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TOPICS

An ICT for Realizing a Safe and Secure Society

Concerning the background and outline of the Study Group on ICT for Realizing a Safe and Secure Society

In recent years, there has been an increase in societal appeals for safety and security, with people asking for the right response, not just to natural catastrophes such as earthquakes, typhoons and tsunamis, but on a variety of issues such as food safety and ensuring the safety of children.

MIC established an investigative study group in February 2006, and implemented investigations on the technical prerequisites, subjects for research and development and measures for the realization of a safe and secure ubiquitous network society, in a variety of fields including disaster countermeasures, crisis management, food, and daily life support for children and the elderly. The report was announced in March 2007.

(http://www.soumu.go.jp/s-news/2007/070319_3.html - in Japanese)

This document explains ICT in the fields of disaster countermeasures and crisis management.

Future concept of a disaster countermeasures and crisis management system using ICT

First of all, the current situation for

disaster countermeasures and crisis management was grasped, and the needs requirements for these systems as well as technical trends were organized in the five fields of (1) exchanging information with residents, (2) disaster countermeasures organizations' backbone network, (3) disaster countermeasures and mobile communications for relief in the affected area, (4) gathering information on the damage, and (5) processing and analyzing information. Based on this, a future concept of a disaster countermeasures and crisis management system was compiled.

(1) Exchanging information with residents (including resources for emergency gathering of personnel)

<Current situation>

- o For synchronized alarms from municipalities, the resources are poor other than the municipalities' disaster prevention public radio (multi-address system).

- o For resources for contacts from residents, these are mainly fixed or mobile telephones, and there are issues with improving disaster tolerance and avoiding congestion.

<Future concept>

Making use of mobile terminals that people carry on a daily basis in order to transmit alarms and messages quickly at disaster times.

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International Policy Division,
International Affairs Department,
Telecommunications Bureau,
Ministry of Internal Affairs and
Communications (MIC)

1-2, Kasumigaseki 2-chome, Chiyoda-ku, Tokyo 100-8926, Japan
Fax: +81-3-5253-5924
Tel: +81-3-5253-5920

We welcome your comments via:
http://www.soumu.go.jp/joho_tsusin/eng/contact.html

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(2) Disaster countermeasures organizations' backbone network

<Current situation>

o For old format networks, voice, fax, data and image all operate independently by transmission application. There is an issue with meeting needs in disaster countermeasures such as transmitting multiple images.

<Future concept>

Increasing resistance to disasters and usability, and ensuring security and quality by improving the functions of the backbone network used for disaster countermeasures.

(3) Disaster countermeasures and mobile communications for relief in the affected area

<Current Situation>

o There is a 2-way disaster prevention communications frequency in place that can be used by the fire services, police, coastguard and self-defense forces, but it is not yet enough.

o With regard to the use of radio in the public field, there has been no progress in dealing with the move to broadband or the shift to more compact facilities.

<Future concept>

The realization of new wireless communications technology for use of large-capacity communications, including images, in a mobile environment.

(4) Gathering information on the damage

<Current situation>

o Images of the damage taken from helicopters or the like cannot be transmitted in real time unless they are within the area of vision of the reception facility or after the transport and installation of mobile reception facilities.

<Future concept>

The rapid transmission to disaster countermeasures headquarters of images taken by helicopters or airplanes or information from terrestrial sensors. The possibility to use visual disaster information,

even when sent under conditions such as dark of night, rough weather or smoke, within 90 minutes.

(5) Processing and analyzing information

<Current situation>

o 2-dimensional GIS (Geographic Information Systems) has been commercialized. Research is ongoing concerning 3-dimensional GIS and time concept inclusive GIS.

<Future concept>

Greater efficiency and automation in processing and analyzing the information that has been gathered using ubiquitous network technology, GIS and the like.

Topics that need to be addressed in order to realize the future concepts and future promotion measures

As a result of organizing the topics need to be addressed in order to realize these future concepts, it became clear that promotion needs to happen through the following measures.

(1) Strategic promotion of research and development in core technologies

With regard to the core technologies below which are difficult to realize independently either by the user organizations or the private sector, research and development through cooperative efforts between industry, academia and the government will be promoted. As far as the promotion is concerned, the goals to be achieved and a roadmap need to be clarified, and it will be necessary for the realization to happen, not through technological development alone, but to include business and others in a social transformation.

