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YEAR 2000 GLOBAL CORPORATIONS: WILL THE BUG BITE BIG BUSINESS

HEARING

BEFORE THE

SPECIAL COMMITTEE ON THE YEAR 2000 TECHNOLOGY PROBLEM UNITED STATES SENATE

ONE HUNDRED SIXTH CONGRESS

FIRST SESSION

ON

Y2K IMPLICATIONS AND PROBLEMS INTERNATIONALLY

JULY 22, 1999

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SPECIAL COMMITTEE ON THE
YEAR 2000 TECHNOLOGY PROBLEM

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Note: Responses to questions submitted by Chairman Bennett to Patrick M. Roberts were not received at the time the hearing was published.

ADDITIONAL MATERIAL SUBMITTED FOR THE RECORD

YEAR 2000 GLOBAL CORPORATIONS: WILL THE BUG BITE BIG BUSINESS

THURSDAY, JULY 22, 1999

U.S. SENATE,
SPECIAL COMMITTEE ON THE YEAR 2000
TECHNOLOGY PROBLEM,
Washington, DC.

The committee met, pursuant to notice, at 10:05 a.m., in room SD–192, Dirksen Senate Office Building, Hon. Robert F. Bennett, chairman of the committee, presiding.

Present. Senators Bennett, Smith, Stevens, and Dodd.

OPENING STATEMENT OF HON. ROBERT F. BENNETT, A U.S. SENATOR FROM UTAH, CHAIRMAN, SPECIAL COMMITTEE ON THE YEAR 2000 TECHNOLOGY PROBLEM

Chairman BENNETT. The committee will come to order.

We welcome you all to today's hearing, which deals with Y2K implications and problems internationally. We are going to hear not only from the State Department but also from global corporations, many of whom have a better understanding of what is going on in some of these countries than any one else.

The corporations that have provided us with witnesses today will play an instrumental role in sustaining America's economic strength and they have helped create a level of prosperity that is unrivaled in American history. The success of these companies is vital for our nation's continued economic growth on the world stage and we turn to them to ensure that adequate preparations are underway for the year 2000 technology problem.

The fates of the companies are linked in some fashion to the ever-changing state of international affairs and locating a business or a subsidiary abroad means becoming vulnerable to potential political, economic and infrastructure disruptions in another country. I know that firsthand from having owned and operated businesses overseas and having been caught in the currency devaluation problems that occur there, that are unfamiliar to those that stay entirely within America's borders.

Just as Y2K poses challenges to in our own country, companies overseas may be at risk of electric or telecommunications failures or to the snapping of critical distribution and supply chains that cross international borders. For these companies preparing for Y2K is a task that involves not only American know-how but also the efforts of overseas governments, subsidiaries, partners, vendors, suppliers and facility managers.

Now, the growth of global corporations has accelerated over the last three decades. In 1970, just before the advent of the microchip some 7,000 global corporations existed and today that number is 38,000. It is no coincidence that the number of global corporations has increased with the corporate community's increased use of high-tech information business systems. You can get information and money across national borders now with a keystroke at literally the speed of light.

Global corporations have always comprised an important thread in the complex web of global economic interdependence between nations. In many cases, American companies act as economic and cultural emissaries, expanding free trade and opening markets and spreading democratic values, bringing higher standards of living for working people across the globe.

The Information Age presents global corporations with unprecedented opportunities to build new international partnerships that are beneficial for the United States and its economic partners but the same high-tech systems that benefit many companies also contain inherent weaknesses. Instantaneous communications and just-in-time inventory, manufacturing and transportation systems are all vulnerable to the Y2K problem.

Assessments of the Y2K preparedness of the international community are numerous and they vary greatly, demonstrating the wide range of uncertainty that exists globally. For instance, the Global 2000 Coordinating Group, which is comprised of the various members of the global financial community, who have joined forces in an effort to address the Year 2000 challenge have developed the assessment that is contained in the chart that we see. And those who have seen earlier charts will see that the number of countries that used to be all red are now fortunately green and yellow and there are a few places that used to be green that are now yellow that gives you some concern.

I am interested that the United States, which used to be considered all green, now has three yellow areas in it. I do not know quite what has caused that but that demonstrates the fluctuating nature of this one group's area of evaluation. There is only one country there that is red all the way across and those of you who cannot see it and squint, I will save you the responsibility of trying to get up close to the chart, that is Russia. China used to be given the same all red evaluation but in the latest update they have changed China to a combination of amber and green.

Well, because of the uncertainties of these evaluations, major shareholders in the global economy must assess their options and establish realistic and practiced Y2K contingency and business continuity plans. In many cases, those continuity plans are as important as anything else. The clock says 162 days, 13 hours, 49 minutes and 31 seconds. So, that ticks off at every hearing we have and demonstrates there is much work to do.

I am sorry that I cannot stay for the entire hearing but Senator Smith, who has the responsibility within the committee for examining the state of readiness in the business community, is going to serve as the chairman and I am very grateful to him for his willingness to do that and the expertise that he brings as a businessman to understanding all of this.

The companies that are represented here today have exemplary Y2K programs. They have established themselves as leaders in this field and the committee is grateful to the witnesses and to their companies in their willingness to address the problem.

We had one company that we were expecting to hear from. Unfortunately they have had scheduling problems and will be unable to testify in person. That is McDonald's. People perhaps do not realize the degree to which McDonald's operates internationally. They have 24,500 restaurants in 115 countries. And they were unable to get a witness at a proper level to appear before us today but they have offered to testify at a future date and we look forward to receiving their testimony, as well.

With that, I am happy to turn the gavel and the hearing over to Senator Smith who will conduct today's hearing.

[The prepared statement of Chairman Bennett can be found in the appendix.]

Thank you.

STATEMENT OF SENATOR GORDON SMITH, A U.S. SENATOR FROM OREGON

Senator SMITH [presiding.] Thank you, Mr. Chairman.

Good morning to all of you and I welcome you as well to today's hearing on the Year 2000 challenges facing our global corporations.

As one who has engaged in international commerce I do understand the impact that our international economy has on our national boundaries. Today very few countries are economically self-sufficient without the presence of global corporations. Global corporations are among the world's biggest economic institutions. A rough estimate suggests that the 300 largest global corporations own and control at least one-quarter of the entire world's productive assets.

Global corporations' total annual sales are comparable to or greater than the yearly gross domestic product of most countries. Though based predominantly in Western Europe, North America, and Japan, global corporations' operations span the globe. Global corporations face many of the same issues as domestic companies, such as maximizing profits, meeting customer demands and adapting to technological change.

Global corporations must also stay current with trends and events in the various countries where they operate. All nations are tied into a global economic interdependence. International trade consists of a broad array of commercial interests and relationships that involve most products and service sectors.

These, in turn, rely on a global web of critical services. Disruptions in the relationship among suppliers and customers abroad can seriously affect the well-being of individual companies, specific industry sectors, and international economies, as well.

As our committee has examined in the past, many important components of the international trade system are highly computerized, interdependent and very sensitive to the Y2K-date-related changes. The most important components of the infrastructure are energy production and distribution facilities, transportation modes, communication channels, and financial networks. Breakdowns in any part of the trade support structure could slow or halt ship-

ments of key components needed to keep factories working, hospitals functioning, food in a continuous supply and people employed.

As of today there are only 162 days remaining until January 1, 2000, as the chairman has noted. With this in mind, I want to stress the impeachable of ensuring the participation of executives at all levels of business and government in planning for such an event. This problem will not simply go away. Each of us must do our part to make certain that the Y2K problem is adequately addressed.

As we work together I'm sure that we will develop a greater understanding of this problem and forge effective solutions. It is our cooperation which will bring us together and allow us to reach our final goal. I would like to welcome all of the witnesses who are before us today.

We are particularly pleased to have representatives from Fortune 100 companies who are household names to all of us. Your willingness to step forward in this forum to testify on this critical issue affecting your business and the global economy is very commendable and we thank you for that.

I am very pleased to be joined by Senator Richard Lugar from Indiana and the vice chairman of this committee, Senator Dodd of Connecticut.

Senator Dodd, I have just given an opening statement. Senator Bennett has before he departed.

Vice Chairman DODD. Well, I will just take a minute or so, if I can. Thank you very much. Have you already had an opening statement?

Senator LUGAR. No.

Vice Chairman DODD. Why do you not go ahead. No, no, please do, and then I will collect myself here. I just walked in the door. I apologize.

[The prepared statement of Senator Smith can be found in the appendix.]

STATEMENT OF SENATOR RICHARD G. LUGAR, A U.S. SENATOR FROM INDIANA

Senator LUGAR. Well, let me just express appreciation to Chairman Bennett and to you, Chairman Smith and to Vice Chairman Dodd. As I have read the testimony it appears once again that the hearing is timely, that the groups that are coming before us today are extremely important in the solution but, that as is often the case, many are aware of the problem and do not want to alarm either their clients, their customers, their government or elsewhere. The fact is that all of us are still groping with uncertainty and hoping that the proper connections are made. But certainly the consequences for the assets, the sales, the jobs that are involved today are very, very substantial and much, because of the nature of this hearing, is not dependent upon things that we do in this country alone.

And, so, at least the profile of the hearing to indicate the importance of this to the American Government as well as to American corporations and their multinational aspects is extremely important. Now, we always learn a great deal from the hearings, but I

am hopeful that the focal point of the hearing will simply be once again to raise the fact that this is important.

What we found in the hearing of the committee last week at another end of the spectrum with State and local governments is that many local governments have not yet begun to prepare. Many of our constituents of those local governments are not convinced that there is a problem. That will not be the case in the hearing today but it is a fact that people have varying degrees of seeing that this is a problem, enormous ranges of expenditures, which may indicate how seriously they think the problem is being met or that they should meet it, and at some point there will be a reckoning.

I made the point last week as a former mayor and local government official my guess is a good number of mayors are going to be surrounded by their constituents and they will be unhappy, because at the local level people take systemic failure very poorly, and hold somebody responsible. My guess is that will occur with major United States corporations that as sales fall off, as people cannot be found, as the distributions that are unforetold occur, that this will have ramifications for people and responsibility as well as for jobs.

So, I appreciate very much being a part of the hearing and your calling, Mr. Chairman.

Senator SMITH. Thank you very much, Senator Lugar.

STATEMENT OF HON. CHRISTOPHER J. DODD, A U.S. SENATOR FROM CONNECTICUT, VICE CHAIRMAN, SPECIAL COMMITTEE ON THE YEAR 2000 TECHNOLOGY PROBLEM

Vice Chairman DODD. Thank you very much, Mr. Chairman.

In the last couple of days I have spent a lot of time with my colleague from Indiana. We appeared yesterday before the Senate Foreign Relations Committee talking about reforms of the sanctions regimes, unilateral sanctions and the like, and the deleterious effect that the sanctions regime can have on the United States and on businesses, industries, particularly the agricultural sector of our society, which I know both of my colleagues, the chairman here this morning, Senator Smith, who and Senator Lugar have a particularly high awareness of and are sensitive to. In a sense those are situations where by our decisions we create dislocation. Because we impose sanctions, sometimes for good reason, but not fully appreciated in understanding the implications and ramifications.

What we are talking about here, in a sense, is an accident that I suppose could have been avoided had people thought about more intensely about 10 years ago and that is this Y2K bug issue. But in a sense, failure to address the question could have the similar kind of repercussions internationally.

As Senator Lugar has pointed out, we had a very good hearing last week talking about the impact of the Y2K issue at the local level, the small cities and towns, large cities in this country and elsewhere, where the effects of a failure will be most directly and immediately felt by people across the country. If their 911 number does not work, the water system does not work, the sewage system does not work, the traffic lights do not work, that is where you are going to feel it right away.

To an extent, this morning we are going in the other end of the spectrum from a small town in Indiana, Oregon or Connecticut, to a large corporation that does business all over the world. And to that extent, I think this is a very worthwhile hearing and I am very interested in hearing what our witnesses have to say because of the responsibility, as Senator Lugar has just pointed out and I am sure Senator Smith did as well, of these large companies with incredible capital hardware, real estate, cash, to expand and maintain a presence in multiple nations all across the globe, have a heightened degree of responsibility of addressing this issue.

There is a significant potential, obviously, for cascading failures. When you talk about the larger the entity is, a large utility, obviously, can have a profound effect. Well, certainly in a global corporation that can be the case as well.

Imagine, if you would, a multi-million dollar holding company that manages the supervisory operations of multiple business entities around the world. Think of the ramifications if a business like this falls victim to an internal problem which from the top down creates a spiraling deluge of secondary problems. The cumulative effect would be overwhelming and that is precisely why we decided to hold this hearing this morning.

We are interested in learning where Y2K problems may be manifested and to what extent these corporations have inoculated themselves against Y2K malfunctions. The corporations are among the world's biggest economic institutions. A rough estimate suggests that 300, the 300 largest global corporations own or control at least one-quarter of the entire world's productive assets. It is a stunning statistic, 300 of the largest global corporations.

Though based predominantly in Western Europe, North America and Japan, global corporations span the entire earth and account for sales revenues that are comparable to or greater than the GDP of more than 50 percent of the world's nations.

Last year revenues derived from goods and services sold outside the United States by the top 100 multinationals increased by 5 percent to $958 billion, while overall revenues totaled $2.5 trillion.

Today few, if any, countries are economically self-sufficient. Everyone is shipping parts to everyone else. Microprocessors built in Arizona or California are shipped to Hong Kong for installation in a computer system that manages point-of-purchase operations in a manufacturing company in Buenos Aires.

The ever decreasing costs of communications, combined with an ease of transportation has encouraged global corporations to conduct business with organizations in other countries as easily as one farmer traded his produce for goods in town at the beginning of this century.

Each of the largest global corporations utilizes thousands of critical suppliers, many of whom are located internationally. As a result, the global corporation must ascertain the Y2K compliant status of each of its critical suppliers to ensure that day-to-day operations are maintained. This can be a daunting task and I am sure it has been, as we will hear.

The interconnectivity of any business that utilizes computer systems, whether internally or via many relationships that are maintained among business entities, is where the real risk lies. Inter-

dependencies exist on so many levels that it is almost impossible to tell where or when problems in one area could surface in another.

Global corporations, because of the international relationships they must maintain, are expressly threatened by a date-related computer malfunction. The very nature of these organizations, with their myriad interdependencies among suppliers, shipping organizations, ports, financial institutions, manufacturers, leaves them particularly vulnerable, in my view, relative to smaller enterprises which maintain few business relationships.

In addition, the international trading system, with its complex web of distributors, customers and transportation links, is supported by a critical infrastructure of products and services. The most important components of the infrastructure are energy production and distribution, facilities, transportation modes, communications channels, and banking institutions. These sectors are highly computerized and interdependent as well and are particularly sensitive to dates for the smooth exchange of goods and services.

These characteristics render them especially susceptible to Y2K-related problems. Breakdowns in any part of the trade support structure could slow or halt shipments of key components needed to keep factories and industries working, hospitals functioning, food in continuous supply and people employed.

So, Mr. Chairman, again, this is a very worthwhile hearing this morning. I am very, very interested in hearing where our larger corporations think we are. Tomorrow I will be participating, along with Senator Stevens and Senator Byrd, at a conference in West Virginia, an intraparliamentary meeting with our counterparts in Great Britain for 2 days. And I have been asked, in fact, to lead a panel on the Y2K issue and, so, I will be very interested in hearing this morning what people have to say to share with a critical ally of ours and a major partner in the G–8 where they think things are. And, obviously, the information you share with me this morning could be valuable.

I am particularly pleased to recognize Mr. Krichbaum of Connecticut, my constituent, who is here with us who is the Director of the Year 2000 Project for Praxair, Incorporated, in Danbury, Connecticut, which is the largest producer of industrial gases and maintains a market presence in more than 40 countries. And I am pleased to have him before the committee on a later panel.

Thank you, Mr. Chairman.

[The prepared statement of Vice Chairman Dodd can be found in the appendix.]

Senator SMITH. Thank you very much, Senator Dodd.

Our first panel will consist of Ms. Jacquelyn Williams-Bridgers. . She has been before us before and her testimony was very valuable then and so much so, we have asked her to come back and speak to this particular aspect of the Y2K problem.

Welcome.

STATEMENT OF JACQUELYN L. WILLIAMS-BRIDGERS, INSPECTOR GENERAL OF THE DEPARTMENT OF STATE, AND THE BROADCASTING BOARD OF GOVERNORS

Ms. WILLIAMS-BRIDGERS. Thank you very much, Senator Smith, Senator Lugar, Senator Dodd. I thank you again for the opportunity to come before this committee on global readiness for millennium change. International trade, with its interdependent web of suppliers, distributors, service providers, and customers, relies on an efficient interface of infrastructure components such as financial organizations, telecommunications networks, transportation systems and energy supplies, just as Senator Dodd has articulated. Any disruptions in this infrastructure and connections between suppliers and customers will affect the vitality of the international trade system, as well as national and regional economies around the globe.

At the March 5 hearing of this committee on international Y2K issues, I provided an overview of global Y2K readiness. My message to the committee at that time was decidedly mixed. Industrialized nations were well ahead of the developing world, however, some were at risk of having Y2K-related failures because they got a late start at the national leadership levels and because they were heavily reliant on computer technology in key sectors.

Developing countries were generally lagging behind and were struggling to find the technical and financial resources to attend to Y2K problems. Former Eastern bloc countries were late in getting started as well and were generally unable to articulate to us where they stood in terms of Y2K remediation.

Today, with less than 6 months to go before the date change, my message is still quite mixed but much more optimistic. Approximately one-half of the 161 countries assessed have a medium or high risk of having Y2K-related failures in their telecommunications, energy and transportation sectors. Industrialized countries are generally at low risk of having Y2K infrastructure failures, particularly in the finance sector.

Approximately two-thirds of the countries in the developing world have a medium or high risk of experiencing Y2K-related failures in the telecommunications, transportation and/or energy sectors. Similarly, key sectors in countries that comprise the newly independent states and the former Eastern Bloc countries have a relatively high probability of Y2K failure.

These assessments suggest that the risk of disruption will likely extend to the international trade arena, where a prolonged breakdown in any part of the supply chain would have a serious impact on the U.S. and world economies. In light of all of this, the challenge now facing the United States is to encourage and facilitate contingency planning by individual countries, by regional partnerships, and through international organizations, such as the U.N.

The State Department has implemented measures to assess Y2K readiness of all countries where the U.S. has a diplomatic presence. Efforts are underway to ensure that such information will be disseminated to Americans traveling, working and residing abroad. Nearly all embassies have completed their host country assessments and developed contingency plans for embassy operations and delivery of American citizen services.

Next month, the Department plans to notify host country governments of our concerns about Y2K problems in-country and in September, the Department plans to begin issuing Y2K notifications to the American public. Over the past 2 months, my office has continued our direct engagement with host country government representatives and private sector representatives in-country on international Y2K issues. We have also analyzed 161 host country infrastructure assessments submitted by our embassies.

I brought along today certain charts to demonstrate where we have determined that there may be varying risks of computer systems failure in five key infrastructure sectors that will affect international trade, as well as all other aspects of life. Our analysis reflects the status of 39 industrialized nations, 24 countries in the former Eastern bloc and the newly independent States, and 98 countries in the developing world.

[The charts referred to can be found in the appendix.]

Ms. WILLIAMS-BRIDGERS. Please direct your attention to chart one. In our charts blue indicates the number of countries that have a low-risk of failure for a particular sector; yellow indicates a medium risk and red is high-risk. So, in our charts the blue is the good area, that is where you want to be.

Worldwide the finance sector is at a lower risk of Y2K failure than telecommunications, transportation, energy and water. About two-thirds of the 161 countries assessed have a low-risk of failure in their finance and waste-water sectors. The finance sector is particularly vulnerable because of its reliance on energy and telecommunications sectors where, in more countries than not, there is a medium-or-high-risk of failure.

Chart two shows industrialized countries. They generally have a low risk of Y2K-related failures, particularly in the finance sector. About one-third of these countries were reported to be at medium risk of failure in the transportation sector with nearly as many countries facing a comparable risk of failure in their energy and water sectors.

The U.S. Department of Commerce identifies Japan as the largest supplier of U.S. professional and technical, scientific equipment and machine tools, and the third largest export market for U.S. goods. Although Japanese officials have acknowledged to us that they are confident to us that all critical sectors will be Y2K compliant by the end of the year, they are concerned that their late start may hamper their ability to thoroughly address the Y2K problem. However, we were quite gratified to find that the Japanese had been working quietly toward compliance to a much greater extent than had been reported in the popular press, and that they were providing more information in English.

Korea is the home of one of the world's busiest airports and, thus, a critical link in the international trading system. With the exceptions of banking and telecommunications, the public and private sectors in Korea got off to a very late start in addressing Y2K. Although both the government and the private sector organizations are reporting remarkable progress in remediating and testing their systems, we are concerned that their late start and the economic recession may hinder their ability to do a thorough job of testing and remediation.

Taiwan is one of the world's largest suppliers of information technology and telecommunications equipment. Taiwanese authorities and large business enterprises have made a great deal of progress in addressing Y2K. During our visit to Taipei we were told that key parts of the infrastructure appeared to be in compliance or close to it. However, Y2K readiness of small-and-medium-sized companies in Taiwan as well as small medical facilities remains a big question for us.

In chart three, we are showing that there is a much higher risk of Y2K-related failures in developing countries. Over one-half of developing countries have a medium or high risk of Y2K-related failure in telecommunications, transportation, and/or energy sectors. However, a relatively low level of computerization in key sectors of the developing world may reduce the risk of prolonged infrastructure failure, given that these countries will probably revert to manual operations.

Some issues facing the developing countries: India reports that Y2K readiness in the last 6 months has made substantial progress, especially in banking, finance, civil aviation, and telecommunications. But nowhere is the Y2K process complete in India, and contingency planning has barely begun.

In Vietnam, there is a very low-level of computer use and a relatively low threat of Y2K failure. It was difficult to obtain information from Vietnam as the government keeps the information very close.

Our last chart shows the least amount of blue. We found that more than one-half of the 24 countries including Russia and the former Eastern Bloc, face a significant risk of Y2K failure in almost every sector. In Russia, the nuclear sector reports that all safety systems are Y2K compliant and provisions are being made to ensure that backup power will be available. Plant computer systems may have undiagnosed problems that could force a shutdown of their nuclear reactors. But we expect safety systems may work as needed.

The picture I presented here suggests that the global economy is likely to experience some Y2K failures in every sector, every country, every region. As such, Y2K-related disruptions in the international flow of goods and services are likely to be affected but no one knows exactly when, where and to what extent such disruptions will occur.

A leadership role by the Department of State to facilitate contingency planning is much needed. A lot of work is underway around the world developing contingency plans for continued functioning of governments, of infrastructures, of businesses, and supporting organizations within individual countries. However, little is being done to consider the potential supply chain disruptions around the globe and how they should be handled.

With assistance from other Federal agencies, the Department of State may be able to leverage the efforts of international organizations that already have active Y2K outreach programs by promoting a global approach to Y2K contingency planning.

At this stage, it would be prudent and realistic to recognize that Y2K-related failures are inevitable both here and abroad. As such, the efforts of the Department of State and other international orga-

nizations will be instrumental in minimizing the impact that Y2K may have on the global community.

This concludes my short statement.

Thank you very much for allowing me the extra time. I would be pleased to answer any questions that you or members of the committee may have.

[The prepared statement of Ms. Williams-Bridgers can be found in the appendix.]

Senator SMITH. Thank you very much. We are very pleased to be joined by Chairman Stevens and Senator Stevens, if you have any opening comments or——

Senator STEVENS. No. I have got a bill on the floor, I just dropped by to see how things were going.

Thank you very much, Mr. Chairman.

Senator SMITH. Very good.

You mentioned that Vietnam is not being forthcoming with information. Are there other countries that are just not taking this seriously or not participating or do not take seriously the outreach we are trying to provide to other countries?

Ms. WILLIAMS-BRIDGERS. I think there are more countries asking for outreach than we would be able to realistically extend in terms of technical assistance, financial assistance, and the like. I think increasingly national governments are recognizing the need to pay attention at a national level, in a very organized fashion to address Y2K.

Once you get below the national levels of government, and move into local and regional sectors, I think that is where we need to begin focusing our attention to ensure that organizations operating at the local and regional level are paying adequate amounts of attention.

Senator SMITH. You testify as to the readiness of ports and shipping interests. And I wonder if you can speak to the Panama Canal and what is being done there to facilitate Y2K readiness?

Ms. WILLIAMS-BRIDGERS. Sure.

When we visited the Panama Canal in September 1998, we were told by Panama Canal officials that they would probably shut down the canal in anticipation of potential Y2K-related systems failure by ships passing through until officials received certifications from the ships that they were Y2K compliant. This will reduce the chance that ship in the lock would disrupt the flow of the other ships.

However, in April of this year, the canal officials we are told advised that they had issued a message to all shipping agents, operators and owners notifying them that prior to their entry into the canal they must submit documentation as to their Y2K compliance. Therefore, the canal officials will have some assurance that there will not be a disruption of the flow of traffic through the canal.

Senator SMITH. Senator Dodd?

Vice Chairman DODD. Thank you.

Thank you very much.

A couple of things. One, I noticed that China is not on the list here, and nor is it on the Gartner Group list and when you take China and India, Malaysia, you start getting about three-quarters of the world's population and if you look at—I am sorry, China is

on the Gartner Group, I apologize. Well, it is not on yours, though. Can you share with us what your assessment on China?

Ms. WILLIAMS-BRIDGERS. Our team has not been to China yet and that is why at this point in time we did not include China in our testimony. We anticipate going to China in the near future. Our trip was delayed by recent political events with China; however, we anticipate going within the next 2 months. Our embassies have begun collecting assessments but our methodology has been to look at the embassy assessments of host country government readiness and also to have conversations directly with host country governments and business representatives so that we can get a more comprehensive sense of the readiness of the country.

Vice Chairman DODD. China—I missed it—but it is number 37 on that issue. You, obviously, cannot see it from where you are. But shows that they have a color-coded system of showing green if you are in good shape, amber or yellow is a call that indicates that improvement needed and the adequacy of current public information and so forth. It is not bad but it is still short with 162 days to go. Red shows you have got some real problems. Black indicates we do not have any information. So, China is all yellow and red. It has got one sector in red, the energy sector.

Under your charts, well, under this chart, as well, sticking with the Gartner Group for a minute, they have got Malaysia is in pretty bad shape, according to the Gartner Group as they look at it. And you go down the list here. Some of them are worse. Russia, of course, is in very bad shape as they indicate it and show it on their list.

One of the issues that gets raised a lot is the independent review. To what extent did your assessment rely on government officials sort of reporting this or did you rely on any outside assessment of these assessments being made?

My experience, having been in several of these countries, is that there is very little independent review. They are drawing conclusions from people within their own departments, and no one wants to pass along bad information so you get a pretty good report at the top and no outside group comes in and makes an assessment.

What did you find?

Ms. WILLIAMS-BRIDGERS. Your conclusions are aligned with our findings. Our site visits generally included where we have visited countries we have not only met with host country government officials, but we have also met with business representatives. We have read open source materials. We have read the media. As a standard practice we have met with American Chambers of Commerce there and here before we leave. So, we try and get as much information from as many different sources as possible.

Senator Dodd, I would like to make another point about the differences in the risk assessments of Gartner Group, Global 2000 and my office. Our assessments are a little more optimistic than both Gartner Group and Global 2000. However, I think what we are saying is quite consistent, simply stating that we cannot rest on our laurels now.

If you were to use a rating system of pass-fail instead of a rating system of medium or high risk, your systems are either compliant and they will be functioning after January 1 and you pass or they

are not compliant. If you have no assurance through testing, or through completion of all the remediation phases, then you have to work with a level of uncertainty.

I think that both Global 2000 and the Gartner Group would agree that it is prudent, and appropriate for us to focus our attention on contingency planning in those areas where we anticipate that Y2K testing and remediation will not be completed in a timely fashion to give us the types of assurances that businesses will be able to continue, that governments will be able to continue to function and that life-support systems will continue to operate after January 1.

Vice Chairman DODD. Did you use any outside consultancies in your assessments or was it all done internally?

Ms. WILLIAMS-BRIDGERS. All of our host country government assessments were done with internal staff.

Vice Chairman DODD. Two more quick questions, if I can.

One has to do with the European Union. In Europe, there is no, as I understand it—you correct me if I am wrong—but based on my conversations in Europe on Y2K is it is done country-by-country.

Vice Chairman DODD. The European Union, itself, has not taken on the responsibility of trying to have some sort of a Union approach to the Y2K issue. So, it is being left to each country to do its own remediation and contingency planning and the like. And, yet, obviously, there is a lot of interdependency there.

What is your assessment of that?

Ms. WILLIAMS-BRIDGERS. I am not familiar with efforts by the European Union specifically but what we have seen is not as much regional cooperation, not as much of the international cooperation as we think is necessary in order to provide assurances that the interdependencies that you refer to are adequately addressed.

That is why we are calling for the Department of State to work with international organizations that have already engaged on a regional basis across national boundaries to facilitate that type of discussion.

Vice Chairman DODD. Has there been any regional assessment in Europe that you know of? I know each country is looking at it, but I mean has there been anyone that has looked at this and said that despite France's assessment that it is in very good shape, the Gartner Group has it in good shape, for instance, that the utility structure, the grids and not every country is in the same, even by its own assessment, in the same shape, that from a regional perspective among the highly, at least the most highly industrialized countries is a problem, do you know?

Ms. WILLIAMS-BRIDGERS. I do not know if there has been a regional assessment conducted by the European Union. I do know that within certain professional organizations, such as the International Maritime Organizations, which have memberships that represent owners and operators, that represent underwriters for hull insurance companies that provide institute for hulls and machinery, and for insurers of cargo and cargo containers that are in ports and terminals and the like, that they have done those type of international assessments but I am not certain of the European Union.

Vice Chairman DODD. Last, I just am curious. In the less-developed countries one of the States, someone said about Russia—I do not have this quite right—but that you should not worry too much because it was never a question of them being, having reached a level of sophistication and, so, the Y2K issue is less of a problem. Now, I think that is somewhat facetious because, obviously, they were.

But as soon as you start talking in Africa, for instance, I saw a stunning statistic yesterday. The city of New York has 7 to 8 million people, and it consumes more energy on an annual basis than the 780 million people do in all of the continent of Africa in a year.

To what extent does the lack of development in these countries, in the underdeveloped countries, pose less of a problem, to the extent they are still using pre-computer methods for moving goods and services and the like.

Ms. WILLIAMS-BRIDGERS. Certainly in those countries which are less dependent or have only recently become acquainted with the use of computers their risk of Y2K-related failures is much less because they can easily revert back to manual operations.

However, in Africa, our concern there is that 76 percent of the sectors are facing a medium-to-high-risk of Y2K-related failures. Seventy-six percent of the energy sector and all other sectors depend on energy. There is a huge humanitarian concern, also, for aviation and for those interfaces that the American traveling public or anyone else traveling through Africa, South Africa, Johannesburg, is a major hub for air traffic, then we have concerns about their inability or the status of their compliance for Y2K.

Vice Chairman DODD. Very good.

Thank you, Mr. Chairman.

Senator SMITH. Thank you.

Senator Lugar?

Senator LUGAR. Thank you very much, Chairman Smith.

Ms. Bridgers, in your statement you discuss on page 11 our Y2K assessment suggests that the global community is likely to experience some Y2K-related failures in every sector, country and region. That is an awesome statement on the face of it. Every, single sector, country and region, some degree of failure.

So, the logical point then is, as you mentioned, work is underway around the world developing contingency plans to ensure continued functioning of governments, quite apart from businesses and so forth.

It just simply strikes me that—and I do not doubt that there are lots of contingency planners doing this—but there are several levels of this. For example, with our own government maintaining some type of communications with our embassies or with our people that is not for certain. That, at least, is a very specific way in which the State Department can try to work out these levels, backups, physically how people move and see each other if they cannot communicate electronically or telephonically.

But the reason I raise the question in this way is that it appears, at least to you and I think this is a correct assessment, looking at it from the standpoint of the U.S. Government, that these failures are going to be legion. You can have charts that you are sort of

halfway getting there or mostly getting there or not getting there at all but, nevertheless, it either works or it does not.

Ms. WILLIAMS-BRIDGERS. That is correct.

Senator LUGAR. And the point it seems to me that we discovered when we were talking about Russia earlier on was let us say that as the Russians were protesting 6 months ago but are not saying so now, that they did not have that many computers, and now they have discovered that they have quite a number.

And if the grid system supplying power to the businesses fails in parts of Russia it is not the same as failing in New England. The New England failure probably can be covered by technicians, others who come in. So, that the pause might be several hours or hopefully not several days. But at least it is within the reckoning of sort of a closing circle of people who are available.

But do we have any idea, just physically, how any of these systems get fixed in other countries? Take Russia, for example, it is not at all clear that there are a lot of technicians or other people who understand the power grid system of Russia sort of floating around from one province to the next. In other words, there could very well be weeks of gap for people and untold suffering under those situations.

And it seems to me from the State Department standpoint this is the kind of analysis that needs to be made because it will, obviously, affect the people who are involved in a humanitarian way. But it is likely to affect much more than that in terms of our foreign policy and what is going on in those countries, the kinds of pressures on their governments from people who are not being served or who are in enormous distress or if there are CNN pleas for help now, they will be manifest, every 15 minutes, another emergency that Americans will be called upon to meet, American engineers flying over to try to fix somebody's grid system.

In other words, I would not say that there is a casualness about this planning but it seems to me far more relaxed than I would have anticipated, given the predictions you are making, that in every country, every sector, every system there is going to be failure.

Now, granted we cannot pick and choose in advance which ones and sort of get ready for those but there may, if this is proportional, be so many that our contingency plan, at least on the United States level, will have to involve a lot of travel, a lot of people, a lot of technicians——

Ms. WILLIAMS-BRIDGERS. Yes.

Senator LUGAR [continuing]. As we fix up our own situation, so, that our own Government can be supported and our own businesses can be supported.

Ms. WILLIAMS-BRIDGERS. Yes.

Senator LUGAR. And absent that, extraordinary tragedies.

Ms. WILLIAMS-BRIDGERS. Yes.

Senator LUGAR. Now, clue me in as to where the planners are? How big of a plan is this? And how much of it will be made available? I mean what kind of safety net assurance is there of what is going on?

Ms. WILLIAMS-BRIDGERS. Thank you, Senator Lugar.

I would be glad to try to respond to your many concerns. I think our overall assessments based on our work to date reflect the magnitude of the problem, the complexity of the problem, the lack of knowledge that we had about the computer systems, the interfaces, our interdependencies within country, between countries and within regions of the world.

I think the approach that the Department of State has taken to try and educate ourselves about this very complex network of computer systems has been a very reasonable approach. It has been a very well-thought out approach.

Let me begin by talking a little bit about what the Department has done. They began by asking their embassies in a very well-laid out, methodical survey, to assess host country government preparedness in every sector that we have discussed today and all aspects of operation within-country. This was a massive data collection effort.

Quite honestly, our diplomats overseas are not technicians. They do not and should not be expected to have the technical expertise to render these kinds of assessments. However, these are judgment calls that not only our embassies are making based on the information that they are collecting but, quite honestly, they are judgment calls of host country government officials about where they stood at points in time over the past year.

Once all that information was collected, it was then combined that with information that we had collected, from other sources, and other government agencies that had conducted similar data collection efforts. We are now in the process of compiling a massive data base that the intelligence community is analyzing for us.

I think that the efforts that the department now has underway to build a response capability and information collection system where information will be coming in from our embassies as the clock rolls over will be the true test for the U.S. Government. Having agencies and all representatives of the departments' bureaus centrally located to collect that information on a 24-hour basis from our embassies addressing questions such as: Where do you stand now? Is the water running? Are the lights on? Is electrical energy being supplied?

The embassies between now and the end of the end of the year are developing and implementing contingency plans that they soon will be testing. Everyone will know how to react should there be any failure or catastrophic failure over several of the sectors.

With regard to Russia, I think we are learning much more about Russia and the electrical power plants in Russia, and the nuclear power plants that supply the electrical power grid. The Department of Energy, as I understand, has just recently surveyed the four different types of nuclear power plants in Russia and is getting much more specific information about how they operate.

The Department of Energy has been engaged in a very focused initiative, as you may know, with Russia and the Ukraine and Eastern European bloc nations to educate them, provide technical assistance, and to bring them back here to the United States so that they can see how we are going about developing our contingency plans in our nuclear power plants.

I think this is an example of very good cooperation that is greatly needed around the world and in different sectors.

Senator LUGAR. Well, just to test this out a little bit more. You mentioned you can do things manually. In other words, the computer fails and you can use pen and pencil. You can carry your papers down the hallway instead of doing e-mail. So, there are ways, I suppose as rudimentary as they are, that bureaucracies can continue.

But then you isolate this into the power grids, into telecommunications?

Ms. WILLIAMS-BRIDGERS. That is correct.

Senator LUGAR. In other words, these are things beyond the capability of the person physically to manipulate.

Ms. WILLIAMS-BRIDGERS. That is correct.

Senator LUGAR. Or to go and see somebody, it is systematic failure.

Ms. WILLIAMS-BRIDGERS. We are quite concerned about disruption of generation and transmission of electrical power in Russia, specifically. The Department of Energy, based on its assessments, believes that there are adequate backup systems right now for generation of electricity in the nuclear power plants. However, if the monitoring and processing systems for the nuclear power plants fails for more than several hours, and if the excess electrical power generating capacity fails then we are facing safety concerns. We are facing failures that are going to be very, very difficult to deal with.

So, you are quite right, in some sectors we cannot simply flip back to manual operations but what is most important for us to do now is to plan for contingencies, to plan for systems failures, and how to define we respond to a crisis situation should it occur?

Senator LUGAR. Mr. Chairman, let me just make one more point.

Senator SMITH. Sure.

Senator LUGAR. My understanding is that essentially the DOE has focused on safety as opposed to operations. There is a big difference. You know, we really cannot resolve that here today but we have been concerned really about blow-ups——

Ms. WILLIAMS-BRIDGERS. Yes.

Senator LUGAR [continuing]. About a horrible situation, as opposed to the mundane but very essential things, in terms of individual people in Russia or elsewhere. And I am not certain we are going to get beyond that in terms of the contingency plan.

Now, I may be wrong, but that is why I raise this openly. It seems to me we may be giving an impression that is too optimistic. Safety is one thing so that we do not have a nuclear event.

Ms. WILLIAMS-BRIDGERS. Yes.

Senator LUGAR. But operation is something else, getting the thing running, so it heats houses.

Thank you.

Ms. WILLIAMS-BRIDGERS. Thank you.

Senator SMITH. Thank you, Senator Lugar.

I believe I heard when this committee first began holding hearings that the Russians generally were viewing Y2K as an American plot to get them to buy more Western or U.S. equipment. From your testimony today that clearly has changed and that they are

working aggressively to remediate as best they can. Is that accurate?

Ms. WILLIAMS-BRIDGERS. From our indications and conversations with Department of Energy officials, the Russians have expressed clear interest in getting technical assistance and participating in workshops that Department of Energy has initiated and in visiting here to the United States to view how we conduct our contingency planning.

Senator SMITH. Good to hear it.

One final question. Do you know when the State Department plans to release country-specific information related to Y2K?

Ms. WILLIAMS-BRIDGERS. Our embassies are in the process now of finalizing all of the information that they are collecting from embassies and by next month our embassies have been instructed to meet with host country governments to inform them of concerns that we have about their host country's status of Y2K readiness. In September the department plans to issue country-specific information in the form of travel advisories for all Americans.

Senator SMITH. I assume that they are anxious to receive that evaluation and given the strength of the American economy that report is going to be received by them, acted upon, I would assume be important to them.

Ms. WILLIAMS-BRIDGERS. By the host country governments?

Senator SMITH. Yes.

Ms. WILLIAMS-BRIDGERS. There have been ongoing discussions between embassy officials and host country governments. Some embassies have initiated what we consider to be best practices of working collaboratively with other embassies, by holding forums, and informing the American community there, informing American businesses, including small and medium-sized enterprises. We are most concerned that the Department provides the American public with information on host country Y2K readiness and on contingency plans that other businesses or international organizations are making to address their problems.

There has been an ongoing dialog with host country governments for some months now.

Senator SMITH. I think it will undoubtedly have a powerful impact and a beneficial one because I think what drives foreign corporations is the same thing that drives U.S. corporations, that is the interest in serving customers, producing products, providing services to the end that they can make a profit.

Ms. WILLIAMS-BRIDGERS. Yes.

Senator SMITH. They do not make a profit if they do not fix this problem.

We thank you very much for your second appearance to this committee. It has been very helpful and Ms. Williams-Bridgers., we are grateful to you.

Ms. WILLIAMS-BRIDGERS. Thank you very much for having me.

Senator SMITH. We now invite our second panel to come forward.

