Present Status of Approaches to the Year 2000 Computing Problem in Japan

By Office for Computer Year 2000 Problem Compliance, Machinery and Information Industries Bureau,Ministry of Int'l Trade and Industry

1. Government countermeasures

The Ministry of International Trade and Industry, which in FY1996 launched a fullfledged approach to the Year 2000 computing (Y2K) problem, has since stolen a march on other ministries and agencies in implementing measures to encourage the private sector to tackle the Y2K problem, by staging dissemination and information activities, and providing financial assistance in cooperation with the related organizations.

As concern about the Y2K problem rises, the ministries and agencies concerned, beginning with the Ministry of Finance (Financial Supervisory Agency), have started making aggressive approaches to the problem.

However, the Y2K problem involves all economic and social sectors using personal computers and products with built-in microcomputers, thus necessitating the government as a whole to confront the problem. It was from this point of view that the Ministerial Liaison Conference on the Year 2000 Problem was established in December 1997.

Moreover, acting on Prime Minister Obuchi Keizo's determination that the nation as a whole grapple more aggressively with the Y2K problem, the Advanced Information and Telecommunications Society Promotion Headquarters (headed by the prime minister) decided on a "Y2K Action Plan" in September 1998.

Government approaches

● **Dec. 16, 1997**
The Liaison Council of Ministries and Agencies Concerned on the Y2K Problem met for the first time and decided to conduct a nationwide survey on the actual status of the problem.
● **April 14, 1998**
The council met for the second time and made public the results of the survey.
● **June 21, 1998**
Prime Minister Obuchi instructed all the ministries and agencies to formulate, without delay, concrete action plans concerning the Y2K problem.
● **Sept. 8, 1998**
The first meeting of the 13-member Y2K Advisers' Conference was held (with Tadahiro Sekimoto, at that time NEC chairman, presiding).
● **Sept. 10, 1998**
The first Conference to Promote Y2K Measures took place.
● **Sept. 11, 1998**
The Advanced Information and Telecommunications Society Promotion Headquarters met and adopted a Y2K action plan.
● **Nov. 24, 1998**
The second meeting of the Y2K Advisers' Conference took place.

● **Dec. 11, 1998**
The working subcommittee for the Y2K Advisers' Conference met for the first time.

The Y2K Action Plan adopted on Sept. 11 by the Advanced Information and Telecommunications Society Promotion Headquarters puts priority on the implementation of the following measures:
● For organizations to make clear their areas of responsibility and cope with the Y2K problem under a top-down formula;
● To conduct across-the-board checks, including simulation tests, to confirm if computer systems work normally as a whole, and at the same time, formulate crisis management plans to cope with unexpected contingencies, such as computer shutdowns and other system malfunctions;
● To check equipment with embedded microcomputers, as well as computers and software, and to confirm that they function precisely when linked with networks;
● To make sure current computer-controlled/computerized equipment, software and microcomputers are capable of coping with the Y2K problem, by checking with manufacturers and sales agents; and
● For organizations to provide information voluntarily regarding how they are adjusting their computer systems to the Y2K problem (For details about the Action Plan, refer to Page X).

2. Progress of efforts to cope with Y2K problem

The following statistics show how ministries and agencies, local public entities and the important private sectors are coping with the Y2K problem, as reported at the 2nd meeting of the Y2K Advisers' Conference, held in November 1998:

[Ministries and agencies]

Of information systems, the operation of which is controlled by government ministries and agencies, and special public corporations, those with high priority, such as systems that have a close bearing on national life, were in the process of adapting, as follows, to Y2K requirements (as of Nov. 1, 1998).