1) Broadband mobile communications system for disaster sites

The realization by fiscal year 2011 of a system for disaster countermeasures and relief for use at disaster sites

2) A dual terrestrial/satellite mobile phone system that enables reliable communications at disaster times
The use by 2015 of a satellite mobile phone system using an ultra-large deployable antenna technology.

3) Real-time image gathering by helicopters, airplanes, observation satellites and the like
Real-time large volume satellite communications will be possible from airplanes or observation satellites, using small and light helicopter-satellites or small and light automated tracking VSATs.

4) High-precision observation of disaster conditions and high-precision observation and information analysis of abnormal weather phenomena
o Improvement of the definition of satellite SAR and airplane SAR in order to ascertain damage to buildings and changes in landscape over a wide area.
o Development of remote sensing technologies vital to high-precision predictions of weather phenomena and local weather disturbances (torrential rainfall, wind gusts, tornadoes, turbulence).

5) Improvement of the disaster-resistance of disaster information transmission systems
Development of network system technologies that will enable the maintenance of important communications even under conditions where a major disaster has caused wide-ranging damage to networks, and verification of efficiency through proving tests.

(2) Promotion of proving tests and pilot projects

In order to realize systems that can be used efficiently as disaster

countermeasures, there will be integrated promotions of proving tests and pilot projects which will include, from the initial steps of research and development, verifications from the operational side concerning security measures and privacy protection, and the preservation of feed back of the results to the research and development side.

(3) Promotion of standardization and international cooperation

The promotion of standardization is valid in terms of reducing facility operation costs for disaster countermeasure systems and promoting the building of a cooperation system between both domestic and international organizations, for large-scale disasters. With regard to the ICT which contributes both to disaster countermeasures and crisis management, planning for a wide level of cooperation with various countries right from the early stages of research and development, and widespread announcement of the results are important for Japan as a

technological contributor to international society.

(4) Approaches to promote dissemination

o It is necessary, in addition to technological development, to investigate the operational side as needed and offer public support.

o To combine cost reduction with better performance brought by technological advances, and also put in place measures to achieve a level of familiarization with usage during normal times.

