



The Y2K Renovation: Thailand Perspectives

It is undeniable that the year 2000 problem has a potentially serious impact on computer operations in both the public and private sector. Software programs, computers, and products containing microchips are potential targets. Every organization must take timely and complete actions to ascertain that their computers and related equipment are year 2000 compliant and capable of functioning properly after January 1, 2000.

The year 2000 problem stems from the way dates are recorded and computed in various computer systems. For the past several years, systems have typically used two digits to designate the calendar year (in the format DD/MM/YY) in order to save on electronic data storage and reduce operating costs. With this two-digit format, however, the Year 2000 is indistinguishable from 1900, 2005 from 1905, and so on. As a result, system or application programs using dates to perform calculations, comparisons, or sorting may generate incorrect and confounding results when working beyond December 31, 1999. System errors or failures could jeopardize the proper functioning of offices, factories, telecommunication, medical equipment, banking and safety systems.

Thailand has been aware of the Y2K problem since 1996. At the beginning the private sector was first to realize the potential severity of the impact caused by the changing of the millennium. Computer suppliers tried to raise awareness with their customers through workshops and seminars. Their awareness program was relatively successful: several companies contracted them to study and implement solutions but some still hesitated at the time.

In the finance sector, major banks were fully aware of the problem, and started to explore, assess and implement solutions since 1996. Most had targeted the 31st of December 1998 for the completion of the implementation phase. The Bank of Thailand also investigated its computer systems and identified the actions necessary to solve the problems, and all networking and computer platforms have been fixed. Presidents of some banks like the Krung Thai Bank, the Bank of Agriculture and Cooperatives and the Bangkok Bank organized various awareness campaign activities including sending out letters, advising on assessment and evaluation, and organizing seminars for its customers. Most banks in Thailand had Y2K solutions implemented by their own staff, while some used consulting companies like several large industrial corporations. The Stock Exchange of Thailand was also concerned about the problem. The computer system was introduced for trading several years ago. Their system has been assessed and potential Y2K problems fixed and tested.

The public sector came to realize the problem a little bit later than the private sector. Some department with critical system such as in Department of Revenue, Department of the Internal had realized the scope of the problem and had started implementing a remediation plan. However, an overall awareness action program was starting by the National Electronics and Computer Technology Center (NECTEC) which set up an awareness campaign in mid 1997 by arranging workshops and seminars, and creating a Y2K Club comprising individuals interested in exchanging



information about Y2K among members. NECTEC also conducted surveys in the public sector regarding the potential impact of the problem. Several documents have been published to disseminate information about solutions and best practices in alleviating the impact of Y2K. The Budget Bureau and Office of the Auditor General also conducted similar surveys on awareness of the problem and the required budgets because Thailand is facing the economic recession period and is in shortage of foreign exchange.

After a certain period of sensitization, the National IT Committee (NITC) through NECTEC, proposed the Cabinet a number of measures to implement a Y2K remediation plan in the government agencies. Acknowledging the significance of the year 2000 problem, the cabinet took an important step on April 28, 1998, in ordering all ministries to appoint their own Y2K Committee for resolving the year 2000 problems. The Cabinet thereby endorsed NECTEC's request and passed the following three resolutions:

- Every ministry has to establish a Y2K ministerial committee to assess and resolve year 2000 problems.
- The Government departments were allowed to re-adjust the FY1988 budget to allocate the funds required for solving such problems. Also, proposals for renovation in order to solve Y2K problems will be given a high priority for the FY1989 budget. Each department facing Y2K problems must work out a budget request as soon as possible.
- NECTEC is appointed to be the Coordinating Center to provide information and advise government agencies on the year 2000 problems.

Later, on June 23, the Cabinet reiterated the significance of the Y2K issue by establishing a National Y2K Coordinating Committee (Y2K-NCC) to be chaired by the Deputy Prime Minister. Other members include the Minister of the Sciences, Technology and the Environment, the Chairman of the Ministerial Y2K Committees, representatives from the Budget Bureau and the Council of the Thai Industry, the Computer Association of Thailand, and the Association of the Thai Computer Industry. This Committee was expected to reinforce all departments to hasten the assessment and complete the solution successfully. The Committee also had to scrutinize major Y2K Project plans, which might involve large investments. The main accountabilities of this Committee are to establish policies on Y2K solutions, to embrace supports for the public sector in solving the Y2K problem, and to collect information for the cabinet on the progress of the Y2K solution, etc.

