operations of IDN can work under the existing DNS. Thus, paying due consideration to the convenience of Japanese users, it is important for Japan to actively participate in international rule making for stable use of internationalized domain names.

Thus, paying due consideration to the convenience of Japanese users, it is important for Japan to actively participate in international rule making for stable use of internationalized domain names.

5) New gTLDs

VeriSign GRS has been managing gTLDs on a monopoly basis to date. However, ICANN started a program for the introduction of new generic top-level domains (gTLDs), in order to cope with i) forecast of shortage in gTLD space, ii) introduction of competition in management service and iii) regionally distributed management service.

At its meeting on November 16, 2000, the ICANN Board selected the seven new generic top-level domains (gTLDs) for negotiation to be operational. Of the seven gTLDs, acceptance of applications for five domains of ".info," ".biz," ".name," ".aero" and ".coop" was started. The remaining ".pro" and ".museum" are under consultation for detailed conditions. There is no proposal from Asian registries in the seven candidate gTLDs, so the Western-oriented domain name management structure still remains intact. (Table I-10-2) Thus, if gTLDs convenient for Japanese and other Asian registrars are introduced, users in the region can have a broader range of choices in gTLDs, resulting in more inexpensive gTLDs for users. It is im-

Table I-10-2 New TLDs

Un-sponsored gTLDs (general purpose)	
The following three gTLDs can be freely obtained like “.com,” “.net” and “.org.”	
.biz	NeuLevel (then known as JVTeam, LLC)
.info	Afilias, LLC
.name	Global Name Registry, LTD
Sponsored gTLDs (specialized purpose)	
The following four gTLDs can be obtained by limited organizations like “.mil,” “.int,” “.gov” and “.edu.”	
.aero	Societe Internationale de Telecommunications Aeronautiques (SITA)
.coop	National Cooperative Business Association (NCBA)
.museum	Museum Domain Management Association (MuseDoma)
.pro	RegistryPro, LTD (a joint venture of Registry.com and Virtual Internet)

portant for Japan to actively, in cooperation with Asian countries, participate in deliberations conducted in ICANN.

6) Dispute resolution and precaution concerning domain name acquisition

As regards domain names, to date there are cases where third parties in bad faith acquires a domain name reflecting trademarks, English corporate names, acronyms, service marks for the purpose of reselling it to the rightful trademark owner at a high price; establishing a website using a domain name identical or similar to a trademark owned by another party for the purpose of creating misunderstanding and confusion among Internet users. In order to cope with those cases and similar disputes, ICANN released Uniform Domain Name Dispute Resolution Policy (“uDRP”) in October 1999. In accordance with this uDRP, dispute-resolution Panels which ICANN accredits can quickly canceling or transferring domain names obviously registered or used in bad faith when

complaints are made by rightful trademark owners through the administrative proceedings. In Japan, JPNIC, in July 2000, set forth the “JP Domain Name Dispute Resolution Policy (JP-DRP)” for coping with domain name disputes by arranging the uDRP. As the dispute-resolution service provider certified in accordance with JP-DRP by JPNIC, the Arbitration Center for Industrial Property accepted 19 complaints as of July 2002 since the beginning of the arbitration in October 2000 (Table I-10-2). In addition to those Alternative Dispute Resolutions (ADRs), because there are trends requiring resolutions by court judgments, such as the JACCS case (Toyama District Court), in June 2001 the Law to Amend the Unfair Competition Prevention Law was passed the Diet, in order to prevent domain name abuse and registration for obtaining illicit gain or perpetration.

Undue acquisition of domain names have tended to occur upon introduction of new domain name systems. In November 2000, when a new system for the internationalized domain

names (“.info,” “.biz” and “.name”) was introduced, immediately after the acceptance was started, applications for registration surged, then a registration system for acceptance was down. Furthermore, as the procedure for registration was basically on a first-come first-served basis, domain names identical or similar to a trademark owned by another party were acquired by unentitled third parties.

On the contrary, in case of registration for “.jp” domain names in February 2001, JPNIC took a preventive measures, such as setting a preferential time period (Sunrise Period) for rightful trademark and service mark owners, a time period for equal treatment without a first-come first-served basis.

The Sunrise Period is internationally recognized as an effective preventive measure avoiding disorder. This measure is employed by JPNIC as the world’s first attempt in the registration for “.jp” domain names. Such attempts will lead to stable Internet usage not only in Japan but also in the rest of the world. Proposals concerning such attempts shall be studied at international fora such as ICANN.

11. Introduction of the “Radio-Radiation Protection Regulation” to existing mobile telephone terminals operating in close proximity to the side portion of the human head

On June 1, 2001, MPHPT promulgated a ministerial ordinance to

Table I-10-3 Accredited Panels for resolving domain name disputes

	Accredited Panels	Location	URL	Dispute resolution policy	Accepted cases
gTLDs	WIPO	Geneva	http://www.wipo.int/	UDRP	4,245
gTLDs *1	NAF	Minneapolis	http://www.arb-forum.com/	UDRP	2,703
gTLDs	CPR	New York	http://www.cpradr.org/	UDRP	58
gTLDs	ADNDRC	Beijing, Hongkong	http://www.adndrc.org/	UDRP	17
JP domains	Japan Intellectual Property Arbitration Center	Tokyo	http://www.ip-adr.gr.jp/	JP-DRP	19

Note*1: including 34 cases related to Open ccTLDs such as “.tv,” “.cc”, etc. that can be obtained from anywhere around the world.

Source: Materials announced by each organization

amend relevant ministerial ordinances, in order to introduce the "Radio-Radiation Protection Regulation" to existing mobile telephone terminals operating in close proximity to the side portion of the human head.

In order to prevent radio waves emitted from radio facilities/equipment from affecting human bodies, the "Radio-Radiation Protection Guidelines" on the radio-radiation strength, etc. has been submitted by the Telecommunications Technology Council.

Values listed in the "Radio-Radiation Protection Guidelines" are standard values, equivalent to the standard values of international guidelines developed by the International Commission on Non-Ionizing Radiation Protection (ICNIRP), set forth on prerequisites for protecting human bodies, taking into consideration sufficient safety margin based on fluctuation in mobile terminal user conditions and an environment where mobile stations are installed, etc. Among those values, the "Electromagnetic Field Strength Guidelines," applied to broadcast stations, base stations for mobile telephones, etc., oblige persons who opened radio facilities to construct safety facilities such as fences, etc. for preventing the general public from entering places with values equal to or exceeding standard values of radio wave strengths emitted from those radio facilities, as stipulated under Article 21-3 of the "Enforcement of the Radio Law."

Among the "Radio-Radiation Protection Guidelines," the "Partial-body Absorption Guidelines (Specific Absorption Rate: SAR*)," applied to cellular phone devices, etc. intended for use in close proximity to the side of the head, is currently used for guidelines in producing radio equipment. In addition, based on the partial report of November 2000 "Measurement of SAR from mobile phone terminals and other terminals that are intended for use in close proximity to the side of the head" from the Telecommunications Technology Council, the unified measurement method of the SAR has

been set forth. Subsequently, in March 2001, MPHPT inquired of the Radio Regulatory Council about partial amendments of the relevant ministerial ordinances and in May 2001 received a report from the council stating that the draft amendments are appropriate. In accordance with the report, the partial amendments to the "Rules for Regulating Radio Equipment" and the "Ordinance Concerning Technical Regulations Conformity Certification of Specified Radio Equipment" for introducing the Radio-radiation Protection Regulation, which will cover cellular phone devices intended for use in close proximity to the side of the head, were on June 1, 2001, promulgated and came into force on June 1, 2002.

Thanks to the introduction of the Radio-Radiation Protection Regulation, safer use of radio wave with ease is to be promoted.

Note: SAR: Specific Absorption Rate. This refers to the average amount of radio wave energy imparted to a given 10g of tissue in a time period of six minutes when a living body is exposed to electromagnetic fields.

1) Outline of regulations

i) Ordinance for Regulating Radio Equipment (Article 14-2)

To stipulate the SAR limit (2W/kg) applied to radio facilities (limited to radio facilities transmit/receive voice information and combined information of voice/others) of "land mobile stations conducting mobile radio communications intended for use in close proximity to the side of the head" and "mobile earth stations, which conduct mobile satellite communications through relaying of an artificial satellite station established on a non-geostationary satellite." (MPHPT Ordinance No. 81)

ii) Ordinance Concerning Technical Regulations Conformity Certification of Specified Radio Equipment (Table 3)

To add the SAR to test items in characteristic tests of Technical Regulations Conformity Certification for ensuring conformity with technical conditions in 1). (MPHPT

Ordinance No. 82)

1) Preparation of relevant Notices

Furthermore, in line with the amendments to the ministerial ordinances, MPHPT made and amended the following Notices (promulgated on October 10, 2001 and come into force on June 1, 2002).

i) Notice for Setting Methods for Measurement of SAR at the Side of the Head (MPHPT Notice No. 628)

In order to enable unified evaluation of conformity of radio equipment with the Radio-Radiation Protection Regulation effective from June 1, 2002, this Notice provides for "methods for measurement of SAR from cellular phone devices intended for use in close proximity to the side of the head (measuring instruments, conditions for measuring environments, procedures for measurement, etc.)."

ii) Notice for Setting Items for Inspection by Attested Private Inspectors (MPHPT Notice No. 630)

In order to enable Attested Private Inspectors (a person who performs the business of conducting inspection of radio equipment, etc. under the Radio Law Article 24-2) to conduct measurement of SAR at the side of the head, MPHPT partially amended MPHPT Notice No. 312 of 1999 to add the inspection item concerning "Methods for Measurement of SAR at the Side of the Head" to this Notice. Thanks to this amendment, when measuring SAR, Attested Private Inspectors may omit part of examination for Technical Regulations Conformity Certification.

iii) Notice for Setting Implementation Methods, Etc. for Inspection by Attested Private Inspectors, Etc. (MPHPT Notice No. 629)

In order for Attested Private Inspectors, etc. to enable unified measurement of SAR to cellular telephone terminals, etc., MPHPT partially amended MPHPT Notice No. 666 of 1998 to add the inspection methods concerning SAR to this Notice. Thanks to this amendment, when measuring SAR, Attested Private Inspectors may conduct inspection concerning SAR with unified

measurement methods.

12. Tax incentives for promoting reliability of telecommunications systems

With socioeconomic activities becoming increasingly dependent upon the Internet, such as electronic commerce, computer viruses influencing the entire telecommunications systems have emerged as a new threat which

prevents stable provision of telecommunications services. In addition to the facilities conducive to the measures for improving reliability of telecommunications systems in an emergency such as a conventional disaster, "computer virus monitoring devices" were also qualified for tax incentives from FY2001. If telecommunications carriers procure these facilities, they can receive a 12% special depreciation on the acquisition cost for their corporate tax.

"Agreement between Japan and the Republic of Singapore for a New-Age Economic Partnership (JSEPA)," including MRA covering telecommunications terminal equipment, radio equipment and electric appliances (specified equipment), subsequently, an amended law, the "Law for Implementation of the Mutual Recognition Between Japan and the European Community and the Republic of Singapore in Relation to Conformity Assessment of Specified Equipment," which adds necessary matters for mutual recognition between Singapore to the MRA Law was promulgated on April 26, 2002.