(5) Establishing an overall promotion system

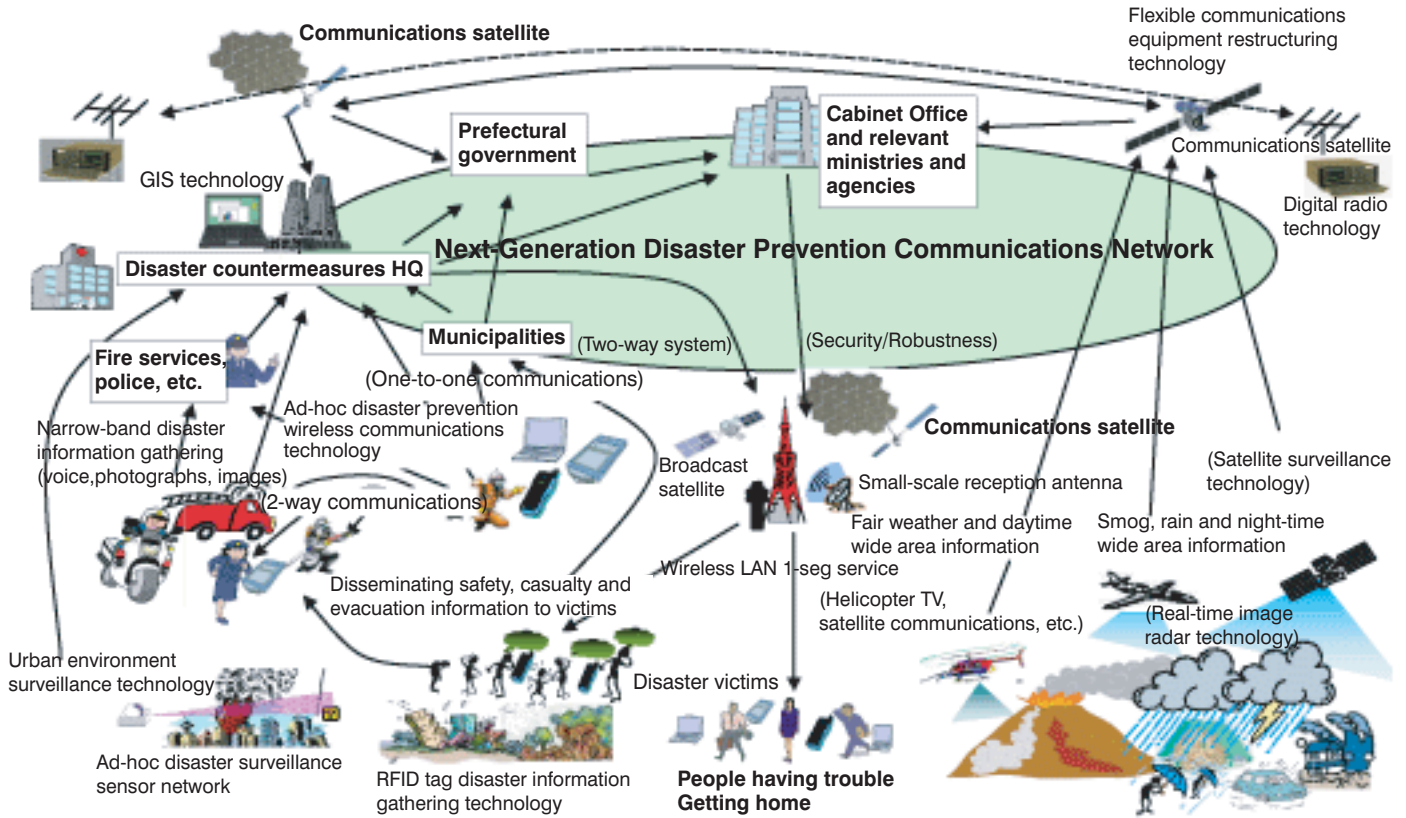
In order to promote in an integrated fashion measures for the realization of future concepts for disaster countermeasures and crisis management, a forum should be set up as a promotional tool for the sharing of research results, the exchange of ideas, joint testing and standardization by a wide range of concerned people, and the strengthening of an integrated approach by the private sector, industry, academia and the government should be

encouraged, with the participation of concerned ministries and agencies.

Approaches following the recommendations of the study group

In the future, having absorbed the recommendations of this study group, and aside from planning to set up an industry-academia-government forum, there will be a pro-active approach to the research and development of a dual terrestrial/satellite mobile phone system mentioned as one of the core technologies, that enables reliable communications at disaster times, and technology for high-precision observation of disaster conditions and abnormal weather phenomena. In addition, there will be implementation of the use of the "Kiku No. 8" test satellite for mobile satellite communications, which was launched in December 2006, and the "WINDS" broadband communications test satellite to be launched at the end of fiscal year 2007, for disaster prevention testing.

Future concepts of disaster countermeasures and crisis management



The 5 core technologies that should be strategically promoted

<p>Broadband mobile communications system for disaster sites</p>	<p>Dual terrestrial/satellite mobile phone system that enables reliable communications at disaster times</p>	<p>Real-time image gathering by helicopters, airplanes, observation satellites, etc.</p>	<p>High-precision observation of disaster conditions and high-precision observation and information analysis of abnormal weather phenomena</p>	<p>Improvement of the disaster-resistance of disaster information transmission systems</p>
<p>[Realization Target] Fiscal year 2011</p>	<p>[Realization Target] Fiscal year 2015</p>	<p>[Realization Target] Fiscal year 2017</p>	<p>Weather and air-flow measurement [Realization Target] Fiscal year 2013 (Urban disaster real-time estimate)</p>	<p>[Realization Target] Fiscal year 2015</p>

TOPICS

Amendment of the Radio Law and Telecommunications Business Law with a View to Establishing a System for Promoting the Efficient Use of Frequencies

Outline

MIC established the Study Group on Comprehensive Legal System Governing Communications and Broadcasting in August 2006. In January 2007, a "Report on Legal System in Response to New Aspects of Communications and Broadcasting -- Toward Acceleration of Wireless Innovations --" was compiled, incorporating the results of the investigations by the study group.

