876

ALLOCATION OF RESOURCES IN THE SOVIET UNION AND CHINA—1977

HEARINGS

BEFORE THE

SUBCOMMITTEE ON PRIORITIES AND ECONOMY IN GOVERNMENT

OF THE

JOINT ECONOMIC COMMITTEE

CONGRESS OF THE UNITED STATES

NINETY-FIFTH CONGRESS

FIRST SESSION

PART 3

JUNE 23 AND 30 (Executive Sessions), AND JULY 6, 1977

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U.S. GOVERNMENT PRINTING OFFICE

20-123 O WASHINGTON : 1977

For sale by the Superintendent of Documents, U.S. Government Printing Office
Washington, D.C. 20402

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ALLOCATION OF RESOURCES IN THE SOVIET UNION AND CHINA—1977

THURSDAY, JUNE 23, 1977

CONGRESS OF THE UNITED STATES,
SUBCOMMITTEE ON PRIORITIES AND
ECONOMY IN GOVERNMENT OF THE
JOINT ECONOMIC COMMITTEE,
Washington, D.C.

The subcommittee met, pursuant to notice, at 10:06 a.m., in room 6206, Dirksen Senate Office Building, Hon. William Proxmire (chairman of the subcommittee) presiding.

Present: Senators Proxmire, Hatch, Sparkman, Javits, Roth, and McClure.

Also present: Richard F. Kaufman, general counsel; and George D. Krumbhaar, Jr., minority professional staff member.

OPENING STATEMENT OF SENATOR PROXMIRE, CHAIRMAN

Senator PROXMIRE. The subcommittee will come to order.

Admiral Turner, we are very pleased that you are with us this morning to make what has become an annual presentation of the intelligence community's views of the allocation of resources in the Soviet Union and China.

As you know, we are anxious to have a full discussion of the substantive issues so that we might better understand economic developments in the two largest Communist countries. We are also anxious to make this information available to the rest of Congress and the public as quickly as possible.

In the past, we have tried to publish the proceedings as soon after the transcripts have been sanitized as we could. We have done this, but it has taken several months from the date of the initial presentation.

This year, in addition to publishing the full hearings, we would like to be able to make public the dialog between you and the subcommittee, and perhaps also a summary of the presentation. Of course, these excerpts would have to be declassified.

Do you think this can be done so that we can make public at least portions of this hearing within the next 2 or 3 weeks?

Admiral TURNER. Yes, sir.

Senator PROXMIRE. Very good. That would be very helpful.

Senator Hatch, do you have an opening statement?

Senator HATCH. I have no opening statement. I am just very happy to welcome you here, Admiral.

Admiral TURNER. Thank you, Senator.

Senator PROXMIRE. Thank you, Senator Hatch. We are delighted to have you here this morning.

Let's proceed with your remarks, Admiral, and then we will get into our questions.

STATEMENT OF ADM. STANSFIELD TURNER, DIRECTOR OF CENTRAL INTELLIGENCE, ACCOMPANIED BY SAYRE STEVENS, DEPUTY DIRECTOR FOR INTELLIGENCE; ROBERT E. HEPWORTH, CONGRESSIONAL SUPPORT STAFF; DOUGLAS DIAMOND, OFFICE OF ECONOMIC RESEARCH; ROBERT FIELD, OFFICE OF ECONOMIC RESEARCH; DONALD BURTON, OFFICE OF STRATEGIC RESEARCH; GEORGE L. CARY, LEGISLATIVE COUNSEL; AND BERNARD McMAHON, EXECUTIVE ASSISTANT TO THE DIRECTOR

Admiral TURNER. Thank you, Mr. Chairman.

I am pleased to be here. I understand that the CIA has been coming up here for several years to give this kind of assessment and providing the committee with economic studies for 15 years. In addition, we have and will continue to provide you with reports from time to time, as they become available. As I mentioned to you personally, I feel that is a responsibility which we should continue and we should increase the amount of information that is made available to the public.

We would like this morning to discuss the Soviet economy and its prospects along with the defense sector. We will proceed from there to the Chinese economy and its defense sector.

I will be assisted by Mr. Sayre Stevens on my right who is the Deputy Director for Intelligence at the Central Intelligence Agency.

SOVIET ECONOMY

Our review of the Soviet economy is a particularly significant one for this year because we have taken a look at the long-term prospects. It has been about 5 years since we have taken this kind of perspective, and we have come up with what I think are some important and different conclusions about the Soviet economy and its long-term outlook.

We have studied this and restudied it. We have called in outside economic experts and we think we are on the right track. We will be interested in your responses this morning, sir.

We think the Soviet Union is entering into a period of reduced growth potential, due first to bottlenecks in key commodities, especially crude oil, but also to a near certain contraction in the growth of their supply of labor.

The basic problem is that the formula for maintaining their level of growth over the past 25 years, which has been to increase the inputs of labor and capital to make up for the inefficiency in the way they utilize them, does not appear to us to have long-term prospects. They are not going to be able to continue to do this over the next 10 years or so.

Up to 30 percent of their gross national product currently goes into capital investment.

As a result, we think Moscow is going to be confronted with some very difficult policy decisions, especially involving energy use, imports

from the West, relations with Eastern Europe, and the size of their armed forces.

We think their policy options are limited, and we also note that the responses which they are going to have to make are likely to be complicated by the fact that when all these economic problems come to the fore, they well may be facing a change in political leadership and all of the uncertainties of a post-Brezhnev era.

GROWTH SLOWDOWN

Let me now go on in some greater detail as to why I anticipate this slowdown in Soviet economic growth.

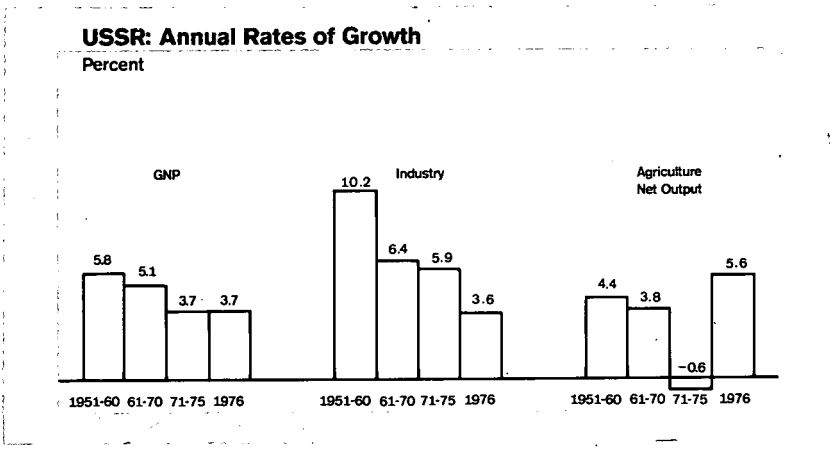
I would start by saying that first, things have not been going well for the Soviet economy recently.

As shown on the left of the chart, GNP growth has been declining, from an average of about 5 percent in the 1960's to about 3.7 percent in this decade.

In 1976, industrial growth, as shown on the center bar there, was the slowest since World War II.

Finally, on the agricultural side, you can see what a bad 5 years they had before 1976. It was in 1976 that they really had a good year.

[The chart referred to above follows:]



LABOR SUPPLY

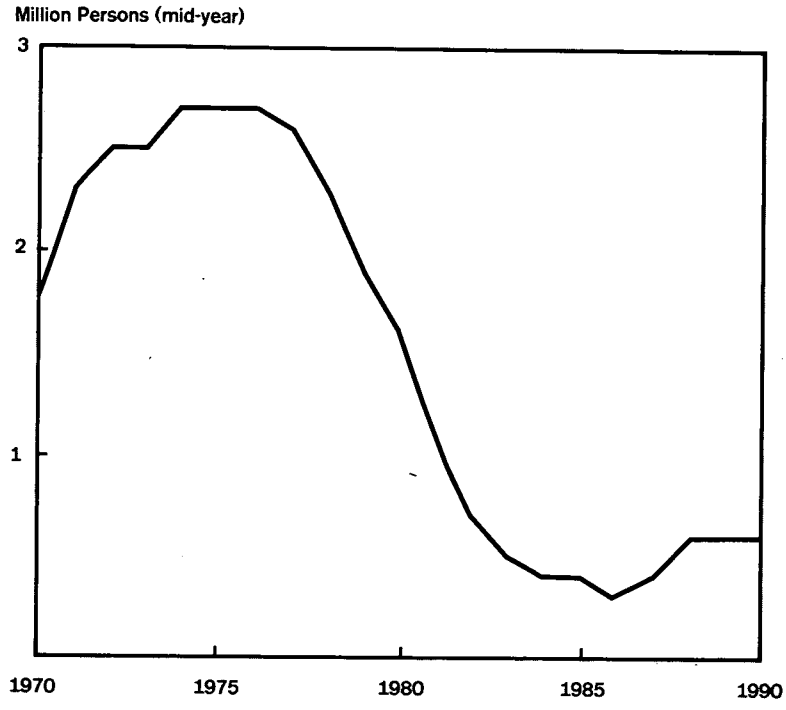
Admiral TURNER. The second factor working against them in the long run which I mentioned previously is the expected sharp drop in the rate of growth of the labor force, beginning in the late 1970's. This derives from a decline in the birthrate in the 1960's. It has already been reflected in a decline in the number of new entrants into the labor force, but, as this chart shows, it will become much more acute by the early 1980's.

The working age population by then will grow less than one-half of 1 percent annually, compared with about 1.8 percent during the 1970's to date.

A further complication is that those additions which will be taking place to the labor force during this period will come largely from the ethnic minorities from Central Asia, who do not readily move to the labor short northern industrial areas. They are not people who want to be displaced.

[The chart referred to above follows:]

USSR: Population of Working Age, Annual Increments, 1970-1990



Admiral TURNER. Productivity gains in the Soviet Union have been slowing for years, and in addition, there are new problems today which are likely to depress productivity further.

The left-hand series of bars in this chart are the gross national product that we saw before, but added to it is the Soviet projection in their 5-year plan of a 5-percent growth over the next 5 years.

The interesting point is that the middle bars show the rate of growth of the inputs of capital and labor combined and you can see that they themselves predict a drop in the rate of growth in their 5-year program. Yet, the last bars, which show the combined productivity of these factors, indicate that they expect an unrealistic increase in productivity.

In short, even allowing for the fact that 1971–75 included some bad agricultural years, what they are expecting over the next 5 years is more than they achieved even in the 1950's. We don't think they are

likely to be able to achieve this productivity with those inputs of labor and capital.

Let me elaborate on some of the reasons for that.

The first is that the fuels and raw materials which they are going to have to draw upon in the next decade are simply getting more expensive. They have to go further east of the Urals to get them.

Another is that the Soviet economy is simply becoming larger and more complex and the mechanisms which they have for centralized control of it are becoming less and less adequate to the task.

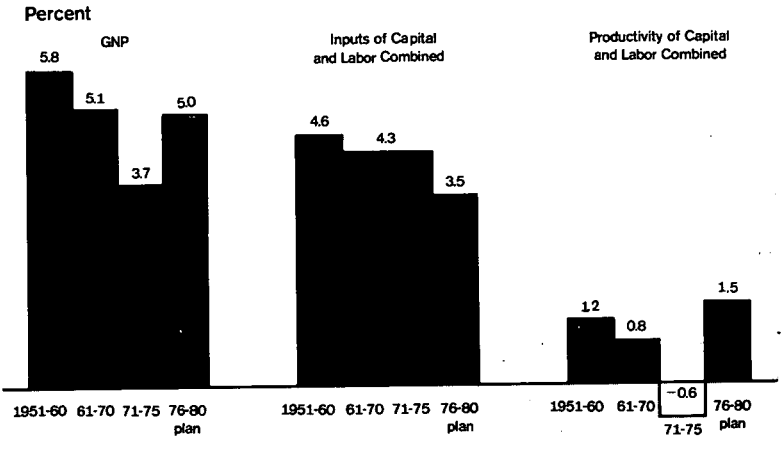
Third is that in adding to plant and equipment, they have to move into more technologically sophisticated areas and it is more expensive to do so.

OIL SHORTAGES

Perhaps most importantly is the looming oil shortages, which, as you know, we have discussed in another report which we sent out on an unclassified basis not too long ago. If I may, I would like to elaborate on that because it is central to our overall analysis here.

[The chart referred to above follows:]

USSR: Average Annual Rates of Growth of Inputs and Factor Productivity



SOVIET CRUDE OIL PRODUCTION

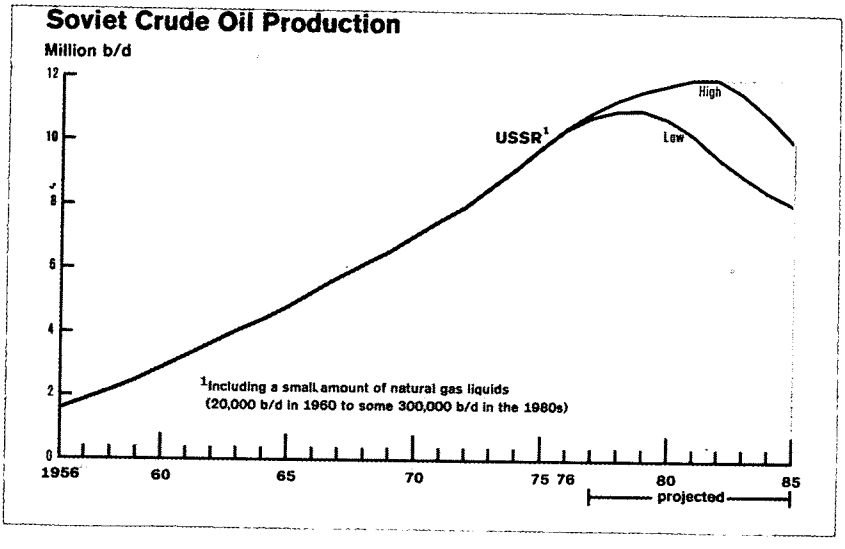
Admiral TURNER. This is our prediction of Soviet crude oil production which, as you can see from the chart, is on a steep rise at this point. We expect it to peak in the early 1980's and then to decline.

The reasons for this are, first, that the Soviets today are emphasizing current production, rather than development and exploration. They are not discovering new oil reserves as rapidly as they are depleting them.

Second, while last year they produced 10.4 million barrels of oil per day—and we think this is close to their estimated maximum potential of 11 million to 12 million barrels a day—we still expect that they

are going to fall to between 8 and 10 million barrels per day by 1985, in large measure because the production technique that is keeping their production high today is a water flooding method which pushes the oil out, and that, over time, simply leads to seepage with the end result that a very large amount of fluid has to be pumped out to get a given amount of oil.

[The chart referred to above follows:]



Senator HATCH. Admiral, that is still quite a bit of oil per day, though, isn't it?

Admiral TURNER. Yes.

Senator HATCH. Isn't that a little bit more than ours? How many million barrels of oil a day do we get?

Admiral TURNER. We consume about 18 million barrels of oil a day.

Senator HATCH. But we produce about 8 million of those, don't we?

Mr. STEVENS. We produce about 8 million.

Senator HATCH. So actually, we are producing less oil today than the Russians with our much more highly mechanized society.

Admiral TURNER. There is no question about that.

Senator HATCH. Thank you. I just wanted to get that comparison so that I would have the right perspective.

Admiral TURNER. In 1976, the Soviets were the largest oil producer in the world in millions of barrels of oil per day, slightly more than the Saudi Arabians.

Senator HATCH. I don't think a lot of people realize that.

By 1985, you expect them to be down to about 8 million barrels of oil a day?

Admiral TURNER. 8 million to 10 million by 1985, and I will detail why I think that is going to have some severe impact on them, even though it is nonetheless a large amount of oil.

Senator HATCH. Are they getting most of their oil east of the Urals?

Admiral TURNER. They are getting most of their oil west of the Urals as indicated by a chart I have with me. They are still tapping

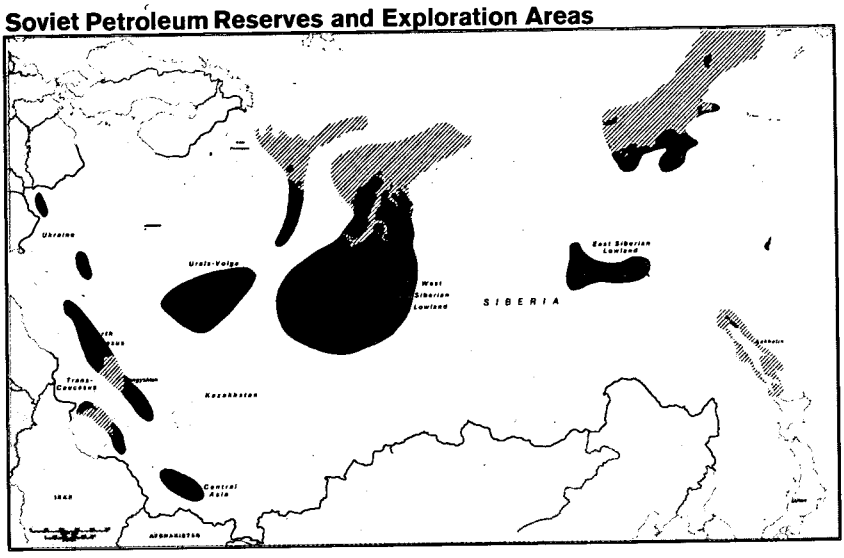
those fields, and also a very giant field east of the Urals called Samotlor in western Siberia.

They are still tapping the Urals-Volga area but it is running down, and they are having to move progressively farther east.

The giant Samotlor field we think will peak in about a year or two, largely because of the use of water flooding. They will have to go to either offshore areas in the north or farther out into Siberia, or hope to find extensive new fields in the Samotlor region. But even in the Samotlor area, they are in an inhospitable climate, and transportation problems are going to grow as they move north and east.

[The chart referred to above follows:]

Soviet Petroleum Reserves and Exploration Areas



Senator HATCH. How much of this oil do they use per day?

Admiral TURNER. They exported nearly 3 million barrels a day in 1976.

Senator HATCH. Do they utilize the rest or do they conserve and save it?

Mr. DIAMOND. No. They are utilizing everything else.

Admiral TURNER. An interesting aspect of this is that as they use more and more water flooding, they get more and more water out per barrel of oil. They are very dependent upon high-speed, high-capacity submersible pumps, which at this time they obtain only from the United States.

Now in the mid-1980's, they will surely look at ways to find alternative energy sources: Coal, waterpower, gas, and so on. But again, most of these resources lie east of the Urals and it is going to take heavy capital investment and high transportation costs to exploit these.

Senator PROXMIRE. What you said is that all of this oil is being used by the Communist nations, by the Soviet Union and the Communist bloc nations.

Admiral TURNER. No. All but about 1.3 million barrels a day.

Soviet Oil Exports

Senator Proxmire. You said that they export about 3 million barrels a day in 1976, of which about 1 million went to Communist countries. Where does the rest of it go?

Mr. Diamond. About 300,000 barrels a day goes to soft currency non-Communist countries, and the balance of 1 million barrels a day goes to the hard currency Western countries.

Senator Proxmire. So, that would mean, if they are going to have the same amount of oil go to Communist bloc countries, they would simply be unable to have the exchange they would need to buy from the West.

They would not be able to meet their growth with additional oil, the growth which you projected they would have. In other words, you cannot say that they could get along with the amount of oil that they have now if that is their only energy source because they are growing, as you said. The other Communist countries are also growing, so they would need more to take care of the needs of Russia and the needs of her satellite countries, and they won't have that additional means.

Admiral Turner. That is correct. We have projected in our energy study that for 1976–80 there will be about 3.5- to 4-percent annual increase in oil demand in the Soviet Union. That, plus continuing to supply the Eastern Europeans, who expect not the 1.4 million they got in 1976 but 1.6 million barrels per day by 1980, is going to tax them, let alone their being able to sell this other million barrels a day, which currently brings them about $4.5 billion of foreign exchange every year.

So, what I am getting to is that they are going to be pressed either to meet their own domestic requirements for a growing economy, or to supply the Eastern Europeans as projected, or to get the hard currency exchange to buy technology and other goods from the West.

They have a crunch in one of those three areas. We don't know how to predict which way they will respond to those crunches, but we think each one has a very interesting and significant aspect, not only from the Soviet point of view, but from ours and that of the entire Western World.

Water Flooding Methods in U.S.S.R.

Senator Hatch. I don't mean to keep interrupting you, but the water flooding approach that you have indicated really results in leaving a lot of the oil in the ground.

Admiral Turner. Yes.

Senator Hatch. Are they coming up with sophisticated means of secondary recovery of oil over there?

Admiral Turner. They are talking about new means of secondary and tertiary recovery.

Senator Hatch. Are we cooperating in helping them to create secondary recovery measures?

Admiral Turner. There are several technical agreements between the Soviets and United States oil firms for cooperation in enhanced recovery operations.

Mr. Diamond. We are selling them a lot of equipment. This fall they are planning to sign contracts for U.S. equipment to start a gas lift

operation. Instead of using water they will use gas pressure to recover oil. In October, contracts may be signed for $1 billion worth of U.S. gas lift equipment. Unless they get access to that and to 1,000 submersible pumps for lifting fluid in other fields, we feel they won't be able to obtain the results shown in that production chart you saw earlier; we feel they will not be able to work out that scenario. We feel that as a minimum, they have to have access to U.S. technology of this kind.

Senator HATCH. I see. Have they tried nuclear methodology over there, to your knowledge?

We tried it out in Colorado and it did not work very well. I was wondering if they tried it with any success.

Mr. DIAMOND. The Soviets used nuclear detonation to improve oil yields at a field in the Urals-Volga region in the early 1970's. Some success was claimed.

Senator HATCH. OK.

Again, I am sorry to hold you up on this, but I think these are important questions.

SOVIET ALTERNATIVE ENERGY SOURCES

Have they made any great strides in alternative forms of energy, such as fusion, nuclear fusion?

Mr. STEVENS. They have been very active in the development of a fusion program, but it is all very definitely in the development stage—really, in the research stages.

Senator HATCH. So, they have not brought anything through to fruition, but they are working hard, just as we are, in this area?

Mr. STEVENS. Right.

Senator HATCH. There are no advantages to them in the alternative energy systems?

Mr. DIAMOND. Not between now and the mid-1980's. We anticipate that by 1985, 2 percent of their total energy will come from nuclear sources.

Senator HATCH. Are they going ahead with their forms of breeder reactors?

Admiral TURNER. Yes; they are.

Senator HATCH. They will definitely be able to capture that intensification of nuclear energy through the breeder system that we are now apparently phasing out, or phasing down.

Mr. STEVENS. They have a small breeder reactor. They are preparing to build a large one, but they are still in the stage of trying to investigate it.

Senator HATCH. They are not as far along as we are in it?

Mr. STEVENS. Oh, no, they are ahead of us.

Senator HATCH. They are ahead of us in breeders?

Mr. STEVENS. Yes, sir, they are ahead of us in breeder technology.

Senator HATCH. So, you are saying that at their peak, they hit 12 million barrels a day, and that is less than what they really need if they are going to continue to service the Eastern bloc countries. They may have to pull back the other 1,300,000 barrels a day from the West, is that it?

[Admiral Turner nods affirmatively.]

Mr. DIAMOND. 1 million barrels to hard currency countries, and 300,000 to soft currency countries. They will pull that back.

Senator HATCH. But that will still not solve their problems by the mid-1980's, will it?

Admiral TURNER. No; and it will create other problems for them.

Senator HATCH. Oh, sure.

Admiral TURNER. These will be of considerable importance.

Senator HATCH. It means that they will have to have a terrific capital outlay to keep their industrial economy going by getting oil from either the Middle East or elsewhere, or they are going to have to put pressure on to acquire oil clandestinely.

Admiral TURNER. Yes, we have observed in their country as in most others, that the rate of economic growth is roughly parallel to the rate of energy consumption growth. They face this prospect. We feel that they do not have the opportunities that the United States does to conserve energy. Most of their vehicles are industrial-commercial vehicles.

Senator HATCH. So, what it really comes down to is the fact that the Middle East is going to be a hot center, irrespective of the Palestinian, Israeli, Arab, and the various crises that already exist?

Admiral TURNER. That is certainly true. There are lots of reasons for that in this energy sphere, too.

SOVIET POLICY OPTIONS

If the Soviets become a net importer of oil, which we think their demands will require—now we don't say that they will import oil, but we say that the combination of what we think they can produce——

Senator HATCH. If they want to grow, they are going to have to.

Admiral TURNER. If they want to maintain a reasonable rate of growth and to service the Eastern Europeans, and to earn hard currency, yes. But, of course, if they are going to import oil, they will not be earning hard currency that they earn from exporting oil. They are in a real crunch here.

As I was about to say, we don't think they can conserve as readily as can we, or even the Western Europeans. They don't have as much automobile and vehicular consumption. They only use 3 percent of their oil today for household consumption.

Senator HATCH. So, this will deter modernization throughout Russia and will keep them still almost a primitive society—comparatively speaking, of course.

Admiral TURNER. That is certainly one of the conclusions as to the possibility from this whole briefing; that is, that a slowdown in their economy is forthcoming and this will be reflected in a reduced rate of growth.

Senator PROXMIRE. Admiral, we do want to give you a chance to present your whole statement. Can you tell us how long it will take for you to present your whole position, both on Russia and China, if there are no interruptions?

Senator Hatch's questions have been excellent and very helpful. But I would like to know this so that we can time the hearing properly.

Admiral TURNER. I would think there is about another 25 minutes of presentation, sir.

Senator PROXMIRE. All right. Suppose you go ahead with that, and then upon your conclusion we will each, in turn, question you. We need to get a view of the picture as a whole.

Senator HATCH. I would hope, Mr. Chairman, that we might be able to ask a quick question if we have one.

Senator PROXMIRE. Of course, for purposes of clarification that would be fine.

Senator HATCH. Thank you.

Senator PROXMIRE. Go ahead, Admiral.

Admiral TURNER. I think we have covered most of what I wanted to say on oil.

We think they would then have to look, because they cannot do a lot of conservation, at whether they cut oil exports to the Eastern Europeans, at whether there are other ways to find foreign exchange so that they can perhaps buy oil from outside. We think that they can do something to increase their foreign exchange from nonoil exports, but that probably will be only about a 10-percent-a-year increase as the maximum, and this would not be enough to avoid an overall reduction in their hard currency earnings.

We think they could increase their gold sales, because their production of gold is going up. On the other hand, they would meet a point of diminishing returns as the market price of gold will go down if they put too much on the market.

We think they could try to sell more high-cost, sophisticated armaments, as they have been doing. But here again we are talking about a 10-percent growth rate, which would not be a sizable addition to their foreign exchange.

We think they are going to find it difficult to obtain oil from the Middle East by barter because they do not have that much to offer to people who have lots of hard currency available. Their goods are simply not that competitive. The Middle Eastern people would prefer to buy from the West in general.

The Eastern European question is going to be a big one for them, and Moscow is going to have to carefully weigh the trade offs of continued economic support to their satellites and their desire to use some of that oil for export for hard currency. They may ask the Eastern Europeans to share some of the burden of their oil shortage, but this, of course, would make the Eastern European economic situation more difficult than it is today, and would possibly threaten the stability of the linkage between those people and the Soviet Union.

I will move now from oil to agriculture and that aspect of the Soviet economy.

SOVIET AGRICULTURE

Agriculture will, we believe, continue to be a major headache for the Soviets. Soviet farm production has increased far above the level of a decade ago, but still cannot provide the quality diet that the Soviet population desires.

The demand for meat is rising faster than production, placing a severe strain on the Soviet grain-livestock economy.

Although much of the additional farm output reflects a massive infusion of investment and industrially produced goods, good luck with the weather has also been important. For the last decade or so

we believe the Soviets have enjoyed above-average weather conditions in their main grain producing areas. According to the law of averages, they should have more below-average years sometime in the future.

But, even under favorable weather conditions, their imports of farm products have accelerated in recent years, and their progam for dampening the sharp fluctuations in grain output by shifting production to lower risk weather areas has made farm products increasingly costly.

Well, if the weather does turn against them to what would be a more normal condition, we expect they will continue to have sizable requirements for importing grain, in particular.

Policy Options of U.S.S.R.

Looking at the overall economic forecast, we must take into account the uncertaintly in the future trends of the policy options available to the Soviets. These are limited, but which ones they select will have an important effect on us as well as on themselves.

If they can avoid these serious energy bottlenecks about which we have been talking, they can probably achieve an overall economic growth rate of about 4 percent a year through 1980, and perhaps 3 percent during the first half of the 1980's.

To do this, there are several things that they may want and be able to do to try to maintain their growth rate near 3½ to 4 percent.

This chart shows that the growth in sown acreage of the Soviet Union is going to remain about the same. We don't expect them to bring sizable new land areas into production. The chart also shows that their growth in available man-hours, given the problem I mentioned before of declining inputs of labor, is going to decline.

The same holds true for the capital stock, and that means that the combined growth of total inputs of stock of plant and equipment and labor will decline.

The broken lines indicate what they might do if they put in special measures. The bottom solid line is what we call a manpower program. There are a number of actions which they could take. They could create additional incentives so that people do not retire as early. While current incentives exist for workers to stay on the job after reaching retirement age, only one-quarter of them do. It would be possible to increase this number by raising financial incentives or by raising the relatively low retirement age.

They could also change their educational policy. They have a full secondary education program now and they could get people out into the labor market earlier by reducing the number who get a full secondary education.

And, of course, they could cut the armed forces if they felt it was mandatory to tap that sizable pool of manpower.

We don't think that these measures could have more than a one-time effect, as we show here, to offset the decline in the additions to the labor force which we earlier described.

In investment programs, they have a number of options. The principal ones relate to the defense field. They could shift defense industrial capacity to production of investment goods. However, as we all know, defense production is what the Soviets do best, and they might

be reluctant to foresake that. Also, as well as know, resources that have been traditionally invested in defense are not as easily transferable to civilian sectors as are some others.

They could also in the investment program stretch out research and development and production schedules in defense oriented industries. They could also try to improve their overall productivity by reforms of economic management. But here, as we are all aware, the centralized bureaucracy has its interests and there are also political and ideological factors involved as to how far reaching the reforms are they could make in the way they manage their economy.

What we are saying, then, is that the middle line here, even with a good, tough manpower program and with as much effort as they can make to arrest the lower rate of growth of investments, the combination is not going to have, in our view, a substantial impact over the next decade.

Soviet Economic Growth Rates

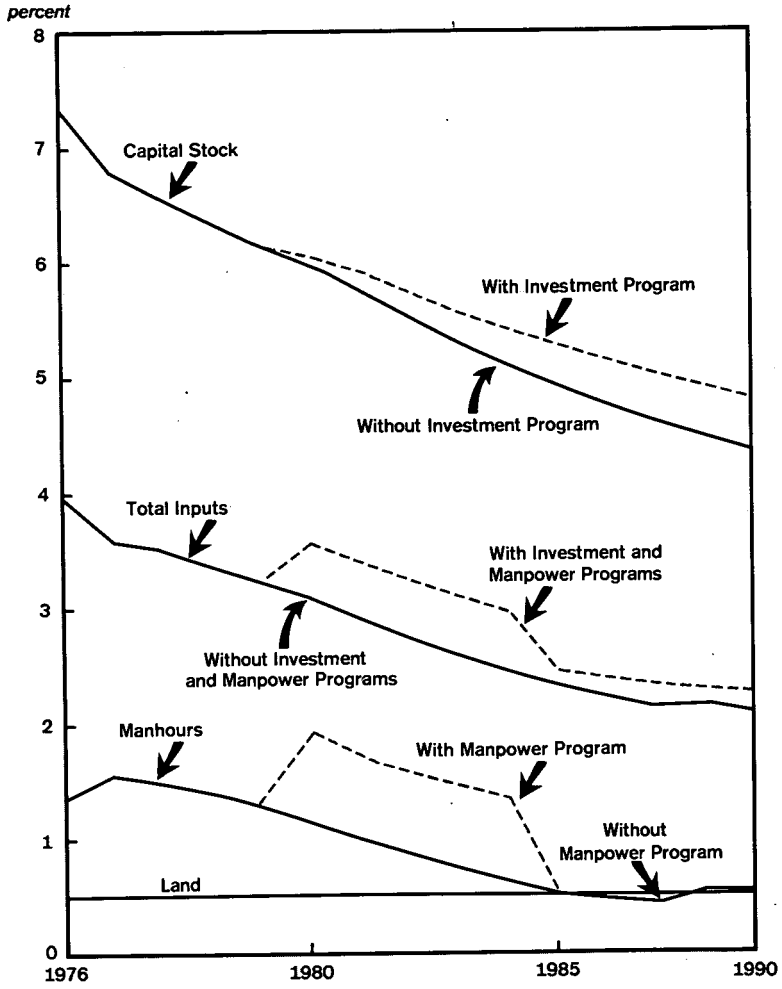
Perhaps they could keep their economic rate of growth up to about 4 percent, as I suggested, but then it looks to us as though at best it is going to be below 4 percent.

On the other hand, if they do not take these corrective measures, particularly with respect to their oil program, their economic growth may drop even lower, to 3½ percent in the near term and 2 to 2½ percent in the first half of the 1980's.

Let me emphasize that we are talking about average figures here. Performance in some years could be better or it could be worse.

[The chart referred to above follows:]

USSR: Annual Rate of Growth of Inputs to the Economy, 1976-90



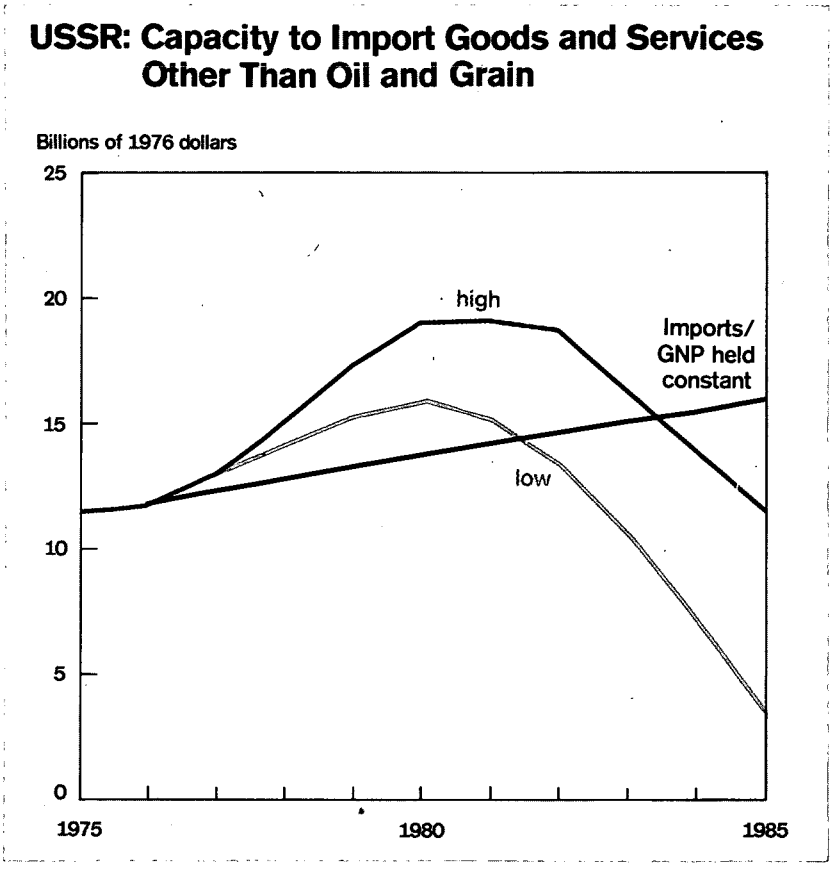
FOREIGN TRADE WITH SOVIET UNION

Admiral TURNER. These economic problems awaiting the Soviet Union in the 1980's will strongly affect its relations with us and with the entire Western World. Even under the most favorable assumptions we have displayed here for hard currency earnings, including cutting their exports to Eastern Europe, the Soviet Union will experience a hard currency squeeze in the early to mid-1980's.

This chart shows their ability under two estimates to continue the rate of nongrain hard currency imports at a ratio of gross national product that they are doing today. It shows that we think it will have to fall below the current ratio at some time in the future.

This may mean that the Soviet Union will turn to us in the next decade for substantial long-term credits, especially those needed to develop their oil and gas industries. They need U.S. technology, as I have indicated, to develop those industries, and they may well need U.S. credit with U.S. Government guarantees to achieve that.

[The chart referred to above follows:]



Soviet Defense

Admiral Turner. Finally, turning to the critical area of defense, a slowdown in economic growth is likely to trigger debate in Moscow over the future levels and patterns of military expenditures. Yet, as we all know, military programs have considerable momentum and powerful political and bureaucratic support.

We do expect defense spending to continue to increase during the next few years at something like the recent annual rates of 4 to 5 percent because of this built-in momenmtum. However, as the economy slows, ways to reduce growth of defense expenditures should become increasingly urgent to major elements of the Soviet leadership.

Consumer Growth Potential in U.S.S.R.

Internally, the reduced growth potential means that the Soviet consumer will fare poorly during the next 5 to 10 years, relative to his gains under the current leadership. With the overall economic growth rates that we consider likely, per capita consumption could grow by no more than 2 to 2½ percent a year, compared with about 3 percent since 1965.

As a result, we do not anticipate any closing of the gap in living standards with the West, or for that matter, even with Eastern Europe.

We believe that on balance, consumer pressures will remain manageable nonetheless, although worker incentives may be adversely affected.

Policy Options Better

As Soviet leaders obtain a better perception of the resources problems ahead, they will be led to consider policies rejected in the past as too contentious or lacking in urgency.

Some might be persuaded that basic organizational and management reforms in industry are necessary, but that will raise the specter that such reform would threaten political control.

Consideration of other options, such as accelerating investment at the expense of defense or consumption, or reducing the Armed Forces to enhance the civilian labor force, could also result in strong leadership disagreements.