Furthermore, the government is preparing to implement MRAs with APEC member economies within frameworks for APEC MRAs. MPHPT has been promoting global deployment of Japan's competitive telecommunications technology and contributing to improvement in ICT benefits for people around the world, through a variety of available telecommunications equipment including foreign equipment.

II. Measures for Ongoing Globalization

1. Toward implementation of telecommunications equipment MRA

Along with globalization trends in international distribution of telecommunications equipment, international harmonization has been requested in Japan's technical standard conformity certification system concerning telecommunications equipment. In response to this, MPHPT has been promoting mutual recognition of approval for telecommunications equipment. (Fig. II-1)

Between Japan and the EU, on January 1, 2002, the Mutual Recognition Agreement (MRA: the Agreement on Mutual Recognition between Japan and the European Community) for four specific areas of telecommunications terminal equipment and radio equipment, electrical products, chemicals and medical products came into

force. On the same day, the "Law for the Implementation of the Mutual Recognition between Japan and the European Community in Relation to Conformity Assessment of Specified Equipment" (MRA Law) and relevant ministerial ordinances came into force, in order to implement the MRA and facilitate telecommunications equipment trade.

Between Japan and Singapore, on January 13, 2002, the two parties signed a free trade agreement, the

III. Development of ICT Infrastructure

1. National Broadband Initiative

-- Toward the most advanced IT nation in the world --

A target to "become the world's advanced IT nation within five years" is clearly stated in Japan's national IT

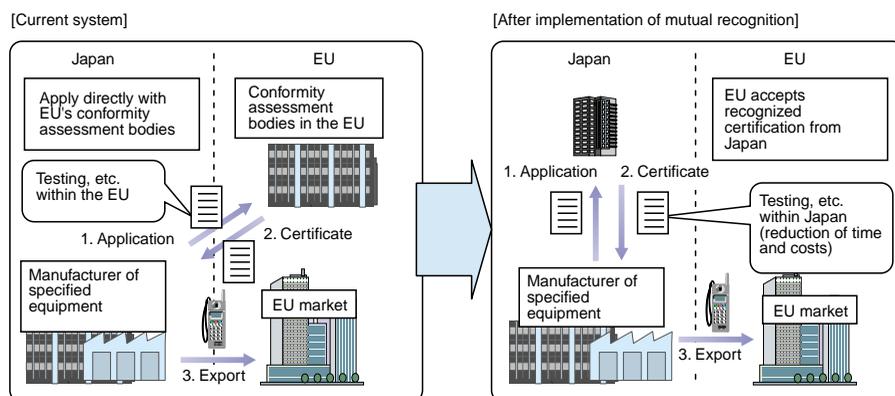
strategy, "e-Japan Strategy." To achieve this target, in October 2001, MPHPT announced a "National Broadband Initiative."

The "National Broadband Initiative" clearly states a schedule to realize the high-speed/ultrahigh-speed Internet in Japan by FY2005, the respective roles for the public and the private sectors, the prospective number of high-speed/ultrahigh-speed Internet subscribers and the expected social benefit brought on by the deployment of broadband Internet.

1) Construction of high-speed/ultrahigh-speed network infrastructure [Targets]

- Create an environment that enables 24-hour connection to high-speed access networks from at least 30 million households and ultrahigh-speed access networks from 10 mil-

Fig. II-1. MRA scheme



Note: This diagram shows a case where Japan exports equipment to the EU, and vice versa.

- lion households by FY2005.
- Bridge the digital divide caused by geographical constraints.
- Deployment of LANs connecting public facilities through the nation by FY2005.

(1) High-speed network infrastructure

Achieve the goal, deployment of "30 million households" by FY2005 through the private sector's deployment of high-speed networks, and create an environment that enables all people in every region, regardless of their geographical constraints, to have 24-hour access to the Internet.

- DSL (Digital Subscriber Lines) services using existing telephone lines are expected to be deployed* by the private sector within FY2002.
- Regarding other high-speed Internet access services such as cable Internet and FWA, service areas are expected to be expanded by FY2005.

Note*: There may be cases that services are not offered in areas where metallic cables are being removed, or quite far from telecommunications carrier's local exchanges.

(2) Ultrahigh-speed network infrastructure

Achieve the goal, deployment of "10 million households" by FY2005 through the private sector's deployment of ultrahigh-speed networks mainly in metropolitan areas. However, as to subscriber fiber-optic networks, the public sector's deployment is vital for narrowing the "digital divide" caused by geographical constraints.

- As regards services using fiber-optic networks, mainstream networks of the ultrahigh-speed Internet infrastructure, it is expected that the private sector will deploy in such areas as:

- government-designated cities and prefectural seats by FY2003
- most cities by FY2005

- Accordingly, the goal, the deployment of "10 million households," can be achieved. However, because of problems related to profitability, the "digital divide" caused by geographical constraints may emerge.

- In other words, under-populated

areas and other locations under geographical constraints where the private sector has no interest to deploy network infrastructures because of profitability, the network deployment by governments is required to close the digital divide.

- Upon the network deployment by the public sector, from the viewpoint of promoting electronic governments that realize advanced public services such as education, administration, welfare, medical care and prevention of disasters, it is desirable to utilize public LANs deployed by local governments, connecting public facilities.

iii) Public LANs connecting public facilities

Implement deployment in every region by FY2005:

- From the viewpoint to promote electronic governments by FY2005, deploy public LANs connecting public facilities, schools, libraries, public halls and city offices, in order to realize advanced public services, education, administration, welfare, medical care, prevention of disasters, etc.
- To this end, it is vital for local governments to create a concrete plan

for the deployment of public LANs, and the national government shall ensure financial support measures necessary for those local governments to realize their plans.

(2) Predicted deployment of broadband Internet (number of household subscriptions)

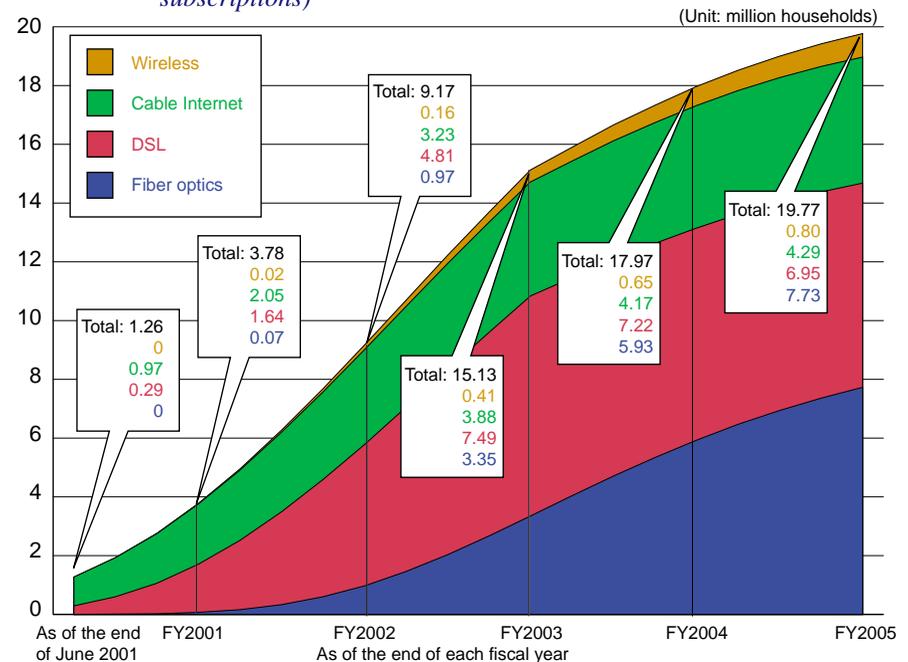
- The following Fig. III-1 provides estimates that the number of household subscriptions to high-speed/ultrahigh-speed Internet access services, based on the expected growth rate of the Internet use, rate of deployment and charges, etc. under certain conditions.

- Although DSL is expected to constitute the mainstream of high-speed/ultrahigh-speed Internet access service for the time being, ultrahigh-speed access services using fiber-optic networks are expected to be deployed rapidly from FY2003 and eventually overtake DSL.

(3) Changes in lifestyle resulting from public applications realized through high-speed/ultrahigh-speed networks

- The creation of an environment for high-speed/ultrahigh-speed Internet access will bring about not only a boost to regional economies ex-

Fig. III-1 Predicted deployment of broadband Internet (number of household subscriptions)



pected through industrial revitalization, but also changes in the lifestyle of citizens who will be able to receive advanced public services such as medical care, welfare, education, culture and prevention of disasters, even at home.

2) Government Grant for FTTH network in rural areas

In order to narrow the geographic digital divide, the MPHPT has created, in FY2002 budgets, a new grant for FTTH network in rural areas. This grant provides support for the installation of FTTH network by local governments in rural area or remote islands Through this scheme, MPHPT will promote and accelerate construction of ultrahigh-speed Internet access environments.

2. "Study Group on IP Network Technology" Compiles Report

On February 22, 2002, MPHPT released the report compiled by the "Study Group on IP Network Technology" (Chair: Professor SAITO Tadao, Chuo University). In June 2001, the study group was held to deliberate on technological issues concerning IP networks.

The outline of the report is as follows:

1) Background

Technologies for public switched telephone networks (PSTNs), Japan's current major communications networks, are internationally recognized as high quality ones. The PSTNs, based on detailed technical standards, are consisting of hierarchical networks to provide telephony services.

On the contrary, Internet protocol (IP) technology, which constitutes the basics of and is derived from computer communications, including local area networks (LANs) and the Internet, is utilized for IP networks with the purpose of providing telephony service through interconnection with existing PSTNs.

The quality of telephony service with the VoIP (Voice over IP), voice communications technology utilizing Internet Protocol (IP), has been drasti-

cally improved as a result of the recent technological development. This has led to the popularization of interconnection between the IP network and public switched telephone networks (PSTNs). In addition, upon adoption in March 2001 of "Opinion D" to facilitate the introduction and widespread use of IP telephony at the ITU World Telecommunication Policy Forum (WTPF), studies on international standardization and a numbering plan concerning IP telephony are henceforth seen being accelerated on a global scale.