In recent years, there has been a sharp move towards technical innovations with broadband technology and digital technology as the axis, and while on the one hand, there have been new types of services appearing in communications and broadcasting, the use of frequencies which are important in terms of communications and broadcasting infrastructure has seen the kind of progressive tightening that has never been seen to date. This report recommended that steps be taken with regard to the Radio Law system so that the results of rapid advances in technological developments can be put to use smoothly by the services that use frequencies.

Outline of the amendments of the Radio Law and the Telecommunications Business Law

MIC has taken the recommendations in this report under consideration and has proceeded with preparations for amendments in the Radio Law and the Telecommunications Business Law that will establish rapid and

smooth frequency usage procedures to (1) expand the experimental radio stations system, (2) introduce a mediation and arbitration system related to the opening of radio stations, (3) introduce a change-over system for radio station operators, and (4) revisions of subjects for inquiry to the Radio Regulatory Council. There follows an explanation of the contents of these.

(1) Expansion of the experimental radio stations system

It is important to verify the technological possibilities and the actual state of trends in demand in order to bring about new services smoothly.

So, the current experimental radio station system will be expanded, and its name will be changed to "experimental and other radio stations" so as to enable the setting up of radio stations for (1) the technical tests that currently concern technology (for example: testing of wireless broadband frequency levels in the vicinity of high-rise buildings), (2) needs research for new services (for example: pilot broadcasts or demonstrations for general users).

These experimental and other radio stations will, just like existing experimental radio stations, promote their establishment and, in order to contribute to the efficient use of frequencies, will be (1) not concerned with foreign investment regulations (with the exception of broadcasting stations for which foreign investment regulations are stiffened) and (2) will be subjected to on the minimum frequency

usage charge of 500 yen.

(2) Introduction of a mediation and arbitration system related to the opening of radio stations

With the tightening of the number of frequencies, there have been cases in which the adjustments with existing radio stations that are needed when introducing a new system in order to prevent frequency interference, have dragged on, and it has become difficult to provide new services rapidly.

So, a mediation and arbitration system will be established and it will promote consultation so as to prevent interference to existing radio stations when setting up a new radio station. The main entity behind the mediation and arbitration will be the Telecommunications Business Dispute Settlement Committee, and radio stations which can go through the mediation and arbitration procedure include, in addition to radio stations that are dedicated to telecommunications, radio stations that are in the business of providing electricity related to the electricity business, radio stations that provide MCA terrestrial mobile communications business, and radio stations set up by local public organizations that provide disaster management services, as will be investigated and regulated by ministerial ordinances in the future. In addition, If business operators make agreements with one another as a result of agreements made with existing radio stations

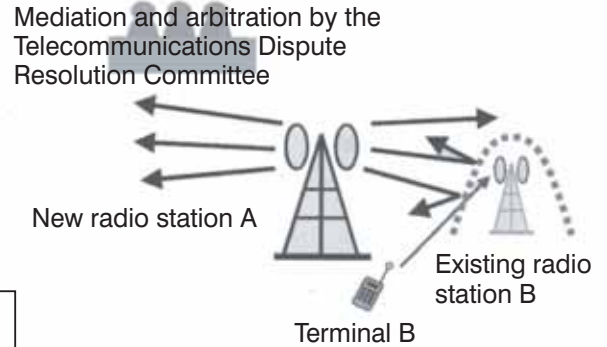
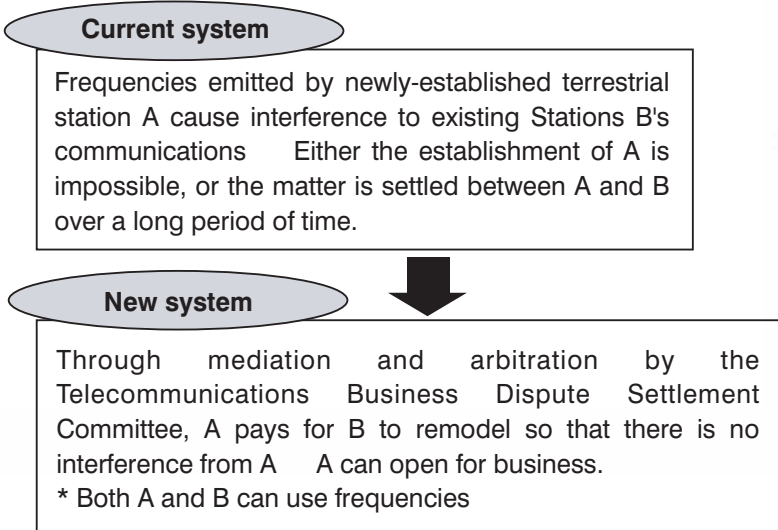
following mediation or arbitration, the contents of these will be presented at the time of application for licenses and the like, and will be used in reviewing the licenses.