We have Mr. Ron Balls, an Associate Deputy Assistant for International Affairs of the International Telecommunications Union, an international organization that coordinates global telecommunications networks and services.

Following Mr. Balls, will be Mr. Gary Beach, publisher of CIO Magazine, the leading publication for chief information officers.

Mr. Balls, we welcome you.

STATEMENT OF RON BALLS, YEAR 2000 TASK FORCE CHAIRMAN, INTERNATIONAL TELECOMMUNICATION UNION

Mr. BALLS. Thank you, sir.

Before I commence my testimony, can I make three observations?

First, I am not the Associate Deputy Assistant for International Affairs of the ITU. The first time I have ever seen that is when I saw this piece of paper this morning. My day job is making sure that the British Telecom's network is Year 2000 ready. The ITU work is in addition to that, sir.

Second, reference earlier on to the European Union, the European Union is coordinating matters. If somebody gives me a business card later on I can give them the contact point. It is Sandra Callagan in DG–3.

My third point, sir, is that being English, as is obvious from my accent, and not being familiar with your procedures, I guess the lights on the top table are timing devices. [Laughter.]

Senator SMITH. Let me apologize——

We usually ignore them so if you do, too, that would be all right. [Laughter.]

Mr. BALLS. I was going to say that as it is the first time you have had ITU representation here and as the traveling time for me to be here is about 18 hours, 5 minutes seems scant time, so, I will probably go through my testimony.

Good morning, gentlemen. On behalf of myself and all of my colleagues on the ITU Year 2000 Task Force, I thank you for this opportunity to address the U.S. Senate Special Committee on the Year 2000 technology problem.

You already have the written statement and I will try and build on that and provide some additional information where relevant. Let me advise you initially that the task force is made up of people from telecommunications companies worldwide, who are freely giving their time to this issue.

These people invariably have demanding Year 2000 positions with their own companies but recognize the need for action on a global basis. They have support from their own companies both in terms of the time taken and also financial support for task force activities. They also do a lot of work in their own time. My visit to Washington to attend this session is not supported financially by the ITU but by my own company. There is one full-time ITU professional involved who has a primary concern for the underdeveloped nations.

Members of the task force, drawn from many of the largest telecommunications operators and also vendors and other organizations are confident that no major disruption to telecommunications will occur as a result of the Year 2000 issue in the developed part of the world.

The international carriers are well advanced with their Year 2000 programs. Many have completed their equipment upgrades and now are in the business continuity planning stage. Where difficulties remain, they are largely confined to the less developed

economies and have been working hard in these regions to advise and assist the operators to achieve as much as possible in the time remaining.

Covering the background. The task force was set up in March 1998 following pressure on the ITU from a number of major operators, including BT, Telia and INTELSAT and in brief it is to raise the awareness of the Year 2000 and related issues; related issues being the GPS rollover, the risk dates of 9–9–1999, 10–10–2000, et cetera, amongst Telecom's operators, to understand the compliance position of Telecom's operators and to promote the sharing of knowledge, best practices, advice and support.

The ethos of our work is one of leaving behind all competitive aspects and recognizing that the only competitor in this context is time, itself, and operating on the basis of awareness, sharing, cooperation, and information flow. The information flow being achieved through the website, mailings, documentation, meetings and workshops.

The task force has grown to a mixed functional and geographic grouping as illustrated at attachment B in the submission. The geographic groups being formed to provide local support.

To illustrate the global involvement of the task force, let me advise you of where the Chairs and Vice Chairs come from. The Task Force is chaired by BT, its Vice Chair is Telia/Sweden. The Information Management Group is chaired by INMARSAT, its Vice Chair is Telstra from Australia. The Inter-Carrier Testing Group is Chaired by BT, its Vice Chair is Cable & Wireless. Contingency Planning now Chaired by Telia, previously by Media 1 Labs, with involvement from British Columbia Telecom, BT, Telia and INMARSAT.

The Development Group Chaired by the ITU, the Vice Chair, South Africa. The Early Warning Group Chaired by GT and Ameritech combined, with support from Telstra and Telecom/New Zealand. The North American grouping is run by the U.S. Telco Forum led by GTE and the Canadian Telecom Forum led by Stentor. The Pacific Partners Group by Telstra, the Arab Nations by Jordan Telecom and Egypt Telecom.

Let me now cover some aspects for outreach. The Task Force is operated in the spirit of cooperation and with a recognition of the mutual benefit to be gained by the pooling of resources and expertise in the face of this challenge. High levels of cooperation, both across countries and between competing operators in the same country, have been achieved to a level probably unprecedented before.

We have approached the issue through a combination of measures that I will outline and you will see from Attachment A to the submission that many meetings have taken place and additionally a considerable number of audio conferences.

Covering some of the activities, initially the compliance questionnaire. We prepared a Year 2000 compliance questionnaire issued in April 1998 to all ITU members. To date, the Task Force has received over 530 responses, from 150 countries, representing more than 450 operators and carriers. An extract of what is currently on the public side of the website is at Attachment E.

On a simplistic basis of counting a country, if the dominant operator or grouping of operators responded, then response rates to date are Africa, 58 percent; America as a continent, 76 percent; Asia Pacific, 63 percent; Austra-Asia, 100 percent—well, that's easy, because there are only two countries—the Arab Nations, 73 percent; Europe, 80 percent; overall a figure of 70 percent.

The summary results of the questionnaire are available on the public section of the website, while the full questionnaire results are available through the site's Closed User Group. The Closed User Group access is only available to Telecoms, Operators/Carriers, who have completed the questionnaire and, so, it is an incentive for them to be involved with the group.

An electronic update facility has been provided to enable operators to update their information. This is the only source of data that we are aware of which provides a summary of the overall Year 2000 position of Telecom Operators which is in the public domain: That is, available to all who have access to the World Wide Web, be they operators or customers.

As such, this is referenced extensively by operators, customer groups, and Year 2000 sector bodies. Recognizing this, over the final 5 months there will be a further drive to update the information.

We have conducted regional workshops in different parts of the world with the support of industry and other organizations with an interest in assistance to developing countries, notably the World Bank infoDev Program. The objectives of the workshops are to generate awareness about implications of the problem, initiate and strengthen information sharing between operators with established programs and developing countries, promote and strengthen effective supplier relations, and provide information on standards, tools, techniques, et cetera.

In addition, a number of workshops that focus on specific issues have taken place, including contingency planning and business continuity. The participants in the workshops have come from administrations, operating agencies, major vendors, international and regional satellite organizations and the World Bank.

The workshops address a wide range of issues which are central to the discussion of the Year 2000 program including testing, quality assurance, management of supplies relations, and contingency planning.

The vendor representative presentations have commented on the status of their own compliance of products, and their capacity to meet operators' needs. Workshop dates, locations, numbers of attendees are in Attachment D of the document.

At the workshops, operators have generally provided an update of their expected completion dates. In a number of instances this differs from their questionnaire. We use that information to assist wherever we can. Regional subgroups have been established to concentrate on specific areas of the world, including the Arab countries, the African countries which are French-speaking, the African countries which are English-speaking, Latin America and Asia Pacific.

All of these sub-and-regional groups have held meetings and are pursuing their own activities via, some by electronic communica-

tion and the results of their work are regularly posted on the ITU website. In addition, the activities of the Year 2000 Task Force have been published and promoted through web pages, through regular articles in the ITU's magazine, ITU News, which has a wide distribution.

We have prepared a comprehensive Year 2000 Guide. This provides Telecom's operators with a high-level overview of the process of dealing with the Year 2000 issue. This has been widely distributed to ITU member States, Sector Members, National Year 2000 Coordinators, as well as international and regional bodies. The Guide is available on the website in four languages: English, French, Spanish and Russian. The Guide supplements the other activities that we have been taking.

The ITU's work covers all segments of telecommunications, representing operators and suppliers. Experts give generously of their time and expertise in participating in these. Significant, highly valued, in-kind contributions have been received from the Government of Australia, BT, Bell South International, Cable & Wireless, Deutsche Telecom, INMARSAT, INTELSAT, South Africa Telecom and Telia, and the Administrations of South Africa, Morocco, Egypt, Australia, Brazil, the Russian Federation, Poland and Jordan. Also, we have extensive help from telecom organizations such as ASETA, APT and RCC.

The financial contributions received from a number of operators and vendor organizations are placed in a separate project account and the contributory sponsors are provided with periodic progress reports.

We have cooperated with the International Year 2000 Coordination Committee, led by Bruce McConnell. We have given presentations at both United Nations' meetings, 11th of December 1998, and 21 and 23 of June 1999. We have hosted a meeting in Geneva, the 3–4 of May of International Sector Coordinators, including international civil aviation organizations, international air transport, international maritime, international energy agency, Global 2000, Joint Year 2000 Council, and the World Bank.

We liaise regularly with other bodies. I sit on the External Consultative Committee to the Joint Year 2000 Council and we provide input on telecommunications. We maintain a very close linkage with Global 2000 Group and I provide an input to their chart there that you have displayed.

You must recognize that their chart there is based on information in the public domain. That is a very germane point in that two of the countries shown as red in the telecom sector of that chart have already tested internationally. The question is they have not put that information into the public domain. That is the difference.

We also liaise quite extensively with customer groupings, including the European Virtual Private Network Users Group and the International Telecoms Users Group and the SIA in the U.S. We provided expert support to a number of different countries and we will be providing more in the future.

Turning to the impact of the Year 2000 on Telecommunications. As I said earlier, it is unlikely that there will be material disruption to the Telecoms Network in terms of core connectivity in the

developed nations. There is very little date information passed across the interfaces in real time.

Major operators have undertaken extensive tests, many using the five-layer model, with the final layer being inter-carrier or international testing. To clarify the five layers, let me just run through them. The first of these is vendor testing. Any component, we expect the vendors to test it before they deliver it to an operator. We then expect the operator to do testing at both a component level and at an end-to-end level; so, they will test a switch and then they will test it in terms of a voice call.

The third layer is inter-operator within a country. So, typically administrations within the U.S. will test with each other. The fourth layer, which depends on the network structure, is testing with carriers. So, it is relevant in the U.S. where you have the likes of MCI World Com, Sprint, AT&T. It is not relevant in most European countries.

The fifth layer is the inter-carrier international testing. This has been a primary focus of the work of the ITU. A considerable number of operators have been involved in this activity carrying out a comprehensive range of tests. The broad strategy is to ensure that tests are carried out involving each type of international gateway switch and with as much global reach as is possible within the time and that facilities will permit.

We have identified 21 different international gateway switches from eight different vendors and are working our way through these as logistics permit. We have already covered the major ones. There are three from Lucent, four from Ericsson, one from Nokia, three from Siemens, four from Nortel, one from NEC, three from Alacatel, and one from Marconi. The major usage switches have been tested and no Year 2000 anomalies found.

The detail in Attachment C is a condensed version of the testing that has taken place so far, and not referred to but operators who have been tested include KDD from Japan, and PLDT from the Philippines.

Our future plans, as well as those listed in the attachment, also include Angola—yes, I did say, Angola—Indonesia, New Zealand, Russia, the ComStar operator in Russia, Belgium, Macao, Shanghai, and Brunei, and the list continues to grow.

Having said all that there may still be difficulties in connecting calls to some operators and there may be some consequential effects due to traffic being diverted via other routes. However, the Task Force remains with the view that major players and their major trading partners are not likely to see a significant disruption to service as a direct result of the Year–2K. But we do have a concern for all the developing nations.

An impact which does require some attention is the possibilities of congestion at the time of the century date change with increased level of calls and customers checking for dial tone.

The status of the preparedness by region is shown in the written statement, and I will not go through that.

We have, obviously, given attention to contingency planning and business continuity. And following the awareness phase, a major element of the work program has related to this. The subgroup concerned with this has prepared material covering the strategy, busi-

ness processes, impact analysis, templates, a generic business process for Telecoms operators, glossaries of terms, and slide packs within company presentations and these are all on the website.

Worked examples for business continuity will also be placed on the website later this week and a publication, similar to the Guide I referred to before, is being prepared.

Activity training programs are planned in different parts of the world and an initial session on business continuity was held in Jordan on the 20th-to–22nd of April 1999. A second workshop was planned for the CIS region in Siberia, the 13th-to–15th of July at the invitation of the Russian Administration. We have postponed this because we do not have the relevant attendance there. We want operators there, not ministry officials or government officials.

The main objectives of that program are to provide operators with the background and methodology on how to develop contingency and business continuity plans and demonstrate these through practical workshops designed specifically for this purpose, to provide a forum for discussion between operators and major suppliers, and facilitate information exchange on the compliance status.

Where appropriate, the training program will also cover testing with the objective of sharing information experience about conducting tests at component, cluster and service levels and inter-carrier testings.

Further guidance on issues of traffic routings are planned to be placed on the website next month. We have also looked at early warning. The Asia Pacific Region is the key to the early warning system being established, using a follow-the-sun approach to the transition period.

Between New Zealand and Thailand there is a 6-to–8 hour window of time within which 90 percent of all switch types and 90 percent of all transmission equipment will be in operation. This region, therefore, represents a microcosm of global telecommunications within the 6-hour window and will provide the rest of the world with valuable data on any difficulties that might emerge.

The Early Warning Group has plans in place to monitor the position through each of the 24 time zones adopting a positive reporting approach 30 minutes after midnight within each time zone and at noon on the 1st working day within time zones.

The information will be held on a data base at the National Coordination Center in the U.S. and participating operators will have input to this and access to information.

Let me conclude by covering outstanding issues. The workshops have been successful in the objective of information exchange in the programs in various countries. The presence of supplies has provided a good opportunity for both parties to discuss problems associated with out equipment and systems.

The workshops have established that an awareness of the problem is rising. Several countries have national planning mechanisms in place. Even in the absence of national programs Telecoms operators have begun addressing the issue though it's a matter of concern that the lack of national planning might aggravate interdependency problems.

In some developing countries progress is typically constrained by factors including lack of commitment at the highest level in the organization, sound project management, shortage of skills at various levels, lack of facilities such as a testing environment, lack of funds and low supplier response.

In view of the likely demands for assistance over the next few months, the ITU has requested operators with established programs to provide expert resources for short periods to be deployed in the development countries. While it is difficult to accurately estimate the likely demands that may arise in the future, it is inevitable that this will be a growing demand and some of this will be assistance in next year to resolve the difficulties which go over the century date change.

The growing list of countries requiring assistance could become a bottleneck with the expertise not being available to us. The ITU is seeking more support from those countries and operators that are more advanced and have well-established programs in place. Specifically, we need expertise on business continuity planning, particularly fluent French speakers and fluent Russian speakers.

Gentlemen, thank you, for listening to me, and I will endeavor to answer any questions that you might have.

[The prepared statement of Mr. Balls can be found in the appendix.]

Senator SMITH. Thank you very much, Mr. Balls, and we do appreciate your traveling as far as you have to be here to present us with this perspective. Briefly, you indicated this chart we are relying upon is based on public information. I think your implication is that there is a lot being done that isn't public and the picture is brighter than that would suggest.

Mr. BALLS. Absolutely.

Senator SMITH. Thank you.

Mr. BALLS. Global 2000 would be the first people to admit that because their criteria is, is it in the public domain?

Senator SMITH. Very good.

Senator Lugar, do you have a question?

Senator LUGAR. No, I do not.

Senator SMITH. Senator Bennett?

Chairman BENNETT. No. I apologize that I was not able to be here for the entire panel. Mr. Beach, I have read your testimony and, of course, I heard a good portion of Mr. Balls. So, I have no further questions.

Senator SMITH. Mr. Beach, we welcome you and invite your testimony now.

STATEMENT BY GARY BEACH, PUBLISHER, CIO MAGAZINE

Mr. BEACH. Thank you, Mr. Chairman.

Before I start, I would like to comment on something that Senator Lugar mentioned at the end of Ms. Bridgers' testimony, which I think was very well put. And he was asking about, what I heard, the need for international help in possibly developing countries helping those who needed the help. And there is a digital Peace Corps, so to speak.

It is called the International Y2K Cooperation Center and it is a joint effort by the World Bank and the U.N. I am part of that

steering committee. And I am hoping that members of the press here might see me after because we need some help in terms of mentioning this around the world. We have identified 40 countries so far who have asked for help and have volunteers that we are mixing and matching.

My name is Gary Beach and I am the publisher of CIO Magazine. Our readers work in major corporations, primarily Fortune 1,000, Federal State and local governments. We are located near Boston. We had nothing at all to do with, of course, Boston being one of the two cities being compliant with Y2K. Mayor Minnea has a smile on his face.

In June of this year, the reason I am here, is that a public interest coalition of CIO Magazine, Dr. Ed Yardeni's Y2K Center and the Information Systems and Audit and Control Association [ISACA], conducted a Y2K experts poll. The poll interviewed experts in an effort to help engage the public and their policy officials assess the Year–2K readiness of organizations around the world.

I am hoping, Senator Lugar, you were asking earlier about we are groping with this uncertainty, that some of the data here today will address that.

The poll was conducted in June via the Web and e-mail invitation from the three members to recipients asking only those who are professionally and actively involved in Y2K projects to respond. The responses basically came from three groups. A third of them were CIO's, a third of them were business managers, and a third were financial individuals. We received 892 responses and at a 95 percent competence level, the data in that survey, which you all have has a plus or minus sample error of about 3 percent.

The majority of responses were from large, U.S.-based companies, 55 percent, and 45 percent represented firms from outside the United States. It is interesting to note that 61 percent had a 1,000 or more employees. So, these are large companies.

Now, the poll is really a snapshot of Y2K readiness among large, global firms, with an incredible number, 1,300 trading partners. We have heard about the supply chain earlier today. This data represents about 1,300 trading partners connected in a worldwide electronic domino system.

Now, I would like to present the major findings of the survey which is in the full testimony. In our first chart here, we asked respondents when they expected to finish all phases of their projects, including testing. Responses indicated that while the project was moving along it is not completed and 80 percent reported they were more then three-quarters complete. However, 33 percent admitted that they were behind schedule and, in addition, and it is here on the chart, 8 percent, or almost 1-in–10, said they will not complete their Y2K work by December 31 of this year.

And I would also like to emphasize that 52 percent who claim that they are going to finish by September 30 of this year and the 16 percent who say they are going to do it by December 31, I believe Vice Chairman Dodd last week, in terms of talking about the cities that expected to complete their work in the fourth quarter, calling it a fantasy world. I think any large company completing work in the last quarter is being unrealistic.

So, I mention, of course, remembering these are not small, medium-sized companies, these are large global firms. And nowhere have I seen data until this poll that quantifies the percentage of large firms that admit they are not going to be make this turn of the century deadline, which just tangentially, I think—and Ms. Bridgers focused on this—as we approach Y2K, I think for a while we thought we could fix this situation. We are well beyond that. And the work of this committee has highlighted this situation very, very well.

And I would just emphasize, once again, the aspects of contingency planning. We have to, as a country, as a world, move to contingency planning now.

So, that leads to our second slide here that we have in terms of contingency plans are lacking. We asked this group their status of contingency plans. And 49 percent have a plan and 50 percent have no formal plan. One are still thinking about it, I assume.

However, the thing that I found interesting is if you had a contingency plan in place now, 60 percent of those companies have already implemented it. They have seen the urgency of Y2K.

The next slide is on vulnerability in the supply chain. We asked firms about their supply chain readiness. We found 12 percent—you have heard this before in the committee—but we found 12 percent of large companies were verifying their business partners' readiness by conducting onsite visits. That is good. And 48 percent of the respondents—we were talking about this earlier with Ms. Bridgers and asking how the, what is the verification of the status of different countries and this is just tying into that—but, 48 percent of our respondents in this survey are just sending out questionnaires followed by a telephone call.

And 20 percent send out questionnaires with no telephone follow-up and 13 percent are simply having informal conversations with their partners about the state of the readiness. And I submit, Mr. Chairman, that Y2K readiness is not a topic to be relegated to informal conversations.

In fact, my face-to-face conversations—I spend a lot of time with CIOS—and my face-to-face conversations with these men and women, you ask them how are you doing with Y2K and they will look you in the eye and say, we are doing the best we can, and knock wood, I think we will be OK. You ask them about their supply chain partners, and their eyes go down, and they pray to some extent.

And I think three reasons are for that in terms of their readiness. No. 1, they do not have the time—remember 12 percent are actually visiting sites—they do not have the time to go out and visit 1,300 trading partners. That costs an expense and third the logistics of verifying those partners is immense.

Too many of these businesses at this very critical juncture, 162 days to the Year 2000, are relying on trust and trust that may or may not be well founded. Globally speaking, supply chain readiness poses its own set of problems. We talked about this earlier where a lot of the businesses you are about to hear from might have some leverage with partners in their supply chain that are here in the United States but they go outside they have less leverage with PTT's in other countries and what have you. So, in many cases,

they are the only alternatives for telecommunications service and electrical service.

So, the next slide is on mission critical software. The supply chain, which is heavily interconnected, may seriously be impacted by incomplete or no-delivery of Y2K compliant mission critical software. I found it amazing that 35 percent of these large firms said they are still waiting, 162 days away from Y2K, they are still waiting for Y2K compliant versions of mission critical software from third party vendors. And I will not bore the committee with what happens if you get version five and you are back at version three, and you plug this in and it may not work.

We also asked respondents if any of their mission-critical systems were expected to fail or malfunction. And you hear lots of testimony. This is the data point that really impressed me. We found—using a word, I think, Senator Smith, you, mentioned earlier—daunting. The daunting statistic from this survey for me was these large firms expect 3 percent of their mission-critical systems or applications to fail because of Y2K, 3 percent.

Moreover, 3 percent said that they expect major problems in telecommunications service and 2 percent say they expect major problems in electrical service.

So, as we come back to the call to action. We heard from Ms. Bridgers, she pointed out the contingency planning. I would strongly encourage this committee to encourage all businesses in America that by September 30 of this year they have a contingency plan in place. Possibly the committee could set up a frequently asked-question section on your website. You might already have done to do this and this information could be shared on-line.

Chairman Bennett mentioned, in opening the hearing today, talking about sustaining America's economic strength. I will leave you with a positive thought on Y2K. And I hope my other ones were not negative. This is data, which by the way, we are repeating in September. So, we will deltas on all this data.

That akin to what the oil crisis did for fuel-efficient cars. We all suffered pain in the mid–1970's, but out of it we came out with more fuel-efficient cars. What Y2K may do in terms of sustaining America's economic strengths, industrialized countries and companies that you are about to hear from have done a technology inventory of legacy systems, legacy applications and they have cleaned house. They have brought in new software, new hardware, and this will, I think, be one of the other legacies of Y2K.

And I am sorry I went over but, thank you so much for your time here today.

[The prepared statement of Mr. Beach can be found in the appendix.]

Senator SMITH. Thank you very much, Mr. Beach.

You have called on this committee to provide guidance on development contingency plans and we hope you and everyone else listening to this hearing are aware of the excellent guidance available on-line at the GAO website. That is WWW.GAO.gov.

Senator Lugar, do you have a question for either of our witnesses?

Senator LUGAR. Let me just comment. I thought the final comment you made, Mr. Beach, was very significant, that we are look-

ing, obviously, in this committee at the downside of this, which is catastrophic for some businesses, for some countries and what have you. But the other aspect of it, the clean up that you are mentioning probably is significant. It may already be manifest in some of the operations of American multinational corporations now.

I am just impressed in a way the rich got richer and the poor got poorer, those who are well informed, well managed really have sort of an on-the-ball attitude probably are going to progress beyond their competitors who never understood exactly what hit them in his.

Now, usually when that happens, sadly enough, the losers come to the Government, here, and want relief and that happens all across-the-board in American life. But I suspect, you know, this is worth watching and probably you will be in your magazine and elsewhere because the upgrading of our systems and the new knowledge that CEOs as well as technicians have of this is significant.

And probably a real boost for us if we somehow get through the first of January.

Mr. BEACH. If I could just comment, Senator Lugar. I had the opportunity to visit Bangalor, India, at the end of May. We are starting a magazine there. And it is also cuts to what Chairman Bennett was saying in terms of sustaining America's economic growth that developing countries—Senator Dodd talked about how a third of the world lives in China, India and I forgot the third country he mentioned—those countries do not have the legacy problems that our country has.

So, we have got to get it right. We really have to focus on upgrading our systems once we get beyond the Year 2000 as quickly as we can to sustain our country's economic growth in this dot-com economy.

Senator LUGAR. That is a very good point because World War II demolished the economies of many nations but they did not have the legacy left over. It was gone. And, so, that the infrastructure boost that happened there made a big difference in many cases.

We are fated to have a lot of hardware left over that may not be very good but it is an encouraging point. And I just simply wanted to mention that. There are incentives for people to do this in addition to trying to forestall a dire emergency.

Senator SMITH. Senator Bennett?

Chairman BENNETT. Thank you very much to both members of the panel.

One quick question to you, Mr. Beach. We have had Dr. Yardeni testify both before the subcommittee of the banking committee that got this all started with Senator Dodd and me. And then we have had him testify before this committee. He is perhaps best known for his percentage prediction with respect to a worldwide recession.

You are a partner of his in producing this report. Can we ask you the question: What does he now think the chances are of a worldwide recession?

Mr. BEACH. I think that is a fair question, Mr. Chairman. I was with Dr. Yardeni in New York last month when we released the results of the survey and that question was asked to him from the

audience. He has backed off on the—I think the specific percentage was 70 percent probability of a worldwide recession.

Chairman BENNETT. Yes. At one point it was as high as 70.

Mr. BEACH. He has backed off on that. The area that he is somewhat concerned about now is the possible disruptions in inventory buildup as we lead to December 31, where firms—and you will hear from these firms in several moments—may be stockpiling goods and services. We found some evidence of that, and it is in the report. I will not go through it now. And, so, he is expressing some concern that there could be some disruptions in a smooth economic flow. But I clearly believe, and I cannot speak for Dr. Yardeni, that he has backed off on the 70 percent probability of a global recession.

Chairman BENNETT. Well, all of us have had the experience of having our own words quoted back to us. I have constituents who are very upset that I am no longer as alarmed as I was 18 to 24 months ago. And when I say we are going to be in fairly good shape, they say, no, we are not, listen to what you said. And they quote my own speeches and say I am misinformed now. [Laughter.]

And I say, well, we just did better in the last 18 to 24 months than I thought we were going to, and I assume that both of you have that sense, that we have accomplished more than maybe we thought we were going to be able to when we first began to get fairly serious about this.

Is that a fair summary of both your positions?

Mr. BALLS. I think that is a fair summary and I think what has also happened over the last 6 months or so is—particularly in this telecom sector—is that a lot of the activity that has been going on has been coming into the public domain. I mean certainly that is my view of South America, where we knew very little about it. But, you know, having been there twice now, and having talked to the people and persuaded to put information in the public domain, they are now responding to it.

And I, very often, now when talking to operators will show them newspaper articles which say typically, Telecom Egypt is not very good. And they say, that is not true. I say, I know it is not true. Tell the world it is not true, give them the information. It is putting things into the public domain.

Chairman BENNETT. Thank you.

Senator SMITH. Senator Bennett, your comment reminds me of a prayer my mother used to remind us of as children that, Bless me today, oh, Lord, that my words may be soft and gentle for tomorrow I may have to eat them. [Laughter.]

We thank you both, gentlemen, for your testimony and your participation. We are delighted to invite up now our third panel. This panel consists of Mr. George Surdu, the Director of Technical Services for Ford Motor Company, whose brands include Volvo, Mazda, Jaguar, Mercury, Astin-Martin and Hertz.

Also on this panel is Mr. Patrick Roberts, who is the Senior Vice President for Business Information Services for Ahold, USA, an international food retailer operating more than 3,700 markets and specialty stores worldwide including Giant Food in the Washington, D.C., area.

Next is Mr. Kevin Click, Director of Worldwide Y2K Corporate Compliance Efforts for Philip Morris Companies, the largest producer and marketer of consumer goods. Its principal operating companies include Kraft Foods and Miller Brewing Company producing brand names like Maxwell House, Oreos, Kool Aid, Kraft Macaroni and Cheese.

Next is Mr. Kevin Haukebo, who is Y2K Program Manager for Procter & Gamble, the worldwide operations in 72 countries, manufacturing popular products like Crest, Pringles, Tide, Pampers and Cover Girl makeup.

And, finally, Mr. Charles Krichbaum, who is the Director, for the Year 2000 Project for Praxair, which produces and supplies industrial gases.

So, we will start with Mr. Surdu and we welcome you all and we invite your testimony now.

STATEMENT OF GEORGE SURDU, DIRECTOR OF TECHNICAL SERVICES, FORD MOTOR COMPANY

Mr. SURDU. Thank you and good morning.

Before I begin I need to say that Senator Dodd was spot on in terms of the enormity of this program. When I began this program back in 1996 with Ford Motor Company I had black hair, so, we have gone through a little bit.

I want to formally thank, of course, Chairman Bennett, Senator Lugar, Senator Smith and the entire committee for allowing Ford Motor Company to provide an update on our program. Needless to say we are very proud of the comprehensive program that we began.

As Senator Smith has indicated, I am the Director of Technical Services and have been the Global Year 2000 program manager for Ford Motor Company since the inception of the program in 1996. And I need to emphasize that the program has been global from the very beginning so, the things that I will tell you—and I would like to give you some fairly detailed statistics on where we are in the program—but these are global statistics. Once I complete the formal statement I certainly would be happy to answer any questions.

In 1996, Ford Motor Company initiated a formal program to address the Year 2000 challenge. A senior-level steering committee was established, co-sponsored by our Chief Financial Officer, our Vice President of what is called Quality in Process Leadership and our Chief Information Officer. A formal Global Year 2000 Program Office was established under my leadership and a very robust program management process was created to guide compliance actions across all the impact areas.

One of the interesting things that we did at Ford Motor Company which have been mirrored in a number of other areas including with our suppliers, through the Automotive Industry Action Group, is the way that we have looked at the company's business and we looked at it at some unique technology lines. The impact areas include computer business systems, our technical infrastructure which is all of our data centers, our wide-area networks, our local are networks, all the way down to and including all of our desktops, our plant floor equipment, our product development test

equipment, our suppliers, of course, our dealers, our affiliates, end-user computing, our building infrastructure and our vehicle components.

In addition, as we have worked our way through the program we have continued to monitor the compliance actions of other impact areas such as all of our transportation carriers, medical equipment suppliers and customs offices around the world.

The sophistication of our program has been recognized by the Information Technology Association of America with a certification that indicates Ford's program meets the challenge of best practices, the Y2K best practices standards.

We very early on established stretch objectives on all these impact areas with the majority of work to be completed by mid-year this year and fundamentally we are there. We had an objective to have all of our critical systems compliant which means that we had them remediated, tested, put back in production by the end of 1998 and we met that objective. As of June of this year, in terms of all of our systems 98 percent of our critical systems, because we added some during this calendar year, are compliant. We have got a handful that we are finishing up during the shut-down period. And 97 percent of all business systems have been remediated, tested and are back in service.

In addition, two focus areas this year, as we have completed all of our remediation work, has been around the area of what we call enterprise-wide testing. Actually plugging in all of our systems and making sure that all the touch points are working properly and contingency planning.

Again, I think many of the things you heard this morning Ford Motor Company has been doing very aggressively.

The enterprise testing will be completed by this September. We are very far along that way. Again, we are using some of our shut-down periods to complete some of that work. For plant floor equipment we have implemented a process to assess equipment and machinery in more than 167 manufacturing assembly plants and parts warehouse facilities around the globe.

Presently 99 percent of all of the plant floor equipment has now been validated that it is compliant. And again, we are doing some cleanup work during the shut-down period, during the months of July and early August.

In conjunction with the Automotive Industry Action Group of America and other industry trade associations around the globe, like the VDA in Europe, Ford has been participating in a global supplier readiness program for production and critical non-production suppliers.

As of this report today about 80 percent of our suppliers responding are deemed ready. We have a very comprehensive process to validate that including onsite assessments and audits that validate the validity of the responses and 100 percent of our supply base are indicating readiness by year-end. About 10 percent have not responded and additional actions are underway to validate the status of both these suppliers and those that go beyond September of this year. So, we have a magic date no further than September.

Actually, to be honest with you, we have chinned our suppliers, dealers and affiliates to the same aggressive Year 2000 program we have internally which really takes us back to June of this year.

A similar program has been established for all of our affiliates as I said, and as of month-end, June month-end, 89 percent are ready, with 100 percent slated to be ready by December. Compliance status for some of the other impact areas include 80 percent of all of our critical product development test equipment, 97 percent of all of our end-user computing. So, we have actually gone down not only to the desktop but to all the applications running on the desktop, all the access data bases, the Excel Spreadsheets, all of that have been looked at very, very closely.

And 96 percent of all of our technical infrastructure is now compliant and we have monitored very closely much of what you heard today in terms of where the telecommunications industry is and where our particular equipment is. We have done a significant amount of testing in that area. Next, 83 percent of all our end-dealership systems are compliant and 97 percent of all our physical properties and infrastructures are compliant. Finally, 100 percent of all of our vehicle components are compliant both past and present.

As stated in the most recent SEC filing, which we issued about a week ago, Ford estimates that we will be spending about $403 million to complete this initiative so we clearly have not taken it very lightly from the very beginning. That is up from $375 million. We have added Volvo to our program, of course, we have made substantial progress, obviously, as we approached our key dates of June of this year.

I think last year at the end of December, we were at about $155 million; we are now up to almost $300 million in spending. This total spending, of course, will be incurred over a 3-year period. It started about mid–1997 and will take us through mid–2000. And I say that because we are still going to keep our resources in place through certainly the February timeframe, February 28, 29, because in our testing we have tested, we actually have 12 distinct tests, periods that carry us through until we feel we are totally compliant. This outlay that I indicated amounts to about 10 percent of our total information technology budget.

We, of course, are very confident as to our readiness as well as the readiness of our affiliates, dealers, and suppliers, so we may be a bit more positive than some of what you have heard this morning. However, it is clear that the interdependence of the entire supply chain does represent the greatest risk to us.

In particular, an extended infrastructure failure, that is gas, electric or water, would make it difficult for us to operate our manufacturing operations. Accordingly, during the fourth quarter of last year we did begin a very extensive business contingency planning process for all of our critical business processes. Most of these plans are now complete and validation of these contingency plans will be completed in September. Obviously, we are monitoring very, very closely much of what you have heard today, the Gartner Group studies. We are obviously looking at the U.S. Government to provide additional input. We are validating that input in each

of the countries that we do business with our own people and, of course, developing plans around that.

In addition, we have created a Global Response Center—in fact, we launched it July 1—to be used as an information clearinghouse for the most current status available as we enter the new millennium. And critical systems are being processed through an independent verification and validation process as a final check for readiness. So, although, we have validated all of our critical systems, assured their compliance, put them back in production, we are going through an independent IV&V process here during the middle of the year to make sure that we have not missed anything, we have not interjected anything as we have moved the business forward during calendar year 1999.

Finally, a very small number of our employees are being notified now to serve as onsite or on-call support over the holiday period to coordinate a response to any unexpected glitches that may be experienced by Ford or those who rely on Ford's consumer products and services.

I will tell you as one point of information that we are very encouraged with our supply base and the work that we have done with them and their work. We are now transmitting electronically a Year 2000 transactions to them. In fact, during January of this year, in our parts and service organization, we began submitting what we call 10–10 transactions, that is 10-month/10-week forecasts which included zero-zero in the transactions. We had very, very few issues. They were resolved very quickly.

And we are now sending electronic Year 2000 related transactions to all of our production and critical nonproduction suppliers around the world and have not, at this point, identified any incidents. So, we are very, very encouraged at this point of the progress that we have made and our partners have made.

So, this concludes my prepared statement. I would like to again thank the committee for the time that you have afforded Ford Motor Company to present its program and, of course, I would be happy to respond to any questions.

[The prepared statement of Mr. Surdu can be found in the appendix.]

Senator SMITH. Thank you very much, Mr. Surdu.

I assume with all the resources that you have expended you have actually found problems and you have corrected them?

Mr. SURDU. Clearly. Clearly.

Senator SMITH. And had you not done that, if others are not doing this, they will encounter significant difficulties.

Mr. SURDU. Yes. I mean this is—clearly we are very positive on the status and the program but also we are very focused that this program and this issue is real. We needed to do this and, in fact, we have found problems in all the impact areas.

Senator SMITH. Why do we not go with the testimony and we will go next to you, Mr. Click.

STATEMENT OF KEVIN CLICK, DIRECTOR OF WORLDWIDE Y2K CORPORATE COMPLIANCE EFFORTS, PHILIP MORRIS COMPANIES, INC.

Mr. CLICK. Mr. Chairman, and members of the committee, good morning. My name is Kevin Click and I am Director of Corporate Audit and head of Worldwide Year 2000 Corporate Compliance Effort at Philip Morris Companies, Inc.

In this capacity I am responsible for overseeing and coordinating all compliance activities relating to the Year 2000. This includes briefing senior Philip Morris management as well as the audit committee of the Board of Directors regarding our Y2K compliance status. My formal submission for the hearing record describe the Y2K readiness programs underway within our company.

We have a high level of confidence in our preparations and our internal business and factory systems are now over 97 percent compliant. However, as the committee is well aware, a key concern for most American multinational corporations is the readiness of our international business partners, including customers, vendors and utility providers, and governmental entities.

We interact with over 70,000 business partners around the world, 6,000 of which are considered highly critical to the success of our businesses. I, therefore, would like to highlight three initiatives that we have taken to ensure the continuity of our supply chain and the day-to-day operations of our international affiliates.

Specifically, our business partner programs, our contingency planning efforts, and our transition management programs. As we contacted our business partners to assess their readiness, we quickly realized that the first priority was education and assistance. In parts of the world many of our partners had not even heard of the Y2K problem until we briefed them. We, therefore, initiated an extensive series of awareness programs for our business partners as well as the communities in which we operate.

The awareness program in our tobacco business in Central and Eastern Europe typifies our efforts around the world. We organized, sponsored or participated in education programs throughout this region including activities in Kazakhstan, Poland, Russia, Turkey, the Ukraine, and the Czech Republic, among others. We worked with the U.S. Department of Commerce, the American Chamber of Commerce, local trade organizations and other groups to sponsor and support Y2K conferences and seminars.

We also produced awareness materials in nearly every language in the region, and we worked directly with our most important business partners to help ensure they understood the Y2K issue and how to resolve it.

Going forward, we will continue to work with and monitor our business partners throughout the world.

In spite of our wide-ranging education and assistance initiatives, we still consider over 600 critical international business partners to be at high risk or likely to suffer Y2K-related failures. We, therefore, developed comprehensive contingency plans, both preemptive and reactive, to address possible disruptions.

The three key concepts behind our contingency planning program are straightforward. To address risks in our upstream supply chain we are increasing our onsite inventories of raw materials through-

out the world, particularly for those items that are sourced from higher-risk countries.

To address risks to our manufacturing processes, including utility failures, we are increasing our inventories of finished goods and have contracted for backup power generation equipment.

To address risks in our downstream distribution systems, we are shipping finished products as close as possible to the final consumer, including clearing the products through ports and customs facilities. While the costs of these measures are substantial, we believe them necessary to protect the continuity of our businesses.

Finally, due to the sheer volume, complexity and interdependent nature of our systems, manufacturing processes and business partners, errors and interruptions could occur which were neither anticipated nor planned for. While we believe that dramatic problems would be rare, the cumulative effect of numerous individual issues could be disruptive.

Therefore, we are implementing transition management programs in each of our businesses to handle the expected short-lived increase in problems. Each transition management team will include help-desk operations, a transitional response team, and event response teams which will incorporate and supplement our existing problem resolution organizations and processes.

In summary, we believe there will be problems and disruptions due to the Y2K issue, particularly with our international business partners. However, we believe our comprehensive business partner, contingency planning and transition management initiatives will help guide us through the Year 2000 change-over with as few disruptions as possible.

Thank you for your attention and I will be happy to respond to any questions you may have.

[The prepared statement of Mr. Click can be found in the appendix.]

Chairman BENNETT [presiding.] Thank you very much.

Mr. Roberts.

STATEMENT OF PATRICK M. ROBERTS, SENIOR VICE PRESIDENT FOR BUSINESS AND INFORMATION SERVICES, AHOLD USA, INC.

Mr. ROBERTS. Good morning.

Chairman Bennett, and members of the committee, I am pleased to speak to you today regarding the issues facing global corporations with respect to foreign suppliers and operations related to their Year 2000 preparedness.

Royal Ahold is a rapidly expanding international parent company of retail supermarkets, health care stores, and hyper-markets in Europe, Asia, the United States and Latin America. Ahold USA, a subsidiary of Royal Ahold, is headquartered in Atlanta, Georgia, and is the fourth-largest grocer in the United States.

We operate approximately 1,000 stores operating under the brand names of Stop-and-Shop, Giant, Tops, and BI-LO. Mu statements today address Ahold's Year 2000 initiatives and our preparedness as a subsidiary of Royal Ahold.