2) Outline

i) Speech quality of IP telephony

Based on studies in standardization organizations, such as ITU-T, ETSI, TIA, and existing regulatory frameworks, the end-to-end speech quality of IP telephony is classified into three: Class A (equivalent to fixed telephones), Class B (equivalent to cellular telephones) and Class C. In particular, for voice communications, Class C quality is required. In addition, VoIP service providers and VoIP terminal equipment vendors are required to affix appropriate marks, etc. on VoIP products in accordance with the classification.

ii) Methods for assessing quality of IP

telephony

As for methods, conditions, etc. for assessing quality of IP telephony, based on trends in international standardization at ITU-T, ETSI, etc., domestic standardization organizations are required to lead studies thereon.

iii) Desirable technical standards concerning quality of IP telephony

In order to make technical standards applicable to various IP telephony service, VoIP service providers shall, in the same manner as the existing technical standards, set forth standard values with recognition of the MPHPT Minister and maintain thereof.

iv) Numbering plan for IP telephony

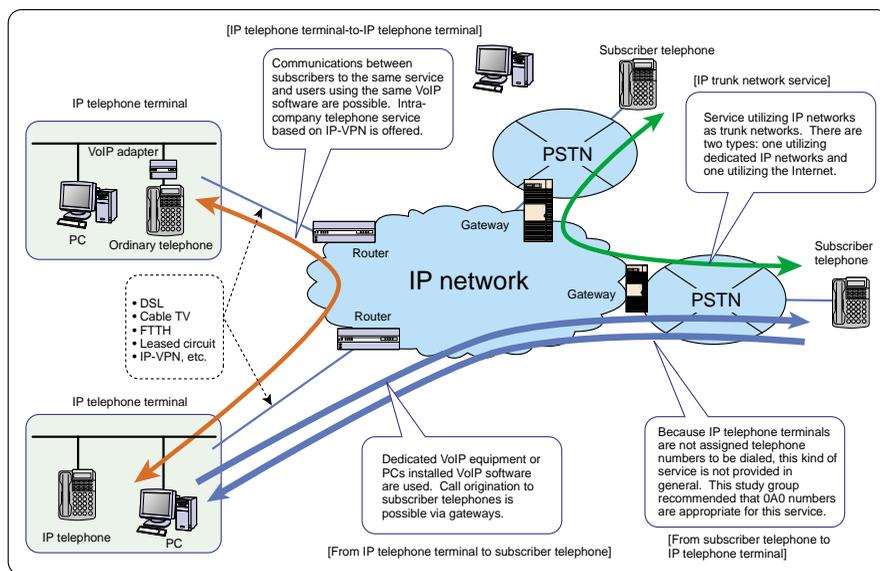
Telephone numbers (telephone numbers of IP telephony) assigned to terminals (IP telephony terminals), connected 24 hours a day to IP networks via DSL, cable TV, etc., to be called by general subscriber telephones shall be decided.

v) Formulation of examination standards concerning telephone numbers

In order to use numbers fairly and effectively, examination standards shall be formulated where applications for allocation of numbers including numbers of IP telephony are filed.

vi) Preparation for and study on ENUM (Electronic Numbering)

Fig. III-2 IP Network



This study group proposed as follows:
 • It is appropriate that, regarding all types of IP telephony services, end-to-end speech quality be explicitly displayed in order to have consumers easily understand quality display; and
 • It is necessary that the public and private sectors promote standardization activities in establishing quality assessment methods for IP telephony service, in order to adequately compare each service quality.

Upon introduction of ENUM, matters (management/operation systems for ENUM DNS servers) to be taken into consideration shall be studied. The outcomes of the study will be utilized for contributing to deliberations at ITU, the Internet Engineering Task Force (IETF), etc.

3) Subject in the future

i) Promotion of standardization concerning IP network technology

In order to promote IP telephony and smooth introduction of IP networks, and so that domestic technology can contribute to international standards, standardization concerning IP network technology shall be promoted.

2) Promotion of interconnection

In order to facilitate interconnection among various networks, technical conditions for interconnection shall be established in collaboration with standardization organizations, service providers and relevant businesses.

iii) Security measures, etc.

In order to protect IP networks against threats from cyberterrorists, security measures shall be implemented and understood by the public, including R&D, creation of liaison/cooperation system between the public and private sectors, and security measures for users.

iv) Ensuring emergency/essential communications

In order to ensure emergency/essential communications using IP telephony, not only telecommunications carriers but also the national government shall implement R&D efforts aimed at playing a leading role in this field.

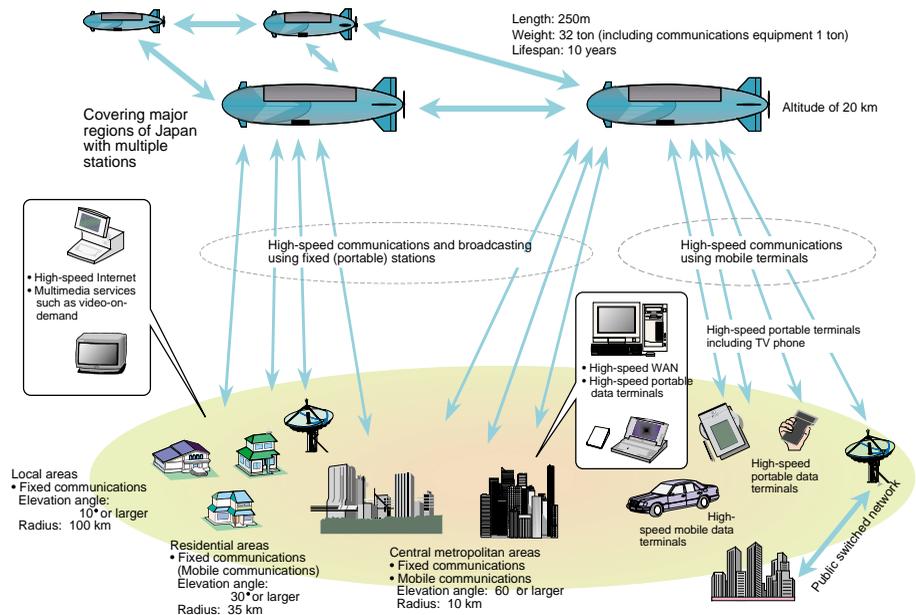
v) Measures for introducing IPv6

In order to promote the shift from IPv4 to IPv6, measures shall be studied, taking into consideration shortage of IPv4 address space.

3. R&D for Stratospheric Radio Platforms

MPHPT, in cooperation with the Ministry of Education, Culture, Sports, Science and Technology (MEXT), launched full-scale R&D on the Strato-

Fig. III-3 Stratospheric Radio Platforms



spheric Radio Platform project in FY1998.

The Stratospheric Radio Platform is a radio relay system utilizing unmanned airships equipped with communications equipment and flying at an altitude of approximately 20 kilometers in the stratosphere for the purposes of communications and broadcasting. If these unmanned airships are equipped with observation sensors, the platform can also be used for earth observation.

This system has the following advantages:

- 1) High-speed, large-capacity communications and broadcasting using unused frequencies such as the Ka band and the millimeter wave band
- 2) Smaller terminals because of the shorter propagation distance than those for satellite communications
- 3) Effective in earth environment measurement such as measuring CO₂

MPHPT is responsible for the tracking and control system as well as the communications and broadcasting mission. MEXT is responsible for construction of the entire platform system and the earth observation mission. As regards budgets, MPHPT and MEXT were allocated a total of 3.1 billion yen for FY2001 budget and 3.1 billion yen

for FY2002.

By FY2000, MPHPT had already conducted i) research on element technologies for tracking and control systems and ii) research on element technologies for fixed communications and prototype production thereof. MPHPT is now developing technologies to carry out a test flight planned for after FY2003.

In October 1999, the Stratospheric Radio Platform project was selected as a "Millennium Project" targeting the environmental protection based upon a decision of the Prime Minister, which accelerates research on the Stratospheric Radio Platform.

Moreover, in addition to the 47-GHz band allocated at the World Radiocommunication Conference 97 (WRC-97), the 31/28GHz-bands were allocated and were enabled to use the platform as IMT-2000 base stations at the WRC-2000, which expanded availability for versatile applications.

4. Introduction of the Fixed Wireless Access (FWA) System

1) What is the FWA system?

The fixed wireless access (FWA) system is a system that directly connects subscribers to the telecommunications

carrier's trunk networks by wireless communications technologies. Since the FWA enables high-speed Internet access and can be established at a low cost, it is expected that the FWA will be used for the so-called "last one mile" and "hot spots."

2) Introduction of FWA system using quasi-millimeter-wave-band and millimeter-wave-band frequencies

On December 25, 1998, MPHPT prepared a regulatory framework for the FWA system using the quasi-millimeter-wave-band (22GHz and 26GHz bands) and the millimeter-wave-band (38GHz band) frequencies. In May 2001, MPHPT added six blocks (720 MHz) of frequencies in the 26GHz band to the initial 18 blocks. At present, 15 telecommunications carriers are actually providing the FWA services.

3) Introduction of 5GHz band wireless access systems

In September 2002, MPHPT formulated a regulatory framework for the "5GHz band wireless access system," which can provide high-speed Internet access service outdoor. It is expected that this system will be widely used for outdoor "hot spots," such as station squares, parks, street corners, and for the "last one mile," a link to subscribers' dwellings.

4) Introduction of new FWA systems

MPHPT has started consideration on technical conditions, including frequency sharing with other systems, on "quasi-millimeter-wave-band FWA for public services" that will be used by the central government and local public bodies, aiming at completing rulemaking process within FY2003.

5) R&D on the next-generation wireless access system

In order to realize the next-generation wireless access system, which is a mesh-type system advancing the current wireless access system (P-P or P-MP type) in communication speed, flexibility for network construction fault tolerance, etc., the following technologies are necessary. MPHPT carries out the five-year R&D project

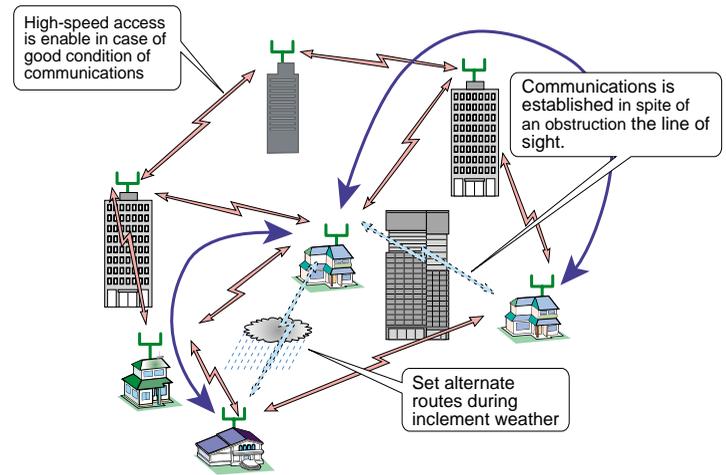
thereon from FY2000 to FY2004 as an entrusted research of the Telecommunications Advancement Organization of Japan.

i) Autonomous interference prevention technology: Technology that autonomously controls radio frequencies

ii) Autonomous route selection technology: Technology that autonomously selects the optimal route

iii) Wireless network technology: Technology that constructs the next-generation wireless access system.