In concluding, I would like to stress the vast uncertainty facing the Soviets and us as new leaders inevitably come forward in the 1980's to cope with these economic problems which we have been discussing.

We will be watching these developments closely and we stand ready to support you, Mr. Chairman, and your committee in any way we can in this area.

Now I would like to turn the floor over to Mr. Stevens to talk about Soviet defense costs, if you would like, sir.

Senator Proxmire. Very good. Go right ahead, Mr. Stevens.

Mr. Stevens. Thank you.

Soviet Defense Spending

As you know, the security that surrounds Soviet defense spending makes it very difficult for us to get very good figures on their spending.

Moscow announces only one statistic, which is a single line entry for defense, in the annual State budget. There has never really been a successful method for determining precisely what activities they are covering with this budgetary figure.

It serves a political purpose, and we have found it useless as an indicator of either the magnitude or the trend of defense spending in the Soviet Union.

For example, the announced budget cuts since 1972 are simply incompatible with the growth in Soviet forces that we have seen take place.

We estimate the costs of Soviet defense activities really by putting price tags on observed and estimated Soviet defense programs and then aggregating all of that information to determine total figures.

We estimate, first of all, the cost in rubles, so that we can measure the impact of defense on the Soviet economy as a whole. We can look at the economic considerations that affect Soviet defense planning, and finally, we can get an idea of the relative priorities that the Soviets assign to various defense activities and programs.

We also estimate the costs in dollars to provide a simple comparison between the Soviet programs and U.S. defense program. Each year we completely review all of our data and we endeavor to improve the methodologies that we use and take into account any new information that we get in the course of the year so as to produce a new estimate.

RUBLE ESTIMATES OF SOVIET DEFENSE SPENDING

First of all, I would like to review our current ruble estimate of Soviet defense spending. This is, of course, particularly important because it sizes the defense burden that the Soviets feel in their economy as a whole.

As you will recall, the ruble estimate we presented last year was substantially higher than our previous estimates. The reasons for this change and its significance have been widely misunderstood. We raised our estimate because we discovered that in the past we had underestimated the prices of Soviet defense goods. This was due primarily to lack of understanding of the price inflation in the U.S.S.R. and a change in pricing policy that occurred in 1967, which led to the removal of what in the past had effectively been a subsidy on defense purchases.

The increase in our ruble estimates did not represent a change in our estimate of Soviet defense activities or Soviet military capabilities. It was really based upon these price discrepancies that we discovered.

Senator PROXMIRE. I hesitate to interrupt, but I think this is so important.

Are you saying that your estimate did not indicate a step-up in Soviet investment in resources in defense, but simply a reassessment of the prices, of the inflationary effect?

Mr. STEVENS. The dramatic increase in the ruble costs of the Soviet program, as we estimated it, was due primarily to this change in pricing.

Senator PROXMIRE. So, it did not mean as much of an increase in resource allocation to defense as it seems?

Mr. DIAMOND. That's right.

EFFICIENCY OF SOVIET DEFENSE INDUSTRY

Admiral TURNER. The percentage of their gross national product going to defense increased in our estimate not because their defense programs are larger than we thought, but because the efficiency of the defense sector of their industry is much less than we had believed.

Senator PROXMIRE. I see.

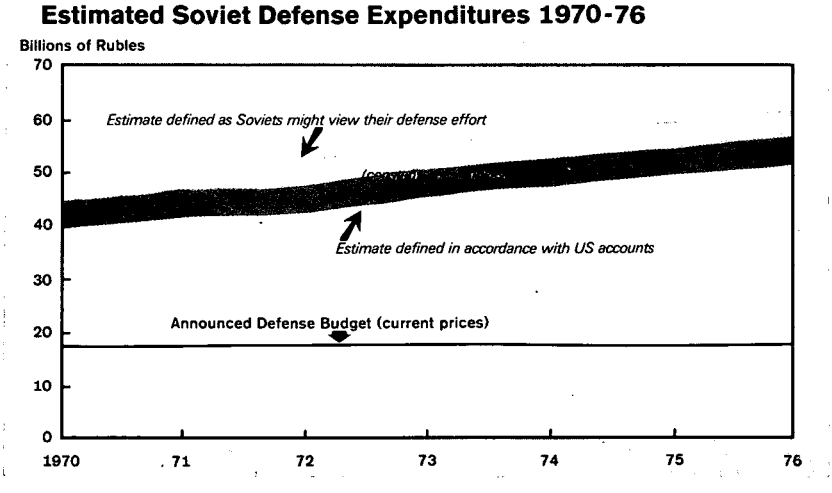
Mr. STEVENS. There was some growth in the hardware estimate, but it was small as compared to the change in the ruble estimate.

This change did carry with it some important intelligence judgments, and these, of course, are reflected in this pricing change that we have identified. The first, as Admiral Turner has pointed out, is that the Soviets are far less efficient at producing defense goods than we had previously estimated them to be. Of course, it is clear that the impact of the defense program on the economy is greater than we had previously estimated it to be. All of this emphasizes the preparedness of the Soviet leadership to accept those burdens and it reflects their deep commitment to defense programs.

The work that we have done in the past year in making that change has strengthened our confidence in the revisions that we made. This year we find no big changes in either the overall magnitude of their program, as we see it in ruble terms, or in the trends that it is taking.

This chart shows the ruble estimate for the years 1970–76. The dark band reflects our estimate in 1970 rubles with "defense" defined according to the U.S. definition of what activities are in a defense program. The width of the band represents the uncertainty that we have in making this estimate. The light band above it reflects how the Soviets might view their defense costs if they do not look at the defense program in precisely the same terms as we in the United States look at ours.

[The chart referred to above follows:]



Mr. STEVENS. There are other costs, for example, a number of space costs, space program costs, which the Soviets might identify as being part of their defense programs.

RUBLE ESTIMATES OF SPENDING

As you can see, using a definition which encompasses a range of activities comparable to those in the U.S. defense program, we estimate Soviet spending at some 40 to 45 billion rubles in 1970. By 1976, the total outlays for these purposes had grown to somewhere between 52 and 57 billion rubles. Using the broader definition, which I pointed

out the Soviets might use, that amount has risen from 45 to 50 billion rubles in 1970 and between 57 and 62 billion rubles in 1976.

I should point out again that these estimates are calculated in terms of 1970 ruble prices. This use of a constant price base has a dual purpose. First, using this basis enables us to reflect only real changes in the level of Soviet military activities, rather than monetary changes which might result from price inflation.

Second, our estimates on the Soviet economy as a whole and our estimates of its economic performance are calculated on the same basis; that is, on the basis of constant 1970 prices. This enables us, then, to compare directly defense costs with other sectors of the Soviet economy.

No single measure adequately describes the economic impact of the Soviet defense effort. Defense spending, as a share of gross national product, can, of course, be used for this purpose.

DEFENSE EFFORT AN ECONOMIC BURDEN

Using the estimates that we have made, the Soviet defense effort absorbs some 11 to 12 percent of the Soviet GNP. If you were to base this on the broader definition of the defense program, that share would rise to somewhere between 12 and 13 percent.

Because the rate of growth in defense spending and in GNP were roughly the same during 1970 to 1976, there was little change over period in the share taken by defense.

The percentage of machinery output allocated to defense is another economic aggregate of some importance. You can use that to describe the impact of defense programs on the economy as a whole. Soviet defense takes about a third of the output of the machine-building and metal-working sector, and this, of course, is the sector which produces investment goods as well as military weapons.

A comparable figure in the United States in the post-Vienam period is about 10 percent. So, as you can see, there is a significant difference.

The defense bite is also large in metallurgy, where it takes about one-fifth; in chemicals, where it is about one-sixth; and in energy, where it also consumes about one-sixth of the total in those areas.

Even these measurements tend to understate the impact on the Soviet economy because they fail to take into account qualitative considerations. Most importantly, defense takes the lion's share of the high-grade scientific, technical, and managerial talent that exists in the Soviet Union. It similarly draws heavily on the output of scarce and high-quality materials, components, and equipment that are produced in the Soviet Union.

DEFENSE SPENDING PROJECTIONS

As Admiral Turner mentioned earlier, we expect the long-term growth in defense spending to continue into the 1980's at an annual rate of about 4 to 5 percent. Programs for the next generation weapon systems are now under development. [Security deletion.] These new weapons will be more complex and more costly, and we simply do not see any indications that the Soviets are dismantling their defense research and development or industrial capacity to divert it to other

issues. The Soviets, of course, have made a tremendous commitment to the development and to the maintenance of these capabilities.

DOLLAR ESTIMATES OF SOVIET DEFENSE SPENDING

Let me now turn to the dollar estimates, for a more direct comparison with our defense program.

Our estimates of the Soviet program in dollar cost terms are intended to provide a general appreciation of the magnitude of the program and the activities. We developed these estimates on the basis of what it would cost in the United States to develop, procure, man, and operate a military force of the same size and with the same inventory of weapons as that fielded by the Soviets.

We also incorporated what it would cost to operate that force as the Soviets operate it.

The dollar costs that I am about to describe are expressed in 1975 prices. A constant price is again used so that real changes in military forces are not masked by inflation.

This year, for the first time, our figures on U.S. spendings are in outlay terms, rather than in total obligational authority. Because we have priced the Soviet defense program effectively in outlay terms, we are getting a better comparison by making that change.

Our indicators of the relative levels of U.S. and Soviet defense activities present basically the same picture which we have described to this committee in the past.

As you can see from the chart, this is a dollar cost comparison for the 1966–76 period as a whole. It is not shown on this chart, but the total costs of the two programs in dollar terms through this period are roughly equal.

The estimated dollar costs of Soviet defense activities grew steadily over the period at an average rate of about 3 percent, while U.S. outlays declined after 1968 and from 1972 on are lower than they were in 1966.

As a result, the estimated dollar costs of Soviet defense activities exceed the United States by a widening margin in every year after 1971; and by 1976, as you can see, they are about 40 percent higher.

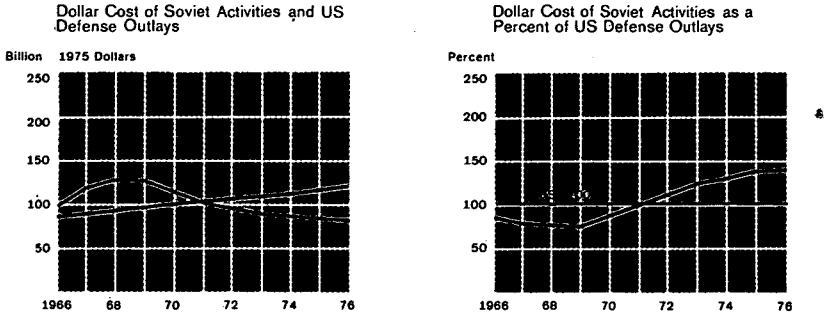
If we add the costs of military retirement programs to both these estimates, the Soviets still exceed the United States by about 30 percent.

Finally, if costs for military personnel are subtracted from the basic estimates on both sides, then the estimated costs for the Soviet program are nearly 30 percent higher than in the United States.

[The chart referred to above follows:]

Total Defense Costs 1966-1976 (less pensions)

A Comparison of US Outlays and Estimated Dollar Costs of the Soviet Activities if Duplicated in the US



Mr. STEVENS. For 1976, the estimated dollar costs of Soviet programs exceed U.S. defense outlays in all major categories.

INVESTMENT IN HARDWARE

In the case of investment, which includes procurement of new weapons, equipment, spare parts, and construction of facilities, you can see from this chart that the Soviet figure is about twice that of the United States in 1976. This, of course, reflects the steady buildup of the Soviet Forces over the entire period, and the even sharper decline in U.S. investment after the peak of the Vietnam buildup in 1968.

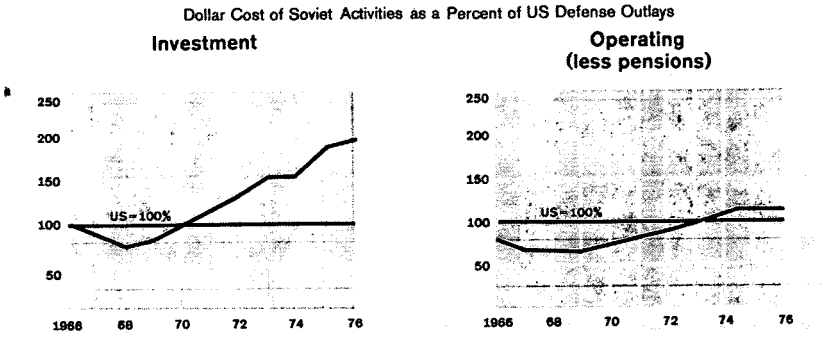
The estimated dollar cost of operating a force is almost 15 percent higher in the Soviet case than for the United States. In the area of personnel, the larger component of operating costs, the estimate for Soviet programs exceeds the United States by more than 60 percent, reflecting the large Soviet manpower base.

SOVIET MILITARY MANPOWER LEVELS

In 1976, although Soviet military manpower levels are about twice those of the United States, the dollar costs of their personnel are only 60 percent greater. A major reason for this apparent anomaly is the significantly different structures of the two forces.

[The chart referred to above follows:]

US and Soviet Investment and Operating, 1966-1976
A Comparison of US Outlays and Estimated Dollar Costs of the Soviet Activities if Duplicated in the US



Mr. STEVENS. Another way to compare costs of military activities is by the mission they are designed to support as these charts indicate. The mission definitions in this report accord with the guidelines outlined in the Department of Defense's planning and programing categories (DPPC).

STRATEGIC FORCES

Strategic forces include all those forces assigned to intercontinental and peripheral attack, strategic defense, and strategic command, control, and warning. Over the 1966–76 period, the level of Soviet activity for strategic forces measured in dollars has been nearly 2½ times greater than that of the United States. In 1976, the Soviet level is over 3½ times that of the United States.

Intercontinental attack forces include ICBM's, submarine launched ballistic missiles, and bomber aircraft. Over the 1966–76 period as a whole, the level of Soviet activity as measured in dollars is 50 percent greater than that of the United States. In 1976, it is over 100 percent greater.

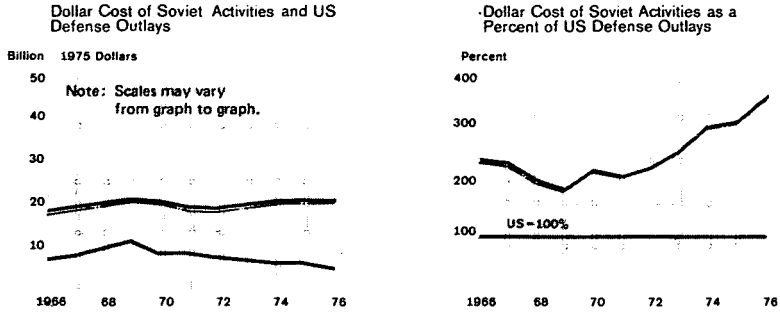
Within the respective intercontinental attack forces, the relative activity levels are mixed. The Soviets' emphasis has been on ICBM's and SLBM's. The estimated dollar cost of Soviet ICBM programs over the entire period is almost four times cumulative U.S. spending and over six times the U.S. level in 1976. For SLBM's, the Soviets lead by 1.5 in both time frames. In contrast, in relative terms the United States has emphasized its bomber forces. Over the 1966–76 period, U.S. spending on intercontinental bombers has exceeded dollar cost of Soviet activities by 300 percent and for 1976 by almost 200 percent.

[The charts referred to above follow:]

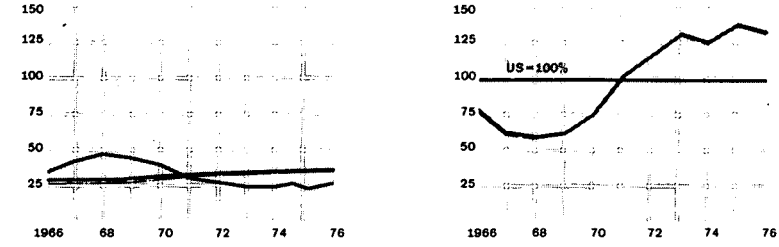
US and Soviet Major Missions, 1966-1976

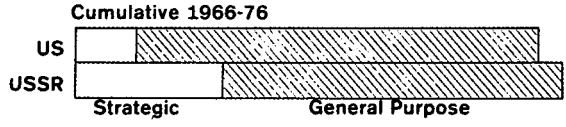
A Comparison of US Outlays and Estimated Dollar Costs of the Soviet Activities if Duplicated in the US

Strategic Forces



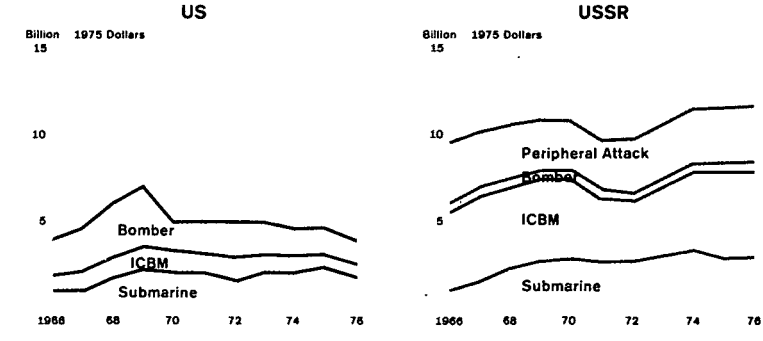
General Purpose Forces





US and Soviet Forces for Strategic Offense, 1966-1976

A Comparison of US Outlays and Estimated Dollar Costs of the Soviet Activities if Duplicated in the US.



Note: The strategic offense mission is defined according to the US Defense Planning and Programming Categories of April 1976. Minor adjustments have been made to attain comparability with Soviet data. Costs for pensions, nuclear materials for warheads, and RDT&E are excluded.

GENERAL PURPOSE FORCES

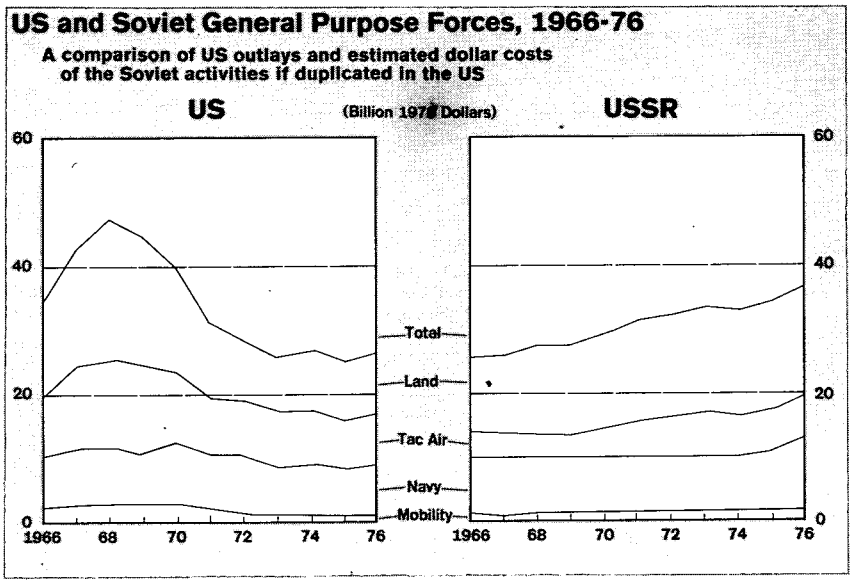
Mr. STEVENS. General purpose forces include all ground tactical air, naval, and mobility forces (airlift and sealift) as indicated by this chart. Over the 1966–76 period, cumulative U.S. outlays for general purpose forces exceed estimated dollar costs of Soviet activities by about 10 percent. Since 1971, however, the Soviet level is larger than that of the United States and is one-third greater in 1976.

Within both the United States and Soviet general purpose forces, land forces take the largest share of the costs. Outlays for U.S. land forces decrease after 1968, however, while the estimated dollar costs of Soviet activity increase steadily. In 1976, the Soviet level of activity for these forces, measured in dollar terms, is about 90 percent greater than that of the United States.

The second largest share of general purpose forces, in terms of dollar costs, is for what is classified as general purpose naval forces (not including carriers or SSBN's). The costs of these forces remain relatively constant for both countries over the period. In 1976, estimated dollar costs of Soviet activities are about 20 percent higher than U.S. outlays.

The U.S. outlays for tactical air forces (including naval attack carriers) are greater than the estimated dollar costs of comparable Soviet forces. Soviet activities are increasing, however, while U.S. outlays have been decreasing since 1968. U.S. outlays in 1976 are about 20 percent greater than dollar costs of the Soviet forces.

[The chart referred to above follows:]



U.S.-SOVIET INDEX NUMBER PROBLEM

Mr. STEVENS. As you have indicated in past years in our discussions of costing these military programs, our use of dollar cost comparisons do have a systematic bias favoring the Soviets. This bias reflects what economists term the index number problem.

Different countries use more resources and mix them in a fashion that will reduce the costs overall. In other words, they tailor their programs to take advantage of the relatively cheap resources and capabilities of their countries.

So, a bilateral comparison drawn in terms of the prices of one country inevitably produces a bias of a sort. This, of course, is common to all international comparisons of economic activities.

In order to look at the extent of this problem, we have made some rough calculations of the ruble value of the U.S. program. There are some real difficulties in doing this.

We have little direct information with regard to estimated Soviet costs of producing U.S. military equipment. Rough ruble cost estimates are derived by applying a few highly aggregative ruble-dollar ratios to the U.S. expenditure data.

We also had problems converting U.S. cost categories as "contingency funds" and "other" into rubles.

These problems are complicated by the fact that whereas in the United States we had the technological capability to produce almost all types of Soviet equipment, there is some U.S. equipment that the Soviets do not have the technology to produce. In such cases we follow accepted economic procedures by using the dollar-to-ruble conversion rate applicable to the closest substitute goods producible in both countries.

Our tentative calculation suggested the comparison in rubles is not radically different from that in dollars. Comparing the two, we find that the "index number" effect is discernible, but not extreme. For the comparison in dollars, the ratio is 1.4 to 1 in favor of the Soviets; in the case of our ruble comparison, it is 1.25 to 1.

So, we believe that there is some difference in the two comparisons, but that it generally supports the kind of figures and the kind of trends that we have been developing through the years.

Admiral TURNER. Mr. Chairman, we are running well over my time estimate. I wonder if this next item, which is miscellaneous questions which you submitted, could be placed in the record and we could go on. Of course, if you prefer, we would be glad to discuss them.

SOVIET QUALITY CONTROL

Senator PROXMIRE. Suppose you give us the section on quality control, which I understand follows this, and then we can go ahead with our questions. I think that is important and should not be omitted.

Admiral TURNER. All right.

Mr. STEVENS. Mr. Chairman, the Soviets clearly feel a good deal of pressure to do a better job of quality control. The approach that they are using is essentially one of brute force. It is an inefficient method that relies upon producing a high output of goods and then simply rejecting a good deal of what is produced.

This is really the only feasible course of action given the labor-intensive approach which they take to their weapons production.

They depend on what we call the Voyenpred system and on a system of fines for faulty production to insure quality control for military hardware.

The Voyenpreds are military representatives who are located at the plants who monitor weapons production in all of its phases. They have three major functions: To prevent production bottlenecks by being

expediters for the necessary material inputs; to police the pricing of military products; and finally, to insure that products sold to the military meet all the quality standards required.

Management is also motivated to enforce quality control because they are potentially liable should the product fail to perform adequately. [Security deletion.]

This represents their approach to the quality control problem, which is, as I said, pretty much of a brute force tactic.

Civil Defense in U.S.S.R.

Admiral Turner. May I move on to Soviet civil defense, sir?

Senator Proxmire. Yes, sir.

Admiral Turner. We have done an extensive review in this area in this past year. It is not completed yet. We are not ready to estimate the magnitude in dollars or rubles of their effort, nor give a comprehensive assessment of its effectiveness. We do believe that the Soviets have been gradually, but steadily, increasing their civil defense effort. Their program is ambitious, it is not apparently a crash effort.

It appears to us that in the late 1960's or early 1970's there was a shift of emphasis, particularly when it came under military direction.

Mr. Chairman, there are three elements to any civil defense program. The first is your ability to protect leadership; the second is your ability to shelter and protect the population in general; the third is to protect some economic capability for a postattack or postwar recovery.

I would like to discuss each of these briefly in turn. With respect to protecting the leadership in the Soviet Union [Security deletion], we believe the Soviets have a reasonable opportunity, with warning, to protect a large percentage of their key military and civilian leadership. [Security deletion.]

As far as the overall population is concerned, there are four elements to protecting a population. One is urban shelters, two is evacuation procedures, three is reserve of essential supplies to support the population, and four is some form of indoctrination and training in the necessary procedures.

The Soviets have a shelter program, although we do not know the total number of shelters. [Security deletion.]

Despite the shelter program we believe the Soviets will still rely heavily on dispersal and evacuation to protect their urban population.

Soviet plans call for the key workers and essential personnel to travel to dispersal sites that are outside the cities, but close enough that they could commute back. Nonessential personnel we expect would be evacuated up to 300 kilometers away.

In this connection, the third point, stocks of supplies, we do feel that they have large stocks of food, water, fuel, and medicine located outside the urban areas. Supply levels are sufficient for minimum subsistence needs for weeks or perhaps months; but they might well face problems in distributing these supplies in the face of a major attack.

Fourth and finally, we see little evidence today of serious efforts at mass indoctrination of the population or in actual exercising of the evacuation procedures.

The third element of civil defense is protecting some portion of the economy. Here the Soviets include dispersal of their plants, harden-

ing measures, and industrial civil defense units, and strategic reserves of essential materials.

The civil defense program calls for locating new industries outside the urban areas, and for increasing the space between buildings within industrial complexes to reduce potential damage.

In point of fact, industrial expansion during the past 15 years has not significantly reduced the overall industrial vulnerability. Heavy industry remains concentrated in large urban areas.

Building patterns in many industries have become more dense rather than more spread out as intended. [Security deletion.]

Overall, we do not believe that the existing preparations could prevent a general breakdown in the economy in the event of a U.S. retaliatory strike.

In conclusion, we believe the Soviets do not possess a civil defense capability that would enable them to feel that they could with reasonable expectation absorb a retaliatory strike at levels of damage that would be acceptable to them.

Yet, Soviet civil defense is an integral part of their military strategy for the conduct of nuclear war, and the Soviet Union is making more progress and effort in civil defense today than is the United States.

We do not interpret this as meaning that the Soviets are planning to initiate nuclear warfare, but they do appear to be thinking through its consequences should it occur, and their need to plan for survival and postattack recovery.

Now we are ready to move on to China, sir.

Senator PROXMIRE. Suppose we do this. I know that the Senators would like to ask questions. China is certainly very important, but the Soviet Union is of such overwhelming significance that unless other Senators object, perhaps we could proceed to question now.

Would that be all right?

Senator ROTH. May I ask how long the China portion would take? I would like to ask some comparison questions about China and the Soviet Union.

Senator PROXMIRE. How long would you take to review China for us, Admiral?

Admiral TURNER. It would take us about 12 minutes, sir.

Senator ROTH. I will go along with the chairman in whatever he wants.

Senator PROXMIRE. All right, Admiral, why don't you go ahead with China.

CHINESE ECONOMY

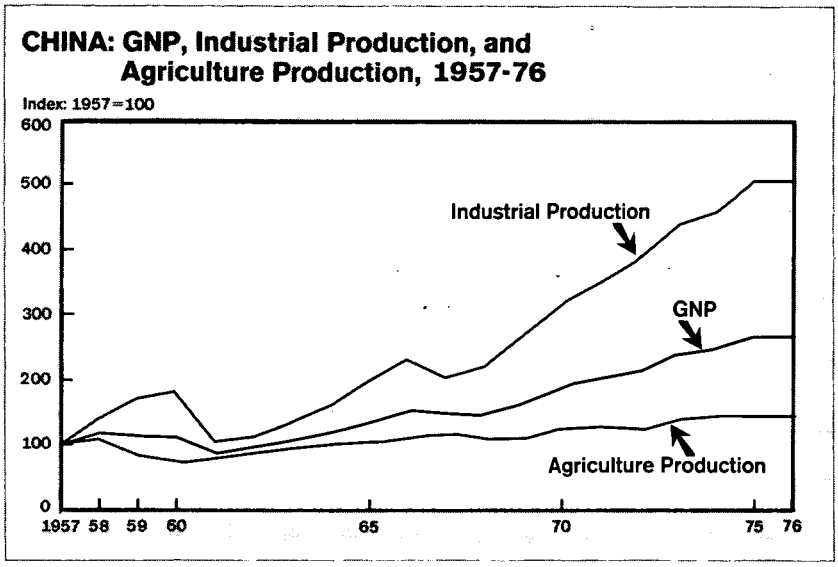
Mr. STEVENS. I will run through this very quickly if I can, Senator.

Of course, 1976 was a very momentous year for China because of the deaths of both Mao Tse-tung and Chou En-lai, the arrest of Mao's widow and the "gang of four," and the massive earthquakes which really had an impact on the economy in several different ways.

We have made some rough estimates of economic performance in 1976, though it has been very difficult to do because of the small amount of official reporting that we get. Our estimates for 1976 indicate a slight gain in agricultural output and a small decline in industrial production, with the net result that there was no growth in the gross national product last year as indicated by this chart.

There were, as I said, a number of problems. Political factionalism disrupted production in industry and elsewhere. The earthquake in the Peking-Tientsin-Tang-shan area caused enormous loss of life and extreme damage, both in industrial output of such things as coal and in transportation.

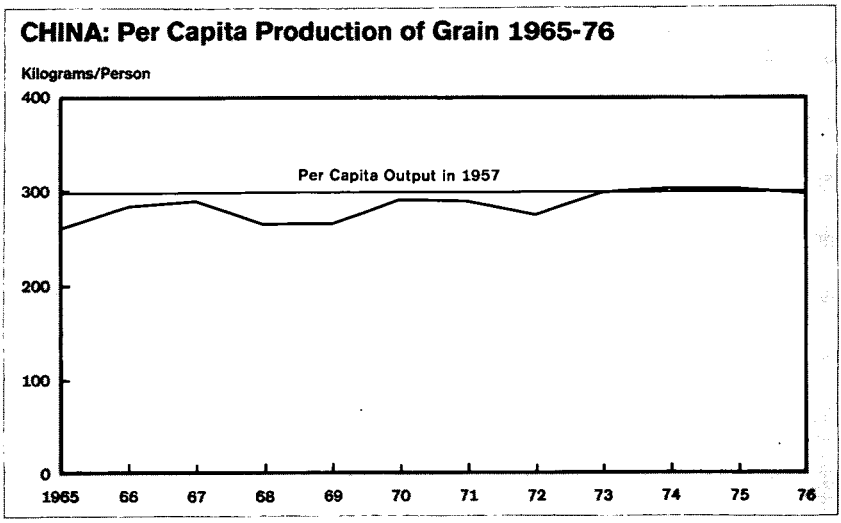
[The chart referred to above follows:]



AGRICULTURAL PERFORMANCE

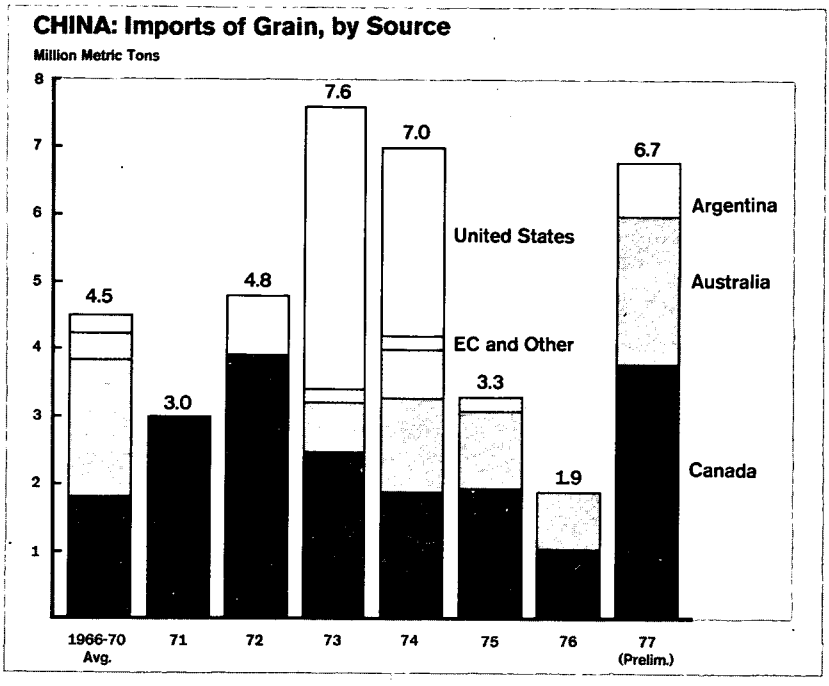
Mr. STEVENS. Agricultural performance was disappointing; grain output was 280 to 285 million tons, as indicated by this chart, and cotton production was down.

[The chart referred to above follows:]



Mr. STEVENS. Until late 1976, China drew down its grain reserves to avoid spending hard currency for new grain imports. Peking then accelerated purchases of grain, and you can see by this chart that this year China will import a good deal of grain from the Western World.

[The chart referred to above follows:]



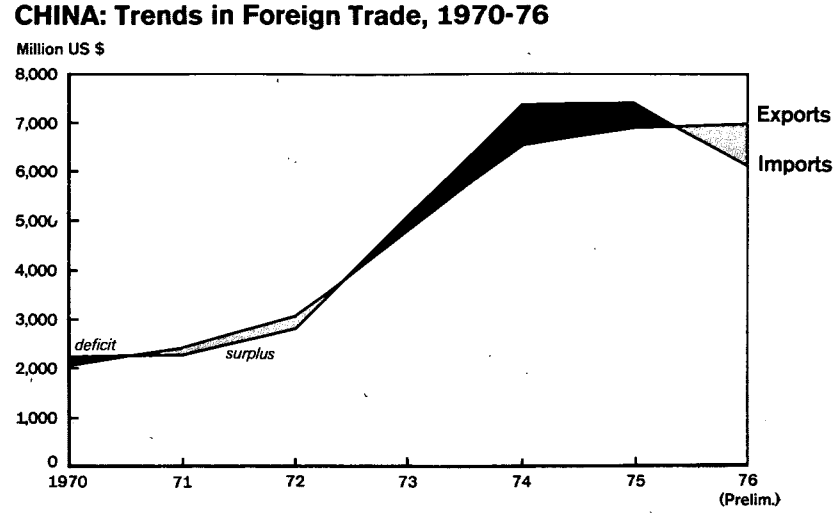
FOREIGN TRADE

Mr. STEVENS. China's foreign trade fell by about 10 percent in 1976, the first decline since 1968.

As you can see by this chart, for the first time since the early 1970's, China moved into a surplus situation in its trade balance.

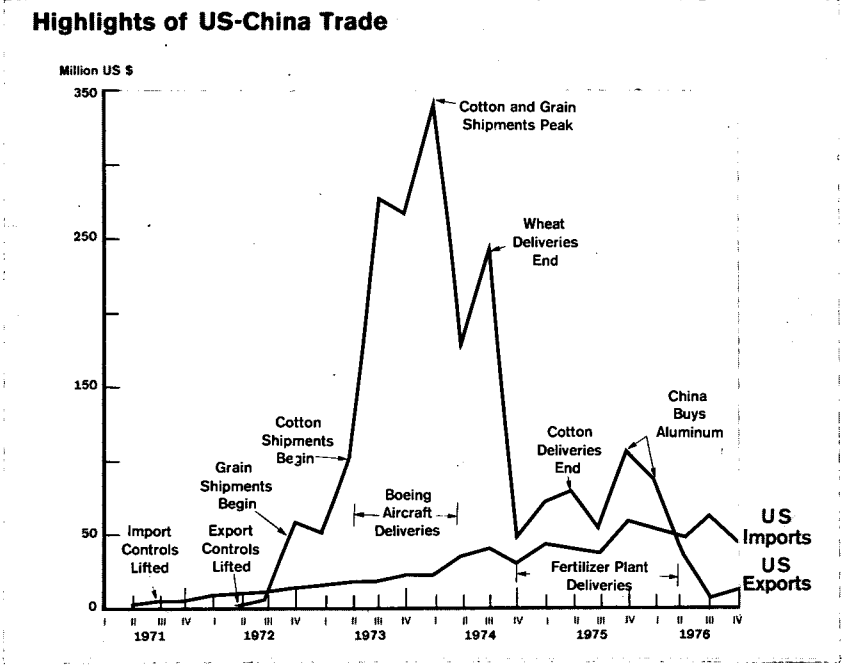
Trade with Japan, which is China's prime trading partner, was down about 20 percent.

[The chart referred to above follows:]



Mr. STEVENS. U.S. exports to China dropped dramatically in this period, as you can see from this chart, which shows the fluctuations caused by various export programs beginning and ending through the period.

[The chart referred to above follows:]



Senator PROXMIRE. That is really amazing.

Mr. STEVENS. This year, 1976, was the first year that U.S. imports of Chinese goods exceeded our exports since 1972 when export controls were lifted.

PROSPECTS FOR 1977

If I may now move on to the economic prospects for 1977, these are clearly mixed. The Chinese officials regard 1977 as a year of readjustment and are putting high priority on restoring the economic order.

In industry and transportation, sizable gains over last year's poor performance can be expected. Recent official claims have noted month-to-month increases in industrial output and railway performance.

In agriculture, on the other hand, the prospects are not good. A drought in the north China plain has reduced winter wheat production. This could be made up by a good fall harvest, but it has again aggravated the problem of tight supply in grain.

In foreign trade, 1977 will be a year of adjustment with only moderate growth.

A new round of plant purchases will not begin before late this year and may be delayed if the agricultural performance is such as to require them to import additional grain from abroad.