Ahold is taking the Year 2000 problem seriously and has aggressively addressed all identified technology and business issues. Total

project spending will be in excess of $50 million. Ahold began its Year 2000 efforts in 1996 and in 1997 and 1998 our focus primarily was on technology. This year our focus is on business continuity planning and event management planning.

Up until the event, December 31, 1999, we will continue to perform software testing both internally and, whenever possible, with critical external partners. On those items over which we have direct control, we are confident that our early start will result in little to no impact in our operations.

Ahold supports an autonomous operating company model, both foreign and domestic. Our dependence on foreign companies is focused in our supply chain with re-sellable products. Overall we have classified the risk of a disruption in our international supply chain as a low probability of occurring, but a high potential impact if there was a disruption.

We are addressing this exposure through our Year 2000 supply chain methodology. Less than 5 percent of our sales are from products we directly source from international companies. At the same time, however, we estimate that 25 percent of our sales has some kind of international content. Based on our research and in-depth discussion with almost 250 of our top critical suppliers, our findings have led us to rate the potential for disruptions in our business from international sources as low.

A great deal of our international product supplies have significant inventory in the United States that provide us a buffer, for example, spices, sugar, rice, specialty grocery items. Our most critical suppliers are large corporations and, on the whole, are taking Year 2000 seriously and are applying the resources required to correct the problem within their companies including in-depth interrogations of their international suppliers.

Also, they are developing contingency plans to minimize exposure from failures in foreign operations. As an example, through ongoing communications with one of our large suppliers in the produce category, we have determined that it owns its farms in foreign countries, is complete with its critical technology correction projects, owns a majority of the transportation chain, has visited the primary ports to assess potential risks, has met with U.S. Customs to assess potential concerns and is using this information to actively create contingency plans.

Some categories of products require special consideration. Coffee and tea are purchased through commodity brokers. They usually have 180-day supply of inventory in the supply chain. We have labeled this as sufficient. General merchandise has an acquisition lead time of several months duration. The majority of this seasonal and holiday merchandise is in our distribution centers weeks prior to the need.

Perhaps our largest area of vulnerability is with pharmaceuticals. From our research more than 70 percent of the drugs sold have some foreign content. For most, there is no good alternative supplier. Many of these products are necessary to the continued good health of our customers. This is the area over which we have the least control and potentially the highest risk.

Red Cross and FEMA recommends that people prepare for Year 2000 as one would for a severe weather situation. This appears to be an adequate preparation strategy.

Ahold will not be able to eliminate international exposure entirely. Based on our analysis of our top critical suppliers we have a high confidence rating in the Year 2000 preparedness. We will continue our dialogs with our major suppliers and refinement of our contingency plans throughout the end of the year.

Ahold is actively developing contingency plans to address potential disruptions. We are conducting exercises to test these plans. One strategy that has been developed relative to international suppliers is to utilize our parent company, Royal Ahold, with its global supply chain and local presence in most major markets to assist in restoring any disruption.

Another major initiative in this area is the creation of the event management plan. This will address how we will monitor and react to Year 2000-related disruptions. The plan encompasses not only our technology operations but day-to-day operations of our stores, warehouses and administrative facilities.

Communications are critical to successfully reducing the potential risk of the Year 2000 disruption. We have five primary audiences for which we have active Year 2000 communications plans: Our stores, the food retail industry, our suppliers, the local communities we serve, and our customers. We have a sizable team that is dedicated to communicating with our suppliers. The Food Marketing Institute has done an excellent job assisting us with local community relations and facilitating cooperation across our industry.

A most encouraging part of our conversations with our major suppliers has been their openness and candor regarding their Y2K readiness programs, including the strategies that they are pursuing in their business contingency plans. We have seen a significant increase in requests for participation in community events. As a result, publications are being distributed to our customers to let them know we will be here on January 1st and beyond.

In summary, Ahold anticipates minimal disruption caused by our direct and indirect dependence on foreign suppliers. We have expended significant effort in developing business continuity plans to minimize our risks. There has been and will continue to be open and frequent communications with our suppliers to address all new issues.

We believe there are real and tangible benefits to Ahold USA in being a subsidiary of a truly global company with strong business relationships with multiple major product suppliers in diverse locations. At the same time, we would say that there is some risk of Year 2000 disruption within the grocery industry. We do believe some foreign countries and companies have not sufficiently the Year 2000 problem and our strategy is to find alternate product sources to minimize our dependence on partners.

And, finally, we are aware that Congress is working diligently to ensure our infrastructure will be ready for the event. We would ask that Congress look at providing further assistance in areas that Ahold has identified that may have a potential impact to the health and safety of all U.S. citizens.

Additionally, we request your support in ensuring the readiness of our Federal programs administered at the State level, specifically the electronic benefits transfer program that affects our citizens who may not be able to plan ahead for any temporary disruptions.

Thank you.

[The prepared statement of Mr. Roberts can be found in the appendix.]

Chairman BENNETT. Thank you very much.

Mr. KRICHBAUM.

STATEMENT OF CHARLES KRICHBAUM, DIRECTOR, YEAR 2000 PROJECT OFFICE, PRAXAIR, INC.

Mr. KRICHBAUM. Good morning, Chairman Bennett.

My name is Charlie Krichbaum and I am the Director of the Year 2000 Global Project Office for Praxair.

Praxair is one of the largest industrial gas suppliers worldwide with 1998 sales of $4.8 billion. Our products, services and technologies bring productivity and environmental benefits to a wide range of industries, including aerospace, food and beverage, electronics, steel, chemicals and others. Thank you for inviting me to speak on behalf of Praxair this morning.

The goal of Praxair's Year 2000 project is to prepare our plants and systems around the world to continue to run safely and smoothly through the Year 2000 and beyond so that we can serve our customers, protect our employees, and the communities in which we operate.

To provide a sense of our global operations, Praxair operates in 43 countries and over 40 percent of our sales come from outside of North America. These sales from outside of North America come primarily from South America, Europe and Asia. While many global businesses rely on imported goods and services, this is not a significant issue for Praxair. We produce our products locally in the countries where we operate. Therefore, the impact of critical infrastructure failures is an integral part of our overall planning process for Praxair.

Praxair began working on the Year 2000 issue in 1996, and formed a global project office in early 1998 to accelerate our progress. The project office reports directly to Praxair's Chairman, Bill Lichtenberger and is accountable to coordinate a matrix of global teams to ensure effective management of resources.

Under the leadership of the global project office, Praxair implemented a worldwide Year 2000 readiness program that focused on Praxair's systems, equipment, facilities and products.

The program included six key process steps which were awareness, inventory and assessment, renovation, validation, implementation and most important, business contingency planning.

Praxair, like other companies, may be affected by the Year 2000 problem of its suppliers. The nature of our business is such that the most critical suppliers for Praxair around the world are those that supply electricity, natural gas and water. To minimize disruption of these services we have taken a number of important steps:

Suppliers of critical equipment, systems and services around the world, including those that supply electricity and natural gas, have

been identified and surveyed for their readiness. Results of these surveys provide important input into our readiness planning.

By working with our suppliers, we have been able to jointly identify and resolve many potential Year 2000 problems.

We continue to refine how we will best communicate with suppliers over the millennium transition weekend, should any Year 2000 failures occur.

To date, we have assessed and are in communication with approximately 900 utilities and 4,300 other suppliers worldwide.

We also have an active, ongoing communication effort aimed at responding to customer inquiries and gathering information that we need for our own planning process. This ongoing communication with both our suppliers and customers is critical to the success of our planning process.

It should be noted that in the United States these efforts have been accelerated and facilitated by the passage of the Year 2000 Information and Readiness Disclosure Act, which became law last October. It has allowed for the rapid dissemination and receipt of important information under an umbrella of good faith. We, at Praxair, very much appreciate the efforts that resulted in this important legislation that has allowed industry to exchange information that is useful for correction of the Year 2000 problem.

To minimize disruption to our critical operations, internal systems and the ability to produce and supply product to our customers, all of our business units have developed contingency plans and business continuity plans. Our contingency plans provide detailed operating instructions to local personnel in the event a failure occurs. These plans are generally site-specific and include local considerations related to utilities, telephone services, security and fire alarm systems.

Our business continuity plans focus on mitigating potential failures across and entire business unit and develop business strategies to maximize safety, delivery of product to customers and efficient operations.

In summary, Praxair has essentially completed the renovation and testing of its business processes, plant operations and computer systems critical to safety and the company's business.

We do not expect catastrophic collapse of global infrastructures or sustained outages. We do, however, anticipate that we will likely experience temporary interruptions of electric power or other utility supplies to one or more of Praxair production facilities due to a Year 2000 failure of a utility supplier.

Throughout the remainder of the year we will continue to complete, schedule work, test our contingency plans, and business continuity plans. In addition, we plan to man a central command center over the transition weekend.

We believe that these activities will provide another level of readiness preparation should any external or unknown problem arise for Praxair.

Thank you very much and I will be happy to answer any questions.

[The prepared statement of Mr. Krichbaum can be found in the appendix.]

Chairman BENNETT. Thank you.

We will now hear from Mr. Haukebo.

STATEMENT OF KEVIN HAUKEBO, Y2K PROGRAM MANAGER, PROCTER & GAMBLE

Mr. HAUKEBO. Mr. Chairman, I want to thank you for this opportunity to share with you Procter & Gamble's preparation for the Year 2000. We appreciate your leadership that this committee has shown in identifying problems and solutions. Specifically you asked that I address the impact of Y2K on our global supply chain and our ability to maintain operations abroad. I will highlight my testimony and ask that the remainder be inserted in the record.

Chairman BENNETT. Yes. All of the statements in their entirety will be part of the record.

Mr. HAUKEBO. We have been working hard over the last 3 years to minimize the risks of potential Y2K disruptions to our business. This work has included an internal review that I would like to touch on briefly and an external review that covers our global supply chain. Our initial efforts focused on identifying and correcting critical information and embedded technologies. We inventoried and prioritized these systems and technologies based on how critical they are to our business.

For example, our facilities services group has checked over 10,000 systems in nearly 300 locations. Our information technology organization has completed work on over 7,000 applications and nearly 200,000 pieces of technical infrastructure and our product supply organization has finished work on over 100,000 internal components at 150 sites and analyzed over 10,000 suppliers.

This in-depth knowledge of our internal readiness is instrumental in formulating our approach with external partners. We have undergone considerable efforts to contact our external business partners to ensure that current business operations are maintained through the millennium transition. These external partners include suppliers, customers and service providers. We initiated this process to build our confidence in their ability to ensure the ongoing health of their business.

Our objective is to manage risks related to Y2K with our external partners while maintaining the integrity of our supply chain so that our consumers have access to our products.

Clearly there is no simple or automatic formula for determining business criticality and risk of partners. We have developed a criticality risk grid which is being displayed to help us categorize our partners and determine the appropriate follow-up steps. For example, we conduct face-to-face meetings with critical suppliers worldwide.

Based on our work to date, we are not expecting any major disruptions to our supply chain. We either have confidence in our partners or have developed work-around plans that are ready to execute with more than 99 percent of our external partners.

We realize that there will be outages beyond our control. The impact will vary from country-to-country. We have developed business continuity plans which assume something will go wrong.

But the objective here is to protect our critical business processes from disruption or failure before, during and after the Year 2000. These processes are supply chain, cash-flow, communications, and

site utilities. Specifically you asked for our perspective as a multinational company on the status of the infrastructure for critical utilities abroad.

Our initial assessments started with the Gartner Group information on utility risks. Much of that was shared with this committee. Local Procter & Gamble country contacts then follow-up with the utility providers in each of their local locations. We solicit information using an in-depth questionnaire, personal phone calls, face-to-face interviews, where possible, to confirm this information.

We are posting figure 2 which gives us our assessment which confirms the Gartner data about where we are with infrastructure status by country.

We have also completed utility risk assessments at each of our manufacturing, office and data center sites worldwide. This includes completing internal remediation efforts and staffing plans for critical periods. In addition, we have developed contingency plans to deal with potential electric, gas, water and sewer outages.

We have also examined the impact of Y2K on telecommunications. We have assessed the risk of voice and data disruption where we do business due to the Y2K transition. In general, we consider parts of Eastern Europe, Asia, Latin America and the Middle East to be of medium-to-high risk.

We have tested various telecommunication options, such as satellite phones for high-risk sites, and other satellite alternative for data transmission. In addition, we have been working with the International Y2K Alliance of Multinational Companies to deal with regulatory issues impacting telecommunications. The U.S. Department of State has been very supportive and we appreciate the State Department's help.

In summary, we are working hard to ensure that the brands our consumers know and trust are going to be there when they need them. While we do not expect any major disruptions to our business, we are preparing contingency plans to address outages beyond our control.

We believe that preparedness of Procter & Gamble and our people will help us meet the challenge of Y2K.

I want to thank you again for this opportunity and I will be happy to answer any of your questions.

[The prepared statement of Mr. Haukebo can be found in the appendix.]

Chairman BENNETT. Thank you.

We are grateful to every member of the panel and one of the reasons we put you on at the last and as a single panel is that you got to hear everything that came before and, so, we can ask you, do you have any comment, contradiction, confirmation, whatever, on anything that has been said either by the State Department, by the second panel or amongst yourselves.

Does anyone have a burning desire to speak up and say, wait a minute, I really disagree with that or you should pay real attention to that because that one was right on. You get to be the cleanup hitters that can comment on what you have heard.

That is the only reward for going last. Sorry to have made you sit through the whole morning.

Mr. SURDU. Senator?

Chairman BENNETT. Yes?

Mr. SURDU. Senator Bennett, I might just say that all the analysis that we have seen and we have heard and we continue to follow very closely relative to the international preparedness continues to be very consistent. I mean we have validated to the best of our ability within countries, as I said, that we do business in. In some cases, however, and I think it should be my opinion understood that individual plans relative to the identified readiness by country, obviously, will differ from company to company based on their business implications.

As an example, the only area that we are looking at slightly differently, and I would share this with the committee, is China in this case. I know China has been generally moved up in terms of their preparedness.

One area that we are looking into right now is in the area of customs. China is one of the few countries where the customs process is slightly different in that the paperwork and the equipment go together. And there are some differences when you think about that if, in fact, they have some problems from a customs office standpoint, how do you get the shipment out of China?

So, as we are looking through our contingency plans as we get closer to the new millennium, obviously, we are watching very closely. Our plans will get modified from time-to-time but certainly the China customs office area is one that we are looking at very closely right now.

Chairman BENNETT. On this committee we have looked at U.S. Customs as well.

Mr. SURDU. Right.

Chairman BENNETT. Because it would be great if we get everything coming in and then suddenly it stopped at our borders because our computers do not work.

Mr. Click?

Mr. CLICK. I would agree. Essentially I have not seen too many contradictions in what has been presented today and what our understanding is on a global basis. I would like to comment on one of the comments on the gentleman from CIO Magazine, who was discussing when programs will be completed. And, in fact, I think that my colleague from Ford mentioned it as well.

Our plan will run well into the Year 2000, not the remediation part of the program but essentially monitoring our business partners up through and into, well into the next year. So, we will not disband our team until the March timeframe.

Chairman BENNETT. Hmm-hmm.

Any other? Yes, Mr. Krichbaum.

Mr. KRICHBAUM. Yes. I would like to comment.

I think that one of the things that we have found and everyone has talked a little about is continuity planning and contingency planning. By working very closely with our customers and our suppliers, we can understand both what our customers' contingency plans are and what our suppliers' contingency plans are.

It helps to understand what each company is doing in the whole supply chain and by sharing that information, we can make a stronger linkage. I would pass that along as a learning for all of us.

Thank you.

Chairman BENNETT. You are here as the examples of those who are doing it right. And every assessment that we have made out of this committee, particularly the consultants, we have sent abroad who have worked with the State Department, they come back and say the big organizations are probably in pretty good shape. And your testimony would underscore that. There is a new acronym in town called the SME's, or the small-and-medium-sized enterprises. And inevitably that is the area where we get some difficulty.

Now, you have done your analysis of your suppliers. Some of you have indicated that your suppliers are not SME's. They are all big companies. But do you have a sense from your inventory of where the SME's will be in some of these countries, particularly—and this is an unfair question, but we live with unfair questions around here all the time—those SME's that are not being prodded by having a very large partner, like Ford or Philip Morris or Procter & Gamble, to look down their throat and say, if you do not get in shape we are going to go some place else. You have very big hammers with which you can enforce your questions.

Do you have any sense of foreign SME's in the context that I have described here? Any of you?

Mr. SURDU. I will say that per se we do not. If you take a look at the size of our supply base—and I agree with you, we do have an opportunity to share our practices and get them engaged maybe easier than others—but regardless of size, I think, you know, we have been focusing attention on the total supply base, irrespective of their size, and they have all been making very, very good progress.

We are concerned about, you know, your definition of the SMEs, and those, I personally worry about those that are now, with 6 months to go less than 6 months to go, are beginning to talk about Year 2000 readiness or preparedness actions.

Chairman BENNETT. Yes.

Mr. SURDU. To that extent, what we have attempted to do for some time now is to share where we are with our consumers, whether it is via letters through our dealer body, whether it is our web page to share information on where we are at and what is going on, in hopes that that will help them get engaged as quickly as they need to get engaged to be there.

So, I do not per se have any sense, although I do worry when I hear about small-and-medium-sized businesses, I worry for them, because at the end of the day it will not only impact them, it will impact the economy and all of us at large.

Chairman BENNETT. Mr. Click?

Mr. CLICK. We have some experience in that. In our view of our business partners in lesser developed countries such as parts of Central and South America and parts of South East Asia, the level of computer proliferation has not passed down to the smaller-to-medium-sized companies as much as in the more developed Western Europe and North American areas.

So, we would be more concerned in the more developed countries such as Japan or Korea, more developed Asian countries and more

developed countries in Europe or even Russia where the medium-sized companies may not have gotten the message yet.

Chairman BENNETT. Yes?

Mr. HAUKEBO. The other comment I would add is that I think as we are going out and I have heard this from several, you know, we evaluate how our supply chain is going. And when we talk to them we want to talk to them about how are they evaluating their suppliers? And I think we are getting a ripple effect here where we may be some of the first ones who are out there talking to people about this and starting to spread the news and warn people about this. We are now seeing the subsequent people going out and also doing that to affect their supply chains.

Chairman BENNETT. Have you done anything, any of you, or are you aware of any effort generally to inform your own employees as to where they stand?

Mr. SURDU. The answer is, yes. I mean we have shared the entire program, our status and issues around the Year 2000 with our employee base. And obviously as we get closer to the millennium we will continue to provide them updates in terms of what we know of relative to the general economy international. In fact, one of the things that, obviously, we are looking at, we understand, obviously, that the government will be providing an update shortly in terms of, by country, in terms of transportation recommendations and so forth around the millennium. That is going to be important to us and that is information we will share to our employees as we move forward.

Mr. CLICK. We have done quite a bit on this and we have a couple of perspectives on it. First, we recognize that our employees might be concerned about the growing millennium hype and how that might impact them personally.

For example, if an employee is concerned about their home and what is going on with their family, they are going to be less concerned about issues at Philip Morris.

Chairman BENNETT. Sure.

Mr. CLICK. So, we have initiated a series of internal awareness programs through pamphlets, newsletters, articles in the company paper, websites, and management presentations to give them the type of information they might find useful in helping prepare themselves personally for the change over in the millennium.

Second, as we change over, our employees are really our first line of defense against any issues that might come up whether it is a specific machine that might be malfunctioning or the relationship with a business partner or a particular internal system they are using. So, we are trying to prepare them to be our eyes and ears as we go forward to understand what is happening, who to contact, and how to get the appropriate corrective actions underway.

Chairman BENNETT. Mr. Roberts?

Mr. ROBERTS. We also have a program for awareness within our associates. We have been doing that for the past 3 years. We prepared a bulletin also for our customers similar to this for our associates, to understand where they should be planning, how they should be planning for the event. The other thing within our company, we have about 1,300 associates poised for the months of December and January to be on-board, be on-call, without leave, to be

prepared to handle the disruptions if they may come to our customers.

Chairman BENNETT. I think we are going to see more people working this holiday weekend than any other in recent history.

There have been press stories over the weekend about so-called trap doors left behind by programmers for the purpose of accessing their programs and they will say this is done for maintenance, future modifications, but there is the fear that these might be used in an unethical way either to siphon off money or to produce mischief later on.

Are any of you aware of any efforts to try to monitor that? I can understand a perfectly legitimate reason for a trap door. But I can also understand the risk that is there. When you are dealing with Y2K everybody wants to turn a risk into a conspiracy theory and tell us that the world is coming to an end. So, do any of you have any comments about that particular news story?

Mr. SURDU. Senator Bennett, I would just tell you what we have done at Ford and it is probably fairly consistent in many other parts, many other companies. When we remediate code there is a before and an after. And there is a very straightforward software electronic technique for reporting that which has changed. And part of our whole remediation process is to review all the changes before they go into production and to sign-off on all of those changes.

So, having someone put something in the code means that somewhere you have broken down in the process. But what we have done in our process is we validate all the changes before they go into production.

Senator SMITH. Mr. Click?

Mr. CLICK. Similar to Philip Morris, we are concerned about this possibility. It is not just a Y2K possibility. We have used external contractors to assist us in our systems development efforts for many years. So, to address this problem, first, we restrict external contractors to specific areas of our test and development computers. Their user IDs and passwords are set to expire when their contracts expire. And similar to Ford, before any programs that they developed are moved back into our production computers, they undergo a rigorous quality assurance test by Philip Morris employees.

So, no system is completely fool-proof but we believe we have put prudent controls in place to address the issue.

Mr. ROBERTS. I would like to elaborate just a moment on what the gentleman from CIO Magazine said. This is an opportunity we have within this Year 2000 remediation effort to really clean house. We have had the opportunity to examine every line of code, every system process in this whole remediation effort and we feel, I think, more confident today than we ever have that we understand what our base is, its secure and it is ready for the transition.

Chairman BENNETT. One final question.

The thought has occurred to me as I have gone through this whole Y2K experience that if the society could be as disrupted as it possibly could be as a result of what is basically an accidental failure of the computer, nobody planned this. There, again, are some conspiracy theorists who would disagree with that. But nobody planned this.

How vulnerable are we to deliberate attacks at some point in the future? I have spent some time with the Defense Department and they tell me these attacks are literally going on every day. People are attempting to break into the Defense Department computers either hackers who are doing it just to prove that they can; or stalkers or crackers, depending on which term you want to use, who are doing it for malevolent purposes either for terrorist purposes or some other motivation.

How secure—I think the Defense Department can handle itself. I think the Defense Department can defend itself. But if I were someone who wished the American economy ill, after I had tried to get into the Defense Department a few times and failed, I would decide, well, if I cannot take down Hill Air Force Base, I will take down Dearborn. I will cause widespread destruction and disruption by going after corporate systems.

What have you done in this process, back to your comment, Mr. Roberts—and referring to the CIO Magazine comment about we are upgrading and we feel strongly—what have you done on security and preparing yourself against a stalker that would come at you and, say, for purely malevolent purposes, I want to get into your system and one place or another shut you down and cause serious disruptions?

Mr. ROBERTS. I think that the vulnerability is getting more and more with the literacy of the general public becoming more and more computer literate. That challenges corporations such as ours to take extraordinary measures on security. We build, in the common buzz words of firewalls and security, barriers to have access into our systems and our computers. I do not believe that any of us have the security that the Defense Department has but I believe that it is a high priority in most of our large corporations.

To the extent that we can detect, certainly detect, to prevent may be an additional challenge, but in detecting it allows you to do measures to prevent.

Chairman BENNETT. OK.

Mr. Krichbaum?

Mr. KRICHBAUM. Mr. Chairman, I think that all of us are trying to increase the security efforts that we have out there and increase the firewalls. One of the things that we plan to do specifically during the transition weekend, or roll-over, is to isolate our systems to make sure that, during that period of time when there are many press articles about the potential of hackers and other people, we do not in any way get contamination in the system. However, we are periodically posting year 2000 readiness disclosure information to our web site (*www.praxair.com*) and we plan to continue updating the site through the millennium date change.

Of course, that is only one period of time and eventually you have to put systems back online. But it does allow you to make sure that during that window you have secured the systems.

So, we pursue that at this point.

Chairman BENNETT. Thank you very much.

I appreciate your testimony and it has been very helpful.

[The prepared statement of General Motors can be found in the appendix.]

Chairman BENNETT. The committee stands adjourned.

[Whereupon, at 12:34 p.m., the committee was adjourned.]

APPENDIX

ALPHABETICAL LISTING AND MATERIAL SUBMITTED

PREPARED STATEMENT OF RON BALLS

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1. Introduction

The International Telecommunications Union (ITU) Year 2000 Task Force welcomes the opportunity to address the United States Senate Special Committee on the Year 2000 Technology Problem, and to detail the measures that the ITU has taken to prepare the telecommunications industry for the Year 2000 transition.

Members of the Task Force, which are drawn from many of the largest telecommunications operators and suppliers, are confident that no major disruption to telecommunications will occur as a result of the Year 2000 issue. The international carriers are well advanced with their Y2K programs. Many have completed their equipment upgrades and are now in the business continuity planning stage. Where difficulties remain, they are largely confined to the less developed economies, and the ITU has been working hard in these regions to advise and assist these operators to achieve as much as possible in the time remaining.

2. Background

Following representation from a number of major telecommunications operators, the ITU–T Study Group 2 established a Year 2000 Task Force in March 1998. The Task Force had the objective of raising awareness of Year 2000 and associated issues with telecommunication operators, providing practical advice and support, and ensuring cross-fertilization of Year 2000 best practices amongst the operators.

The World Telecommunication Development Conference (Valletta, 1998), placed the matter on the agenda of the ITU - Telecommunication Development Bureau (BDT) as an issue to be addressed on an urgent basis.

Subsequently the Plenipotentiary Conference of the International Telecommunication Union held in Minneapolis in late 1998 (PP–98), adopted a Resolution COM 105, proposed by the USA, entitled "Urgent need for prompt action to address the Year 2000 problem". Through this resolution, the Plenipotentiary Conference resolved to give every possible encouragement and support to the efforts of operators and carriers around the world to address the problem and called upon operators to take the necessary steps to prevent system failures.

3. ITU Approach to Outreach

The ITU Year 2000 activities have been carried out in close and active collaboration between different branches of the ITU. This has ensured a balance between the needs and interests of the developed and developing countries in terms of Y2K preparedness.

In addition, the Task Force has operated in a spirit of co-operation and with a recognition of the mutual benefit to be gained by the pooling of resources and expertise in the face of this challenge. It is therefore not a surprise, to those who know the background and history of the ITU, that the Year 2000 Task Force has achieved high levels of co-operation, both across countries and between competing operators

in the same country, to a level probably unprecedented outside the telecommunications industry.

The Task Force was formed within the existing structure of the ITU–T Study Group 2, which exists to provide a forum for standards definition and exchange of information to facilitate transfer of telephone calls between the various operators and administrators. It has sought to involve as many industry representatives as possible in the work of the Group, both from telecommunications operators and from hardware and software suppliers. It has relied also on members' hard work and dedication to the goal of beating the Y2K bug, while ensuring others are as well prepared as possible.

3.1 *Task Force Terms of Reference*

The Terms of Reference of the Year 2000 Task Force are to:

- raise Year 2000 awareness among all telecommunication administrators and operators
- provide practical advice, support and information
- establish the compliance position of all carriers and operators and influence compliance where possible
- promote sharing of information within the telecommunication community and with other customers
- promote cross-fertilization of Year 2000 best practices among the membership
- provide support and encouragement to developing countries on Year 2000 compliance readiness.

The Year 2000 Task Force has approached its task through a combination of measures. Regular meetings and audio-conferences have been held between members of the Task Force and of its various sub-groups.

See Attachment A.

These groups cover the following areas:

- inter-carrier testing
- business continuity planning
- information management
- early warning
- developing countries.

See Attachment B

3.2 *Compliance Questionnaire*

The Year 2000 Task Force prepared a Y2K compliance questionnaire, which was issued in April 1998 to all ITU members. To date, the Task Force has received over 530 responses from 150 countries, representing more than 300 Operators/Carriers.

Further details are at Attachment E including a copy of the summary in the public domain on the web site.

The responses have assisted the Task Force in identifying problem areas to target for action.

The summary results of the questionnaire are available on the public section of the ITU website, while the full questionnaire results are available through the site's closed user group. The Closed User Group access is only available to Telecoms Operators/Carriers and then only to those who have completed and returned a questionnaire.

An electronic update facility has been provided to enable operators to update their information.

This is the only source of data, that we are aware of, which provides a summary of the overall Year 2000 position of Telecom Operators which is in the public domain (available to all who have access to the world wide web). As such this is referenced extensively by Operators, many customer groups and Year 2000 sector bodies.

3.3 *Regional Sub-Groups*

Regional sub-groups have also been established to concentrate on specific areas of the world:

- Arab countries
- African countries (French speaking)
- African countries (English speaking)
- North America
- Latin America
- Asia Pacific.

All of the sub- and regional groups have held meetings and are pursuing their own activities, some via electronic communication. The results of their work are regularly posted on the ITU Y2K website (www.itu.int/y2k), after review and approval by the Information Management subgroup. The ITU Year 2000 website has links to websites of other organizations and companies, including operators, financial institutions, vendors and regional bodies, providing Year 200 related information, including compliance programs, test results and best practice advice, etc.

In addition, the activities of the Year 2000 Task Force have been publicized and promoted through the web pages and through regular articles in the ITU's magazine, the ITU News, which is distributed to all ITU members world-wide.

3.4 *Year 2000 Guide for Telecommunication Operators*

Through active collaboration between experts, a comprehensive Year 2000 Guide has been prepared. The Guide provides telecommunication operators with a high-level overview of the process of dealing with the Year 2000 phenomenon. The Guide has been widely distributed, under the signature of the ITU Secretary-General, to all ITU Member States, sector members, National Y2K Co-ordinators as well as to other international and regional bodies and standards organizations.

The Guide is available on the ITU's website in four languages (English, French, Spanish and Russian).

The Guide supplements other activities of the Year 2000 Task Force and the technical assistance activities undertaken. It provides all telecoms administration, particularly those in developing countries, with timely practical advice on how to prepare their telecommunication infrastructure for the millennium change.

3.5 *Partnership and Collaboration*

The ITU's Year 2000 work covers all segments of the telecommunication industry, representing both operators and suppliers. Experts gave generously of their time and expertise by participating in the workshops and subsequently providing advice.

Significant and highly valued in-kind contributions have been received from the Government of Australia, British Telecommunications, Bell South International, Cable & Wireless, Deutsche Telekom, INMARSAT, INTELSAT, South Africa Telkom and Telia. The Administrations of South Africa, Morocco, Egypt, Australia, Brazil, and Russian Federation, Poland and Jordan have provided support and facilities for the organization of workshops.

The project benefits from extensive collaboration with international organizations such as the World Bank, UNDP and regional telecommunication organizations such as ASETA and APT and RCC.

Financial contributions have been received from a number of Operators, Vendors and other Organizations. These contributions are placed in a separate project account and the contributory sponsors are provided with periodic progress reports.

The Task Force has maintained close contact and co-operation with other organizations dealing with the Y2K compliance problem. These include the *info*Dev program of the World Bank, the OECD and the European Union. Where appropriate, website links have been established between these organizations and the ITU website and vice versa.

3.6 *International Year 2000 Co-operation*

The Task Force has fully supported the United Nations initiative relating to the National Coordinators and to this end has

a) given presentations at both United Nations meetings

- 11 December 1998

and

- 21–23 June 1999)

b) hosted a meeting (in Geneva in 3rd to 4th May 1999) of International Sector Coordinators from:

International Civil Aviation Organization (ICAO)
International Air Transport Agency (IATA)
International Maritime Organization (IMO)
International Energy Agency (IEA)
Unipede/Eurelectric
Global 2000 (Private Financial Institutions) Joint Year 2000 Council (Public Financial Institutions, Regulators, Security Commissions etc.)
World Bank

3.6 *Other Groups*

Joint Year 2000 Council

The Chairman of the Task Force sits on the External Consultative Committee to the Joint Year 2000 Council to provide input on Telecommunication Year 2000 status to this Public Sector Finance Group.

Global 2000

Similarly a close relationship is maintained with the Global 2000 group to provide a linkage with the private financial sector.

EUVA/INTUG

Regular presentations are given to Telecommunications User Groups and sector bodies including the European Virtual Private Network Users Group (EUVA), International Telecommunications User Group (INTUG) and the Securities and Investment Association (SIA) etc.

3.7 Expert Support

Requests for expert inputs in launching and managing Year 2000 programs have been received from several administrations and many of these have been met.

It is likely that more requests will be received in the near future.

A delegation of the experts from the Year 2000 Task Force will be visiting two major areas of the world for consultation and discussions with operators and administrators on aspects of testing and business continuity planning. The visits are planned for August-September 1999.

4. Impact of Year 2000 on International Telecommunications

It is unlikely that there will be material disruption to the telecommunications network in terms of call connectivity. There is very little date information passed across the interfaces in real time. Major Operators have undertaken extensive tests, many using the five layer model with the final layer being Inter-Carrier (International Testing)

A primary focus of the work of the ITU Year 2000 Task Force has been on intercarrier testing. A considerable number of operators have been involved in this activity, carrying out a comprehensive range of tests.

The broad strategy is to ensure that tests are carried out involving each type of International Gateway Switch and with as much global reach as is possible in the time and that logistics will permit.

To date tests have successfully been completed involving the following Gateways:

Alcatel	E10	S12
Ericsson	AXE10	
Lucent	4ESS	5ESS
NEC	Neax 61E	
NORTEL	DMS300	
SIEMENS	EWSD	

Futher detail is at Attachment C.

There may still, however, be difficulties in connecting a call to some Operators, and there may be some consequential effects due to traffic being diverted via other routes. However, the Task Force remains of the view that major players and their major trading partners are not likely to see significant disruption to service as a direct result of Y2K.

An impact which does require some attention is the possibility of congestion at the time of the Century Date Change with an increased level of calls and customers checking for dial tone.

5. Status of Preparedness (by region)

5.1 *Raising awareness*

A primary goal to ensure the achievement of the following components throughout the various regions of the world:

- Raise awareness of potential problems and potential solutions among developing countries and disseminate information required for establishing and managing Year 2000 programs at national and sectoral levels;
- Provide platforms for the exchange of information amongst operators in the developing countries with operators with established Year 2000 programs and suppliers;
- Provide expert support to countries requesting assistance in launching and managing their Year 2000 programs;
- Conduct assessments/studies highlighting the needs of developing countries; and
- Collaborate with other organizations, viz., *info*Dev Program of the World Bank, the United Nations Development Program, and Regional Telecommunication Organizations (viz., APT, ASETA, RCC etc.).

5.2 *Information Dissemination*

Absence of awareness is an obstacle that must be overcome in order to enable operators and governments to initiate action to address the problems associated with the year 2000 risks. To tackle lack of awareness at government level the ITU has pursued the "awareness raising" component by sending communications to Member States and sector members and organizing a series of workshops in different regions.

By raising awareness and providing a forum for the exchange of information, the goal is to prevent at least major system failures related to the Year 2000 problem. In July 1998 a communication was sent to all administrations and sector members relating to the Year 2000 problem including the tool kit developed by the Task Force together with the ITU Year 2000 self-assessment questionnaire.

5.3 *Regional Workshops*

Workshops have been organized in different parts of the world with the support of industry and other organizations with an interest in assistance to developing countries, notably the World Bank *info*Dev program.

The objectives of the workshops are to:

- generate awareness about the implications of the Y2K problem
- initiate and strengthen information sharing between operators with established programs and developing countries
- promote and strengthen effective supplier relations; and
- provide information, standards, tools and techniques in evolving strategies and developing action plans to manage successful compliance programs, including contingency plans.

In addition, a number of workshops focusing on specific issues, such as contingency planning and business continuity have taken place.

The participants in the workshops have come from administrations and operating agencies, major vendors and international and regional satellite organizations and the World Bank. The workshops addressed a range of issues which are essential to a successful Year 2000 compliance program such as testing, quality assurance, management of supplier relations and contingency planning. The supplier panels featured presentations on the status of compliance of products, the capacity to meet the needs of operators and their own contingency plans.

Workshops dates, locations and number of attendees are in Attachment D.

The workshops enabled the identification of countries that need further assistance as well as the future information needs of developing countries. The participants in the workshops decided to constitute themselves as Regional Working Parties on the ITU Year 2000 Task Force in order to maintain a flow of information. While enlarging the scope of participation in the Task Force, this structure facilitates a continuous sharing of experience and creates a continuing forum in which to discuss mutual issues and problems and develop common solutions.

Operator views on their expected completion dates for Year 2000 readiness, as advised at the recent workshops are at Attachment xx (In a number of instances this is an update on the questionnaire responses)

5.5 *ITU/World Bank Report on situation in Sub-Saharan Africa*

As part of the activities highlighting the needs and specific situation of developing countries, the ITU and the World Bank's Information for Development (*info*Dev) Program commissioned a study covering 46 African countries of sub-Saharan Africa entitled "Impact of the millennium bug on telecommunications in sub-Saharan Africa". The study estimated the monetary and other resource requirements to upgrade or replace network elements, operating systems, management systems, telex and mobile networks, in order to achieve Y2K compliance.

The objective of the study was to answer the question as to the resource requirements of the Year 2000 compliance program in telecommunication with a view to raising funds on an emergency basis for the Year 2000 remediation in the telecommunications sector in sub-Saharan Africa. This study is being considered by the World Bank and other agencies with a view to raising the resources required for maintaining the most critical elements of the telecommunication infrastructure in the region.

5.6 *Asia Pacific*

The Asia Pacific region has been particularly active in addressing the Y2K problem, with regional initiatives led by Telstra Corporation of Australia. A fortnightly mailing list was established to advise the responsible managers throughout the operators and suppliers in the region of IT Y2K taskforce activities. All Task Force documents were distributed to more than 25 carriers in the region.

In addition, Telstra has taken a lead role in inter-carrier testing in the region, both domestically and internationally. Since the regional workshop held in March 1999 in Queensland, Australia, there has been a surge of interest and participation

in the tests. The key issue has been the availability of captive environments, with live switches proposed to be used in some cases. Suppliers have also been keen to participate in these. Within Australia, Telstra Corporation is working co-operatively with competitors through the Australian Communications Industry Forum (ACIF) to manage business and community expectations via a focus on inter-carrier service continuity, including cross-network testing and contingency planning.

There has also been considerable activity on testing carried out in Japan, Korea, Philippines and Singapore amongst others.

5.7 *Arab States*

The ITU Arab Region Y2K Task Force was set up in December 1998 and its most recent meeting was held in Amman, Jordan, in the period 20–22 April 1999. The meeting was organized jointly by the ITU Regional Office in Cairo and the Jordan Telecommunications Company.

Delegates representing 13 Arab States participated in this meeting, namely: Algeria, Egypt, Jordan, Libya, Mauritania, Morocco, Oman, Palestine, Saudi Arabia, Sudan, Syria, United Arab Emirates, and Yemen. Representatives from the ITU Task Force, international carriers, operators, and suppliers were present including Arabsat, British Telecom, BCTEL (Canada), World Space, Iridium, Alcatel, and Siemens.

Each delegation from the operators in the Arab region who were present, as well as the carriers, presented very briefly the status of their Year 2000 programs. The picture that emerges from the region is optimistic. Most operators are on course for completing the compliance programs, now turning to deploy contingency plans, and a few major ones are likely to participate in inter-carrier testing with other operators in the region and further afield. A few least developed countries are still in need of expert advice and input.

5.8 *South and Central America*

The workshop in Foz-do-Iguacu hosted by Brazil in March 1999 did much to clarify the position in the Region. There is a high level of activity, with active participation in inter-carrier testing and some innovative approaches to testing. However, there are still some gaps in information pertaining to some countries. The active involvement of CITEL in the Task Force, it is hoped, will contribute to both increased participation and information sharing in the region.

5.9 *Central and Eastern Europe*

The workshop in Moscow for the CIS Region and the Baltic States, and the one in Warsaw for Central Eastern Europe, represented the first major contact between the operators and administrations in the region and the Task Force. Most operators in the region suggest that their compliance programs would be completed towards the end of the year.

At the workshops there has been valuable discussion between the Testing experts on the Task Force and the operators and there were several expressions of interest in participating in inter-carrier testing. However, some concerns still remain and relate in particular to equipment which is no longer supported by manufacturers because they have ceased to trade. The Task Force plans to further build on the contacts established with a workshop on contingency planning, and possibly by visiting a few countries in the region.

5.10 *North America*

The North American Telcos have provided extensive support to the work of the Task Force with leadership being provided by GTE. Other involved groups are the major Long Distance Carriers, the US Telco Forum (and some of its individual members), the Canadian Telco Forum (and individual members) and others.

5.11 *Western Europe*

Western European Operators have carried out inter-carrier testing involving a number of Companies and have provided extensive support to the Task Force.