Fig. III-4 Next-generation wireless access system



IV. Promotion of Mobile IT

1. Promotion of ITS

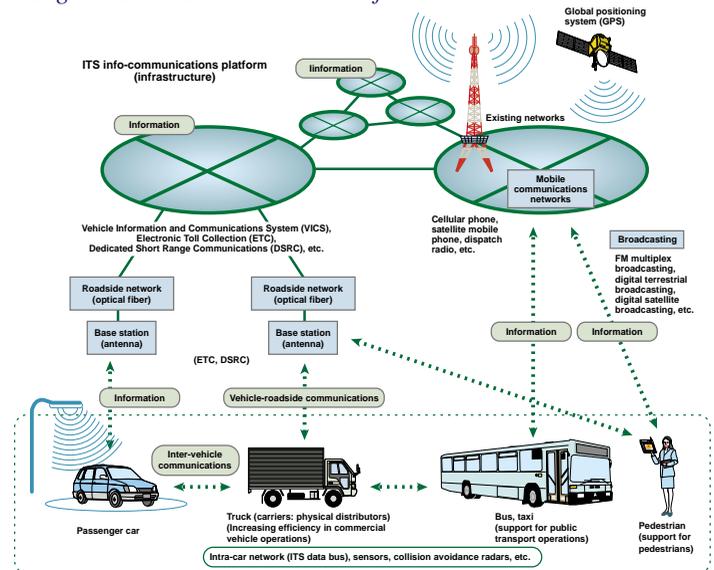
Intelligent Transport Systems (ITS) can be regarded to be comprehensive ICT systems dealing with road traffic, and is comprised of humans, roads and vehicles as a total system, making the most of leading-edge information and communications technologies.

Anticipated ITS applications are traffic information provision systems, expressway Electronic Toll Collection (ETC) systems, physical distribution (PD) support systems, traffic control systems and various other systems. Through realization thereof, those systems will not only contribute to reductions of traffic jams and ac-

cidents, improved efficiency of physical distribution, etc., but also bring about job creation and economic ripple effects through development of related industries, including auto, ICT industry and other industries.

Today, part of ITS is already in practical use. The Vehicle Information and Communications Systems (VICS), providing drivers with real-time informa-

Fig. IV-1-1 ITS network in the future



tion on traffic congestion and the like, have been in operation as a full-scale service since 1996. As of the end of June 2002, the cumulative units of VICS shipped totaled 4.98 million. Meanwhile, the Electronic Toll Collection (ETC) system, which enables toll collection without stopping vehicles on the expressway, became operational as of March 2001.

With the viewpoint of utilizing ICT linking humans, roads and vehicles, MPHPT has been conducting standardization activities on ICT, such as Dedicated Short Range Communications (DSRC) for ITS, R&D on Internet ITS technologies and study/research on deployment of ITS technologies. ITS can be considered to be promising systems in diversified aspects, including improvement of safety in road traffic, creation of new industries, etc. MPHPT has been promoting ITS in collaboration with ITS-related ministries and agencies (the National Police Agency, the Ministry of Economy, Trade and Industry and the Ministry of Land, Infrastructure and Transport), industries, academia, etc.

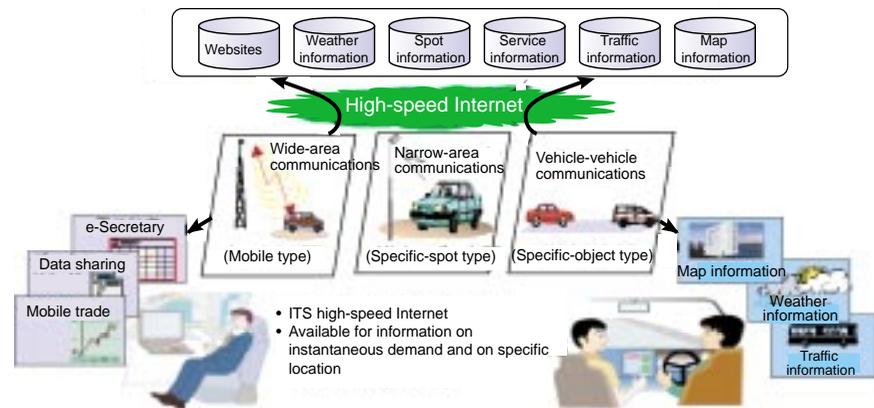
MPHPT's major promotion measures for ITS are as follows:

1) R&D on ICT for realizing ITS

With regard to ITS-related R&D on ICT, R&D for realizing ITS is carried out, e.g., R&D for realizing Internet ITS, which enables a system in a car traveling at high speed to receive large-volume data via networks. To date, with the purpose of enabling an environment in which a car can receive and transmit information as in office, R&D on wireless agent technologies, a kind of virtual secretary, and software automatic updating technologies, such as automatically updating of roadmaps for car navigation, have been carried out. From now on, R&D on ITS routing technologies, IP-ready multimode terminal technologies, etc. will be conducted.

R&D on smart gateway technologies has been carried out. In order to realize the driving assistance system, R&D on information and communications technologies ("smart gateway" technologies) that enable smooth and reli-

Fig. IV-1-2 Internet ITS



able communications between roads ("smart way") and cars ("smart car") traveling at high speed is underway. As for the smart gateway technologies, R&D is to be carried out on the hand-over control, continuous cell configuration and high-reliability interconnection systems technologies that support high-speed driving, and comprehensive experiments integrating each element technology will be implemented within FY2002.

2) Promotion of DSRC systems

The 5.8GHz band Dedicated Short Range Communications (DSRC) systems among ITS ICT are positioned as "short-distance/small-zone two-way mobile communications compliant with multiapplications," which conducts high-speed between roadside equipment and car-mounted equipment for information provision, toll collection, etc., and comprises of key elements of ITS. Thus, DSRC systems are expected to become core technologies of the driving assistance system in the future. To this end, the Radio Regulatory Council in March 2001 submitted a report concerning "Technical Requirements of the Radio Equipment for DSRC System," in accordance with this report relevant ministerial ordinances were prepared.

Part of DSRC basic applications, the Electronic Toll Collection (ETC) system, has been operational for commercial use at 733 toll booths (of a total of 1,300 toll booths throughout Japan) since March 2001, and nearly 500,000 car-mounted units are diffused.

3) Realization of ITS Smart Town

In order to achieve various targets, such as road traffic problems including reductions of traffic accidents/jams, improvement of convenience, it is needed to introduce, at an early stage, optimum ITS systems tailored to meet needs of each local community. Some local public bodies, upon working on ITS locally, have started considering introduction of DSRC systems. Upon introduction of DSRC systems, however, problems such as ensuring systems interoperability/compatibility are still remain.

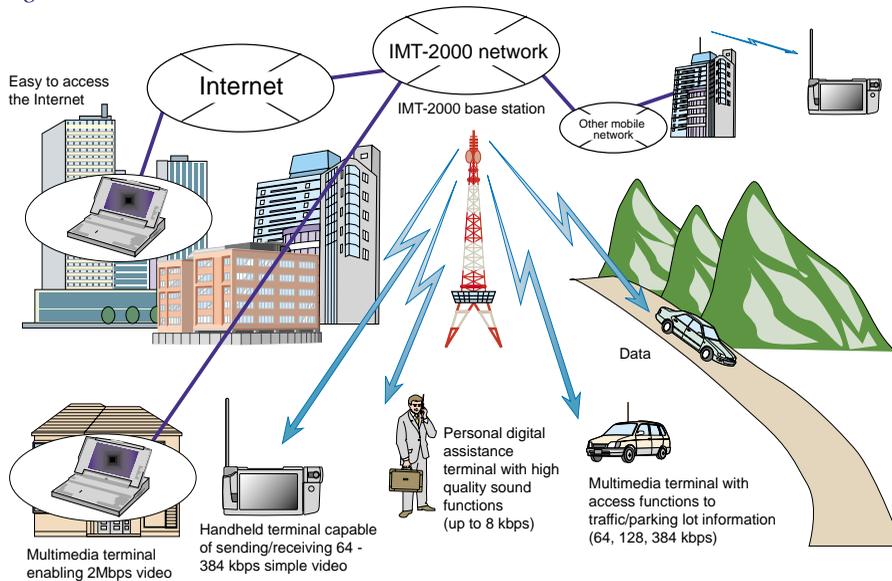
MPHPT has been conducting a survey/development on regional ITS model systems from FY2001 through FY2003 that are conducive to the solution of such problems in each region.

4) Promotion of international deployment of ITS technologies

In 1991, ITS America of the U.S. and ERTICO of the EU were set up as industry-academia-government partnerships for the implementation of Intelligent Transport Systems and Services (ITS). In Asian countries also the Standardization Program (ASTAP) was established under the Asia-Pacific Telecommunity. Movements toward standardization and internationalization of ITS have been spreading around the world as exemplified by the ASTAP-Expert Group on Intelligent Transport Systems, one of the Expert Groups, that is actively working on standardization.

Under such circumstances, in order to respond to the global ITS trends, MPHPT has been carrying out sur-

Fig. IV-2 IMT-2000



veys/studies on international deployment of Japan's ITS information and communications technologies, taking into consideration development/standardization trends of information and communications technologies and needs for ITS in other countries.

2. Promotion of the next-generation mobile communications service (IMT-2000)

IMT-2000 (International Mobile Telecommunications - 2000) is a digital, next-generation mobile communications service which features a global service allowing use from anywhere in the world, high-quality voice service comparable to the fixed network, provision of a multimedia mobile communications service including easy video transmission and Internet access, etc.

In preparation for the introduction during CY2001, MPHPT in March 2000 formulated its policies for the introduction of the next-generation mobile communications service and granted business permissions and radio station licenses to NTT DoCoMo Group, J-PHONE Group, IDO and DDI Cellular Group (current KDDI Corp.). In October 2001, NTT DoCoMo Group started the world's first full-scale commercial 3G service in Tokyo metropolitan area. The numbers of subscribers to 3G services as of the end of August 2002 are about 130,000 for NTT

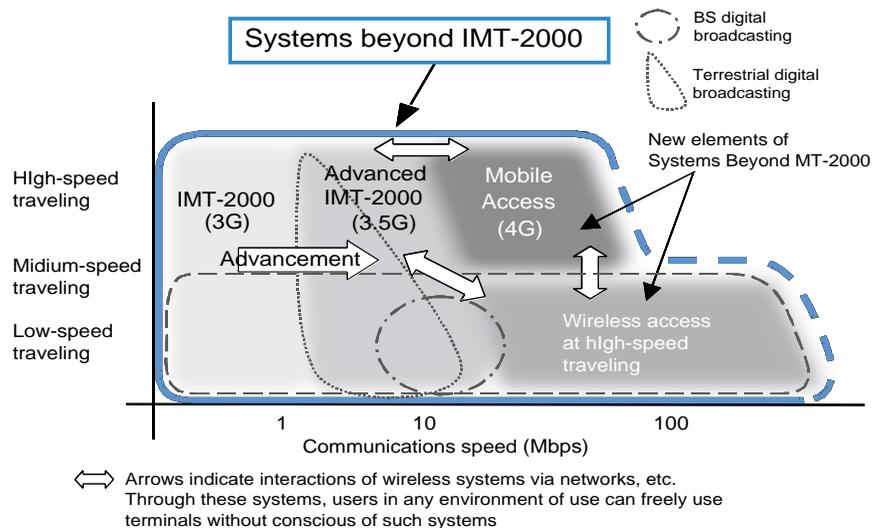
DoCoMo Group and about 2.14 million for KDDI Group. J-PHONE Group is to start up its service in December 2002.

In line with the results of ITU-WORC2000, MPHPT is preparing additional frequencies for the service in order to respond to the future development of IMT-2000.