The National Y2K Coordinating Committee had launched many measures and set out a plan to which every ministry had to respond promptly. Some important measures were:

- Submit a Y2K master plan for each ministry, to be compiled in the National Y2K plan by NECTEC. Agencies must prioritize mission critical systems, and determine the resources needed to make these systems Year-2000 compliant.



- Establish deadlines for certain important steps in the plan.
- On August 20th, 1998, all government agencies were to attend a seminar to provide the proper orientation to everyone responsible for solving Y2K. Several so-called "super critical organizations" in Thailand such as the Electricity authorities, Bankers, Thai Airways, etc were prominent at this national-level seminar.
- The CIO of each ministry and department are endorsed to come closer to the Y2K implementation activities.

According to the National Y2K Coordinating committee resolution, a report about the action plan of each ministry, including state enterprises, has to be submitted to Thailand's Y2K Center at NECTEC every month. Therefore a standardised report form was agreed upon amongst the auditing agencies such as the Bank of Thailand, the Budget Bureau, the Government Auditing Authority, the Stock Exchange Commission and the Certified Auditor Association

The "Supercritical Organisation Subcommittee-Y2K-SOS " was set up by the National Y2K Coordinating Committee (Y2K-NCC) to make sure that these organisations would be fully operational for the year 1999/2000 roll-over and beyond. They are to work coherently and present a unified status web page index to assure all interested parties that Thailand has launched a solid program to guarantee the country's smooth operation before and after the year 2000. There are 27 organisational members in the subcommittee.

As of mid October 1998, about 319 mission critical systems within government agencies and state enterprises were reported. The cost of total renovation was estimated to be around 4300 million baht, with funding being provided through budget reallocation processes. Government mission critical systems are those which are crucial to normal operations and must not fail. Every mission critical systems must be renovated and reinforced with contingency plans. All other systems are considered "secondary critical" where only contingency plans must be appropriately prepared.

The Y2K-NCC was also to set up the **Subcommittee on Y2K Mitigation through Legal Measures** to deal with the legal issues concerning Y2K problems, which will affect both the public and private sector. This subcommittee has the responsibility to study and draft the Emergency Decree to reduce possible damage caused by the Y2K problem.

The philosophy of the drafted "Y2K Act" is to encourage every organization to declare their activities and the degree of Y2K readiness in their systems, so that the potential customer can decide at their own risk whether or not to do business with that organization. Those who declare information with due diligence will be free from responsibility of unknown consequences that may be caused by Y2K. But any damage caused by Y2K may be claimed by Public Law.



PROGRESS OF Y2K REMEDIATION IN THAILAND

GOVERNMENT ORGANIZATIONS

Thailand has about 250 departments and department-equivalents in 14 ministries. The initial survey of the work being done in these departments revealed that around 763 systems would have Y2K problems, requiring a budget of Baht 1,648,729,093 for fixing. Y2K remediation projects were proposed and approved. The Ministerial Y2K Remediation Committees (Y2K-MRC), established during the 28th April 1998 Cabinet Resolution, are responsible for following up the remediation activities and to report progress to the National Y2K Coordinating Committee (Y2K-NCC) and to the Cabinet.

,NECTEC as a secretariat for the National Y2K Coordinating Committee, organized additional five seminars in preparing contingency plans for all the government departments dated on 1, 2, 5, 6 and 8 July 1999. The purpose of this seminar was to ensure that every department could set up an efficient and effective contingency plan, which is operational and can be used in developing the national contingency plan.

In addition, NECTEC organized a seminar for the governors of all provinces under the header "Provincial Preparation for the Y2K Problem" on August 26, 1999 so that the governors would understand the problem, its impact, and the policy guidelines to deal with the problem in their province.

Assessment of the progress of the Y2K remediation in government organizations is presented in monthly and bi-week reports. Government organizations have achieved different levels of completion of their Y2K remediation, going from 40% up to 100%. Nevertheless, it is true that most government offices do not use complex automatic systems and that their data processing systems are not linked together in a network. Therefore, remediation and contingency measures could be implemented rather simply and readily. The organizations with large data processing systems such as, the Department of Revenue and the Office of Population Registration have already solved their Y2K problems and are migrating towards using the systems which are Y2K ready.

STATE ENTERPRISES

State Enterprises utilize systems to provide services which are critical to the people and the country. Acknowledging the importance of these systems, and the need for special supervision, the National Y2K Coordinating Committee (Y2K-NCC) established the Supercritical Organization Subcommittee (Y2K-SOS) to supervise and follow up the Y2K remediation at the organizations with systems deemed as being supercritical. There are 31 supercritical organizations in total. Examples of these systems are the public utility systems, the finance and banking system, energy, as well as social order systems. These supercritical organizations had begun their Y2K remediation activities even before the Cabinet passed the Y2K resolution.