6. Contingency Planning/Business Continuity

Following the awareness phase, a major element of the work programme has related to Business Continuity Planning. The subgroup working on this has prepared material covering the following subjects and these have been loaded onto the website:

- Strategy
- Business Processes
- Impact Analysis
- Templates
- Generic Business Processes for Telecommunications Operators
- Glossary
- Slide Packs (for within company presentations)

Worked examples will be placed on the web site shortly and a publication similar the Guide (referred to earlier) is being prepared.

Activity training programmes are planned in different parts of the world and the initial session was held in Amman, Jordan on 20–22 April 1999. A second workshop was planned for the CIS Region (Irkutsk, 13–15 July 1999) at the invitation of the Russian Administration however this has been postponed to later this year to ensure relevant attendance. Training programs are also planned for the Africa Region in collaboration with the UNDP and the Asia-Pacific Region.

The main objectives of the programme are to:

- Provide operators with the background and methodology on how to develop contingency and business continuity plans, and demonstrate these through practical workshops designed specifically for this purpose; and
- Provide a forum for discussion between the operators and major suppliers and facilitate information exchange on the compliance status of products and systems and contingency plans.

Where appropriate the training programme will also cover testing with the objective to:

- Share information and exchange experiences about conducting tests at component, cluster and service levels; and inter-carrier testing within a region and other regions

Existing processes, using the Universal Restoration Manual, augmented as needed, will be used for handling any international congestion or terminal difficulties.

Early Warning

The Asia Pacific region is key to the "Early Warning" system being established, using a "Follow the Sun" approach to the transition period. Between New Zealand and Thailand there is a 6 to 8 hour window of time, within which 90% of all switch types and 90% of all transmission equipment will be in operation. This region therefore represents a microcosm of global telecommunications within a 6 hour window, and will provide the rest of the world with valuable data on any difficulties that may emerge.

The Early Warning sub group has plans in place to monitor the position through each of the 24 time zones adopting a positive reporting approach (30 minutes after midnight and at noon on the first working day) with information being held on a database at the National Co-Ordination Center in the USA. Participating Operators will input to this and have access to the information.

7. Outstanding Issues

The workshops have been successful in the objective exchange of information on the programs of various countries. The presence of suppliers provided a good opportunity for both parties to discuss problems associated with their equipment and systems. The workshops have established that awareness of the problem is rising. Several countries have national planning mechanisms in place. Even in the absence of national programs, telecommunication operators have begun addressing the issue, though it is a matter of concern that lack of national planning may aggravate interdependency problems. In many developing countries progress is typically constrained by factors such as:

- Lack of commitment at highest levels of the organization;
- Sound project management;
- Shortage of skills at various levels;
- Lack of facilities such as testing environment;
- Lack of funds; and
- Low supplier response.

In view of the likely demand for assistance over the next few months, ITU has requested operators with established programs to provide expert resources for short periods to be deployed in developing countries.

While it is difficult to accurately estimate likely requirements that may arise in the future it is inevitable that this will be a growing demand and some of this will be for assistance next year to resolve any difficulties emerging. The growing list of countries requiring assistance and the limited resources of expertise available may become a bottleneck. The ITU is seeking more support from those countries and operators that are more advanced and have well-established programs in place.

Attachment A

Schedule of Meetings

Task Force:

- 3-4 March 1998
- 3-4 June 1998, Geneva, Switzerland
- 28-29 September 1998, London, UK
- 4 November 1999 (Study Group 2), Geneva, Switzerland
- 11-12 March 1999, Melbourne, Australia
- 4-5 May 1999 (Study Group 2), Geneva, Switzerland

Next Meeting 16-18th August Toronto
October / November Geneva

Sub-group Meetings:

Inter-carrier Testing:
- 18 February 1998, London UK
- 17 April 1998, London UK
- 20 May 1998, Stockholm, Sweden
- 11-12 August 1998, London, UK
- 7-11 September 1998, Nuremberg, Germany (testing);
- 10 September 1998, Teleconference
- 22-23 October, Nuremberg, Germany
- 8-9 December 1998, Washington DC
- 10 March 1999, Queensland, Australia
- 4 May 1999, Geneva, Switzerland

[Additional audio conferences for closed user group members only.]

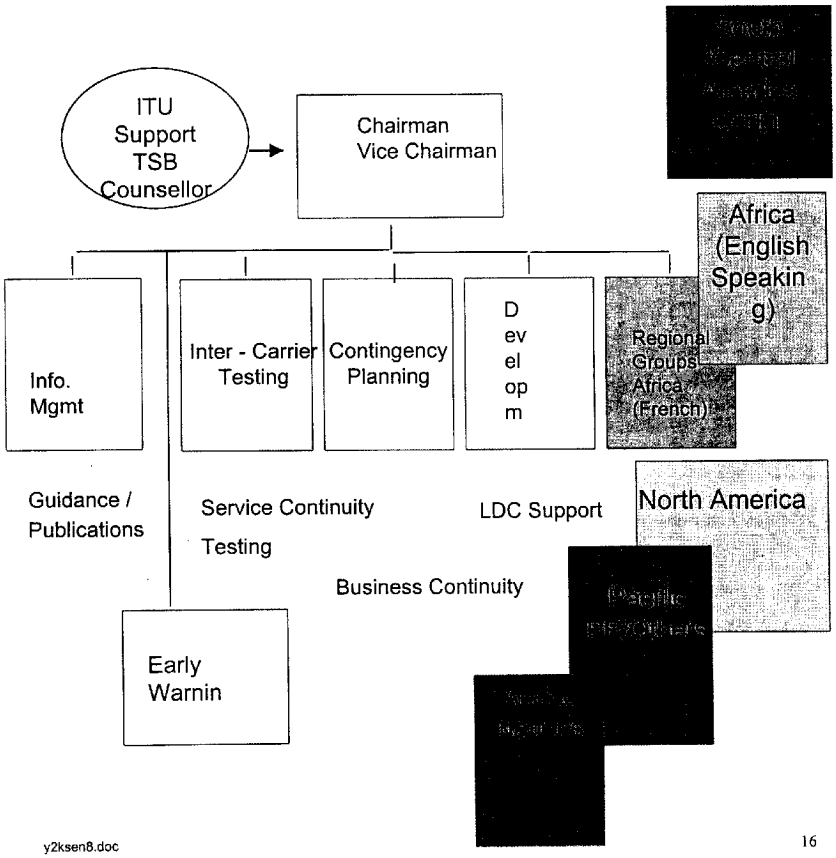
Business Continuity Planning:
- 29 September 1998, London UK
- 10-11 December 1998, Washington DC
- 10 March 1999, Queensland, Australia
- 4-5 May 1999, Geneva, Switzerland.

[In addition, several audio-conferences were held between meetings.]

Information Management:
- 22 July 1998, London, UK
- 5 August 1998, London, UK
- 29 September 1998, London, UK
- 10 March 1999, Queensland, Australia
- 5 May 1999, Geneva, Switzerland

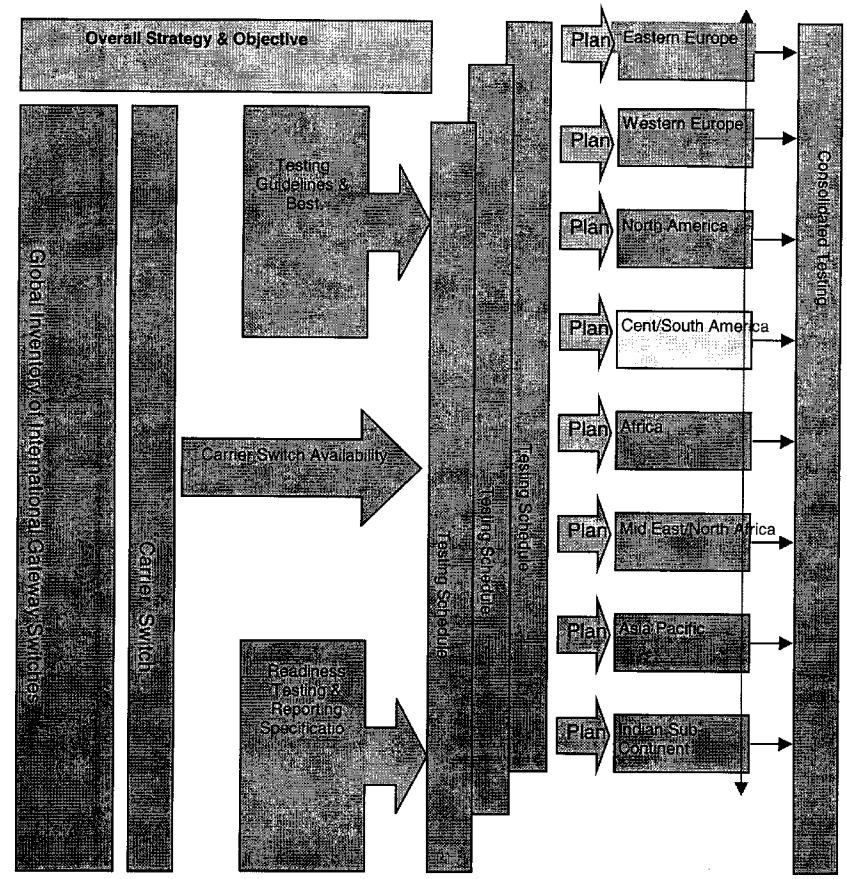
Attachment B

ITU Year 2000 Task Force Structure

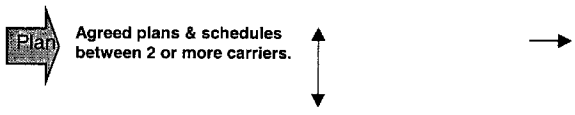


Inter- Carrier Testing

Attachment C



Key



Attachment C

Inter-Carrier Testing

Five Testing Levels

VENDOR

INDIVIDUAL TELECOM OPERATOR

INTRA-NETWORK (within Country)

INTER-NETWORK (Trunk Carrier , within Country)

INTERNATIONAL INTER - OPERABILITY

Testing 1998

Norway - UK - North America	June
Germany - Sweden - Hong Kong	September
Spain - Peru	October

Testing Completed 1999

South Africa	-	Hong Kong	(1/99)
Australia	-	Singapore	(2/99)
USA	-	Switzerland	(2/99)
Singapore	-	Malaysia	(2/99)
Norway	-	Denmark	(3/99)
Singapore	-	Hong Kong	(4/99)
USA	-	South Africa	(5/99)
USA - Canada - Mexico - France – Germany			(5/99)
Taiwan	-	Hong Kong	(5/99)

Testing Scheduled 1999

USA	-	Hong Kong / Singapore
Jordan	-	USA
UAE	-	Morocco / Oman /Saudi Arabia
Malaysia	-	Taiwan
Singapore	-	Korea / Indonesia
Thailand	-	Singapore
UK	-	Hong Kong

Attachment D

Year 2000 Workshops

Event	Date	Location	Operators / Carriers	Approx. total Attendees
CTO	Apr-98	Stone	45	60
Africa Telecom	May-98	Johannesburg	-	25-30
Africa Dev. (English)	Sep-98	Pretoria	21	100+
Africa Dev. (French)	Sep-98	Rabat	19	75-200
Anatel	Oct-98	Brasilia	All Brasilian Operators	100+
Andean Ops.	Oct-98	Quito	5	25
Arab Region	Dec-98	Cairo	10	24
Asia Pacific	March 1999	Queensland	44	150+
South America	March 1999	Brasil	22	100+
CIS / Baltics	April 1999	Moscow	15	75
Arab Region	April 1999	Amman	17	60
Central Europe	June 1999	Warsaw	10	45

Attachment E

Survey Responses
(as at 18th June 1999)

DETAILS FROM THE TASK FORCE WEB SITE

Further detail may be provided with the express consent of the operator.

DISCLAIMER

This data is provided only for the purpose of general information and is done so with the permission of those entities that responded to the questionnaire. The ITU assumes no responsibility for the accuracy or completeness of this data and shall not be liable for any damages whatsoever arising out of the use of this data.

Country	Operator	Compliance Date	Tested
Botswana	Botswana Telecoms Corp	01/06/99	1/6/99
Botswana	Tebela		
Burkina Faso	Onatel Burkina Faso	01/06/99	1/6/99
Burundi	ONATEL		
Chad	Societe des Telecoms International	01/06/99	1/6/99
Chad	Office Nat. De P&T (ONPT)		-
Comoros	Societe des Postes & Telecoms	01/06/99	1/3/99
Egypt	Telecom Egypt	01/06/99	Q3 1999
Eritrea	Telecom Service	30/05/99	Jun-99
Gambia	Gamtel	01/01/99	1999
Ghana	Telecom		TBD
Guinea-Bissau	Guine Telecom	01/06/99	1/6/99
Kenya	P&T Corporation	01/12/98	1/6/99
Kenya	H.J. Hamid	31/05/99	31/09/99
Lesotho	Lesotho Telecoms Corp	01/06/99	01/06/99
Liberia	Liberia Telcom Corp.		-
Libya	General Post & Telecom Co.		
Madagascar	Malagasy Regulator		-
Malawi	Posts & Telecoms Corp.		
Mauritius		01/01/99	1999
Mauritius	Mauritius Telecom	01/12/98	1/6/99
Mozambique	Telecommunications de Moz.		
Namibia	Telecom Namibia	01/05/99	1/6/99
Niger	Sonitel	01/06/99	1/8/99
Sao Tomé & Principé	Co. Santomese De Tel.	01/12/98	Mar-99
Senegal	Sonatel	30/06/99	Jan-99
Seychelles	C&W (Seychelles)	01/12/98	12/98+
Sierra Leone	Sierratel	01/11/99	-
South Africa	Telkom South Africa	31/12/98	Mid 99
Sudan	Sudatel	30/06/99	Mid 99
Swaziland	PTT	01/08/99	1/10/99
Swaziland			-
Tanzania	ICS (IT Co.)		Now
Tanzania	Tanzania Telecomms Co.TTCL	01/06/99	TBD
Tanzania	Zanzibar Tel (Zantel)		TBA
Tanzania		30/06/99	Mid 99
Togo Republic of		01/09/99	Jul-99
Uganda	Uganda Telecom Ltd.	30/06/99	31/10/99
Zambia		01/12/98	Mar-99
Zambia	Zambia Telcomms Co.		TBA
Zimbabwe	P&T Corp	01/10/99	Oct-99

Australia	MCI WorldCom	30/06/99	30/09/99
Australia	Iridium		
Australia	Austar / Windytide	01/06/99	Jun-99
Australia	AAPT	01/12/98	Early 99
Australia	Telstra	01/06/99	01/06/99
Australia	Vodafone	01/12/98	01/12/98
Australia	C&W Optus	01/04/99	01/11/99
Bahrain	BATELCO Bahrain	01/12/98	1/12/98
Bahrain	Bahrain Telecomms	01/12/98	12-98 +
Bangladesh	BTTB (BGD)	01/08/99	01/09/99
Bhutan		01/06/99	-
Brunei	DST Communication Sdn Bhd	01/07/99	01/08/99
Brunei Darussalam	Brunei Telecom Dept.		-
Brunei Darussalam	Jabatan Telekom		
China	China Telecom	01/06/99	1/3/99
Diego Garcia	DG Op Unit C&W	01/12/98	12-98+
Fiji	Fiji International Telcoms	01/12/98	1/6/99
Fiji	Telecom Fiji	30/06/99	Jun-99
French Polynesia	Office de P&T de la Polynesie Francais	30/09/99	30/09/99
Hong Kong	New World Tel.	01/06/99	Jun-99
Hong Kong	HK Telecoms IMS	01/12/98	12-98+
Hong Kong	Peoples Tel. Co.	01/09/99	Sep-99
Hong Kong	New T&T Hong Kong Ltd.	01/09/99	Q3 99
Hong Kong	Hong Kong Telecom	31/12/98	12/98
Hong Kong	Hutchison	01/12/98	Q1 99
Hong Kong	MCI WorldCom	30/06/99	30/09/99
India	VSNL	01/12/98	May-99
India	Dept. of Telecomms		TBA
India	C&W	01/12/98	12-98+
India	Srinivas Cellcom Ltd.	01/09/99	01/11/99
Indonesia	PT Citra Sari Makmur	01/06/99	01/08/99
Indonesia	PT Daya Mitra Malindo	01/12/98	12-98+
Indonesia	PT Indosat	01/07/99	01/07/99
Indonesia	PT Telesera	01/07/99	01/07/99
Indonesia	PT Lintas Arta	01/07/99	01/07/99
Indonesia	PT Exelcomindo	01/11/99	01/11/99
Indonesia	PT Mobisel	01/11/99	01/11/99
Indonesia	PT Indoprima Mikroselindo	01/11/99	01/11/99
Indonesia	PT Ratelindo	01/03/99	01/03/99
Indonesia	PT Satelindo	01/09/99	01/09/99
Indonesia	PT KomselindoMetro Selular Raya	01/06/99	01/06/99
Indonesia	PT Telkom	01/12/99	01/12/99
Indonesia	Telkomsel	01/12/99	01/10/99
Israel	Bezeq International Ltd.	01/07/99	1/7/99
Japan	MCI WorldCom	30/06/99	30/09/99
Japan	International Digital Comms Inc. (IDC)	30/06/99	30/06/99
Japan	KDD	01/09/99	Sep-99
Japan	NT Consulting	01/12/98	Mar-99
Japan	NTT	30/06/99	30/06/99
Japan	C&W Japan	01/12/98	12-98+
Japan	Japan Telecom Co., Ltd.	30/06/99	30/09/99
Japan	DDI	30/06/99	30/06/99
Jordan	NIC	01/12/98	6/99
Jordan	National Group for Comms (NGC), Jordan Telecommunications	01/06/99	10/99
Jordan	JMTS - Fastlink	01/03/99	5/99

Jordan	Telecomms Reg. Commission	Dec-98	Feb-99
Jordan	Jordan Telecommunications	01/05/99	5/99
Kiribati	Telecom Services Kiribati Ltd (TSKL)	01/06/99	-
Korea Republic of	Korea Telecom	01/06/99	01/06/99
Kuwait	Ministry of Communications	TBA	TBA
Laos	Lao Telecom	01/11/99	01/11/99
Macau	Companhia de Telecomms de Macau Sarl	01/12/98	12-98+
Malaysia	CELCOM	30/06/99	30/06/99
Malaysia	DiGi Telecomms Sdn Bhd	01/06/99	01/06/99
Malaysia	Maxis Binariang Berhad	30/03/99	Q2 99
Malaysia	Telekom Malaysia	01/06/99	7-12 /99
Maldives	Dhivehi Raajjeyge Gulhub	01/12/98	12/98+
Maldives	Dhiraagu Put. Ltd. (Min. or T&P)	01/06/99	Jun-99
Micronesia	GTE International - Micronesa	31/03/98	31/7/98
Myanmar			-
Nepal	Nepal Telecom Corporation	01/11/99	01/11/99
New Caledonia	New Caledonia Direction de Telecommunications		Being Studied
New Zealand	Clear	01/01/99	1/7/99
New Zealand	Telecom New Zealand	-	-
New Zealand	Telstra	30/06/99	Mid 99
Oman	General Telecom. Org.	Dec-98	Jun-99
Pakistan	Paktel	01/12/98	12-98+
Papua New Guinea	Telkom Papua New Guinea	01/08/99	01/99
Philippines	EasyCall Communications	01/06/99	1/9/99
Philippines	Smart	01/07/99	1/7/99
Philippines	Bayatel	01/03/99	1/3/99
Philippines	Eastern Telecommunications Philippines Inc.	05/07/99	05/07/99
Philippines	Globe Telecom	01/03/99	1/6/99
Philippines	Long Distance	01/12/98	Mid 99
Philippines	Islacom	01/12/98	1/3/99
Philippines	NTC	01/06/99	12/1/99
Philippines	Philcom	01/09/99	1/9/99
Philippines	PT&T	01/03/99	Q2 99
Philippines	PLDT	01/06/99	1/6/99
Qatar		30/03/99	Q1 99
Saudi Arabia	Saudi Telecom Co, (STC)		TBA
Singapore	MCI WorldCom	30/06/99	30/09/99
Singapore	Singapore Telecom	Q1 1999	
Solomon Islands	Solomon Telekom	01/12/98	-
Sri Lanka			
Syria	Syrian Telecom Est.	01/03/99	Jul-99
Taiwan, R.O.C.	Chunghwa Telecom Co., Ltd.	30/06/99	30/06/99
Thailand	Thai Comms Authority	01/07/99	Oct-99
Thailand	Compunet Corp. Ltd	01/12/98	12-98+
Thailand	Telephone Organisation of Thailand	01/02/99	Feb-99
Tonga	C&W	01/12/98	12/98+
United Arab Emirates	Emirates Telecom Corp.	01/12/98	Mar-99
Vanuatu	C&W	01/06/99	Oct-99
Wallis and Fortuna	Service de Telecommunications, Wallis & Fortuna	01/06/99	1/6/99
Yemen Republic of	Yemen International Tel	01/12/98	12-98 +
Yemen Republic of	Teleyemen		TBA

Azerbaijan	Azerbaijan A. A.	01/09/99	01/09/99

Bosnia & Herzegova	PTT	01/07/99	01/07/99
Bulgaria	RTC - Mobikom	01/12/98	01/05/99
Bulgaria	Bulgarian Telecom Co.	01/03/99	Jun-99
Czech Republic	SPT	01/06/99	1/6/99
Estonia	Estonian Tele Co.	01/05/99	Sep-99
Kyrgyztan	Kyrgyz-American Telephone	01/11/99	01/11/99
Lithuania	AB Lietuvos Telekomas	01/09/99	01/11/99
Moldova	Pecnydinra Molgoba	01/09/99	
Poland	Netia Telekom	01/08/99	01/08/99
Poland	Poland Telecom	Jul-99	Oct-99
Russia Federation	Sakhain Telecom Ltd.	01/12/98	12/98+
Russia Federation	Sakhalin Svyaz	01/12/98	12/98+
Russia Federation	Nakhodka	01/12/98	12/98+
Russia Federation	Sovintel	Mar-99	Mar-99
Russia	State Committee	01/08/99	01/09/99
Russia	Rostel	01/06/99	01/08/99
Slovak Republic	Slovak Telecom	01/05/99	Jun-99
Uzbekistan	P&T Agency	01/12/99	Dec-99

Anguilla Islands	Ang. Op Unit (C&W WI)	01/12/98	12-98+
Antigua & Barbuda	C&W Caribbean Cellular	01/12/98	12-98+
Antigua & Barbuda	Ant.Op Unit (C&W WI)	01/12/98	12-98+
Argentina	GTE International - Argentina	31/03/98	31/7/98
Argentina	Compania de Telecom del Interior (CTI) [GTE]	01/03/99	1/7/99
Argentina	Movicom (CRM)or (CTI) [GTE]		
Argentina	Teintar Unidad Operativa Norte		
Argentina	Telefonica de Arg.	01/05/99	Jun-99
Argentina	Telintar SA	31/07/99	31/7/99
Argentina	Telecom Argentina	30/06/99	15/08/99
Ascension	Asc.Is. Operating Unit	01/12/98	12/98+
Barbados	BET	01/12/98	Dec-98
Barbados	Digital Inform. Systems Ltd	01/12/98	12-98+
Barbados	Barbados Tel Co.	01/12/98	12-98+
Barbados	Barbados Comms Services	01/12/98	12-98+
Barbados	Bartel	01/12/98	Mar-99
Bermuda	Bermuda Op Unit C&W WI	01/12/98	12-98+
Brazil	Embratel	01/12/98	1/3/99
Brazil	France Telecom America do Sul	01/12/98	01/09/99
Brazil	Telesp Cellular S/A	31/12/98	30/6/98
Brazil	TESS S/A Brazi	30/06/99	31/07/99
Brazil	TVA - Sistema De Televisio	01/06/99	01/06/99
Brazil	Global Telecom S/A	01/06/99	N/A
Bolivia	Comteco Ltd	01/09/99	01/10/99
Bolivia	Cotel - La Paz	TBA	TBA
Bolivia	COTES LTDA	01/07/99	01/07/99
Bolivia	Cooperative de Tel. Druro Ltda	01/06/99	01/06/99
Bolivia	COTEVI		
Bolivia	Cooperative de Tel. Potosi Ltda	01/09/99	01/09/99
Bolivia	Coteautri Limitdas	01/06/99	01/06/99
Bolivia	COTECO LTDA	01/06/99	01/09/99
Bolivia	ENTEL	01/10/99	01/10/99
Bolivia	Telefonica Celular de Bolivia (Telecel)	01/06/99	01/06/99
Bolivia	Superintendencia de Telecoms	01/06/99	01/06/99

Canada	Sprint	01/12/98	Q1/99
Canada	MT&T (ST)	01/12/98	1/12/98
Canada	North West Tel (ST)	01/12/98	1/12/98
Canada	Sask Tel (ST0	01/12/98	1/12/98
Canada	New Tel Communications (ST)	01/12/98	1/12/98
Canada	MTS (ST)	01/12/98	1/12/98
Canada	TELUS (ST)	01/12/98	1/12/98
Canada	Island Tel (ST)	01/12/98	1/12/98
Canada	Stentor	01/12/98	Dec-99
Canada	GTE International - Canada	31/03/98	31/7/98
Canada	NB Tel (ST)	01/12/98	1/12/98
Canada	MCI WorldCom	30/06/99	30/09/99
Canada	Teleglobe	01/12/98	Dec-98
Canada	Quebec Tel (ST)	01/12/98	1/12/98
Canada	BC Tel (ST)	01/12/98	1/12/98
Canada	Bell Canada (ST)	01/12/98	1/12/98
Cayman Islands	Cayman Op Unit C&W WI	01/12/98	12-98+
Chile	Entel SA	Mar-99	Jun-99
Colombia	Radioenlace LTDA	01/09/99	10/99
Colombia	Emtelsa S.A. E.S.P.	01/09/99	10/99
Colombia	EPSA E.S.P	01/09/99	10/99
Colombia	Espectracom LTDA-Colombia	01/09/99	10/99
Colombia	EPM-Bogota S.A. E.S.P.	30/04/99	31/05/99
Colombia	ETB	01/09/99	10/99
Colombia	Ceumovil S.A	01/05/99	01/06/99
Colombia	Musicar S.A	01/09/99	10/99
Colombia	Occel S.A	01/09/99	10/99
Colombia	En Linea S.A	01/09/99	10/99
Colombia	Telbuenaventura S.A. E.S.P	01/09/99	10/99
Colombia	Telearmenia E.S.P.	01/09/99	10/99
Colombia	Telebeeper LTDA	01/09/99	10/99
Colombia	Telecalarca	01/09/99	10/99
Colombia	Telecartagena E.S.P.S.A	01/09/99	10/99
Colombia	Telesantarosa	01/09/99	10/99
Colombia	Trunking S.A	01/09/99	10/99
Colombia	Empresa Nacional De Telecoms.	01/09/99	10/99
Colombia	Asecones Calilimitada	01/09/99	10/99
Colombia	Teletulua E.S.P.S.A	01/09/99	10/99
Colombia	Edatel S.A ES.P	01/09/99	10/99
Colombia	Dian-Colombia	01/09/99	10/99
Colombia	Compania De Comunicaciones	01/09/99	10/99
Colombia	Comcel S.A	01/09/99	10/99
Colombia	Centracom S.A	01/09/99	10/99
Colombia	Buscaperonas S.A	01/09/99	10/99
Colombia	Empresas Publicas de Bucaramanga	01/09/99	10/99
Colombia	Ministero de Comunicaciones	30/09/99	30/10/99
Costa Rica	Radiográfica Costarricense S.A.	31/12/98	31/06/99
Cuba	Empressa de Telecoms. De Cuba	01/10/99	01/11/99
Dominica	C&W	01/11/98	Dec-98
Dominica	Dominica Op Unit	01/12/98	12-98+
Dominican Republic	CODETEL	01/03/99	1/6/99
Dominican Republic	GTE International - Dominican Republic	31/03/98	31/7/98
Grenada	Grenada telecoms (Grentel)	01/12/98	12-98+
Guyana	GTEL Co.	01/12/98	Dec-98
Jamaica	C&W Jamaica Ltd.	01/12/98	Dec-98
Jamaica	Jamaica Digiport Internat.	01/12/98	12-98+

Mexico	MCI WorldCom	30/06/99	30/09/99
Mexico	Telecomunicacciones de Mexico	Jun-99	Jul-99
Monserrat	Montserrat Op Unit C&W	01/12/98	12-98+
Panama	C&W Panama	01/12/98	12-98+
Peru	Telfonica de Peru	01/12/98	Dec-98
Puerto Rico	GTE International - Puerto Rico	31/03/98	31/7/98
St Helena	St. Helena Op Unit C&W	01/12/98	3/1/99
St Lucia	C&W	01/12/98	Mar-99
St Vincent & the Gren.	St. Vincent Op Unit C&W	01/12/98	12-98+
St Vincent & the Gren.	Ministry of Finance	01/10/99	TBA
St.Kitts and Nevis	St Kitts & Nevis Telecomms	01/12/98	12-98+
Suriname	Telesur (Surinam)	01/08/99	1/8/99
Trinidad & Tobago	TSTT	31/03/99	Q1 99
Turks & Caicos Islands	C&W	01/09/98	Dec-98
UK Virgin Islands	BVI Op Unit C&W WI	01/12/98	12-98+
Uruguay	ANTEL	31/07/99	31/7/99
USA	BellSouth	01/06/99	01/06/99
USA	C&W	01/12/98	12-98+
USA	Ameritech	01/01/99	3Q 99
USA	Cisco	01/09/97	9/1/97
USA	Global One	01/12/98	1/12/98
USA	AT&T	30/06/99	Jun-99
USA	Cincinnati Bell	07/01/99	1/7/99
USA	GTE	31/03/99	31/7/99
USA	C&W USA	01/12/98	12-98+
USA	OMNES	01/12/98	12-98+
USA	Bell Atlantic		1/7/99
USA	PrimeTEC International	01/06/99	9/99
USA	MCI WorldCom	30/06/99	30/09/99
USA	Sprint	30/06/99	30/6/99
USA	KTAN	30/06/99	30/09/99
Venezuela	CANTV	01/06/99	1/6/99
Venezuela	GTE International - Venezuela	31/03/98	31/7/98
Venezuela	Telcel Celular	01/06/99	01/06/99
Austria	P&T	01/06/99	Q2 99
Belgium	Institute P & T	01/12/99	Dec-99
Belgium	MCI WorldCom	30/06/99	30/09/99
Belgium	Belgacom	01/06/99	Jun-99
Belgium	C&W (Belgium Ltd)	01/12/98	12/98+
Belgium	Hermes Europe Railtel	01/12/98	Dec-98
Belgium	Siemens	01/03/99	1/12/99
Belgium	Alcatel	31/12/99	31/12/99
Croatia	HPT	01/12/98	12-98+
Cyprus	Cyprus Telecommunications Authority	30/06/99	30/06/99
Denmark	Debitel Denmark	01/03/99	3/99
Denmark	Cybercity Internet		
Denmark	Intercite Denmark	01/06/99	6/99
Denmark	Global One Communications	01/03/99	3/99
Denmark	Tele Danmark	01/12/98	1/6/99
Denmark	Banestyrelsen	01/07/99	7/99
Denmark	Image Scandinavia A/S	01/07/99	7/99
Denmark	Mobilix	01/06/99	6/99
Denmark	RSL COM	01/12/99	12/99
Denmark	World Call	01/07/99	7/99

Denmark	Tele1000	01/10/98	11/98
Denmark	Tele 2 A/S	01/05/99	5/99
Denmark	Synergidata A/S	01/06/99	6/99
Denmark	Telia	01/09/99	01/09/99
Finland	Finnet Group		TBA
Finland	Telia Finland		Jun-99
Finland	Sonera	01/10/98	Jun-99
France	Brigitte Bissauce Siris	01/12/98	Dec-98
France	Bouygues	01/12/98	Mar-99
France	Alcatel	01/12/99	End 99
France	Omnicom	01/04/99	Jun-99
France	France Telecom	01/03/99	Jul-99
France	C&W	01/12/98	12/98+
France	Siris	01/05/99	6/99
France	MCI WorldCom	30/06/99	30/09/99
France	Cegetel	01/03/99	6/99
Germany	Viag		-
Germany	DT	01/07/99	1/12/99
Germany	MCI WorldCom	30/06/99	30/09/99
Gibraltar	Gibtel	01/12/98	Jun-99
Greece	OTE Hellenic Telecomms Org	01/06/99	15/10/99
Greenland	Tele greenland		
Hungary	Bakonytel Telecommunications	01/07/99	Jul-99
Hungary	Deltav Telecommunications		-
Hungary	Digitel 2002 Ltd.		-
Hungary	Dunatel Telecommunications	01/07/99	Jul-99
Hungary	EGOM-Com Concessions Ltd	01/07/99	Jul-99
Hungary	Emitel Telecommunication Ltd	01/06/99	Sep-99
Hungary	Hungarian Telecomms Co.	01/09/99	Sep-99
Hungary	Hungarotel Telecommunications	01/06/99	Jun-99
Hungary	Jasz-Tel Telekommunikacios	01/05/99	May-99
Hungary	Kelet-Nograd-Com	01/06/99	Jun-99
Hungary	Monor Telefon Tarsasag		
Hungary	Papatel Concessions Ltd.	01/06/99	Jun-99
Hungary	Raba-Com Telecommunications	01/06/99	Jun-99
Hungary	Westel 450 Telecomms.		-
Hungary	Kisduna - Com Telecomms	01/07/99	Jul-99
Iceland	Iceland Telecom Ltd.	01/12/98	1/7/99
Ireland	MCI WorldCom	30/06/99	30/09/99
Ireland	C&W	01/12/98	12/98+
Ireland	Telecom Eireann	01/07/99	Sep-99
Ireland	Esat Telecom	30/09/99	30/09/99
Italy	MCI WorldCom	30/06/99	30/09/99
Italy	Unisource Italia SpA/ Italy	01/03/99	01/04/99
Italy	Telecom Italia	01/06/99	01/07/99
Italy	Ministry of Comunication		No date
Italy	C&W Italia SA	01/12/98	12/98+
Latvia	Lattlekom	01/06/99	01/08/99
Latvia	Baltcom GSM	01/06/99	01/06/99
Latvia	Department of Telecoms		
Latvia	Latvijas Mobilous Telefons	01/09/99	01/09/99
Luxembourg	Enterprise Des Postes & Telecomms	01/06/99	7/99
Luxembourg	Tele 2 Europe SA	01/06/99	Jun-99
Malta	Maltacom PLC	01/10/99	1/10/99
Malta	Dept of Wireless Telegraphy	01/06/99	Mid 99
Netherlands	AT&T Unisource	01/05/99	1/6/99

Netherlands	Telfort	Jun-99	Aug-99
Netherlands	MCI WorldCom	30/06/99	30/09/99
Netherlands	PTT	01/07/98	Dec-98
Norway	Telenor	01/07/98	01/09/99
Norway	Telenordia	30/06/98	22/05/98
Portugal	Portugall Telecom	01/06/99	1/6/99
Portugal	Marconi	01/06/99	Jun-99
Spain	Telefonica	01/12/98	Jan-99
Spain	C&W	01/12/98	12/98+
Spain	Entidad Publica		
Sweden	Ericsson	01/06/99	01/06/99
Sweden	Europolitan AB	19/06/99	19/06/99
Sweden	Telenordia AB	30/06/99	22/5/99
Sweden	Tele 2 AB	31/05/99	31/05/99
Sweden	MCI WorldCom	30/06/99	30/09/99
Sweden	Telia AB	31/05/99	30/06/99
Switzerland	MCI WorldCom	30/06/99	30/09/99
Switzerland	SITA	01/12/98	1/12/98
Switzerland	Swisscom AG	01/12/98	9/9/99
Switzerland	Sunrise - Newtelco		Sep-99
Switzerland	Global One	01/12/98	-
Switzerland	C&W	01/12/98	12/98+
Switzerland	Unisource Carrier services	01/12/98	1/7/99
Turkey	Turk Telecom		Jun-99
United Kingdom	AT&T Communications UK Ltd	30/06/99	30/06/99
United Kingdom	C&W Nautec	01/12/98	12/98+
United Kingdom	BT	01/12/98	Dec-98
United Kingdom	C&W Global Markets	01/12/98	12/98+
United Kingdom	CWC	01/12/98	To mid 99
United Kingdom	Energis	31/12/98	28/2/99
United Kingdom	Cambridge Cable	01/06/99	1/6/99
United Kingdom	Esprit Telecom	01/06/99	1/6/99
United Kingdom	Kingston Communication Ltd	01/12/98	1/12/98
United Kingdom	Eurobell	01/06/99	1/6/99
United Kingdom	Frontel Communications t/as Frontier Communications International	30/09/99	30/09/99
United Kingdom	Guernsey	01/03/99	1/3/99
United Kingdom	Jersey	01/12/98	1/3/99
United Kingdom	HP		
United Kingdom	MCI WorldCom	30/09/99	30/09/99
United Kingdom	C&W Gemini	01/12/98	12/98+
[redacted]			
Hong Kong	Asia Satellite Telecomms	01/12/98	Dec-98
Hong Kong	APT Sat. Control Center	01/06/99	Jun-99
Indonesia	PT Indosat	01/06/99	Sep-99
Indonesia	Indosat	01/03/99	Jun-99
Indonesia	PT Satelit Palapa (Satelindo)	01/01/99	Jun-99
Philippines	Philcomsat	01/09/99	Q4 99
United Kingdom	Inmarsat	31/12/98	Mar-99
USA	Intelset	06/01/99	Q3 99
USA	COMSAT	Q3 99	Q3 99
[redacted]			
Bulgaria	Mobiltel	30/06/99	Q2 99
France	Bouygues Infomobile	01/12/98	Dec-98
France	FT Mobile	01/12/98	-
Germany	E-Plus		1/6/99

Hong Kong	Smartone	01/04/99	Apr-99
Hungary	Westel 900 GSM	01/07/99	Jul-99
Hungary	Pannon GSM	01/09/99	Sep-99
Russia Federation	ST Mobile	01/12/98	12-98+
Singapore	MobileOne Asia	01/12/98	12-98+
South Africa	Mobile Tel. Networks	01/12/98	12-98+
Tanzania	Tritel	30/06/99	Q3 99
Thailand	Thai Comms	01/07/99	Oct-99
United Kingdom	Vodafone	30/06/99	30/06/99
United Kingdom	Cellnet	01/12/98	1/4/99
United Kingdom	One -2- One	01/12/98	12-98+

Notes:
* A blank or '-' in these columns means that the Operator has advised of work underway but is unable or unwilling at this stage to advise on completion date
** To be Decided
*** To be Advised

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RESPONSES OF RON BALLS TO QUESTIONS SUBMITTED BY CHAIRMAN BENNETT

Question 1. In your testimony, you alluded to but did not discuss infrastructure problems (power, transportation, etc.) in developing countries. To what extent will ITU members have back-up capabilities in the event that host nation infrastructures fail?

Answer. Most Telecommunication Operators have power supply back ups. In the event of power failure batteries take over for the extremely short period that it takes for the oil fueled generators to kick in. The quantity of oil supplied will depend on the site and assessment of risk etc., and could be in the range of a few days to 30 or so. Some sites in lesser developed countries, more used to power outages, will have more than one generator at key locations.

Question 2. Determining the Y2K readiness of technical equipment produced by manufacturers that are no longer in business is a problem the Committee has discussed in other venues. Can you estimate how much of this non-supportable equipment is currently operating and the possible impact on the telecommunications network?

Answer. Very little with the International Gateway switches. For local switches and applications it is difficult to assess but thought to be relatively low.

Question 3. Business continuity and contingency planning is particularly important for all public utilities and particularly telecommunications. To what extent will telecommunications companies have back-up infrastructure capabilities in the event of power and transportation failures?

Answer. See 1 above.

Question 4. Discussions on "Early Warning" systems assume the 6-hour follow-the-sun window between New Zealand and Thailand will provide invaluable warning data. Will you please briefly describe to the Committee just how the specifics of any Y2K problem will be propagated at the technical level so all countries can learn and take advantage of Y2K failure discoveries?

Answer. We have set up a database whereby those Telecommunications Operators who have 'signed up" to the scheme will have the facility (password protected) to enter data and receive (read data). The scheme is restricted to telecomm Operators and Carriers. It will be up to each individual Operator or Carrier to communicate on a wider basis to both their own customers and infrastructure providers in the particular country.

Question 5. The global economy is heavily dependent on telecommunications due to electronic commerce. How do you suggest that global companies prepare for alternative methods of communication if portions of the telecommunications network fail?

Answer. Each individual needs to discuss the specifics of this with their service provider as this will vary from company to company and from country to country (e.g. some will permit VSAT whereas others may not). You will find that most global companies (multi-national Corporations already have this in hand within their own business continuity plans.