China's new leadership began its term in October with economic issues clearly high on its docket. After a series of national conferences to consider economic problems and prospects, the present leaders have revived the long-term modernization program announced by the late Premier Chou En-lai in 1975, and apparently are using this as the basic blueprint for how they intend to proceed.

Agricultural modernization is clearly going to be given top billing. With cultivable land already under intensive use, China must increase yields by greater use of modern inputs such as chemical fertilizer and new seed strains.

In industry, Peking will devote more resources to raising the level of technology and restoring balance, particularly in heavy industry. Structural imbalances in the steel sector and capacity shortages in mining must be straightened out. Peking must also pay greater attention to improving efficiency throughout the economy, which will require reforms in planning and management, and a strengthening of worker incentives.

The new leadership is keenly aware of the importance of scientific and technical work to its plans for modernization. It is facing now the problem of restoring an educational system severely weakened by the Cultural Revolution.

China will also look more closely at the modernization of its national defenses. The pace of military modernization has been the subject of considerable debate over the past several months. There are indications that the civilian leadership would prefer to hold back on modernization until some basic economic problem can be taken care of.

There are two particular obstacles that the Chinese face in improving economic performance. The first of these is the inability of the Central Government to effect real control over provincial and county resource allocations. The second is labor unrest, which has occurred as a result of dissatisfaction with the lack of wage increases over the years.

Neither of these problems is going to be easy to solve. Both constitute difficult problems for the new leadership.

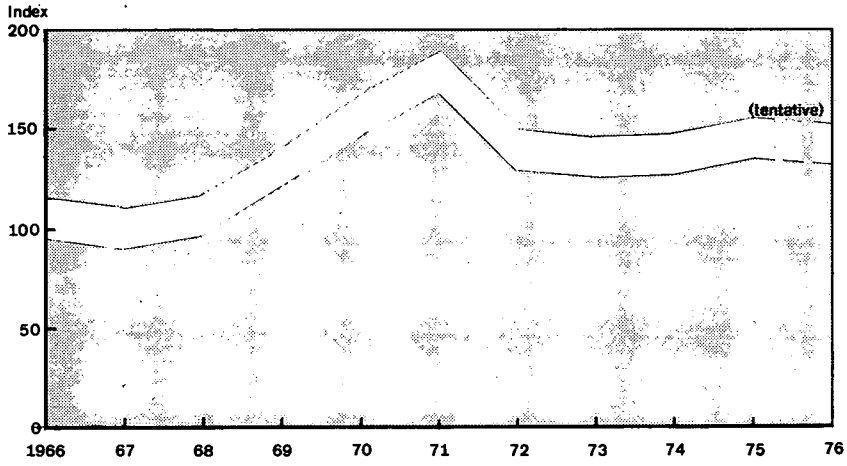
China's Defense Picture

Admiral Turner. Very quickly, on the Chinese defense side, we have a lack of good information on their defense expenditures. We are able to keep a pretty good count on their hardware, not on their manpower and support costs and otherwise. We do believe that they spend 8 to 10 percent of their gross national product on their defense. We believe that because of the elementary nature of their economy, this is a far larger drain on their advanced industries, their sophisticated industries, than it is in either the Soviet Union or the United States.

The history of Chinese defense expenditures, as we best estimate them, is a considerable rise, peaking in 1971 and dropping sharply and leveling off to a plateau ever since as indicated by this chart. We think this reflects a reduced estimate of the probability of war with the Soviet Union after this drop in 1971; continuing intense competition for economic resources; and difficulty simply in developing follow-on military systems that are up to date.

[The chart referred to above follows:]

Estimated PRC Military Expenditures



Admiral Turner. We don't think that this reflects a marked drop in the size of the Chinese armed forces, but rather a slowing in the modernization of them. In short, basic policy today in the defense spheres in China appears to be a priority toward agriculture and industry, with a gradual but reduced level of modernization and upgrading of the military forces. In short, they are holding military spending in check and are doing only selective improvements on it, but they are maintaining their overall force levels.

That, sir, completes our prepared presentation.

We are happy to respond to your questions.

[The prepared statement of Admiral Turner follows:]

PREPARED STATEMENT OF ADM. STANSFIELD TURNER

PART I. SOVIET ECONOMY

Let me begin with a few observations about the Soviet economy.

The Soviet Union will soon enter a period of reduced growth potential due to possible bottlenecks in key commodities, especially crude oil, and to a near certain contraction in the supply of labor.

The basic problem is that the formula for maintaining their level of productivity over the past 25 years—increasing inputs of labor and capital to make up for inefficiencies in their utilization—is not likely to work in the conditions we anticipate in the 1980's.

As a result of these trends and uncertainties, Moscow will be confronted with a new set of difficult policy problems, especially involving energy use, imports from the West, relations with Eastern Europe, and size of their armed forces. Moreover, the regime's options are limited.

Leadership responses to these problems may be complicated by the fact that the political leadership is almost certain to be subject to the uncertainties of a post-Brezhnev succession.

Mr. Chairman, let me now examine in somewhat greater detail why we anticipate a slowdown in Soviet economic growth.

First, things have not been going well for the Soviet economy recently. In 1974–76, for example, GNP growth averaged only 3.4 percent annually, compared to the 4.3 percent annual pace registered during 1971–73.

Moreover industrial growth in 1976 was the slowest since World War II.

Only the agricultural sector had a good year in 1976 after the lean years between 1971–75.

Second, we expect a sharp drop in the rate of growth in the labor force to begin in the 1980's:

> This derives from a decline in birth rates in the 1960's, it is already reflected in a decline in the number of new entrants into the labor force, will become much more acute in the early to mid-1980's. The working age population by then will grow less than one-half percent annually compared with an average of 1.7 percent during the 1970's.
>
> A further complication is that additions to the labor force will come mostly from ethnic minorities in Central Asia who do not readily move to labor-short northern industrial areas.

Third, productivity gains have been slowing for years and, in addition, there are new problems which are likely to depress productivity.

GNP has been trending downward; so have inputs of labor and capital; and the productivity of labor and capital combined. The Soviets in their five year plan predict a continued drop in inputs, yet a rise in productivity large enough to reverse the trend in GNP. We think this is highly unlikely.

One reason is that fuels and raw materials will become more expensive, largely because of the depletion of reserves west of the Urals and the costly effort to develop resources in Siberia and Central Asia.

Another is that the increasing scale and complexity of the Soviet economy are making efficient central control more and more difficult.

A third is that the cost of technologically sophisticated products is rising rapidly.

And, perhaps, most importantly, a looming oil shortage may create bottlenecks and will almost certainly force curtailment of critical imports from hard currency countries.

The oil problem

Let me elaborate for a moment on the oil problem.

The Soviets are not finding and developing new oil deposits rapidly enough to offset declining production in their older fields. As a result, production will begin to fall in the late 1970's or early 1980's.

Last year's oil production of 10.4 million barrels per day was close to the estimated maximum potential of 11–12 million barrels per day. We expect oil output to fall to between 8 and 10 million barrels per day by 1985 because production techniques now in use—such as excessive water flooding—focus on short-term gains at the expense of maximum life-time recovery.

In the mid-1960's, the Urals-Volga region accounted for roughly 70 percent of total oil output. Many of these deposits are approaching exhaustion and output for the region as a whole has leveled off and will soon fall.

All growth in oil output through 1980 is planned to come from West Siberia, where the inhospitable climate and difficult terrain complicate operations.

In 1976, about one-fifth of national production came from the giant Samotlor field alone, but production at Samotlor will peak in the next year or so and will hold at peak levels no more than four years. Because of extensive water flooding, the field is already experiencing rapid water incursion. As a result, increasing quantities of fluid must be lifted to recover a given quantity of oil.

The downturn in oil production probably will be sharp. Although the discovery of new fields may arrest or slow the decline, such respites are likely to be temporary. Depletion of existing fields is now very rapid and exploration and development of frontier areas is a slow and costly process.

To stave off or slow the expected fall in production even temporarily, the Soviets will need capacity submersible pumps made only in the United States. Without them, oil production will fall sooner rather than later.

Beyond the mid-1980's, the U.S.S.R. is counting on large new supplies of oil and development of alternatvie energy sources—coal, natural gas and hydroelectric power. Even if new major sources are developed, most of these lie east of the Urals, far from major industrial and population centers. Moreover, their development will take years, require massive capital investment, and incur continuing high transportation costs.

Because of the projected fall in oil production and even if the development of other energy sources—especially gas and coal—is pushed to the maximum, we expect a sharp slowdown in the rate of growth of total energy output.

Total energy production grew 5.4 percent a year in 1971–1975; we project a slowdown to 4 percent a year in 1976–1980 and then to not much above a 1 percent rate in 1981–1985.

Soviet energy consumption has closely paralleled the growth of the economy. As a result, a sharp slowdown in energy production threatens to constrain economic growth unless Moscow succeeds in conserving massive amounts of energy and/or allows a major turnaround from a net export to a net import position on energy trade.

How Moscow copes with the energy problem will have a far reaching impact. What alternatives do they have?

Energy savings will be difficult to achieve. Large sources of oil saving are more difficult to identify in the U.S.S.R. than in the West. For example, most automotive tranpsort is for commercial and industrial use: only about 3 percent of total oil is used directly by households in the U.S.S.R. compared with 12 percent in the U.S.

Under any but the most optimistic assumptions concerning energy production and energy svaings, the U.S.S.R. wil be unable both to mantain its imports of industrial goods from the West and to continue supplying Eastern Europe with the bulk of its oil and gas.

The more the Soviet government delays adoption of a top-priority energy program, the greater the economic impact in the 1980's.

The oil problem could have disastrous effects on the U.S.S.R.'s ability to import from the West.

Last year oil accounted for almost half of the U.S.S.R.'s hard currency earnings.

Continuation of present policies could lead to a shift from selling 700.000 barrels per day in 1976 to pressure to buy 2 to 3 million barrels per day in 1985—a net shift of more than $10 billion.

Under these circumstances if Moscow did not cut oil exports to Eastern Europe it would find it difficult to locate currency to buy manufactured goods from the West.

Moscow obviously would go to great lengths to avoid such an outcome.

With an all-out Soviet effort, annual growth of non-oil hard currency exports could be as much as 10 percent in real terms, but this would offset only part of the hard currency loss due to the oil shift.

Earnings from gold sales should increase, reflecting rising gold output. But Moscow is unlikely to sell large amounts of gold from its reserves because of the strong depressive effect on the price of gold.

With the continuation of the current trend toward more sophisticated armaments, increased earnings from hard currency sales of arms could rise as much as 10 percent annually in 1977–85. [Security deletion.]

Moscow's opportunities to barter for oil from Middle Eastern countries rather than pay hard currency for it appears to be limited.

Except for arms in some cases, Middle East oil producers have no incentive to buy Soviet goods when they have ample funds to obtain better qcality Western goods.

The U.S.S.R. will have added incentive to establish a strong political influence on oil-producing states to secure oil imports on favorable terms. Achieving this objective will be very difficult.

Eastern Europe may be hit hard by Soviet decisions on oil.

Eastern Europe now gets two-thirds of its 1.8 million barrels per day of imports from the Soviet Union. By 1980 East European countries are scheduled to get 1.6 million barrels per day from the U.S.S.R.—a significant diversion of about $7 billion in potential Soviet hard currency earnings.

Moscow will carefully weigh the trade-offs between continued economic support to Eastern Europe and its own exports for hard currency. There will be strong pressure to force Eastern Europe to share the burden of the oil shortage. Any substantial cut in oil supplies to Eastern Europe would worsen its already difficult economic situation and potentially threaten the political stability essential to large Soviet interests.

Agriculture

In addition to rising energy problems, agriculture, as before, will remain a major economic headache. Soviet farm production has climbed far above the level of a decade ago, but still cannot provide the quality diet that the Soviet population desires. The demand for meat is rising faster than incomes, placing a severe strain on the Soviet grain-livestock economy.

Although much of the rise in farm output reflects a massive infusion of infusion of investment and industrially produced goods, good luck with the weather has also been important. Between the early 1960's and 1974 roughly half of the increase in grain production can be attributed to better weather.

Even under these favorable conditions, imports of farm products have accelerated in recent years.

In addition, the regime's program for dampening sharp fluctuations in grain output by shifting production to lower risk weather areas has made farm products increasingly costly.

If the climate in the principal grain areas does return to a harsher—but more normal—conditions of the early 1960's, we expect grain imports requirements will remain large.

Economic growth prospects

Forecasts for Soviet economic growth must take account of the uncertainty in the future trends and the policy options available to the Soviets. These are limited but which ones they effect can have important effects on the West as well as on the Soviet Union.

To increase the labor force, several measures might be adopted:

(*a*) Older workers could be retained longer in the labor force.

(*b*) More young workers could be brought into the labor force by changing education policies to reduce the number of full-time students.

(*c*) The size of the armed forces could be reduced.

(*d*) It is doubtful if these measures could have more than a partial and temporary effect on the decline in additions to the labor force—the slide will continue throughout the 1980's.

Options to affect the growth and productivity of investment are even more constrained:

(*a*) The Soviets could shift industrial capacity from defense to the production of investment goods. Defense production is what the Soviets do best and they would be reluctant to undermine that capability. Moreover, specialized defense resources are not easily transferred on short notice.

(*b*) Moscow could stretch out R. & D. and production schedules and slow the rate of expansion of defense-oriented industrial capacity, but this would have little effect, at least in the short run.

(*c*) The Soviets could try to improve productivity through reforms of economic management. But vested interests by the centralized bureaucratic system are so powerful that there is limited chance for reforms far-reaching enough to spur the economy through the mid-1980's.

Even a combination of measures to sustain investment coupled with measures to obtain additional manpower—would probably raise economic growth only slightly.

Basically we believe that such steps could keep the rate of economic growth up to about 4 percent until the 1980's, but then it would drop.

On the other hand, failure to take strong action on the oil problem could lead to substantially lower economic growth—3.5 percent in the near term and 2 to 2.5 percent in the early 1980's would not be surprising results under these circumstances, although there are many possibilities depending on Soviet policy choices.

Let me emphasize that these are average figures; performance in some years could be better, but also worse, with zero growth or even absolute declines in GNP a real possibility if oil shortage and a bad crop year coincide.

These economic problems awaiting the Soviet Union in the 1980's will strongly affect its relations with the West, especially the U.S.

Even under favorable assumptions for hard currency earnings, including a cut in oil exports to Eastern Europe, the U.S.S.R. will experience a severe hard currency squeeze in the early and mid-1980's. Its ability to import from the industrial West will almost certainly decline, probably substantially.

Moscow, therefore, may ask for long-term credit (10–15 years), especially to develop oil and gas resources:

(*a*) They need U.S. technology to do this rapidly.

(*b*) The credits would require U.S. Government guarantees.

Turning now to the critical area of defense, a slowdown in economic growth is likely to trigger debate in Moscow over the future levels and patterns of military expenditures. Military programs have great momentum and powerful political and bureaucratic support.

We expect defense spending to continue to increase during the next few years at something like recent annual rates of 4 to 5 percent because of the built-in momentum of programs currently underway.

As the economy slows, however, ways to reduce the growth of defense expenditures should become increasingly urgent to major elements of the Soviet leadership.

Internally, the reduced growth potential means that the Soviet consumer will fare poorly during the next 5 to 10 years relative to his gains since the current leadership came to power.

With the overall economic growth rates we consider, likely per capita consumption could grow no more than 2 percent a year compared with about 3½ percent since 1965.

As a result, there will be no progress in closing the gap in living standards with the West or, for that matter, with most of Eastern Europe.

On balance, we believe that consumer pressures will remain manageable, although worker incentives may be adversely affected.

As Soviet leaders obtain a better perception of the resource problems ahead, they will be led to consider policies rejected in the past as too contentious or lacking in urgency.

Some leaders might be persuaded that basic organization and management reforms in industry are necessary. But that will raise the spectre that such reform would threaten political control.

Consideration of other options—such as accelerating investment at the expense of defense or consumption, or reducing the armed forces to enhance the civilian labor force—could also result in strong leadership disagreements.

In concluding discussions of this subject, I would stress the vast uncertainty facing them—and us—as new leaders inevitably come forward in the 1980's to cope with the new economic environment. We will be watching these developments closely and stand ready to report back to you, Mr. Chairman, and to your committee, whenever you feel this to be warranted.

PART II. SOVIET DEFENSE COSTS

Mr. Chairman, I would now like to discuss the allocation of reosurces to defense in the Soviet Union.

As you know, Soviet defense spending is clouded in secrecy.

Moscow announces only one statistic each year—the single line entry for "defense" in the annual state budget—and has never revealed what activities are covered by this figure.

Moreover. this figure clearly serves a political function, rendering it useless as an indicator of either the magnitude or trend of defense activities. The an-

nounced budget cuts since 1972, for example, are contradicted by the buildup in Soviet military forces that has occurred over the past five years.

We estimate the costs of Soviet defense activities by putting price tags on observed and estimated Soviet defense programs and activities.

We estimate the costs in rubles to help us measure the impact of defense on the Soviet economy, assess economic considerations affecting Soviet defense planning, and measure the relative priorities that Soviets assign to various defense activities, and programs.

We estimate the costs in dollars to measure the size of Soviet defense activities in comparison with our own.

Each year a complete review of our data base is conducted and new estimates are calculated incorporating recent intelligence information and improved costing methodologies.

Ruble estimates

I would like to review our current ruble estimate of Soviet spending and its implications for the enconomy.

As you know, the ruble estimate we presented last year was substantially higher than our previous judgments. The reasons for that change—and its meaning—have been widely misunderstood and misrepresented in the press.

We raised our estimate because we discovered that we had underestimated the prices of Soviet defense goods. This was due to lack of information about—

The price inflation that occurred in the Soviet defense industries in the 1960's, and

A change in pricing policies for defense goods that took place in the 1967 price reform.

The increase in our ruble estimates did not change our perception of the magnitude of Soviet defense activities or of Soviet military capabilities.

It did change some important intelligence judgments:

The Soviets are far less efficient at producing defense goods than previously estimated.

The impact of defense on the economy is much greater than we thought.

The willingness of the Soviet leadership to incur much higher defense costs implies a deeper commitment to defense programs than we had suspected.

Research and analysis over the past year has strengthened our confidence in last year's revised estimate, and while we have incorporated numerous changes into our current estimate, the net effect has not been significant in terms of either overall magnitude or trends.

This chart[1] shows our latest estimates of Soviet defense spending in rubles.

Using a definition which encompasses a range of activities comparable to the U.S. budgetary definition of defense, we estimate that the U.S.S.R. spent some 40–45 billion rubles in 1970. In 1976 estimated total outlays for these purposes had risen to 52–57 billion rubles as shown by the lower band on this chart.

Under a broader definition—one which the Soviets might use and which would include additional military-operated programs such as the space program—we estimate that total defense spending amounted to 45–50 billion rubles in 1970 and rose to some 57–62 billion rubles in 1976. The definition is portrayed by the upper band. The single line beow shows the announced Soviet defense budget.

Constant price base

I should point out that these estimates are calculated in terms of 1970 ruble prices. This use of a constant price base has a dual purpose.

First, the resulting trend in defense spending reflects only real changes in the level of Soviet military activities rather than purely monetary change resulting from price inflation.

Second, all CIA estimates of Soviet economic performance are calculated on the same basis—that is, in constant 1970 prices. This use of the same base year for prices allows us to combine the economic and military-economic data to analyze the economic impact of defense.

Although no single measure adequately describes the economic impact of the Soviet defense effort, *defense spending as a share of gross national product* is often used for this purpose.

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[1] See chart entitled "Estimated Defense Expenditures, 1970–76," p. 18.

When measured according to a definition of defense activities roughly comparable to that used in the U.S. the Soviet defense effort absorbs some 11-12 percent of Soviet GNP. When based on the broader definition of defense, the share is about 12–13 percent. Because the rate of growth in defense spending and in GNP were roughly the same during 1970–76, there was little change over the period in the share taken by defense.

The percentage of machinery output alloted to defense is another economic aggregate used to describe the impact of defense programs on the economy as a whole. At present, Soviet defense takes about one-third of the output of the machine-building and metal-working sector—the sector that produces investment goods as well as military weapons and equipment.

The defense bite is also large in metallurgy (about one-fifth), chemicals (about one-sixth), and energy (about one-sixth).

Even these measurements tend to understate the impact on the Soviet economy because they fail to take qualitative considerations into account.

Defense takes a proportionally larger share of the economy's high-grade scientific, technical, and managerial talent and draws heavily on the output of scarce and high quality materials, components and equipment. Integrated circuits, for example, are almost totally consumed by the military.

As I mentioned earlier, we expect the long term upward momentum of Soviet defense spending to continue into the 1980's at an annual growth rate of about 4 to 5 percent.

Development programs for the next generation of weapons have already been identified.

[Security deletion.]

The new weapons will be more complex than those which they will replace—and more costly to develop, produce, and operate. This cost escalation implies ever increasing expenditure levels to maintain existing force levels.

We see no indications that the Soviets are dismantling defense R. & D. and industrial capacity or diverting it to other uses.

They view the maintenance of this capacity as at least as important as military forces in the field—indeed, more important in the long term.

They know that the Soviet economy is less effcetive than the U.S. in marshaling high technology resources in an emergency.

Dollar estimates

Mr. Chairman, I would now like to turn to the dollar valuation of Soviet defense activities.

As I noted earlier, our estimates of Soviet defense programs in dollar cost terms are intended to provide a general appreciation of the physical magnitude of Soviet defense activities.

They are estimates of what it would cost in the U.S. to develop, procure, man, and operate a military force of the same size and with the same inventory of weapons as that fielded by the Sovinets. We also incorporate what it would cost to operate that force as the Soviets do.

The dollar cost data that I am about to describe are expressed in 1975 prices. A constant price base is used so that trends in the cost estimates reflect changes in military forces and activities rather than the effects of inflation.

This year, for the first time, our figures on U.S. spending are in outlay terms rather than total obligational authority (TOA). The conversion to outlays makes the U.S. data more compatible with the data used for estimating the dollar costs of Soviet activities.

Also this year, our indicators of the relative levels of U.S. and Soivet defense activities present basically the same picture we have described to this committee in the past.

Total defense programs

For the 1966–76 period as a whole, the estimated dollar costs of total Soviet defense activities are roughly equal to U.S. outlays.

The estimated dollar costs of Soviet defense activities grow steadily over the period, however, at an average annual rate of about 3 percent while U.S. defense outlays decline after 1968 and from 1972 onward are lower than they were in 1966.

As a result, the estimated dollar costs of Soviet defense activities exceeds the U.S. by a widening margin in every year after 1971, and in 1976 are about 40 percent higher.

If the costs of military retirement programs are added to these basic estimates for both sides, the 1976 figure for the Soviets still exceeds the U.S. total by more than 30 percent.

If costs for military personnel are subtracted from the basic estimates for both sides, estimated dollar costs for Soviet defense activities are nearly 30 percent higher than the U.S. in 1976.

For 1976, estimated dollar costs of Soviet programs exceed U.S. defense outlays in all major resource categories.

In investment—which includes procurement of weapons, equipment, spare parts and construction of facilities—the figure for Soviet forces is about twice that for the U.S.

This difference reflects the steady buildup in Soviet investment over the entire 1966–76 period, and the even sharper decline in U.S. investment since the peak of the Vietnam buildup in 1968.

For the 1970–76 period, the Soviet total is about 50 percent greater than for the U.S.

The estimated dollar costs of operating a force of the size and composition of the Soviet forces in 1976 are almost 15 percent higher than comparable U.S. outlays. In the area of personnel, the larger component of operating costs, the estimate for Soviet programs exceeds the U.S. by more than 60 percent, reflecting the larger Soviet manpower base.

Military mission comparison

Another way to compare costs of military activities is by the mission they are designed to support.

Our estimates of the dollar costs of Soviet activities should be viewed as having a margin of error which could be substantial for some items. Our confidence is highest in the aggregate totals but is considerably less at lower levels.

We place our greatest confidence in our estimate of procurement expenditures which account for about one-third of the total estimated dollar costs of Soviet defense activiites for the 1966–76 period.

Manpower costs comprise about 40 percent of the total and are the most reliable operational cost. Information on other operating costs—representing some 15 percent of the total dollar cost of defense activities—is less reliable.

The estimated dollar costs of Soviet R.D.T. & E. should be regarded as significantly less reliable than those estimates for either investment or operating.

On balance, we believe that the overall dollar cost estimates for Soviet defense activities are unlikely to be in error by more than 15 percent. This judgment, while informed, is nonetheless subjective and not the result of rigorous statistical measurement.

Ruble comparison of U.S. and Soviet defense activities

Mr. Chairman, as you have indicated in past years, our dollar cost comparisons of U.S. and Soviet defense activities do have a systematic bias favoring the Soviets.

This bias reflects the basic measurement problem known as the index number problem.

Given different resource capacities, countries tend to use more of the resources that are relatively cheap in their economy—and less of those that are relatively expensive—for a given purpose.

A bilateral comparison, drawn in trems of the prices of one country, creates a tendency to overstate the relative value of the activities of the other. This tendency becomes more pronounced when the disparity between the economies is large.

The index number problem is common to all international comparisons of economic activities.

To gauge the extent of the index number problem, we have made some very rough calculations of the ruble value of U.S. defense activities.

There are significant technical and theoretical problems with these calculations, however:

(*a*) We have little direct information for estimating Soviet costs of producing U.S. military equipment. Rough ruble cost estimates are derived by applying a few highly aggregative ruble-dollar ratios to the U.S. expenditure data.

(*b*) Moreover, such U.S. expenditure categories as "contingency funds" and "other" defy high confidence conversion into rubles.

These data problems are exacerbated by an insoluble conceptual problem that arises from the different technologies in the two countries:

(*a*) while virtually all of the Soviet inventory of weapons falls within U.S. production technology, the Soviets simply do not have the technology required to produce many of the U.S. weapons nor could they produce close substitutes.

(*b*) The convention normally followed in such cases is to use ruble-dollar ratios applicable to the closest substitute goods which can be produced in both economies.

The important question, of course, is the magnitude of the difference between U.S. and Soviet defense activity levels as measured in rubles and dollars. Our tentative calculations suggest that the comparison in rubles is not radically different from that in dollars.

Comparing relative Soviet and U.S. defense activities in both dollars and rubles the traditional "index number" effect is discernible, but not extreme.

For 1976, the relative level of Soviet to U.S. defense activities (excluding retirement pay) is about 1.4 to 1 when measured in dollars and roughly 1.25 to 1 when measured in rubles.

Thus, while there is a significant difference in the relative levels depending upon which currency is utilized, the basic relationship of the Soviet level exceeding that of the U.S. is maintained regardless of the currency utilized.

Some additional questions

Mr. Chairman, I would now like to address the subjects in which you expressed a special interest in your letter of 22 April. These include:

Pressures for implementing quality control in the production of Soviet weaponry and the ramifications of quality control on production efficiency,

The role of value engineering in developing new weapon designs,

The increasing sophistication of Soviet weaponry,

Lags and leads in U.S.-Soviet weapons production technology,

And finally, the scope and intensity of the Soviet civil defense effort.

Quality control

The basic Soviet approach to meeting quality standards is one of brute force. This inefficient method—characterized by high levels of production and equally high rejection rates—is often the only feasible course of action given the labor intensiveness of their weapons production techniques.

The Soviets depend on the Voyenpred system and on a system of fines for faulty production to ensure quality control for military hardware.

Voyenpreds are military representatives who monitor weapons production at industrial enterprises. They have three major functions:

To prevent production bottlenecks by expediting material supply,

To police the pricing of military products, and,

To ensure that products sold to the military meet all quality standards.

Management is also motivated to enforce quality control because of their potential liability should the product fail to perform adequately.

[Security deletion.]

The most striking evidence of qualitative improvement is seen in the current generation ICBM force—the SS–17, SS–18, and SS–19.

[Security deletion.]

Value engineering

Examination of Soviet weapons also reveals the lack of any systematic effort to value engineer their weapon designs—that is, to adjust basic designs to lower production costs without denigrating performance.

Soviet weapons designs are usually characterized by simple parts that can be manufactured by straightforward methods and intensive use of standard materials and parts—often at the cost of performance.

[Security deletion.]

Increasing sophistication

Despite their relatively inefficient development and production practices, Soviet weapons designs are becoming increasingly sophisticated.

[Security deletion.]

This trend toward more sophistication extends across the entire range of Soviet weaponry.

Relative levels of U.S. and Soviet technology

Despite such improvements, Soviet weapons technology generally lags behind that of the U.S.

The Soviets trail the U.S. by 3 to 14 years in the introduction of certain electronic technologies [security deletion.]

The technology and fabrication techniques of Soviet computers and electronics are no better than those of the U.S. five years ago.

[Security deletion.]

While the Soviets may match the U.S. in military laser design, they may have difficulty in fielding the equipment as widely.

[Security deletion.]

The design and manufacturing technology incorporated in Soviet aircraft and missiles also lags that of the U.S.

[Security deletion.]

While these deficiencies undoubtedly reflect a true technology gap in certain cases, in others it probably results more from a preference for standardization and simplicity than from an inability to incorporate more advanced technology. The evolutionary nature of these design changes and a reluctance to introduce new production processes contribute to the technology lag.

PART III. SOVIET CIVIL DEFENSE

I would now like to discuss the Soviet civil defense program, Mr. Chairman. An extensive review of this program has been undertaken in the past year and, indeed, it is still in progress. We do not yet have an estimate of its magnitude in dollars nor can we make a comprehensive assessment of its effectiveness. It is more extensive and better developed than we had realized, however.

Essentially, the Soviets have been proceeding gradually but steadily in their civil defense effort. While the program is ambitious, it does not appear to be a crash effort.

It now appears that a significant shift in emphasis occurred in the late 1960's and early 1970's when the entire civil defense program was subordinated to military direction.

There are three elements to any civil defense program:

To protect the leadership,

To protect the general population, and

To preserve economic capability for postwar recovery.

Let me discuss them in turn.

Protection of leadership

[Security deletion.]

We believe that with reasonable warning a large percentage of the key military and civilian leadership probably would survive a retaliatory attack.

Population protection

Soviet measures to protect the population include four elements: Urban shelters, evacuation procedures, reserves of essential supplies, and indoctrination training for the public.

First—shelters. We have no reliable estimates of the total number of personnel shelters in the U.S.S.R. [Security deletion.]

Second, despite the shelter program, we believe the Soviets still rely heavily on dispersal and evacuation to protect the urban population.

Soviet plans call for the key workers and essential personnel to travel to dispersal sites outside cities but close enough to commute to work.

Nonessential persons could be evacuated up to 300 km (186 miles) from cities. Such movement and the improvisation of shelters probably could be completed within about a week.

Third, stocks of essential supplies—food, water, fuel, and medicine—are located outside urban areas.

Supply levels probably are sufficient to satisfy the minimum subsistence needs of the population for weeks and perhaps months, but the distribution of these supplies within the relocated area would be a major problem.

Fourth—we see little evidence of serious efforts at mass indoctrination of the population on exercises in evacuation.

Protection of the economy

Plans to protect the economy include dispersal of plants, hardening measures, industrial civil defense units, and strategic reserves of essential materials.

The civil defense program calls for locating new industries outside urban areas, and for increasing the space between new buildings within industrial complexes.

Industrial expansion during the past 15 years, however, has not followed these precepts. The Soviets have not significantly reduced overall industrial vulnerability. Heavy industry remains concentrated in large urban areas. Building patterns in many indsutries have become more dense.

[Security deletion.]

Plans also call for hardening measures, which include underground facilities and protective engineering techniques.

[Security deletion.] Overall we do *not* believe, however, that existing preparations could prevent a general breakdown in the economy in the event of a retaliatory strike.

Conclusion

We believe that the Soviets today do *not* possess a civil defense capability that would enable them to feel they could absorb a retaliatory strike with a reasonable expectation of limiting damage to an acceptable level.

Civil defense is an integral part of Soviet military strategy for the conduct of nuclear war, however, and the U.S.S.R. currently is making a far more substantial effort in civil defense than the United States.

This does not necessarily mean that the Soviets are planning to initiate nuclear warfare, but they do appear to be thinking through its consequences should it occur and their need to plan for survival and post-attack recovery.

PART IV. THE CHINESE ECONOMY

Turning to China, Mr. Chairman, the year 1976 was the most momentous in nearly three decades of Communist government. The year saw:

The deaths of both Mao Tse-tung and Chou En-lai;

The arrest of Mao's widow and her colleagues (the so-called "gang of four") who were charged with economic disruption and attempting a coup; and

Massive earthquakes that caused enormous loss of life and great damage to industrial capacity.

We have been able to make some rough estimates of economic performance in 1976 based on careful analysis of the small amount of official reporting that is available and on information from independent sources.

Official reporting for 1976 is particularly difficult to interpret because of a tendency by the new regime to dramatize the difficulties caused by the "gang of four."

Our estimates for 1976 indicate a slight gain in agricultural output and a small decline in industrial production. The net result was no growth in gross national product.

This performance contrasts markedly with the average annual growth rates achieved over the preceding decade—6 percent for GNP, 10 percent for industry, and 2 percent for agriculture.

Industry and transportation

Last year was a particulary difficult one for making estimates of industrial performance. Progress reports were issued for only a handful of products and for only 12 of China's 29 provinces. After a good start in the first quarter of the year, industrial output dropped as the apparent result first of political unrest and later of earthquakes.

The earthquakes in the Peking-Tientsin-Tang-shan area in late July were particularly devastating. Twenty to 30 percent of the industrial output in this area—which accounts for about 10 percent of the national total—may have been lost.

The greatest impact probably was on the coal industry. China's largest coal mining complex—which produced some 6 percent of national coal output and up to a third of China's coking coal—was seriously damaged. Most of the surface facilities were destroyed and the mines themselves were flooded and equipment destroyed.

Nevertheless, national coal production probably increased in 1976 as mines in other parts of the country stepped up production to compensate for the losses.

The loss of coking coal and damage to a medium-size iron and steel plant probably resulted in a loss of more than 1 million tons of steel output in 1976. The total decline in steel output was several million tons, however, because of labor problems associated with political infighting and demands for hgiher wages.

The earthquakes in the Tang-shan area, together with several major earthquakes in Southwest China, also had a significant impact on transportation through the temporary disruption of rail lines and the heavy demands on the transport system to carry goods to the devastated areas.

Political factionalism was also rampant in the transport section, and overall performance was probably down in 1976.

Output of crude oil increased by 13 percent in 1976, the second year of relatively slow growth. In contrast, the 10-year average is some 20 percent.

The sudden decline in growth in 1975–76 appears to be related to failure to get commitments from Japan for increased imports and to smaller than expected domestic demand.

Although production at China's largest field, Ta-ch'ing, is increasing at lower rates than in the past and may be nearing its peak, new fields have been opened that should be able to provide adequate crude for large increases in national outut for the next several years.

Agriculture

Agricultural performance in 1976 was a disappointment to China's new leadership.

Total grain ouput probably was 280–285 million metric tons, about the same as in 1975; per capita output, moreover, has increased only marginally in the last 10 years.

The winter wheat harvest in the North China Plain set a new record, but the rest of the year was disappointing. Cool, damp weather in the spring and early frost in the fall resulted in a mediocre late rice harvest in Southern China; drought reduced the soybean and spring-sown wheat crops in Northeast China.

Cotton production was down for the second consecutive year, plagued by the same weather that damaged fall-harvested grain.

Until late 1976 China drew down grain reserves to avoid spending hard currency for new grain imports.

As the extent of the damage to fall-harvested crops became known, however, purchases of wheat were accelerated.

Between November 1976 and June 1977, 8.1 million tons were ordered for delivery through June 1978.

Thus, after dropping off in 1975–76, grain imports in 1977 will move back up to 6.3 million tons.

Foreign trade

China's foreign trade fell by about 10 percent to $12.9 billion in 1976, the first decline since 1968.

Imports fell by almost 20 percent, the result of cutbacks in grain, fertilizer, and nonferrous metals purchases, and of the completion of deliveries on many of the whole plant contracts.

Exports held roughly the same although oil exports were lower than in 1975.

China's hard currency trade balance moved into surplus, easing pressure on its balance of payments.

Trade with Japan, which is China's major trading partner, was down by 20 percent.

U.S. trade with China dropped nearly 30 percent. U.S. imports increased by 27 percent, but U.S. exports were less than half those of 1975, and for the first time since trade began, the balance was in favor of China. In 1976, there were no U.S. agricultural exports and there were sharp declines in exports of metals and equipment.

Prospects for 1977

Economic prospects for 1977 are mixed. Chinese officials regard 1977 as a year of readjustment, during which economic order will be restored and the long-delayed draft of the Fifth Five-Year Plan will be completed.

In industry, official claims have emphasized month-to-month gains and with continued recovery, sizable gains over 1976's poor performance can be expected.

Peking has moved rapidly to restore order in the railway sector; performance in the first quarter of 1977 was the highest on record.

In agriculture, prospects are not good.

Dry weather in the North China Plain reduced winter wheat output—perhaps by 10 percent or more below the excellent 1976 crop.

This is not a major catastrophe—it could be made up by a good fall harvest—but it has aggravated the current tight supply situation.

In foreign trade, 1977 will be a year of adjustment, with only moderate growth.

Imports of grain, oilseeds, fertilizers, and steel will be higher, but deliveries of machinery and equipment are expected to decline.

Exports will probably make modest gains even though lack of demand for China's heavy crude continues to hamper petroleum sales.

A new round of plant purchases will not begin before late this year and may be delayed if additional agricultural purchases become necessary.

The shape of things to come

China's new leadership, headed by Communist Party Chairman Hua Kuo-feng, began its term in October with economic issues high on the agenda.

After a series of national conferences to consider economic problems and prospects, the present leaders apparently have revived the long-term modernization program announced by the late Premier Chou En-lai in January 1975 as the *basic* blueprint.