Thanks to this system, it is expected that the time it will take for the establishment of a radio station will be shortened, usable frequencies will increase, and the

expansion of introduction of new frequency usage systems and service areas will be promoted. (Ref. Image 1)

Image 1: Image of mediation and arbitration system for the setting up of radio stations

[Envisaged case examples]



(3) Introduction of a change-over system for radio station operators

With the current system, only the person with a license to operate that particular radio station can operate the station, but with designated radio stations for which interference prevention is relatively easy, it is acceptable for someone other than the license holder to borrow the facilities and operate them, and it seems worthwhile to encourage the new types of service

provision.

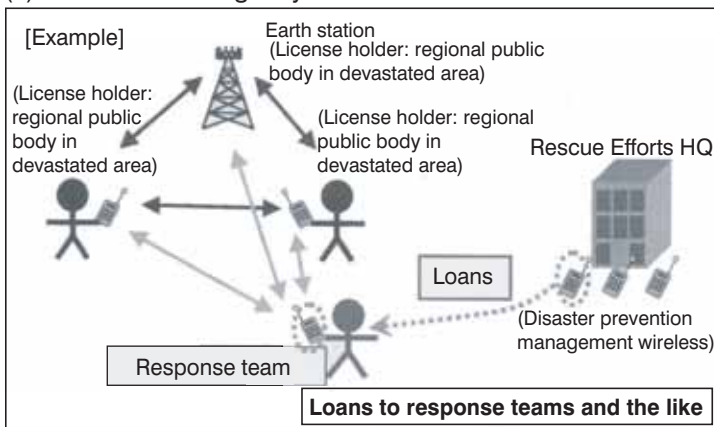
So, having set up a system by which people other than the license holder can operate a radio station, when the license holder does hand over operation of the radio station to someone else, the license holder will have to inform rapidly the Minister of Internal Affairs and Communications and assume the responsibility of the license holder while the actual operator assumes operational responsibility. This system will be applied in cases of

(1) easy to operate radio stations for emergency communications) (regional public bodies' terrestrial mobile stations, MCA mobile radio stations etc.) and (2) registered radio stations.

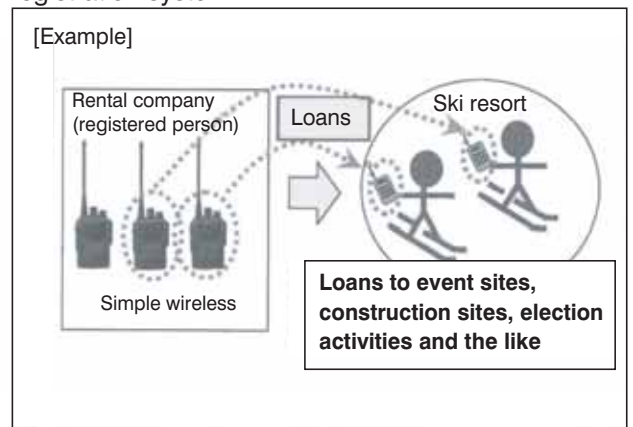
This system will simplify frequency use by making it possible to lend simple wireless equipment to response teams at disaster times, as well as at event sites, construction sites, election activities. (Ref. Image 2)

Image 2: Images of the modified system for radio station operators

(1) In cases of emergency communications



(2) In cases of radio stations that fall under the registration system



(4) Revisions of subjects for inquiry to the Radio Regulatory Council

Under the existing system, the formulation and revision of ministerial ordinances and announcements needs, without exceptions, to go through an inquiry to the radio regulatory Council and listening to comments, but in order to speed up and prioritize the procedure, some of the formulations and revisions of ministerial ordinances and announcements deemed to be minor matters by the Radio Regulatory Council will no longer require inquiries and listening to comments.