Question 6. The dates for completion of testing reported in the survey responses attached to your statement are questionable to the Committee. If one goes down page after page of the survey responses, the preponderance of dates for being tested occur on or before the data of this hearing, July 22, 1999. For instance, 68% of the Western European companies that responded said they would be tested by now. Corresponding numbers for other regions are: Africa—55%, Asia/Australia—66%, Eastern Europe—50%, and the Americas—54%. Have these companies really made this much progress? Is the ITU doing anything to independently verify data it is receiving in its surveys on Y2K readiness?

Answer. If you look at the web site you will see a considerable number of updates since the date of the hearing. We have made considerable efforts in this direction following our last meeting (ITU Year 2000 Task Force) in August held in Toronto.

Progress is checked at workshops that are held in specific parts of the world, visits to specific countries (recently India, Pakistan and China) and support missions (predominantly Africa).

The Task Force is made up of volunteers from Telco's giving their time—we do not have finance available to engage independent auditors.

Question 7. You've stated that the picture that emerges from the Arab States is "optimistic." Yet in the survey response, there was no data from these states. Are these states not cooperating in the ITU's surveys, and if so, can you tell us why? Also, how do you reach the assessment that there is reason for optimism?

Answer. You have not looked at the data closely enough. Careful inspection will show many Arab States in the summary but not under a specific 'Arab' heading (see under Africa and Asia). We have, however, changed the web site and now have a specific North African/Middle East Section.

Optimism—by talking to the Year 2000 Programme Managers and by inspection of their plans/program at the workshops we have held.

Question 8. The chart from the Global 2000 group that was referred to in the opening statements was not as optimistic in the 49 countries covered as your statement. For instance, only 17 of the 49 countries in the table were rated as having adequate information and satisfactory progress. That's only 34% of the countries listed in the chart. Your statement is much more optimistic. Could you explain the reason for the difference in these points of view?

Answer. Yes, as I stated in the meeting the Global 2000 chart has two prime criteria.

a) Progress

b) Information in the public domain

Not all Operators (regrettably) have given sufficient attention to public disclosure.

If you look at the latest Global 2000 chart (V8.2) you will see a different picture (more optimistic).

Question 9. Coordination of contingency plans across country boundaries is an important action to avoid global chaos. For instance, the International Civil Aviation Organization (ICAO) is coordinating regional Air Traffic Control contingency plans. Is the ITU or any other body that you know of taking actions to coordinate country to country contingency plans so that one country's contingency plan will not hurt the telecommunications operations of another country or countries?

Answer. You cannot equate Telco contingency plans with that of air transport, the physical transfer and the means of transmission are different. Contingency plans are locally based and will not impinge on another country.

The ITU Year 2000 Task Force has published guidance related to re-routing of International traffic to mitigate against possible congestion. This is in addition to the Universal Restoration Manual that is used and the normal communication (conference Bridge) between the Network Management Operators Centres of the major telecomm operators.

PREPARED STATEMENT OF GARY BEACH

My name is Gary Beach and I am publisher of CIO magazine, the leading publication for chief information officers (CIOs) and other senior executives who use information technology (IT) to improve their business. CIO magazine provides current information and case studies on the effective use of technology. Our readers work in major corporations, primarily Fortune 1000, and in federal, state and local government agencies.

My Year 2000 expertise includes daily dialogues with business and technology executives as publisher of CIO magazine, and my work on the Steering Committee of YES Corps, an international network of voluntary Y2K experts supported by the International Y2K Cooperation Center, the United Nations and the World Bank. The subject of my testimony is "Global Corporations and Their Exposure to Y2K."

In June of this year, a public-interest coalition of CIO magazine; Dr. Ed Yardeni's Y2K Center, a public service of the chief economist of Deutsche Bank Securities; and Information Systems Audit and Control Association (ISACA), a recognized global leader in information technology governance, control and assurance, conducted a Y2K Experts Poll. The coalition polled Y2K experts in an effort to help the public and their policy officials assess the Year 2000 readiness of organizations around the world. The survey addressed Y2K corporate issues of readiness, confidence, third-party failures, contingency planning, legal issues, economic impact and the personal at-home actions of executives close to the Y2K remediation process.

The poll was conducted via the Web. An e-mail invitation from the three coalition members asked recipients to participate only if they were professionally and actively involved in Y2K projects. Respondents linked to an electronic polling form in the e-mail solicitation. CIO magazine invited CIOs and other high-level executives from its subscriber list to participate; ISACA invited its worldwide members. The titles of respondents included accountant/auditor, chief executive officer, president, chief financial officer, chief technology officer, information technology consultant, management consultant, Y2K projects consultant, and manager, director, or vice president of information technology or information systems. The online poll closed June 16 with a final, qualified sample size of 892 respondents, a very respectable sample with a plus or minus error of 3.3 percent.

The majority or 55 percent of respondents were from large, U.S.-based corporations. Forty-five percent represented firms outside the United States. Sixty-one percent of respondents reported their firm employed more than 1,000 employees. The majority of poll participants were from the financial sector (26 percent), followed by manufacturing (17 percent), government (9 percent), and healthcare (5 percent). Respondents were roughly split three ways among IT executives, finance executives and corporate management.

The Y2K Experts Poll is a snapshot of Y2K readiness among large global firms with an average of 1,300 partners or suppliers connected in a worldwide, electronic domino chain.

Now, I would like to present the major findings from the Y2K Experts Poll that are particularly relevant to this hearing. For your edification, complete findings of the poll are included with this testimony.

In the survey, we asked respondents when they expected to finish all phases of their Y2K projects, including testing. Their responses indicate 1999 Y2K project completion is moving along, but not completed. Eighty percent reported they were more than three-quarters finished. However, 33 percent admitted they were behind schedule. In addition, 8 percent, or almost one in ten, said they will not complete their Y2K work until the Year 2000 or beyond.

Keep in mind these are huge, global firms with significant fiscal and human resources to focus on Y2K. I am concerned that many companies are behind schedule with only six months left until the immovable deadline. If a significant number of large, global companies are lagging, what does that say for small businesses here and abroad? Small companies simply do not have the same level of manpower and resources as big companies.

Nowhere have I seen data, until this poll, that quantifies the percentage of large firms that admit they are not going to make the turn-of-the-century deadline. The fact remains, no one knows what will happen if organizations are not ready for the millennium. What this data does show us is that some large, global companies already know their computerized systems will not be ready in time. The consequences could range from minor inconveniences like a disruption in utility service to widespread economic, social and political upheaval. Given the range of outcomes, businesses should obviously make every effort to prepare for the Year 2000.

Respondents were also asked to characterize their organizations' contingency planning. The poll found 49 percent of companies had a contingency plan and 50

percent did not have one or were still in the process of creating one. Of the respondents with a contingency plan, 60 percent said they were already implementing it. Contingency plans could include training employees how to perform tasks manually versus via computer. The poll also found contingency planning by this group of Y2K experts did not include significant stockpiling of business materials, supplies or products. Thirty-four percent of companies said they were not stockpiling; 19 percent of companies said they were preparing to have two to seven days of extra inventory on hand. Translation: more than likely, any economic disruptions will be triggered by fear, not by additional inventory stockpiling.

We also asked firms about their supply chain, specifically how they were assessing their vendors' Y2K preparedness as well as what percentage of their vendors were not Y2k ready at the time of the poll. We found 12 percent of large companies were verifying their business partners' Y2K readiness by conducting on-site visits. Forty-eight percent of respondents had sent out questionnaires followed by telephone calls. 20 percent had sent out questionnaires with no telephone follow up, and 13 percent were having informal conversations with their partners about the state of their readiness. Mr. Chairman, Y2K readiness is not a topic to be relegated to the level of informal conversations.

In my face-to-face personal conversations with CIOs, many tell me they think they will be ready. But, when I ask about their partners, their eyes drift toward the floor and they say they don't know. They cannot verify their trading partners' readiness. I am concerned that large corporations are not taking the danger of supplier failure seriously enough. Why not? Three reasons come to mind: 1) time, there is not enough of it to verify the Y2K readiness of the supply chain, 2) expense, corporations are extended fiscally simply getting their own house in order and 3) logistics, how can they possibly manage the complexities of verifying the Y2K readiness of 1,300 other companies? Too many businesses appear to be relying heavily on trust. Companies are more rigorous when it comes to preparing routine legal contracts. In this case, we are talking about the potential for serious repercussions.

Globally speaking, supply chain readiness poses its own set of problems. While American multinational corporations may be able to exert leverage with domestic trading partners, they may have much less leverage with some of their critical supply-chain partners overseas, namely government-owned telecommunications and electrical utilities in foreign countries. Often national governments operate these services and there are few, if any, alternate commercial providers.

The supply chain, which is heavily interconnected, may seriously be affected by incomplete or no delivery of Y2K-compliant mission-critical software. Thirty-five percent of large firms said they have not received Y2K-compliant versions of mission-critical software programs from third-party vendors.

We asked respondents if any of their mission-critical systems were expected to fail or malfunction as a result of Y2K. One of the most daunting statistics from our survey was that these large firms expected 3 percent of their mission-critical systems to fail or malfunction. Again, we are talking about mission-critical systems. Some large companies, providing anything from utilities to consumer products, may not be able to provide people with the necessities they rely on like food, water and electricity. Furthermore, 3 percent of respondents said they expect major problems in their telecommunications service; and 2 percent said they expect major problems with their electrical service. So there will be problems, not widespread, but major problems nonetheless.

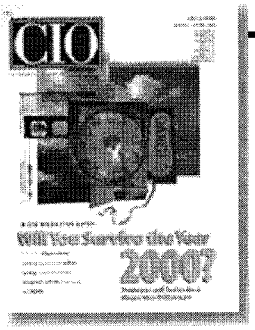
It is clear that not every company is going to make the January 1, 2000 deadline. There is good reason to believe that mission-critical software is not going to be delivered in time. I'd like to leave this committee with the following call to action. By September 30, 1999, organizations should be compelled to have a contingency plan in place. To help them accomplish this goal, the Senate Special Committee on the Y2K Technology Problem could provide answers to frequently asked questions about "How To" develop a contingency plan. This information must be made available online.

CIO magazine, ISACA and Dr. Ed Yardeni's Y2K Center will be conducting a second Y2K Experts Poll in September. At that time, it will be interesting to note the percentage of contingency plans companies have created and put into place as well as whether the mission-critical software delivery numbers change.

Thank you for the opportunity to share my testimony and the data from the Y2K Experts Poll with you.

CIO

Global Corporations & Their Exposure to Y2K

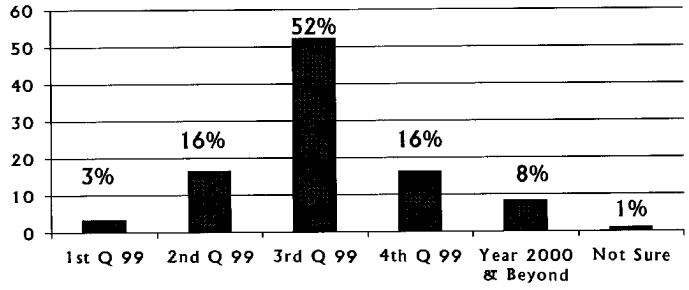


Testimony of Gary Beach
Publisher
CIO Magazine

CIO

Y2K Readiness: Companies Are Lagging

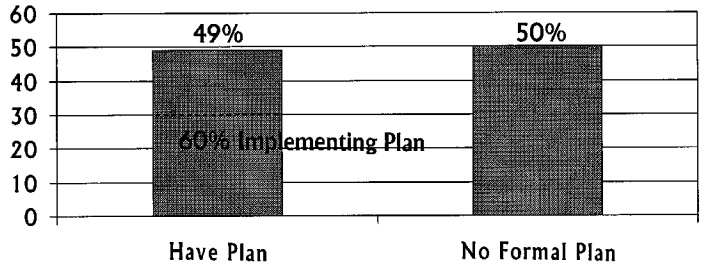
- When do you expect to finish all phases of the Y2K project, including testing?



Base: 889
Source: *CIO Magazine / ISACA / Dr. Yardeni's Y2K Center / June 1999.*

CIO Contingency Plans Are Lacking

- Q. How would you characterize your organization's contingency plans?



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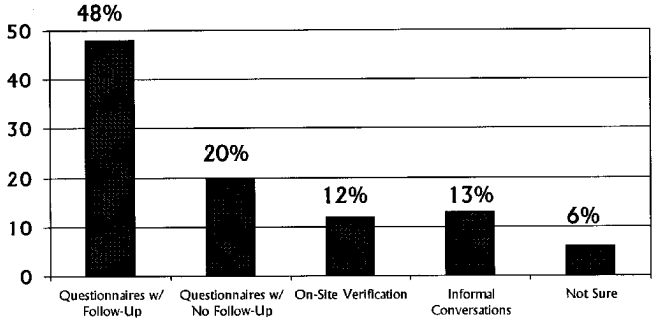
Source: *CIO Magazine / ISACA / Dr. Yardeni's Y2K Center / June 1999.*

CIO Vulnerability in the Supply Chain

- Q: How far along are you in assessing your vendors?



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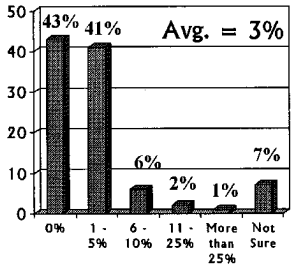
Source: *CIO Magazine / ISACA / Dr. Yardeni's Y2K Center / June 1999.*

CIO Mission Critical Software

- Q: Will your mission critical systems fail or malfunction as a result of Y2K?



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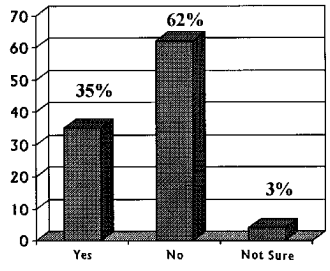
- Q: Are you waiting for Y2K compliant versions of mission critical software to be delivered?



Base 887

Source: *CIO Magazine / ISACA / Dr. Yardeni's Y2K Center / June 1999.*

Dr. Ed Yardeni's Economics Network
Poll Results People Polls

Y2K Experts Poll
CIO Magazine, ISACA, & Dr. Ed Yardeni's Y2K Center
June 1999

• Welcome to the Y2K Experts Poll conducted during June 1999 by an informal public-interest coalition of CIO Magazine, ISACA, and Dr. Ed Yardeni's Y2K Center. We hope these results will help the public and their policy officials to assess the readiness of organizations around the world for the century date change. We invited some of the world's top Y2K professionals, with first-hand knowledge, to participate in this poll. The poll was conducted from June 9-16, and first posted here on June 18, 1999.

Join us as we work to be the recognized global leaders in IT governance, control and assurance. Information Systems Audit and Control Association

CIO *Visit CIO.com's Y2K Research Center for links to all the CIO articles on Y2K, and much more.*

• 1) Organization type (Total Votes: 892)

Business Services-Technology: 76	8.5%
Business Services-Other: 50	5.6%
Distribution-Retail & Wholesale: 35	3.9%
Energy: 10	1.1%
Finance-Banking, Securities, Insurance: 228	25.6%
Government-National, Federal, Military: 79	8.9%
Health Care: 43	4.8%
Legal Services: 3	0.3%
Manufacturing-Computer & Communications related: 27	3.0%
Manufacturing-Other: 120	13.5%
Personal Services: 3	0.3%
Recreation and Leisure Services: 5	0.6%
Telecommunications: 30	3.4%
Transportation & Shipping-Airlines, Railroads, Maritime: 22	2.5%
Utilities-Electric, Gas, & Water: 31	3.5%
Other: 130	14.6%

• 2) Indicate the size of your organization (Total Votes: 883)

Very Small: 1-20 employees: 32	3.6%
Small: 21-100 employees: 59	6.7%
Medium: 101-500 employees: 156	17.7%
Large: 501-1000 employees: 98	11.1%
Very Large: More than 1000 employees: 538	60.9%

• 3) Country/Region (Total Votes: 888)

Global company or organization: 181	20.4%
Africa: 14	1.6%
Asia-Australia & New Zealand only: 31	3.5%
Asia-Japan only: 7	0.8%
Asia-excluding Japan, Australia, & New Zealand: 32	3.6%
Canada: 34	3.8%
Europe-Euroland: 25	2.8%
Europe-Scandinavia: 17	1.9%
Europe-United Kingdom: 9	1.0%
Latin America: 17	1.9%
Middle East: 13	1.5%
Russia & Eastern Europe: 6	0.7%
United States: 492	55.4%
Other: 10	1.1%

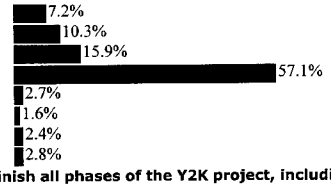
• 4) Your job category (Total Votes: 890)

Accountant/Auditor: 273	30.7%
Chief Executive Officer, President: 17	1.9%
Chief Financial Officer: 14	1.6%
Chief Information Officer, Chief Technology Officer: 93	10.4%
Consultant-Information Technology: 48	5.4%
Consultant-Management: 16	1.8%
Consultant-Y2K Projects: 44	4.9%
Director (Board): 4	0.4%
Manager, Director, VP-IT, IS, MIS, DP, Networking, etc.: 290	32.6%
Manager-Investor Relations: 0	0%
Manager-Production: 1	0.1%
Manager-Purchasing: 0	0%
Owner, Partner, Self-Employed: 4	0.4%
Software Programmer: 8	0.9%
Systems Analyst: 28	3.1%
Other: 50	5.6%

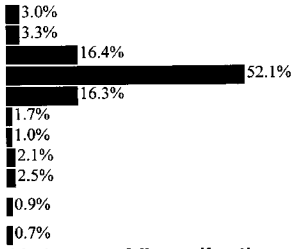
• 5) How far along is your organization in completing the Y2K project? (Total Votes: 885)

Less than 25% complete: 17	1.9%
25-50% complete: 26	2.9%
51-75% complete: 127	14.4%
76-99% complete: 636	71.9%
100% complete: 74	8.4%
Not sure: 5	0.6%

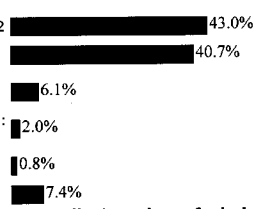
• 6) How far ahead or behind schedule is your Y2K project? (Total Votes: 878)



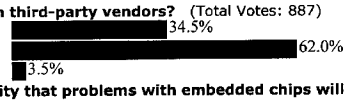
• 7) When do you expect to finish all phases of the Y2K project, including testing? (Total Votes: 889)



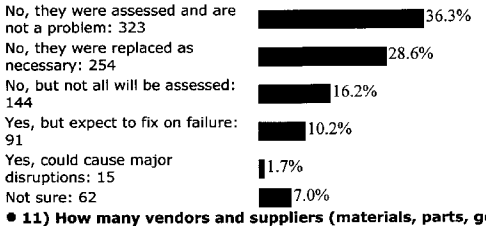
• 8) Will any of your mission-critical systems fail or malfunction as a result of Y2K? (Total Votes: 889)



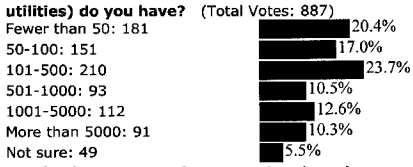
• 9) Are you still waiting for Y2K compliant versions of mission-critical software programs to be delivered from third-party vendors? (Total Votes: 887)



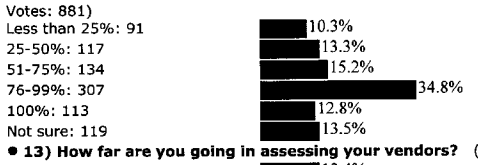
• 10) Is there a high probability that problems with embedded chips will occur in your organization? (Total Votes: 889)



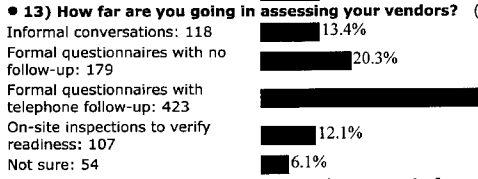
• 11) How many vendors and suppliers (materials, parts, goods and services, and utilities) do you have? (Total Votes: 887)



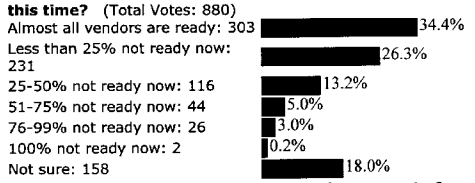
• 12) What percent of your vendors have been assessed for Y2K readiness? (Total Votes: 881)



• 13) How far are you going in assessing your vendors? (Total Votes: 881)



• 14) On the basis of an assessment, what percent of your vendors are not Y2K ready at this time? (Total Votes: 880)



• 15) On the basis of an assessment, what percent of your vendors do you believe will not be ready? (Total Votes: 881)

Almost all vendors should be ready: 487 — 55.3%
Less than 25% might not be ready: 240 — 27.2%
25-50% might not be ready: 34 — 3.9%
51-75% might not be ready: 11 — 1.2%
76-99% might not be ready: 9 — 1.0%
100% might not be ready: 1 — 0.1%
Not sure: 99 — 11.2%

- **16) On the basis of an assessment, rate your confidence in your electricity service.** (Total Votes: 888)

No problems likely: 450 — 50.7%
Expect minor problems: 385 — 43.4%
Expect major problems: 19 — 2.1%
Not sure: 34 — 3.8%

- **17) On the basis of an assessment, rate your confidence in your telephone service.** (Total Votes: 884)

No problems likely: 440 — 49.8%
Expect minor problems: 383 — 43.3%
Expect major problems: 28 — 3.2%
Not sure: 33 — 3.7%

- **18) What percent of your customers do you believe will not be ready?** (Total Votes: 888)

All are expected to be ready: 210 — 23.6%
Less than 25% might not be ready: 424 — 47.7%
25-50% might not be ready: 94 — 10.6%
51-75% might not be ready: 22 — 2.5%
76-99% might not be ready: 11 — 1.2%
100% might not be ready: 1 — 0.1%
Not sure: 126 — 14.2%

- **19) Characterize your organization's contingency plans.** (Total Votes: 885)

No formal plan: 68 — 7.7%
Still formulating plan: 374 — 42.3%
Plan is ready, but not implemented: 175 — 19.8%
Plan is getting implemented: 261 — 29.5%
Not sure yet: 7 — 0.8%

- **20) Do contingency plans include extra inventories of materials, supplies, and products by year-end?** (Total Votes: 884)

No extra inventories planned: 299 — 33.8%
Yes, 2-7 days: 169 — 19.1%
Yes, 1-2 weeks: 145 — 16.4%
Yes, 3-4 weeks: 97 — 11.0%
Yes, 5-12 weeks: 41 — 4.6%
Yes, more than 12 weeks: 17 — 1.9%
Not sure: 116 — 13.1%

- **21) Are legal concerns an issue for your organization?** (Total Votes: 883)

No: 264 29.9%
Yes: 555 62.9%
Not sure: 64 7.2%

- **22) Are lawsuits against your organization likely?** (Total Votes: 888)

No: 521 58.7%
Yes, but they will be mostly without merit: 224 25.2%
Yes, and many will be justified: 16 1.8%
Not sure: 127 14.3%

- **23) Have legal considerations affected your ability to publicly share information about Y2K?** (Total Votes: 887)

Not at all: 530 59.8%
Yes, we are in much better shape than our lawyers will let us say: 234 26.4%
Yes, we are in much worse shape than our lawyers will let us say: 13 1.5%
Not sure: 110 12.4%

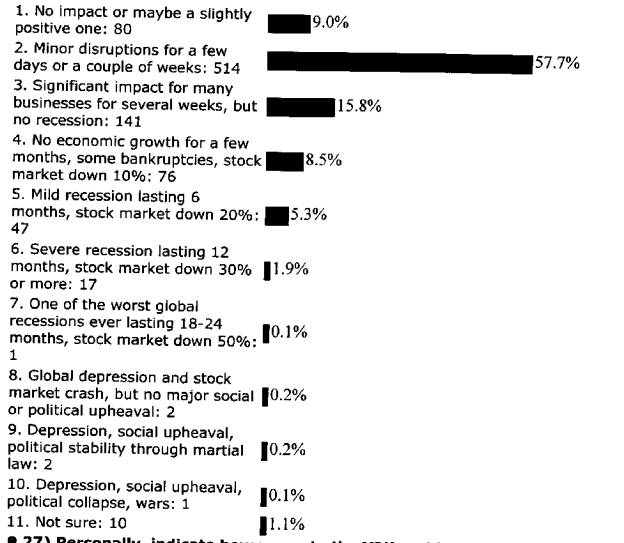
- **24) Estimate the likely impact on your organization of internal and external Y2K disruptions.** (Total Votes: 886)

Positive impact: 44 5.0%
Zero or very minor impact lasting a few days: 734 82.8%
Serious negative impact lasting weeks: 67 7.6%
Some operations could be shut down for months: 9 1.0%
Major threat to survival of entire organization: 9 1.0%
Not sure: 23 2.6%

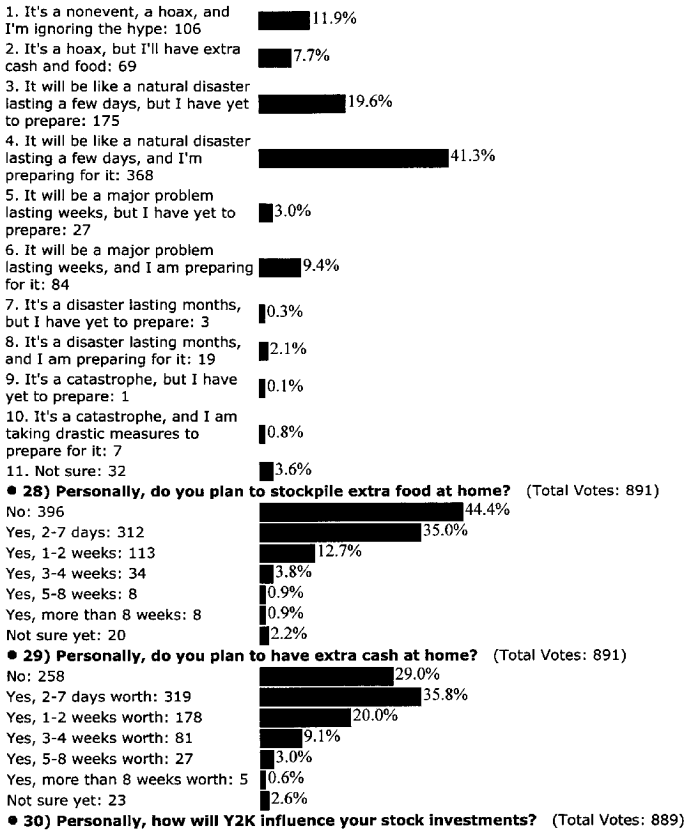
- **25) Personally, how does your overall assessment of Y2K compare to three months ago?** (Total Votes: 889)

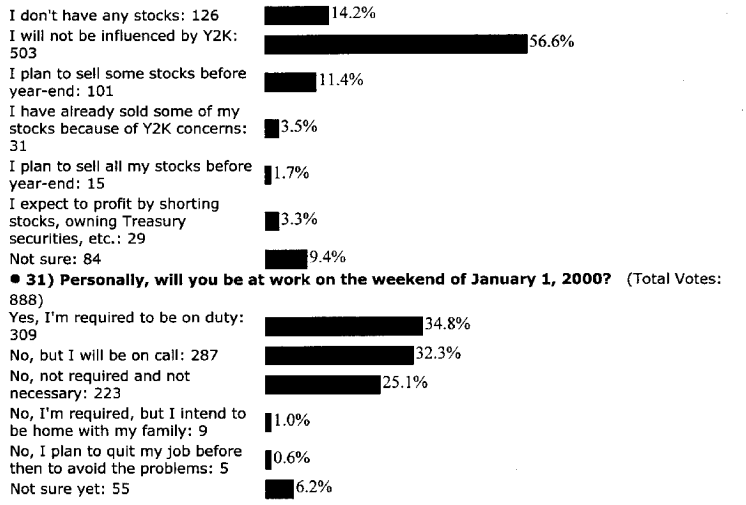
No change, still pessimistic: 37 4.2%
No change, still optimistic: 417 46.9%
More pessimistic: 37 4.2%
More optimistic: 372 41.8%
No opinion: 26 2.9%

- **26) Personally, indicate the likely economic impact of Y2K.** (Total Votes: 891)



● **27) Personally, indicate how you rate the Y2K problem.** (Total Votes: 891)


1. It's a nonevent, a hoax, and I'm ignoring the hype: 106
11.9%
2. It's a hoax, but I'll have extra cash and food: 69
7.7%
3. It will be like a natural disaster lasting a few days, but I have yet to prepare: 175
19.6%
4. It will be like a natural disaster lasting a few days, and I'm preparing for it: 368
41.3%
5. It will be a major problem lasting weeks, but I have yet to prepare: 27
3.0%
6. It will be a major problem lasting weeks, and I am preparing for it: 84
9.4%
7. It's a disaster lasting months, but I have yet to prepare: 3
0.3%
8. It's a disaster lasting months, and I am preparing for it: 19
2.1%
9. It's a catastrophe, but I have yet to prepare: 1
0.1%
10. It's a catastrophe, and I am taking drastic measures to prepare for it: 7
0.8%
11. Not sure: 32
3.6%
• 28) Personally, do you plan to stockpile extra food at home? (Total Votes: 891)
No: 396
44.4%
Yes, 2-7 days: 312
35.0%
Yes, 1-2 weeks: 113
12.7%
Yes, 3-4 weeks: 34
3.8%
Yes, 5-8 weeks: 8
0.9%
Yes, more than 8 weeks: 8
0.9%
Not sure yet: 20
2.2%
• 29) Personally, do you plan to have extra cash at home? (Total Votes: 891)
No: 258
29.0%
Yes, 2-7 days worth: 319
35.8%
Yes, 1-2 weeks worth: 178
20.0%
Yes, 3-4 weeks worth: 81
9.1%
Yes, 5-8 weeks worth: 27
3.0%
Yes, more than 8 weeks worth: 5
0.6%
Not sure yet: 23
2.6%
• 30) Personally, how will Y2K influence your stock investments? (Total Votes: 889)



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RESPONSES OF GARY BEACH TO QUESTIONS SUBMITTED BY CHAIRMAN BENNETT

Note: A substantial portion of Gary Beach's testimony before the Committee was based on the first Y2K Experts Poll (6/99). Since the hearing, CIO Communications, Dr. Ed Yardeni's Y2K Center and ISACA have conducted a second poll (9/99). Wherever possible, we used the most recent data to help answer the questions.

Question 1. Your survey of 982 Y2K experts indicated that 35% of large firms do not have compliant software to implement interconnectivity in their supply chain. Where does the fault lie for this critical weakness and who is going to fix it? How are they able to complete necessary Y2K testing without compliant third party soft-

ware and will there be time available to complete testing once compliant software is attained?

Answer. In my opinion, the responsibility for not having a Y2K ready supply chain lies mainly with the user corporation which was probably late to realize the seriousness of the situation. For manufacturers of Y2K compliant software whose products may be late to market, the culpability lies in poor development processes or to a lesser extent the inability to hire information technology (IT) workers to actually build the software.

As for who will fix the weak link, it will likely have to be a combination of the organization experiencing or identifying any Y2K fallout with support from their external IT suppliers and/or consultants.

The longer a user corporation waits to install and then test Y2K remediation software, the greater the risk. Why? A piece of software may fix problem "A" but create problem "B". As time draws closer to the 12/31/99 rollover, there is just not enough time, money or human resources to address the digital domino scenario for those who are behind the eight ball. If an organization doesn't receive the necessary Y2K compliant third party software, there is no hope of completing Y2K testing on time.

Question 2. Your poll is not reassuring for business operations continuity. How do you see contingency planning, your principle recommendation, filling in the continuity gap left by Y2K failures in the five months remaining?

Answer. The Y2K Experts Poll is a snapshot of Y2K readiness among global, large firms with an average of 1,360 suppliers. For this kind of corporation, there is little hope of entirely avoiding Y2K mishaps. Contingency planning must include first and foremost, prioritizing firms and processes in the supply and manufacturing chains that are essential to the continuation of the firm. Contingency steps must then be planned to allow a firm to continue the delivery of goods or services if a Y2K problem strikes. Therefore, the most essential step of contingency planning is the isolation of the processes and the partners absolutely necessary for the business to survive.

Question 3. The Committee has been told that contingency planning requires in depth employee training to be effective in business continuity. Did your poll delve into the specifics of how Y2K contingency plans will be implemented?

Answer. No, the poll didn't delve into that area. But, in addition to creating contingency plans for their employees, smart corporations are also working with employees of critical partners and employees of critical customers to help ensure that important employees in the supply chain are ready to handle any disruptions in business as usual.

A separate research initiative, conducted by our sister company IDC Research, presents an overview of contingency plans. The IDC report, **Y2K Compliance and the Impact on ICT Spending: An Analysis by Company Size and Industry** (Azzara, 8/99), supports the fact that most companies had some form of contingency plan in place, be that in the form of written procedures, designated SWAT teams, proactivity with partners, or a combination of these plans. Multiple plans were implemented primarily in companies that fall into the mid- to large-sizes. IDC (Azzara, 8/99) also identified strategy use by industry. We are able to see from this research that:

Over 50% of each of the following industries have implemented *Written Procedures* as part of a contingency plan: Banking Depositories, Insurance Companies, Discrete Manufacturing, Healthcare Services, and Utilities;

Over 50% of each of the following industries have implemented *Designated SWAT Teams* as part of a contingency plan: Banking Depositories, Communications, Transportation, and Utilities;

Less than 50% of each of the following industries have implemented *Proactivity with Parnters* as part of a contingency plan: Financial Services, Communications, Wholesalers, Retailers, and Other Services.

A chart showing these facts is included with this document.

Question 4. You noted that 60% of corporations with contingency plans are already implementing them. Would you please briefly characterize what that really means and what they are in response to?

Answer. The main contingency activity underway is making certain that a firm has enough materials and supplies to continue manufacturing/delivering goods or services and having enough finished goods in inventory to sell if a supply chain partner has a serious Y2K problem.

Another activity smart companies are undertaking is training their workers how to perform their duties the old fashioned way (i.e., manually). For example, airlines ought to school their reservations staffs on how to manually write out tickets in case computers malfunction, and retailers/restaurants ought to show their workers how

to manually write up sales via old fashioned credit card charge slips, etc. in case of telecom or computer glitches.

Question 5. Do the 8% of firms that indicate they will not be Y2K compliant by the year 2000 fall into identifiable categories of companies that can have a critical business impact on our economy?

Answer. Technology limitations do not allow us to drill down and answer this question. Additionally, we suspect the sample bases would not be large enough to project reliable results.

Question 6. Would you discuss your Y2K concerns about foreign-government-owned telecommunication monopolies that support global businesses? We have an ITU representative, Mr. Ron Balls, here that perhaps can provide some answers during his testimony.

Answer. The concern is this: while these government-owned telecoms are now fully aware of the potential problem of Y2K on their countries, because of their monopolistic positions, many realized the seriousness of Y2K too late and are now in the unfortunate position of playing catch up without resources or time to complete the necessary work.

Question 7. Your poll indicated that 33% of respondents admitted they were behind schedule. This is very significant and gives one pause as they look at self-reported scheduled completion dates. Would you briefly address to what degree they are behind schedule? What are the primary root causes of the schedule slippages? Do those that reported being behind schedule fall into any particular categories?

Answer. Nearly one in three firms continues to be behind in Y2K preparation, remediation and testing. Sixteen percent are 1–4 weeks behind, 8% are 5–8 weeks behind and 6% are more than 8 weeks behind (9/99) Y2K Experts Poll. Root causes of this situation clearly, in my mind, lay with poor management execution and the fact that some firms underestimated the time necessary for testing. Y2K is and always has been a management challenge, not an excessively difficult technical challenge. Some firms may be behind because they are waiting for the delivery of Y2K compliant software. . .and some because they are unable to hire enough workers to remediate the software code. But the major reason is this: some businesses did not properly plan their work.

Again, technology limitations do not allow us to drill down and answer your question about whether the firms who are behind schedule fall into particular categories. Additionally, we suspect the sample bases would not be large enough to project reliable results.

Question 8. You testified that, more than likely, any economic disruptions would be triggered by fear and not by additional inventory stockpiling. Given that the greatest number of respondents were from the financial sector, how likely is it that this is representative of other industries?

Answer. Since it is widely believed that the financial sector is one of the best prepared industries, the Y2K Experts Poll results are more optimistic than they might be otherwise.

According to our polling partner and noted economist forecaster, Dr. Ed Yardeni, his primary concern is neither stockpiling nor fear but rather possible disruptions in computer systems that run just in time manufacturing which could lead to a recession.

Question 9. Did your poll look into the critical dates that corporations are preparing for other than the change from December 31, 1999 to January 2000? For example, how many are looking at and preparing for possible problems on 9/9/99 or February 29, 2000 to March 1, 2000?

Answer. No.

PREPARED STATEMENT OF CHAIRMAN ROBERT F. BENNETT

Good morning and welcome to today's hearing. The global corporations that have provided us with witnesses today play an instrumental role in sustaining America's economic strength, and have helped create a level of prosperity nearly unrivaled in American history. The success of these companies is vital for our nation's continued economic growth on the world stage, and we want to ensure that adequate preparations are underway for the Year 2000 technology problem.

The fates of these companies are linked in some fashion to the ever-changing state of international affairs. Locating a business or subsidiary abroad means becoming vulnerable to potential political, economic and infrastructure disruptions in another country. Just as Y2K poses challenges in our own country, companies overseas may be at risk of electric and telecommunications failures, and to the snapping of critical distribution and supply chains that cross international borders. For these compa-

nies, preparing for Y2K is a task that involves not only American know-how, but also the efforts of overseas governments, subsidiaries, partners, vendors, suppliers and facility managers.

The growth of global corporations has accelerated over the past three decades. In 1970, just before the advent of the microchip, some 7,000 parent global corporations existed. Today, that number has soared to 38,000. It is no coincidence that the number of global corporations has increased with the corporate community's widespread use of high-tech, information-age business systems.

Global corporations have always comprised an important thread in the complex web of global economic interdependence between nations. In many cases, American companies act as economic and cultural emissaries, expanding free trade and opening markets, spreading democratic values, and bringing higher standards of living for working people across the globe.

The information age presents global corporations with unprecedented opportunities to build new, international relationships that are beneficial for the United States and its economic partners. But the same high-tech systems that benefit many companies also contain inherent weaknesses. Instantaneous communications; and just-in-time inventory, manufacturing and transportation systems are all vulnerable to the Y2K problem.

Assessments of the Y2K preparedness of the international community are numerous and vary greatly, demonstrating the range of uncertainty that exists globally. Because of these uncertainties, major shareholders in the global economy must assess their options and establish realistic and practiced Y2K contingency and business continuity plans. With only 162 days remaining in 1999, there is still much work to do.

I look forward to hearing the testimony from our witnesses. The companies represented here today have developed exemplary Y2K programs and established themselves as leaders. The Committee is grateful for the commitment that you and your companies have made to publicly address this worldwide problem. I must also note that McDonald's Corp., which has more than 24,500 restaurants in 115 countries, was unable to honor an invitation to testify at this hearing, but has offered to testify at a future date. This committee looks forward to adding their testimony to this important public record. Thank you.

PREPARED STATEMENT OF JACQUELYN L. WILLIAMS-BRIDGERS

Mr. Chairman and Members of the Committee:

Thank you for the opportunity to testify before your committee on Year 2000 (Y2K) global readiness and international trade. The Y2K problem is one of the most challenging project management and systems conversion efforts ever faced by the world community. As you know, the Department's challenge in addressing Y2K extends well beyond its Washington headquarters, because failure of systems in countries hosting U.S. Government organizations and U.S. businesses has the potential to disrupt this country's ability to carry out its foreign affairs agenda and protect U.S. interests abroad in the year 2000. In the context of this hearing, those interests include the conduct of international trade, which is threatened by potential Y2K-related failures in key infrastructure sectors, such as telecommunications, transportation, and energy.

SUMMARY

At your March 1999 hearing on international Y2K issues, I provided an overview of global Y2K readiness based on host country assessments developed by U.S. embassies and on our own visits to 25 sites in 20 countries. My testimony discussed Y2K readiness in terms of the varying levels of progress the different countries had made in assessing and fixing their systems-and the message was decidedly mixed:

- Industrialized countries were well ahead of the developing world; however, some of those locations were at risk of having Y2K-related failures because they were late in establishing Y2K leadership at the national level, and because they were heavily reliant on computer technology in key sectors;
- Developing countries generally were lagging behind and were struggling to find the financial and technical resources needed to resolve their Y2K problems; and
- Former Eastern bloc countries were late in getting started and were generally unable to provide detailed information on their Y2K programs.