The problems of the state enterprises are more subtle and complex than those of the government departments. The State enterprises' mission is to provide services to the public, so their systems are more modern and complex. Hence, it is more difficult to implement Y2K solution for these systems than for other government departments.

The progress of the Y2K remediation in 2 sub-groups with similar mission can be summarized as follows :

- Telecommunication, Communication, and Transportation. This group has completed 98% of the remediation process. The implementation of the Y2K solution for the supercritical systems will be finished by the end of September 1999.
- Power and Energy. This group has completed 99% of the Y2K remediation process. Their supercritical systems will be Y2K ready by the end of September 1999.

THE PRIVATE SECTOR

There are a large number of companies in the private sector. The National Y2K Coordinating Committee (Y2K-NCC) does not have direct authority to supervise these companies, but advises the government departments who have control over these companies to follow up and examine their Y2K remediation activities. Departments who supervise this work are the Bank of Thailand, the Securities Exchange of Thailand, etc. Important private companies are divided into different groups as follows:

- Banking, Finance and Insurance. Companies in this group have 100% completed their remediation activities and have already tested their interoperation twice.
- Large International Companies. Most of the companies in this group have completed their Y2K remediation according to the deadline scheduled by their head offices, but their activities have not been reported directly to the government.
- The Small and Medium Scale Enterprise (SME). Many members of this group are still in the process of Y2K remediation. The overall picture is being followed up and monitored by their respective government organizations. The Ministry of Industry is now coordinating and assisting these companies to solve Y2K problems.

CONCLUSION

In summary, the Y2K remediation progress of Thailand in different organizations, especially the supercritical organizations, is satisfactory. However, the implementation needs to be accelerated so that a public announcement of the completion can be made.



All supercritical organizations have already prepared contingency plans for the millenium bug. Furthermore, the committee has ordered each ministry to finish its contingency plan preparation by the end of July 1999. The ministerial contingency plans will be compiled and used in developing the national contingency plan.

The measures to be taken to ensure even higher confidence are prepared as follows:

1. Setting up a working group to examine Y2K readiness, to survey and interview the progress of the Y2K remediation in specific departments, especially in Y2K-SOS which are in need special supervision or of which the committee lacks information.
2. Preparing to establish the National Y2K Coordinating and Public Disaster Mitigation Center to coordinate the implementation of the national contingency plan, to monitor as well as to provide correct information to the public, and to coordinate with other ministerial command centers.
3. Prepare the Y2K citizen handbook to provide the necessary information to the people all over the country to help them prepare for Y2K.
4. Prepare for the practical implementation of the Y2K law which has been approved by the cabinet in September 1999. This includes organizing seminars for public understanding of the law, the setting up of units to register the Y2K readiness information declared by those who have to comply with the law, etc.



Appendix 1. List of Super Critical Organsiations

1. The Electricity Generation Authority of Thailand
2. The Metropolitan Electricity Authority
3. The Provincial Electricity Authority
4. The Metropolitan Waterworks Authority
5. The Provincial Waterworks Authority
6. Petroleum Authority of Thailand
7. Ministry of Finance
8. Bank of Thailand
9. The Thai Bankers Association
10. The Stock Exchange of Thailand
11. Securities and Exchange Commission
12. Department of Insurance
13. Telephone Organization of Thailand
14. The Communications Authority of Thailand
15. Thai Airways International Public Company Limited
16. Airports Authority of Thailand
17. The State Railway of Thailand
18. Port Authority of Thailand
19. Ministry of Agriculture and Cooperatives
20. Department of Energy Development and Promotion
21. Aeronautical Radio of Thailand Limited
22. The Department of Aviation
23. Ministry of Defense
24. The Royal Thai Police Department
25. Ministry of Public Health
26. Bangkok Metropolitan Administration
27. Ministry of University Affairs



Appendix 2 The Y2K Mechanisms in the Public Sector

Currently, the overall structure of the Y2K problem solving hierarchy in the public sector comprises three main bodies at different levels, namely the National Y2K Coordinating Committee, the Ministerial Committee on Y2K, and the Y2K Center under NECTEC. Each body has its mandates and objectives as follows:

2.1 The National Y2K Coordinating Committee (Y2K-NCC)

The function of the committee is to scrutinize the major Y2K project plan and streamline all departments to complete the solutions successfully.