Agricultural modernization will continue to be given top billing in the allocation of resources. With a limited amount of cultivable land, China must increase yields by developing more productive seed strains and by increasing its use of other modern inputs, such as chemical fertilizers and insecticides.

In one of its first moves after taking command, the new leadership convened the second national Tachai (Dachai) conference to reaffirm that problems in agriculture were the basic economic challenge facing China.

In industry, Peking will devote more resources to raising the level of technology and restoring balance, particularly in heavy industry.

At an important month-long national conference convened in mid-April, the leadership focused on improving industrial management and resolving such long-term problems as structural imbalances in the steel industry and inadequate invesmtent in mining.

Elimination of these imbalances and capacity shortages will require changes in investment patterns and several years of concerted effort; in many cases, it will necessitate major imports of plant and equipment.

Improvements in economic performance will also require greater attention to economic efficiency. This will involve reforms in planning and management, and a strengthening of worker incentives.

The new leadership is keenly aware of the importance of scientific and technical work to its plans for modernization.

It views most of the post-Cultural Revolution reforms in education and research—which centered on worker, peasant, and soldier participation—as inimical to rapid economic progress. These reforms will be carefully modified, and qualified non-Party intellectuals will be placed in responsible university and research positions.

There will be renewed stress on raising academic standards, and the importance of political studies will diminish.

Peking will look more closely at the modernization of its naitonal defenses. The pace of military modernization has been the subject of considerable debate over the past several months.

The civilian leadership would prefer, at a minimum, a period of military belt-tightening until problems in industry can be solved. There are reports that decisions have been made to shift some funds from military to civilian accounts.

A meeting of the minds on these issues has been and will continue to be difficult to achieve, however.

Major obstacles

Two problems in particular stand out as obstacles to successful completion of the Fifth Five-Year Plan: The inability of the central government to exert effective control over provincial and county resource allocations, and labor unrest caused by dissatisfaction with the lack of wage increases over the years.

A report prpeared for the State Council by Teng Hsiao-ping in 1975 sharply criticized the inability of lower level officials to carry out industrial planning; widespread violation of state plans was cited as evidence of resource allocation.

But reaching a consensus on the proper degree of, and the mechanisms for,

increased central control will require long and difficult bargaining with local officials who will be very reluctant to surrender any of their authority.

Dissatisfaction among industrial workers has been brewing for more than a decade over the lack of a significant wage increase. Government promises of wage reform have never been fulfilled.

Since 1974, strikes, slowdowns, and absenteeism have occurred with growing frequency and have added to the already long list of problems in industry.

The government apparently has now decided to take action. In recent weeks, a bonus system tied to worker productivity is being tried in selected factories, and a wage increase-for those workers whose "attitudes," technical levels, and performances warrant it—is said to be scheduled for later this year.

Peking cannot afford to raise wages by much or to spend large sums of money on production bonuses. On the other hand, government refusal to act on these could seriously endanger planned increases in productivity and dim growth prospects.

PART V. THE COSTS OF CHINESE DEFENSE PROGRAMS

I will conclude with some comments on Chinese defense programs and the capacity of the economy to support them. I would note that the vast proportion of the armed forces relies primarily on copies of Soviet weapons developed in the Fifties.

China's small capital intensive productive sector, however, has made selective efforts to master some of the technology of a modern industrial nation. In parallel with this, China has developed and deployed a small arsenal of sophisticated weapons.

No direct information is available on the level of Chinese defense spending or its impact on the economy. We believe that the defense effort preempts a large portion of the output of the advanced industrial sector—far larger, for example, than is the case in the U.S. or U.S.S.R.

We believe defense costs are in the neighborhood of 8–10 percent of GNP.

Estimated total Chinese military expenditures grew very rapidly in the late 1960's to a peak in 1971. They fell substantially in 1972, and since then have remained at a plateau roughly equal to the 1969 level, as shown in this chart.

We attribute much of the increase in estimated expenditures in the 1969–1971 period to increased Sino-Soviet tensions and to the unusual prominence given the military during the period following the excesses of the Cultural Revolution.

What is the significance of the lower level of military expenditure since 1971?

The primary reasons for this leveling off are:

Chinese perception of a reduced likelihood of armed conflict with the Soviet Union;

Constraint by competing economic priorities; and

Difficulty in developing follow-on advanced weapons systems.

It does not involve a reduction in Chinese forces, but rather shows that new equipment is being delivered to the forces at a slower rate.

We believe the Chinese have chosen an investment pattern that favors agricultural and industrial development in the near term while still allowing for gradual upgrading of military forces.

Thus, barring another serious confrontation with the U.S.S.R., China will probably continue the defense resource policy evident since 1972, holding growth of military spending in check while allowing for selective improvements in military equipment.

Senator PROXMIRE. Thank you, Admiral.

LIMITED CHINESE MILITARY THREAT

That concluding remark that you made on the Chinese military suggests to me that it is a very, very limited kind of threat. After all, their gross national product is about 10 percent of ours, and if they are spending 8 percent of their gross national product in defense, it means a very small military force, at least in terms of modern strike force, as compared to ours, or to that of the Soviet Union.

Admiral TURNER. Yes, sir. They have a very limited nuclear intercontinental strike capability. In fact, they are just bringing on their first weapon that could even reach the United States. [Security deletion.]

As far as ground warfare is concerned, our only real potential point of contact at this stage or potential would be Korea. [Security deletion.] I think they do have some potential there with a repeat of the massive human attack.

Senator PROXMIRE. One of the sections of your excellent prepared statement which you had to skip over in the interest of time concerned Soviet technology, their technology as compared to ours.

One of the most startling revelations that we had last year when Director Bush came up to testify before us was his argument that Soviet military technology was behind ours. He put it this way. He said that there was no significant area where they were ahead of us and many significant areas where they were behind us.

In the two pages you have which deal with Soviet and U.S. technology comparisons, you indicate some areas where they trail us, such as electronics, computers, design, and manufacturing technology incorporated into the Soviet aircraft and missiles. Is the picture still the same as far as technology is concerned, that we are ahead of the Soviet Union in important respects and that they are not ahead of us in any? Is that a fair statement?

Admiral TURNER. I would be a little loath to make a categorical statement that they are not ahead of us in any. They are certainly ahead of us in some areas of application.

Senator PROXMIRE. Such as?

Admiral TURNER. [Security deletion.] In some areas of command, control, and communications of military forces I would say they are ahead of us in application more than in technology; that is, they put more resources into that area. [Security deletion.]

Senator PROXMIRE. Can you give us an overall assessment?

Admiral TURNER. An overall assessment would be that we are well ahead of them in military technology. With brute force techniques, however, they do achieve about the same end result in many areas that we do with much more sophisticated techniques. For example, they will put multiple computers in a system, each of much less sophistication than the one we put in ours.

Senator PROXMIRE. It shows a higher cost, but not necessarily a higher effectiveness, right?

Admiral TURNER. That's correct.

U.S.–U.S.S.R. DOLLAR COMPARISONS ON DEFENSE SPENDING

Senator PROXMIRE. Are you saying that the U.S.S.R. defense spending exceeds ours in 1976 on a dollar basis by 30 to 40 percent and if so, I just wonder what that means? What you are saying, as I understand it, is for us to reproduce the Soviet defense establishment, it would cost 30 to 40 percent more than we spend on our own defense.

Is that right?

Admiral TURNER. Yes, sir.

Senator PROXMIRE. However, much of that Soviet defense establishment would be irrelevant for our needs. They have a large number of troops on the Chinese border, for example, right?

Admiral TURNER. That's correct.

Senator PROXMIRE. They have a problem of suppressing dissent in the satellite countries, so they quarter substantial troops in that area.

[Admiral Turner nods affirmatively.]

Senator PROXMIRE. Does it allow for their lesser efficiency, their lesser technological development than ours, or not?

Mr. BURTON. Sir, actually it is U.S. technology and production that enter into these estimates, so it is what it would cost us to reproduce the Soviet design.

SOVIET DEFENSIVE AND OFFENSIVE STRATEGIES

Senator PROXMIRE. Then there is one other element here. Perhaps I am wrong, but I have heard and I get the impression that the Soviet Union has very much more of a concern with defense, defense against air attack, the civil defense which you mentioned, that they are defense-minded or defensive-minded, as compared with offensive-minded, much more than are we and other countries. Would that not account for some of the difference?

What I am trying to say is in comparing the Soviet Union with us, the relative force, effectiveness, and efficiency of the Soviet Union, we don't have the concern, for example, with a bomber attack that they seem to have. I understand that they have the most heavily defended air space in the world. Of course, that is enormously costly and would account for part of their immense expendture, would it not?

Admiral TURNER. Yes, sir. The Soviets have deployed a much more ambitious air defense system than the United States.

I think you can look at the history of the Soviet Armed Forces since World War II and in all categories they began with a quite defensive orientation. I, of course, am most familiar with the naval sphere, and I would say that the origin of their navy was to protect against incursions from the sea toward their homeland.

I think that in all areas in the last decade we see this merging into a much more offensive potential. Whether that is their intent or not, I don't know. But it certainly is not a defensive move to build up their tank inventory and their artillery on the western front of Europe as much as they have. Similarly, with their air force, they are going largely from fighter interceptor defensive aircraft to multipurpose attack and fighter aircraft. Similarly with their navy, they are going from short-range capability to defend their coastal waters to a world-wide demonstrable capability, including even small aircraft carriers.

Senator PROXMIRE. I only have time for one or two more questions. I have only 2 or 3 minutes left.

Let me ask you this.

The whole presentation has been fascinating, but one of the interesting elements was the one you started off with on which Senator Hatch had some very good questions. This concerns me.

SOVIET OIL PRODUCTION

You talked about the Soviet oil production and the effect that that is going to have on the Soviet economy, perhaps even on the Soviet military as time goes on. You do concede uncertainty in some of your facts,

including the amount of proved reserves, estimated by you at 30 to 35 billion barrels.

In view of our own uncertainty about U.S. reserves, what is the margin of error in your estimate? Could it be off by a factor of 2 or more, and if so, isn't it possible that the rest of the analysis is flawed?

Admiral TURNER. I hesitate to say how much the estimate of reserves could be off without asking anybody else if he wants to guess about that.

Mr. DIAMOND. Senator, that is true, but you have to remember the definition of what we mean by reserves. These are not what is in the ground. These are recoverable reserves and what we consider to be at a reasonable economic cost.

Senator PROXMIRE. So do you agree that they could be twice as high as is estimated?

Mr. DIAMOND. That is true. It could be tremendous. For example, in this country we claim 30 to 35 billion barrels of recoverable oil but total reserves may exceed 100 billion barrels. The experts believe that with current technology only about one-third of these reserves are recoverable.

Admiral TURNER. Even if they have twice as many recoverable reserves as we think, in the next decade they cannot turn into oil on the surface of the earth. Thus we do not think that invalidates the analysis which we have been presenting to you today, sir, because we are saying that in the next decade, the pressures which we tried to demonstrate this morning are going to exist.

Senator PROXMIRE. Are you saying that you are sure that they will not be able to produce, say 12 million barrels a day in 1985?

Admiral TURNER. Yes, sir. That is our prediction, that they cannot even sustain the 10 million that they are doing today.

Senator PROXMIRE. But they have the reserves in the ground, so why not?

Admiral TURNER. Because if they have not made sufficient progress toward developing those reserves, they cannot get it out by 1985, particularly in the inhospitable and remote areas in which they have to work.

Senator HATCH. Admiral, as I see it, at your highest estimate they have 12 million barrels a day. Now we have presently a need in the United States for about 18 million, considering no gain or no particular growth.

They have a lesser industrialized economy than we do. They have what, 50,000 manufacturing facilities in Russia as compared with 295,000 in this country. I don't see how they can use 10 to 12 million barrels a day. I am wondering if they are storing that.

Admiral TURNER. In 1976 they exported about 3 million barrels per day. Half went to other Communist countries; half to other areas. That means that they used about 7½ million barrels a day, which is little less than half of ours.

Senator HATCH. I see. That would correspond with the differences in the economies.

You suspect that for them to have any type of growth at all they have to keep energy production going.

Admiral TURNER. Yes, sir. That is on the record; their economic growth and their energy use have been in parallel all these years.

Soviet Civil Defense

Senator Hatch. To change the subject, when I first came to the Senate, we were told that they did not have very much of a civil defense system. Now you have told us today that they have a civil defense system, one of such a nature that if we had a retaliatory attack, the majority of their people would survive, and much of their leadership would survive.

Is that correct, or have I misconstrued what you said?

Admiral Turner. Assuming some hours of warning, the majority of their leadership would survive.

I think the ability of their population to survive is very much in doubt. [Security deletion.] There is considerable uncertainty that they could hope to protect a reasonable percentage of their population at this time.

Senator Hatch. And just as much uncertainty that they could protect their industrial centers.

[Security deletion.]

Admiral Turner. There is very little probability, in my opinion, that they could protect their economic base. They have not followed through on their plans to space and relocate their industry.

Tensions Between China and Russia

Senator Hatch. What about the tensions between China and Russia, on the Manchurian borders, for instance?

Admiral Turner. [Security deletion.] The tensions there are pretty deep-rooted. The Soviets have indicated a willingness to negotiate, but there is little sign of give on the Chinese side. The Chinese say that the Soviets must evacuate the islands in the Amur River and acknowledge that they were granted to the Soviet Union under an unjust treaty before they will even negotiate on whether the islands belong to one side or the other.

In addition, there is a large island opposite the city of Khabarovsk, which the Soviets would not give up for strategic reasons.

Senator Hatch. Just this past week I read some articles where it was suggested that we are dropping the ball economically and strategically in not strengthening relationships with China which would bring concomitant pressure on the Soviet Union.

Are you of that same opinion?

Admiral Turner. Senator, you are taking me into the area of policymaking for our Government, and as an unbiased, objective purveyor of intelligence, I would rather stay out of that if I may.

Senator Hatch. But it still has a relationship to this area, because our trade, you have indicated, has gone sharply down below what it was just a few years ago. We were at a very high peak and then all of a sudden we have dropped to the point where we import more than we export with regard to the People's Republic of China.

What I am concerned about is this. Should we be fostering a program where we increase our trade with the People's Republic, which would also unsettle the Russians, and is there any way that we can increase our trade since we have had such a drastic fallout? Is that strictly because their economy has bounced up? Just what are the reasons?

China's Trade Policy

Admiral Turner. I believe that we have seen a deliberate effort on the part of the Chinese to get their overall trade back in balance.

Senator Hatch. To be self-contained?

Admiral Turner. Yes. Although the Chinese have made greater use of foreign trade in recent years to spur economic development, self-reliance remains their stated policy. For example, the imports of complete plants over the past several years will enable the Chinese to reduce, or at least hold down, imports of such items as steel, fertilizer, and textile fibers in the future.

Senator Hatch. Is there any indication that they are willing to increase trade relations with us so that we can get back to where we export more than we import?

Admiral Turner. I see little indication of that. They will increase trade with the United States when it suits their purpose, but Peking's policy has been to limit purchases from the United States when alternative supplies are available. The rapid rise of the United States to the position of China's second largest trading partner was, of course, the result of large-scale Chinese purchases of agricultural products in years when world supplies were tight and China's traditional suppliers could not meet its needs. For the peak trade years 1973–74 agricultural commodities accounted for more than 80 percent of U.S. exports to China.[1] Other Chinese purchases have been items such as Boeing aircraft, fertilizer plants, and oil drilling and exploration equipment where U.S. technology excels. Factors impeding trade include limited U.S. demand for Chinese goods, lack of MFN-status for Chinese exports, U.S. controls on strategic exports, and the absence of direct banking and shipping facilities due to the still unresolved frozen assets/claims problems.

Soviet Particle Beam Weapon

Senator Hatch. I have one other question and that is this. Since coming to the Senate, I have had occasion to talk to some of our military people who are concerned that the Soviets may be developing these special high-technology weapons that your report indicates they have not developed, such as the particle beam weapon, various sensor devices, various forms of monitoring technology, et cetera. Is there any reason for that disparity? Some of these people seem to talk very intelligently about it and I have heard both sides. Some decry everything that others cite.

Admiral Turner. We have analyzed the particle beam weapon in particular in some detail. It is our belief that the component tech-

[1] See the following table:

	Million U.S. dollars				
	1972	1973	1974	1975	1976
U.S. exports to China	63	690	819	304	135
Of which:					
Agricultural commodities	61	578	688	80	0
Other exports	2	112	131	224	135

nologies that would be required to build that sort of capability are not advanced enough in the Soviet Union to give them the prospect of being anywhere close to developing such a weapon. Most of the evidence adduced to the contrary is based on the assumption that a particular facility in the Soviet Union is dedicated to this purpose, and additional assumptions about their state of technology. We think all of these assumptions are questionable. Further, we don't see signs of those efforts required for pulling this together.

Senator HATCH. Are they working on particle beam weapons or something close to it?

Admiral TURNER. I cannot either confirm or deny that as I don't have positive evidence that they are not.

Senator HATCH. We really do not know, then?

Admiral TURNER. We really do not know.

Senator HATCH. But you do question seriously whether or not they have reached that form of technology at a high state of art?

Admiral TURNER. We don't know that they are doing it, but we have fair confidence that they don't have the required technologies at a sufficiently advanced stage yet.

Senator HATCH. I see. Thank you. [Security deletion.]

Before I leave, Admiral, I want to compliment you and your staff for the excellent presentation we have had today. It has been very enlightening today and I personally appreciate it.

Thank you very much.

Admiral TURNER. Thank you, Senator.

Senator PROXMIRE. Senator Sparkman.

Senator SPARKMAN. Admiral, I shall be very brief. I want to say that I thought that was a masterful presentation that you gave us today.

Admiral TURNER. Thank you, sir.

TENSIONS BETWEEN SOVIET UNION AND THE P.R.C.

Senator SPARKMAN. Of course, we have been dealing with part of that part of the world in the Foreign Relations Committee. I want to say just this, with reference to a question asked by Senator Hatch just before he left. It deals with the confrontation, if we can call it that, between the Soviet Union and the People's Republic of China.

Back in 1973—I believe it was then—I was in China and I had a conference with Chou En-lai, who was still living at that time. I remember quite well, during the discussion he expressed the hope that the United States would maintain its strength in Western Europe, particularly with the NATO nations, as opposed to the Warsaw Pact nations. He said that if we kept them busy there, they could not carry on as well as otherwise on the northern border. Now remember, he made this statement. He said, just think how you would feel if you had an enemy army of a million men on your northern frontier.

I have often thought of that with reference to the relationship between the two countries.

Admiral, I greatly enjoyed your statement. I appreciate it and want to thank you for it.

Admiral TURNER. Thank you, sir.

Senator SPARKMAN. I just don't see how you get all of that information. I am not going to ask you how, of course. [General laughter.]

Senator PROXMIRE. Senator Roth.

Senator ROTH. Thank you, Mr. Chairman.

I, too, want to congratulate the Director. I think it was a very fine presentation.

There is one question that I have.

As I understand your testimony in the case of China, they are really placing defense as a last priority, they place agriculture and industry ahead of their defense and military needs; whereas in the case of the U.S.S.R. it is pretty much the opposite in terms of their top priority. The Soviets are placing their customer needs way down on the list.

Now if that is accurate, it would appear that the imbalance, if we can call it that, between the U.S.S.R. and China is going to grow. I have heard it said that some people think for that reason the military in China may desire some kind of accommodation with the U.S.S.R.

Is there any evidence or any reason that you can see that there may be an effort for rapproachment or accommodation between those two countries?

Admiral TURNER. I see no evidence of any current moves in that direction or inclination to move in that direction.

U.S. ECONOMIC AID TO SOVIET UNION

Senator ROTH. The Soviet Union, according to your prediction, faces very serious economic problems. I suspect that one of the problems we face on the Hill is to what extent, if at all, should we provide economic assistance in one form or another. One example that we have worked with in the past is to help them develop their natural oil and gas, particularly in Siberia. If we, say, together with the Japanese join in helping that development, would that substantially change the energy picture as far as the U.S.S.R. is concerned?

Admiral TURNER. Well, the word "substantial" is a problem for me. It certainly is apparent that the Soviets today need help to hold their own, let alone to proceed, and that if they are going to develop new fields in Siberia, they are going to need outside financing as well as outside infusions of technology.

So, while we do not believe that kind of assistance will appreciably change the predictions I have given you between now and the mid-1980's, it certainly could be an important factor in whether they begin to come back up this downward slope that we showed you after the mid-1980's. That kind of help is not likely to start producing oil for probably another decade.

SOVIET OIL PRODUCTION

Senator ROTH. Do you have any predictions as to what recovery could be under a large scale program, say of 20 or 25 years? Do you have any prediction on the number of barrels a day?

Admiral TURNER. I don't think so, but there is no doubt that there is lots of oil out there, right, Mr. Diamond?

Mr. DIAMOND. Yes, sir.

There are no predictions. One of our consultants feels that unless massive infusions of investment and technology are poured in, not only from the United States but also from Western Europe, production may not turn up in the last half of the 1980's or early 1990's.

The required investment effort boggles the mind. For example, in this 1976–80 5-year plan, they are putting in 20 million tons of pipe or 24,000 miles of oil and gas pipeline, just in this 5-year plan. The Alaska pipeline is only 800 miles long. To accomplish this goal, the Soviets would have to lay an Alaskan pipeline every 6 to 8 weeks, under comparable or even more inhospitable conditions. This is an indicator of required effort for investment in the transmission system alone.

So, when you talk about overall magnitude of outlays of investment for capacity to develop and transport oil for 1976–80 beyond, no expert would hazard a guess as to how many billions of dollars of Western help would be required to run production of oil up.

Senator ROTH. I believe at one point you said the Soviets may seek assistance from us. Would you be a little more specific about the kind of assistance they might want?

Admiral TURNER. I think it is primarily our technology they are after and that they can only get if they have hard currency or credits in hard currency areas; specifically, we have referred several times to the technology for oil development. Today it is techniques for getting it out of the ground under existing conditions. But as they move into the frozen north more, I think they will be looking to us for all kinds of technology in pipeline development, exploration techniques, and so on.

[Security deletion.]

Senator ROTH. Thank you.

I have one last question, Mr. Chairman.

EUROPEAN CIVIL DEFENSE

With respect to civil defense, is there any possibility that these efforts might be directed toward protection in a conventional war if they decided they might want to move in Europe? Could these facilities be useful?

The Chinese have warned us that the Soviet Union is going to move in Europe. Could this be the purpose behind it?

Admiral TURNER. There is no question that these shelters would be even more effective against a conventional attack .[Security deletion.]

Senator ROTH. Thank you, Mr. Chairman.

Senator PROXMIRE. I have one question at this point and then I will yield to Senator Javits. I know that he has been waiting very patiently.

Is there any possibility that the civil defense effort is an effort designed not to protect themselves against an attack by us, which as you said would seem to be pretty devastating, but against a nuclear attack from the Chinese?

Admiral TURNER. I think that the Soviets have considerable concerns about that; yes, sir.

Senator PROXMIRE. And it would probably give them that protection against the Chinese pretty effectively, wouldn't it—in view of the

fact that they have less megatonnage, less accuracy, less precision, far fewer warheads, less follow-on capacity, and so on?

Admiral TURNER. Yes. There is no question that the Chinese do not have the capability today to take out a substantial percentage of the Soviet population or leadership or industry simply for a lack of weapons. [Security deletion.] So yes, civil defense becomes proportionately more useful under those circumstances.

Senator PROXMIRE. Thank you.

CONSUMER PRESSURES IN SOVIET UNION

Senator JAVITS. I have two questions and I will ask them separately. You spoke of per capita consumption diminishing to a 2-percent annual growth rate for the individual in the Soviet Union. We constantly hear that every once in a while they have to divert from their fundamental concentration of roughly 13 percent of the GNP on military weaponry, et cetera, in order to do something for the civilian sector. What causes them to do that? There is no public opinion, there are no elections, there is no press, there is no radio, no television. Why do they have any need to respond at all to the individual?

I have been to the Soviet Union on a number of occasions. The people seem to be fairly well shod. I am told that they eat adequately—after all, you can live on pretty little compared to the way we operate around here.

What is the pressure on them to do anything for the consumer.

Admiral TURNER. Let me ask some of the Soviet experts.

Mr. Diamond.

Mr. DIAMOND. Senator, there are really three types of pressures. As we measure Soviet per capita consumption, it is roughly one-third of the United States, perhaps half that of Western Europe, and 70 percent of that of Hungary and Poland.

Second, in particular areas, such as quality of diet, one out of every two calories they consume is still from starchy staples, such as grains and potatoes. Their starchy-staple ratio is the highest of any advanced industrial country in the world. Meat consumption is 40 percent of ours and 70 percent of that of Poland and Hungary. The queues for certain kinds of goods, especially selected high quality foods, are long. Perhaps you may have seen them.

We have had reporting over the last year [security deletion] of considerably more discontent in the mid-1970's than there was at the end of the 1960's. This does not show in rioting, as it did in 1962, when Khrushchev raised prices on some foods, but it may show up in a lower level of productivity, for example.

Senator PROXMIRE. Did you say a lower level of productivity?

Mr. DIAMOND. A lower rate of growth in labor productivity, and that includes absenteeism.

Third, it is widely believed that Russians are more stoic than their counterparts in Eastern Europe. The Poles will take to the streets more quickly. But, when Brezhnev and his colleagues observed what happened in Eastern Europe over the last 20 years, especially widespread demonstrations in Poland in 1970 and 1976, this causes them concern.

Because of these kinds of pressure we judge that the leadership will feel that some growth in per capita consumption is required although they will be unable to prevent a slowdown. [Security deletion.]

Senator JAVITS. For me, the most important part of what you have said has been the figures, that they live only 70 percent as well as the Hungarians and the Poles, and 50 percent as well as the West Europeans.

I think that is all extremely important. I think that we, in the Congress, should be very interested in to what extent the public is manifesting its will somehow, even in a country which is held in such an iron grip as this one. I gather, as a necessary corollary, that as far as the military people are concerned, they eat all right and sleep all right if they're not subjected to any of these problems. Is that correct?

Mr. DIAMOND. Yes, sir. They get their daily rations.

Senator JAVITS. The Russian soldier in my father's day was very expendable. He ate almost anything, he slept anywhere, and he was literally a slave. But that is no longer true.

Admiral TURNER. But his pay is not good if he is a conscript, and you are aware, sir, of the signs of discontent we have had, such as the pilot who flew the aircraft to Japan.

I do not want to portray that as a major problem at this point, but at least it is interesting as an indicator.

Senator JAVITS. On the positive side you are able to testify that they are taken pretty good care of, isn't that right?

Mr. DIAMOND. That is right, sir, in a comparative sense, inside their own economy, but not by our standards.

Senator JAVITS. I understand that, of course. I just told you about Russian soldiers from my personal experience. I know from whence they come.

But I was interested in where they are now.

POSSIBILITY OF U.S. ECONOMIC LEVERAGE

The other thing that interests me is your statement, which I want you to confirm, that the U.S.S.R. will experience a hard currency squeeze in the 1980's. This means that they may have to turn to us even more for credits and technology.

This is a critical point for this reason. The U.S.S.R. and the Eastern bloc owes Western Europe about $30 billion right now, and the United States is only in for about $5 billion; that is, U.S. banks. As a matter of fact, it is only about $1.5 billion to the U.S.S.R.

There is a big policy question which you may not even want to answer at this time. You may wish to think about it. There are certain factual questions which relate to this question of policy.

Should we continue this policy of relatively easy access to the credit markets of the world by the U.S.S.R.? Or, should we turn against it in a very affirmative and decided way and use that, by linkage, with Angola, the Middle East, or any other place?

The same is true of technology over which we have surrendered control.

On the other hand, it is said that the Russian hardness on the Jewish emigration question was attributable to the limitation of $300 million in Export-Import Bank lending, which is meaningless to them

now, except as a matter of respectability, which was imposed by the Congress.

This to me is the critical area, these economic questions. The question I would like to ask you Admiral, is what facts do you have to cast light on this question.

This is what I would like to get at. This is to me the basic question: What leverage is there in the economic and technology relations between the United States and the Soviet Union that if, as a matter of policy, we wish to employ—and that is not your business, it is our business and the President's—we could? We have to know what are our capabilities. And I ask you, are we abreast of that?

Admiral TURNER. My best response to that at the moment, Senator Javits, is that I feel a great responsibility to provide you the factual information that would help you approach that decision. I feel that one of the most significant things about this long-term forecast of the Soviet economy that we have presented today is that it highlights that the Soviets have a limited number of options for what we think is a serious problem. [Security deletion.]

Senator PROXMIRE. Senator McClure.

Senator MCCLURE. Thank you, Mr. Chairman. First let me apologize for coming in late. There is nothing more important to me than this, unfortunately except for this particular morning.

I have only two questions and perhaps you have already touched on these.

DIVERSION FROM SOVIET MILITARY TO ENERGY PRODUCTION

Do you note any diversion within the Soviet economy away from military production and toward energy production? With reference to all of the demands on pipeline building and the rest of it, I have not seen any diversion away from military production in order to meet that energy need.

Admiral TURNER. No, sir, we do not either.

Senator MCCLURE. It would seem to me, then, that the corollary is that if they have this tremendous problem confronting them, then military preparedness has all of the priority which we have attributed to them in that area in the past.

Admiral TURNER. That is our view, though we don't know how they will weigh that if and when this prediction really dawns upon them.

Senator MCCLURE. So we don't know for sure whether we can supply the technology or the economics for that energy production. It would certainly reduce the pressure for diversion of those things from energy production, but it might not result in any difference except increased energy capacity?

Admiral TURNER. Yes, sir.

SOVIET STANDARD OF LIVING

Senator MCCLURE. The other question is in regard to the point, a very cogent point, that Senator Javits made about the relative standard of living of the Russian people.

If they are only at 70 percent of the Eastern European countries and at 50 percent of Western Europe, that is significant, but it is sig-

nificant only if they conceive it in that way. If they are nevertheless moving up, if their standard of living is rising each year and they feel relatively better off this year than last year and they don't know that they are worse off than someone else, that would have little significance, wouldn't it?

Admiral TURNER. Yes. I believe that what you are saying is certainly the right perception; that what the Soviet consumer sees of his relative position is probably more dominant in his thought than any hypothetical comparison with outside. However, I don't think we can discount outside influence completely because of the increasing amount of communication in the world today. Even the Soviets are traveling more than they used to.

Senator MCCLURE. That would then indicate that increased contacts between countries might exacerbate that domestic problem for them?

Admiral TURNER. It certainly would have some input.

Senator MCCLURE. Thank you very much.

I have no further questions.

SOVIET GRAIN PRODUCTION ESTIMATE

Senator PROXMIRE. Admiral, do you have any preliminary estimates of Soviet grain production this year, what their targets are and what they are likely to achieve?

Mr. DIAMOND. The target is 213.3 million tons this year.

Senator PROXMIRE. Just what does that mean? How much of a drop-off is the expectation?

Mr. DIAMOND. Last year's production was 224 million metric tons and that was a record. Moscow would probably consider anything over 200 million to be quite satisfactory.

The Department of Agriculture has a preliminary estimate of 225 million tons. We agree with that estimate, although it must be stressed that it is very early in the season. Much of the grain remains unripened, very little has been harvested. Right now, however, growing conditions are very good. [Security deletion.]

LOWER MEAT PRODUCTION IN U.S.S.R.

Senator PROXMIRE. An article in the Washington Post about 6 weeks ago reports that the figures for meat production for the Soviet Union are lower than for the same period last year and that the planned industrialization of agriculture is not likely to succeed unless the resources allocated to the military are reduced.

Can you comment on that?

Mr. DIAMOND. Meat production in the first quarter of this year remained below the first quarter of 1976. It is just starting to turn up as the result of a sharp upturn in use of feedgrains from the record 1976 crop.

Senator PROXMIRE. Well, is there a connection—have they reduced in any way their military expenditures?

Mr. DIAMOND. Oh, absolutely not. There is no direct relationship.

Senator PROXMIRE. Are they using troops in the fields at all?

Mr. DIAMOND. Yes.

Senator PROXMIRE. More than usual?
Mr. DIAMOND. We don't have a measure. [Security deletion.]

CIA REVIEW OF SOVIET STRATEGIC CAPABILITY

Senator PROXMIRE. Admiral, I would like to ask you about some criticisms of the CIA. I am sure that you remember the controversy over the so-called team B review of last year's national intelligence estimate of Soviet strategic capabilities.

At that time I made a public comment that criticism of the intelligence process was healthy and that conflicting ideas made good estimates. At the same time, I was highly critical of having one ideological group with one viewpoint represented as the only outside critical review body.

Do you intend to have intelligence estimates reviewed by any outside panels, and if so, will you insure that a wide body of opinion is represented?

Admiral TURNER. Yes, sir. I am moving toward that.

Senator PROXMIRE. It was a view that was very good and intelligent. I think that General Keegan is a man of great ability and I admire his ability. But he represents a particular viewpoint, and the other viewpoint, which it might be also wholesome and healthy to have, did not seem to be represented.

Admiral TURNER. I think an ideologically structured team A-team B thing is not a normally good idea. I would not reject it entirely, but I think it is something upon which I would look with suspicion.

I think teams A and teams B can be good. My first hope is to put into the process that we have as a standard matter, enough divergent opinions that we do not have to go out and get teams A and teams B. I would hope that we have that interplay right within our organization, possibly by bringing in outsiders on an ad hoc basis, if particular skills or viewpoints are needed.

Senator PROXMIRE. I can understand that and I think that makes for a neater operation. But at the same time I would think that some people outside, who are not subject to the discipline or the inhibitions that any person in the organization is likely to be, would be freer to be more aggressive and more critical in suggesting areas where the CIA may be off base.

Admiral TURNER. I think that is basically true. I am planning to create a group of consultants. We will look at a particular estimate that is being done, such as this one on strategic forces, and we will call from that group the right mix of people to join in the estimate. This would not be on a full-time basis, but we would ask them to come from the beginning of the exercise and to follow it right through and to critique as we go along.

Senator PROXMIRE. The public debate over the team B episode seemed to indicate that the so-called hard-liners won the day and forced the CIA to reevaluate its opinions about Soviet military strength.

Did that in fact happen?

Admiral TURNER. I really have not dug into that, Senator. But the CIA people assure me that that is not the case.

In addition, the story got vastly distorted in the press. [Security deletion.]

Senator PROXMIRE. As I remember the articles—which I thought were real shockers—in the New York Times, there were 25 specific points covering a wide spectrum of differences of opinion voiced by General Keegan. I wrote a letter to the head of the Joint Chiefs of Staff asking him to comment on each one. But it was not just a narrow area, at least not according to General Keegan's criticisms. It was rather broad.

At any rate, General Keegan has publicly taken the CIA to task for a variety of mistakes, ranging from myopia to deliberately hiding the facts from the policymakers. For example, he suggested that: The CIA has considerably underestimated the Soviet threat; the CIA contrived to reduce the estimated range of the Backfire bomber in order to salvage the SALT II accords; the CIA has become politicized; the intelligence community has been wrong about parity and wrong about virtually every great Soviet scientific and military advance since World War II.

Let's take those in order.

Has the CIA consistently underestimated the Soviet threat?

Admiral TURNER. I don't believe so, no.

Senator PROXMIRE. Has the CIA contrived to reduce the estimated rage of the Backfire bomber in order to salvage the SALT II accords?

Admiral TURNER. No. [Security deletion.]

Senator PROXMIRE. What about the argument of politicization of the CIA? What is your answer to that?

Admiral TURNER. I won't speak for the past, but I will defend to the death that we are not politicized today, sir. I feel that my responsibility is to stand clear of the policymakers and to give the President, the Senate, and the House objective, unbiased intelligence to the best that a human being can do that.

Senator PROXMIRE. What about the charge that the intelligence community—not just the CIA, but the whole intelligence community—has been wrong about parity and wrong about virtually every great Soviet scientific and military advance since World War II? What is your answer to that?

Admiral TURNER. I think that that is an incorrect generalization. I cannot imagine that the intelligence community, or the CIA, has been wrong on every advance that the Soviets have made.

Senator PROXMIRE. Exactly the opposite has been my impression. Of course the CIA has made mistakes; what institution does not make mistakes? But at the same time, according to hindsight, it would seem that you have been more accurate than the other agencies have been.

Admiral TURNER. I believe we have been generally accurate and objective.

As a military officer, I have always valued the CIA estimates.

U.S. STRATEGIC TARGETING

Senator PROXMIRE. Last year the JCS Chairman, General Brown, said that our strategic targeting plans, "to take Soviet civil defense into account," instead of targeting population per se, are now targeting primarily Soviet military targets, command posts, and military-related industry.

If that is the case, do we need to be concerned about Soviet population protection measures? And if so, why?

Admiral TURNER. To the extent that one considers that the Soviet Union's decision on whether or not to initiate strategic warfare takes into account what their population loss will be.

Senator PROXMIRE. So this may be a tipoff as to whether or not they are interested in a first strike?

Admiral TURNER. Yes, sir.

Senator PROXMIRE. But obviously, if we are not shooting to kill people but to knock out military targets, command posts and military-related industries so they would have no military capability, it is irrelevant whether they have shelters or evacuation plans, isn't it?

Admiral TURNER. Well, sir, strategic nuclear warfare would not be so neat that you would get only the factories.

Senator PROXMIRE. Of course. That would not be our principal objective.

SOVIET ARMS EXPORTS

Can you give us figures for total Soviet arms exports during the past 5 years?

Admiral TURNER. Yes, sir, I am sure we can. Can't we?

Mr. DIAMOND. Yes, sir.

Senator PROXMIRE. Would you get that to us for the record?

Admiral TURNER. We would be pleased to do so, Senator Proxmire.