3. Outlook for future mobile communications systems

At present, the Systems beyond IMT-2000 (successor systems to IMT-2000, in Japan the "new-generation mobile communications systems"; Fig. IV-3) are being studied internationally,

Fig. IV-3 Next-generation mobile communications



and Japan is actively participating in this study.

With the expanded penetration of mobile computing and the rapid evolution of IT, demands are rising for the realization of multimedia mobile communications including ultrahigh-definition moving picture transmission, through ultrahigh-speed transmission and the totally IP-based network having higher security and reliability. A variety of R&D activities is being carried out in Japan and foreign countries on future mobile communications technology including the software defined radio (SDR) technology, which allows frequencies, communications methods, etc. to be changed flexibly and simply by replacing or modifying software. At ITU, studies for the realization of future development of IMT-2000 and the systems beyond IMT-2000 have just begun.

Taking those backdrops into account, toward the realization of the future mobile communication systems, MPHPT started the study on the "new-generation mobile communications systems." In October 2000, MPHPT inquired of the Telecommunications Council about the "Outlook for the Future Mobile Communications Systems." The Council in June 2001 submitted a report on images of new-generation mobile communications systems, etc. In response to the report, MPHPT in FY2002 started R&D

projects on ultrabroadband mobile communications transmission technology, SDR technology, etc. Moreover, in line with proposals contained in the report, recommending "it is necessary to establish a forum for promoting interindustrial R&D and standardization toward facilitation of R&D on the new-generation mobile communications systems," the "Mobile IT Forum" was set up in June 2001 through a private sector initiative, and now the forum is vigorously carrying out various activities.

Japan has been actively working on the new-generation mobile communications systems at ITU-R, etc. for ensuring frequencies for the systems at an early stage.

4. Toward advancement of wireless system using 2.4GHz band

The 2.4-GHz frequency band is allocated for low-power wireless facilities such as low-power data transmission system (wireless LAN) or mobile terminal identification systems as well as for various devices for industry, science and medicine (ISM) such as microwave ovens.

At present, as regards low-power data transmission systems, along with the expansion of demands for wireless Internet access, development and studies on large-capacity data trans-

mission technology, etc. are being carried out. Also, on mobile terminal identification systems, a study is being conducted on establishing a new method, which is superior in interference resistance, as a global standard (ISO). Under such circumstances, there is high expectation from industries for advancement in low-power transmission systems and mobile terminal identification systems.

Based on the conditions above, MPHPT inquired of the Telecommunications Council to deliberate on technical conditions for wireless facilities and equipment, etc. for the advancement of wireless systems using 2.4GHz band. Regarding results of the deliberations on the following items, findings were reported in September 2001 and relevant ministerial ordinances were amended in February 2002.

1. Relaxation of antenna gain conditions to allow flexible use of wireless LAN as a fixed wireless access system
2. Further speedup of wireless LAN (introduction of OFDM modulation method; transmission speed of 20Mbps or more)
3. Establishment of a mobile terminal identification system as a global standard (introduction of a frequency hopping method that is similar to wireless LAN)

implement large-scale and swift reallocation of the radio spectrum access system and develop mobile communication systems.

2) Implementation of survey, assessment and publicity on the actual usage of radio spectrum

In order to address the shortage of radio spectrum resources, with the purpose of ensuring transparency of the radio regulatory administration, MPHPT held a "Research Group on Disclosure, Etc. of Radio Spectrum Use" to study the survey, assessment and publicity on the actual usage of

the radio spectrum and disclosure of radio station license information. In December 2001, the group compiled the final report.

(1) Current status and issues

(i) In recent years, radio spectrum resources in Japan have been stretched to the limit. At the same time, it is necessary to address radio spectrum demand for wireless access and other new radio systems to promote the IT revolution.

(ii) Under these circumstances, it is essential to consider reallocation of the radio spectrum and ensure that such allocation is utilized to the best possible advantage by gaining public understanding and cooperation after accurately assessing the actual use of the radio spectrum and publicizing information.

(iii) Furthermore, it is also an opportune time to promote new radio spectrum use by disclosing the details of license information which would be reference for examining the availability of the radio spectrum.

(2) Accurately assess and publicize the actual use of the radio spectrum

(i) It is necessary to accurately assess the actual use of each radio spectrum range which is divided based on purpose, services, etc. when considering radio spectrum reallocation or other methods.

(ii) Factors such as the number of licensees, the number of radio stations, transmission capacity, actual traffic, and tenure of use of facilities on each radio spectrum range may be used as quantitative indices for assessment.

(iii) Though assessment should basically depend on quantitative indices, it is necessary to take the effects of the following factors into consideration if the licensee is to terminate use of the radio spectrum.

(a) Contribution to maintenance of national security, public order, etc.

V. Further Promotion and Advancement of Use of Radio Spectrum

1. Efforts toward optimal use of radio spectrum

1) The serious shortage of radio spectrum

Along with the progress of the IT revolution, radio spectrum resources in Japan have been stretched to the limit due to qualitative changes and quantitative expansion of radio spectrum use, as exemplified by the over 72 million radio stations. On the other hand, because the nation's needs for radio spectrum tend to be advanced and diversified, it is necessary to

- (b) Contribution to protection of human life and property in an emergency or other similar situation.
- (c) Contribution to an improvement in the standard of living and the development of the national economy.
- (d) Contribution to the progress of science and technology.
- (iv) To fully understand the quantitative indices, it is necessary to have licensees report data such as actual traffic and tenure of use of facilities to the Minister in addition to the data provided when the radio station license is obtained. In this case, it is also necessary to consider measures to confirm report contents and penalties for false reports, etc.
- (v) It is appropriate in principle to survey the usage of all ranges of the radio spectrum nationwide every three years, considering speed of technological innovation and workload of administrations and licensees.
Furthermore, the results of such surveys should immediately be made available to the public. In this case, for example, the results of the surveys should be aligned in certain radio frequency bands, services, or regions.
- (vi) Considering the new demand for radio spectrum, if necessary, it is also appropriate to implement a second survey to obtain further details such as technical, economic effects in a limited range of the radio spectrum, regions, or other viewpoints.
- (3) Disclosure of radio station license information
 - (i) In principle, it is appropriate to make the license information publicly available on the web in order to promote utilization of the radio spectrum. However, it is inappropriate to disclose radio station license information related to defense, police, fire or other similar services. In addition, the following treatment is necessary.
 - (a) Location of radio station

As there is concern that physical sabotage activities could be carried out against radio facilities, it is appropriate to limit information on the location by the scale of municipalities. Further detailed information will be disclosed based on the application of a person wishing to establish a radio station.

- (b) Allocated frequency
In the case of radio station usage in, for example the electric industry which is vital to public life and security, it is advisable to limit information on the frequency by the scale of frequency band in spite of point. Detailed information would be disclosed based on an application.
- (c) Name of licensee and other personal records
In the case of amateur radio stations or other stations where the licensees are private persons, it is advisable not to make the name, address or other personal records publicly available in order to protect privacy.
- (ii) In the case of license information and application which are not disclosed, it is advisable to disclose information in detail within the limits of the requirement for the purpose of establishing a radio station with the exception of defense and other crucial purposes, based on an application from a person who wishes to establish a radio station. In this case, it is necessary to prohibit the use of obtained information other than for the intended purpose.
- (4) Further study
When reallocation of the radio spectrum is actually implemented, the licensees of the radio station concerned could bear a considerable burden. Therefore it is necessary to consider appropriate measures to implement smooth transition in order to reallocate the radio spectrum.
In line with the report, MPHPT submitted a bill to amend the Radio Law, which contains the survey, assessment

and publication of actual radio spectrum usage and expansion of disclosure of radio station license information, to the 154th Ordinary Diet Session, and the amended Radio Law was promulgated in May 2002. Toward enforcement of the amended law, MPHPT is preparing relevant ordinances.

3) Mechanism of swift and smooth reallocation of the radio spectrum

Upon actual reallocation of radio spectrum resources, because it is forecast that considerable financial burdens will be imposed on incumbent licensees, measures for coping with this problem are indispensable. To this end, MPHPT set up the "Study Group on Policies Concerning the Effective Radio Spectrum Use" in January 2002 with the objective of studying new measures concerning the effective radio spectrum use, such as implementing swift and smooth reallocation of the radio spectrum and furthering progressing technological innovations. The study group compiled an interim report in June 2002. The summary of the report is as follows:

- (1) Mechanism of reallocation of radio spectrum
 - 1) Reallocation plan
In accordance with the amended Radio Law, as a fair and clear procedure to establish the reallocation plan, a system was introduced for evaluating the degree of efficient use of radio spectrum upon taking national opinions into consideration by conducting a survey and publication of the status of radio spectrum usage.
Accordingly, it is appropriate to formulate a specific reallocation plan in accordance with the above procedure through clarifying the objective criteria on matters such as the necessity of reallocation and the preparation period.
 - 2) License period and implementation of reallocation
In the case of formulating reallocation plans in accordance with the procedures mentioned above, the case may exist in which it is appropriate to implement this in spite of the fact that

the license for each radio station is still valid.

Under the current Radio Law, as a matter of fact, it is difficult to implement reallocation within 5 years following the formulation of reallocation plan. Therefore, it is necessary to establish systems that enable implementing swift reallocation within 5 years when there is a public demand.

(2) Necessity of compensation for incumbent licensees

1) Introduction of a compensation system

It is considered appropriate that the government compensates financially users who have invested on the assumption of continuous radio spectrum usage, for parts, such as the residual value of facilities, etc., for which the investment become unrecoverable due to policy changes.

Therefore, it is appropriate to introduce a system to compensate incumbent licensees.

2) Case of reallocation in which the compensation can be paid

Taking into account that the license period is five years, it is appropriate that the compensation can be paid in the case of reallocation whose plan in principle sets the final expiration date of spectrum usage within 5 years after the formulation of the plan.

However, as to the case of the spectrum usage (e.g., fixed relay stations) from which the licensees seem to expect continuous usage, it is necessary hereafter to study the payment of compensations in the case of reallocation whose plan sets the final expiration date of spectrum usage within a period longer than 5 years (limited to a period shorter than 10 years).

(3) Source of revenue for compensation

i) Contributions from new licensees

New licensees can enjoy certain benefits because reallocation of radio spectrum responds to new radio spectrum demands. Therefore it is considered appropriate for new licensees to incur certain expenses.

ii) Contributions from all incumbent licensees

The worsening of the shortage of ra-

dio spectrum can be moderated as a result of reallocation of radio spectrum, and therefore it is considered that all incumbent licensees as well as new licensees can benefit. Therefore, it is also appropriate to allocate the spectrum user fee to compensation costs of reallocation of the radio spectrum.

iii) The balance of cost burden of new and incumbent licensees is to be further studied.

(4) Technical measures for promoting effective usage of radio spectrum

Promoting the development of software-defined radio technology can reduce the economic burden or other aspects that arise for incumbent licensees when reallocation of radio spectrum is implemented, which contribute to facilitating the swift reallocation.

Therefore, it is necessary hereafter to categorize these measures into technological measures that can contribute to effective spectrum usage. It is also necessary to promote research and development aggressively.