The main body is comprised of:

1. Deputy Prime Ministers
2. Minister Ministry of Science Technology and Environment
3. Permanent Secretary, Ministry of Science, Technology and Environment
4. Deputy Permanent Secretary, Ministry of Finance
- 5-19. The Chairman of each Ministerial Y2K Committee
20. The Bureau of the Budget
21. Office of the Auditor-General Office of Thailand (OAG)
22. Bank of Thailand
23. Office of the Prime Minister
24. Office of the Attorney-General
25. The Thai Bankers Association
26. The Federation of Thai Industries
27. The Trade of Thailand
28. The Association of Thai Computer Industry
29. The Computer Association of Thailand
30. National Electronics and Computer Technology Center

2.2 The Ministerial Y2K Committee

The function of this committee is to ascertain that the surveys on both Y2K problem solution and required budgets are sent to NECTEC every other month. The committee comprises representatives of all departments, state enterprises and NECTEC.

Missions and Mandates

1. Follow up and evaluate the procedures of the problem resolution.
2. Provide technical advice to affiliated offices.
3. Report progress to the Minister.
4. Cooperate with the coordinating committee.



Appendix 3 The Y2K Center

The Y2K Center and its responsibility

Thailand has been aware of the Y2K problem since 1996. The private sector was first to realize the potential severity of the impact caused by the millennium bug, and early on companies in the financial sector, especially major banks, started to explore, assess and implement solutions. At the same time, computer suppliers organized workshops and seminars in order to try to make their customers realize the importance of the problem. Their awareness program was relatively successful as several companies contacted them and started implementing solutions even though at the time some hesitated.

The public sector came to realize the problem a bit later although some departments with critical systems, such as the Department of Revenue and the Department of the Internal, already had started implementing a remediation plan. An overall awareness action program was started by The National Electronics and Computer Technology Center (NECTEC) through an awareness campaign in mid 1997. The campaign consisted of arranging workshops and seminars, and creating a Y2K club to foster the exchange of information about Y2K among its members. NECTEC published several documents regarding the implementation of solutions and best practices to alleviate the impact of Y2K. In addition, it conducted surveys in the public sector to assess the potential impact of Y2K. Several documents have been published to disseminate information about the solution and best practice in alleviating the impact. Because of the economic recession, the Budget Bureau and the office of the Auditor General were also involved to confirm these results and the necessary budgets were allocated. After a certain period of sensitisation, the National IT Committee (NITC), through NECTEC, proposed the Cabinet several measures to assist the government agencies in their implementation of a Y2K plan. Acknowledging the importance of the year 2000 problem, the cabinet took an important step on April 28, 1998 by endorsing NECTEC's requests and passing the following three resolutions:

- Every ministry has to establish a ministerial Y2K solutions remedition committee (Y2K-MRC) to assess and to work out solutions for the year 2000 problem..
- Each government department is allowed to re-adjust the FY1998 budget in order to be able to properly handle the Y2K problems and proposals for renovations prompted by these problems will be treated with priority. Each department facing Y2K problems must work out a proper budget request as soon as possible.
- NECTEC is appointed to be the Coordinating Center to provide information and advise government agencies on the year 2000 problem.

NECTEC is therefore formally assigned to be a coordinating body for Y2K. Later on, on June 23, the Cabinet reiterated the significance of the Y2K issue by establishing a National Y2K Coordinating Committee (Y2K-NCC) to be chaired by the Deputy Prime Minister. The main responsibilities of this Committee are to



establish policies on Y2K solution, to embrace supports for the public sector in solving the Y2K problem, and to collect information for the cabinet on the progress of the Y2K solution, etc. The Committee will also scrutinize the major Y2K project plans which may involve large investments. NECTEC has since set up a 'Y2K Center' as an ad-hoc organization to handle the assignments of the committee.