[The following information was subsequently supplied for the record:]

SOVIET MILITARY DELIVERIES TO THE 3D WORLD, 1972-76

	Million U.S. dollars				
	1972	1973	1974	1975	1976
Total	1,205	3,010	2,250	1,685	2,190
Africa	55	75	235	600	1,070
Latin America		10	25	55	80
Near East	970	2,655	1,785	850	830
South Asia	180	270	205	180	210

Note.—This table reflects a substantial upward revision of the dollar value of Soviet arms exports and agreements in 1972-75 made possible by new information on Soviet prices for major items of equipment.

Senator PROXMIRE. What is the confidence level of margin of error for the figures in that area? Are the estimates reliable to within 10 percent, or to a factor of 2 or 3—in the Soviet arms exports?

Mr. DIAMOND. Yes, sir. We will make that a part of the record, too, Senator. I cannot answer that right now.

Senator PROXMIRE. All right.

[The following information was subsequently supplied for the record:]

Soviet delivery values are considered to be reliable within 20 percent. In fact, they should be considered a minimum figure; undetected shipments of weapons systems and related equipment and unknown additional price increases could raise the total values by as much as 20 percent.

[Security deletion.]

Senator PROXMIRE. Does the latest information suggest that at the present time they are exporting more? What does your most recent data indicate?

Mr. DIAMOND. I think the facts are that it has leveled off. There is a change in the mix, a change in the composition.

Admiral TURNER. There is another point that I have asked to have studied very carefully, Senator, and that is the difference between aid agreements and aid deliveries. Generally speaking, their deliveries are considerably behind their commitments.

Senator PROXMIRE. Do the estimates include spare parts, military construction, supporting equipment, and supporting services, as well as weapons?

Admiral TURNER. Let me check on that, Senator, and answer later if I may.

[The following information was subsequently supplied for the record:]

The data on Soviet military deliveries include military hardware (land armaments, aircraft, missile systems, and naval boats); support equipment such as radar, communications gear, and vehicles; and an estimated allowance to cover ammunition, spare parts, and unidentifiable support items that normally are received by military forces. Excluded are the costs of military construction, training, technical assistance, and supply operations. While this aspect of the Soviet program is relatively small, it could increase delivery levels by 10–15 percent annually.

SOVIET WEAPONS—RELIABILITY AND DESIGNS

Senator PROXMIRE. Would you agree that Soviet weapons possess less substantiality and reliability than U.S. weapons? For example, is it correct that Soviet logistics are not too good, that they do not have good turnaround capabilities, that they have a kind of throwaway philosophy with regard to many of their combat units and weapons?

Admiral TURNER. I am reluctant to go quite that far. There are lots of elements to logistics. In terms of quantity I think there is evidence in Europe, for instance, that Soviet logistics are not bad, particularly in the Warsaw Pact arena.

Senator PROXMIRE. What about reliability?

Admiral TURNER. Soviet equipment tends to be more simplistic in design than is ours, but it is generally reliable for the purpose for which it is intended. [Security deletion.]

Senator PROXMIRE. How about turnaround capabilities?

Admiral TURNER. By turnaround, do you mean if it is broken down, can they repair it and bring it back again?

Senator PROXMIRE. That's right.

Admiral TURNER. I don't really have a specific opinion on that. I will try to see what we can give you.

Mr. Stevens, did you want to say something?

Mr. STEVENS. Well, as the Director mentioned, their design is often focused on simplicity.

Senator PROXMIRE. That should be helpful to them.

Mr. STEVENS. Yes, indeed. It often is. The very lack of sophistication in Soviet equipment makes many items easy to repair by relatively unskilled personnel. [Security deletion.]

Senator PROXMIRE. Would you agree that due to the lack of precision engineering and quality control in their defense production that there is a likelihood that many of their weapons will not fire? Do they have a serious reliability problem in that sense?

Admiral TURNER. I would not be willing to agree with that right off hand, Senator. Their equipment is in many cases more elementary than ours, but it usually does the job.

Senator PROXMIRE. Have analyses of Soviet weapons such as the Mig-25 disclosed problems of sustainability or reliability, or any other problems concerning the quality of production?

Admiral TURNER. Mr. Stevens.

Mr. STEVENS. [Security deletion.] The people who have looked at that equipment feel that if the design were taken one step further and a production engineering job were done on it, it would be possible to make it more effective and cheaper to produce than is now the case. The emphasis now is often on ease of production and the use of interchangeable parts. The ability to perform the design mission is never compromised, however.

Admiral TURNER. Overall, Senator, I have had the impression over the years that the Soviets could not maintain their equipment in as high standards of year-round reliability as can we; but that if they knew when war was going to start, they could peak at a very high level of readiness and reliability.

MIG–25 LESS TECHNOLOGICALLY ADVANCED

Senator PROXMIRE. Did the analysis of the Mig–25 show it to be less technologically advanced and more expensive than we had thought it was?

Admiral TURNER. I will ask Mr. Stevens to supplement my thoughts on this because he has been in on this in greater detail, I am sure. My reaction to your question is a qualified yes. That is, the internals of the airplane were not as sophisticated as they would have been had we designed the aircraft, but the overall capability is there.

Mr. Stevens.

Mr. STEVENS. That is right. It is a design choice.

Senator PROXMIRE. That would increase its cost, wouldn't it? My question was twofold. First, it went to the effectiveness of the weapon, of the Mig–25 and the technological advancement of the Mig–25; second, it went to the cost.

You wouldn't say that it cost more, or that it probably performed reasonably well because of the redundancy they have built in at considerable cost, would you?

Mr. STEVENS. That is right. The use, for example, of tubes in the electronics of that aircraft may have surprised some people. The use of integrated circuits, of solid state stuff, would produce more reliable electronics, and probably cheaper electronics—if that were the only comparison to be made.

Senator PROXMIRE. Do you mean that they are still using vacuum tube technology?

Mr. STEVENS. There was vacuum tube technology in the Mig–25.

Admiral TURNER. But there were other things, such as steel, in it, too, right?

Mr. STEVENS. Right, stainless steel instead of titanium.

Admiral TURNER. Of course, working titanium is frightfully more expensive, but it gives you a real payoff in performance. This is true

today, so you can imagine the differences in cost when the Mig–25 was designed—1961–63. [Security deletion.]

Senator PROXMIRE. I have only a few questions on China.

POOR PERFORMANCE OF CHINESE ECONOMY

To what extent was the poor performance in China due to earthquakes and other natural disasters, and would there have been growth but for the natural disasters?

Admiral TURNER. Would you tackle that one, Mr. Field?

Mr. Field. Poor performance in China last year was due both to one-time factors and to longer run ones. The earthquake was certainly one of the most serious in the last century. It ranks with the great Tokyo earthquake of 1927. The loss of life was very severe, and it was in a highly industrialized area in north China. The earthquake alone might have taken 1 to 2 percentage points off the rate of industrial growth.

A second factor in the low rate of growth was the political disruption connected with the deaths of Chou and Mao and with the throwing out of Mao's widow and the rest of the gang of four. When we look at the output by province—those for which we have some information—we see a definite correlation between the degree of political disruption and the economic performance. This is a second reason for the poor performance.

Then there are long-run factors. Problems in the allocation of investment over the last 5 to 10 years resulted in bottlenecks. The whole extractive industry is underdeveloped. For example, the demand for nonferrous metals for which they have ores is higher than their ability to produce. So they have had to import, to spend hard currency to import nonferrous metals.

In the iron and steel industry, emphasis has been too much on the crude steel capacity and not enough on the iron ore extraction or rolling. So, these problems in the alloctaion of investment have created bottlenecks.

The last factor I would say that is a long-run factor is productivity. There has been very little improvement in the wages or the standard of living for the industrial labor force. In times of political disruption, when the Chinese workers have had a chance to express their opinions, they have demanded higher wages. This dissatisfaction with wages, of course, gets translated into poor morale and low productivity.

So, the poor performance is therefore a combination of the earthquake and the political disruption that are one-time, short-term factors, and then of various underlying problems, such as alloctaion of investment and problems of handling incentives.

Senator PROXMIRE. Thank you very much.

It would seem that the Chinese represent a very, very powerful force on the continent around China, particularly in Korea and in Vietnam and other parts of the Asian land mass, but that they are of virtually no military significance elsewhere. That is just my instinct in view of their size and in view of the kind of force that they have.

China's Weapons Copies of Soviets

You conclude that the Chinese rely on copies of Soviet weapons developed in the 1950's. Would you summarize to what extent Chinese aircraft, missiles, ships, and ground equipment are basically copies of Soviet designs of the 1950's.

Admiral Turner. They are very largely copies of those.

Senator Proxmire. They are about 20 years behind the Soviet Union, let alone ourselves, technologically, isn't that so?

Admiral Turner. Yes, I would say 15 to 20 years.

Mr. Stevens. They have, for example, built a fighter aircraft, a Chinese version of the Mig–21, which is in very limited production.

Senator Proxmire. When was the Mig–21 first built in the Soviet Union? Was it in the 1950's?

Mr. Stevens. It was the late 1950's.

Senator Proxmire. And China's Mig–21 is in only limited production? It is evidently not a great success.

Mr. Stevens. That's right.

On the other hand, they apparently have built a nuclear submarine and they are capable of production of advanced radars. [Security deletion.]

But in general, when it comes to aircraft, ships, and so on, what they have done is taken the equipment that the Soviets gave them before the break and improved upon it. But it is equipment of older Soviet design.

Admiral Turner. But they are developing their own strategic rocket force, their own intercontinental missile force. They are doing that on their own.

Senator Proxmire. Admiral and gentlemen, thank you all very, very much. I want to echo what other members of this committee have said and I want to emphasize it. You have done a superlative job. This has been a very, very fine briefing and I am most impressed. We would appreciate it if you could sanitize as much of this record as possible and make as much as you can available in 2 or 3 weeks. I recognize that you cannot do it all, but we would appreciate your doing as much as you can.

Admiral Turner. We would be happy to do so.

Senator Proxmire. Thank you very much.

The subcommittee will stand adjourned.

[Whereupon, at 1 p.m., the subcommittee adjourned, subject to the call of the Chair.]

ALLOCATION OF RESOURCES IN THE SOVIET UNION AND CHINA—1977

THURSDAY, JUNE 30, 1977

CONGRESS OF THE UNITED STATES,
SUBCOMMITTEE ON PRIORITIES AND
ECONOMY IN GOVERNMENT OF THE
JOINT ECONOMIC COMMITTEE,
Washington, D.C.

The subcommittee met, pursuant to notice, at 3:02 p.m., in room 5302, Dirksen Senate Office Building, Hon. William Proxmire (chairman of the subcommittee) presiding.

Present: Senator Proxmire.

Also present: Richard F. Kaufman, general counsel; and George D. Krumbhaar, Jr., minority professional staff member.

OPENING STATEMENT OF SENATOR PROXMIRE, CHAIRMAN

Senator PROXMIRE. The subcommittee will come to order.

General Wilson, we are pleased to have you with us this afternoon to testify on the allocation of resources in the Soviet Union and China.

As you know, we are interested not only in the intelligence estimates, but also in the intelligence operations. We will limit our questions to the substantive issues. We are always hopeful that the hearings will be quickly sanitized so that they may be released at an early time.

In the past years, it has taken us 3 or 4 months to publish the complete hearings. This year we are trying a new procedure.

The CIA has agreed to provide a declassified summary of its presentation and to declassify portions of the questions and answers for release in 2 or 3 weeks. Later, probably in the fall, the fall hearings will be printed, as they have been in the past; that is, I should say, the sanitized hearings.

If that procedure is agreeable with you, I would like to do the same with the DIA, together with the CIA excerpts or separately.

Does that sound feasible to you, sir?

General WILSON. Yes, Senator. We will do everything we can to meet your schedule in this area and to meet your objective.

Senator PROXMIRE. I have a number of questions. I don't know which committee members are coming this afternoon, but I would like to have the opportunity and the time to ask these questions which I have.

I see that you have a very, very substantial prepared statement.

General WILSON. It is a very meaty presentation, Senator.

Senator PROXMIRE. If you would like at any point to summarize your prepared statement or to skip over any part of it, your entire

prepared statement will be printed in full in the record. Please be your own guide in this matter. I realize that it is a meaty statement and also that your type is large and the page spaces are considerable, so your prepared statement is not quite as long as its thickness might indicate.

Please go ahead, sir.

STATEMENT OF LT. GEN. SAMUEL V. WILSON, DIRECTOR, DEFENSE INTELLIGENCE AGENCY, ACCOMPANIED BY JAMES R. MILLER, AEROSPACE ENGINEER, DIRECTORATE FOR SCIENTIFIC AND TECHNICAL INTELLIGENCE; MAJ. BRUCE A. WALLACE, SOVIET FORCE DEVELOPMENT SPECIALIST; NORBERT D. MICHAUD, OPERATIONS RESEARCH ANALYST, MILITARY ECONOMICS; AND FRANCIS J. ROMANCE, EASTERN DIVISION, DIRECTORATE FOR INTELLIGENCE PRODUCTION

General WILSON. Thank you, Senator. It is a pleasure to be back here to try to respond to your questions on our views of Soviet and PRC defense spending and the force developments that have taken place since our briefing on these subjects in June of last year.

Before I proceed, sir, I would like to introduce my compatriots.

On my right is Maj. Bruce Wallace, a specialist in Soviet force developments, and John Miller, who is my scientific and technical specialist; on my left is Norbert Michaud, who will cover the economic areas, and Frank Romance, my China specialist.

Hopefully, as a group, we will be able to answer all of your questions. Since in their respective areas their knowledge exceeds my own, I shall not hesitate to refer substantive questions to them.

My presentation will follow this agenda. First, I will cover Soviet force developments emphasizing the major trends during the past year, then move into the area of Soviet defense expenditures.

In answer to one of the specific questions in your letter to me of June 1, I will spend a few moments on Soviet civil defense, and finally I will cover the most important developments taking place in mainland China.

IMPROVED SOVIET MILITARY CAPABILITY

During the past year, improvements in Soviet forces have continued across the board. The improvements cover the entire spectrum of weapons systems, from nuclear strategic forces to conventional general purpose forces.

In depicting these changes, I will be presenting a series of charts [1] which show overall force levels and trends from 5 years back to 5 years in the future. I then will address specific qualitative improvements in each of the force elements. I will conclude with some comments on military production and measures to improve designs and insure quality control. I would like to place in the record at this point the first two charts of a series of charts.

[The charts referred to above follow:]

[1] Many of the charts presented are security deletions.

KEY MILITARY TRENDS & DEVELOPMENTS IN THE USSR & THE PEOPLES REPUBLIC OF CHINA

AGENDA

- SOVIET FORCE DEVELOPMENTS
  - STRATEGIC FORCES
  - GENERAL PURPOSE FORCES
- SOVIET DEFENSE EXPENDITURES
- SOVIET CIVIL DEFENSE
- PRC FORCE DEVELOPMENTS
  - MAO'S DEMISE

STRATEGIC FORCES

General WILSON. First, in the area of intercontinental ballistic missiles, dismantling of the older SS–7 and SS–8 launch sites has continued. The Soviets have now completed dismantling on about

[security deletion] of these launchers and an additional [security deletion] percent are in the process of being dismantled. While the total number of ICBM's continues to decline, the deployment of newer SS–7, 18, and 19 missiles with heavier payloads and more accurate MIRV'd systems has increased the total force capability.

During the past year, we estimate that the total number of reentry vehicles has increased from approximately [security deletion].

The SS–X–16 ICBM completed all of its R. & D. milestones in [security deletion] 1975. [Security deletion.]

The missile has probably been tested in both a silo based mode and in a mobile mode. There is, as yet, no firm evidence of the deployment of the system in either mode.

The medium and intermediate range ballistic missile force targeted against Eurasia is ready for a major modernization program. The mobile SS–X–20 IRBM has completed its R. & D. cycle [security deletion].

[Security deletion.]

The total number of submarine-launched ballistic missiles is rapidly approaching the SALT I limit of 950.

Soviet ballistic missile submarine construction has continued unabated, [security deletion].

Flight testing has continued on two SLBM's, the SS–NX–18. Development of the former, the 17, has not kept pace with the SS–NX–18.

If deployed, the 17 will be installed in the Yankee [security deletion]. The SS–NX–18 is a two-stage SLBM with MIRV and single RV payloads. The system is intended to be deployed in the Delta [security deletion] class SSBN, and is expected to become operational this year.

[Security deletion.]

The major development in the strategic bomber force continues to be the deployment of the Backfire bomber. A total of [security deletion] Backfire are now operational in long-range aviation units, with another [security deletion] in naval units.

In strategic defense, the Soviets have continued to place major emphasis on qualitative upgrading of individual systems and integrating command and control systems. [Security deletion] and a new [security deletion] SAM, [security deletion] is being developed. [Security deletion.]

The Soviets have continued to improve their ballistic missile early warning system. [Security deletion.]

[Security deletion.]

I commend this to your possibly more significant interest, Senator, because of its implications which I will be happy to get into during the question period. [Security deletion.]

[Security deletion.]

At the present time, the strategic fighter-interceptor force of the Soviet Union includes about [security deletion] aircraft. The trend toward a reduction in the total number of interceptors is reversing. The total number is now expected to increase as the older aircraft, replaced by new Flogger and Foxbat, are reassigned to other air defense units, rather than being retired.

As for the newer aircraft, the Flogger, which first entered the force in late 1975, now totals over [security deletion].

[Security deletion.]

In addition to their strategic offensive and defensive capabilities, the Soviets have also continued to improve their general purpose forces.

SOVIET NAVY

The Soviet Navy is continuing to place heavy emphasis on production of missile equipped ships and aircraft, and on development of initial fleet carrier capability.

[Security deletion.]

The *Kiev* class guided missile ASW aircraft carrier will add a new dimension to Soviet naval operations, providing a capability for sea-based tactical air support of their surface forces.

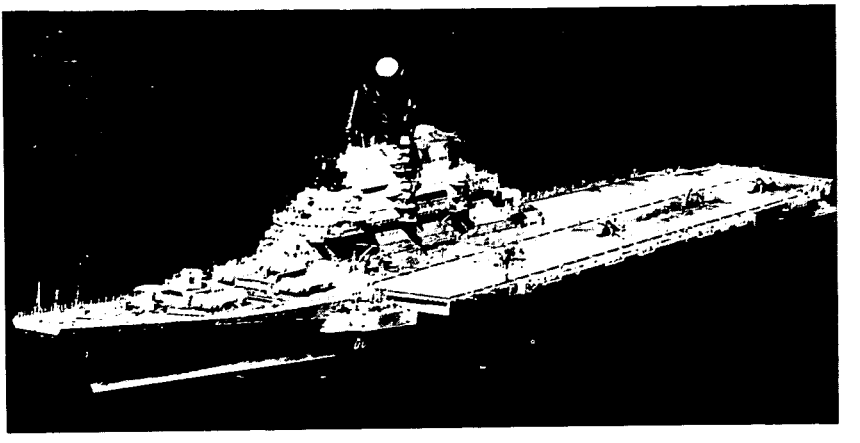
The first *Kiev* class carrier departed the Black Sea in July 1976 and is currently continuing its workup in the northern fleet. In addition to system checkouts, the *Kiev* has had limited participation in naval exercises in the area.

A second carrier is expected to become operational in 1978, and the third in 1980–81.

The *Kiev*, as depicted in this chart, has an extensive weapons fit, including a total cruise missile capacity of [security deletion]. It is expected to have a complement of 32 to 36 V/STOL fighters and helicopters.

[The chart referred to above follows:]

KIEV



General WILSON. While the Soviet general purpose submarine force has continued to decline in terms of total numbers, the overall force is steadily improving as a result of the introduction of modern nuclear attack submarines to replace older units being placed in reserved.

[Security deletion].

TACTICAL AIR FORCES

During the past year, the tactical air forces further improved their capabilities for carrying out the missions of counterair, ground attack, and reconnaissance.

Total numerical strength has remained about [security deletion] but modernization of equipment and support facilities has continued. Most importantly, new aircraft now comprise [security deletion] percent of the force.

The ground attack force appears to have received the most attention during the year, with the continued deployment of the more modern aircraft—[security deletion].

The number of Fencer aircraft, as shown in this chart,[1] for example, [security deletion]. This aircraft is assessed as a sophisticated deep penetration system most likely intended for the attack of key point targets. It is similar, sir, to our F–111.

The number of Floggers increased [security deletion]. This aircraft carried up to [security deletion] times the payload of the ground attack aircraft it is replacing. The Flogger is roughly equivalent to our F–4.

The Hind D assault helicopter also entered the force during the past year. This heavily armed helicopter provides a significant improvement in firepower and avionics. [Security deletion.]

Within the reconnaissance force, the number of Foxbat's increased [security deletion].

GROUND FORCES

As shown in this chart,[2] the size of the Soviet ground forces has remained essentially constant, and we anticipate no major changes. However, qualitative improvements providing greater mobility and firepower have continued, with the ongoing deployment of new tanks, self-propelled artillery, and armored personnel carriers.

This next chart [1] shows the increasing trend in numbers of tanks and artillery. Most important, however, is the introduction of newer systems.

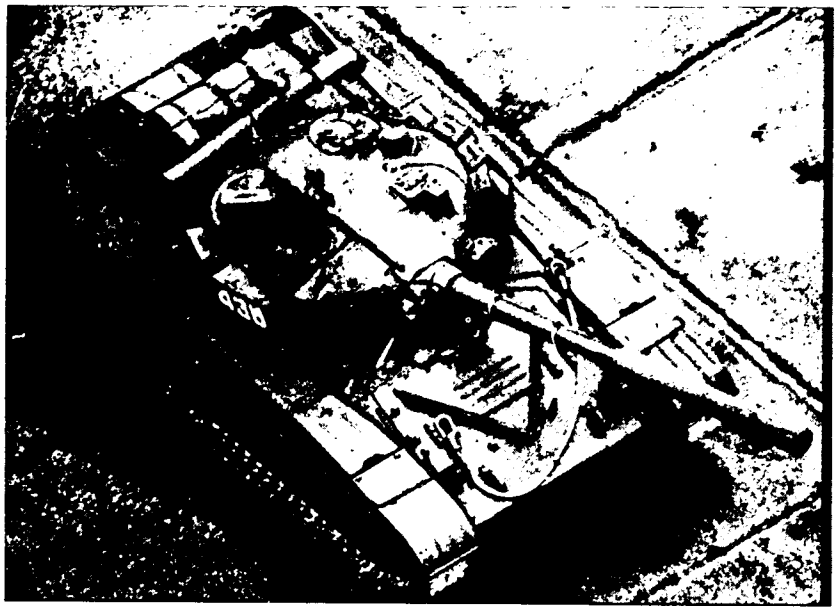
The Soviets have continued to introduce new T–72 tanks into their ground forces. This chart depicts the T–72 tank. We currently assess that over [security deletion] T–72's are located in East Germany alone. The T–72 is estimated to be the culmination of a series of prototypes. It probably has a 115-millimeter smoothbore gun, and we believe it incorporates several new features, such as an automatic loading device and fire control system.

These new features will increase the rate of fire and weapon accuracy. A new engine and suspension system will allow a faster and more agile tank than earlier Soviet versions.

[The chart referred to above follows:]

[1] The chart referred to is a security deletion.
[2] The chart referred to is a security deletion.

T-72 MEDIUM TANK



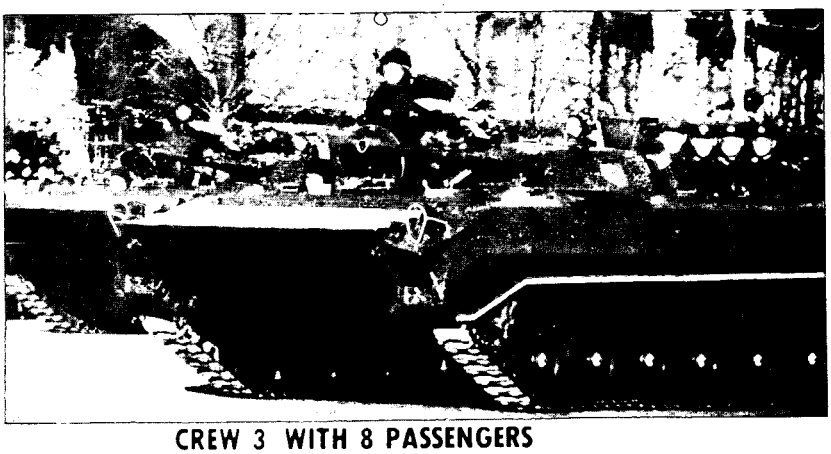
General WILSON. Additionally, the deployment of self-propelled versions of the 152-millimeter gun and the 122-millimeter gun, which began in 1973, is continuing. [Security deletion] Soviet combat divisions in the group of Soviet forces/Germany are now equipped with these self-propelled weapons. These weapons provide increased mobility, reduced crew vulnerability, and the ability to keep up with tanks and armored personnel carriers on crosscountry moves.

[Security deletion.]

The BMP amphibious armored infantry combat vehicle has impressive capabilities and has continued to be widely deployed by the Soviets. This chart depicts the BMP.

[The chart referred to above follows:]

BMP
AMPHIBIOUS ARMORED INFANTRY COMBAT VEHICLE



CREW 3 WITH 8 PASSENGERS
73mm SMOOTHBORE GUN
SAGGER (AT-3) ANTITANK GUIDED MISSILE
7.62mm PKT MACHINE GUN
CRUISING RANGE 300 MILES

General WILSON. [Security deletion.]

To protect the ground forces from air attack, the Soviets have a family of air defense systems, including both guns and missiles, which incorporated mobility and sophisticated electronics. The newest system is the SA–8 with four [security deletion] missiles, and the acquisition and tracking radars on a single self-propelled wheeled amphibious vehicle.

[Security deletion.] This system provides excellent low- to medium-altitude protection against high performance aircraft.

This chart [1] shows the level of nuclear capable missile launchers available to Soviet ground forces. [Security deletion.]

As you have seen, the Soviets have been improving their military forces both quantitatively and qualitatively.

WEAPONS PRODUCTION AND PERFORMANCE IMPROVED

The production figures shown in this chart [1] indicate [security deletion]. It is rather striking when one reflects also on the improved performance of the MIRV'd IRBM's and ICBM's, and the more capable advanced SAM's, and ASM's, or air-to-surface missiles.

Here again, with the ground force equipment, the phaseout of the production of older equipment is compensated by nearly equal numbers of the more advanced equipment.

The production tonnage for the Soviet navy duplicates the trends in the two previous charts,[2] with [security deletion] percent more ton-

[1] The chart referred to is a security deletion.
[2] The charts referred to are security deletions.

nage in submarines, [security deletion] percent greater tonnage in major combatants, and [security deletion] in minor combatants.

The overall trend for aircraft shows a [security deletion] the overall quality of these systems is far superior to the models that were produced in the early 1970's.

TECHNOLOGICAL BASE EXPANDED

During the past year, the Soviets have continued to expand their technological base, particularly that devoted to military research and development, such as the strategically important aerospace section.

During the past 10 years, we have seen [security deletion].

The overall growth [security deletion] in the technological base is shown by the bars on the right in this chart.[1] Soviet applied research in such technologies as materials, propulsion, and electronics continues to increase their ability to improve and develop new weapon systems.

DEVELOPMENT CAPABILITIES IMPROVED

Soviet development philosophy continues to stress systems and technologies. However, in recent years, Soviet R. & D. efforts indicate a growing innovative capability and a willingness to depart from normal development practices when the need is perceived.

IMPROVED SOVIET DESIGN AND QUALITY CONTROL

Since the late 1960's a concerted effort has been underway in the Soviet Union to improve industrial designs, quality control, and to overcome deficiencies, as this chart emphasizes, by implementing a series of management and administrative reforms.

[The chart referred to above follows:]

- IMPROVE DESIGNS
- QUALITY CONTROL
- OVERCOME DEFICIENCIES

General WILSON. Reforms include a nationwide ministerial reorganization and the implementation of standardized administrative guidelines to aid in the research, development, and production of new products.

Design competition and quality control systems have received official sanction and are becoming widely adopted. There is an increasing body of evdience that many aspects of the measures are applicable throughout Soviet industry, including those sectors responsible for military products.

[1] The chart referred to is a security deletion.

A noticeable trend which appears in the analysis of available information is that there is an increasing tendency to apply not only Western technology, but also proven Western management techniques to Soviet industry. These measures will continue to upgrade the quality of Soviet military hardware.

Soviet Defense Spending

Now that we have had a chance to review the weapon development, I would like to discuss Soviet defense expenditures and touch on DIA's role in the development of these estimates.

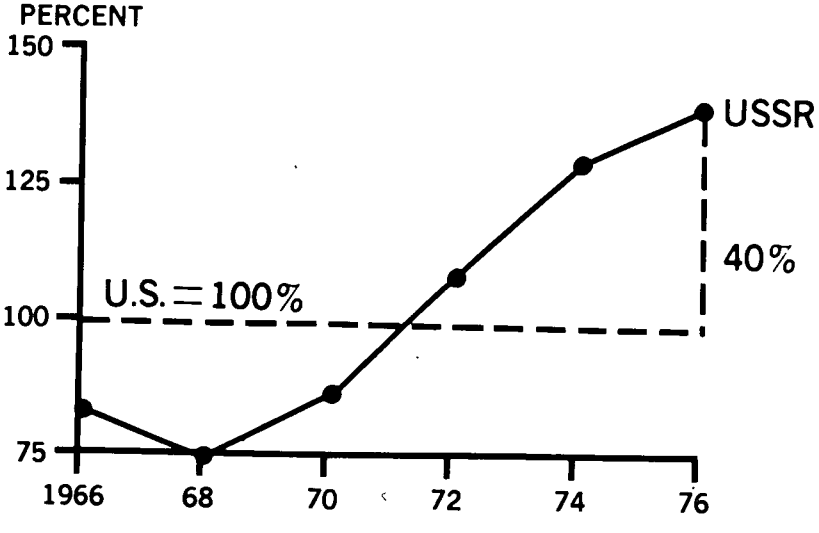
In his appearance before you earlier, Admiral Turner provided you with a detailed review of the latest dollar and ruble estimate of Soviet defense programs.

This approach shows that when Soviet forces are viewed in terms of what it would cost the United States to procure, equip, and operate similar forces, Soviet outlays are now about 40 percent greater than our own as depicted by this chart.

DIA has participated in the preparation of this estimate and provides much of the data used in this building-block approach, which begins with a detailed identification of the Soviet force structure and other defense activities. We have jointly developed cost estimates of Soviet weapon systems and used this intelligence to revise many of our estimates of equivalent dollar costs.

[The chart referred to above follows:]

DOLLAR COST OF SOVIET PROGRAMS AS A PERCENT OF U.S. DEFENSE OUTLAYS

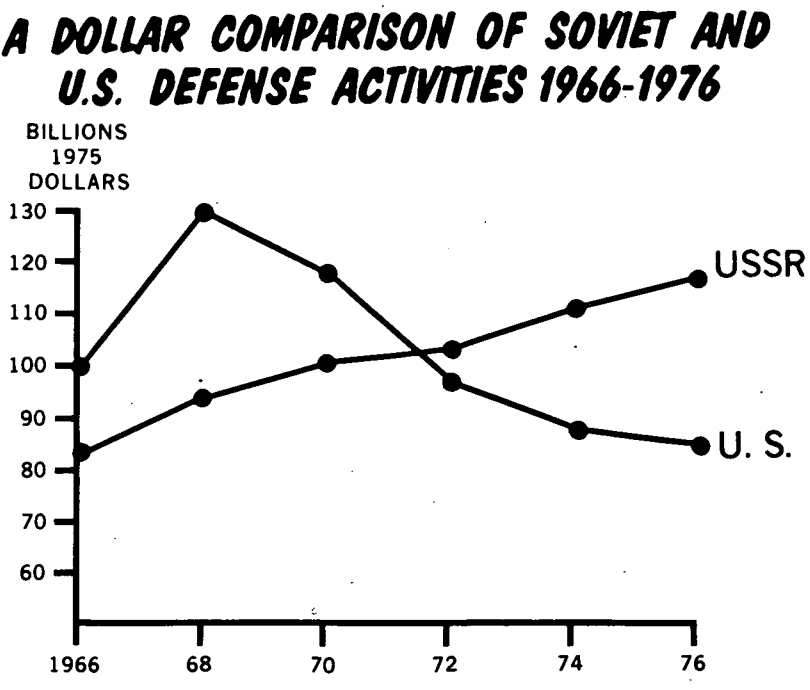


General WILSON. When constant 1975 dollar costs are applied to observed Soviet defense programs, the total costs for 1976 are equivalent to $118 billion, compared to $84 billion for U.S. defense expenditures as depicted by this chart.

The dollar estimate is a conscientious effort to give an appreciation of the magnitude of Soviet defense activity in familiar terms and in force configurations used by our Department of Defense.

One must bear in mind that this estimate only claims to include those defense activities which we are able to identify at a particular point in time. These dollar values do not purport to represent what the Soviets have spent, but rather, what their forces would cost us to support. The dollar trends over a period of time are helpful as an indication of what is occurring in specific areas.

[The chart referred to above follows:]



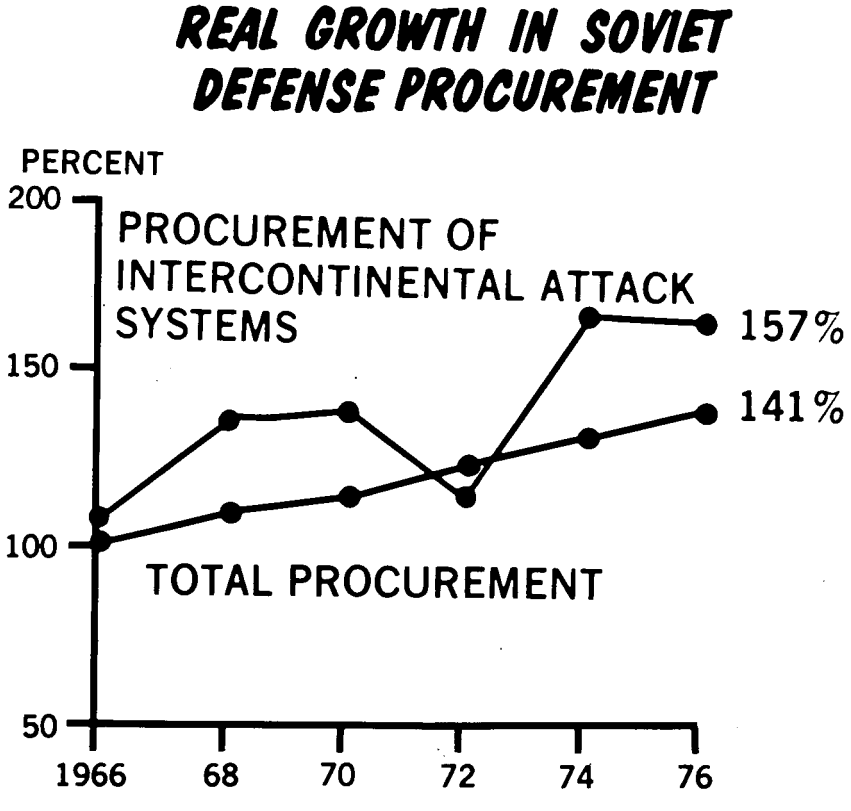
General WILSON. For example, even though value estimates cannot be used to determine relative military effectiveness, an increase in expenditure trends over time is an indication that in some way capabilities are increasing.

WEAPONS PROCUREMENT

The Soviet procurement of weapons has grown annually, and in 1976 reached 141 percent of the 1966 level as depicted by this chart. The impetus for this growth in total procurement comes from the procurement of intercontinental attack systems, having grown to a 1976 level equal to 157 percent of the 1966 level, 10 years earlier.

While some of this annual procurement represents replacement, much of the new equipment are additions to stockpiles and to capabilities.

[The chart referred to follows:]



General WILSON. As a result of the increasing Soviet trend and decline on the U.S. side, the Soviets now exceed us in the procurement of systems by 114 percent as depicted by this chart.

RESEARCH AND DEVELOPMENT

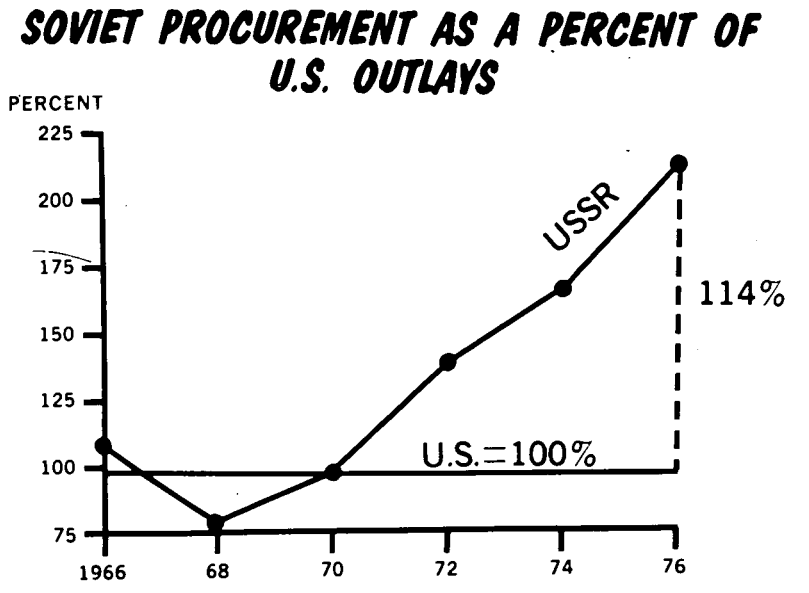
Meanwhile, in research and development, R. & D., the Soviets clearly exceed the U.S. effort, as evidenced by the development of new systems. Although the results of Soviet research are not easily measured in dollar terms, we know that their R. & D. programs, along with procurement, are contributing substantially to their capabilities.

Although the dollar estimate provides these comparisons, it cannot be used to calculate the burden military programs place on the Soviet economy. A separate estimate, costed in rubles, is developed

in an attempt to gain an appreciation for defense outlays as seen by Soviet leaders. In the last 2 years, considerable DIA and CIA effort has gone into the analysis of all of the known evidence and methodologies.