Conclusion

The government submitted the topics in this document to the 166th session of the National Diet as "Proposal for the partial amendment of the Broadcast Law and related documents", along with the amendment of the Broadcast Law and related documents relevant to the amendment of the broadcast system, and the amendment of the Telecommunications Business Law and related documents relevant to the revision of orders for business improvement to

telecommunications business operators.

With regard to the mediation and arbitration system related to the opening of radio stations mentioned in 2 (2), it is planned to enforce this within 9 months of the promulgation of the law, and within 1 year for the other systems for the promotion of the efficient use of frequencies.

In addition, in order to simplify and speed up the necessary procedures pertaining to the introduction of new systems, the report will propose that it is necessary to simplify the regulations in ministerial ordinances regulating wireless facilities that define detailed standards relating to wireless facilities, while working to prevent frequency interference and avoid trouble in efficient usage. MIC plans to continue preparations for the amendment of these ministerial ordinances and related documents in the future.

With these new systems, it is expected that services that make innovative use of frequencies as a result of technological advances, and usage systems will appear around us.

1) In cases where earthquakes, typhoons, floods, tsunamis, snow

damage, fires, riots or other emergency conditions occur, or may occur, the communications that are necessary in order to save people's lives, respond to disasters, maintain communications or maintain order.

2) Expansion of registration system through an amendment of the ministerial ordinance

1- Radio stations that use functions such as carrier sense (a protocol in which one's own traffic is stopped temporarily when other traffic is detected on the same frequency).
EG: PHS earth stations (below 10mW), 5 GHz band wireless access systems (FWA etc.)

2- Radio stations that select frequencies with a simple operation on reception of a designated call name (simple radio stations)

<Study Group report - in Japanese>

http://www.soumu.go.jp/s-news/2007/070129_1.html

<Draft law submitted to 166th session of the National Diet (MIC related) - in Japanese>

http://www.soumu.go.jp/menu_04/k_houan.html

TOPICS

Approaches by MIC for the Sound Usage of ICT Media by Children

Current state of ICT media and issue

(1) The expansion of ICT media use and diversification of communication methods

The use of ICT media such as the Internet and mobile telephones has advanced rapidly while at the same time, new communications methods such as blogs and SNS have been appearing one after the other. A further diversification of communication methods can be expected in the future, so the ability to handle of ICT media in a more independent and more active way will be sought.

(2) The personalization of ICT media and the increasing dangers involved

Along with the diffusion of ICT terminals, the proportion of children owning ICT terminals has increased and the positioning of ICT terminals within children's lives has expanded rapidly, so that, in recent years the occurrence of incidents with children related to ICT media has increased rapidly and has grown into a major societal problem. With the personalization of ICT media, the opportunity for children to be directly exposed to a

wide variety of information has expanded, so that it has become an urgent need to develop in children the ability to differentiate and, assess, and transmit information in an autonomous and accurate manner.

(3) The necessity for integrated literacy training that takes into consideration the characteristics of ICT media

It is possible that there is a tendency to emphasize only the negative aspects of the dangers presented by ICT media but, this is for no other reason than right from the start, the development of effective use of ICT media came with a large number of positives as an educational method, such as its user-friendliness, creativity, expressivity and communications power.

So, the development of a program that will cultivate integrated literacy, so that children understand simultaneously, not just the dangers but also user - friendliness and creativity, while keeping mind the characteristics of ICT media, is vital to the promotion of the sound usage of ICT media in the age of ubiquitous networks.

Researching and developing new ICT media literacy training program in the age of ubiquitous networks

MIC has taken these conditions into consideration and is working towards future sound use of ICT media. In order for children to be able to use the Internet and mobile telephones safely and securely, it has conducted research and development in the course of fiscal year 2006 concerning a program for ICT media literacy training for usage of these areas, and will spread this program in fiscal year 2007.