■ **Ministries and agencies (118 systems)**
Modifications completed : 46%
Simulation tests completed : 20%
Crisis management plan formulated : 1%
■ **Special public corporations, etc. (199 systems)**
Modifications completed : 54%
Simulation tests completed : 21%
Crisis management plan formulated : 8%

[Local public entities]

The following statistics show how local public entities adjusted

their computer systems to Y2K requirements (as of August 1998):

- **Prefectural governments**
  Adjustments completed : 3 (6.4%)
  Adjustments under way : 44 (93.6%)
- **Municipalities (3,255)**
  Adjustments completed
  (unnecessary adjustments included) : 1,089 (33.5%)
  Adjustments under way : 1,806 (55.5%)
  Adjustments not yet undertaken : 299 (9.2%)

[Important private sectors]

The following statistics show the progress of computer system modifications being undertaken by private financial, energy, information/telecommunications and medicare sectors at the requests of ministries and agencies:

- **Financial sector (as of Sept. 30, 1998)**
  Modifications completed
  Banks nationwide : 42%
  Insurance firms : 32%
  Securities firms : 33%
  Tests completed
  Banks nationwide : 16%
  Insurance firms : 18%
  Securities firms : 15%
  Crisis management plan worked out
  Banks nationwide : 8%
  Insurance firms : 13%
  Securities firms : 5%
  *Data concerning important systems
- **Energy sector (as of Oct. 31, 1998)**
  Modifications under way
  Petroleum : 71%
  Electric power : 100%
  City gas : 100%
  Modifications completed
  Petroleum : 19%
  Electric power : 0%
  City gas : 0%
  Simulation tests completed
  Petroleum : 6%
  Electric power : 0%
  City gas : 0%
  Crisis management plan worked out : 0%
  *Control systems
- **Information/telecommunications sector (as of Oct. 1, 1998)**
  (Telecommunications)
  Modifications completed
  Communications system : 21%
  Support system : 24%
  Simulation tests completed
  Communications system : 11%
  Support system : 13%
  Crisis management plan worked out : 14%
  (Broadcasting)
  Modifications completed

Control system : 30%
Support system : 34%
Simulation tests completed
Control system : 21%
Support system : 22%
Crisis management plan worked out : 12%
- **Transport sector (as of Nov. 17, 1998)**
  (Railways)
  Modifications under way
  Control system : 68%
  Office administration system : 91%
  Modifications completed
  Control system : 6%
  Office administration system : 3%
  Simulation tests completed
  Control system : 12%
  Office administration system : 3%
  Crisis management plan worked out : 3%
  (Civil aviation)
  Modifications under way
  Control system : 100%
  Office administration system : 90%
  Modifications completed
  Control system : 0%
  Office administration system : 0%
  Simulation tests completed
  Control system : 0%
  Office administration system : 10%
  Crisis management plan worked out : 0%
- **Medicare sector (as of Oct. 1, 1998)**
  (Medical institutions)
  Modifications completed : 16%
  Simulation tests completed : 10%
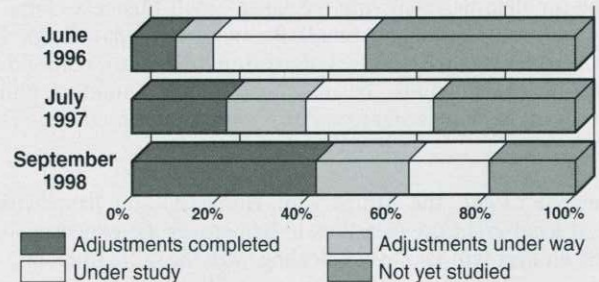 **Crisis management plan worked out** : 10%
  *Estimates based on spot checks
  (Medical equipment makers, etc.)
  Simulation tests completed : 32%
  Crisis management plan worked out : 26%

[Small and medium-sized enterprises]

The following statistics show the progress of adjustments by small and medium-sized enterprises of their office administration systems to Y2K requirements as of September 1998:

(Based on a questionnaire survey by the National Small Business Information Promotion Center)

Detailed data are released on the Internet, etc., by the ministries and agencies with jurisdiction over industries and industrial organizations, and those interested are requested to refer to such data.