While we do not have, and may never have, definitive answers as to all the ramifications of Soviet defense outlays, we can say that Soviet defense is more of an economic burden, given higher priority, and a greater commitment than we previously believed.

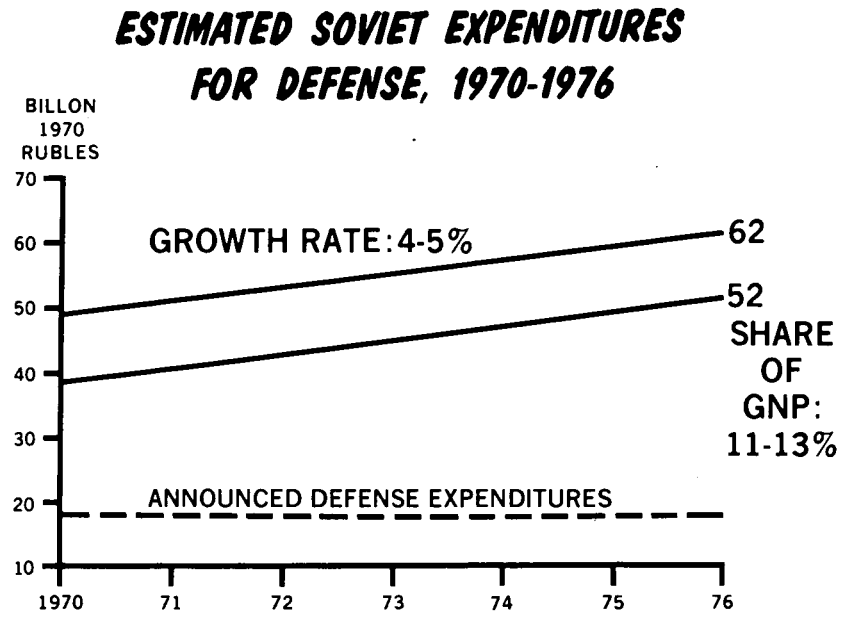
[The chart referred to above follows:]



RUBLE EXPENDITURE ESTIMATES RISE

General WILSON. This next chart depicts Soviet defense spending in constant prices is now estimated by the intelligence community to be 40 to 50 billion rubles in 1970, and to rise at a 4 to 5 percent per year between 1970 and 1976, reaching 52 to 62 billion rubles in 1976. These levels of spending represent a rate during the 1970–76 period of some 11 to 13 percent of GNP.

[The chart referred to above follows:]



General WILSON. While we agree with the community estimate for 1970–76 when valued in constant 1970 ruble prices, we believe that an estimate of Soviet defense spending published in the People's Republic of China weekly Peking Review, a magazine, may accurately represent the growth rate and total expressed in current prices.

The Peking Review series is supported by information from [security deletion] and others. This data indicate a 1975 Soviet defense total of over 70 billion rubles and an economic burden of between 14 and 15 percent.

SPENDING PROJECTIONS INCREASE

Using these current ruble values and Soviet economic plans for 1976–80, we are able to project that Soviet defense outlays will continue to rise at about the same rate as the previous 5 years. We realize, of course, that relying on Soviet plan data and on Soviet or Communist statements is not generally advisable. These figures are not well defined and may include inflated prices. Nonetheless, we believe that these figures approximate the values as seen by the Soviet policymakers and may realistically reflect the growing costs of new technologies.

Soviet production technology has become increasingly sophisticated and the Soviet Union is steadily gaining the ability to produce complex systems. With this ability comes the inevitable cost increases associated with modern technology. [Security deletion] has given us a singular chance to test our parametric cost estimating techniques. While this reexamination resulted in a 12-percent decrease in the estimated flyaway cost, this was just beyond our expected range of error of plus or minus 10 percent. What is particularly significant,

however, is that newer systems are much higher in cost than older systems.

MILITARY INDUSTRIES RECEIVE PREFERENTIAL TREATMENT

We still do not have a full appreciation of the extent that the Soviet economy defers to the military. However, we do know that military industries receive preferential treatment in materials, services, and in the recruitment of skilled labor to include special housing and other benefits as inducements. The industrial enterprises also pay the salaries of reservists who are called to active duty for training. Most of the preinduction military training is conducted at the expense of the state educational system or through the voluntary clubs sponsored by DOSAAF to whom members pay dues.

In addition, in the area of transportation and communications, there are defense-related costs not charged to the military. There are also direct and indirect subsidies and benefits that accrue to military personnel in the areas of medical care, housing, and pensions, of which little is reflected in the financial flow associated with defense.

We also know that the Soviets are interested in economizing, in getting more military capability for the ruble. So the task still before us is to ascertain the full burden of defense and to take full measure of the Soviet dedication, present and future, toward military superiority.

CIVIL DEFENSE EFFORT

Before moving to our assessment of military developments in mainland China, I would like to address your specific question to me concerning the Soviet civil defense effort. This chart depicts the Soviet view of civil defense.

First and foremost, this is an integral part of Soviet military planning for nuclear war. It is part of a broad Soviet concept which we have characterized as "war survival," encompassing all the military and nonmilitary measures by which they seek to insure the survival of Soviet society and the continuity of the Soviet state.

[The chart referred to above follows:]

SOVIET VIEW OF CIVIL DEFENSE

- VITAL TO "DEFENSE OF THE REAR"
- INTEGRAL PART OF MILITARY PLANNING FOR NUCLEAR WAR
- WORTH EXTENSIVE INVESTMENT OF RESOURCES

General WILSON. The Soviets believe that their civil defense program can become a vital factor in the strategic equation. This chart depicts Soviet commitment to civil defense. They have sought to insure the effectiveness of their program by integrating civil defense elements under military control, appointing high-quality military leadership, and investing substantial resources in plans and facilities.

The civil defense organization is large, consisting of [security deletion] general officers and [security deletion] full-time military and civilian personnel.

[The chart referred to above follows:]

General WILSON. The mission of their civil defense organization is to provide protection in the priorities shown in this chart.

[The chart referred to above follows:]

PRIORITIES

- CIVILIAN & MILITARY LEADERSHIP
- INDUSTRY & ESSENTIAL PERSONNEL
- GENERAL POPULATION

General WILSON. The Soviets expect to protect the leadership through hardened facilities and relocation. [Security deletion] there are [security deletion] hardened underground structures for the military and civilian leadership [security deletion].

The Soviets desire to reduce the vulnerability of their economic base and to minimize the loss of industrial production. This chart depicts their economic protection program. Dispersal has been partially satisfied by ongoing economic development, which has resulted in the siting of some new industries outside of major urban complexes.

[The chart referred to above follows:]

ECONOMIC PROTECTION

- DISPERSING INDUSTRIAL BASE
- HARDENING PLANTS AND FACILITIES
- SHELTERING WORKERS

General WILSON. In addition, there is a continuing, moderate-scale program to protect production facilities by providing permanent shelters at many industrial plants for workers and to a lesser extent for machinery, utilities, spare parts, and raw materials. War and war-related industries receive priority. [Security deletion.]

Protection of people is to be accomplished by a program of pre-attack dispersal of essential workers, which this chart depicts, who would then commute to perform critical functions, and evacuation of the remainder of the population from major cities.

[The chart referred to above follows:]

PROTECTION OF PEOPLE

BASED ON PRE-ATTACK REMOVAL FROM POTENTIAL TARGETS:

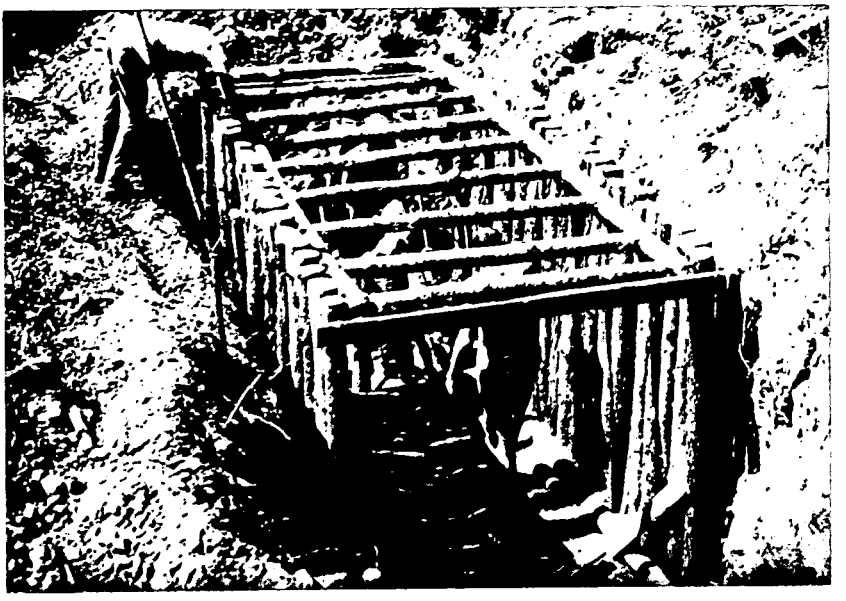
- DISPERSAL OF ESSENTIAL PERSONNEL WHO WOULD COMMUTE TO MAINTAIN OPERATION OF ESSENTIAL FACILITIES AND SERVICES.

- EVACUATION OF NON-ESSENTIAL PERSONNEL WHO WOULD NOT RETURN UNTIL AFTER THE EMERGENCY.

General WILSON. Dispersed workers and evacuated urban residents would be expected to build their own expedient shelters using locally available materials as this chart depicts.

[The chart referred to above follows:]

EXPEDIENT SHELTER CONSTRUCTION



General WILSON. In addition, the Soviets are constructing additional permanent urban shelters such as this chart [1] shows for those who remain in or near cities.

Basements of buildings and the subway systems also afford protection against fallout and various levels of blast.

[Security deletion.] The Soviets have established a goal to store reserves of grain adequate to feed the entire population for 1 year by the end of 1981. At the present time, [security deletion] percent of grain storage in the U.S.S.R. is assessed to be [security deletion].

To summarize, Soviet civil defense, in conjunction with various offensive and defensive measures, has the potential to alter the strategic military relationship, possibly by the mid-1980's. The subordination to military direction has resulted in a more effective organization for carrying out plans and programs.

The program not only focuses on the protection of the Soviet leadership in and near Moscow, but it also extends to a number of capitals and military headquarters below the national level.

[1] The chart referred to is a security deletion.

Evacuation plans for the protection of the general population are in being, and appear workable.

Their urban shelter program is quite extensive and, thus far, appears to be primarily for essential personnel rather than for protection of the general population.

The expansion of heavy industry during the past 15 years has, for the most part, occurred in large urban complexes and is still considered to be quite vulnerable to nuclear attack. However, there has been limited dispersal of light industry, increasing its changes for survival.

Overall, Soviet efforts in industrial protection are unlikely to prevent severe damage.

Senator PROXMIRE. General, I understand that your remaining remarks pertain to China.

General WILSON. That is correct, sir.

Senator PROXMIRE. Why don't we put the rest of your statement into the record. I have some questions on this, which I would like to get into as soon as possible. Is that all right with you?

General WILSON. Of course it is—at your pleasure, sir.

Senator PROXMIRE. Fine.

[The balance of General Wilson's statement follows:]

BALANCE OF LT. GEN. SAMUEL V. WILSON'S STATEMENT

Turning now to the last part of the briefing, I will cover developments in the People's Republic of China. The focus will be on trends in PRC military forces and significant changes which have occurred during the past year, including the impact of Chairman Mao's death on the defense industry and defense spending.

Direct effects of Mao's death on defense spending and the defense industry in general have been almost imperceptible. Post-Mao policy has continued to emphasize the long-term, systematic upgrading of the PLA's capability, and a continuation of the evolutionary trend for improvement of the total armed forces. Despite modest gains in certain areas such as missiles and ships, no dramatic changes have been noted in the development and proceurement of military equipment, nor are they anticipated in the near term. Chinese military leaders have most likely accepted the idea that military modernization is dependent on overall economic modernization. As a result, the PRC has opted for, and is expected to continue to pursue, a careful, long-term and balanced defense modernization program.

Despite this policy commitment, however, there is little doubt that Hua Kuo-feng owes much of his authority and influence to the military establishment which was instrumental in the overthrow of the "Gang of Four." The military can be expected to play a significant role in the planning and policymaking processes of Peking. Hua's elevation to the chairmanship of the party and elimination of the more radical elements of the leadership should allow a relatively consistent approach to military matters.

Most notably the elimination of radical opposition to imports of foreign technology and equipment has provided the opportunity, at last, for Peking to accelerate purchases of selected defense related technology and materials. Peking's obvious interest in acquiring advanced western equipment and technology reflects a continuing desire for enhancing its own technological base with a minimum investment of time and resources.

Thus, the PRC continues to stress a gradual program of force modernization rather than pursue developments which could yield rapid quantitative improvements for its military establishment. Several results of China's long-term modernization program have been apparent during the past year.

With respect to strategic forces, China's nuclear strike capability consists of a small force of bombers and missiles. Although this force is limited primarily to peripheral strikes around China's border, the PRC's [security deletion].

When operational the CSS–X–4, with a [security deletion] KM range, will be capable of striking all of the continental U.S. However, the missile has only

[security deletion] early technical difficulties, and no [security deletion] the system is not expected to become operational before [security deletion]. The [security deletion] has been used successfully to orbit China's last [security deletion] satellites, two during the past year. These satellites are probably [seceurity deletion] which, when fully developed, will significantly enhance China's [security deletion] capabilities.

Developments in China's other strategic systems have been negligible, [security deletion].

There has beer. [security deletion] on China's submarine launched ballistic missile program. As a consequence, [security deletion] of a Chinese SSBN system is [security deletion].

These charts [1] reflect the current strategic missile and bomber force levels and anticipated trends through 1982. Although follow-on missile systems are expected to begin entering the operational inventory in 1982 the total strategic missile force size will increase only by about [security deletion] weapons over the current year figures. This chart reflects a continuation of TU–16 production levels at above [security deletion] aircraft per month. There is no evidence that a [security deletion] is being developed, nor is one anticipated.

Turning to Chinese general purpose forces, we have seen in the past year, a similar continuation of long-term methodological efforts toward modernization.

China's ground force currently consists of [security deletion] combat divisions, the bulk of which are infantry troops that have been activiated during the past 2 years. Peking appears to be content with the continued long-term modernization of the divisions currently deployed. Our best estimate projects a continuation of the emphasis on qualitative improvements and forecasts only a slight increase in the number of combat divisions. With the existing force, the PRC can successfully defend against any conventional attack except those which might be initiated by the superpowers, and even they would not have sufficient conventional power to totally overwhelm the PRC Army on Chinese soil.

As for naval forces, China is still not expected to become a naval power capable of successfully opposing the U.S. or Soviet navies in open ocean combat within the next decade. U.S. and Soviet technological advances and naval experience on the high seas are such that a widening of the already significant gaps between our naval capabilities and those of the PRC will probably take place.

As with the ground forces, China's Navy, over the past year, has progressed with escalating modernization programs including the continuing development and production of a new class of [security deletion] and additional out-of-area operations by PRC oceanographic research ships. Moreover, China recently built [security deletion] which appear to be capable of out-of-area operations. In view of past naval ship construction trends, their appearance could represent a significant naval development. However, we feel that Peking has not shifted from its traditional coastal defense doctrine. There have been modest increases over the past year in the total numbers of surface combatants and submarines as reflected on the next two charts.[2] It is anticipated that, while the surface combatant force level will increase steadily over the next 5 years, missile torpedo boats and frigate size ships of obsolescent design will continue to account for most of the increase in the inventory, rather than larger, more modern ones. Already the third largest submarine force in the world, PRC submarine strength will continue to grow with the production of indigenously constructed *Romeo*-class submarines.

Developments in China's air forces over the past year are reflected in the continued streamlining of the [security deletion] IL–28 *Beagle* aircraft [security deletion] and the [security deletion].

As with the other general purpose forces, the PRC Air Force is expected to improve qualitatively over the next 5 years but with only modest quantitative increases. Military transport aircraft production will probably continue to have lower priority than production of combat aircraft, with Peking relying primarily on the purchase of transports from foreign sources. Similarly, helicopter acquisitions will likely come from foreign sources, with indigenous production remaining limited.

The developments noted in China's strategic and general purpose forces are all indications of Peking's desire to improve the quality of its armed forces. We can

[1] The charts referred to are security deletions.
[2] The charts referred to are security deletions.

expect further qualitative changes as the Chinese continue their research and development efforts and expand their purchase of foreign military technology.

Although the PRC's overall R. & D. and production efforts have been somewhat uneven, they continue to have a momentum of their own, despite the political changes. Under the new national leadership, China is expected to allocate enough resources for maintaining its established pattern of gradual defense modernization. Modest production of older technology weapons continues, but with a trend toward improved equipment of indigenous design. China has been acquiring foreign technology intended for the improvement of defense industry, R. & D., and production rather than purchasing weapons systems for actual deployment. This trend is expected to continue. China already has adequate industrial floorspace for the production of existing weapon systems, and future across-the-board large scale expansion is not expected.

Because of China's penchant for security and the resultant dearth of information [security deletion]. These judgments are further clouded by our uncertainty over remaining internal PRC disagreements concerning the pace and price of modernization in terms of overall economic and industrial development.

Nonetheless, PRC military procurement has been calculated in dollar terms to approximate the size and direction of their buildup in military equipment. This table [3] shows what it would cost the U.S. to produce comparable military equipment. These figures do not include costs for R.D.T. & E., facilities, personnel, or operations and maintenance. Chinese military procurement costs decreased in 1976 compared to 1975 but were higher than the previous 3 years. Annual procurement was relatively constant at slightly above [security deletion] during the 1972–74 period and rose to over [security deletion] in 1975. The estimated 1976 procurement was approximately [security deletion]. China's history of military production makes it difficult to judge whether the 1975 increase and the subsequent smaller 1976 decline in procurement costs are part of a temporary cyclical phenomenon or the beginning of a long-term upward trend.

It appears that the pattern will be largely determined by two factors—the scale of new or expanded aircraft production and the rate at which the Chinese deploy their strategic offensive missile forces. However, for the next several years, as they begin to replace obsolescent equipment with more modern systems, it appears likely that Chinese procurement costs can be expected to grow even if production in terms of numbers of units does not increase.

Overall, China's determination to develop a military force to support its bid for major power status is expected to continue. Continued priority will be given to the development and deployment of strategic nuclear weapons for deterrence, backed up by a large conventional defense capability.

U.S. Soviet Technology Compared

Senator Proxmire. On June 23, Admiral Turner said, and I will quote: " While virtually all of the Soviet inventory of weapons falls within U.S. production technology, the Soviets simply do not have the technology required to produce many of the U.S. weapons, nor could they produce close substitutes."

Do you agree with that statement?

General Wilson. I want to make sure that I comprehend it, Senator—that the Soviets lack some of the technology we have?

Senator Proxmire. That they just do not have the technology to produce many of our weapons, U.S. weapons, nor could they produce close substitutes for them.

General Wilson. Yes; I believe that is essentially correct.

The essence of that statement to me is to say that we still have a substantial technological lead over the Soviets and thus are able, in a number of areas, to produce a weapon which is superior qualitatively to those which they produce.

[3] The table referred to is a security deletion.

I think that Admiral Turner's use of 70 percent, which would apply in reverse to about a third of the weapons, also probably is correct. I am generally in accord with that statement, sir.

Senator PROXMIRE. Admiral Turner also testified that although the Soviets have improved some of their systems, he said and I will again quote: "Soviet weapons technology generally lags behind that of the United States."

He went on to point out that the Soviets trail us by [security deletion] years in the introduction of certain electronic technologies, at least [security deletion] years in computers and electronics, and they lag behind in [security deletion] fabrication and production, and in the design and manufacturing technology incorporated in aircraft and missiles.

Do you agree that Soviet weapons technology generally lags behind that of the United States?

General WILSON. Yes; in certain identified areas such as you have listed here.

Do you not go along with that, Mr. Miller?

Mr. MILLER. Yes.

Senator PROXMIRE. You say that research and development in the Soviet Union has been clearly exceeding U.S. efforts, as evidenced by the development of new systems.

Do you mean that they have developed more new systems than we have, or that their new systems are superior or more advanced than ours?

General WILSON. That statement—and I would also like to turn to my expert to make sure that I am on track—refers primarily to the numbers of new systems, to the volume of the effort, as opposed to its quality at the present time.

Mr. MILLER. Yes, sir, that is absolutely correct.

Senator PROXMIRE. To what period of time are you referring when you talk about their having developed more new systems than we have? Is that the last 3 years, 5 years?

General WILSON. I think the last 5 years would be the general framework.

Mr. MILLER. Yes; about the last 5 years.

U.S.-SOVIET PROCUREMENT STYLES VARY

Senator PROXMIRE. Isn't it true that the Soviets tend to develop and build many more variants of the same new system and employ more engineers than we do, and that their design bureaus compete with one another, and that sometimes the losing designs get built in addition to the winning designs? Don't these factors help explain why the scale of Soviet R. & D. seems so large?

General WILSON. That's a very good question, sir. I think it helps partially to explain the situation. I would have difficulty saying that it explains the difference in its entirety.

Senator PROXMIRE. Could you give us any quantitative notion? Could it explain half of it? Two-thirds? One-third? Do you have any feel for that? I know that this has to be an estimate.

General WILSON. The answer has to be somewhat speculative, which I hope you will appreciate. We might easily disagree here at the table.

It might explain half of the difference—that is just a general stab at the question.

Are you comfortable with that, Mr. Miller?

Mr. MILLER. I think it is less than half.

Senator PROXMIRE. You think it would explain less than half?

Mr. MILLER. Yes, sir. There are specific instances that we could cite whereby there have been systems, either aircraft or missiles, that have been in competition, and they have ended up deploying at least some of both.

But I think that over the past 10 or 15 years, that practice has tended to diminish somewhat, and it is somewhat less than half. I would say that considerably less than half are in competition, or have resulted from competition.

SOVIET SYSTEM HAMPERED BY REDUNDANCY

Senator PROXMIRE. General, you and I discussed the redundant Soviet R. & D. approach in last year's hearing, the fact that in missiles, especially, they build not only the best design model in the system, but the losing design as well.

That struck me as an extreme example of inefficiency, and I thought you agreed.

Do you agree that this is an inefficient practice?

General WILSON. Oh, yes. But there may be selected instances where redundancy on a particular item carries with it an advantage, although that would apply in the minority of instances.

Generally speaking, I think it connotes inefficiency in the Soviet system.

Senator PROXMIRE. An example of Soviet redundancy appears to be competition between the SS–11 and the SS–13. I understand that the SS–11 ICBM won out and more than 600 have been deployed, but that about 60 SS–13's were also deployed. Would you comment on this and state whether such redundancy contributes to your conclusion that the Soviets are developing many new systems?

General WILSON. In this area, Senator, I think Mr. Miller, who is with me, is very well versed. If you have no objection, I will turn that over to him.

Senator PROXMIRE. Very good. Mr. Miller.

Mr. MILLER. The SS–11 was a liquid fueled missile, the SS–13 is a solid propellant missile. I don't feel that they were in competition with each other. This was the first Soviet attempt at an ICBM in the solid propellant field, that is, the 13. It did not prove out very well. They had problems with their [security deletion] and they had problems with [security deletion]. Therefore, there were only a limited number of them deployed, 60 of them, which we think may still be deployed. The 11, however, was their major effort for a mass-destruction-type weapon, and it was done on an extremely high-priority basis. They [security deletion] before the program was very well down the pike; even though they had some problems in the beginning, they went with a highly accelerated R. & D. program and have deployed about 1,000 of these weapons.

Senator PROXMIRE. I understand that SS–11's are still being deployed with MRV's, multiple reentry vehicles, despite the fact that they are being replaced by the newer SS–17's and 19's?

Mr. MILLER. That is absolutely correct.

Senator PROXMIRE. Does that indicate dissatisfaction with the new models which have been tested with MRV's, or does it mean something else?

Mr. MILLER. Well, sir, in my opinion, it is a different role and mission. The SS–11 is a mass destruction weapon intended for a soft-target-type approach. The SS–17 and SS–19, which are your new generation systems, with the MIRV capability, as opposed to the MRV capability of the 11, are in my mind intended as hard target weapons.

General WILSON. I agree with that entirely.

SOVIET MISSILE DEPLOYMENT RATES

Senator PROXMIRE. How would you compare the deployment rates of the 17's and 19's with the older 9's and 11's? Are they faster or slower? If they are slower, does that suggest lack of confidence in the new missiles?

Mr. MILLER. The deployment rate of the 17, 18, and 19 is slightly slower than it was for the 11 and the 9 at the time that they were initially deployed. You have a different situation here, however, in the fact that the Soviets were attempting to get a force in the field——

General WILSON. Exactly.

Mr. MILLER [continuing]. With the 9 and the 11, whereas now they have that force in being and they have a much harder silo that they are building for the 17, 18, and 19.

Senator PROXMIRE. You feel that there is a lack of confidence in the new missiles?

Mr. MILLER. No, sir.

General WILSON. To reiterate, they are replacing a force in being, as opposed to filling a vacuum, as they were earlier.

Senator PROXMIRE. I understand.

MIRV DEPLOYMENT ESTIMATES

Can you say how many MIRV'd missiles the Soviets have deployed, including submarine launched missiles, how estimates of Soviet MIRV's are derived, and whether it is possible they have still not mastered MIRV technology?

Mr. MILLER. Would you repeat the question, please, so we can make sure?

Senator PROXMIRE. First, can you say how many MIRV'd missiles the Soviets have deployed, including submarine launched missiles?

Mr. MILLER. There are no SLBM MIRV's deployed yet. We are calculating the number for your question now.

I have [security deletion] SS–19's and [security deletion] 18's at the present time.

Senator PROXMIRE. The next question is how the estimates of these MIRV's are derived.

Mr. MILLER. OK.

We are able to [security deletion] and we are normally able to [security deletion], which indicate that the [security deletion]. The one big problem that we have is the abilty to differentiate between whether it is a single RV version of that missile, or whether it is a MIRV'd RV version.

There is just no way that we can tell from the means that we have available at the present time to differentiate between the two.

Senator PROXMIRE. So, do you assume that any missile that can be MIRV'd is MIRV'd?

Mr. MILLER. We are forced to do that, yes, sir.

We are assuming for our own accounting purposes or our own planning purposes that they are some few SS–18's that are single RV versions, either the MOD–1 or the MOD–3. We expect that the Soviets will probably initially deploy some [security deletion] of the total of [security deletion] that we expect to be deployed in the single version. Those may be—and here it is a conjecture on people's parts—those may be eventually replaced with [security deletion] will be deployed in a single RV version, which is being developed at the present time.

SOVIET MISSILE ACCURACY

Senator PROXMIRE. Isn't it correct that the Soviet ICBM's now being deployed do not have the accuracy that we thought they would have 5 years ago, that they may not have a hard target kill capability until the deployment of their next generation of missiles, and that our ICBM's are substantially more accurate than theirs?

General WILSON. Don't we have recent evidence that they are more accurate than we thought they were, Mr. Miller?

Mr. MILLER. Yes, sir.

We are getting more and more evidence—as a matter of fact, we are in the process of coming out with a new position right now on the accuracy of the new systems—that the accuracy of those systems is better than we initially thought it was. We originally thought that there was somewhere between a [security deletion] nautical mile accuracy. It now looks like the current operational accuracy of the four new systems is somewhere about between [security deletion] nautical miles.

Senator PROXMIRE. Let me get the answer now to the other question.

Does that indicate that they have a hard target kill capability?

Mr. MILLER. The hard target kill capability at the present time is still somewhat limited. The PK's, or damage expectancy numbers, that we come up with based on their accuracy and yield assessments are still down in the more or less unacceptable level for a planner. In other words, they are still in the [security deletion] range.

Senator PROXMIRE. Meaning that they may not really have it until the next generation of missiles?

Mr. MILLER. Exactly.

Senator PROXMIRE. Would you say that in spite of the reassessment and the indication that their missiles are more accurate than we had thought they were, rather than less, that their ICBM's are substantially less accurate than ours?

Mr. MILLER. Yes, sir.

We are currently getting about [security deletion] nautical miles out of Minuteman III, and about [security deletion] out of Minute-

man II. So, as you can see, we still have more accurate weapons. But we also have a very small yield in that weapon.

Senator PROXMIRE. Some experts believe that Soviet reentry vehicles have much [security deletion] than U.S. reentry vehicles and that this contributes to the relative slowness and lack of accuracy of their missiles. It may also mean that they have significantly less payload and less yield than has been believed.

Would you comment on this?

Mr. MILLER. This was true in the older systems, such as the SS–11 and the SS–9, and the SS–13. However, the newer systems, the 16 through the 19, have a higher beta vehicle. But they do appear to have a somewhat [security deletion].

We are trying, at the present time, based on some recent data that we were able to get—in other words, when some [security deletion] that we had in the broad ocean area—while we have been getting some indications that maybe they do have a [security deletion] it is beginning to look like the Soviets may [security deletion].

Senator PROXMIRE. That was the point of my question, [security deletion]. My question is, does it contribute to the relative slowness and lack of accuracy of their missiles?

Mr. MILLER. That portion is not true, no, sir.

Senator PROXMIRE. It's not true—why not?

Mr. MILLER. Because you still have a high beta vehicle; in other words, you still have betas around 1,500, so consequently I am getting a rapid passage through the atmosphere and it has not affected the accuracy that much.

Senator PROXMIRE. Does it affect the payload? How?

Mr. MILLER. It does affect the yield, however. It may.

Senator PROXMIRE. It may affect yield and payload?

Mr. MILLER. It may affect yield, yes, sir. But that I do not want to say positively as yet, because that is a study that is ongoing. We are still trying to determine what this means as far as Soviet technology is concerned.

SOVIETS USE STORABLE LIQUID FUEL

Senator PROXMIRE. Can you explain why the Soviet missiles still use storable liquid fuel when U.S. missiles use solid fuel?

Mr. MILLER. This has always been kind of an anomaly in my mind because the Soviets were some of the grandfathers of solid propellants. However, when they went to their ICBM's, their large systems, they started out in the liquid area, as we did, based on the German technology. They have stuck to this technology, and even though they have tried and do have a solid propellant ICBM operational at the present time, they have had problems with it.

Senator PROXMIRE. So this would be another example of technological lag, at least in the solid fuel area?

Mr. MILLER. Yes, sir. They have a very large R. & D. program in solid propellants going on, but they just have not been able to make it pay off.

T–72 TANK COMPARABLE TO M–60

Senator PROXMIRE. Isn't it true that the new T–72 Soviet tank is about as good as our M–60, but inferior to the XM–1 tank we are

developing, and also inferior to the West German Leopard II tank that is used in NATO forces?

Mr. MILLER. I can only talk about that peripherally, but what you say it is my understanding is true.

General WILSON. I believe you said that it is better than our M–60, was that it?

Senator PROXMIRE. No; I said about as good as our M–60, and inferior to the XM–1 tank which we are developing, and also inferior to the West German Leopard II tank used in NATO.

General WILSON. I think that clearly it is inferior to the XM–1. There is no question there.

Here I would have to go back to obtain data to substantiate my point. My feeling is that we regard it as perhaps a bit more advanced than the M–60.

The early version of the Soviet T–62 was slightly behind our M–60. One of its great difficulties was the fact that it was underpowered; that is, that at a certain angle of incline, it could not pull its own weight. This has been corrected with this tank, which is now many horsepower more powerful.

Senator PROXMIRE. How does it compare with the Leopard II?

General WILSON. Favorably, very favorably. I don't have the immediate figures in front of me.

Senator PROXMIRE. Would you say that it is superior, inferior, or about the same as the West German Leopard II?

General WILSON. I would be inclined to put it as inferior to the Leopard II; better than our M–60, and slightly inferior to the XM–1.

U.S. ANTITANK WEAPONS SUPERIOR

Senator PROXMIRE. Do you agree that our antitank weapons, such as the Dragon, Tow, and Hellfire missiles, are superior to theirs?

General WILSON. Yes, sir, I do.

LASER-GUIDED ARTILLERY SHELLS SUPERIOR

Senator PROXMIRE. Do you agree that while the Soviets have deployed more artillery tubes in the European theater than we have, that our laser-guided artillery shells and other precision-guided munitions are superior to theirs?

General WILSON. Yes.

SOVIET TACTICAL AIRCRAFT IMPROVED

Senator PROXMIRE. Isn't it correct that while the Soviets have improved their tactical aircraft in the European theater in recent years that we have improved our tactical aircraft even more so; that ours are still superior overall; and that our newer aircraft, such as the F–15, F–16, A–10, and the F–111, promise to widen the gap further in the near future?

General WILSON. I think that we currently have and will continue to have in the future a decided qualitative edge over the Soviets in aircraft, particularly the fighter aircraft.

We have fewer, of course, but our quality edge is decidedly there.

Navy-Bloc Obsolescence Problem to Soviets

Senator Proxmire. I understand that the Soviet navy has a serious bloc obsolescence problem. Is it true that about 50 of their 250 major combatant ships are destroyers and frigates built in the late 1940's and early 1950's; that an additional 24 *Kotlin* class destroyers were built in the mid-1950's, and that about 12 *Sverdlov* cruisers were built in the early 1950's?

General Wilson. I don't know if we can handle that arithmetic right now. There is a lot of arithmetic there, sir. We would prefer to check that one out and give you an answer as quickly as possible.

Senator Proxmire. All right.

[The following information was subsequently supplied for the record:]

Of the 228 active and [security deletion] reserve principal surface combatants, one light cruiser was built in 1949, about 37 destroyers and 38 frigates were built from 1950 to 1955; an additional 26 *Kotlin* destroyers were built from about 1954 to 1958 and about 12 *Sverdlov* cruisers from 1951 to 1955. However, obsolescence does not appear to be a large problem.

The Soviets have retained principal surface combatants on active service for 20 or more years. For certain types of missions, these ships, though old, are more than adequate. A modernization program has also been underway and the Soviets have been providing older units with improved engineering, weapons, and electronic systems. For example of the 37 destroyers, about 8 were modernized from 1956–60. Of the 26 *Kotlin's*, 11 were modernized during the early 1960's and an additional 8 were converted to guided missile destroyers from about 1961 to 1971. Of the *Sverdlov* class cruisers, one was converted to a guided missile cruiser in 1960 and two others were upgraded in 1971 and 1972. Additionally, there is a continuing replacement program for older units. An average of two new guided missile cruisers and two to four destroyers are added to the inventory yearly.

Senator Proxmire. Is it correct that these obsolete ships are armed with relatively ineffective 3-inch and 5-inch guns, have no missiles, have seaworthiness problems, and are mostly kept in port or home areas and are rarely seen at sea?

Mr. Miller. That's partially correct.

Senator Proxmire. [Security deletion.]

Major Wallace. [Security deletion.]

U.S.S.R. Amphibious Capability

Senator Proxmire. Can you also tell us whether their present amphibious capability is limited to coastal areas and are primarily intended to protect against invasion and access to blue water?

Mr. Miller. It appears so, yes.

Soviet Naval Support Lacking

Senator Proxmire. Isn't it also correct that the Soviet Navy lacks underway replenishment ships and that their combatants have very little support at sea, little capability for sustained projection of force over long distances, and that it appears to have one primary mission; that is, to counter U.S. forward based systems, such as attack carriers that support their nuclear missile submarines?

Major Wallace. On the underway replenishment, that is one of their weaknesses. But they are taking some steps to improve that.

As far as their broad ocean mission, that is their objective, and I think some of the newer ships they are building may go toward solving that problem.

General WILSON. I have a further comment.

I believe, Senator, that this is a situation that they are seeking to change. We see evidence in their programs that they are much more aware of this, or are certainly sensitive to this. So, you are looking at a situation which is currently changing before you in this area.

Senator PROXMIRE. It is changing, but how would you characterize it at the present time?

General WILSON. At the moment, it is still an area of deficiency, but an area in which they are improving.

FEWER STRATEGIC SUBMARINES AT SEA

Senator PROXMIRE. In his current posture statement, General Brown, Chairman of the Joint Chiefs of Staff, says that the Soviets have only about 11 percent of their strategic submarines at sea at any one time, while we keep over 50 percent of ours at sea.

Does this mean that the Soviets are having technical problems with their submarines, that they fear they are vulnerable to attack at sea? How do you interpret this low readiness in alert rate?

Mr. MILLER. You are absolutely correct. There is a very limited number of ships at sea on patrol. The exact reason for this is not known to us.

They do appear to have some small deficiency. [Security deletion.]

However, another thing that you will find is that the Soviets have a slightly different philosophy. In other words, we don't see a large number of ships on patrol. [Security deletion.] They seem to be of the opinion that they will have an adequate warning time to bring their force up to peak strength in a crisis situation.

Senator PROXMIRE. Doesn't that contradict our own experience, whether it is aircraft, navalcraft, or land equipment, that if you don't have your weapon systems in use and on some kind of work or patrol, that you are less likely to have an effective readiness, whatever your expectation is, as to warning time?

Mr. MILLER. Yes, sir.

General WILSON. Yes; that is certainly so.

U.S.-SOVIET ICBM READINESS

Senator PROXMIRE. I am also informed that Soviet ICBM's are kept at only [security deletion] percent readiness, compared to 100-percent readiness for U.S. missiles.

Can you verify that figure and explain why it is so low?

Mr. MILLER. That is our understanding. We cannot prove it one way or the other, but the indications are that they only have [security deletion] percent of their force on peak readiness alert. The rest of them are in what we call condition II [security deletion].

Senator PROXMIRE. Does the use of storable liquid fuel have anything to do with that, as far as you are concerned?

Mr. MILLER. No, sir. These are storable noncryogenic fuels and they don't need to be topped off or anything else. In other words, the missile can go. [Security deletion.]