After a series of meeting, the Study Group will compile its final report within CY2002.

4) Modification of Frequency Assignment Plan in 5GHz band

At present, with regard to wireless access systems, indoor-use 5.2GHz band wireless access systems were ruled in addition to 2.4 GHz band, 22/26/38 GHz bands systems.

In such circumstances, in response to strong needs for outdoor-use 5GHz band wireless access systems, within part of 5GHz band (4900-5000 MHz, etc.), while ensuring frequency sharing with the existing systems for the wireless access system, the Frequency Assignment Plan was modified (Notice of September 19, 2002) in order to ensure frequency bands for "5GHz band wireless access systems," (these enable high-speed access to the Internet).

2. Securing frequency allocation in international scene

MPHPT secures necessary frequency bands in the international scene for smooth introduction of new radio sys-

tems.

The International Telecommunication Union (ITU), a specialized agency of the United Nations involved in the telecommunications field, normally holds the World Radiocommunication Conference (WRC) once every two or three years to set rules for international allocation of frequencies (ITU Radio Regulations). At the previous WRC, held in Istanbul, Turkey, from May through June 2000, a number of results including the following three were accomplished.

1) 800MHz, 1.7GHz and 2.5GHz bands were added as frequency bands available for IMT-2000.

2) 31GHz and 28GHz bands were added as frequency bands available for High-Altitude Platform Stations (HAPS).

3) For Japan, four channels were added to the East longitude 110 degree broadcasting satellite through review of the frequency plan for broadcasting satellites.

The next WRC will be held in Geneva, Switzerland, in June 2003 to discuss more than 40 agenda items, including consideration for systems beyond IMT-2000 and allocation for mobile and/or fixed services in the 5GHz band. In recent WRC meetings, regional joint proposals have been treated with higher priority than single-handed proposals from individual countries. Thus, Japan actively participates in WRC preparatory meetings in the Asia-Pacific region. Toward the next WRC, the preparatory meetings were held four times, where many proposals from Japan were adopted. In February 2003, the last preparatory meeting will be held in Tokyo, and Japan will formulate joint proposals of the Asia-Pacific region through opinion exchange with each country.

Also, for smooth introduction of radio systems including satellite communications networks, international coordination of satellite orbit and frequency with concerned countries are being made according to the procedures as set forth in ITU Radio Regulations.

International Policy and Cooperation

I. Topics in International Relations

1. "International Conference for Asia Broadband Strategy" Held

On July 2002, MPHPT Minister KATAYAMA Toranosuke held the first meeting of the "International Conference for Asia Broadband Strategy" at Mita Kaigisho (Conference Hall), Tokyo.

The purpose of the "Asia Broadband Strategic Council" is to develop a common understanding on the basic concept, etc. of the "Asia Broadband Program" directed under the "e-Japan Priority Policy Program -- 2002" and the "Basic Policies for Economic and Fiscal Policy Management and Structural Reform 2002," in order to contribute to formulate the "Asia Broadband Program." The Minister for Public Management, Home Affairs, Posts and Telecommunications hosts the Council consisting of opinion leaders from Japan and Asian economies (China, the Republic of Korea, Malaysia, Singapore and Thailand). At the Council those opinion leaders actively exchanged opinions.

Minister KATAYAMA gave a keynote address stating that:

- i) As regional development is heavily depending on the volume of information distribution within each region, the Asian shall expand its volume of information distribution within the region, and
- ii) It is anticipated that invigorating information distribution and increasing information distribution capacity are contribute to making the Asian region one of the global information transmission hubs, a world information base, in terms of interregional information distribution.

In addition, the Minister stressed

three points toward developing the "Asia Broadband Program" that:

- i) Government officials, service providers and users in each economy in the Asian region shall recognize that ICT will be the future infrastructure of socioeconomic and cultural development in Asia, and the advent of the broadband age will reinforce the significance thereof;
- ii) Considering outstanding Asian diversity in culture, society and economy without parallel in the rest of the world, interested parties and stakeholders shall understand unique Asian characteristics, then map out the information society to come; and
- iii) It is vital for governments, industries, academia, NPOs, international organizations, etc. to voluntarily realize their own ownerships through closer collaboration among them.

At closing, the Chairman, Mr. USHIO Jiro, Chairman of Ushio, Inc., based on the Minister's keynote address and opinion exchange at the Conference, compiled the following summary as basic policies on the formulation of the "Asia Broadband Program":

Chairman's Summary

-- Basic policies on the formulation of the Asia Broadband Program --

1. The common objectives shall be the stimulation of information distribution within the Asia region along with establishing the entire Asia region as a global information base.
2. Respect shall be given to the economic, social and cultural diversity in the Asia region.
3. Participation by all related countries in the Asia region and close cooperation between a wide range of entities such as governments, the private sector and NPOs shall be ensured.

4. Exhibiting ownership by all related parties including governments, the private sector and NPOs is essential.
5. Consideration shall be paid as to the elimination of the digital divide in the Asia region.

From now on, based on the discussions and the Chairman's Summary compiled as the basic policies on the formulation of the "Asia Broadband Program," the "Study Group for the Asia Broadband Program" (Chair: Prof. GOTO Shigeki, Waseda University) at Mita Kaigisho (Conference Hall) hosted by Vice-Minister for Policy Coordination TSUKIO Yoshio, Ph.D., as a forum for deliberating an Action Plan in order to develop specific content of the Plan and to achieve the goals of the Plan, will compile a report around December 2002.

2. Results of the Kananaskis Summit

The G8 Kananaskis Summit was held on June 26 and 27, 2002, in Kananaskis, Canada.

At the Summit meeting, discussions on the three topics, the "challenges of fighting terrorism (G8 Global Partnership Against the Spread of Weapons and Materials of Mass Destruction), working for peace in the Middle East, etc.," "strengthening global economic growth and sustainable development," and "building a new partnership for Africa's development," were carried out.

In the ICT field, G8 leaders reviewed implementation of the "Genoa Plan of Action" submitted for the sherpa meeting by the DOT Force (the Digital Opportunity Task Force: DOT Force), established in line with the "IT Charter" of 2000 Kyushu-Okinawa Summit meeting. The following phrase was included in the Chair's Summary adopted on the closing day of the Kananaskis Summit:

"We reviewed implementation of the DOT Force's Genoa Plan of Action and welcomed its initiatives to strengthen developing countries' readiness for e-development, such as the e-model to improve the efficiency of public ad-

ministrations and to enhance the transparency of national budgeting."

As regards Africa's development, in the "G8 Africa Action Plan" adopted on the second day, considering the ICT is positioned as a priority issue for Africa's economic and human resource development in the "New Partnership for Africa's Development (NEPAD)," G8 leaders agreed to implement the following support measures for creating the digital opportunities in Africa:

- Encourage initiatives of the DOT Force to focus on Africa
- Putting forth more effort to universalization of access to ICT through improvement of regulations and policies concerning domestic, intraregional and international telecommunications/ICT
- Encourage development of public/private sector partnership for promptly implementing infrastructure construction

3. Preparation for the World Summit on the Information Society (WSIS)

With the purpose of establishing a common recognition among wide-

ranging stakeholders concerning problems faced by the information society, the World Summit on the Information Society (WSIS) is to be held in Geneva, Switzerland in December 2003 and in Tunis, Tunisia, in 2005.

In June 2001, the ITU Council decided official venues and schedules of WSIS in two phases with the first phase to be held from December 10 to 12 2003, in Geneva and the second in 2005 in Tunisia. The UN General Assembly in December 2001 welcomed and endorsed the framework for the Summit adopted by the ITU Council. The UN Resolution also endorsed the leading role of ITU in the Summit and its preparation, and encouraged participation of governments, international organizations, industries, NGOs, etc.

In addition, preparations for the Plenary Meeting are being implemented at the Secretariat of WSIS and inter-governmental consultation meetings. As part of such efforts, Japan will hold the "Asian Regional Conference – Tokyo" in January 2003, contributing to WSIS through meetings of the Preparatory Committee of WSIS and the Plenary Meeting.

II. Promotion of Bilateral Cooperation

1. Bilateral Regular Consultations, Policy Dialogues, Seminars, etc.

1) History

Bilateral Regular Consultations, Policy Dialogues and Seminars have been held between the U.S., European countries and major Asian countries as fora for exchange opinions and sharing information on diversified topics in the telecommunications and broadcasting fields and for actively promoting mutual understanding and collaborative ties.

2) Current status

Along with development of further internationalization in the ICT field, as exemplified by expansion of e-commerce across national boundaries -- thanks to the widespread use of the In-

ternet, a rapid growth of mobile communications, etc., many problems, including rulemaking, international standardization and the digital divide in the ICT field, have become diverse and complicated as well as mutual, in addition to closely related to each other. Under such circumstances, there is a growing need to coordinate at multilateral meetings and hold bilateral consultations on the current status of each country and policy matters. In addition to regular consultations, with telecommunications administrations in Asian and Nordic countries, Japan has been holding policy dialogues, seminars, etc. on the current status of each country, policy matters and collaborative themes.

During FY2001, Japan held ministerial meetings two times and public/

private sector conferences with Finland and announced a joint statement on collaboration concerning the mobile Internet; with the U.K., France and Canada, Japan held regular bilateral consultations, exchanging opinions mainly on "pro-competitive policy," "ICT strategy" and "mobile communications."

Furthermore, in March 2002 MPHPT held seminars with the theme of broadband in Washington and Brussels. The purposes of the seminars are to i) help other countries deepen understandings on Japan through introduction of the latest policy and the market trends in Japan's information and communications and ICT fields, and ii) overcome differences in views derived from lack of understandings through Q&A sessions. At the seminars, interested parties from public/private sectors in the U.S. and the EU, and MPHPT (Vice-Minister for Policy Coordination TSUKIO Yoshio, Ph.D.) made speeches and exchanged opinions.

3) Republic of Korea

Japan has been promoting information/opinion exchange and cooperation with Korea as the nearest country at various levels, such as ministerial meetings, regular consultations, etc. Collaboration in the ICT field, including R&D on the next-generation information and communications technology, has been promoted, based on the Japan-Korea IT collaboration initiatives agreed to at the Japan-Korea Summit meeting that was held in September 2000. The two countries agreed to promote Japan-Korea collaboration in the information and communications field including R&D and standardization of 4G systems at the fourth regular ministerial meeting, held in Seoul in January 2002. Japan and Korea are maintaining friendly collaborative relationships in the broader range of the information and communications field, including ex-

■ : venue is Japan.

FY	International Economic Affairs Div.							International Cooperation Div.				
	US	Canada	EU	UK	France	Germany	Italy	Malaysia	China	Korea	Australia	Mexico
1982				1								
1983				2								
1984	1											
1985		1		3								
1986	2	2		4								
1987		3	1									
1988	3		2	5								
1989		4		6					1			
1990		5	3	7						2		
1991	4	6	4	8	1	1			3	1		
1992		7	5	9	2	3	2	1		4	2	
1993	5	8		10		3		2	1	5	3	1
1994			6	11	4	4		3	2	6	4	
1995			9	7	12				3			2
1996			8	13	5				4	7	5	
1997			9	14		5		4	5	8		
1998			10	15	6							3
1999		10	11	16		6			6	9		
2000			12			7	1	5				
2001		11		17	7			6	7	10		

change of government officials of the two countries on a daily basis.