Over the past 4 months my office has continued to be actively engaged with the Department of State and our embassies and consulates overseas to assist them in meeting the millennium challenge. Of particular interest to your Committee, my office has also continued to assess Y2K readiness in the international arena. For this hearing on Y2K and international trade issues, we are providing our assessment—

based on information from our embassies, from our own visits, and other sources—of the risk that Y2K might cause failures in key sectors in countries around the globe. With less than 6 months to go before the date change, the message again is mixed:

- Approximately half of the 161 countries assessed are reported to be at medium to high risk of having Y2K-related failures in their telecommunications, energy, and/or transportation sectors. The situation is noticeably better in the finance and water/wastewater sectors, where around two-thirds of the world's countries are reported to have a low probability of experiencing Y2K-related failures;
- Industrialized countries were generally found to be at low risk of having Y2K-related infrastructure failures, particularly in the finance sector. Still, nearly a third of these countries (11 out of 39) were reported to be at medium risk of failure in the transportation sector, and almost one-fourth (9 out of 39) were reported to be at a medium or high risk of failure in the telecommunications, energy or water sectors;
- Anywhere from 52 to 68 developing countries out of 98 were assessed as having a medium or high risk of Y2K-related failure in the telecommunications, transportation, and/or energy sectors. Still, the relatively low level of computerization in key sectors of the developing world may reduce the risk of prolonged infrastructure failures; and
- Finally, and similar to the developing world, key sectors in the Newly Independent States and other former Eastern bloc nations, are a concern because of the relatively high probability of Y2K-related failures.

These assessments suggest that the global community is likely to experience varying degrees of Y2K-related failures in every sector, in every region, and at every economic level. As such, the risk of disruption will likely extend to the international trade arena, where a breakdown in any part of the global supply chain would have a serious impact on the U.S. and world economies. In light of all this, the challenge now facing the United States is to encourage and facilitate contingency planning by individual countries, their regional partners, and by international organizations such as the United Nations.

Department of State International Y2K Efforts

The Department of State has long recognized that the potential for Y2K vulnerability is not restricted to its domestic operations and has implemented measures to assess the Y2K readiness of all countries where the United States has a diplomatic presence. These measures include the following:

- In November and December 1998, the Department's embassies and consulates used a standard survey to collect information on the effectiveness of host countries' Y2K programs, vulnerability to short-term economic and social turmoil, reliance on technology in key infrastructure sectors, and the status of Y2K correctional activities. The information from this survey, as well as from other sources, such as the World Bank, United States Information Agency, and this office as well, was analyzed by staff under the direction of the National Intelligence Council.
- On January 29, 1999, the Department issued a worldwide public announcement on the Y2K problem to inform U.S. citizens of the potential for problems throughout the world because of the millennium "bug." The notice cited specific areas of concern, including transportation systems, financial institutions, and medical care, as activities that may be disrupted by Y2K-related failures. Further, this announcement goes on to warn that all U.S. citizens planning to be abroad in late 1999 or early 2000 should be aware of the potential for problems and stay informed about Y2K preparedness in the locations where they will be traveling.
- In February 1999, the Department provided all of its embassies and consulates with a Contingency Planning Toolkit. The posts were instructed to use the toolkit to assess the probability that Y2K-related failures might occur in key infrastructure sectors, including finance, telecommunications, transportation, energy, and water/wastewater treatment. Based on this assessment, posts were to develop contingency plans and identify the resources (generators, radios, etc.) needed to handle Y2K-related emergencies. As of the end of June 1999, nearly all of the Department's posts had completed their host country infrastructure assessments and developed draft contingency plans.
- In June 1999, the Department provided additional instructions to its embassies and consulates on how they should approach host governments concerning Y2K issues. Posts were asked to discuss with the host government its assessment of Y2K readiness in the country; gain a deeper understanding from the local authorities about what remedial actions and/or contingency plans are contemplated; and inform the host government that the Department has a responsibility to notify American citizens if it is aware of credible and specific threats to their safety and security,

including Y2K problems in critical sectors. The Department hopes that approaching all countries now with this information will spur them to either correct the problems or to take remedial actions, such as contingency planning.

In mid-August of this year, the Department plans to notify select host country governments of its concerns about Y2K-related problems that could affect American citizens living or traveling in those countries. The Bureau of Consular Affairs will bring these concerns to the attention of the traveling public in September, when it issues Consular Information Sheets concerning Y2K.

OIG Year 2000 Oversight Efforts

International Y2K Efforts: Host Country Preparedness

My office has continued its activities in international Y2K issues through our efforts to engage host country representatives and promote information sharing and cooperation. We analyzed Y2K Host Country Infrastructure assessments submitted over the past 2 months by U.S. embassies in 161 countries: 98 in the developing world, 24 from former Eastern bloc countries and the Newly Independent States, and 39 from industrialized countries.

OIG has continued to meet with host country Y2K program managers; representatives from key infrastructure sectors, such as utilities, telecommunications, and transportation; and with private sector officials to discuss their respective Y2K programs and to share information. A summary of OIG international Y2K site visits is provided in Table 1.

The information we collected about host country readiness provides general insight into a host country's efforts to reduce the impact that Y2K-related failures might have. This information represents the situation at a particular point in time. OIG visits began in September 1998, and the situation in some of those locations may have changed since then.

Table 1: Summary of OIG International Y2K Site Assessments

Date of Visit	Locations Visited
September 1998	Mexico City & Monterrey, Mexico Santiago, Chile Panama City, Panama
October 1998	Pretoria & Cape Town, South Africa Libreville, Gabon Yaounde, Cameroon Addis Ababa, Ethiopia
October/November 1998	Hong Kong Bangkok, Thailand Singapore Manila, Philippines
December 1998	Mumbai & New Delhi, India
January 1999	London, United Kingdom Moscow, Russia Kiev, Ukraine Warsaw, Poland Paris, France Rome, Italy Athens, Greece Frankfurt, Bonn, & Berlin, Germany
May 1999	Kuala Lumpur, Malaysia Hanoi, Vietnam Taipei, Taiwan Seoul, Korea Osaka & Tokyo, Japan

OIG has provided information summaries on each of these countries to appropriate Department staff, the President's Year 2000 Conversion Council, the United States Information Agency, congressional committees, and to other foreign affairs organizations.

Results of OIG International Y2K Risk Assessments

Based on our work in the countries cited above and on our assessment of other information provided by the Department, a number of themes have emerged relating to the potential impact the Y2K problem may have in the global arena. Our work has resulted in the following findings:

Significant Risk of Y2K-Related Infrastructure Failures Worldwide

With less than 6 months to go before the Y2K date change, approximately half of the world's countries are reported to be at medium to high risk of having Y2K-

related failures in their telecommunications, energy, and/or transportation sectors. As shown in Table 2 below, the situation is noticeably better in the finance and water/wastewater sectors, where about two-thirds of the world's countries are reported to have a low probability of experiencing Y2K-related failures. The financial arena is considered to be at low risk from Y2K in most countries; however, worldwide, the finance sector is vulnerable because of its reliance on other, more risky sectors, including energy and telecommunications.

Table 2: Risk of Y2K-Related Sector Failures in Countries Worldwide (N=161)

Risk Level\Sector	Finance	Telecommunications	Transportation	Energy	Water
High	11	35	18	26	7
Medium	43	56	61	64	52
Low	107	70	82	71	102

See Chart 1 in the appendix for a visual depiction of this table.

Low Risk of Y2K-Related Failures in Most Industrialized Countries

Industrialized countries were generally found to be at low risk of having Y2K-related infrastructure failures, particularly in the finance sector. As Table 3 shows, however, nearly a third of these countries were reported to be at medium risk of failure in the transportation sector, and almost one-fourth were reported to be at a medium risk of failure in the telecommunications, energy, or water sectors. Because industrialized countries are highly dependent on computer technology in every sector, the potential impact of Y2K-related problems is much higher than in the developing world. Some examples of problems or issues found in our evaluation of industrialized countries' Y2K readiness are as follows:

- During our visit to Malaysia, we learned that the banking, electricity, and transportation sectors were generally in the advanced stages of remediation (fixing or replacing a system) and testing. Further, the government and business sectors are developing organizational, sector, and national contingency plans as part of their Y2K preparations. There is some concern about the Malaysian telecommunications sector, which was about 79 percent through the remediation stage as of May 1999, because of a lack of detailed information.
- During our visit to Seoul, we learned that except for banking and telecommunications, the public and private sectors of Korea got off to a late start in addressing Y2K issues. Now, both the government and private sector organizations are reporting remarkable progress in remediating and testing their systems. However, we are concerned that the late start and the economic recession (which has also affected other Asian countries) means they may not be able to complete all necessary work and do a thorough job of remediation and testing.
- Taiwanese authorities and large business enterprises have made a great deal of progress in addressing Y2K issues. During our visit to Taipei, we were told that key parts of the infrastructure appear to be in compliance or close to it, and the government is preparing its contingency plans for water, transportation, and power. For example, the Central Bank and the Bank of Taiwan were tested and certified by the Ministry of Finance in April 1999. However, the Y2K readiness of small and medium enterprises as well as small medical facilities remains a big question.
- A June 1999 embassy assessment of one European country, which will be hosting many large-scale millennium events that will be attended by thousands of Americans, expressed skepticism about the country's telecommunications sector because of a lack of information. The assessment further noted that water and wastewater efforts were inconsistent, health care preparations were inadequate, but finance was in good shape.
- The Y2K readiness of ports and the ships entering those ports continues to be a worldwide concern. For its part, the French Ministry of Transportation has indicated it does not support closure of French ports on December 31, 1999. It suggests that ships moored in French harbors do not attempt to maneuver on December 31, 1999. Ports and the French Navy will have emergency tugboats on red alert on December 31, 1999 should a ship come ashore.
- At a roundtable discussion in one Middle Eastern country, businessmen expressed concern about the country's preparedness for Y2K and the potential effect on business. In addition to potential problems with utilities (water and power supply) and telecommunications, the business leaders were concerned about medical

services, food distribution, and the aviation system. One report suggests that water may be the weakest link in Y2K preparedness in the region. A Y2K expert in a major city in this country advised that the city only has a 1-day supply of water and noted that staff responsible for the desalinization plants decided to turn the computers back to the year 1995, "until they can figure out how to fix the problem."

• Contrary to the bad press concerning Japan's Y2K readiness, during our visit to Japan in May of this year, we concluded that Japanese ministries and companies had been working quietly toward compliance, but until recently little information on their progress was available in English. The Japanese acknowledge they got off to a late start in addressing Y2K, and this may hamper their ability to thoroughly address the problem before the end of the year.

Table 3: Risk of Y2K-Related Sector Failures in Industrialized Countries (N=39)

Risk Level\Sector	Finance	Telecommunications	Transportation	Energy	Water
High	0	2	1	0	0
Medium	2	7	11	9	9
Low	37	30	27	30	30

See Chart 2 in the appendix for a visual depiction of this table.

Higher Risk of Y2K-Related Failure in Developing Countries

Anywhere from 52 to 68 developing countries out of 98 were assessed as having a medium or high risk of Y2K-related failure in the telecommunications, transportation, and/or energy sectors, as shown in Table 4. Although the financial sector was rated as a low risk in about 60 percent of these countries, its ability to continue functioning is questionable because of its heavy reliance on other sectors, such as telecommunications and energy, which are more likely to have Y2K-related problems. The relatively low level of computerization in key sectors of the developing world may reduce the risk of prolonged infrastructure failures. Examples of some specific problems or issues facing developing countries are as follows:

• There is reported progress in India's Y2K readiness in the last 6 months, especially in the critical sectors of banking and finance, civil aviation, and telecommunications. But nowhere is the Y2K process complete, and contingency planning has barely begun. Most worrisome is the potential vulnerability of the 70 percent of the electrical power sector controlled by the State Electricity Boards, large parts of which only now are beginning basic inventories and assessments. However, the power companies we contacted during our visit reported no Y2K issues in generating, transmitting, and distributing electricity.

• There is now cautious optimism concerning Y2K readiness in China, compared to the situation a few months ago. China's Y2K representative and other speakers at a Y2K conference in Beijing in May expressed confidence in China's electric grid, but also expressed concerns about the effect of Y2K on railroad freight, medical devices, and embedded chips. Following the conference, a Y2K article in the May 25, 1999, *People's Daily* decried widespread public ignorance and apathy about Y2K in China. The journalist estimated that 70 percent of the large- and medium-sized manufacturers in China do not take Y2K seriously. The author also noted that China may be vulnerable because of its use of many obsolete computers and pirated software. In addition, the computer systems people sometimes do not know just what is on their system. For its part, the Chinese government is conducting a Y2K triage, focusing limited resources on critical public utilities (water, electricity, public health, and transportation) as the top priority and then on key industrial sectors. The Chinese authorities expect some Y2K problems but nothing that will put people's lives in danger or cripple the economy.

• In Vietnam, because there is a low level of computer usage, there is a relatively low threat of Y2K-related failures. Vietnam's economy is largely agrarian and based on cash, rather than electronic transactions. Further, it was difficult obtaining information about Vietnam's Y2K readiness because the government tightly controls the information and Y2K issues are not widely publicized. The government keeps certain things like maps, drawings, electrical diagrams, and financial figures a state secret. We did learn that one dam that provides about 80 percent of the electricity to Vietnam uses Russian equipment that probably has embedded chips whose Y2K readiness is questionable.

• On June 1, 1999, the Ethiopian National Y2K Committee advised that Ethiopia has completed its Y2K assessment, and remediation is still underway. The cost of Y2K remediation is estimated at $18.7 million. The air transport, electricity, and water sectors all appear to be compliant, but the telecommunications sector is lagging. Some sectors are testing now testing their systems for Y2K compliancy, but little attention has yet been given to contingency planning.

Table 4: Risk of Y2K-Related Sector Failures in Developing Countries (N=98)

Risk Level\Sector	Finance	Telecommunications	Transportation	Energy	Water
High	8	28	11	20	7
Medium	32	40	41	44	34
Low	58	30	46	34	57

See Chart 3 in the appendix for a visual depiction of this table.

Significant Risk of Y2K-Related Failures in Former Eastern Bloc Countries

Finally, and similar to the developing world, key sectors in the countries that were part of the Eastern bloc including countries that were part of the former Soviet Union have a relatively high probability of Y2K-related failures. Specifically, as shown in Table 5, 14 of the 24 countries in this category were assessed as being at medium or high risk of Y2K-related failure in the telecommunications sector, 15 at medium or high risk in the transportation sector, and 17 as being at medium or high risk in the energy sector. Nearly all of the Eastern bloc countries evaluated are at least partially dependent on computers for such key sectors as finance, telecommunications, utilities, and transportation. Some examples of problems faced by countries in this category are:

• On June 17, 1999, Russian President Boris Yeltsin signed a Presidential decree that declares that the Y2K problem is one of the utmost urgency and assigns responsibilities to government administrators at all levels. The Duma and Federation Council followed suit with a new law that provides that owners and operators of computer equipment and systems are to be held accountable for assuring Y2K compliance. The nuclear sector reports that all safety systems are Y2K compliant, and provisions are being made to ensure that back-up power will be available. Plant operations computers may have undiagnosed problems that could force a shutdown, but we expect safety systems will work as needed. There is, however, excess generating capacity within the electrical grid, which would allow for continued provision of power to high-priority customers even in the event all nuclear power plants shut down. On the other hand, we still have some unanswered questions with respect to the telecommunications sector, and are endeavoring to learn more about possible impacts. The Department of Energy, the International Atomic Energy Agency, the International Science and Technology Center, and the International Energy Agency are all engaged, with U.S. support, in assisting Y2K remediation in Russia, the first three specifically in nuclear power plants.

• Although until recently the electricity supply has been relatively stable in Poland, there is rising concern that the country will experience limited problems due to power generation failures. Primarily, such power losses will be localized failures, easily or quickly remedied. In addition, telecommunications may be a problem. If the local telephone system fails, greater emphasis will be placed on the use of cellular phones, already prevalent in Poland. This increased use could cause an overload on the bandwidth, thereby resulting in its failure also.

• One Balkan country's Y2K efforts were reported as disorganized and underfunded, but with some positives. While the telecommunications, air transportation, and financial sectors are largely compliant, or likely will be by year-end, other sectors, including water purification, rail transportation, and the all important energy sector appear to be lagging far behind.

• The government of one former Eastern bloc country has assured the U.S. embassy that there will not be serious interruptions in critical sectors, including energy, transportation, water, and emergency services. The country has established a new Y2K strategy with a new Y2K commissioner; however, the program provides no deadlines and no new money, raising questions about the government's assurances about Y2K readiness.

• The official in charge of another Eastern bloc country's Y2K readiness program told embassy staff that it had the know-how to correct its Y2K problem, but lacked the financial means to implement the changes.

Table 5: Risk of Y2K-Related Sector Failures in Former Eastern Bloc Countries (N=24)

Risk Level\Sector	Finance	Telecommunications	Transportation	Energy	Water
High	3	5	6	6	0
Medium	9	9	9	11	9
Low	12	10	9	7	15

See Chart 4 in the appendix for a visual depiction of this table.

Need for Y2K Contingency Planning on a Global Scale

Y2K-related disruptions in the international flow of goods and services are likely, but no one knows exactly where, when, and to what extent such disruptions will occur. Because disruptions could seriously impact the world's economies, including our own, the Department of State needs to take the lead on behalf of our government in facilitating global contingency planning.

In 1998, world trade totaled over $5 trillion, and the United States accounted for nearly 13 percent of that total. The global trading system consists of a complex network of suppliers, distributors, service providers, and customers. An infrastructure of energy supplies, transportation systems, telecommunications networks, and financial organizations support this system. Disruptions in this infrastructure, and the relationships among suppliers and customers, will negatively affect individuals, firms, industries, governments, and national and regional economies around the world.

As I discussed earlier in this statement, our Y2K assessments suggest that the global community is likely to experience some Y2K-related failures in every sector, country, and region. The international economy is vulnerable because Y2K-related failures in the supply chains of one country or region might disrupt the ability of other countries to keep their factories working, transportation systems running, food supplied, and people employed. Work is underway around the world developing contingency plans to ensure continued functioning of governments, infrastructures, businesses, and supporting organizations within individual countries, but little is being done to consider potential supply chain disruptions originating in other countries and how they should be handled.

The Department can take the lead for the U.S. Government in facilitating global Y2K contingency planning. With assistance from other Federal agencies such as the departments of Commerce, Energy, and Transportation and the Federal Emergency Management Agency, the Department needs to work with international government, industry, and consumer organizations to ensure that global contingency plans are prepared for key infrastructure and industry sectors. To do this, the Department can be most effective by leveraging the efforts of international organizations such as the United Nations, the Asia-Pacific Economic Cooperation, and other entities that have active Y2K outreach programs. In addition, this effort should include applying lessons learned from recent disasters (i.e., the December 1998 ice storm in Williamsburg, Virginia and the 1996 Kobe earthquake) in such sectors as transportation, power, and telecommunications. Further, there must be special emphasis on contingency planning for small and medium enterprises of 500 or fewer employees that represent approximately 98 percent of the supply chains in most countries.

By promoting a global approach to Y2K contingency planning, the Department of State, on behalf of the U.S. Government, can help strengthen the ability of all countries to deal with potential disruptions in international trade.

OIG work within the Department of State

OIG is also playing a significant role in assisting the Department to meet the millennium challenge facing their respective information technology infrastructures, including computer software, hardware, and embedded devices. The Department has recognized that it is vulnerable to the Y2K problem, and over the past 2 years has taken steps to remediate its systems and infrastructure to prevent disruptions to its critical business processes.

The Department has established a Year 2000 Program Management Office (Y2K PMO), which is responsible for the overall management of the Y2K program within the Department. The Y2K PMO is responsible for tracking and reporting on the progress being made by the bureaus in remediating systems, providing technical advice and assistance, issuing contingency planning guidance, and certifying systems for Y2K compliancy. As of May 14, 1999, the Department reported that it had tested, validated, and implemented 100 percent of its mission-critical systems.

My office has assisted in establishing a process through which the Department can certify the Y2K compliancy of its mission-critical systems, by writing detailed guidelines that each bureau must use in developing application certification packages for submission to the Y2K PMO. The three-tiered process which resulted is, we understand, one of the most rigorous in the Federal Government. It provides the Department's senior management with assurance that every feasible effort has been made to prevent Y2K-related failures on January 1, 2000.

First, using the certification guidelines, the bureaus that remediate mission-critical and other critical applications conduct tests to verify Y2K compliance of each system. For the second step in this process, the complete Application Certification Packages, which include the test plans and test results, are independently reviewed by the Y2K PMO team specifically contracted for this purpose. In the final step, through an agreement with the Under Secretary of State for Management, OIG is reviewing the adequacy of all certification packages for mission critical systems before they are provided to the Y2K certification panel and approved by the Department's Chief Information Officer. This approach assures that all applications undergo strict independent verification and validation standards to prepare for Year 2000. Thus far, the OIG has evaluated and provided comments to the Department on 17 mission-critical application certification packages, and 13 of those have been officially certified.

Finally, in March 1999, the Department initiated planning to conduct end-to-end testing of its core business functions. The purpose of end-to-end testing is to ensure that the Department can maintain its core business functions on and beyond the rollover to the Year 2000. The Department's end-to-end test checks the critical transaction flows through the organization across the major business functions, applications, and vendor products that support these transactions. Toward that end, the Department has organized its end-to-end testing around five different clusters, each of which combines a number of related business functions. For example, the Business Management Cluster includes such processes as personnel actions, financial management, and logistics. The other four clusters are Passports and Global Consular Systems, Command and Control Communications, E-mail, and Security and retesting as needed. The Department plans to have completed all end-to-end testing of its five business clusters by September 30, 1999.

In summary, Mr. Chairman, with less than 6 months to go before the Y2K date change, the global picture that is slowly emerging is cause for concern. Our assessments suggest that the global community is likely to experience varying degrees of Y2K-related failures in every sector, in every region, and at every economic level. In some countries, these failures could be a mere annoyance, such as a malfunctioning credit card terminal, while in others there is a clear risk that electricity, telecommunications, and other key systems will fail, perhaps creating economic havoc and social unrest. As such, the risk of disruption will likely extend to the international trade arena, where a breakdown in any part of the supply chain would have a serious impact on the U.S. and world economies.

At this stage, it would be prudent to recognize that Y2K-related failures are inevitable, both here and abroad. As such, the efforts by this Department and other international organizations will be instrumental in minimizing the impact that Y2K may have on the global community.

This concludes my statement. I would be pleased to answer any questions you may have.

APPENDIX

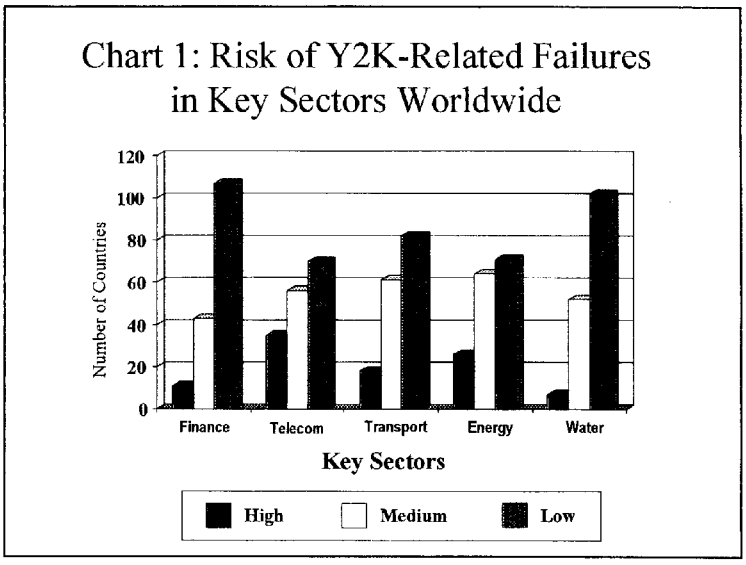


Chart 1: Risk of Y2K-Related Failures in Key Sectors Worldwide
Number of Countries
120
100
80
60
40
20
0
Finance
Telecom
Transport
Energy
Water
Key Sectors
High
Medium
Low

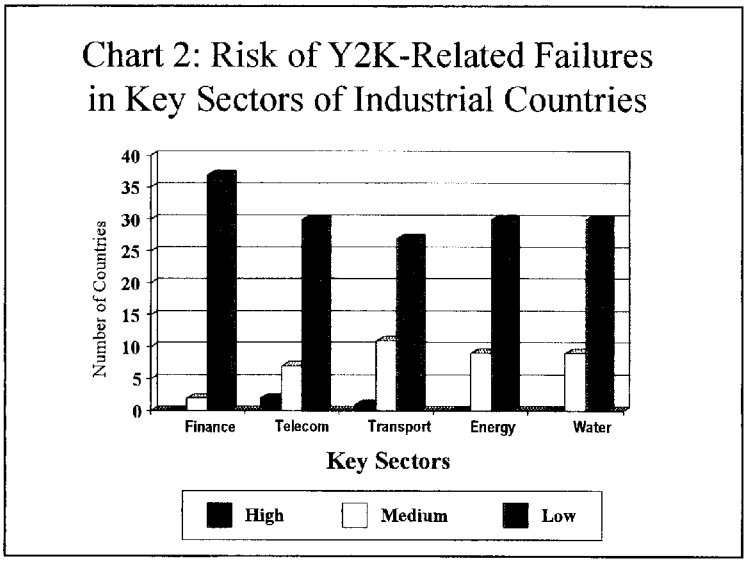


Chart 2: Risk of Y2K-Related Failures in Key Sectors of Industrial Countries
Number of Countries
40
35
30
25
20
15
10
5
0
Finance
Telecom
Transport
Energy
Water
Key Sectors
High
Medium
Low

APPENDIX

Chart 3: Risk of Y2K-Related Failures in Key Sectors of Developing Countries

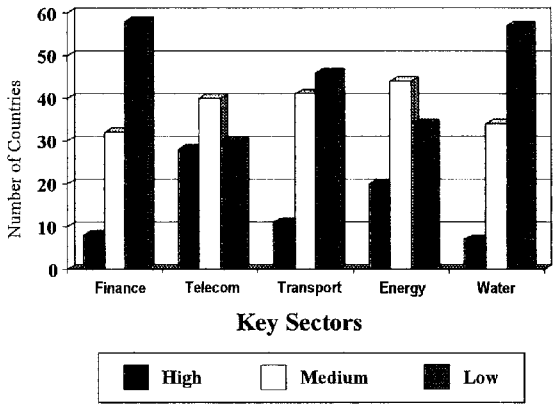
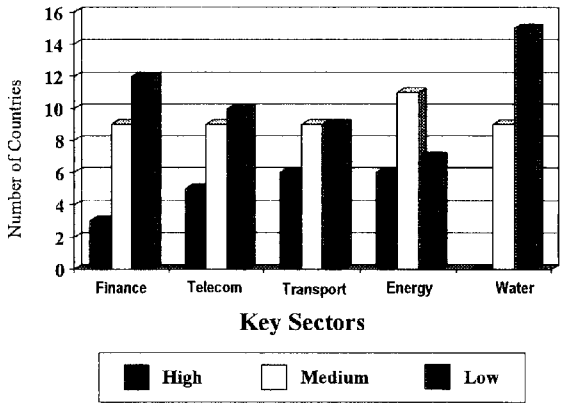


Chart 4: Risk of Y2K-Related Failures in Key Sectors of Eastern Bloc Countries



RESPONSES OF JACQUELYN L. WILLIAMS-BRIDGERS TO QUESTIONS SUBMITTED BY CHAIRMAN BENNETT

Question 1. To what extent is the State Department involved in assisting the Y2K business continuity plans of U.S. global companies in foreign countries, and what is your appraisal of their successful outcome?

Answer. The State Department provides information on host country Y2K preparedness and key sector infrastructure to Americans traveling and residing abroad. The Department obtains such information through a variety of contacts—both public and private—that provide information on services such as electricity, telecommunications, water, etc. The State Department also meets and shares information with American Chambers of Commerce chapters overseas. Other Federal agencies such as the Departments of Commerce and Transportation also develop information on the host country, which is shared with American companies and citizens. The responsibility for developing business continuity plans is that of the global companies.

The successful outcome is dependent on the accuracy of the information obtained and the plans developed where information is not certain. Those companies that are able to respond to infrastructure failures in different ways will most likely be less impacted. Those companies that "place all their eggs in one basket" and that do not have alternative tested plans will suffer more negative consequences.

As I have testified, there will be problems throughout the world; how we handle those problems will determine if Y2K is an annoyance or a catastrophe.

Question 2. Since the global economy is Y2K dependent, does the State Department have a roving Y2K team to assist other countries in preventing or mitigating Y2K failures?

Answer. The State Department does not have a roving Y2K team. The Department of Commerce has been providing seminars worldwide on how small and medium-sized enterprises can address Y2K issues in their sphere of influence. The Agency for International Development has been reviewing systems for infrastructure building that they have funded.

The Departments of Energy and Defense have been working with personnel in key areas such as Russia to resolve Y2K technical problems. Additional areas are under discussion.

Question 3. You testify that the Y2K readiness of ports and ships entering those ports continues to be a worldwide concern. Related to the readiness of ports, and critical to us trade, is the Panama Canal. Has the State Department done any review of the Y2K readiness of the Panama Canal, including its plans for the century date change?

Answer. OIG has been told that the Department of Defense has the lead on the Panama Canal.

However, the Panama Canal Commission's web site states "The Panama Canal is working on this serious problem at many levels and is preparing all our internal systems and operations to be fully ready for the transition to the next millennium. To further reduce risks, we are contacting our customers to assess how well prepared they are to operate during critical Y2K periods." It further states "To avoid potential problems with Canal transits, the Panama Canal is studying which special operational procedures will have to be implemented on the Y2K critical dates. Vessels may be required to demonstrate Y2K compliance in order to transit on those dates."

Question 4. You have testified about the regions of the world that are most at risk of Y2K failure. Have you determined whether there will be a significant economic impact on the United States from Y2K failures in these regions, or whether any significant impact on the United States would be humanitarian in nature?

Answer. Any long-term Y2K-related failures will have an economic impact on the United States. However, the initial impact of any Y2K-related failures will most likely be humanitarian if there are widespread breakdowns in the energy sector—especially in Russia and the former Eastern bloc countries.

Question 5. Please describe your expectation of significant unresolved Y2K problems, of whatever nature, in Europe, Asia, Latin America, and Africa.

Answer. There are two major areas in all four regions that remain unresolved, and are likely to pose some difficulties as a result of the Y2K computer problem. First, globally the health care arena got off to a late start and until this year there was little information available on Y2K compliance of medical devices. That problem has since been resolved, and there are now numerous web sites that provide Y2K information on medical devices. In much of the developing world, health care remains decidedly low-tech and should not be significantly affected by Y2K.

Another area with unresolved Y2K computer problems includes the small and medium-sized enterprises (SMEs). Again, small businesses were generally last to become aware of potential problems, and last to begin any kind of remediation.

Further, we found that during our visits to countries hard hit by the recession (Brazil, Korea, etc) that many of these enterprises were barely surviving financially and thus lacked resources to fix or replace their systems. The biggest concern about SMEs is the fact that they play a major role in the world's economy, and as a result, Y2K-related disruptions have the potential to have a major impact on the global supply chain.

Question 6. Do you know when the State Department plans to release country-specific information related to Y2K? When will they issue advisories related to Y2K, if such advisories will be issued at all.

Answer. On September 14, 1999, the Department issued revised consular information sheets for 196 countries and territories, which included country-specific Y2K information.

On October 13, in my statement for the hearing record, I explained the concerns that we have about the adequacy of the consular information sheets. Specifically, we felt that some of the consular information sheets provided vague information on Y2K, or conflicted with information from other sources. As a result of criticisms made by my office, GAO, and the press, the Department has asked each post to submit proposed language for any updates (positive or negative) to the Y2K consular information sheets. The Department has requested that all post provide interim status reports, indicating no need for change at this time, by no later than November 15th, and again on December 15th. On October 29, 1999, the Department issued Travel Warnings for the following four countries: Russia, Ukraine, Moldova, and Belarus due to potential Y2K-related disruptions.

Question 7. Your statements on the likelihood of Y2K failures across the world are disturbing. I can see how the presence of the State Department in so many countries facilitates access to information on the local infrastructure, but I did not hear you say how you reached the conclusions that you did in your statement. Would you take a few minutes and describe for the committee what approach you took to reach your conclusions? How do you distinguish between high, medium, and low risk, for instance?

Answer. Our conclusions were based on our analysis of information obtained from a number of sources. We reviewed host country infrastructure assessments from embassies in 161 countries. In developing their contingency plans, embassies were required to assess the relative risk (low, medium, or high) that Y2K-related failures might occur in key sectors, including among others communications, energy, and transportation. These assessments were provided to the Y2K project management officer, where they were entered into a data base. We compared the embassy assessments with information from the Global 2000 assessment, and from open sources, such as web sites, other government agency reports, etc. Finally, we incorporated into our analysis information obtained during our visits to overseas sites. On those visits, we collected information on Y2K readiness through discussions with representatives from key sectors, including the host government, private sector businesses, utility companies, banking, and associations (such as the American Chamber of Commerce).

Question 8. You very often mentioned concern about telecommunications in the 161 countries you reported on. As we will hear later, the International Telecommunications Union (ITU) has a more optimistic picture of global telecommunications than you do. Can you explain why your understanding of the telecommunications situation is more pessimistic than theirs? Is your data on telecommunications from a different source?

Answer. The reason for the International Telecommunications Union's optimism is not clear to my office. Our information collected on telecommunications readiness generally comes from our embassies and from our direct discussions with telecommunications companies, and other private sector representatives in those countries. Even in this country most telecommunications companies remain guardedly optimistic, and are loathe to declare that they are Y2K compliant—there are just too many things that can still go wrong, particularly with embedded chips.

PREPARED STATEMENT OF KEVIN CLICK

Introduction

Mr. Chairman and members of the Committee, I am Kevin Click, Director of Corporate Audit and Head of Worldwide Year 2000 Corporate Compliance Efforts for Philip Morris Companies Inc.

Philip Morris Companies Inc. (PM) is the world's largest manufacturer and marketer of consumer packaged goods. In 1998, our major tobacco, food and beer businesses generated $74 billion in operating revenues. With over 144,000 employees around the world, the company has staff in virtually every market, who have expertise in local business practices, cultures and languages. Our portfolio of premium brands includes 73 brands that each exceeded $100 million in 1998 sales, and 12 that topped $1 billion. The company's extensive global network of manufacturing facilities and distribution channels ensures rapid response to shifting consumer demand about the world.

As a truly global organization, worldwide preparations for the year 2000 (Y2K) computer problem are of vital importance to the continued success of our company. As a corporation, we have committed $550 million to the Y2K compliance and remediation efforts and an additional $150 million to replace certain systems, hardware, and equipment. We currently estimate we will spend an additional $85 million executing preemptive contingency plans. At the height of our remediation efforts, over 1,200 PM employees and outside contractors were working on Y2K projects around the world, and have committed approximately 2,500 man-years of professional time to addressing the issue.

Our senior management fully understands the magnitude and importance of the problems we face, and has made the successful resolution of the Y2K issue a business priority. The senior management team has been actively involved in the oversight process, and receives regular progress updates from the management of each operating company. Furthermore, our operating company presidents periodically present their organization's Y2K project status to PM's Chief Operating Officer. In addition, the Audit Committee of the Board of Directors is periodically briefed on the company's Y2K compliance status.

Global Program Overview

The scope of our worldwide Y2K program is enormous. PM subsidiaries and affiliates conduct business in over 180 different markets. We operate 220 factories in 50 countries and manage hundreds of office buildings, warehouses and distribution centers around the world. Our businesses are supported by thousands of computer applications, tens of thousands of personal computers, and hundreds of thousands of automated control devices within our production and distribution facilities. Given the complexity, scope and importance of the project, we instituted a cross functional year 2000 program organization in early 1996 to leverage our knowledge and scale and help monitor the progress of our 120 Y2K project teams deployed throughout the world.

We are pleased to report to the Committee that after several years of intensive work, we have substantially completed the worldwide remediation and testing of our internal business applications, factory controls systems and buildings and facilities. However, as the Committee is well aware, successfully resolving internal compliance issues does not guarantee a successful transition through the millennium crossover. As with most multinational companies, we have highly interdependent relationships with tens of thousands of business partners, including customers, vendors and utility providers, and governmental entities. Many of our critical business partners are located in countries where the Y2K issue has not received the same level of attention as in the U.S. Therefore, we continue to focus on the status of our key business partners and the contingency plans needed to address possible disruptions in our supply chain.

Global Program Details

Jim Kinney, Senior Vice-President of Information System, Kraft Foods, Inc., testified before the Committee on March 2, 1999, regarding the Y2K program at our North American food business. Due to our centralized coordination efforts, the Kraft project mirrors the efforts under way at all our major business units. Therefore, I will not redescribe our Y2K program in detail, and will instead focus specifically on the concerns raised by the Committee's July 1, 1999 letter to our CEO, Mr. Geoffrey Bible. However, we would like to report the overall status of PM's Y2K remediation efforts. As of June 1999, our worldwide portfolio of information systems and factory systems were over 97% compliant, a result of the hard work and dedication of our employees around the globe. The remaining work primarily relates to noncritical systems and should be complete by September 1999. At this point, we are confident in our ability to manage all internal compliance issues with few disruptions to our businesses.

Looking forward, our key concerns remain largely outside our direct control: the Y2K remediation progress, or more precisely the potential lack thereof, at our more than 70,000 business partners around the world, particularly in certain international markets. To address these concerns, in 1997 we launched an initiative involving management at all levels of our organization, to identify, assess, educate,

assist and monitor our business partners' Y2K remediation progress. Early on, the more we learned about the Y2K status at some of our critical business partners, the more concerned we became. Since then, we have witnessed significant progress in many areas. However, we still believe that some of our critical partners will not be ready for the millennium change. WE have therefore developed comprehensive, detailed contingency plans, both preemptive and reactive, to address possible disruptions in our supply chain. Finally, we are in the process of developing detailed transition management plans to guide our businesses through the century changeover and beyond.

Business Partner Program

The first step in our business partner program was to identify and prioritize all business partners. This effort required management participation from all functional areas in every affiliate. Of the 70,000 business partners identified, over 6,000 are considered highly critical to the success of our business.

To begin to assess the potential risk to our businesses, our partners were initially contacted via letters or questionnaires; however, the response to these initial inquiries was less than optimal. Therefore, we began the second phase of our assessment, focusing on our more critical partners. This phase involved telephone interviews, and where appropriate, on-site visits to help ascertain business partner Y2K status. Many times, we were the first company contacting them regarding Y2K. In some cases, particularly internationally, this was the first time they had even *heard* about Y2K.

Based on our initial assessments and feedback, it was evident we would need to take action to ensure the continuity of our supply chain. In most cases, the first step was to educate. For example, in Turkey, teams consisting of local information systems and sales personnel called on our 110 distributors throughout the country. The teams presented Y2K awareness information and helped the distributors test critical components of their internal systems. We provided each distributor with additional local language information on how to become Y2K compliant. This process has been repeated throughout the world, with awareness pamphlets created in languages ranging from Italian to Polish.

We have also worked with a variety of organizations around the globe, providing expert speakers to help raise awareness of the Y2K issue. From local chamber of commerce meetings in Neucha, Switzerland to U.S. Commerce Department-sponsored events in Russia and Korea, we have demonstrated our commitment to helping raise global awareness.

In spite of our best efforts, we currently consider approximately 700 of our more than 6,000 highly critical business partners to be higher risk, or likely to suffer Y2K related failures. The majority, approximately 600, are international partners. On a percentage basis, the numbers may seem low: only 1% of our business partners appear to be higher risk. Nonetheless, based on our current understanding, we believe we will suffer some disruptions in our supply chain due to Y2K failures at our business partners' facilities.

The actual impact of these disruptions is difficult to predict. The company currently believes that the most reasonably likely worst case scenario entails some localized Y2K disruptions that may affect individual facilities or operations for short periods of time rather than long-term, systemic problems. The possible consequence of these disruptions include temporary plant closings; delays in the delivery of products; delays in the receipt of supplies; invoice and collection delays and errors; and inventory and supply obsolescence. Depending on the number and severity of Y2K-related disruptions, it is possible that the business and results of operations of the company could be materially adversely affected. We will therefore continue to monitor the Y2K status of our business partners well into the year 2000.

Contingency Plans

If we expect disruptions in our supply-chain, we clearly need to be prepared. Therefore, the business partner assessment initiative described previously becomes a driver for our contingency planning process. Each operating company and affiliate has reviewed their business and supply chain model and the production and sales plans for the first quarter of the year 2000. Detailed contingency plans have been defined based on the assessed risk of each component in the supply chain, with the following major objectives:

1. Maintain employee safety;
2. Maintain the safety and quality of our products;
3. Prevent disruptions of our employee payroll and benefit programs;
4. Preserve our customer service;
5. Safeguard our physical assets; and
6. Manage overall contingency costs in association with remediation spending.