Soviet Tank Readiness

Senator Proxmire. Is it also correct that Soviet tanks are kept at only about 33-percent readiness, and that as much of two-thirds of the Soviet tanks assigned to combat units are actually kept on blocks? If so, can you explain why they do this and the significance as far as a surprise attack is concerned?

Mr. Miller. That's a new one to me, I'm sorry.

General Wilson. That's a new one on me, too. I cannot substantiate that, Senator.

Senator Proxmire. Let me take it piece by piece.

Our information is, or at least there are allegations to this effect, though I don't know the source or its reliability, that Soviet tanks are kept at only about 33-percent readiness.

Is that not true?

General Wilson. I cannot substantiate that. My own feeling is that it is higher, though how much higher I don't know. I would be delighted to research that one.

Senator Proxmire. Please give us what you can for the record.

General Wilson. Yes, sir.

[The following information was subsequently supplied for the record:]

It is estimated that a large number [security deletion] of tanks in Soviet combat units are maintained in a short-term storage status at any given time. The Soviets rarely store tanks on blocks, the technique primarily used for storing wheeled vehicles. Soviet tank regiments normally have [security deletion] tanks that are used regularly for training. These storage and training procedures result in a reduction in maintenance and repair parts requirements in peacetime and allow for the availability of a maximum number of low-mileage battle tanks in case of hostility. Tanks maintained in unit storage can be made ready for combat without delay [security deletion].

Senator Proxmire. The question continues—also that as much as two-thirds of the Soviet tanks assigned to combat units are actually kept on blocks?

General Wilson. I do not believe that that is so, [security deletion].

Senator Proxmire. Well, when you give us that for the record, if it is anything like that, please give us whatever explanation that you can.

General Wilson. Well, of course.

U.S.–Soviet Ship Deployment

Senator Proxmire. I am informed that the Soviets deploy only one out of six ships at sea, compared to one out of three, if we use U.S. ships, and that of those at sea, many more Soviet ships are kept at anchor than are U.S. ships. Can you confirm those figures and explain their significance in terms of readiness?

General Wilson. I think that that is generally correct.

Senator Proxmire. What is the reason for that much higher degree of inactivity?

General Wilson. It is probably related—and here I am theorizing, although I think on an informed basis—to a central concept of economizing on the wear and tear on the ship, [security deletion].

Soviet Flight Hours Compared

Senator Proxmire. Is it correct that the number of flight hours per month for Soviet aircraft in Europe is about [security deletion] of the U.S. Air Force in Europe?

General Wilson. Theirs is significantly less than ours. What I am trying to do sir, is to refine the answer.

Senator Proxmire. What is the number of flying hours per aircraft—is that [security deletion] of ours?

General Wilson. Again, sir, your question is a good question and will drive us right back to our books. We will have to get an answer for you.

Senator Proxmire. You see, all of these figures on a low-readiness or low-alert factor suggest that they do not seem, at least, to have any plan for action. Maybe I am wrong about that. I would like to get some explanation for that situation.

I have heard our forces criticized for being unready.

General Wilson. Yes.

Senator Proxmire. I believe when Senator Nunn and Senator Bartlett went to Europe, they were concerned and shocked at our lack of readiness and they came back with an appeal for us to be more ready, more alert, more in action than we have been.

General Wilson. We chastise ourselves very severely in these areas. We have been criticized and then we criticize ourselves [security deletion] and maintain that the Soviets keep theirs loaded in a position of greater readiness.

I fathom the thesis or the thrust of your line of questioning very, very well, and I find it fascinating. I want to deal with it as substantively and as soundly as we can. I see exactly what you are after.

Some of the questions that you have posed I have not been faced with before.

Steaming Hours of Soviet Ships

Senator Proxmire. Will you provide for the record a table showing the number of steaming hours per month of Soviet ships in the Mediterranean and in the Pacific; the number of flight hours per month for Soviet frontal aviation in Europe?

General Wilson. Yes, sir. I think we can provide that kind of information. Do you want it for the total number of ships in the area, the 8th Squadron, the 5th Squadron, and so on?

Senator Proxmire. That's right.

General Wilson. All right, sir.

[The following information was subsequently supplied for the record:]

Data compiled on Soviet ship employment reflect the number of days in which a ship or submarine is deployed in an ocean area, regardless of actual employment. The following tables, including all naval and naval associated ships, illustrate the employment of Soviet naval forces, by ocean area, since 1965, with a monthly tabulation from January 1976 through June 1977. It should be noted that ships at anchor must maintain ship's power for housekeeping, ship's services, and underway readiness unless the engineering plant is shut down for repairs, in which case a support ship provides the necessary utilities.

TABLE 1.—SOVIET OUT-OF-AREA SHIP-DAYS

	Atlantic	Mediterranean	Pacific	Indian
1965	1,300	3,500	900	0
1966	2,900	5,100	1,100	0
1967	5,400	9,100	3,600	200
1968	5,500	12,100	4,200	1,200
1969	9,500	15,800	5,900	4,100
1970	14,000	17,800	7,100	4,900
1971	15,200	19,100	6,200	4,000
1972	16,100	18,000	5,900	8,900
1973	14,400	20,600	6,300	8,900
1974	15,100	20,200	7,400	10,500
1975	14,300	20,000	6,800	7,100

TABLE 2 [SECURITY DELETION]

Monitoring of all monthly flying activity conducted by each Soviet combat unit throughout Europe [security deletion] based on data acquired on the activity of several Soviet units in the German Democratic Republic, we estimate that monthly utilization is [security deletion] hours for single-seat primary combat aircraft and [security deletion] for the two-seat trainer aircraft. Since training flights consume [security deletion] each single-seat primary combat aircraft will be used for [security deletion] sorties per month. While sorties are of short duration in comparison with U.S. experience, the Soviets are known to employ extensive premission planning to maximize the value of each sortie.

Civil Defense Program in U.S.S.R.

Senator Proxmire. The CIA concluded that although the Soviets are engaged in a significant civil defense program, they do not possess a civil defense capability that would enable them to feel that they could absorb a U.S. retaliatory strike, with a reasonable expectation of limiting damage to an acceptable level. This is a little different from what you said in your presentation.

In your presentation you indicated that in your judgment—and I think this is a judgment of the Defense Department, as I understand it—they would not be able to absorb a nuclear strike by this country or a retaliatory strike by this country.

General Wilson. That is correct.

Senator Proxmire. But our judgment may be different from theirs.

Do you have any notion of their own judgment? Do they feel confident that they could absorb it?

General Wilson. May I give you about 30 seconds followup on this one?

Senator Proxmire. Fine.

General Wilson. The Soviet civil defense effort is a serious effort in terms of numbers and the quality of the people assigned to these programs.

One of their most capable senior general officers, General Altunin, is running it. I know him personally and I know some of his deputies, and they are simply first-class people. In other words, the investment of talent is there.

My own feeling is that they are proceeding well in the development of the plans and the kind of program for an effective civil defense posture out in the future, perhaps by the mid-1980's or even later, but that in terms of actual achievement on the ground, including and

involving participation by the civil populace in practice evacuations and so on, we see relatively little in the way of performance.

So, I think that it is a program which obviously we should watch very carefully; but it is some distance yet from fruition and from that crossover point where it has become a significant factor in our strategic equation. It is also one that I have discussed with Soviet officers, and their stock answer, which is one that is very difficult to step away from, and this has occurred in the past months, is:

Look, Wilson, why are you excited about our passive civil defense program? If we decide to dig holes and build shelters simply to protect ourselves, we do not see how on Earth you can regard this as provocative.

It is rather difficult to answer that kind of question framed in that fashion.

Senator PROXMIRE. Very good.

That is very helpful.

The CIA also concluded that the Soviet civil defense effort does not necessarily mean that it is planning to initiate war, but it does appear to be thinking through the consequences, should such a war occur.

Would you agree with that?

General WILSON. Yes; I think that is sound.

Senator PROXMIRE. Do you believe that the Soviet civil defense program or any evidence indicates that they are building a planning capability for a first strike?

General WILSON. I don't think that that judgment can be made, yet, and so the answer at this time would have to be no.

It is certainly one that we continue to watch to see if the answer begins to change. At this juncture, no.

SOVIET QUALITY CONTROL IN DEFENSE PRODUCTION

Senator PROXMIRE. The testimony of June 23 showed that the Soviet approach to meeting quality standards in defense production is one of "brute force," an inefficient method characterized by high levels of production.

Do you agree with this description of Soviet quality control?

General WILSON. I generally agree, although I think the statement is a little too simplistic.

Mr. MILLER. You are right.

General WILSON. I generally agree, but it is kind of abstractly simplistic. I think it is a little too all encompassing. They work at this problem of quality control rather hard and not too successfully; but to sort of lump it all under the two words "brute force" is to me stating it a little too far.

Senator PROXMIRE. If they are trying make up in quantity what they lack in quality, does that not mean that some of their numerical increases in weapons do not represent an increased effectiveness?

General WILSON. Again, we see in such systems as the [security deletion] copies of which we have had access to and have been able to [security deletion] evidence of some high quality, particularly in those items that make the difference in performance characteristics.

So, while there is a great deal to what you are saying, there are some exceptions, I think, that we have also to be aware of.

Senator PROXMIRE. General, that is a rollcall. I will go to vote and will return in about 12 minutes.

General WILSON. Very well, sir.

[A brief recess was taken.]

Senator PROXMIRE. General and gentlemen, I hope we can complete this hearing now, though we might have another vote right away.

QUANTITY AS A SUBSTITUTE FOR QUALITY

Isn't it true that the "brute force" approach to quality control means that some of their estimated ruble spending can be attributed to inefficiency, and would this not also be true of the estimated dollar cost of their defense program, to the extent that additional numbers of weapons are being bought as a hedge against quality control deficiencies?

General WILSON. Mr. Miller, why don't you take a stab at that and then I will follow up behind you?

Mr. MILLER. I believe you are right.

In other words, the fact that they are buying more than they need and that we have a hard time finding targets for all of the weapons that they have available today would probably tend not to exaggerate their ruble cost, because they are spending money, but to say that——

Senator PROXMIRE. But it would explain part of the ruble cost?

General WILSON. It would explain part of it.

Senator PROXMIRE. Perhaps as much as half the ruble cost, something of that kind?

General WILSON. I would think that that is a little high.

Let me turn to my economics expert.

Mr. MICHAUD. As I understand the question that you are asking, it is whether they are making up for quality by increasing quantity?

Senator PROXMIRE. Right.

Mr. MICHAUD. If they are doing that, then we would have to say that the higher values are yes, in a sense duplicative or excessive—if we are simply talking about a greater quantity in order to make up for quality.

Senator PROXMIRE. All these things, of course, have to be estimates.

What I have in mind is that we are always seeking for some explanation when the Soviet Union, our principal adversary, is greatly increasing its expenditures and showing, as it shows so dramatically in the charts [indicating] superiority over this country in the amount it is spending and the quantity of weapons and so forth that it is producing.

The question is, is one motivation for that a recognition that they do not have the quality that we have, the accuracy, the reliability that we have in some of our weapon systems, and that they are making up for that in quantity, rather than in reaching for a position where they have clear superiority and are therefore in a position for a first strike? As I said, this has to be an estimate.

General WILSON. Senator, again, you are asking very good questions, and they lead into some very useful realms. For example, that particular one I think has a certain basis in Soviet military theory and strategy, specifically in their concept of what constitutes the necessary superiority.

I would like to elucidate on this a little because I think it is helpful and useful to get into it.

We are inclined to feel that when we approach a position vis-a-vis an adversary where we are even with him, where there is parity, or, as we would say, even-steven, we are comfortable with that kind of arrangement, because we have confidence in ourselves and in our materiel, in the quality of our equipment.

That kind of a situation with which we are reasonably comfortable, parity is one that tends to drive the Soviets up the wall. Furthermore, in Soviet as well as in Russian military history, they have so often been defeated by numerically inferior but higher quality forces. Thus, their concept of what constitutes the necessary numerical superiority is totally different from our own. We teach, in our service schools and colleges, that when you have, generally, a 3-to-1 superiority in, say, ground forces over your ground force enemy, the situation is propitious for you to launch your attack—where you have that superiority.

In my view and in that of a number of others who have followed Soviet matters, they begin to be comfortable when they reach the point of [security deletion] or even [security deletion].

So, I think your question has a great deal of relevance and is further borne out historically in the Soviet approach to military problems.

Soviets Lack Value Engineering

Senator Proxmire. Admiral Turner testified that Soviet weapons show a lack of any systematic effort to value engineer their weapon design; that is, to adjust basic designs to lower production costs without denigrating performance and so forth.

Do you agree with that conclusion?

General Wilson. It goes a little further than I would go, but again, let me turn to my specialist colleague.

Mr. Michaud.

Mr. Michaud. Will Mr. Miller address the value engineering part of it first?

Mr. Miller. Yes.

We have seen some evidence in some of the exploitation——

Senator Proxmire. I suppose everybody does that to some extent. We probably do it, too. After all, if you find that a design is prohibitively expensive, you are going to try to simplify the design and maybe reduce the quality a little bit and knock out some of the "gold painting." The question is whether or not they tend to have to do that quite a bit.

Mr. Miller. The Soviets appear to tend to do that and to have to do that. You have to consider that they bring the so-called peasant out of the field and into their army. So, they go to a simplistic approach so he does not have to have that much training in order to operate the equipment. So, consequently, the designs, their operational capabilities tend to be much simpler. I think that this tends to reduce their quality many times.

Senator Proxmire. Perhaps I misinterpreted Admiral Turner.

I am told by Mr. Kaufman that Admiral Turner's position was that they show a lack of any systematic effort to value engineer their equiment's design; that once they get a design, they tend to stick with it.

General WILSON. I would have to debate that a little in this connection, if I may, sir. Let us use the [security deletion], the [security deletion] as an example.

We found that many of the components largely preipheral to the ultimate operational performance of the aircraft were indeed rather crude. But we found that those specific components which were critical to the ultimate performance of the aircraft were well done. I think this is a feature that we frequently find in their weapon systems and their aerial platforms, where the specific component that makes the difference in ultimate performance may be quite well designed.

Would you support that?

Mr. MILLER. [Security deletion.]

This is just one example of value engineering to improve the pilot after it has gone into the field.

Senator PROXMIRE. Well, to the extent that there is an absence of value engineering, is that another indication of inefficiency in Soviet defense production?

Mr. MILLER. Yes.

Senator PROXMIRE. You just pointed out that there is?

General WILSON. To the extent that there is, most definitely, yes.

CIA RUBLE SPENDING ESTIMATES QUESTIONED

Senator PROXMIRE. Your use of the Peking Review and statements by Soviet leaders to estimate Soviet defense spending in rubles suggests some dissatisfaction with the CIA ruble spending estimates. This, of course, is a nonanalytical approach in that you are simply taking a few general statements by Soviet leaders, [security deletion] and what appears in a Chinese magazine, to construct an entirely different set of figures than those developed elsewhere in the intelligence community.

What level of confidence do you place in the Peking Review, Soviet leaders [security deletion] figures compared to the estimates made by the CIA?

General WILSON. I don't feel that we are very far apart from the CIA. We are talking of 11 to 13 percent, as opposed to 14 to 15 percent. As I indicated to you last year, while earlier there had been some contentiousness between ourselves and the CIA, that has all but disappeared.

Senator PROXMIRE. That marginal difference is very considerable. In terms of rubles, it is several billions of rubles.

General WILSON. Yes, sir. I will come immediately to that. [Security deletion.]

Senator PROXMIRE. [Security deletion.]

General WILSON. [Security deletion.]

U.S.-SOVIET BUDGET AND GNP COMPARED

Senator PROXMIRE. How does their government budget compare with their GNP? Is it a very large proportion of their entire GNP? Obviously there are few things on the outside. I understand that they have private plots and little agricultural operations, but it is such a highly government-dominated society. [Security deletion.]

General WILSON. No, not in this case, not GNP.

Senator PROXMIRE. Well, as I said, the Soviet economy is a socialist economy, and I mean an overwhelmingly socialist economy so that virtually everybody works for the government. There is not a great deal of production outside. In our economy, only 20 percent is the Federal share of the economy, and the combined Federal, State, and local government share is only about 35 percent. The private sector is a big share in our economy. In their economy——

General WILSON. The Government share would be a larger share.

Mr. MICHAUD. It is about 35 to 40 percent.

Senator PROXMIRE. 35 to 40 percent is private? Is that what you said? That would be very surprising.

Mr. MICHAUD. The government state budget is 35 to 40 percent of the GNP, what we estimate as GNP.

Senator PROXMIRE. What is the rest? Is the rest provincial?

Mr. MICHAUD. Well, it is consumer spending in the private sector, industrial output, private consumption, investment.

Senator PROXMIRE. In other words, they have the same as we have? That would be astonishing. Our Federal is about 20 percent, and our State and local account for another 15 percent, so our total governmental sector is about 35 percent. Are you saying that theirs is the same and that their private sector is as big as ours, proportionately speaking?

Mr. MICHAUD. That's right. Senator, I am not familiar with the U.S. statistics, but that is the case in the Soviet Union. The total state budget, which incorporates all the republican budgets, amounts to 35 to 40 percent of what we estimate as GNP.

Senator PROXMIRE. Well, OK. I think I have gotten off the point a little bit. I would like maybe to get into that at some time, too.

General WILSON. If I could just continue for a second, sir, the statement used by [security deletion] alleged to have been made by [security deletion] has been used by the CIA as well as by us. It resulted in an increase in their original estimates.

The [security deletion] source, which we listed, [security deletion] and resulted in their revising their previous estimates considerably. So, we have worked with the same data, the same information. We have reacted to it, I think, a little more vigorously than they have.

Senator PROXMIRE. [Security deletion.]

General WILSON. That is about where we are, that is right, sir.

[Security deletion.]

The big thing that I wanted to get across to you is that we do work very, very closely with the CIA. We share the same data and make contributions to the same common goal, and we come out at the end somewhat differently, but nowhere near as divergent as we were some several years ago.

SOVIET CIVILIAN AND MILITARY COSTS

Senator PROXMIRE. You mentioned the tendency for the military costs to be absorbed by civilian sectors in the Soviet economy. Would you also agree that some civilian costs are being absorbed by the military? For example, Admiral Turner talked about the huge number

of military personnel and military trucks used in the annual grain harvest.

General WILSON. There are several areas where they are used in this way, sir.

Senator PROXMIRE. Many experts believe that the military is used in road and other construction projects. Some characterize the military as a national manpower training program in view of the high turnover of conscripts. What is your view?

General WILSON. This is absolutely correct. I can give you further examples in detail, if you would like.

Senator PROXMIRE. It is pretty hard, then, to ascertain with any degree of accuracy the actual amount of defense; is that right?

General WILSON. Extraordinarily hard.

U.S.-SOVIET RELATIONS AND DEFENSE INTENTIONS

Senator PROXMIRE. I would like to ask you a general question on the views of Soviet officials on United States-Soviet relations and defense intentions based on your recent conversations in Moscow.

General WILSON. I would be glad to give you several highlights, sir, and to pursue this in whatever detail you would like.

Senator PROXMIRE. Unfortunately, there is a rollcall vote. Perhaps if I stay for another 6 or 8 minutes, we can wrap this up. I do not want to detain you. I think we should be just about through.

Go ahead, please.

General WILSON. I made a couple of notes in case you raised this question. Let me just select from them.

[Security deletion.]

It is quite clear that they have hardened their position against Americans and that they are increasingly critical of the Carter administration. I have what are almost some quotes here. They say that President Carter's stance on human rights, especially his letter to Sakharov and the White House visit by Bukovsky, they regard as deeply offensive and, to a degree, I sense that they regard it as threatening to them.

The Soviet leadership was insulted by the President's comment that "Some people worry every time Brezhnev sneezes." They maintain to me that the U.S. SALT proposal made earlier in February, was too one sided to be a serious proposition, and this was why they reacted sharply; but that, however, in the long run—and this is a deduction on my part from a more involved conservation—SALT is more important to the Soviets than the present human rights turmoil and that arms negotiations are eventually going to stand or fall on their own merits, and that human rights as a subject becomes a certain amount of smoke hanging over a more serious subject.

[Security deletion.]

Senator PROXMIRE. Did you notice any concern about the B–1?

General WILSON. Yes; some.

Senator PROXMIRE. But it was more about the cruise missile?

General WILSON. [Security deletion.]

I won't go on with this too far, unless you wish to pursue it.

[Security deletion.]

The big event while I was in the Soviet Union was the declaration and sort of final verification of a complete split with the Communist Chinese, signifying that the Soviets would no longer endeavor to try to effect reconciliation in the short run, in the post-Mao tse-Tung period. I regard this as one of the most significant events of the past 12 months, this confirmation of the break.

Continuing further, some of my Soviet colleagues or former colleagues were quite critical to me of comments that I had made publicly, such as the comments that I made before you last summer, which they very carefully obtained from the sanitized record. They were particularly agitated at my comments before one of the other committees, where I had said I believed the Soviets were shifting to a goal of attaining strategic superiority. They were just incensed on this point.

We reminisced a bit one particular evening with three general officers about how well we had made out as allies during World War II, and they said, "You know, what we really need is a common enemy." I did not say at that point, "Do you mean the Chinese?"

I asked one senior general, "Would you accept 'obshaya tsel',' a common goal, instead?" He reflected for a moment and then said quietly, "Of course, you are right. That is really what we ought to go for."

I was struck by one comment by a very intelligent Soviet, and it will strike you, too, I believe. He said, "Our mistake in viewing you Americans is that we tend to view you in our own terms." For the life of me, although I am fairly fluent in Russian, I could not think of the words for "mirror-imaging," as we would use it. But I was struck by the fact that they seem to suffer a bit from the same dilemma.

I asked a group of four senior Soviet officers, one marshal and three senior generals, what did they think of the present American administration and the manner in which President Carter was conducting his affairs, vis-a-vis the Soviet Union. There was a moment of silence, and then one of the individuals stuck his chest out and stepped forward, as though he were speaking for the group, and he said, "Lyudi naivnie," or "They are naive people." "Nam nado terpet'," or "We must be patient." "Poka oni ne uchat'sa," or "While they continue to learn."

Senator PROXMIRE. That sounds like a Republican reaction. [General laughter.]

General WILSON. The Soviets felt at the time that I was there, since they had not heard from this administration on the human rights issue for——

Senator PROXMIRE. General Wilson, excuse me. This is so good that I want to get it completed, and I also have a few more questions.

If it is all right with you, I will leave now and go to the floor to cast my vote. I will be right back.

General WILSON. I am at your service, sir.

[A brief recess was taken.]

Senator PROXMIRE. General, please go right ahead.

General WILSON. Obviously, sir, this could be quite extensive. I will just single out two or three more and then I will respond to anything else you would wish to raise.

[Security deletion.]

U.S.-Soviet Submarine Crews Compared

Senator Proxmire. Is there any comparable statistic on U.S. submarine crews with something like this? Do we have any problem at all of that kind?

General Wilson. You know, I don't really know.

Senator Proxmire. It just seems to me that the isolation that many people have, even the wives of U.S. Senators, when you are away from your family a lot, the divorce rate goes up, which is an unfortunate fact of life.

Incidentally, the Senate Banking Committee that usually meets here has a very high divorce rate. It is related perhaps to how hard we work.

General Wilson. Yes, sir.

Senator Proxmire. I hope it is related to that.

General Wilson. The cramped quarters and the more spartan living arrangements on Soviet ships, as well as in Soviet submarines, I think also contribute to the morale problem.

We do, as you are fully aware, make our people a great deal more comfortable. For the Soviet pilot and crews it is quite different in the cockpit of an aircraft, driving a tank. In the T–62, for example, only a left-handed midget really can handle the manual loading problem. So, the Soviets do sacrifice a great deal in human comfort in their systems.

Senator Proxmire. I see.

General Wilson. This can certainly be seen in the submarines.

[Security deletion.]

Senator Proxmire. Is that a great change from what you have had in the past, do you think, or is it pretty much the same kind of military phenomenon?

General Wilson. I think one of the great dilemmas in the Soviet Government is the inability to succeed themselves smoothly, to effect this kind of smooth transition.

Soviet Military Elitism

Senator Proxmire. My question is that you referred to the fact that you are going to see a period of military force and domination, military elitism, and to what extent does that represent a change from what the Soviet Union has had for the last 50 years?

General Wilson. I think there was a similar peak, following the death of Stalin, to what I have referred to here. There clearly was a peaking of this when Khrushchev successfully wrested power away from Malenkov, and again when Khrushchev was ousted in favor of Brezhnev. The military in this case represents the power that the contender wants to have in his corner. So, while the military occupies an elite position in Soviet society overall, it achieves a rather singular prominence during that period. So, this would be a repetition.

Since we are approaching, because of Brezhnev's health and age, a probable changeover from Brezhnev, I think that this is the kind of reminder that it is useful for us to reflect on.

Senator Proxmire. Very good.

General Wilson. I have one other point, Senator.

[Security deletion.]

Senator PROXMIRE. I might also add how do the heads of state determine their posture, their position, their attitude, and their willingness to cooperate. This, of course, depends upon the number of people in the Soviet Union in the military and on a number of power party people, I am sure, and in this country it depends upon the position of the President vis-a-vis his Cabinet, the Congress, the press, and the leaders in the public generally.

General WILSON. I think they make a major contribution.

In this same connection, when I talked with another Soviet, he said—and you have heard this before, but sometimes it is useful to see how it is perceived by Soviets and others—"the U.S. political process is an obstacle to progress in this area." He said, "It takes you 1 year for a new President to get up to speed, and then you lose the last year during the election campaign, so you lose continuity."

I said, "Well, that is the price we are going to continue to pay for the kind of system that we support."

[Security deletion.]

I have one last comment from another Soviet concerning the SALT proposals earlier this year. He said that they believe that our initial proposals were driven largely by international and domestic politics, rather than by serious proposals for discussions between the two countries.

SOVIET ECONOMY VERSUS MILITARY STRENGTH

Senator PROXMIRE. General, either you or your economic expert might respond to this. I have been, as is this committee, very interested in the Soviet economy, particularly the Soviet economy as it relates to the Soviet military strength. Of course, a major component in the strength of any country, whether it is China, the United States, the Soviet Union, Italy, France, you name it, is the strength of its economy, the capacity for growth in the economy, the technology of the economy, and so forth.

Could you or your economic expert give me any notion on the change in the Soviet Union? Is their economy growing? Is it growing at a satisfactory rate? Is it affected by any agricultural development, for example, or any elements that we should be aware of? Say, in the past year or so, is there anything that we should know about?

General WILSON. I would like to do this in two parts, if you don't mind, sir. I will turn first to Mr. Michaud, and then I believe I have some notes that I brought back from the very last trip that I would like to highlight quickly on this same subject.

Senator PROXMIRE. Very good.

Mr. MICHAUD. There seems to be a general consensus that the long-run trend of a declining growth rate in the Soviet economy is going to continue into the 1980's. There is no indication——

SOVIET GROWTH RATES

Senator PROXMIRE. What rate of real growth do you estimate, then?

Mr. MICHAUD. This is fairly difficult. It depends on so many things.

We are talking now in terms of this 5-year period, 1976 to 1980. The Soviets are planning about 4–5 percent of growth. They may not realize this. They may realize about 3.5 to 4 percent.

Senator PROXMIRE. Do you think 3.5 percent is a little more realistic estimate of what they will probably achieve?

Mr. MICHAUD. I think so. In the last 5 years, they realized about 3.8 percent, so it should be slightly declining in this 5-year period.

Senator PROXMIRE. They should grow at a slower rate than we would expect to grow? Our projection is substantially higher than that for this country, isn't it? I am talking about American growth as compared to their growth. If they grow at 3.8 percent, I think our expectation is that we would grow at about a 5 to 5.5 percent. Indeed, we will have to growth at a rate approximating that or we will have an unemployment increase.

Mr. MICHAUD. We are kind of in a trough, so our growth rate might be high for that reason. But, extending that into the 1980's, we expect that the actual Soviet growth rate may be as low as 2 percent. It could be as high as 3.5 to 4 percent, again, depending on conditions.

Senator PROXMIRE. 2 to 4 percent?

Mr. MICHAUD. I would say that 2 to 4 percent is the range of possibility for Soviet growth into the 1980's.

LABOR FORCE IN SOVIET UNION

Senator PROXMIRE. What about their demographic problems? Are they having problems with people getting older, with a smaller group of people coming into the work force?

Mr. MICHAUD. We know that to be the case. The demographic data for the labor force in the 1980's is now available. There is going to be a decline in the rate of growth of the labor force. As a matter of fact, in the 18-year-old group, in which we are particularly interested, there will be an absolute decline in the number of 18-year-olds by the mid-1980's. So, they are going to have problems in terms of the size of the labor force, unless they increase the age span, increase the age of retirement or lower the work age, something of this kind.

Senator PROXMIRE. What effect would this have on the military force? It seems to me that maybe it would have a direct effect. If the number of 18-year-olds is absolutely declining, then the opportunity to take prime-age people into the military force would diminish, and to the extent, of course, that they do concentrate so much of their GNP in the military, it means that they have to take it away from agriculture and industry, which are desperately in need of manpower, too. Isn't that correct?

Mr. MICHAUD. There are a lot of implications to this. They could reduce the length of time served by 18-year-olds in order to keep them in the labor force for a longer period of time—that is, 18- and 19-year-olds.

So, there are a lot of things, yes.

Senator PROXMIRE. But if they keep them in for a longer period of time, this takes manpower away from industry and agriculture.

Mr. MICHAUD. What I meant was to reduce the length of time. That was what I meant.

Senator PROXMIRE. If they reduce it, then that reduces their military manpower.

Mr. MICHAUD. Right.

Of course, they could use more females to perform some of the military duties. This is another possibility.

Senator PROXMIRE. How about their steel production, their coal production, their energy production? How does that appear?

SOVIET OIL PRODUCTION

Mr. MICHAUD. There is quite a bit of concern in regard to their energy production, particularly their oil production in the 1980's. As you heard from the CIA last week, they contend that their rate of oil production will probably decline in the 1980's, as the CIA prognostication at this time shows. We are not in full agreement with that. Other people seem to think that it will continue and not necessarily be a part of the problem.

Senator PROXMIRE. Do you disagree with the CIA on their estimate on oil production?

Mr. MICHAUD. I think I perhaps should refer to the general on this. I think that that is DIA's position at this time, that we do not believe that the rate of flow will necessarily decline in the 1980's.

There is very little information on this whole oil question at this time. There is a great deal of research going into these estimates as to the reservoirs that the Soviets are now exploiting. I think it will be some time before we can get a better fix on the whole situation.

Senator PROXMIRE. Nevertheless, your estimates, roughly, of growth coincide, I think, with the CIA's pretty closely, do they not?

You said about 3.8 percent growth would occur over the next 4 or 5 years; that it might decline to perhaps as low as 2 percent, perhaps not, to as low as 2 to 4 percent in the period of the 1980's; you don't disagree on that, do you?

Mr. MICHAUD. We are pretty much in agreement.

Senator PROXMIRE. What do you disagree on?

Mr. MICHAUD. On how much the oil crisis, if there is to be one, would contribute to that decline.

Senator PROXMIRE. How do you figure the slowdown? Is it primarily demographic? What are the reasons for the slowdown in the Soviet Union, do you expect?

SOVIETS BECOMING A MATURE SOCIETY

Mr. MICHAUD. The Soviets are becoming a mature society. As a result, the amount of investment that goes into replacement capital is increasing, as opposed to new investment. Their productivity of that capital in contributing to the total output, therefore, is not increasing as fast as it has in the past.

This is one of the factors, along with the labor situation.

Senator PROXMIRE. Do you see a slowdown, even if there is no crunch on energy and oil?

Mr. MICHAUD. Yes, sir, we see this. This is a long-term trend. It has been occurring over the last 15 years. We would expect that to continue. It is a question of degree at this point.

SOVIET DEFENSE BURDEN

Senator PROXMIRE. So, there is a tradeoff here, isn't there? To the extent that they continue to build up their military, it tends to reduce

their capacity to invest capital resources in the industrial and agricultural area.

Mr. MICHAUD. Our position has been that the burden rate has actually been increasing over the last 10 years. The CIA maintains that it has been constant.

Senator PROXMIRE. What rate is that?

Mr. MICHAUD. The burden rate, the share of the GNP. The CIA maintains that it has been rather constant over the last 10 or 15 years.

Senator PROXMIRE. I don't understand that term, burden rate. What is that?

Mr. MICHAUD. The share of the GNP.

General WILSON. Devoted to defense.

Senator PROXMIRE. Therefore, that burden has been an element in slowing down the growth, GNP growth?

General WILSON. Yes.

Mr. MICHAUD. Insofar as it has been an increasing burden on the economy, yes, we believe that it has contributed to it.

Senator PROXMIRE. Thank you, that is very helpful.

General, you had some observations for us?

General WILSON. Just to reemphasize this point, I think that they face a real dilemma to be able to sustain this kind of investment in defense that they have been maintaining all along. They will probably endeavor to do it and probably will carry it off. But it will cost.

Now, at the present time I have some brief notes taken from the streets of Moscow and from talking with our economics counselor in terms of the Soviet attitude toward the way their economy is performing. In brief, it goes this way.

U.S.S.R. CONSUMER COMPLAINTS

The Soviet economic performance generally is satisfying the Soviet people; however there are some areas that cause dissatisfaction. There are reports of food shortages, particularly in the outlying areas. The primary complaint at present is the lack of meat. You will recall, because of their harvest debacle in 1972, and again a couple of years later, they had to slaughter a number of their cattle and swine in order to divert feed grain for human consumption. This created a difficulty for them, and they are still suffering somewhat from a lack of meat.

For this reason, or partially for this reason, you can still see peasants getting on planes in the Fergana Valley and flying to Moscow with geese and chickens in their laps, and perhaps a basket of vegetables, which they will sell on the free market in Moscow. They will go back to the Fregana Valley, enjoying a considerable profit, even though they paid for their air passage. Since the airlines are so heavily subsidized, the price of the ticket is quite low.

The primary source of complaint in Soviet society concerning the economic situation, however, is the lack of adequate housing. This is a crucial dilemma. It often causes three, sometimes even four, generations of single families to live together in one very small apartment. Frequently a family will be living together in one single room.

On the other hand, Soviet automobile production is up to about 1.2 million cars a year, and many of these cars are being produced for

export, such as the Zhiguli, which is a version of the Italian Fiat. The Soviets themselves have increasing opportunities to buy automobiles, and the cars are fairly well built. Indeed, a number of our people buy the Soviet Zhiguli and the Soviet Volga, since they are fairly sturdy and well built.

The ordinary Russian is capable of some increased savings. He generally feels that in a relative sense his life is getting better. There are a few more consumer durables available than there were several years ago. The situation has certainly moved a lot since I was there as a student in 1950. Although selection in the consumer area tends to be quite poor.

Soviet Agricultural Expectations

On the agricultural front, it looks as though we may be facing a bumper harvest in the grain area this year, which is something that the Soviets truly "sweat out," if I may use that term, each year. This is partially a function of the manner in which they manage their agricultural cycle of production, as well as the effects of the climatological phenomena. But it is an area that can provide them with a crisis very, very readily if they have a failure in the grain area.

They are beginning to replace the swine, poultry, and cattle. The cattle count is now up 2 percent from the 1974 figure, so they are kind of digging themselves out from the results of slaughtering their livestock. But they still have not gotten back to the levels of 1975.

At the moment, government stability does not appear to be threatened by these types of shortages which are not sufficiently severe to have an undue impact on the attitudes of the general populace.

P.R.C. Intelligence on Soviet Defense

Senator Proxmire. Now I should go to the floor right away, but I would like to ask a few questions on China, because I do not want to neglect that.

Some experts believe that the Chinese orbiting satellites appear to be on intelligence-gathering missions. What capabilities do the Chinese have for gathering intelligence on Soviet defense by satellite or other means?

General Wilson. [Security deletion.] I would like to turn to Mr. Romance in this area, if I could.

Senator Proxmire. Mr. Romance.

Mr. Romance. Senator, in that regard, I would say that its capabilities right now are [security deletion]. It is very difficult to assess what their current capability is.

They have launched these satellites [security deletion].

Senator Proxmire. [Security deletion.]

Mr. Romance. [Security deletion.]

Chinese Defense—Modernization

Senator Proxmire. Despite some reports that the new Chinese leaders have decided upon a major military modernization program, I take it from your statement that you believe any upgrading or modernization will be evolutionary and long term, and, as you said, no dramatic change is expected in the near term. Is that correct?

Mr. ROMANCE. That is correct, Senator.

Senator PROXMIRE. I understand that China conducted four nuclear tests in 1976. Does this mean that it has accelerated its nuclear weapon development program?

Mr. ROMANCE. Again, I would characterize this as evolutionary and ongoing. They are, of course, slowly increasing their nuclear development capability, and again, they are slowly developing their missile delivery capability.

CHINA'S MILITARY IMPORTS

Senator PROXMIRE. Then you mention the elimination of opposition within the Chinese Government to imports of foreign technology and equipment and that they are obviously interested in imports from the West. Can you discuss whether China is now importing military equipment, and if so, the kind of equipment and the countries from where they are importing it, or whether negotiations for such imports are going on?

Mr. ROMANCE. There is some military equipment that has been imported in the last year, sir. They made a contract with the French on helicopters.

Senator PROXMIRE. Are they military helicopters?

Mr. ROMANCE. They have military application, sir.

The ones that were imported, a total of 12 under the contract, [security deletion].

Senator PROXMIRE. Are they getting any other procurements from overseas, such as military procurements?

Mr. ROMANCE. Military-related? Yes, sir, in the area of transport aircraft, they have gotten, for instance, the [security deletion], from the Soviets.

Senator PROXMIRE. How about actual weapon systems?

Mr. ROMANCE. [Security deletion.] But, other than those I just mentioned—the Super Frelon helicopter from France, [security deletion] contract, and the transports with military application, which in the case of the [security deletion] incorporated into the PLA Air Force—over the last year there have been none that I know of in the way of weapon systems.