4) China

With rapid changes ongoing in the information and communications field, China joined WTO in December 2001, and is promoting introduction of the competition principle into the

same field. Japan and China have been building wide-ranging collaborative relationships in the information and communications field, including ministerial meetings, regular consultations and policy seminars.

At the Japan-China ministerial meeting held in January 2002, the two ministers in charge agreed to build the "Japan-China ICT partnership" as a framework for collaboration in the information and communications field. At the same time, the "Japan-China ICT Roundtable" for both public-private sectors was held with the participation of the ministers and officials of the two countries as well as top executives from the private sectors, both parties exchanged opinions on and explained the current status of business, future perspectives and strategic efforts.

III. Bridging the Digital Divide

1. Digital Opportunity Forum (Asian Diversity and the Role of Japan) Held

The "Digital Opportunity Forum" was held for two days on November 5 and 6, 2001, in Tokyo (Keidanren Kaikan), sponsored by the DOT Force Japan Consultation Committee (Secretariat: Center for Global Communications [GLOCOM], International University of Japan), and supported by MPHPT, etc.

The forum was held for the purposes of:

- i) Reporting the activities of the G8 DOT Force, which was founded under the auspices of the Okinawa Charter on the Global Information Society, with the aim at encouraging active engagement of governments, industries and non-profit organizations (NPOs) in the digital divide problem; and

- ii) Discussing what Japan can do to support and contribute to developing countries in the ICT field.

At the forum, discussions were made among speakers from Japanese and developing countries' governments, industries and NPOs.

From MPHPT, Mr. KANAZAWA Kaoru, Vice-Minister for Policy Coordination (International Affairs and Telecommunications Bureau), gave an introductory remark at the forum, and Mr. OKAYAMA Jun, Director, Government Information Systems Planning Division, participated as a guest speaker.

In the introductory remark, Vice-Minister KANAZAWA referred to a danger that existing economic and social inequalities will worsen in countries that are not involved in the ICT revolution and not participating in an information society, and that this will create a gap between "information

haves" and "information have-nots," the so-called "digital divide." He continued, "Therefore, we must act quickly to bridge our own digital divide and create conditions under which everyone can participate in and benefit from ICT, the so-called 'society of digital opportunity.'" "Regarding our efforts to bridge the international digital divide, it is important to build partnerships and cooperation among governments, the private sector and non-profit organizations (NPOs). Also, that it is imperative that developing countries themselves demonstrate full ownership and tackle the digital divide," he emphasized. In addition, for developing countries to be able to close the digital divide, he focused on the necessity for priority to be given to the development of communications infrastructure, and that policy steps must be taken to ensure that competition is encouraged in the communications sector and a regulatory framework established to reflect the cultural diversities of each nation.

Director OKAYAMA, at the Session "e-Government Strategies and Prospects in Electronic Administration," made a presentation titled "Strategy for Building 'Electronic Government' in Japan" on Japan's current measures and a strategy for creating electronic governments. After the presentation, he discussed with experts, including Mr. J. B. Kristiadi, Deputy Minister for State Administrative Reform/Secretary of the Indonesian Telematics Coordinating Taskforce, on the future of electronic governments.

At the session, opinions were exchanged on the need for reflecting the demands of citizens, users of e-governments, in realizing electronic governments, and on the significance of digitalization of national and local governments.

2. Establishment of the "e-Policy Support Network of Japan"

-- DO Site (Digital Opportunity Site)

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On May 17, 2002, MPHPT established the "e-Policy Support Network

of Japan" by launching a web site which provides the information and expertise necessary for ICT policy makers in developing countries to establish policies particularly suited to their requirements. This network initiative aims at helping bridge the global digital divide.

Support is provided to these countries through: i) the introduction of Japan's and other countries' leading-edge ICT policies and projects formulated to bridge the global digital divide, and ii) the provision of online advice in response to inquiries from ICT policy makers, and the like, in developing countries by a group of ICT experts drawn from government, academia, the private sector and NPOs.

This initiative is positioned as a Japanese Government project implementing the Digital Opportunity Task Force's (DOT Force's) Genoa Plan of Action. The progress of implementation is to be reported on at the 2002 G8 Summit in Kananaskis, Canada.

Structure

The "e-Policy Support Network of Japan" through the use of "Digital Op-

portunity Site (<http://www.dosite.jp>) has two principal functions:

1) Information Provision Area (English and Japanese)

The web site provides the following information related to ICT policies:

- i) Current status of the international and Japanese digital divide;
- ii) Japan's policies and projects for bridging the international digital divide;
- iii) Policies and projects to promote e-government in Japan; and
- iv) Policies and projects conducted by other countries, international organizations, and the like.

2) Communication Area (English only)

The "Communication Area" facilitates the open exchange of information and opinions on ICT matters on the website. A group of ICT experts drawn from government, academia, the private sector and NPOs provide free advice in response to inquiries from ICT policy makers, and the like, in developing countries wishing to set up and implement ICT policies/regulatory frameworks in their respective countries.

IV. Participation in International Organizations

1. World Trade Organization (WTO)

At the WTO 4th Ministerial Conference in Doha, Qatar, which was held in November 2001, the Ministerial Declaration was adopted that set January 1, 2005 as the date for completing the negotiations (the negotiations on trade in services including telecommunications have been commenced since early 2000 based on the GATS as a built-in agenda.). To promote further liberalization in the telecommunications sector, MPHPT has been actively participating in the negotiations.

Following the WTO Agreement on Basic Telecommunications Services, effective in February 1998, Japan abolished all foreign capital restrictions in

the telecommunications sector except NTT. As a result, many foreign carriers have entered into the Japanese market, pushing the number of Type I telecommunications carriers partially or wholly owned by them to 40 (as of September 1, 2002). The Japanese telecommunications market has thus become one of the most open and competitive markets in the world.

At the current negotiations on trade in services, Japan submitted initial requests to other WTO Members by the end of June 2002. These requests encourage developing countries that are not sufficiently liberalized to start liberalization, and ask developed countries that are generally liberalized to promote further liberalization. As for the telecommunications sector, Japan requests abolition of foreign capital re-

strictions, adoption of the "Reference Paper" stipulating pro-competitive regulatory frameworks, etc. Taking advantage of the Council for Trade in Services held about five times annually, Japan will actively hold bilateral negotiations with other Members. Each Member shall submit an initial offer by the end of March 2003. In September 2003, the 5th Ministerial Conference will be held in Cancun, Mexico.

In addition, MPHPT has been actively participating in discussions concerning electronic commerce, which has the great potential of expanding world trade dramatically, and the review of the Government Procurement Agreement.

2. OECD

The Organization for Economic Cooperation and Development (OECD) is an international organization based on principles of market economy and liberalism, comprising 30 highly industrialized member countries. The OECD's chief objectives are to prompt economic growth, to extend support to developing countries and to expand multilateral free trade.

In the ICT sector, where MPHPT has been most active, studies on the impact of the ICT infrastructure on economy and society at large are underway. The Committee for Information, Computer and Communications Policy (ICCP) of the OECD is the main promoter of these studies.

With the ICCP playing the main role, the activities of the OECD on electronic commerce have been vitalized. At the OECD Ministerial Conference convened in May 2002, a forecast on the world economy, policy issues on trade, governance, development and environment were reviewed. ICCP since October 2001 has been reviewing the "Guidelines for the Security of Information Systems and Networks" adopted in 1992. This revision is to meet needs for implementing transborder security measures, in response to an increase in the number of systems interconnection along with the widespread use of electronic trans-

actions on the Internet. The new Guidelines for the Security of Information Systems and Networks was decided upon in July 2002 at the OECD Council and announced in August 2002. MPHPT actively contributed the development of the new Guidelines, participating together with Prof. HORIBE Masao, Chuo University, and relevant ministries in expert meetings (including the Working Party on Information Security and Privacy). Based on the new Guidelines, taking into consideration trends in information security policies in other countries, MPHPT will implement rulemaking for diffusion of electronic transactions. MPHPT will further promote information security in harmonization with other countries. The Economic and Development Review Committee (EDRC) has been reviewing economic trends and policies of Member countries annually. In the review of Japan compiled in December 2001, Japan was highly appreciated that the telecommunications field has the most advanced competitive frameworks in its public service field, such as introduction of statute law on asymmetrical regulations and the establishment of the Telecommunications Business Dispute Settlement Commission are great strides in deregulation.

3. APEC

The Asia-Pacific Economic Cooperation (APEC) consists of 21 economies in the Asia-Pacific region, and has as its objectives liberalization and facilitation of trade and investment in the region and the strengthening of economic and technical cooperation among member economies. APEC has been vigorously conducting a number of activities in the telecommunications sector through the Ministerial Meetings on Telecommunications and Information Industry (TELMINs) and tasks undertaken by the Telecommunications and Information Working Group (TEL).

In May 2000, the fourth Ministerial Meeting on Telecommunications and Information Industry (TELMIN 4) was held in Cancun, Mexico. The main

theme of the fourth ministerial meeting was "Fusion," reflecting the worldwide spread of the Internet and its advancement. The meeting adopted the "Cancun Declaration," whose main focus on the following three subject matters: International cost-sharing problem of the Internet, Fusion and Digital Divide

ICT has a huge impact on economic development, government activities and evolution of any society in the Asia-Pacific region. Taking this into account, the fifth Ministerial Meeting on Telecommunications and Information Industry (TELMIN 5) under the theme "Leveraging Digital Opportunities to Promote Common Development" was held in Shanghai, China in May 2002. At TELMIN 5, the "Shanghai Declaration", the "Program of Action", the "Statement on the Security of Information and Communications Infrastructures" were adopted.

Outlines of those documents are as follows:

(1) Information Communications Infrastructure

It is proposed that in order to achieve universal access and to expand digital opportunities, through development of information communications infrastructure, that comprises a critical basis supporting sustainable development of an information communications society, various international cooperation be further implemented in fields of the next-generation technologies including IPv6, the mobile Internet, broadband satellite technologies.

(2) Telecommunication and Information Policies and Market Regulation

Toward building of a sound and competitive environment for telecommunication and information policies, the following proposals were made: promotion of e-government for ensuring efficiency/transparency of governmental activities, study on elimination of impediments to e-commerce, active commitment to the new WTO round, further study on the Mutual Recognition Arrangement (MRA) on Conformity Assessment for Telecommunica-

tions Equipment, further facilitation of the implementation of the APEC Principles of Interconnection, in the light of the newly adopted e-APEC Strategy, promotion of cooperation with the relevant APEC fora and other related international organizations, etc.

(3) Information Communication and Network Security

Ministers recognize the significance of special priority to establish legal infrastructures and to enforce thereof for preventing the criminal misuse of information technologies, and information exchange among economies. And Ministers decide to implement various considerations on security with special priority.

(4) Human Capacity Building

Ministers recognize that building human capacity through lifelong learning for people of both genders within the region is essential in achieving the benefits and the realization of a digital society and in narrowing the digital divide. Ministers decide further implementation of the cooperation among governments, businesses, educational and social institutions in human resource training; and promotion of distance learning using ICT.