3. Measures to deal with the Y2K problem

The following systems have been established in a move to help enterprises in the private sector cope with the Y2K problem:

(1) System for accommodation of low-interest loans by government-run financial institutions

The Japan Development Bank, the Small Business Finance Corp. and the People's Finance Corp. have provided low-interest loans for private-sector enterprises making capital investment in computers and other electronic devices in a bid to restructure their operating systems to adapt to Y2K requirements.

(2) Tax measures

● Handling of expenses involving program modifications to adapt to Y2K requirements

As regards expenses needed for program modifications to cope with the Y2K problem, they can be handled, in principle, under losses in terms of expenditure as repair costs.

● Tax system for the promotion of investment by small and medium-sized enterprises, and the Tax System to Promote Investment in New Technological Achievements of Small and Medium-Sized Enterprises (the mecha-tronics tax incentive)

When computers and other computing devices are replaced to meet Y2K requirements, small and medium-sized enterprises are accorded tax deductions or tax incentives for special depreciations under given conditions.

(3) Lease support

● When small and medium-sized enterprises lease computers from MITI-designated companies, they are permitted to do so at lower charges than usual.

(4) Free specialist advice

● The Small and Medium-Sized Enterprises Regional Information Center (RIC) at each prefectural government serves as a window to respond to a wide range of consultations concerning the Y2K problem, and offers free specialist advice on the problem in tie-up with the Japan Small Business Corp.

In addition, the Japan Small Business National Corp. has specialists assigned to its counseling office to respond to telephone consultations, besides hosting free seminars jointly with guidance organizations for small and medium-sized enterprises.

Since FY1997, the Ministry of Home Affairs has invoked special local grant tax measures to help cover the expenses local public entities will face when dealing with the Y2K problem.

Y2K Action Plan

(as adopted by the Advanced Information and Telecommunications Society Promotion Headquarters on September 11, 1998)

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The "Y2K problem" is the risk that computer systems may malfunction if their programs fail to recognize dates after the year 2000. This is an enormous and urgent problem as it may shake confidence in the establishment of highly advanced information and telecommunication infrastructures in the 21st century and must be dealt with by a definite deadline.

Today, with less than 500 days to the year 2000, both the government and private sectors need to take all possible measures to deal with the problem as quickly as possible.

Considering the importance and urgency of this problem, H.Q. decided on a Y2K Action Plan and asked both the government and the private sector to cooperate to implement it.

At the same time, because the Y2K problem affects other countries as well and has considerable potential cross-border impact, we will also promote international cooperation to tackle the problem.

I. Promoting Y2K awareness

1. H.Q. will work with local governments and the private sectors to heighten public awareness of the Y2K problem, to minimize the possible risks in the year 2000, and to ensure a smooth transition into the new millennium. HPAIS will thus widely provide information on what can be done and what is

actually being done on this Y2K problem and will work with the public and private sectors to ensure that everyone is fully informed on Y2K measures.

2. In seeking to ensure that this information is widely available and widely understood, H.Q. will not only call for general caution but will also thoroughly inform all concerned parties that the appropriate way to tackle the Y2K problem is to ensure implementation of the following measures:

(1) To clarify the organizational lines of authority and responsibility and to ensure that the entire organization is able to respond.

(2) To conduct extensive testing, including simulation tests, in order to make sure that the entire system is able to function without problems, as well as setting up contingency plans so as to be prepared for possible system shutdowns, malfunctions, and other contingencies.

(3) To check not only computers and software but also all equipment with embedded microcomputers. To confirm that all the partners connected through computer networks are taking appropriate measures.

(4) To inquire of manufacturers and vendors of computers, software, and microcomputer-embedded equipment whether the products and the systems are Y2K compliant.

(5) To provide information on progress.