Duties and Responsibilities of Y2K Center

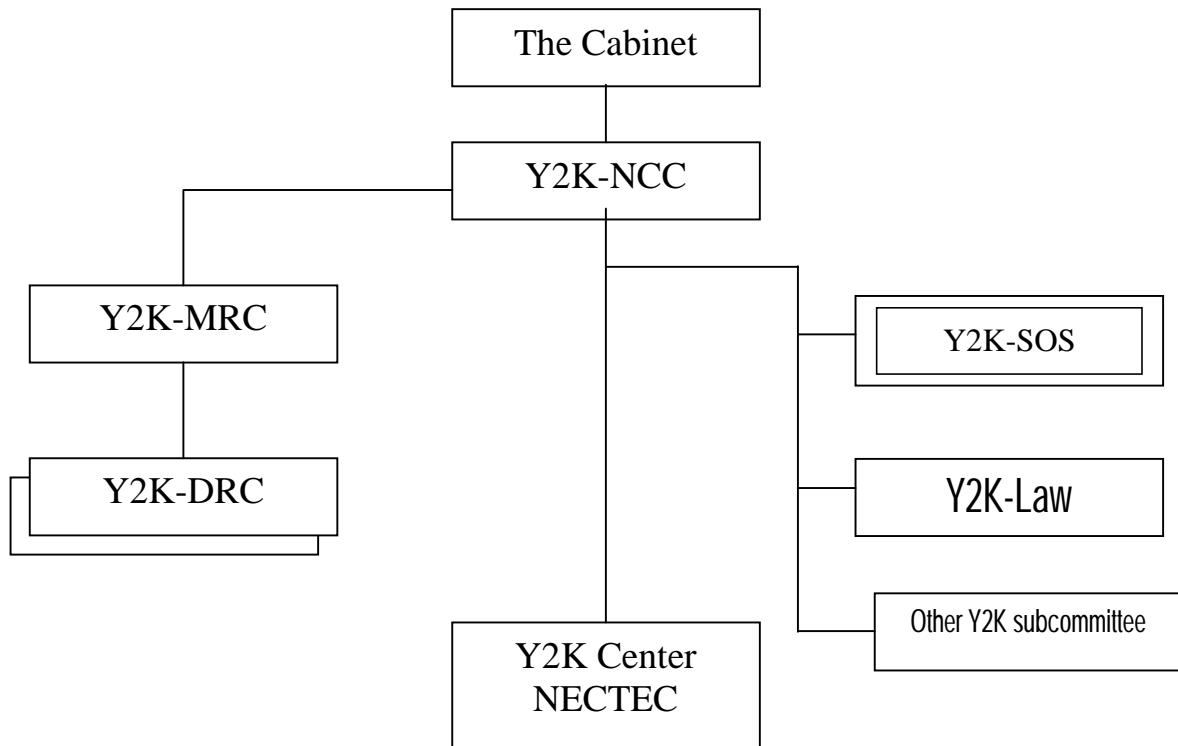
1. Responsible as a Y2K information center.
2. Follow up and evaluate the Y2K remediation plans of different ministries
3. Responsible as a resource center for Y2K tools and equipment for coordination.
4. Be a Y2K coordinating center between public and private sectors.
5. Organize meetings and seminars for raising Y2K awareness with the public.
6. Study, develop and promote standard methodologies in Y2K remediation.
7. Assist the public and private sector in Y2K matters.
8. Set up a hotline for providing information on Y2K matters.
9. Disseminate knowledge and understandings through website and other media.
10. Compile and assess data concerning Y2K of the government sector.
- 11 Report the progress of the implementation of Y2K solutions to the cabinet

E-mail : y2kcenter@nectec.or.th

Web site : <http://y2k.nectec.or.th>



Structure of the Y2K Mechanism in Thailand





Appendix 4 Thailand National Y2K Website

For those who enjoy surfing the internet, please visit the Y2K Thailand Website. If you feel that you do not thoroughly understand the Y2K problem, its importance and the remediation process, just click at <http://y2k.nectec.or.th> to find the answers.

This website is created and maintained by Y2K Center and the information is available in two languages: Thai and English. Its objectives are to provide information about Y2K and remediation to the public and to inform everyone about Thailand's progress.

Information presented in the website is on Y2K remediation in the government and private sectors. The website is separated into eight sections :

Y2K Center

This section provides information about the remediation plan and progress assessment which will be used as the guideline in government organization's remediation. It also contains a list of Y2K committees.

Y2K Services

This section shows personal Y2K remediation information services, a list of private companies which provide assistance different remediation methodologies, assistance systems from different websites, details about tools to solve software problems, BIOS examining management, and Y2K problem checking for embedded systems.

Y2K Tools

This section collects tools to solve software problems, including a remediation software developed by NECTEC in both 95 and 97 versions. You can download this software for your usage for free of charge.

Newsroom

This section presents news about activities and seminars already organized by Y2K Center.



Feedback

You can send your questions, comments, and suggestions here.

We have developed this website to collect information and news on the Y2K remediation of the important organizations; such as, the public utilities, so that you can check the progress of the country's Y2K remediation by yourself and adopt the remediation plan and tools for your own usage.