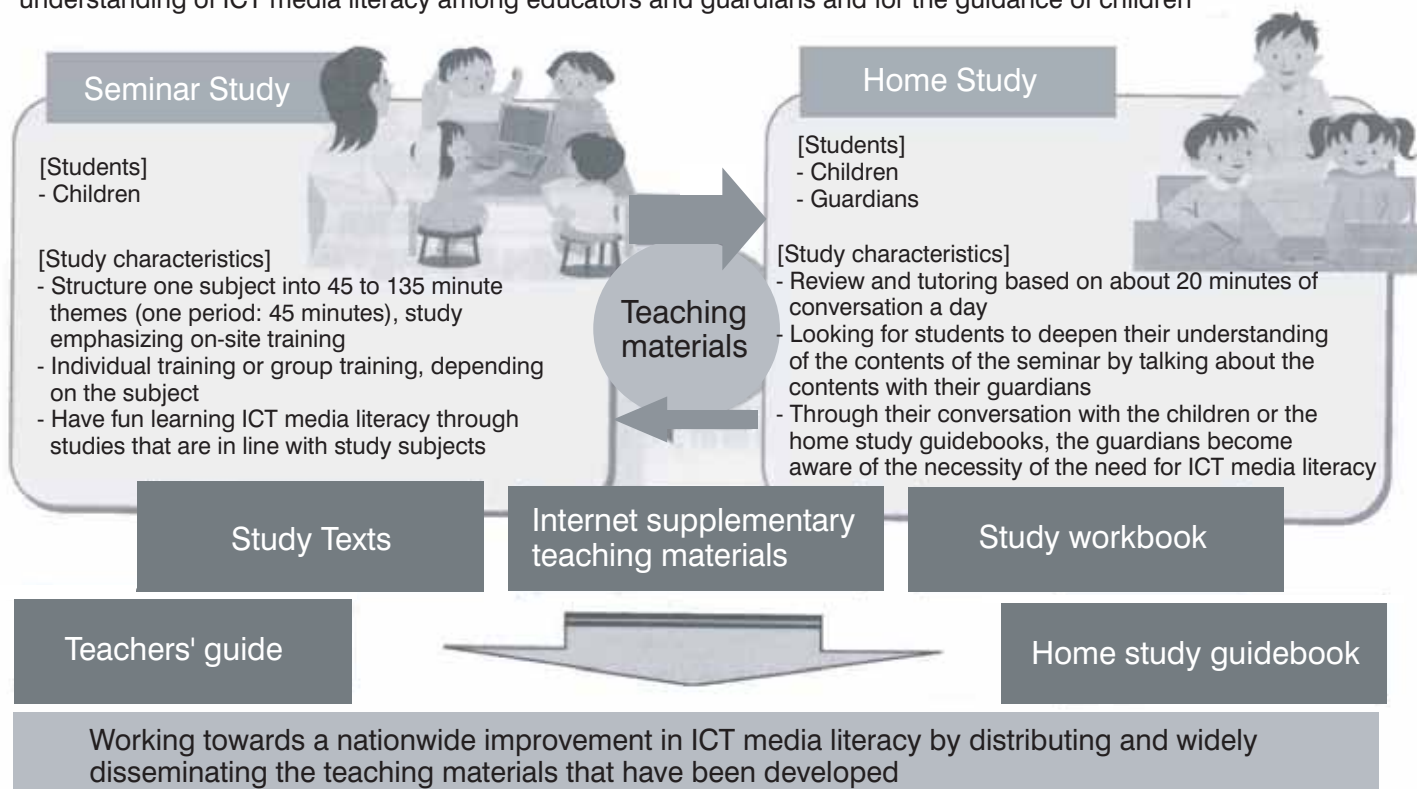
(1) Program targets

When children enter junior high school, the proportion who has ICT terminals such as mobile telephones climbs sharply. There is a need to associate rules and literacy to the use of these, but it can be difficult for guardians to teach these. So, the target for this program will be students in the 5th and 6th years of elementary school, and home guardians will be able to join in the study.