II. Measures to be taken by the Central Government and Requests for Local Governments

1. Measures to be taken by Ministries and Agencies

(1) All Ministries and Agencies will take necessary measures in line with the Y2K Conversion Guidelines (Appendix 1) including implementation of final and thorough checkups, including simulation tests setting up contingency plans. These measures are aimed at avoiding the impact of the Y2K problem on computer systems and to ensure that the daily lives of the Japanese people will not be affected.

(2) In principle, all Ministries and Agencies will complete their simulation tests on systems with high priority that are directly related to the daily lives of the Japanese people (hereinafter called priority systems) by the end of June 1999.

(3) All Ministries and Agencies will set up contingency plans explicitly covering the possibility of computer and other system shutdowns, malfunctions, and other contingencies for all priority systems on January 1, 2000.

All Ministries and Agencies will report their progress to the Management and Coordination Agency (MCA) quarterly. The MCA will collect the results and release them to the public.

2. Guidance and Requests for Special Corporations

(1) All Ministries and Agencies will instruct and request the special corporations under their jurisdiction which are running systems directly affecting people's lives as well as other special corporations doing work for the government to conduct thorough tests, including simulation tests and to set up contingency plans in line with the Y2K Response Guidelines.

(2) All Ministries and Agencies should report the progress

being made by the special corporations under their jurisdiction to the MCA quarterly, and the MCA should collate the results and release them for public consumption.

3. Requests for Local Governments

(1) The Ministry of Home Affairs will call upon all local governments to implement responses following the Y2K Response Guidelines as adapted to their situations.

(2) The Ministry of Home Affairs will survey local governments on their progress each quarter, collating the results and releasing them to the public.

(3) The Ministry of Home Affairs will extend active support for local government efforts.

III. Measures for the Private Sector

1. Measures for the Private Sectors of Particular Importance

The competent Ministries and Agencies will encourage the finance, energy, telecommunications, transportation, and medical care sectors that are crucial to society's functioning to thoroughly address the Y2K problem. Specifically, this means taking the initiative in conducting overall checkups, including simulation tests, and provision of information as well as reporting to the competent Ministries and Agencies.

(1) The competent Ministries and Agencies will call upon corporations in the critical sectors owning and running related systems (hereinafter the critical-sector corporations), either directly or through their industry associations, not only to make sure that everyone is thoroughly aware of the Y2K problem but also to conduct independent checkups of their own accord, including conducting simulation tests, setting up contingency plans, and making information on their responses available on the Internet and elsewhere, in line with the Private Industry Y2K Check List (Appendix 2).

With respect to the simulation tests in particular, these are to be completed, insofar as is possible, by the end of June 1999.

(2) The competent Ministries and Agencies will call upon these critical-sector corporations to report quarterly on the progress made in their independent testing and to collate these reports and make the results available to the public.

2. Reaching out to Industry

(1) Along with seeking to ensure that the industries under their jurisdiction are fully aware of the Y2K problem, the central government Ministries and Agencies will encourage all corporations to conduct independent checkups at their own initiative in line with the Private Industry Y2K Check List.

(2) The competent Ministries and Agencies will make a special effort to ensure an unstinting response when it is considered likely that a failure to take appropriate Y2K action could have major ramifications, as when private industry systems could physically endanger others of when the systems are widely linked to outside systems and networks.

(3) The competent Ministries and Agencies will collect information quarterly on how the industries under their jurisdiction are actually dealing with the Y2K problem and will make the results available to the public.

(4) The competent Ministries and Agencies will encourage the manufacturers and vendors of computers, software and microcomputer-embedded equipment to provide information on how they are responding to the Y2K problem to the Japanese people and, when appropriate, the international community.

3. Support for Small and Medium-Sized Enterprises (SMEs)

To promote responses by those SMEs that might otherwise find it difficult to respond in a timely manner, education, guidance, and support will be provided with a view to enhancing the consciousness of the management of SMEs through the SME leadership organizations and other bodies. Efforts will also be made to promote wider use of such current measures as those for providing the necessary financing and other support. SMEs can consult the SME Regional Information Center about the Y2K problem.