TEL, which has been convened 26 times so far, is a forum where official-level discussions are held to determine detailed cooperation and liberalization schemes for the telecommunications sector.

The 26th APEC TEL Working Group (TEL 26) was convened in Moscow, Russia, from August 19 through 23, 2002. At the Plenary Meeting, upon report on TELMIN 5, the "Cyber-Security Strategy" was adopted as an input toward the APEC Leaders' meeting in 2002. Major discussions carried out the four Steering Groups under the Plenary Meeting are as follows:

(1) Business Facilitation Steering Group (BFSG)

At BFSG, chaired by Japan, a progress report of the current e-Government project, one of the most important themes, was made. It is agreed upon that from now on projects shall be implemented from the viewpoints of small and medium enterprises

(SME), security and user requirements, and public/private sector dialogues at GBDe shall take place.

As the concrete and specific measures for promoting the "APEC Leaders Statement on Counter-terrorism" agreed upon in 2001, the "Cyber-Security Strategy" was compiled and was to be submitted to the APEC Leaders' meeting in 2002. In addition new proposals and progress reports were made on BFSG projects concerning facilitation of e-commerce, etc.

As regards security-related topics, a Computer Emergency Response Team (CERT) workshop was proposed and a tie-up between the Asia PKI (Public Key Infrastructure) Forum and the European Electronic Signature Standardization Initiative (EESSI) was agreed to consideration. In addition, information exchange was made concerning surveys on cryptography policies in each economy and the implementation status of countermeasures against criminal misuse of ICT, and a cyber-crime workshop was held. At TEL 27, a workshop on CERT will be held.

(2) Development Cooperation Steering Group (DCSG)

In order to complete the DCSG's "Digital Divide Blueprint for Action" by TEL 27, the list of Internet populations and penetration rates attached the Blueprint was updated. With respect to IPv6, broadband and alternative technologies for community-based networking, presentations concerning the current status of policies in each economy including Japan's report on the "current status of IPv6" were made and information exchange was carried out.

Moreover, progress reports implementation status of DSCG projects were made. From Japan, progress reports on APII (Asia-Pacific Information Infrastructure)-related projects, the "IP-based WLL project for bridging the digital divide" and the "advanced satellite testbed project" were presented.

(3) Liberalization Steering Group (LSG)

At a WTO Workshop, which was held to cope with APEC human resource development for telecommuni-

cations liberalization in collaboration with WTO activities, an information exchange was carried out on experience of WTO negotiations in each economy. As regards the telecommunications MRA, the implementation status of each economy was confirmed, information exchange on liberalization policy of each economy was conducted, and Japan made a presentation entitled "Broadband in Japan --Policies and Deployment --."

(4) Human Resource Development Steering Group (HRDSG)

In order to deliberate measures for narrowing the digital divide through use of IPv6, a workshop for policymakers is to be held prior to TEL 27. A project proposal from Thailand on "e-University Network in HRD for e-Government" was approved and the implementation status of HRDSG-related projects was reported.

The next TEL will be held in Spring 2003, and the next TELMIN in 2004.

4. APT

The Asia-Pacific Telecommunity (APT) is a regional international organization established in 1979. Its purposes are: promoting the balanced development of telecommunications in the Asia-Pacific region, supporting the planning and operation of telecommunications services, and seeking solutions to telecommunications-related problems.

The membership of the APT consists of telecommunication administrations of 32 countries and four regions, with 48 telecommunications businesses as Affiliate Members. In addition, 46 private firms other than telecommunications businesses participate as "Companies/Organizations." (as of the end of August 2002)

APT, at the eighth General Meeting and the 24th Management Committee that were held in 1999, dealt with emerging tasks such as liberalization of telecommunications which is advancing on a global scale and creation of an ICT base. In addition, with the aim at establishing shared policy in the Asia-Pacific region toward the new age and at strengthening Asia-Pacific

countries' standing in the global field through such actions, the APT is planning to make three-pronged approach of: i) regional adjustment of telecommunications policy, ii) enhancement and expansion of standardization, and, iii) support on developing countries such as human resource development, during the three years from 2000 to 2002.

In November 2000, the "APT Asia-Pacific Summit on the Information Society" (Chair: Mr. HIRABAYASHI Kozo, then Minister of Posts and Telecommunications of Japan) was held in Tokyo, with 35 Asia-Pacific Telecommunity member countries and regions, 20 ministers for information and communications from 20 countries and leaders from international organizations, industry and academia attending. For creating an information society, which respects and reflects the diversity of the Asia-Pacific region, the Ministers successfully adopted the "Tokyo Declaration" and the "Action Plan" for realization thereof at the APT Asia-Pacific Summit."

In the "Tokyo Declaration," as a Target for Internet Access "Phase One," the Ministers declared that "we will do our best, in both domestic efforts and through international co-operation, to enable people in the Asia-Pacific region to have access to the Internet by the year 2005 to the extent possible, including access from public facilities such as schools and post offices."

In August 2002, the 2nd Asia-Pacific Initiatives for Information Society (AIIS) Meeting as a follow-up meeting of the "Action Plan" was convened in Brunei Darussalam. At the meeting, the review of each economy's activities based on the action plan and future concrete measures were discussed. Then, the participants shared a common recognition that further strengthening of activities in the future is essential.

From October 23 to 31, 2002, the ninth General Meeting and the 26th Management Committee were held in New Delhi, India. At the General Meeting, the new APT strategic plan in the three years from 2003 to 2005

was deliberated and adopted, and basic matters in the same period on the APT financial basis, including the amount of contribution per unit and the upper limit of annual budget, were decided. On the other hand, at the 26th Management Committee, based on the strategic plan adopted at the General Meeting, a 2003 activities program was developed and elections for chair and vice-chairs were carried out.

In addition, as for the revision of the "Constitution of the Asia-Pacific Telecommunity" proposed at the previous General Meeting, the Draft "Constitution of the Asia-Pacific Telecommunity" prepared by the Preparatory Group was adopted.

5. ITU

1) About ITU

The International Telecommunication Union (ITU) is a specialized agency of the United Nations in charge of telecommunications issues. The chief objectives of ITU are 1) international allocation of frequencies, 2) setting telecommunications technical standards, and 3) extending technical support to developing countries. Headquartered in Geneva, Switzerland, ITU had a total of 189 Member States as of October 2002. Japan became a member of ITU in 1879, and since 1959 has had the privilege of being selected to one of 46 Council members authorized to make actual decisions on ITU activities. Along with the U.S., Germany and France, Japan has been making the largest contributions to ITU, with its FY2001 contribution reaching approximately 6 hundred million yen.

In CY1998, at the ITU Plenipotentiary Conference held in Minneapolis, U.S.A., Mr. UTSUMI Yoshio of Japan (former Deputy Minister of the Ministry of Posts and Telecommunications) was elected as the Secretary-General of ITU. Mr. UTSUMI took office in February 1999.

2) Secretary-General of ITU

Mr. UTSUMI Yoshio was elected as Secretary-General of ITU for his first term at the 1998 Minneapolis Plenipotentiary Conference and assumed his

duties as Secretary-General in February 1999. After assuming office, Secretary-General UTSUMI's achievement in aggressively engaging in ITU reforms to cope with rapid environmental changes in information and communications has been highly appreciated by relevant countries.

On October 1, 2002, Mr. UTSUMI was re-elected for a second term as Secretary-General of ITU with a majority of 123 votes (of 143 valid votes cast) at the election of Secretary-General taken place during the 16th Plenipotentiary Conference of ITU in Marrakesh, Morocco, from September 23 through October 18, 2002.

3) WTDC

From March 18 through 27, 2002, the World Telecommunication Development Conference 2002 (WTDC) was held for deliberations on the ITU-D actions after 2003, in Istanbul, Turkey. At WTDC, the following themes were adopted: i) a common vision and strategy for achieving a balanced telecommunication development, setting goals and objectives for the next four years, ii) an action plan including special programs to narrow the Digital Divide for Least Developed Countries (LDCs), and iii) establishment of study groups and working methods.

4) Africa TELECOM 2001

The ITU TELECOM AFRICA 2001 (the fifth regional telecommunications Exhibition and Forum for the African region) was held from November 12 to 16, 2001, at the Gallagher Estate, outside Johannesburg, the Republic of South Africa. At the Exhibition, 236 companies from 28 countries exhibited their state-of-the-art ICT technologies. The Forum was attended by policymakers, corporate executives from 42 countries around the world, and they exchanged their views on the latest policy/technology trends concerning ICT.

Statistics

Table 1 Number of Radio Stations

	FY2001	FY2000	FY1999	FY1998	FY1997
Number of stations	74,345,550	66,573,134	57,478,504	46,971,542	39,478,889

Table 2 Number of Household Cable TV Subscriptions

	FY2001	FY2000	FY1999	FY1998	FY1997
Number of subscriptions	13,030,000	10,480,000	9,470,000	7,940,000	6,720,000

Table 3 Total Internet User Population and Internet Diffusion Rate

	FY2001	FY2000	FY1999	FY1998	FY1997
users (unit: million)	55.93	47.08	27.06	16.94	11.55
household (unit: %)	60.5	34.0	19.1	11.0	6.4
company (unit: %)	97.6	95.8	88.6	80.0	68.2

Table 4 Ratio of Fiber-optic Cables to All Cables (Cable Length) (Unit: %)

	FY2001	FY2000	FY1999	FY1998	FY1997
Transit System	90.6	89.4	86.0	78.1	70.9
Subscriber Loop System	20.7	18.9	17.7	15.2	13.2
Total	32.5	31.4	32.6	27.7	25.1

Table 5 Number of Household BS Subscriptions

	FY2001	FY2000	FY1999	FY1998	FY1997
NHK	11,164	10,621	10,069	9,464	8,796
WOWOW	2,667	2,651	2,502	2,534	2,401

Table 6 Number of Contracts for Reception of NHK TV Broadcast

	FY2001	FY2000	FY1999	FY1998	FY1997
Number of contracts	37,678,546	37,273,692	36,878,354	36,597,117	36,282,854

Table 7 Number of Telephone Subscribers

	FY2001	FY2000	FY1999	FY1998	FY1997
Number of subscribers	50,996,754	52,257,622	55,547,365	58,558,694	60,451,330

Table 8 Number of Cellular Phones

	FY2001	FY2000	FY1999	FY1998	FY1997
Number of subscribers	69,121,159	60,942,407	51,138,946	41,530,002	31,526,870

Table 9 Number of PHS Subscribers

	FY2001	FY2000	FY1999	FY1998	FY1997
Number of subscribers	5,698,027	5,841,967	5,706,648	5,777,590	6,727,023

Table 10 Number of Radio Pagers

	FY2001	FY2000	FY1999	FY1998	FY1997
Number of subscribers	1,136,930	1,439,206	2,071,003	3,765,686	7,115,702

Table 11 Number of DSL Subscribers

	FY2001	FY2000	FY1999	FY1998	FY1997
Number of subscribers	2,378,795	70,655	211	-	-