Research and developments of ICT media literacy training program

MIC has developed and will spread a program for ICT media literacy training

- For a sound understanding, a combination of learning through seminars and the like plus reviews at home
- The introduction of on-site training methods in order to attract students' interest and concern
- Production of practical guides (teachers' guide, guidebook for home study) on guidance methods to promote the understanding of ICT media literacy among educators and guardians and for the guidance of children



(2) Program objectives

With regard to program objectives, the aim was to be able to develop integrated ICT media literacy in terms of (1) the ability to access and use ICT media, (2) the ability to ascertain the truth of ICT media independently, and (3) the ability to create communications through ICT media

(3) Selection of study subjects <ICT media literacy study subjects (for 5th and 6th year of elementary school)>

There are many subjects that one should study in order to become literate but in order to study effectively within a limited amount of time, the following 11 subjects were selected as abilities that need to be given priority for imprinting onto 5th and 6th year elementary school children were analyzed and organized in <ICT media literacy study subjects (for 5th and 6th year

of elementary school)>

- 1) The ability to understand the characteristics of ICT media
- 2) The ability to use ICT media
- 3) The ability to gather information
- 4) The ability to process and edit information
- 5) The ability to display information
- 6) The ability to transmit information
- 7) The ability to critically understand a sender's purpose in ICT media
- 8) The ability to communicate pro-actively
- 9) The ability to respect the person you are communicating with
- 10) The ability to use ICT media safely
- 11) The ability to secure information rights (copyright, image rights)

(4) Setting study themes

With regard to the study subjects above, the following 5 study themes were set for integrated

learning through on-site training

1) Find it out on the Internet!
Develops the ability to gather, edit and transmit information using the Internet. The student learns how to differentiate accurate information and the truth, through investigative learning using Internet search engine simulators and the like.

2) Get your school's appeal across!
Develops both the ability to get across your thoughts in an easy-to-understand manner and to communicate while thinking about the people across the Internet. The student learns the rules and manners for transmitting information over the Internet through experimenting with a blog simulator.

3) Exciting Internet! Mysterious Internet?
Develops the ability to use the Internet safely within daily life. The

student learns about the characteristics of the Internet as well as its convenient services and what he needs to be careful about in using the Internet.

4) Arguing via email! What do you do next?

Develops the ability to give consideration to someone who is not right in front of you, and to choose your words when emailing. The student experiences an imaginary-fight via email and learns about mail characteristics and rules and manners for using email pleasantly.

5) Let's take our mobile telephone and go to town!

Develops the ability to use mobile telephones safely. The student learns the functions and use of mobile telephones, as well as rules and good manners, through an imaginary experience of going out on errands.

(5) Outline of materials etc.

The overall image of the program is graphic. The structure includes seminar study (seminars conducted by teachers at school or at local centers) as a scene for learning, and home study (review and tutoring by guardians with the children about what they learned at the seminars).

In addition, materials are made up of the following.

1) Internet supplementary teaching materials

Web teaching materials centered on the simulator which supports guidance and learning

2) Teachers' guide

Contains information that is needed for practical guidance methods and guidance by study theme

3) Study texts

Contains explanations of study contents and worksheets for children, and a way of using Internet-based teaching materials

4) Guidebook for home study

Contains the information necessary for guardians to study together with children (seminar study digests, explanation of study themes, points that should be emphasized by guardians etc.)

5) Study workbook

Structured so that the student can revise with and be tutored by guardians at home on contents that were learned in the study texts

(6) Follow-up and evaluation of program development

At the development stage, this program was followed-up and evaluated by experts and testing was carried out at elementary schools. Through a forum on the web, its appropriateness was confirmed objectively from many

different angles of both contents and implementation, necessary revisions were made so as to iron out any rough edges.

Approaches for fiscal year 2007 -- dissemination promotion and verification of impact

In fiscal year 2007, along with releasing the training program that was developed, there will be activities to promote the increase of ICT media literacy nationwide, and work will be done to disseminate the program widely through diffusion among NPOs that work on media literacy training as well as holding the "e-Net caravan" in cooperation among the communications industry, MIC, and MEXT.

Also, taking into consideration the latest conditions of ICT media, there will be revisions of teaching materials, and with the cooperation of the organizations that are using the training program, hearings and surveys will be implemented to study and analyze how media literacy and related activities have changed before and after the introduction of the program, the results will be investigated and plans will be made to further improve the program.