Efforts will be made to acquire information on their progress quarterly and to release the results to the public.

4. The Anti-Monopoly Law and Information Exchange among Corporations and Industry Organizations on the Y2K problem.

(1) Dealing with the Y2K problem requires efforts by corporations and industry organizations to prevent computer malfunctions. As a part of such efforts, they may exchange technical information on how to improve computer systems, the results of improvements and tests, etc. without causing problems in terms of the Anti-Monopoly Law. That being said, any act of abusing a position of power within a commercial relationship that restricts competition under the guise of dealing with the Y2K problem will be dealt with harshly under the Anti-Monopoly Law.
(2) The Fair Trade Commission will be available for consultation on whether or not specific actions by specific corporations, industry organizations, or other bodies in response to the Y2K problem are likely to run afoul of the Anti-Monopoly Law.

IV. Establishment of a System to Provide Information

1. Each Ministry and Agency will designate liaison staff for Y2K issues and work to promote information disclosure. Along with creating a homepage by the end of September 1998 to provide the general public with information about its own efforts to deal with the Y2K problem and the efforts of industries under its jurisdiction, each Ministry and Agency will also update the page with new information as it becomes available and make an effort to ensure that the necessary information is accessible.
2. In an effort coordinated by the Cabinet Secretariat, the Ministries and Agencies will seek to use the Internet and other means in constructing an information disclosure system and to make information about the government's own efforts widely accessible. The Prime Minister's Office has thus established a homepage MACROBUTTON HtmlResAnchor (http://www.kantei.go.jp) with a section on the Y2K problem. Links will soon be established with the Ministries and Agencies, and information on how the Ministries and Agencies, local governments, private-sector bodies, corporations, and other organizations are coping with the Y2K problem will be made widely available in a user-friendly way.

V. Follow-up to the Action Plan

1. Reports on the progress of implementation of the Action Plan will be submitted quarterly to the Y2K Advisers's Conference and to the Conference to Promote Y2K Measures made up of vice-ministerial level officials in order to ensure the appropriate responses.
2. The H.Q. will also be convened as necessary to conduct a follow-up to the Action Plan, to assess the public and private sectors' responses to the Y2K problem, and to encourage the appropriate responses to this issue.

Guidelines for Coping with the Year 2000 Computing Problem

In facing the Year 2000 computing problem, each ministry shall take necessary measures such as the implementation of a final total assessment including simulation tests on its computer systems, and the development of a contingency plan, based on the present guidelines, to avoid problems that could affect people's daily lives.

1. Establishment of Management Structure for the Year 2000 Computing Problem

Each ministry shall designate an official ranking higher than or equal to the chief secretary as a supervisor responsible for coping with the YEAR 2000 computing problem (hereinafter referred to as "the Y2K problem") adequately.

The supervisor shall establish a management structure such as a project team for the Y2K problem, which will consist of staff from the divisions concerned, and make the responsibilities clear within each ministry.

2. Coverage of Computer Systems

1) Computer systems to be covered in coping with the Y2K problem include computer equipment such as host computers owned by each ministry, local branch offices and facilities; application programs etc.; network-related equipment; computer-related equipment such as power suppliers; and equipment with built-in micro-processor. Regarding control devices embedded in equipment, necessary measures such as the acquisition of information from manufacturers and maintenance service providers, and the exchange of parts shall be taken adequately.
(e.g.)
● computer equipment: host computers, office computers, servers, personal computers etc.
● application programs etc.: application programs, program products, databases etc.
● network-related equipment: ATM, FR, TDM, PBX etc.
● computer-related equipment and other equipment with built-in micro-processors, power suppliers, air conditioners, medical devices, control devices etc.