One of the most basic contingencies involves stockpiling additional levels of raw materials and finished goods. For example, in Europe we are increasing our inventory of coffee and cocoa beans by an additional three weeks. In our Asian tobacco businesses, we will be adding one month of incremental finished goods safety stock throughout the region. In some cases, we are moving additional finished products through the supply chain, staging inventory as close to the final consumer as possible. In other instances, documented work-around procedures have been developed. For example, in many Latin American countries we have agreed to deliver standard weekly orders to customers in the event the order-taking process breaks down.

Our North American businesses are not heavily reliant on foreign suppliers. However, one major exposure is imported coffee beans. To address this issue, Kraft Foods plans to hold an additional two to four weeks supply of coffee beans on shore in the fourth quarter of this year.

Interruptions in utility services are also a concern. In January, pipes in some of our Northern Hemisphere plants would begin freezing within hours of losing power. We have therefore contracted back-up power generators, where necessary, to ensure the continuity of basic infrastructure and safety and security systems. In addition, in certain countries we have secured satellite phones to ensure basic communications are possible. Of course, extended outages of basic utility services would be extremely disruptive, not only to businesses, but to the communities where we live and work as well.

In spite of our best planning, we will undoubtedly face unforeseen obstacles. Fortunately, PM, like many other multinational corporations operating throughout the world, has considerable experience in dealing with unplanned business interruptions. Regrettably, economic crises, banking system meltdowns, utility failures, supply-chain interruptions and social unrest are not uncommon occurrences in many parts of the world. Our seasoned executives are experienced in dealing with adversity. In the event of unforeseen disruptions, we believe our management team will be able to react quickly to minimize the adverse impact on our businesses.

The comfort provided by these contingency measures has a price. The incremental costs of the preemptive measures currently planned are estimated at $85 million. This estimate is subject to change based on developments in our business partner assessment and monitoring program. Also, year-end increases in inventories and trade receivables will result in incremental cash outflows of approximately $600 million, which will be reversed in early 2000.

Transition Management

We are currently preparing for the final phase of our Y2K program: transition management. Transition management governs the recovery from errors and interruptions that may occur shortly before and after the transition to the year 2000.

PM already has many procedures in place to handle business disruptions of all types. However, we recognize that the year 2000 transition period is unique in the potential volume and concentration of problems occurring during a relatively short time period, and the potential effect on locations worldwide, rather than a single installation. Transition management focuses on handling this expected short-lived increase in problems, supplementing rather than replacing existing practices.

Our transition phase will occur between October 1, 1999, and March 31, 2000. We expect an increase in support requirements and supply-chain interruptions affecting the flow of goods and services, although no one can predict with certainty how and when problems will occur. In our opinion, spectacular problems are apt to be rare. More likely, we will see a host of small problems that are individually surmountable, but whose cumulative effect could be disruptive.

Our transition management organizations exist at multiple levels. Each of these organizations has five principle functional areas: a transition response center; help desk operations; event response teams; legal support; and a Special Situations group. This command and control structure is designed to capture, direct and track responses to all problems through to resolution. Many functions already in place for other purposes within the operating companies and their sub-organizations form the foundation of the year 2000 transition management team.

Preparing business operations for the transition period is a complicated undertaking that depends greatly on the characteristics of the particular business area. Some general preparatory actions include freezing production changes, shifting or deferring activities, adjusting plant holiday shutdowns and vacation schedules, and creating back-ups and contact lists. In each situation, executives are aware they must balance the risk and potential impact of year 2000 issues against business opportunities.

Transition management teams are also preparing employees for the anticipated impact of the year 2000 on their jobs. Employees must assume responsibility for monitoring the software, hardware, equipment and third parties that are integral

to their job functions since they are in the best position to recognize behavioral anomalies and problems with quality or performance. Employees who may receive telephone calls and queries about year 2000 issues or PM's' performance during the transition period must know how to handle those queries to ensure a proper and consistent response. All employees will need preparation to overcome and defuse millennium hype so they have a realistic sense of what could go wrong and what to look for during the transition period.

Another important aspect of transition planning is communication. We are developing communication plans for the transition period covering both the method in which communications will be conveyed (radio, cell phone, fax etc.) and the content of the communication.

To ensure that our transition management plan is feasible and all components work smoothly when the transition period arrives, we have scheduled a rehearsal for September 1999 across all operating companies.

Project Management and Progress Monitoring

At PM, the primary responsibility for planning, prioritizing, funding and executing the year 2000 program rests with our operating companies. Mr. Kenney's March 2 testimony provided an excellent example of the type of efforts we have under way in all our operating companies. However, in recognition of the global and interdependent nature of the year 2000 issue, in March 1996 we established a cross-functional year 2000 program organization to oversee and coordinate our Y2K programs worldwide. This organization is also responsible for complying with external disclosure requirements.

To monitor the progress of our program on a company-wide basis, we implemented a quarterly reporting process for all our 120 project organizations around the world. For our 35 largest businesses, we track progress monthly. This monitoring is in addition to weekly and monthly progress reporting at the local project and operating company level. In addition, our Corporate Audit Department began performing independent assessments of Y2K readiness in 1996. The auditors coordinated two worldwide Y2K self-assessments for all affiliates and have performed independent Y2K reviews at all major affiliates. Also, Y2K status is now reviewed during all Corporate Audits, with over 200 performed last year. In 1998, we engaged PricewaterhouseCoopers (PWC), our external auditors, to provide an independent review our Y2K efforts. Since then, PWC has supplemented our own Corporate Audit group in auditing compliance progress.

More recently, we implemented a Y2K "health check" program to supplement the existing monitoring, reporting and auditing program. This initiative provides an additional measure of affiliate progress, particularly for our smaller to mid sized affiliates, which may not have received the same level of attention as the larger units. Teams of independent, senior level Y2K experts from throughout the company spend one or two days at the affiliate under review, providing on-the-spot recommendations and helping identify affiliates that may benefit from additional resources.

Our progress monitoring system has been critical to the success of our overall Y2K program. It has enabled us to ensure sufficient resources are allocated to this program and to identify and resolve issues in a timely manner.

Conclusion

As we enter the final phase of our Y2K preparations, we are confident in the measures we have taken to address our internal systems and processes. However, we remain concerned about the level of our business partners' preparations, and believe we will suffer some interruptions in our supply chain, primarily in our international markets. The actual impact of these disruptions is difficult to predict. The company currently believes that the most reasonably likely worst case scenario entails some localized Y2K disruptions that may affect individual facilities or operations for short periods of time rather than long-term, systemic problems. The possible consequences include temporary plant closings, delays in the delivery of products, delays in the receipt of supplies, invoice and collection delays and errors, and inventory and supply obsolescence. Depending on the number and severity of Y2K-related disruptions, it is possible that the business and results of operations of the company could be materially adversely affected. However, we believe our internal preparations, and the contingency measures and transition management approach outlined previously should reduce the risk and potential disruptions to our businesses.

That concludes my testimony, and I would be happy to answer any questions you may have.

* * * * *

Philip Morris Companies Inc. is a holding company whose principle wholly-owned subsidiaries are Philip Morris Incorporated (Philip Morris U.S.A.), Philip Morris International Inc., Kraft Foods, Inc. (comprising Kraft Foods North America and

Kraft Foods International), Miller Brewing Company, and Philip Morris Capital Corporation. "PM", "we", "us" and "our" refer, as appropriate in the context, to Philip Morris Companies Inc. or one or more of its subsidiaries.

RESPONSES OF KEVIN D. CLICK TO QUESTIONS SUBMITTED BY CHAIRMAN BENNETT

Question 1. In your written testimony, you state that you currently consider approximately 700 or more of your more than 6,000 highly critical business partners to be higher risk, or likely to suffer Y2K related failures, and that about 600 of these are international partners. Are these business partners widely dispersed throughout the world, or do they fall in any particular regional patterns?

Answer. Since our testimony to the Committee in July, we have continued to work with and monitor our business partners, and many of our critical partners have made good progress in addressing the Y2K issue. As of September 1999, we consider approximately 250 critical partners to be of higher risk. While these higher risk partners are spread throughout the world, we see three primary categories of risk:

- Large suppliers and customers in developing countries (e.g. parts of Central and South America, parts of Southeast Asia, and parts of the former Soviet Union)
- Medium to large suppliers and customers in more developed countries (e.g. more developed Asian countries, parts of Europe)
- Certain governmental entities and infrastructure providers in Asia, Latin America, parts of Europe, and Russia (e.g. utilities, customs clearance agencies, ports, government tobacco monopolies, etc.)

Question 2. In cases where critical international business partners are at risk from Y2K failures due to their own internal processes, is Philip Morris considering terminating business relationships in favor of business partners with less Y2K risk?

Answer. First, we have already begun to diversify our supplier base so that we have qualified alternatives in place should a given partner suffer disruptions. Therefore, we would, and in fact have already, changed some business partner relationships due to concerns over Y2K preparations.

Second, changing major suppliers or distributors is a costly and disruptive process. In many cases, we have long standing relationships with these partners, and we would prefer to maintain these relationships. Therefore, we have continued working with our business partners to help ensure they understand what they need to do to become compliant.

Finally, there are certain business partners for which there are no alternatives, such as the U.S. Customs service. If there are Y2K problems at these partners, we will simply have to work through any resulting disruptions.

Question 3. You testify that your firm is initiating some limited stockpiling of additional levels of raw materials and finished goods. Are you taking these steps due to concerns about the Y2K status of certain business partners or due to concerns about such things as transportation or other infrastructure?

Answer. Many of the business partners we consider to be of higher risk are transportation and infrastructure. Therefore, when evaluating a given supply chain, either upstream or downstream, we consider the risk of the weakest link in the entire chain. For example, our upstream supply chain might include overseas suppliers, ports and customs agencies at both ends, and all transportation companies used inbetween. Stockpiling additional raw materials and finished goods is one of the most expedient methods for addressing failures or interruptions along any point of the chain.

Question 4. Your testimony indicates that Philip Morris has identified almost $800 million in direct expenses and another $600 million in stockpiling as the cost of Y2K preparedness. Will you please give the Committee some examples of the kind of Y2K business partner failures that you fear? Are you concerned that corporate stockpiling will create shortages of key items? Is there any industry effort to coordinate corporate contingency plans, which might include stockpile issues to reduce the possibility of creating a problem?

Answer. Potential business partner disruptions can be categorized into three primary groups. The first would be risks in our upstream supply chain, including disruptions at suppliers, transportation companies, ports and customs services. The second would be breakdowns that impact our internal ability to produce products, such as disruptions in utility services. The third would be risks to our downstream distribution systems, including our distributors, wholesales and/or retailers, and again including transportation companies, ports and customs agencies. Our current assessment of higher risk partners includes entities along all points of our supply chain.

Businesses around the world have become more efficient, resulting in reduced excess manufacturing capacity available to address short-term surges in demand. We have therefore been working with our business partners for some time to coordinate inventory needs, production schedules and delivery dates. We believe this will help reduce the possibility of shortages due to stockpiling. However, we are unaware of any industry-wide efforts to coordinate corporate contingency plans.

Question 5. Would you please discuss some of the Y2K problems that you expect after January 1, 2000, and how they could affect your business?

Answer. The first, most immediate risk we see is with external infrastructure failures, such as interruptions to utility services. If these types of failures occur, they are most likely to occur during the century roll over. Our contingency plans address these issues, and are designed to help ensure employee safety and to protect our assets. These types of failures could necessitate facility closures, and could result in temporary production outages.

A second risk we see is with systems that continue to process, but provide incorrect data. If a system stops processing, the problem becomes obvious and resources can be dispatched to fix it. Processing errors that do not stop the system might not be obvious at first. For example, a first-in, first-out (FIFO) inventory system in a warehouse may incorrectly assume products produced in the year 2000 were produced in the year 1990. The system, on a first in, first out basis, might therefore ship the newest product first. The older product, produced in 1999, might never be shipped, and could become obsolete.

We have implemented awareness programs to help employees understand the types of issues they could face, and are encouraging them to be particularly diligent in the initial days and weeks following the transition. In the end, we believe that Y2K problems could entail some localized disruptions that may affect individual facilities or operations for short periods of time rather than long-term, systemic problems.

Question 6. Transition management, recovery from Y2K errors and interruptions, makes sense as a concept. Have you actually conducted and model exercises in failures like power or telecommunication systems and, if so, what did you learn?

Answer. Actually, we have several real life experiences to draw on which have supplemented the simulations we are conducting. For example, the recent severe ice storms in the Northeast provided several valuable learnings. The analysis of these real life case studies, in conjunction with our contingency and transition management rehearsal program, has helped identify several best practices:

First, it is important to have clear plans in place, including a defined chain of command for decision making. Second, it is important to ensure that the appropriate supplies and materials are on hand in the event they are needed. For example, printed lists of contact phone numbers, fuel for back-up generators and spare batteries for flashlights should be kept on hand, and periodically checked for freshness. Finally, everything improves with practice. Like a fire drill, it is important to periodically rehearse the plan to ensure everyone knows his or her responsibilities, and reconfirm that the plan is still valid.

Question 7. The Transition Management rehearsal you are planning in September across all operating companies sounds very practical. Could you give the Committee some insight into how this will be accomplished and what you expect to learn?

Answer. The transition management rehearsal, which we held in September, had two major objectives:

First, we rehearsed the roles and responsibilities of the first level transition management teams. Teams were given a Y2K scenario to respond to. This tested our ability to react, highlighted gaps in existing contingency plans, helped clarify roles and responsibilities, and helped confirm that our response teams have the appropriate tolls to address the problems.

Second, we rehearsed our chain of command reporting process. Our senior management will be very interested in any issues that may arise as we crossover into 2000. We have implemented a reporting mechanism that will provide an overview of the company's status, allowing management to allocate resources to the highest priority problem areas.

Overall, the rehearsal program has been very successful, and has served as a valuable learning exercise.

Question 8. Global companies equate to global economies making Y2K a global economic as well as global technical problem. Do you have suggestions as to how the United States can help other countries in the remaining five months before the Year 2000 and thereby limit the economic impact on ourselves?

Answer. First, we would like to applaud the efforts of this Committee in raising awareness and keeping pressure on industry and the federal government to address the Y2K issue. This type of leadership is invaluable.

Second, we encourage the Committee to support additional efforts by the State Department, Commerce Department and others in continuing to raise Y2K awareness overseas, particularly with governmental entities and utility providers. The efforts to-date along this line have been very helpful in encouraging our international business partners to address their Y2K issues.

Finally, as we enter the final weeks of preparation, we believe these international organizations should be encouraged to focus on contingency and transition management plans to help reduce the impact of any interruptions that do occur. In addition, the U.S. government may want to consider the type of assistance or support that could be provided in the event other countries suffer serious infrastructure failures.

PREPARED STATEMENT OF VICE CHAIRMAN CHRISTOPHER J. DODD

Thank you, Mr. Chairman. This is the second time we have held a hearing on international Y2K issues. In an earlier hearing, we also reviewed the ramifications of Y2K in international shipping and the international export of oil. Today, we will focus on global corporations that have achieved market presence in multiple nations.

Global, internationally recognized businesses are generally the most healthy, most prosperous, farthest-reaching businesses. They are survivors. They understand what is required to maintain a strong position in the global economy and they thrive by remaining competitive.

However, global companies, which posses the requisite capital hardware, real estate, and cash to expand into and maintain a market presence within multiple nations, also have a greater responsibility because of the numbers of people they affect. There is significant potential for cascading failures in global corporations which have interdependent parts that span multiple borders. Imagine a multi-billion-dollar holding company that manages the supervisory operations of multiple business entities around the world. Think of the ramifications if a business like this falls victim to an internal problem which, from the top down, creates a spiraling deluge of secondary problems. The cumulative effect could be overwhelming and that is precisely why we decided to hold this hearing. We are interested in learning where Y2K problems may be manifested, and to what extent these corporations have inoculated themselves against potential Y2K malfunctions.

Mr. Chairman, these corporations are among the world's biggest economic institutions. A rough estimate suggests that the 300 largest global corporations own or control at least one-quarter of the entire world's productive assets. Though based predominantly in Western Europe, North America, and Japan, global corporations span the globe and account for sales revenues that are comparable to or greater than the GDP of most countries. Last year revenues derived from goods and services sold outside the U.S. by the 100 top multinationals increased 5%, to $958 billion, while overall revenues totaled $2.5 trillion.

Today few, if any, countries are economically self-sufficient. Everyone is shipping parts to everyone else. Microprocessors built in Arizona or California are shipped to Hong Kong for installation in a computer system that manages point of purchase operations in a manufacturing company in Buenos Aires. The ever-decreasing cost of communications, combined with the ease of transportation, has encouraged global corporations to conduct business with organizations in other countries as easily as one farmer traded his produce for goods in town at the beginning of this century.

Each of the largest global corporations utilizes thousands of critical suppliers, many of whom are located internationally. As a result, a global corporation must ascertain the Y2K-compliant status of each of its critical suppliers to ensure that day-to-day operations are maintained. This can be a daunting task. The interconnectivity of any business that utilizes computer systems, whether internally or via the many relationships that are maintained among business entities, is where the real risk lies. Interdependencies exist on so many levels that it is impossible to tell where or when problems in one area could surface in another. Global corporations, because of the international relationships they must maintain, are expressly threatened by a date-related computer malfunction. The very nature of these organizations with the myriad interdependencies among suppliers, shipping organizations, ports, financial institutions, and manufacturers, leaves them particularly vulnerable relative to smaller enterprises which maintain few business relationships.

In addition, the international trading system, with its complex web of distributors, customers, and transportation links, is supported by a critical infrastructure of products and services. The most important components of the infrastructure are energy production and distribution facilities, transportation modes, communications channels, and banking institutions. These sectors are highly computerized and interdependent and are particularly sensitive to dates for the smooth exchange of goods

and services. These characteristics render them especially susceptible to Y2K-related problems. Breakdowns in any part of the trade support structure could slow or halt shipments of key components needed to keep factories working, hospitals functioning, food in continuous supply, and people employed.

We look forward to hearing from our witnesses today. I am especially pleased to welcome Mr. Charles Krichbaum from my home State of Connecticut. Mr. Krichbaum is the Director of the Year 2000 Project for Praxair Incorporated located in Danbury, Connecticut, which is the largest producer of industrial gases and maintains a market presence in more than 40 countries. I am looking forward to his testimony. Thank you Mr. Chairman.

PREPARED STATEMENT OF KEVIN HAUKEBO

Mr. Chairman, Members of the Committee, I thank you for this opportunity to speak to you about steps Procter & Gamble is taking to prepare for the Year 2000. Specifically, you asked that I address the impact of Y2K on our global supply chain and our ability to maintain our day-to-day operations abroad given the status of critical infrastructures in those countries where we operate.

As background, we began preparing for Y2K more than three years ago, and I have managed our central project office since the beginning. Our goal is to minimize the risk of potential disruptions to our business operations and to make sure the brands our consumers know and trust are there for them when needed. This has entailed two major areas of work: a reliability review of our internal systems and an analysis of our external business partners.

Internal Systems

Our initial project efforts focused on identifying and correcting critical information and embedded system technologies. This included financial, human resource, order, shipping and billing information systems as well as systems and technologies used by our manufacturing, building maintenance, safety, environmental quality, quality assurance and research and development organizations. We inventoried and prioritized these systems and technologies based on how critical they are to our business. Specifically, our:

- Research & Development organization has verified over 3,000 pieces of laboratory equipment and systems;
- Facilities Services group has checked over 10,000 systems in nearly 300 locations;
- Information Technology organization has completed work on over 7,000 applications and nearly 200,000 pieces of technical infrastructure; and
- Product Supply organization has finished work on over 100,000 internal components at nearly 150 sites and analyzed over 10,000 suppliers. This in-depth knowledge of our internal readiness was instrumental in formulating and executing our approach with external partners.

External Partners

We have undergone considerable efforts to contact our external business partners, including suppliers, customers and service providers to ensure that current business operations are maintained through the millennium transition. We initiated this process to build our confidence level in the ability of our external partners to ensure the ongoing health of their business, which includes taking the appropriate steps to avoid Y2K disruptions. We have approached this mutual challenge in a way that builds upon our business relationship. Our objective is to manage risks related to Y2K with our external partners, while maintaining the integrity of our supply chain so that our consumers have access to our products.

Our current best approach for assessing external partner readiness includes a four-step process:

1. Develop an inventory of our external partners;
2. Understand the business criticality to Procter & Gamble and the risk of disruption or failure of each external partner;
3. Assess our key external partners to determine their Y2K readiness; and
4. Develop appropriate action plans based on the outcome of the third step.

To initiate this process, we sent a letter to our external partners requesting supply assurance throughout the Y2K transition period. We also inserted language into contracts with suppliers stipulating their ability to deliver our needs throughout the period. This first step helped underscore the priority Procter & Gamble has placed on minimizing the impact of Y2K on our supply chain.

Second, we weighed the magnitude of the impact external business partners could have on Procter & Gamble based on the importance of the service or product they provide and the likelihood they would experience a disruption or failure. We also

referred to the Gartner Group country-by-country data in evaluating risk, and our on-site visits confirmed the Gartner findings that we understand were previously shared with this committee. Clearly, there is no simple, automatic formula for determining business criticality and risk. In the end, a value judgment has to be made by those working closest to the external partner. We use common factors to guide our thinking. Our Business Criticality/Risk Assessment Grid helps us assign High (Red), Moderate (Yellow), Low (Green) ratings to our partners. External Partners who represent the least risk fall into the green shaded area, and partners with the greatest risk fall into the red areas. Red, of course, is where we focus most of our effort (see Figure 1).

Next, we assessed external partner readiness with varying degrees of follow-up based on where the partner fits in our grid. We conducted face-to-face meetings with critical suppliers worldwide. These meetings were held at our suppliers' facilities with people from their organizations that are knowledgeable about Y2K. If our purchasing manager who conducted the meeting needed additional support or was unsatisfied with the meeting, he or she would take one of our Y2K experts from Information Technology or Manufacturing to the next meeting with the supplier. If we were still not satisfied, we would put "work around" plans in place. These could consist of buffer inventory, alternate suppliers or a change in product or package formulation. We used this four-step process with over 4,400 centrally managed, critical suppliers worldwide and more than 6,600 suppliers, vendors and agencies that are important at the local site level.

Based on our work to date, we are not expecting any major disruptions to our supply chain. We either have confidence in or "work around" plans that are ready to be executed with more than 99 percent of our key central suppliers worldwide.

Business Continuity Planning

We realize there will be outages beyond our control and the impact of Y2K will vary country by country. We have developed business continuity plans, which assume something will go wrong. The objective here is to protect our critical business processes from disruption or failure before, during and after the Year 2000. These business processes are: make, pack, sell and ship our products; maintain cash flow; maintain communications; and ensure our site utilities are operational.

Every function and every region within the company was included in creating the overall business continuity plan, as there are a variety of situations to address, and as risks differ by business and by country. Our plan assesses internal and external risk factors to prepare each site in the event of business disruptions and/or failures.

We have examined nine risk areas globally and have developed contingency plans to address:

1. Inventories and Customer Demand
2. Impact on New Initiatives and Promotions
3. External Partner Readiness
4. Utilities/Infrastructure
5. Cash on Hand/Payroll Policy
6. Fraud Awareness
7. Credit Policies
8. Contingency and Staffing Plans
9. Year 2000 Communication Center

Specifically, you asked for our perspective as a multi-national company on the status of the infrastructure for critical utilities abroad. Our initial assessment was structured around the Gartner Group Report on risks, by country, of Y2K-related infrastructure failures. Our work continues to be supported by the Gartner Group assessments and industry progress reports. Based on this industry data, our global utility planning team investigated utility service providers worldwide to determine the risk of a utility interruption and developed a standard approach to begin contingency and business continuity planning on a regional basis (see Figure 2). Local P&G country contacts have contacted utility providers in each of their locations to understand the work they have done to prepare for Y2K and to determine if their service would be uninterrupted during this time frame. We solicited information using an in-depth questionnaire, personal phone calls and face-to-face interviews where possible to confirm information. In recent months, we're seeing more information flow from utility providers in various countries where we operate. However, utility providers in countries identified "at-risk" by the Gartner Group have been reluctant to respond to our inquiries.

We have also completed utility risk assessments at each of our manufacturing, office and data center sites worldwide. This includes completing internal remediation and staffing plans for critical periods. In addition, we have developed contingency plans to deal with potential gas, electric, water, telecommunications and sewer outages.

Also, we have examined the impact of Y2K on telecommunications. We have assessed the risk of voice and data disruption where we do business due to the Y2K transition. In general, we consider parts of Eastern Europe, Asia, Latin America and the Middle East to be of medium to high risk. We have tested various telecommunications options such as satellite phones for high risk sites and other satellite alternatives for data transmission.

We are concerned by regulatory and licensing issues in Asia and Latin America, where some countries limit the use of certain equipment. INMARSAT satellite and VSAT may not be available for use in all countries. We are selecting contingency options based on the information we have available on these countries.

We have been working with the International Y2K Alliance to deal with telecommunications and regulatory issues. Procter & Gamble is a member of this committee along with other multi-national corporations such as American Express, Ford Motor Company, IBM and Chase Manhattan. The Y2K Alliance has been working these industry issues with the U.S. Department of State. In recent works, the State Department has organized meetings with the embassies of specific countries between local public telephone companies and Y2K Alliance. We appreciate the support of the State Department in helping us address these issues and believe these meetings are a positive step in the right direction.

Moving Forward

Moving forward, we plan to maintain our Y2K readiness between now and January 1, 2000, by assessing all new hardware, software and suppliers. We are also continuing Y2K testing with customers as they move to the Y2K standard EDI (Electronic Data Interchange) transactions. Work also continues on our Business Continuity Plan (BCP), which is being managed geographically. Regional BCP teams have created transition plans and have deployed our current best approaches to local markets and organizations. These local resources are also developing contingency and staffing plans.

In summary, we are working hard to ensure the brands our consumers know and trust are there when they need them. While we do not expect any major disruptions to our business, we are preparing contingency plans to address outages beyond our control. We believe the preparedness of Procter & Gamble and our people will help us meet the Y2K challenge.

Figure 1

Business Criticality/Risk Grid for Assessing External Partners

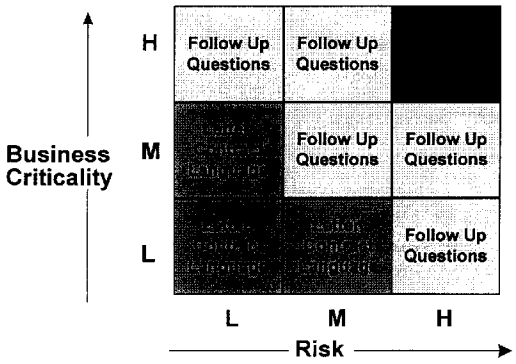
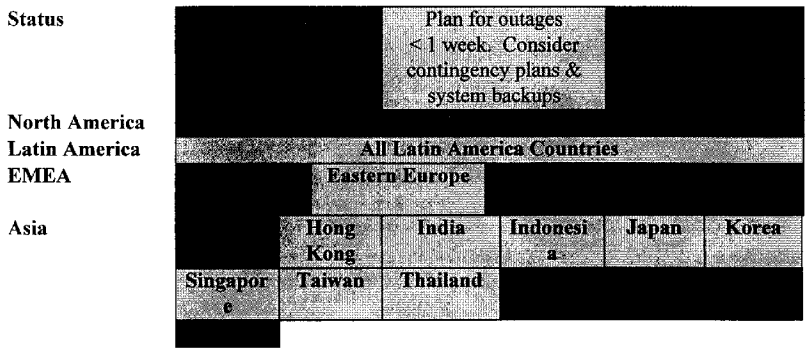


Figure 2

Infrastructure Status



RESPONSES OF KEVIN HAUKEBO TO QUESTIONS SUBMITTED BY CHAIRMAN BENNETT

Question 1. You testify that you sent a letter to your external partners requesting supply assurance throughout the Y2K transition period. Did this letter take the form of a survey or some other form? What kind of response did you receive? What types of follow-up have you done for those suppliers most critical to Procter & Gamble?

Answer. We have undergone considerable efforts to maintain the integrity of our supply chain so that our consumers have access to our products. It may be helpful to briefly outline the process we followed with our critical suppliers. We:

- sent letters to suppliers asking if they were prepared for Y2K and whether they were able to assure supply during the Y2K period;
- inserted language into our contacts with suppliers warranting their ability to continue to supply Procter & Gamble during this period;
- Gamble during this period;
- conducted face-to-face meetings with suppliers to discuss their preparations in depth; and

• included P&G technical Y2K experts in subsequent face-to-face discussions where needed.

• In cases where we were not satisfied, we created "work around" plans to mitigate potential outages.

The letters we sent to our suppliers did not take the form of a survey. We asked for assurance that they would be OK. We received varying responses, but most of our suppliers assured us that they would be all right. In addition, we asked our suppliers specific questions in face-to-face meetings to penetrate the quality of their response and to help them prepare where necessary. In specific cases, P&G Manufacturing or Information Technology technical experts participated to ensure a thorough understanding supplier plans.

This process continued until we were confident in the supplier's readiness, or we had put a "work around" plan in place. These plans could consist of buffer inventory, alternate suppliers or a change in product or package formulation. Additionally, we conducted ongoing discussions with suppliers concerning any updates or changes on their Y2K status/progress as part of our normal business discussions.

Question 2 and 3. You testify that utility providers in countries identified "at-risk" by the Gartner Group have been reluctant to respond to your inquiries. How do you intend to obtain more information? If unable to get satisfactory responses/information, what types of contingency plans/continuity of operations plans will you consider? What are your contingency plans to deal with potential gas, electric, water, telecommunications and sewer outages in various at-risk countries where Procter & Gamble does business?

Answer. We have continued to work with country and local utility providers through face-to-face meetings to better understand their readiness plans and ability to provide service. We have also received some help from utility consortiums and regulatory groups in gaining information. In some countries where suppliers, such as utility providers, have been somewhat reluctant to provide information, we have remained tenacious at asking for that information. In many cases this has provided us with responses. Another technique we have used is to take a look at similar utilities in other regions where we did get responses. This benchmarking can give us some indication of the likelihood of problems at a non-responding supplier's operation.

Contingency plans depend greatly on the potential risk. When we believe the outage will be very temporary, we have EAP's (Emergency Alternate Procedures) in place to deal with these minor outages. This could include giving priority to the most important parts of our operation in cases of power or utility reduction versus total loss or shifting production to another facility. In a minority of cases, we have gone so far as to rely on generators to run parts of the operation. Steps like increasing our stocks of finished product and pre-loading customers with finished product have also been used.

Our telecommunications contingency plans are based on a combination of criticality and risk assessment at the global, regional, and site level. Comprehensive remediation work for over two years on the infrastructure has made it Y2K compliant. The major risk factors for telecommunications are the external components of carriers and the power sector.

The majority of the high priority data links in the infrastructure already have built in back-up methods, such as redundancy and diverse paths. Additional voice and data contingency plans are being implemented in critical areas where there is a potential risk for Y2K disruption and no existing back up methods. Satellite phones (Inmarsat terminals) are being utilized for voice contingency. These will be implemented in the Y2K Command Centers, along with most high priority sites. There are various contingencies being utilized for data back-up. These include introducing diverse carriers and methods, such as ISDN back-up or remote LAN access. Satellite data links via either V–SAT or the Inmarsat-B terminals are being implemented in certain high risk, high priority sites.

Question 4. The Committee has thought that a result of analyzing suppliers and business partners would result in a "flight to quality". You testified that Procter & Gamble has assessed over 10,000 critical suppliers and partners using a four-step process. What types of actions are being taken to consolidate, reduce, or find alternate suppliers for those that are high-risk and high-criticality?

Answer. The types of actions we are taking to assure supply when we are not confident are building additional inventory to minimize the impact of supplier outages, developing alternate suppliers and moving more volume to already existing suppliers. Work around plans refer to inventory and supplier adjustments.

Question 5. After assessing more than 99% of your over 10,000 critical suppliers worldwide, Procter & Gamble is not expecting any major disruptions to its supply chain. Would you please briefly give an example of the type of "work around" you

referred to in your statement that is ready to be executed? Would you describe any disruptions that are expected which don't cross the threshold of major disruption but may have a noticeable impact?

Answer. Anticipated disruptions that we do not consider to be major would be a malfunctioning employee badge reader that causes us to manually check employee identification when they enter P&G facilities or having to switch from a core supplier for a material that's widely available from other sources.

PREPARED STATEMENT OF CHARLES KRICHBAUM

Chairman Bennett, vice chairman Dodd and members of the committee:

My name is Charlie Krichbaum, and I am Director, Year 2000 Global Project Office for Praxair. Praxair is the largest industrial gases company in North and South America, and one of the largest worldwide, with 1998 sales of $4.8 billion. The company produces, sells and distributes atmospheric and process gases, and high-performance surface coatings. Praxair products, services and technology bring productivity and environmental benefits to a wide variety of industries, including aerospace, food and beverage, healthcare, electronics, steel, chemicals and refining, metal fabrication, water treatment, glass and others.

Thank you for inviting me to speak on behalf of Praxair, Inc.

The goal of Praxair's year 2000 project is to prepare our plants and systems so that our customers, employees, and the communities in which we operate are not affected, and business operations around the world continue to run smoothly and safely through January 1, 2000 and beyond.

To provide a sense of our global operations Praxair operates in 43 countries, with 43% of our sales from outside North America.

While many international businesses rely on imported goods and services, this is not a significant issue for Praxair. We produce our products locally in the countries where we operate. Therefore, maintaining our day-to-day operations around the world, including minimizing any impact from critical infrastructure failures abroad, is an integral part of our overall planning process for year 2000 readiness.

Readiness

At Praxair, year 2000 readiness means that neither performance nor functionality is affected by dates before, during or after 2000. In particular:

- No value for current date will cause interruption in operations;
- Date-based functionality must behave consistently for dates before, during and after 2000;
- In all interfaces and data storage, the century in any date must be specified either explicitly or by unambiguous algorithms or inferencing rules;
- 2000 must be recognized as a leap year.

Year 2000 Global Project Office

Praxair began working on year 2000 issues in 1996 and formed a Year 2000 Global Project Office in early 1998 to accelerate our progress. The structure of Praxair's Year 2000 Global Project Office reflects the broad-based impact this issue has on Praxair's business. The Project Office reports directly to Praxair's CEO, Bill Lichtenberger, and coordinates a matrix of global teams, representing both business units and functional areas to ensure effective management of resources. The leadership of the Project Officer and the strength of combining business teams with functional and business units speeds our progress and optimizes our efforts.

The Global Project Office consists of a project manager and 13 global functional team leaders representing: applications technology; communications; finance; energy/other utilities; facilities; human resources; information technology; operations/production; procurement; product sales and services equipment; law; research and development; and safety and environmental services. In addition, the Global Project Office includes team members representing eight Praxair businesses and affiliates in North America, South America, Europe and Asia who have accountability for year 2000 activities.

Readiness Process

Praxair's year 2000 readiness effort is organized into several stages:

- **Promote awareness** of the year 2000 issue among employees;
- **Inventory and Assess** the impact of the year 2000 issue on Praxair systems and equipment, set priorities for renovation and develop plans worldwide for year 2000 readiness;
- **Renovate** Praxair's safety and mission critical systems; We are taking a global approach to renovations and developing standardized solutions for systems around the world. This approach ensures that high quality, consistent, and cost effective solutions are identified on a global basis.

- **Verify** that renovated systems are year 2000 ready through testing;
- **Implement** tested renovations; and
- **Develop** business continuity and contingency plans in the event of interruption of Praxair systems.

Since the formation of the Year 2000 Global Project Office in March 1998 here's an indication of what the *1,500 Praxair employees* involved around the world have accomplished *in 460 days*:

- 50,000 items assessed
- 17,000 renovations made
- 6,000 customer inquiry responses
- 4,300 suppliers assessed
- 900 utilities assessed

Suppliers

Praxair, like other companies, may be affected by the year 2000 problems of its suppliers by the interruption of supply of critical raw materials or utilities. The nature of our business is such that the most critical suppliers for Praxair around the world are those that supply electric power, natural gas, and water. To minimize disruption to these services and to other critical suppliers, we have taken a number of important steps:

- Suppliers of critical equipment, systems and services around the world, including suppliers of energy sources such as electricity and natural gas, have been identified and surveyed for their year 2000 readiness. Results of the surveys provide important input for our readiness planning process.
- By working with our suppliers, we have been able to jointly identify and resolve many potential year 2000 problems.
- We have implemented policies and strategies that require items that we purchase to be year 2000 compliant.
- We have also taken steps to ensure that documents like contracts, purchase orders, requests for quotes, etc. contain our year 2000 compliance language.
- We are refining plans as to how to best contact suppliers over the millennium transition weekend, should any year 2000 failures occur.

Our communication with our suppliers is ongoing to monitor their readiness status to ensure we are aware of any changes that may occur. To date, we have assessed and are in communication with approximately 900 utilities and 4,300 other suppliers worldwide.

Customers

As a supplier to our customers, we may be also be faced with failures resulting from year 2000 problems experienced by our customers in the form of interrupted or reduced demand for Praxair's products due to interruptions in the customer's own manufacturing processes. We are identifying critical customers for readiness assessment, and are asking questions similar to the following:

- Will customers be ready to use our products and services?
- Will customers that provide utilities to our operations by ready?
- Will customers be able to pay us on time?

Changes in our customers' operations may impact Praxair and we are encouraging on-going communications to minimize impact on our customers and on our own operations.

Impact of Legislation

On going communication with both our suppliers and our customers is critical to the success of the year 2000 planning process. We have an active and on-going communication effort aimed at responding to customer inquiries, and gathering information that we need for our own planning. It should be noted that these efforts have been accelerated and facilitated by the passage of the Year 2000 Information and Readiness Disclosure Act (15 USC 1 Note, P.L. 105–271, 112 Stat.) which became law last October. It has allowed for the rapid dissemination and receipt of important information under an umbrella of good faith. We at Praxair very much appreciate the efforts that resulted in this important legislation that has allowed industry to exchange information that is useful for correction of the Y2K problem.

Contingency and Continuity Plans

We have instituted a two phased approach to help ensure that we can continue to serve our customers around the world through January 1, 2000 and into the new millennium. Each business unit is developing contingency plans and continuity plans aimed at minimizing disruptions to our critical operations, internal systems and ability to supply product to our customers.

Contingency plans provides detailed operating instructions to local personnel in the event a failure occurs related to plants, facilities, operating systems and critical suppliers. It includes the item impacted, the failure scenario, a risk analysis, plans

to mitigate the risk, resource scenarios and key contact lists. These plans are generally site specific and include local considerations related to utilities, telephone services, security and fire alarm systems, and the like. Each local plant has plans in place to allow continued operations should telecommunications interruptions occur.

Continuity plans focus on mitigating potential failure across an entire business unit, and develops business strategies to maximize safety, delivery of product to customers and efficient operations.

These plans are expected to sustain the business in the event of a year 2000 failure, adequately address safety considerations and comply with the guidelines provided by the Praxair Project Office.

We will continue to review and 'fine tune' these plans based on an ongoing assessment our readiness and that of our suppliers. Rehearsals of key components are scheduled during the third quarter of this year.

Readiness Status

Praxair has essentially completed the renovation and testing of business processes, plant operations and computer systems critical to safety and the company's business. All of Praxair's businesses around the world have submitted Year 2000 Readiness Statements to chairman Bill Lichtenberger, meeting our mid-1999 readiness target. In addition, our corporate internal audit group will be conducting spot audits of various Praxair facilities around the world to help assure meeting our readiness goal.

As part of our readiness preparations, we will have a Global Information Center, essentially a "command center", that will be active throughout the millennium transition weekend. The center will collect, manage and disseminate critical information, and provide support, technical solutions and allocation of resources through the transition period. Needless to say, we are continuing to refine our plans for this effort as new information comes to our attention.

We do not expect catastrophic collapse of global infrastructures or sustained outages. We do, however, anticipate that we will likely experience temporary interruptions of electric power or other utility supplies to one or more of Praxair's production plants due to failure of the utility supplier to be year 2000 ready. The magnitude of impact will, of course, depend on the number and nature of the interruptions that might occur.

Throughout the remainder of the year we will be completing scheduled work and testing our contingency and business continuity plans, which will include testing of the "command center". In the fall, we plan to conduct a global "rehearsal" of our contingency plans. We believe these activities will provide another level of readiness preparation should any external or unknown year 2000 problem arise.

For more information, visit our web site at *www.praxair.com*, call 1–800–Praxair or e-mail your inquiry to *Year2000@Praxair.com*.

RESPONSES OF CHARLIE KRICHBAUM TO QUESTIONS SUBMITTED BY CHAIRMAN BENNETT

Question 1. The Committee looked into the impact of Y2K on the chemical industry earlier this year by requesting a study by the US Chemical Safety Board and holding a field hearing on the issue. One major area of concern is the paucity of information about the many small- to medium-sized enterprises in the industry. While small- to medium-sized firms are a general concern in all sectors when it comes to Y2K readiness, the consequence of an accident associated with these companies is disproportionately greater in the area of chemicals and gases. What is your assessment of the small firms that are either your suppliers or customers? What percentage fall into the high risk, high consequences category? Are they taking the Y2K bug seriously? Do they have the resources to fix the problem and/or develop workarounds? Is there more that Federal, state or local governments could do to heighten awareness and promote readiness by these companies?

Answer. Due to the nature of our business, our most critical suppliers are those that supply electric power, natural gas and water—not typically small firms. Our suppliers, regardless of size, who provide critical equipment, systems and services around the world, including electricity, natural gas and water, have been identified and surveyed for their year 2000 readiness. While we have not segregated our suppliers by size, we have not observed a discernable difference in the level of cooperation based on size. We have assessed and are in communications with approximately 900 utilities and 4,300 other suppliers worldwide.

We have responded to inquiries from and have an ongoing dialog with more than 6,000 of our customers, both large and small. We have not observed any material

differences in our customers' diligence in year 2000 readiness efforts based on their size.

Question 2. You mentioned the Praxair operates in 43 countries around the world, which is certainly a respectable cross-section of the world's nations. Have your assessments of local infrastructures caused you to be more concerned about certain regions more than others? Are you finding it necessary to develop regional contingency plans as opposed to national plans; for instance, if there is a regional failure of infrastructure such as transportation services or electric power?

Answer. We anticipate that disruptions are more likely to occur in the less developed countries in which we operate. However, contingency plans at the local level are in place throughout Praxair that provide detailed operating instructions to local personnel in the event a failure occurs related to plants, facilities, operating systems and critical suppliers. These plans are generally site specific and include local considerations related to utilities, telephone services, security and fire alarm systems, and the like. Each local plant has plans in place with respect to continued operations should telecommunications interruptions occur.

Question 3. With your operations in 43 nations around the globe, are you finding differences in your employees' sense of importance of being ready for Y2K? Has Praxair found that it needs to tailor its Y2K message to regional sensitivities and sensibilities?

Answer. All of Praxair's businesses around the world are actively participating on our year 2000 readiness planning process. Because we operate around the world, we accommodate regional and local differences as a normal part of our daily business operations, and year 2000 planning is no different.

We have been publicizing our year 2000 activities in our internal global publications (print and electronic) for the last two years and believe Praxair employees worldwide have a common basic understanding and awareness of the issue.

Question 4. Have there been any cases where Praxair has found that its assessment of the local infrastructure runs counter to the local government's assessment of the situations? If so, please explain.

Answer. Praxair's assessments of local infrastructures are generally in line with external assessments. While we *do not* expect catastrophic collapse of infrastructures or sustained outages, we do anticipate that we will experience temporary interruptions of electric power or other utility supplies to one or more of our production plants due to failure of the utility supplier to be year 2000 ready. We expect that these disruptions are more likely to occur in the less developed countries in which we operate.

Question 5. You mentioned that Praxair is planning a corporate Global Information Center. This Committee is finding that many industries and individual corporations are planning something along this line. The Federal Government is planning an International Coordination Center with similar thoughts in mind. Do you see some benefit in coordinating all these activities? Would Praxair share with others what it is observing either inside or outside its plants and facilities around the globe as the millennium date change progresses?

Answer. We are periodically posting year 2000 readiness disclosure information to our web site (*www.praxair.com*) and we plan to continue updating the site through the millennium date change. Other organizations may be planning similar use of the Internet, which will likely provide an efficient and cost effective method for sharing information.

PREPARED STATEMENT OF PATRICK M. ROBERTS

Chairman Bennett and Members of the Senate Special Committee on the Year 2000 Technology Problem, I am pleased to speak to you today regarding the issues facing global corporations with respect to foreign suppliers and operations related to their Y2K preparedness.

Background

Royal Ahold is the rapidly expanding international parent company of retail supermarkets, health care stores, and hypermarkets in Europe, the USA, Asia and Latin America. We employ some 280,000 associates around the world in more than 3700 stores. Last year, our sales exceeded $31 billion USD and we serve more than 20 million customers weekly.

Ahold USA, a subsidiary of Royal Ahold, is headquartered in Atlanta, Georgia, and is the 4th largest grocer in the US. The company has grown aggressively over the past 5 years through internal expansions and also by acquisition. Last year's USA sales of over $20 billion, came from the approximately 1000 stores operating under the brand names of Stop & Shop in New England, Giant-Landover in the

Washington/Baltimore metropolitan area, Giant-Carlisle in Pennsylvania, Tops in northwestern New York, and BI–LO in the Carolinas. In March, Ahold announced its intention to acquire Pathmark stores in the New York metropolitan area.

My statements today address Ahold's Year 2000 initiatives and our preparedness as a subsidiary of Royal Ahold.

Ahold Year 2000 Initiative

Ahold is taking the Year 2000 problem seriously and has aggressively addressed all identified technology and business issues. Total project spending will be in excess of $50 million. Ahold began its Year 2000 efforts in 1996 with a set of technology projects to consolidate and replace a majority of our legacy systems. In 1997 and 1998, our focus primarily was on technology. We formed an enterprise-wide project office to oversee the assessment, remediation, and re-deployment of our mission critical systems. We initiated contingency planning. This year, our focus is on Business Continuity Planning and Event Management planning. Up until The Event, we will continue to perform software testing both internally and, whenever possible, with critical external vendors. On those items over which we have direct control, we are confident that our early start and hard work will result in little to no impact in our operations.

Ahold Dependence on Foreign Entities and Operations

Ahold supports an autonomous operating company model, both foreign and domestic. To support this model we have established synergy groups which address our product supply chain and parts of our business that do not directly touch the customer; ie. the back office operations in the stores.

Our dependence on foreign companies is focused in our supply chain with resellable products. Overall, we have classified the risk of a disruption in our international supply chain as a low probability of occurring, a high potential impact if there was a disruption, and a moderate ability to proactively address. We are addressing this exposure through our Year 2000 Supply Chain methodology, as follows:

1. Inventory and Assessment of our Suppliers
2. Due Diligence regarding Supplier Readiness
3. Communication and Awareness and
4. Contingency Planning

We have prioritized our supply chain based on the potential impact to Ahold's business and the criticality of products they supply in the event of an emergency. Less than 5% of sales are from products we directly source from international companies. At the same time, however, we estimate that 25% of sales volume has some kind of international component. Categories of items with high levels of international sourcing include:

- Spices, sugar, rice, specialty grocery
- Produce; ie. bananas and soft fruits
- Coffee, tea
- General Merchandise, Promotional Products
- Pharmacy

Based on our research and in-depth discussions with almost 250 of our top-critical suppliers, our findings have led us to rate the potential for disruptions in our business from international sources as low:

- A great deal of international product has significant inventory in the US that provide us a buffer; ie. spices, sugar, rice and specialty grocery items. Our most critical suppliers are large corporations that, on the whole, are taking Year 2000 seriously and are applying the resources required to correct the problem within their companies, including in-depth interrogations of their international suppliers. Also, they are developing contingency plans to minimize exposure from failures in foreign operations.
- Through ongoing communications with one of our large suppliers in the produce category, we have determined that it:

1. owns its farms in foreign countries,
2. is complete with its critical technology correction projects,
3. owns a majority of the transportation chain,
4. has visited the primary ports to assess potential risks,
5. has met with US Customs to assess potential concerns, and
6. is using this information to actively create contingency plans.

In the soft fruits category, our winter crop comes from Chile; ie. grapes, nectarines, peaches, etc. While we plan to have a variety of soft produce in our stores, sales in this area are generally very low during this time frame due to the increase in prices from imports.

- Coffee and tea are purchased through commodity futures. What this means to the consumer is that the inventory supply chain would last several months after

The Event. Commodity suppliers usually have 90–180 days of inventory in the supply chain.

- General Merchandise and Promotional items have a natural window of several months duration. The majority of the seasonal and holiday merchandise, up to Valentines Day, is in the distribution centers several weeks prior to Christmas.
- Perhaps our largest area of vulnerability is with pharmaceuticals. From our research, more than 70% of drugs sold have some foreign component. For most, there is no good alternate supplier. Many of these products are necessary to the continued good health of our customers and our country's citizens. This is the area over which we have the least control, and potentially, the highest risk. Red Cross and FEMA recommendations that people prepare for Y2K as one would for a severe weather situation, appears to be an adequate preparation strategy.

Because these suppliers are third parties, and therefore, not in our direct control, Ahold never will be able to eliminate international exposure entirely. Based on our analysis of our top-critical suppliers, we have a "high" confidence rating in their Y2K preparedness. We will continue our dialogs with our major suppliers and refinement of our contingency plans through the end of the year.

Year 2000 Merchandising Plans

In regards to merchandising products, New Year's 2000 has two meanings for Ahold.

1. Ensuring that we can provide customers with necessary products before, during and after the turn of the century.
2. Providing the food, products and services in response to preparing for the party of the century.

Specific to Year 2000, Ahold does anticipate increased demand for emergency types of items during the last four months of the year and is preparing to meet this demand. New Year's is traditionally a peak time in the grocery business. Ahold is anticipating demand for this New Year's to be much greater than we have seen before. We are not increasing inventories for re-sellable products as a Y2K contingency except in a few cases; however, we will closely monitor product usage and increase our orders if necessary.

We believe the greatest unknown in predicting demand is the media. If the media promotes sensible actions and reactions to events, we believe there will be no shortage of products. If the media negatively publicizes year 2000 disruptions, regardless of their severity, Ahold will likely encounter product shortages as a reaction to, not as a result of the Year 2000 disruption.

Business Continuity Planning

Ahold is actively developing contingency plans to address potential disruptions. We have broken our business into 24 classes, or areas, in which plans are being created. In addition, we have identified more than 100 processes that our individual business units are addressing at a local level. We are planning to conduct exercises to test these plans.

One contingency that has been explored relative to international suppliers is to utilize our parent company, Royal Ahold, with its global supply chain and local presence in most major markets to assist in restoring any disruption.

Another major initiative in this area is the creation of the Event Management plan. This addresses how we will prepare for, monitor and react to Year 2000 related disruptions. The plan will encompass not only the technology operations, but day-to-day operations of our stores, warehouses and administrative facilities.

Communications

Communications are critical to successfully reducing the potential risk of Year 2000 disruption. We have 5 primary audiences for which our Project Office has active Year 2000 communications plans:

- Ahold internal
- Food/Retail Industry
- Suppliers
- Local communities
- Customers

We have a sizable team that is dedicated to communicating with our suppliers. They assess each company's Year 2000 efforts; educate the supplier on areas in which we deem they need assistance; and follow-up with those that are given "low" and "moderate" confidence ratings.

The Food Marketing Institute has done an excellent job assisting us with Local community relations and facilitating cooperation across our industry. I applaud their efforts. A most encouraging part of our conversations with our major suppliers has been their openness and candor regarding their Y2K readiness programs, including their "deep dives" into their supply chains and the strategies they are pursuing in their business contingency plans. We have seen a significant increase in

requests for participation in community events. Although we respond to most of these, the volume has kept us from attending all of them. Publications are being distributed to our customers to let them know we will be here on January 1st and beyond.

Summary

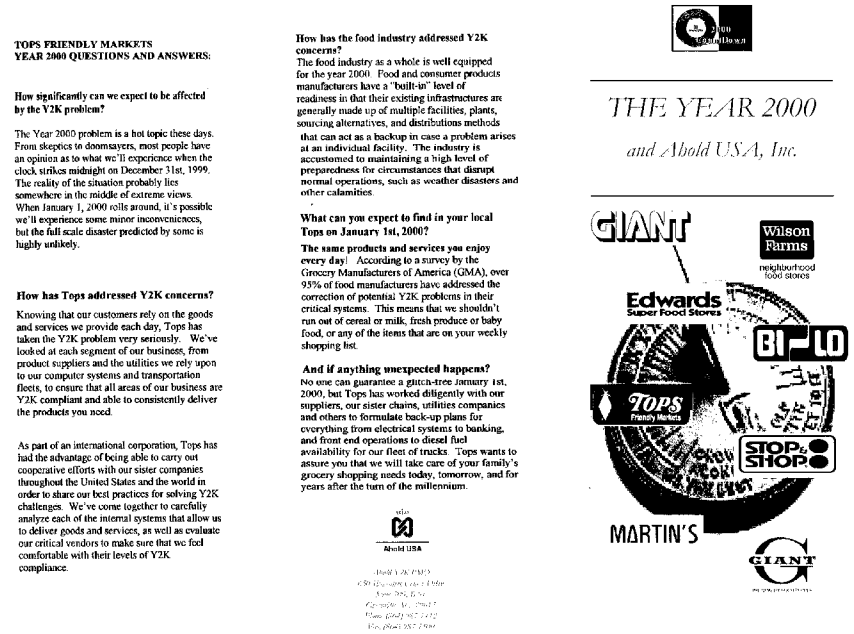
Ahold anticipates minimal disruption caused by our direct and indirect dependence on foreign suppliers. We have expended significant effort in developing business continuity plans to minimize our risks. There has been and will continue to be open and frequent communications with our suppliers to address all new issues.

We believe there are real and tangible benefits to Ahold USA in being a subsidiary of a truly global company with strong business relationships with multiple major product suppliers in diverse locations.

At the same time, we would say that there is real risk of Year 2000 disruption within the grocery industry and across other industries relative to Year 2000 readiness. We do believe some foreign countries and companies have not sufficiently addressed the Year 2000. Our strategy is to find alternate product sources to minimize our dependence on these countries.

We are aware that Congress is working diligently to ensure our infrastructure will be ready for The Event. We would ask that Congress look at providing further assistance in areas that Ahold has identified that may have a potential impact to the health and safety of all US citizens, namely, responsible reporting by the media. Additionally, we request your support in ensuring the readiness of our federal programs administered at the state level; specifically the Electronic Benefits Transfer (EBT) program that affects our citizens who may not be able to plan ahead for any temporary business disruptions.

I am happy to answer any questions you may have.



TOPS FRIENDLY MARKETS
YEAR 2000 QUESTIONS AND ANSWERS:

How significantly can we expect to be affected by the Y2K problem?

The Year 2000 problem is a hot topic these days. From skeptics to doomsayers, most people have an opinion as to what we'll experience when the clock strikes midnight on December 31st, 1999. The reality of the situation probably lies somewhere in the middle of extreme views. When January 1, 2000 rolls around, it's possible we'll experience some minor inconveniences, but the full scale disaster predicted by some is highly unlikely.

How has Tops addressed Y2K concerns?

Knowing that our customers rely on the goods and services we provide each day, Tops has taken the Y2K problem very seriously. We've looked at each segment of our business, from product suppliers and the utilities we rely upon to our computer systems and transportation fleets, to ensure that all areas of our business are Y2K compliant and able to consistently deliver the products you need.

As part of an international corporation, Tops has had the advantage of being able to carry out cooperative efforts with our sister companies throughout the United States and the world in order to share our best practices for solving Y2K challenges. We've come together to carefully analyze each of the internal systems that allow us to deliver goods and services, as well as evaluate our critical vendors to make sure that we feel comfortable with their levels of Y2K compliance.

How has the food industry addressed Y2K concerns?

The food industry as a whole is well equipped for the year 2000. Food and consumer products manufacturers have a "built-in" level of readiness in that their existing infrastructures are generally made up of multiple facilities, plants, sourcing alternatives, and distributions methods that can act as a backup in case a problem arises at an individual facility. The industry is accustomed to maintaining a high level of preparedness for circumstances that disrupt normal operations, such as weather disasters and other calamities.

What can you expect to find in your local Tops on January 1st, 2000?

The same products and services you enjoy every day! According to a survey by the Grocery Manufacturers of America (GMA), over 95% of food manufacturers have addressed the correction of potential Y2K problems in their critical systems. This means that we shouldn't run out of cereal or milk, fresh produce or baby food, or any of the items that are on your weekly shopping list.

And if anything unexpected happens?

No one can guarantee a glitch-free January 1st, 2000, but Tops has worked diligently with our suppliers, our sister chains, utilities companies and others to formulate back-up plans for everything from electrical systems to banking, and front end operations to diesel fuel availability for our fleet of trucks. Tops wants to assure you that we will take care of your family's grocery shopping needs today, tomorrow, and for years after the turn of the millennium.

Ahold USA

PREPARING FOR THE NEW MILLENNIUM

This information is a Year 2000 Readiness Disclosure pursuant to the provisions of the Year 2000 Information Readiness and Disclosure Act.

WHO IS AHOLD USA?

Ahold USA is made up of the following Operating Companies: American Sales Company, BI-LO, Giant Foods of Carlisle, Giant Food, Inc. of Landover, Stop and Shop, and Tops Markets, and includes these additional familiar names: Edwards, Martin's, Wilson Farms.

WHAT IS THE YEAR 2000 PROBLEM?

The Year 2000 problem, sometimes referred to as the millennium bug, is a problem that computer hardware, application software, and other "programmable" devices have with distinguishing years. Many of these systems use 2 digits for the year (i.e. "98" for the year 1998) which means that when the new millennium arrives, the year 2000 will result in "00" as the year and many programs will not be able to determine whether it should be 1900 or 2000.

WHAT ARE WE DOING ABOUT THE YEAR 2000 PROBLEM?

The Year 2000 problem is an issue that Ahold USA is taking very seriously. We have devoted a significant amount of time and resources to prepare our systems for the millennium transition.

A Project 2000 Program Management Office (Y2K PMO) was established in early 1997 to coordinate and monitor the Year 2000 effort. The major elements of our Year 2000 program include:

- *Replacement, Retirement, Remediation.* Ahold inventoried and assessed software and hardware, including date-sensitive devices, which may have been affected by the Year 2000 problem. One of three actions were taken with items identified as being unable to handle the Year 2000:
- *Retirement.*
  The affected software or hardware was taken out of service.
  Replacement.
  The affected software or hardware was replaced with Year 2000 ready systems.
  – *Remediation.*
  The affected software or hardware was corrected and tested to ensure that it will function correctly through the new millennium.

  Clean Management Processes.

  Processes were established to retain Year 2000 readiness for "clean" systems. Newly purchased software and hardware are tested prior to acceptance. Audits are conducted regularly to ensure our environment remains ready for the Year 2000.

- *Vendor and Supplier Readiness.* Ahold is actively working with its vendors and suppliers to eliminate potential Year 2000 problems. Activities have included surveys of suppliers, telephone conferences and face-to-face meetings to assess their readiness for Year 2000 and to share information.

- *Business Continuity Planning.* Ahold Readiness 2000 teams in each Operating Company are preparing business continuity plans to minimize any potential disruption of normal business operations. These plans are scheduled for completion during the first half of 1999.

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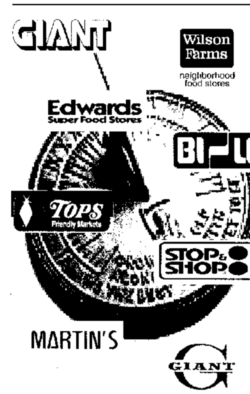
Ahold USA

THE YEAR 2000

and Ahold USA, Inc.



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PREPARED STATEMENT OF SENATOR GORDON SMITH

Good morning and welcome to today's hearing on the Year 2000 challenges facing our global corporations.

As a former businessman, I understand the impact that our international economy has on our national boundaries. Today, very few countries are economically self-sufficient without the presence of global corporations.

Global corporations are among the world's biggest economic institutions. A rough estimate suggests that the 300 largest global corporations own and control at least one-quarter of the entire world's productive assets. Global corporations' total annual sales are comparable to or greater than the yearly gross domestic product of most countries. Though based predominantly in Western Europe, North America, and Japan, global corporations' operations span the globe.

Global corporations face many of the same issues as domestic companies, such as maximizing profits, meeting customer demands, and adapting to technological change. Global corporations must also stay current with trends and events in the various countries where they operate.

All nations are tied into a global economic interdependence. International trade consists of a broad array of commercial interests and relationships that involve most products and service sectors. These, in turn, rely on a global web of critical services.

Disruptions in the relationships among suppliers and customers abroad can seriously affect the well-being of individual companies, specific industry sectors, and even international economies.

As our committee has examined in the past, many important components of the international trade system are highly computerized, interdependent, and very sensitive to the Y2K date-related changes. The most important components of the infrastructure are energy production and distribution facilities, transportation modes, communication channels, and financial networks.

Breakdowns in any part of the trade support structure could slow or halt shipments of key components needed to keep factories working, hospitals functioning, food in continuous supply, and people employed.

As of today, there are only 162 days remaining until January 1, 2000.

With this in mind, I want to stress the importance of ensuring the participation of executives at all levels of business and government in planning for such an event.

This problem will not simply go away. Each of us must do our part to make certain that the Y2K problem in adequately addressed.

As we work together, I am sure that we will develop a greater understanding of this problem and forge effective solutions. It is our cooperation which will bring us together and allow us to reach our final goal.

I would like to welcome all the witnesses who are before us today. We are particularly pleased to have representatives from Fortune 100 companies who are household names. Your willingness to step forward in this forum to testify on this critical issue affecting your business and the global economy is commendable.

PREPARED STATEMENT OF GEORGE SURDU

Good morning. I first would like to thank the Senate Committee on the Year 2000 for affording Ford Motor Company the opportunity to provide us an update on our Year 2000 Program. My name is George Surdu, and I am the Director of Technical Services, and Ford Motor Company's Year 2000 Global Program Manager. I have been the Year 2000 Global Program Manager since the inception of the Company's formal program in 1996.

In 1996, Ford Motor Company initiated a formal program to address the Year 2000 challenge. A senior level steering committee was established, co-sponsored by our Chief Financial Officer, our vice President of Quality and Process Leadership and our Chief Information Officer. A global Year 2000 Central Program Office was created under my leadership, and a robust program management process was created to guide compliance actions across all potential impact areas. Areas identified include: Business Computer Systems; Technical Infrastructure; Plantfloor Equipment; Product Development Test Equipment; Suppliers, Dealers and Affiliates; End-User Computing; Building Infrastructure; and Vehicle Components. In addition, we have continued to monitor the compliance actions of other impact areas such as our transportation carriers, medical equipment suppliers and customs offices. The sophistication of Ford's Y2K program was recognized by the Information Technology Association of America with a certification that Ford's program meets its challenging Y2K "best practices" standards.

Stretch compliance objectives were established for all impact areas, with the majority of work to be completed by mid-year 1999. Summer shut-down periods are being used to complete remediation work. As of June month-end, 98% of critical business systems and 97% of all business systems have been remediation, tested and back in service. In addition, an enterprise test plan for all key business processes has been developed, with completion scheduled for September.

For plant floor equipment, Ford has implemented a process to assess equipment and machinery in its 167 manufacturing and assembly plants and parts warehouse facilities. Presently, 99% of all plant floor equipment is compliant.

In conjunction with the Automotive Industry Action Group in North America, and other industry trade associations such as the VDA in Europe, Ford has been participating in a global supplier readiness program for production and critical non-production suppliers. As of this report, about 80% of suppliers responding are deemed ready, with 100% to be ready by year-end. About 10% have not responded; additional actions are underway to validate status of these suppliers and others that do not anticipate readiness by September. A similar program has been established for Ford's affiliates. As of June month-end, 89% are ready, with 100% slated to be ready by December 1999.

Compliance status for the other impact areas include: 87% of all critical Product Development Test Equipment; 97% of End-user Computing; 96% of our Technical Infrastructure; 83% of in-dealership systems; and 97% of all physical properties and infrastructures. Finally, 100% of the components in our vehicles are compliant.

As stated in our most recent SEC filing, Ford estimates its total Y2K spending to be about $403 million, incurred over a three-year period that commenced mid-1997 and will end mid-2000. This outlay constitutes about 10% of our total annual information technology budget.

Ford Motor Company is confident as to its readiness, as well as that of its affiliates, dealers and suppliers. However, the interdependence of the entire supply chain does represent the greatest risk to Ford. In particular, an extended infrastructure failure, that is electric, gas and water, would make it difficult to operate manufacturing operations. Accordingly, during the fourth quarter of 1998, we began the development of business contingency plans for all of our critical business processes. Most of these plans are now complete. Validation of all contingency plans will be completed in September. In addition, Ford has created a Global Y2K Response Center to be used as an information clearinghouse for the most current status available as we enter the new millennium, and critical systems are being processed through an Independent Verification and Validation Program as a final check for readiness.

Finally, a number of employees are being notified now to serve as on-site or on-call support over the holiday period to coordinate a response to any unexpected glitches that may be experienced by Ford or those who rely on Ford's consumer products and services.

This concludes my prepared statement. I would again like to thank the Senate Committee for this time to provide an update on Ford's Year 2000 Program. I would now be happy to respond to any questions you may have.

RESPONSES OF GEORGE SURDU TO QUESTIONS SUBMITTED BY CHAIRMAN BENNETT

Question 1. You testified that an "enterprise test plan" for all key business processes has been developed, with completion scheduled for September. Would you provide additional details about this plan? Do you plan to do a full end-to-end test of all your systems?

Answer. The Ford Motor Company's enterprise test strategy has focused on testing all cross organizational and external interfaces for all critical business landscapes. This strategy was chosen rather than "end-to-end" testing for several reasons, including the magnitude of the Company's enterprise portfolio (2400 systems with 340 million lines of code), regional complexities (North and South America, Europe, and Asia Pacific) and the completion of all critical inter-organizational integration testing by 1Q1999.

Critical landscapes, or key business processes were identified in all major regions of the Company, and include: Order to delivery, Material supply to assembly, Material supply to Manufacturing, Regulatory reporting and cash flow, and Service part order fulfillment. The enterprise test strategy focused on testing all of the cross organizational and external interfaces that were identified within each of these landscapes. Over 50 landscapes, 700 interfaces, across 16 countries were successfully tested by October 1999.

Question 2. You testified that Ford had been participating in a global supplier readiness program for production and critical non-production suppliers. Can you explain how this program operates, and precisely what Ford's participation has been?

Answer. Ford, along with other major OEMs is an active participation in two automotive industry groups, the Automotive Industry Action Group (AIAG) and the Verband der Automobilindustrie (VDA). Both of these groups have Year 2000 task forces where OEMs come together to communicate in a consistent manner with our common supply base. In the AIAG Year 2000 Task Force, a number of initiatives have been underway for the sole purpose of making our suppliers aware and ready for the rollover. Significant ones include: 1) Training courses such as program management for Year 2000 and contingency planning were developed and made available to our global supply base. 2) A Web based Self Assessment Questionnaire has been deployed so that suppliers can report their Year 2000 readiness status monthly to their OEMs. 3) A remediation assistance program, developed to assist and audit suppliers' Year 2000 programs has been underway since 1998. 4) A follow on program to give suppliers assistance in creating contingency plans is running through the 4th Qtr 1999. These initiatives were shared with the VDA in Europe, and implemented there, as appropriate.

The scope of the initiatives includes all the regions of the world where Ford has key suppliers. Ford's participation has been hands-on, taking a leadership role in developing and guiding the program, as well as providing resources and funding.

Question 3. You testified that, as of now, about 80% of suppliers responding are deemed ready, with 100% to be ready by year-end, and that, for Ford's affiliates, 89% are ready, with 100% to be ready by December 1999. Isn't December cutting it a little close to expect these suppliers to be ready? How will you be monitoring their progress? If their progress doesn't track toward compliance on schedule by the end of the year, what are your contingency plans?

Answer. To update the Senate, our suppliers report 97% are complete now, still forecasting 100% to be ready by year end. The majority of suppliers reported being ready by June 1999. The remaining suppliers have been dealing with recently uncovered issues, or less significant applications/hardware, not critical to production. Further, these suppliers report a high percentage (>90%) of work complete, closing in on 100% complete.

Ford set a target for our suppliers to be ready, the same as our internal target, which is June 1999. For those that have strayed beyond that target, actions have been taken to determine what areas of their work is not complete, its impact to Ford and their ability to work around the issue. Once this information is known, Ford is in a better position to determine what contingency actions are appropriate.

Progress has been monitored through the AIAG Self Assessment Website, where suppliers are requested to update their status monthly. In addition Ford mails the status and Ford's expectations to the supplier's executive management, advising them of any concerns we have, making them aware of Year 2000 risks and relaying best practices for a prudent business person to use. Throughout the data collection period, suppliers have consistently indicated they will be ready before January 2000. Therefore we believe the most effective contingency strategy is to share best practices so they can make themselves ready.

Despite the optimistic forecast, Ford has advised suppliers to develop contingency plans to handle whatever might happen. Where there is a high probability of risk or high impact to Ford, Ford is requiring suppliers to build a few days of finished goods as protection.

Question 4. Do you have any plans to curtail or terminate relationships with critical suppliers who are not on track to be Y2K compliant by the end of the year? Are you confident that Ford can continue to produce cars and trucks if some of your critical suppliers are not ready?

Answer. Ford monitors all aspects of supplier performance, as well as Year 2000 readiness. We have no indicators at this time that would warrant changes in relationships for Year 2000 reasons. The Self Assessments from the suppliers state they are ready and we have expectations of the suppliers to ship on time. Regarding Ford's confidence in continuing production if a critical supplier is not ready: Ford faces similar supply issues of varying magnitude on a daily basis. These issues are caused by many different conditions, such as: natural disasters, bad weather, power outages, equipment failures, human error. A Year 2000 problem will manifest itself in similar ways, so Ford and its suppliers are experienced in dealing with these types of problems.

Question 5. Can you describe Ford's contingency plans worldwide in the event of failures in critical infrastructures, such as utilities? What is your assessment of the international transportation sector?

Answer. Ford will deploy its existing contingency plans for infrastructure failures. Key areas such as North America, Western Europe and South America have very reliable infrastructure support, and are forecasted as green. The risk and probability there does not warrant extraordinary back-up measures, since any outages are likely to be brief and minor. Transportation is forecasted as green for the air, rail, ocean and truck services that Ford engages. Ford has been in contact with logistics providers as our eyes and ears around the globe. Their regional assessments for key areas have been optimistic.

Question 6. In your testimony you mentioned that you would be setting up a Global Y2K Response Center. Will this center communicate with other large Y2K response centers in similar companies or with the Federal Y2K Information Coordination Center?

Answer. The Global Y2K Response Center was launched on July 1st of this year. The center is an information clearinghouse for the most current Y2K status available as we enter the new millennium within Ford. We have agreements from selected partner companies to share Y2K information around the rollover period. We currently plan to communicate with the Federal Y2K ICC and are awaiting their published procedures.

ADDITIONAL MATERIAL SUBMITTED FOR THE RECORD

PREPARED STATEMENT OF GENERAL MOTORS

Executive Summary

GM anticipates no problems with past, current, or future model vehicles, and no significant disruption of GM's business as a result of the Year 2000 problem.

GM's passenger vehicles, with their growing use of sophisticated electronics, were among the company's earliest priorities for analysis of potential Y2K-related problems. GM vehicles have long been equipped with microprocessors which today, depending on the vehicle, are used for powertrain management, automatic climate control, anti-lock braking systems, traction control, stability enhancement, driver information centers, supplemental inflatable restraint systems, head-up display, real-time damping, navigation systems, seat, steering column and mirror memory positioning, remote keyless entry, entertainment systems, interior and exterior lighting systems, entry control, cellular communications and anti-theft systems.

GM has analyzed the microprocessors in its current and planned models. Additionally, the company has checked the microprocessors in past models dating back to when we first started installing "date processing-capable" microchips in our cars and trucks. GM found most of these electronic systems have no date-related functionality and, therefore, pose no Year 2000-related problems. Those few systems that have date-related functionality were found to be Year 2000 ready.

GM is executing a comprehensive global plan to make GM Y2K ready. Milestones of the plan include the following:

- The plan's major process steps include inventory, assessment, remediation, system testing, implementation, readiness testing, and contingency planning.
- GM is working to maintain uninterrupted electronic communications with its dealers, suppliers and other companies with whom it does business.
- Comprehensive Global Supplier Y2K Readiness is a vital part of the program.
- Remediation of systems is substantially completed.
- Testing will occur throughout 1999 to confirm GM's Year 2000 readiness.
- Contingency plans are being developed and put in place.

The details of the plan are attached.

GM's Year 2000 Program

Many computerized systems and microprocessors that are embedded in a variety of products either made or used by GM have the potential for operational problems if they lack the ability to handle the transition to the Year 2000. Because this issue has the potential to cause disruption of GM's business operations, GM has developed a comprehensive worldwide program to identify and remediate potential Year 2000 problems in its business information systems and other systems embedded in its engineering and manufacturing operations. Additionally, GM has initiated communications and site assessments with its suppliers, its dealers and other third parties in order to assess and reduce the risk that GM's operations could be adversely affected by the failure of these third parties to adequately address the Year 2000 issue.

One of GM's first priorities was the analysis of microprocessors used in GM passenger cars and trucks. This review included all current and planned models as well as the electronics in older cars and trucks produced during the period of approximately the last 15 years. GM began installing microchips capable of processing date information approximately 15 years ago. Most of the processors reviewed have no date-related functionality, and accordingly have no Year 2000 issues. Of the vehicles with processors that perform date-related functions, none have any Year 2000 issues.

GM's Year 2000 program teams are responsible for remediating all of GM's information technology and embedded systems. Information technology principally consists of business information systems (such as mainframe and other shared computers and associated business application software) and infrastructure (such as personal computers, operating systems, networks and devices like switches and rout-

ers). Embedded systems include microprocessors used in factory automation and in systems such as elevators, security and facility management. GM's Year 2000 program includes assessment and remediation services provided by Electronic Data Systems Corporation (EDS) pursuant to a Master Service Agreement with GM.

The Year 2000 program is being implemented in seven phases, some of which were and are being conducted concurrently:

Inventory—identification and validation of an inventory of all systems that could be affected by the Year 2000 issue. The inventory phase commenced in earnest in 1996 and is substantially complete. GM has identified approximately 6,100 business information systems and about 1.4 million infrastructure items and embedded systems.

Assessment—initial testing, code scanning, and supplier contacts to determine whether remediation is needed and developing a remediation plan, if applicable. The assessment of business information systems is substantially complete and included a determination that about one quarter of such systems should be regarded as "critical" based on criteria such as the potential for business disruption. The assessment of infrastructure items and embedded systems was substantially completed by the end of 1998.

Remediation—design and execution of a remediation plan, followed by testing for adherence to the design. GM has substantially completed the remediation of its critical and non-critical systems. A small number of systems will be remediated or replaced in 1999. Inconsequential systems have been and will continue to be removed from GM's Year 2000 inventory and will not be remediated. GM believes that it will meet its targets for Year 2000 readiness.

System Test—testing of remediated items to ensure that they function normally after being replaced in their original operating environment. This phase is closely related to the remediation phase and follows essentially the same schedule.

Implementation—return of items to normal operation after satisfactory performance in system testing. This phase follows essentially the same schedule as remediation and system testing.

Readiness Testing—planning for and testing of integrated systems in a Year 2000 ready environment, including ongoing auditing and follow-up. Readiness testing is currently under way. This phase commenced during the fourth quarter of 1998 and is expected to be the major focus of the Year 2000 program throughout 1999.

Contingency Planning—development and execution of plans that narrow the focus on specific areas of significant concern and concentrate resources to address them. GM currently believes that the most reasonably likely worst case scenario is that there will be some localized disruptions of systems that will affect individual business processes, facilities or suppliers for a short time rather than systemic or long-term problems affecting its business operations as a whole. GM contingency planning continues to identify systems or other aspects of GM's business or that of its suppliers that it believes would be most likely to experience Year 2000 problems. GM contingency planning also addresses those business operations in which a localized disruption could have the potential for causing a wider problem by interrupting the flow of products, materials or data to other operations. Because there is uncertainty as to which activities may be affected and the exact nature of the problems that may arise, GM's contingency planning will focus on minimizing the scope and duration of any disruptions by having sufficient personnel, inventory and other resources in place to permit a flexible, real-time response to specific problems as they may arise at individual locations around the world. Some of the actions that GM may consider include the deployment of emergency response teams on a regional or local basis and the development of plans for the allocation, stockpiling or resourcing of components and materials that may be critical to our continued production. Specific contingency plans and resources for permitting the necessary flexibility of response are currently being developed and put into place.

GM's communication with its suppliers is a focused element of the assessment and remediation phases described above. GM is a leading participant in an industry trade association, the Automotive Industry Action Group, which has distributed Year 2000 compliance questionnaires as well as numerous awareness and assistance mailings to about half of the 90,000 supplier sites that service GM throughout the world. Responses to these questionnaires, which were generally sent to GM's principal suppliers, have been received from about half of the supplier sites to which they were sent. Many of the non-responding suppliers are communicating directly with GM on an informal basis. Additionally, GM has initiated its own review and assistance program for suppliers considered to be critical to GM's operations, including more than 3,900 on-site assessments to date, and Y2K program management workshops for over 2,500 supplier companies. These assessment efforts have been

substantially completed with respect to the critical supplier sites. Based on its assessment activity to date, GM believes that a substantial majority of its suppliers are making acceptable progress toward Year 2000 readiness. Additionally, GM has established a program to provide further assistance to suppliers that desire more input or that are believed to be at high risk of noncompliance as a result of the foregoing assessment efforts. This supplier assistance program currently includes providing remediation consultants to work with suppliers on developing, implementing, and/or accelerating their own Y2K readiness efforts.

With specific regard to the "off-shore" component of the critical GM suppliers mentioned above, our readiness activities are being managed by a global Y2K supplier readiness organization with regional offices and personnel in Mexico City, Mexico; Ruesselsheim, Germany; Sao Paulo, Brazil; Melbourne, Australia; and Singapore, in addition to our supplier program headquarters in Detroit, MI.

Of the critical supplier sites being tracked globally in 54 countries for specific risk management action, approximately 35% are outside of North America. Of the 3,900 on-site supplier and utility assessments conducted in 44 countries, 55% have been outside of North America. Of the high-risk suppliers identified in the assessment phase and being provided direct remediation assistance, 77% are outside of North America.

GM's contingency planning efforts described above are also expected to address any critical suppliers that GM identifies as being at high risk of encountering Year 2000 problems. Further, in regard to our "off-shore" focus, we are placing a high priority on contingency planning, Y2K command centers in the U.S. and around the globe, and additional in-depth risk management for those countries and global regions which as a result of the above risk management actions show a high concentration of failure-likely suppliers or utility sites.

GM also has a program to work with its independent dealers on their Year 2000 readiness. This program includes distributing materials that assist dealers in designing and executing their own assessment and remediation efforts. GM has also included Year 2000 compliance criteria as part of its established program for certifying that third-party business information systems properly interface with other systems provided to dealers by GM.

GM's direct Year 2000 program cost is being expensed as incurred with the exception of capitalizable replacement hardware and, beginning in 1999, internal-use software. Total incremental spending by GM is not expected to be material to the Corporation's operations, liquidity or capital resources.

In addition to the work for which GM has direct financial responsibility, EDS is providing Year 2000-related services to GM, as required under a Master Service Agreement. These services are being provided by EDS as part of normal fixed price services and other on-going payments to EDS.

GM's current forecast is that its total direct expenditures plus the value of services performed by EDS attributable to GM's Year 2000 program will be between $540 million and $600 million. This amount includes the following:

- An estimated $350 million to $410 million in direct GM expenditures. This estimate includes a $60 million payment from GM to EDS at the end of the first quarter of 2000 if systems remediated by EDS do not cause a significant business disruption that results in material financial loss to GM; and
- An estimated $190 million representing EDS' expenditures attributable to GM Year 2000 program.

GM's total Year 2000 costs noted above do not include information technology projects that have been accelerated due to Year 2000, which are estimated to be approximately $20 million,

In view of the foregoing, GM does not currently anticipate that it will experience a significant disruption of its business as a result of the Year 2000 issue. However, there is still uncertainty about the broader scope of the Year 2000 issue as it may affect GM and third parties that are critical to GM's operations. For example, lack of readiness by electrical and water utilities, financial institutions, government agencies or other providers of general infrastructure could, in some geographic areas, pose significant impediments to GM's ability to carry on its normal operations in the areas or areas so affected.

Statements made herein about the implementation of various phases of GM's Year 2000 program, the costs expected to be associated with that program and the results that GM expects to achieve constitute forward-looking information. As noted above, there are many uncertainties involved in the Year 2000 issue, including the extent to which GM will be able to successfully remediate systems and adequately provide for contingencies that may arise, as well as the broader scope of the Year 2000 issue as it may affect third parties that are not controlled by GM. Accordingly, the costs

and results of GM's Year 2000 program and the extent of any impact on GM's operations could vary materially from those stated herein.

Note: The expenditures and other figures contained in this document represent GM's latest estimates following the May, 1999, spin-off of Delphi Automotive. Additional information of GM's Y2K readiness is available at (*www.gm.com*) and (*www.gmacfs.com*).

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