2) Each ministry shall make a list of systems applicable to rank A or B below, give priorities, and manage the implementation

activities appropriately by grasping the current status, progress gained and so on. In making the list, deliberate consideration should be given to the fact that there are such systems as follows:

● systems of which failures would have a harmful effect on people's daily lives and corporate activities directly; and

● systems which have impacts on people's daily lives and corporate activities indirectly because they are connected with other influential systems or networks.

Regarding the latter type of systems, necessary information should be mutually exchanged thoroughly.

Rank A: The first priority (prioritized systems)

● systems closely related with people's daily lives and corporate activities, such as human life, daily lives, properties, economic activity of corporations or maintenance of public safety and order

● systems concerned with trustful relationships with foreign countries or international organizations

Rank B: The second priority

● systems that have impacts on other administrative organizations

3. Total Assessment

Each ministry shall conduct the final assessment related with the Y2K problem immediately referring to the checklist in Appendix 1, recognizing the importance of expected harmful effects on society if the measures were not fully implemented.

1) Developing a plan

Develop a plan which includes the schedule of total assessment, measures for systems not yet confirmed, final confirmation by simulation tests, etc.

2) Listing items to be assessed

Make a list of assessment items, contents of such items, names of the persons in charge of such assessment (officials in charge of activities and contract vendors), name of enterprises, such as relevant manufacturers and suppliers, names of other related systems, names of contact persons, etc.

3) Measures for systems not converted

Establish the methods of correction, schedules, the sharing of roles, management structure and take measures deliberately and adequately as soon as the systems not yet confirmed are identified.

4) Confirmation by simulation tests

Conduct the following simulation tests (to confirm that a system runs properly) to confirm the reliability of such a system, rather than conducting mere logical checks on paper or tests by computer systems under the environment of contract vendors:

● All the equipment, software, etc. composed of Rank A systems (prioritized systems) shall be tested by the end of June 1999, as a rule. In addition, systems to be developed and implemented later than July 1999 shall also be tested immediately after implementation.

● The possibility of system failures and malfunctions shall be checked by giving data of before and after January 1, 2000 in as realistic an environment as possible and under the supervision of the staff concerned.

● When there are other systems, irrespective of the public or private sectors, which are related with a system to be tested under the Guidelines, close coordination among them should be kept, and simulation tests should be conducted in connection with those systems.

4. Contingency Plan

Each ministry shall develop a contingency plan for systems of rank A (prioritized systems), assuming unexpected situations, such as system failures or malfunctions, caused by the Y2K problem.

Existing contingency plans shall be reviewed appropriately, even if the system in question has backup systems or centers or it has security measures such as duplicated systems, considering the fact that these systems would not function because of the Y2K problem as long as they are operated on the computers or application programs that are the same as the systems that need to be corrected.

(Items to be incorporated in the contingency plan)

The contingency plan shall be developed to identify the impacts of unexpected situations such as system failures or malfunctions beforehand, to define alternative measures clearly, and to reduce the extent of such impacts to a minimum. The following items should be covered as a basic minimum:

1) Contents and range of impacts by troubles:

● contents and range of impacts on actual activities of the Y2K problem

2) Priorities of systems recovery, procedures of recovery and alternative measures considering the extent of impacts,;

● Priorities of recovery, recovery schedule and procedures considering range of impacts, time limits of job processing, etc.

● Alternative measures until systems recovery (manual transactions, the use of alternative equipment, manpower mobilization, etc.)

3) A recovery structure, liaison network and procedures including other related organizations:

4) Route of commands, and site delegations; and

5) Drills covering occurrence of troubles to recovery, items (such as data security) to be completed by December 31, 1999 and items (such as confirmation of operation) to be conducted after January 1, 2000.

5. Reporting on Results of Total Assessment

Each ministry shall report the results of the total assessment and development of a contingency plan to the Management and Coordination Agency by the end of December 1998, by submitting the forms of Appendix 2.

The Management and Coordination Agency shall incorporate these and report the results to the Steering Committee for the Year 2000 Computing Problem. **JJTI**