CHINA'S SHIPBUILDING CAPABILITY

Senator PROXMIRE. Could you give us a brief summary or discussion of Chinese shipbuilding capability?

Mr. ROMANCE. Yes, sir.

It may be a paradox that they have more shipbuilding capacity than they are actually using and have been using over the years.

I suspect that one of the reasons they have not been employing the shipbuilding capacity that they have is because of a possible shortage of special steels.

Senator PROXMIRE. Military ships?

Mr. ROMANCE. Yes, sir, I am speaking now of military shipyards, naval shipyards. I suggest that the reasons are, one, perhaps that they possibly do not have the quality steels that they needed to build as many ships as they might want. A second reason is the paucity of trained manpower. If you would allow me, I think in that regard the

Chinese are their worst enemies, in the sense that during the Cultural Revolution higher education was decimated. Under radical influence, for instance, such things as exams were dispensed with, and quality standards in university education went by the boards. So, their cadre of trained technicians and so on suffered terribly. I think that that probably explains why in the area of shipbuilding, as an example, they have not built as many ships as they were physically capable of building.

China's GNP Compared

Senator Proxmire. I recall—and perhaps this is grossly in error, but it is a spectacular comparison and gives some indication of the military potentiality of the Chinese—that their GNP is about the equivalent of that of Italy.

Mr. Romance. It is in the area of $300 billion. Yes, sir.

I'm sorry, though, I don't know what Italy's might be.

Senator Proxmire. That is probably larger, but it is dwarfish as compared to ours, which is about $1.8 trillion.

Mr. Romance. Senator, would you allow me to pass on an interesting statistic in light of what you were discussing earlier about demographic trends in the U.S.S.R.?

[Senator Proxmire nods affirmatively.]

Demographic Trends in P.R.C.

Mr. Romance. As it relates to the military, each year Peking conscripts 800,000 youth between the ages of 18 and 24 for entry into the People's Liberation Army. That is drawn from a pool of 50 million Chinese youth in that age group, 18 to 24. So, if one compares demographic trends in China with those in the Soviet Union, I submit and suggest that it might add to Soviet concern.

Senator Proxmire. Unfortunately I find I have to go to the floor. They need me over there right now.

I want to thank you, General and gentlemen, for a superlative briefing. It has been most informative. You have done a fine job. You are very, very forthcoming and we deeply appreciate it.

We would appreciate it, General, if you would work to provide that sanitized summary as soon as is convenient for you.

General Wilson. Senator, may I say, and I can say this since I am retiring shortly, and hope I should not be misunderstood, that it is a very salutary experience to work with you, sir. It is also intellectually a great pleasure.

Senator Proxmire. Thank you all very, very much. The subcommittee stands adjourned.

[Whereupon, at 5:39 p.m., the subcommittee adjourned, subject to the call of the Chair.]

ALLOCATION OF RESOURCES IN THE SOVIET UNION AND CHINA—1977

WEDNESDAY, JULY 6, 1977

CONGRESS OF THE UNITED STATES,
SUBCOMMITTEE ON PRIORITIES AND
ECONOMY IN GOVERNMENT OF THE
JOINT ECONOMIC COMMITTEE,
Washington, D.C.

The subcommittee met, pursuant to notice, at 10:02 a.m., in room 5302, Dirksen Senate Office Building, Hon. William Proxmire (chairman of the subcommittee) presiding.

Present: Senator Proxmire and Representative Heckler.

Also present: Richard F. Kaufman, general counsel; Kent H. Hughes and Katie MacArthur, professional staff members; Mark Borchelt, administrative assistant; and Charles H. Bradford; George D. Krumbhaar, Jr.; and Mark R. Policinski, minority professional staff members.

OPENING STATEMENT OF SENATOR PROXMIRE, CHAIRMAN

Senator PROXMIRE. The meeting will come to order.

Mr. Warnke, we are delighted to have you as our opening witness this morning. We have wanted to have you for some time. As you know, it is difficult in this recess to have members attend, and we have been notified that members are out of town.

That is the reason we don't have more here. But I did discuss this hearing with Chairman Bolling and Vice Chairman Humphrey, and they are enthusiastic about it. I think it will be extremely helpful to the Congress to get a better understanding of the economic progress, the economic status now of the Soviet Union, because it is very important in their military strength and this committee as the Joint Economic Committee, it seems to me, is in a good position to try to determine and evaluate what information we can secure.

The primary purpose of today's hearing is to illuminate changes and trends in the economy of the Soviet Union. Knowing and understanding the facts about any economic system, including our own, is difficult enough even when information and statistics are readily available.

The problem with regard to the Soviet economy is that much of what we consider public information is kept secret. This is especially true with regard to information about the military sector, but it is also true in varying degrees for the other sectors.

Yet, despite the difficulties it is in our interest to know more about the Soviet Union because of the economic, political, and military importance of that Communist superpower.

Economic information about the Soviet Union is too important to leave within the exclusive province of Soviet officials.

Another purpose of this hearing, and of the series entitled "Allocation of Resources in the Soviet Union and China," is to place in perspective and to improve information about military spending.

Too often, in previous administrations, high Government officials have succumbed to the temptation to distort the intelligence or select one fact or a few facts out of the intelligence estimates and leak them to the press or make them public out of context.

This has frequently been done as a self-serving device by Pentagon officials to support requests for higher budgets or for particular programs.

It has been my hope that these hearings will serve as a forum where all the available intelligence could be presented and then published so that the complete picture can be viewed in one place.

The public has a right to such a view and not to be misled by narrow, parochial perceptions of what is beneficial to one agency or another.

I believe we have made some progress toward our original goal and I have, therefore, for the first time, invited public testimony to explore how we can improve our information as well as some substantive questions about the Soviet economy.

Among the more important issues are the following:

1. How much do we in the United States know about the state of the economy in the Soviet Union; what are the principal gaps in our information, and what can be done to improve our understanding?

2. What are the prospects for Soviet economic growth and development?

3. What have been the economic effects of the U.S.-U.S.S.R. arms control agreements?

Our witnesses this morning are eminently qualified by training and experience to address these and related questions.

We will begin with Paul C. Warnke, Director of the Arms Control and Disarmament Agency, who I consider one of the most knowledgeable and thoughtful officials in the Government today. Following Mr. Warnke's presentation and questioning we will hear from a panel of experts.

Mr. Warnke, go right ahead.

STATEMENT OF HON. PAUL C. WARNKE, DIRECTOR, ARMS CONTROL AND DISARMAMENT AGENCY

Mr. WARNKE. Thank you very much, Mr. Chairman.

I appreciate the opportunity to discuss with the subcommittee our understanding of Soviet economic conditions and the economic effects of United States-Soviet arms control agreements.

You have raised three questions with us. One has to do with the extent of our knowledge of the Soviet economy; the second is our assessment of that economy, and, the third is the economic impact of the arms control agreements.

At the outset, I would like to make it clear that the Arms Control and Disarmament Agency is a consumer rather than a producer of intelligence. We do not have our own intelligence collection assets. Therefore, we are dependent upon the Central Intelligence Agency, the Defense Intelligence Agency, and the Department of State for the basic analyses.

We, of course, regard this information as being particularly relevant to our sphere of operations, and, therefore, we do engage in extensive analyses of the information which is furnished to us.

As a consequence, I will have to answer the first two of these questions in somewhat general fashion. I know that you have received detailed reports from Admiral Turner and from General Wilson.

With regard to the third question, which has to do with the economic impact of arms control arrangements, I would like to go into that in a little more detail.

Soviet Economy—Extent of Knowledge

First of all, with regard to the extent of our knowledge, we think we are learning more as time goes on, but there are still, of course, obvious gaps in the information we have available to us.

As a consequence, there have in the past been differing opinions about the resource allocations between the defense and civilian sectors of the Soviet economy and uncertainties within the executive branch of the U.S. Government concerning the level and also the trends of military expenditures. That is, we were not clear what the percentage was of Soviet gross national product allocated to military use, and as a consequence, could not come to any definitive conclusions as to what that percentage of the GNP might imply about Soviet intentions.

Recently, it has been concluded by our intelligence agencies that the burden of defense in the Soviet Union is heavier than thought earlier, and the estimates of the share of the GNP have just about doubled, from about 6 to 12 percent, and as a matter of fact, some estimates put it, as you know, even higher, up to the level of about 15 percent.

It has been pointed out by defense intelligence officials that this increase relates to the estimate of ruble spending rather than to any reevaluation of the size of the overall Soviet defense effort. They apparently aren't doing any more than we thought, but they are enjoying it less and it is costing them more.

A recent statement by the Congressional Budget Office notes that the revisions serve principally to resolve the paradox which had attracted the attention of analysts for some years, which was how the Soviets could get such a large defense establishment out of a small fraction, then estimated, of their GNP.

It now appears that we overestimated their efficiency and underestimated how much of their budget went to defense.

As the Congressional Budget Office also points out, these comparisons of military budgets implicitly assume that expenditures give you the best measure of relative military establishments, but it is only one of a number of possible ways in which you can compare military establishments. Intangibles such as readiness, training, morale, and leadership are essential parts of the overall comparison.

The apparent mathematical certainty of comparisons based on expenditures has a certain attraction. The difficulty, of course, is we don't have a genuine basis for comparison of prices between the Soviet Union and the United States.

Soviet Defense Spending—Lack of Comparability With U.S.

Moreover, it is important, I think, to keep in mind that Soviet and U.S. millitary expenditures, however they may be expressed, are not directly comparable because they relate to different mixes of arms and different security environments.

Furthermore, the overall military expenditures of different countries are not directly linked or interrelated since the events that drive the respective military budgets are complex and sometimes reflect conditions that affect one of the nations without respect to its relationship to the other.

In my prepared statement, we pointed out, for example, that between 1964 and 1975, the factors affecting the U.S. military budget were not directly related to what the Soviet Union was doing, and the same was true as far as Soviet expenditures were concerned. We were involved in the Vietnam war; we made our change from a draft to a smaller voluntary army. At the same time, the Soviet Union was building up its naval forces and reacting to the growing hostility between the Soviet Union and the Chinese.

Now, in addition to uncertainties about Soviet military spending expressed in dollar or ruble terms I think there is also a good deal of controversy as to why it is that the Soviet forces have increased to their present size and why it is that they continue spending what they apparently do to sustain and build the formidable forces they have already.

Gen. George Brown, Chairman of the Joint Chiefs of Staff, attributes this largely to the Soviet history and the experience they have had with regard to invasions and threats to their security. Others argue that the Soviet buildup necessarily betokens an aggressive intention on their part and cite the facts that the secrecy involved in Soviet expenditures necessarily gives rise to distortions and to suspicions. So it is important for us to try to acquire more and better information so we can have better analyses based on more reliable data.

Soviet Figures Unreliable

Now, we cannot rely, of course, on the Soviet Union's own published data on military spending. On the face of it, such statements as that made by General Secretary Brezhnev at the 25th Party Congress in February of 1976 are not reliable. What he said is that the Soviet Union is not increasing its military budget, and he went on to say that the Soviet Union was the only great power which does not increase military spending from year to year.

Now, obviously, their definition of military spending is different from ours. Their statements about spending 17.9 billion rubles in 1973 and then showing a decline by 1977 to something like 17.2 billion ruble is not a realistic assessment of what they are, in fact, spending.

Similarly, Soviet reluctance to participate in the United Nations' efforts to bring some order to the process of international accounting

for military budgets is evidence of the kind of secretiveness which does not contribute either to our confidence or to that of the world community in general.

It is our hope that they may become, over a period of time, more responsive, in order that we may have a climate in which, through a greater degree of openness, we can better interpret what they are doing and compare it on some sort of valid basis with our own defense efforts.

NEED FOR MORE ANALYSIS

Now, there are some things which can be done to improve our understanding of the Soviet economy and its military component. If we can apply more of our intelligence resources to these questions, then from the standpoint of the Arms Control and Disarmament Agency, this would be a sound allocation of intelligence resources. In addition, we can fund more academic study of both the Soviet economy and its defense components, and we can establish, I think, greater cooperation between Government and academic research.

Soviet Economy

Turning now to the second question, which is our assessment of the Soviet economy, Admiral Turner has gone into this in some detail and I cannot match the information which he has at his disposal. I would like to make some observations, however, which are particularly relevant to the subject of arms control.

Growth Rates in U.S.S.R.

First, it seems clear that the Soviet economy has been going through a lengthy period of gradual deceleration. Our information is that they will face new and more severe problems by the end of this decade, and this will aggravate the chronic resources shortages of the past. Such things as an aggravated labor shortage; a likely decline in oil and other fuels available for export; and as a consequence, the diminution of the exchange available to pay for goods and technology from the West—all these will seriously affect the Soviet economy and increase the relative burden of their military expenditures. It can also be suggested that, if the weather does not remain as favorable as it has been in the past, their agricultural output problems, which are chronic, will become even more severe.

Defense Burden to Soviets

In the Soviet Union as in any other country, high rates of military expenditures necessarily occur at the expense of other sectors. There are questions that our analysts raise as to how readily the Soviet economy could transfer some of these funds from the military side to the civilian sector. But in any event, a continuation of their present defense expenditures necessarily will seriously affect future growth rates.

It seems clear, however, that if the Soviet Union decides that this is what it wants to do, it can continue to sustain the present or even higher levels of military expenditures for the foreseeable future. They

have become quite used to carrying this substantial military burden and apparently it is one which they can, in fact, sustain.

It seems unlikely that any sort of a dramatic turnaround will take place within the foreseeable future. We, ourselves, have found that the process of conversion is a very, very difficult one, and that, when you are spending substantial amounts of money for defense, the process of changing into the civilian sector is economically quite painful and quite difficult.

U.S.S.R. Perceptions of Threat

In addition, I think we have to face the fact that the Soviet Union sees a world which is quite different from the world that we see. From our standpoint, the military threat is chiefly from the Soviet Union at this time, but from the standpoint of the Soviet Union, they have no such fortunate situation. They have neighbors whose friendliness is at least suspect, including the continuing problem of the hostility of China. As a consequence, their perception of their own weaknesses is broader than ours, and, fortunately, from our standpoint. multifaceted rather than focused on a single threat.

In making these comments, I don't mean to underestimate the size and the importance of the Soviet military buildup, I cannot fully explain it. So as a consequence, I cannot dismiss it as being insignificant. I think, however, that it shows the necessity of improving our ability to assess both the Soviet economy and the part that the military portion plays in the overall picture.

Economic Impact of Arms Control Agreements

I would like to turn now to the third question, the one which, of course, is of particular relevance to our sphere of activity in the Arms Control and Disarmament Agency. That has to do with the economic impact of arms control agreements.

Again, this is a very difficult subject to comprehend. Ideally, we ought to consider three separate scenarios for each agreement. One would be what the probable expenditures would have been if no negotiations had occurred. The second is the likely expenditures if there had been negotiations but no Arms Control Agreement had been arrived at. And, the third is the estimated expenditures or savings which followed the successful conclusion of an Arms Control Agreement.

It depends, of course, on what set of assumptions you adopt in approaching each of these questions. It is difficult, if not impossible, to assess precisely the shift of expenditures within the defense budget from an area which becomes constrained by arms control measures to other areas which are not thus constrained. Also, the enhanced sense of security that can result from sound arms control agreements is left out of economic assessments for the most part, because it is intangible and not susceptible of detailed measure, and the large uncertainties in our assessments of Soviet military expenditures, particularly in components such as research and development where no breakdown is available, preclude our having any sort of high confidence in detailed estimates. For such reasons, our judgments about the economic effects of arms control measures are approximations at best.

There have been, since 1959, a number of agreements in which the United States and the Soviet Union have been involved. Some

of them have been bilateral and some of them multinational in nature.

It should be pointed out in addressing the question of the economic impact of arms control agreements that saving money is not the primary objective of arms control. Arms control has as its primary objective enhancing the security of the United States.

So, as a consequence, in some instances, an arms control agreement may actually increase the expenditures made by the United States. I don't find that a defect. If we are prepared to spend money on arms programs to enhance security, certainly we should be willing to spend money on arms control if that, in fact, enhances our security.

We can hope, of course, that an arms control agreement will, in fact, not only yield national security dividends, but also some budgetary savings. We think for the most part that sound arms control agreements do exactly that, but saving on military expenditures is necessarily and permanently a secondary objective with a primary goal of improving our national security.

Limited Test Ban Treaty

Now, let's take a couple of examples from the past. First, the Limited Test Ban Treaty of 1963. That, I believe, was a desirable step forward. It took strontium-90 out of the atmosphere. It showed that the Soviet Union and the United States were able to get together and complete an agreement which was in the interest of mankind.

From the standpoint, however, of any cost savings, I think that you do not demonstrate that anywhere involved in the limited test treaty; in fact, the chances are our expenditures were increased. That is because of the safeguards that accompanied the Limited Test Ban Treaty and which were a necessary prerequisite to its acceptance within the U.S. Government.

As a consequence of those safeguards, we increased our underground testing. At the same time we maintained our national nuclear laboratory facilities and we maintained the facilities and resources that would be necessary to resume atmospheric testing in the event that the treaty either were abrogated or violated and we withdrew; similarly, as with any arms control agreements, we had to be sure that our verification capability kept pace with the arms control measures to which we agreed.

So the total costs association with the safeguards provisions of the 1963 Limited Test Ban Treaty went up from $609 million in 1963 to $745 million, almost $746 million in 1965. By 1967, they were down to a level of $681 million. But this was, in fact, a cost that we incurred in order to achieve this measure which improved our national security.

SALT I Agreements

Now, on the other hand, we have the SALT I agreements of 1972, which consisted of the ABM limitation treaty and also the interim agreement on limits on offensive arms. I think that, on balance, these did save us money, based on the assumption that, in the absence of an ABM treaty, we would have gone ahead with our ABM deployment and at least we have built four ABM sites.

A study which was sponsored by our agency in 1974 estimated that the termination of these multiple sites saved some $6.5 billion. The Congressional Budget Office in 1976 went on the basis that a

12-site ABM system might have been built, and as a consequence, they estimated the cost saving of the ABM limitation treaty as being $11 billion.

In part, of course, those savings were generated by the fact that in 1974, the treaty was supplemented by a program which reduced the ABM system from two sites to one site.

On the other hand, you could find the argument that, in any event, the Senate—and consequently, the Congress—would not have gone ahead with ABM plans as they existed prior to 1972. It was a very controversial item within the Congress. It prevailed on a 50–50 vote in 1969, and as a consequence, we cannot prove that these savings are the direct result of the ABM limitation treaty. However, there is no question of the fact this vote did contribute significantly to these savings.

I would have to say that neither the ABM Treaty of 1972 nor the interim agreement to limit offensive arms seems to have done much as far as the other strategic nuclear weapons programs are concerned. They appear to have gone ahead pretty much as they would have in the absence of the interim agreement.

I have mentioned the fact that the verification of compliance has been a cost and that efforts have channeled resources into verification efforts in anticipation or as a consequence of an agreement. The kinds of activities which produce information which is relevant to verification are activities that would be conducted in any event for other intelligence purposes, so as a consequence, it is difficult to break out of that total expenditure the increments which could be attributed solely to verification requirements.

There is also, in addition to any direct cost savings, the indirect effect that arms control agreements have on expenditures. They can, and I think they do, contribute to the general lessening of suspicions and tensions. They can instill confidence in future and mutually beneficial relationships, but here again, the question of casualty is a debatable one. It is kind of a chicken and egg proposition. You can argue either that the arms control agreements caused the improvements in the general climate or that as a matter of fact they are a consequence of an improvement which is taking place.

If we can assume that SALT I in 1972 in some way contributed to the easing of U.S.-Soviet tensions, then increased trade and capital flows between the two nations may have been an indirect benefit. In any event, U.S. exports to the Soviet Union increased from $542 million in 1972 to $2.3 billion in 1976.

Also, I think we have to look at arms control as an ongoing process. Accordingly, you cannot just view the 1972 agreements as something which is time stopped. I have suggested that they did not save us much as yet in terms of restricting our expenditures on strategic arms programs other than the ABM. We can hope, however, that SALT I will, in fact, be the first step toward a more effective and more comprehensive arms control package, and that the long-term effects as a result will mean a reduction in rates of growth or an actual reduction in absolute expenditures.

Comprehensive Test Ban

Turning to our contemporary efforts, the administration, as you know, Mr. Chairman, is committed to achieving a comprehensive test ban. It is our hope that we can achieve such a ban and that this will end many of the public expenditures directly related to the testing program.

It is apparent, of course, that with a comprehensive test ban we would not have to have the costs involved with some of the safeguard features associated with the Limited Test Ban Treaty of 1963. We would still have to have standby programs in the event that the treaty did not turn out, and we would have to retain the nuclear laboratory facilities and resources necessary to resume testing in the unfortunate event that became necessary.

Mutual Balanced Force Reductions

As I suggested, we would have verification costs which are associated with any new treaty. Another current negotiation is that aiming toward mutual balanced force reductions in central Europe. Here again, we cannot predict what the effect would be in monetary terms if we were successful in concluding an agreement under the very, very complex circumstances that exist. Although it can be assumed that a final MBFR agrement would result in reduced forces for both sides, this would not yield budgetary savings unless the forces withdrawn from central Europe were, in fact, disbanded, and that, of course, would depend upon an evaluation within the U.S. Government of our overall security requirements at that time and those of our allies. The Soviets presumably would go through a similar process based on their perceptions of their security needs.

Again, I think it is logical to assume, if we were able to achieve an agreement on a mutual balanced force reduction in central Europe, this would yield savings both in manpower costs and in equipment.

Arms control proposals and agreements are intimately related to national security. They are measures which promote confidence among the participants. As I suggested at the beginning of my statement, although we can hope for budgetary savings, these have to be a secondary goal, and they are not always directly perceptible.

Weapons systems which may not be built or systems whose production is slowed sometimes simply make funds available for other defense purposes. We believe, however, that arms control, in fact, slows the rate of increase in defense expenditures.

I have also suggested secondary benefits such as a climate which increases trade.

On balance, I think the economic effect of arms control is beneficial, that it does reduce expenditures and does yield other sorts of benefits which improve the American economy, but this is difficult to demonstrate with any degree of mathematical precision. So I think we have to continue to address the arms control problem in terms of American security rather than in terms of budgetary savings.

Thank you, Mr. Chairman.

[The prepared statement of Mr. Warnke follows:]

PREPARED STATEMENT OF HON. PAUL C. WARNKE

Mr. Chairman, I am grateful for this opportunity to discuss with the Committee our understanding of Soviet economic conditions and the economic effects of U.S.–Soviet arms control agreements. Let me stress at the outset that with regard to information about the Soviet political economy, ACDA is a user agency—we do not generate information—and we depend on other agencies such as the Central Intelligence Agency, the Defense Intelligence Agency and the Department of State for the basic analyses. Nevertheless, because questions concerning the allocation of resources in the Soviet Union have a bearing on ACDA's work, we do have a special interest in this information.

I would like to treat the first two subjects set forth in your letter inviting me to testify in rather general terms and then try to give you a more complete answer to the third.

Your first question concerns the extent of U.S. knowledge about the Soviet political economy. While we know a good deal about this subject, the gaps in our knowledge are such that we cannot draw definitive conclusions.

In the past there have been differing opinions about resource allocations between the defense and the civilian sectors of the Soviet economy. Uncertainties within the U.S. Executive Branch concerned the level and terms of military expenditures, that is, the percentage of Soviet GNP allocated to military use and interpretations of what that did or did not imply about Soviet intentions. The burden of defense expenditures now appears to be much heavier than we had thought earlier. Estimates of the military share of Soviet GNP have been raised from about 6 to approximately 12 percent, with some estimates extending it to 15 percent. As Admiral Turner recently pointed out to this subcommittee, these revisions apply to estimates of Soviet military expenditures in rubles and do not speak to the size of these programs relative to US programs.

A recent statement by the Congressional Budget Office (CBO) notes that the revisions "serve principally to resolve a paradox that attracted the attention of analysts for some years. How could the Soviets squeeze such a large defense establishment out of such a small fraction of their GNP?" It now appears that we overestimated their efficiency and thus underestimated how much of their budget went to defense.

Comparisons of military budgets implicitly assume, as the CBO study points out, that expenditures are a way to measure relative military establishments. However, dollar or ruble figures are only one of a number of possible ways by which to compare military forces. Measures of military effectiveness, which include such intangibles as readiness, training, morale, and leadership, are essential for such comparisons. But since expenditures have the property of providing a common measure for all forms of defense goods and services including such activities as transfers, training and support, their utility for comparative purposes is unique—if comparable prices were available for the Soviet Union. Unfortunately, they are not, or at least we have only partial data.

Moreover, it is important to keep in mind that Soviet and U.S. military expenditures, however expressed, are not directly comparable since they relate to different mixes of arms in different security environments. Furthermore, overall military expenditures of different countries are not directly linked or interactive since the events that drive military budgets are complex and may have more to do with conditions that affect the particular nation than what is going on in the other country. For example, between 1964 and 1975, the United States increased its military forces, participated in the Vietnam War, ended its role in that conflict, and went from a largely conscript force to a smaller volunteer army. In contrast, the U.S.S.R. significantly expanded its own forces, including the development of an ocean-going fleet and a large force component in the Soviet Far East directed at the Chinese, for reasons rather independent of concurrent U.S. developments.

In addition to uncertainties about Soviet military spending expressed in dollar or ruble terms there is also disagreement about why the Soviet forces have increased to their present size and why the Soviets continue spending what they apparently do to sustain and build the formidable forces that they have. Some are persuaded by the observation of the Chairman of the Joint Chiefs of Staff, General Brown, that "the Soviet historical experience of war, invasion, revolution, international intervention and hostility has produced strong anxiety

concerning national security." From this view of Russian history, more is better and bigger is better and the Soviets will sustain any sacrifices necessary to overcome what they perceive as relative weaknesses. From the same data others argue that Soviet purposes are essentially aggressive in nature. Soviet secrecy inspires inevitable distortions in the data we hold and the conclusions we draw from it. Our principal task lies in acquiring more and better information so that we can make better analyses based on more reliable data.

Data published by the Soviet Union on military spending are implausible on their face if taken literally. Brezhnev's statement at the 25th party congress in February, 1976 that "the Soviet Union is not increasing its military budget" and his later speech in which he added that "the Soviet Union is the only great power which does not increase its military spending from year to year" show that what the Soviets mean by "military spending" and "military budgets" may be different from what we mean by those terms. The Soviet statements about spending 17.9 billion rubles in 1973, a figure which they claim then declined to 17.2 billion by 1977, may have been intended as a response to Western concerns about the scope and growth of Soviet military programs, but even so the gross figures are virtually impossible to fit into our concept of the meaning of defense expenditures.

Soviet reluctance in the United Nations to participate in the current attempt to bring some order to the international accounting process for military budgets is further evidence of a kind of a secretiveness which does not contribute either to American or to international confidence. In this connection, we continue to call on them for a more responsive posture in the hope of gradually bringing about a climate on which through a greater degree of openness, we are better able to interpret what they are doing and compare it with what we are doing ourselves.

There are, of course, other things which can be done and should be done at home to bring our understanding of the Soviet economy and its military component into clearer focus. We can apply more intelligence resources to these questions. We can fund more academic study of the Soviet economy and its defense component and the implications of the defense component for our own defense and arms control policies. And we can establish greater interaction and cooperation between government and academic researchers.

On the second matter you have asked me to address—our assessment of the Soviet economy—Admiral Turner has already dwelled in some detail so I won't go into this matter at great length. I will venture some general observations on this subject with particular relevance to arms control.

It seems clear that the Soviet economy has been going through a lengthy period of gradual deceleration. We are told that the Soviet economy will face a number of new problems by the end of this decade which are likely to aggravate the chronic resource shortages of the past. These include an aggravated labor shortage brought on as a natural result of declining birthrates and World War II losses; a likely decline in oil and other fuels available for export and a corresponding reduction in the ability to pay for goods and technology from the West; and finally, the prospect of an end to abnormally favorable weather conditions which may exacerbate agricultural output problems. It remains to be seen whether such problems will increase incentives to reduce the military spending burden.

Few dispute that high rates of military expenditures in the Soviet Union occur at the expense of other sectors. Some analysts question how easily some of these resources could be transferred to the civilian sector of the economy. In any case, it is likely that current Soviet emphasis on defense expenditures will seriously affect future growth rates, especially if, as seems likely, Soviet investment policies continue to stress defense-supporting industries and economic autarky in traditional fashion. Nevertheless, it seems clear that the U.S.S.R. will be able, if it chooses, to sustain the present (or higher) levels of military expenditure for the foreseeable future. They have, after all, been carrying a substantial military expenditure burden for some time.

Presumably, a modest civilian growth rate and large defense expenditures are an acceptable, familiar pattern to the Soviets and one which they can sustain. Clearly, with economic reforms and a shift in priorities they could build a better life for their own people, and inspire greater confidence abroad. Yet a dramatic turnaround is unlikely. This may be because beating swords into

plowshares, even if one is so inclined, is not an easy or painless process. We ourselves have trouble reordering national priorities, or for that matter, defense priorities. Inertia is a powerful factor anywhere. It is doubtless more so for the Russians. Moreover, we see the strategic equation as essentially bipolar, and feel threatened, insofar as we do alone. The Soviets' perceptions of their own weaknesses or vulnerabilities are broader and relate to other countries besides the United States.

I do not mean to underestimate a Soviet military buildup I cannot fully explain. I am suggesting that we should not assess the Russians entirely by our standards, and that it may be best to suspend judgment until we have more reliable data while we press ahead with those arms control opportunities that exist and that clearly serve our security interests.

Concerning the third matter of special interest to this subcommittee—the economic impact of arms control agreements—technical and conceptual difficulties abound and these difficulties are compounded by the shortage and unreliability of much relevant data. Ideally, one should consider three separate scenarios for each agreement: (1) Probable expenditures if no negotiations had occurred; (2) likely expenditures if negotiations had taken place but no agreement was reached; and (3) estimated expenditures or savings which followed the successful conclusion of an arms control agreement. Alternative sets of assumptions will yield different results in each case. For it is difficult to assess precisely the shift of expenditures within the defense budget from an area constrained by arms control measures to areas not affected by them. The enhanced sense of security resulting from agreements concluded is often left out of economic assessments because it is intangible and unmeasurable. The large uncertainties in our assessments of Soviet military expenditures, particularly in components such as R. & D. for which no breakdown is available, preclude high confidence in detailed estimates and the use of budgetary measures per se as arms control mechanisms. For such reasons, our judgments about the economic effect of arms control measures are approximations at best.

Since 1959, the United States and the Soviet Union have entered into a number of agreements, some bilateral and some multilateral. As a paramount objective arms control agreements are intended to serve security-related or confidence-building goals. Saving on military expenditures is a secondary objective.

The agreement limiting active defenses against ballistic missiles, the ABM Treaty of 1972, may have averted large increases in both U.S. and U.S.S.R military expenditures. The Limited Test Ban Treaty of 1963, on the other hand, resulted in substantially increased costs because of the acceleration of underground testing and safeguards associated with that agreement. And some would argue that many of the post-1959 arms control agreements were made possible precisely because at the time they were negotiated there were no major ongoing military problems involving strong economic interests in the areas covered, e.g., space, the seabed, and the Antarctic.

The ABM Treaty of 1972 limited ABM systems in each country to two sites and the Protocol of 1974 subsequently reduced deployment to one site. Based on the assumption that in the absence of the ABM Treaty, the United States would have proceeded with at least a 4-site ABM deployment, an ACDA sponsored study in 1974 estimated the costs averted by the multiple site terminations at $6.5 billion. A 1976 Congressional Budget Office study, which assumed a 12-site deployment without an agreement, estimated the savings at 11 billion.

However, given the 50–50 Senate vote in 1969, a plausible case can be made that, absent any ABM agreement, the program would have been confined to four or two or no sites at all. The Soviets for reasons not fully understood here, were not embarked on an extensive or expanding ABM system deployment program of their own before or during the ABM Treaty negotiations. Neither that treaty nor the Interim Agreement to Limit Offensive Arms, also signed in 1972, can be shown to have affected significantly the expenditures of either country on other strategic weapons programs.

Arms Control agreements can sometimes cause additional expenditures as a result of the negotiations within each government necessary to obtain acceptance of the agreement. For example, although knowledge of internal bargaining within the Soviet Union is sparse, General Secretary Brezhnev's speech to the Supreme Soviet following the SALT I agreement clearly promised continued high levels of military spending to the Soviet military leadership.

The test ban safeguards associated with the 1963 Test Ban Treaty promised that:

(1) Comprehensive and aggressive underground testing would continue;

(2) The national nuclear laboratory facilities and programs would be maintained;

(3) Facilities and resources necessary to resume atmospheric testing would be maintained in case it should be deemed essential to national security; and

(4) The ability to monitor the terms of the treaty and to detect violations would be improved.

The total costs associated with the safeguards provisions rose from $609.3 million in 1963 to $745.8 million in 1965 and subsequently fell to $680.9 million in 1967.

Verifying compliance with arms control agreements is not without cost. Resources may be channeled into verification efforts in anticipation or as a consequence of an agreement. However, while activities which produce information required for verification are large items in the national security budgets of both the U.S. and the U.S.S.R., the additional increment that is attributable specifically to arms control agreements may be marginal in the light of other requirements placed on these systems.

Before closing, I would like to note the indirect effects of arms control agreements on expenditures. They can contribute to the general lessening of suspicions and tensions. Completion of new agreements and compliance with past agreements can instill confidence in future, mutually beneficial relationships. But the question of causality is an open one—one can argue that arms control negotiations and agreements are as much a consequence as they are a cause of the general political climate.

If we assume that SALT I in some way contributed to the easing of U.S.-Soviet tensions, increased trade and capital flows between the two nations may have been an indirect benefit. It is worth recalling that U.S. exports to the Soviet Union increased from $542 million in 1972 to $2.3 billion in 1976.

Insofar as SALT I can be viewed as a necessary first step or precursor to subsequent arms reductions, the long-term effects may mean reduced (constant dollar) military budgets, or a reduction in rates of growth which might occur in the absence of an agreement.

The Administration is committed to achieving a comprehensive test ban (CTB). It is, of course, our hope that such an arrangement will end many of the public expenditures directly related to the testing program. In comparing a CTB with the atmospheric test ban agreement of 1963, we can see that some of the safeguard features associated with that treaty will no longer be necessary or possible, i.e., the conduct of underground tests. Obviously, we would have to have a standby program should the Soviets violate or abrogate the agreement, and some national nuclear laboratory facilities and resources necessary to resume testing would have to be maintained. Furthermore we would need to spend more to ensure our ability to monitor the terms of any comprehensive treaty and to detect any violation. There would, however, clearly be some savings.

Another area worth citing is the ongoing negotiation of Mutual Balanced Force Reductions in Central Europe. Although a final MBFR agreement would presumably result in reduced forces for both sides in Europe, there would be a real budgetary savings only if the forces withdrawn were disbanded. This is a decision which would not be made entirely within the framework of MBFR, but one which would have to be taken by the Administration in the light of its assessments of our security requirements generally and those of our Allies. The Soviets would presumably go through a similar process based on their perceptions of their security needs.

Arms control proposals and agreements are intimately related to national security and are measures which promote confidence among participants. Although we hope for budgetary savings from arms control arrangements, these are usually a secondary goal, and are not always directly perceptible. Weapons systems which may not be built or systems whose production is slowed sometimes simply make funds available for other defense purposes. However, to the extent that arms control slows the rate of increase in defense expenditures and helps bring on a climate which increases trade, the result is a positive economic effect even if not a perceptible budgetary saving.

Savings From Arms Control

Senator Proxmire. Mr. Warnke, I think your analysis of the savings in arms control is extremely moderate, conservative, careful, perhaps too much so.

It seems to me that the savings would flow from what you consider the primary purpose of arms control, to create or provide for a greater degree of security for the United States. It is the sense, if this is succeeding, as it is succeeding, that it helps us hold down arms expenditure, that we would otherwise engage in, and the other side would engage in persuading us to engage in still more.

But the prime saving to the extent it does, in fact, prevents hostilities, occurs because in the event of hostilities, expenditures are colossal and almost beyond imagination. So in this sense—and you didn't make this statement now—I think arms control has a great potential for savings.

Mr. Warnke. I would agree with that, Mr. Chairman. I did not mean to be understood as saying anything to the contrary. I do feel it is very difficult at the present time to demonstrate what the savings have been from arms control measures to date.

As I said, I regard arms control as an ongoing process. If we are successful in our current efforts, both in the strategic arms talks and the comprehensive test ban talks, I can see significant budgetary savings as a consequence.

I also agree that because of the fact that arms control improves national security by lessening the chance of conflict, it has a potential for saving us enormous amounts and not only in money.

Soviet Economic Growth Slowdown

Senator Proxmire. One of the statements you made, and one that I think may surprise many people is your assertion that the Soviet economy has been going through a lengthy period of gradual deceleration, and you mentioned several adverse trends, including a labor shortage caused in part by demographic figures with a smaller number of 18-year-olds coming on now in the coming years, a decline in fuels available for export, a corresponding reduction in foreign exchange and an end to abnormally favorable weather conditions.

How serious are these trends? Do they point to an economic crisis comparable to the great depression or are we talking about a year or two of recession?

Mr. Warnke. It would be difficult for me to assess that, Mr. Chairman. The economic system, of course, is such that they would not have the kind of situation we had with our great depression, which was brought about by the apparently faulty working of a free market system at that point.

They don't have a free market system so that they have a different sort of economic context in which they operate. What we are looking at is certain objective factors that will necessarily bring about, we think, a continuing deceleration of their economy because of the labor shortages and the research shortages.

I think the extent of the economic crisis is very, very hard to predict. Its impact is also hard to predict, because we don't know what kind of measures they might take which would not be the same as—but

might be as drastic as those we took in 1933 in order to adjust our faltering economy.

There are things they could do. The question is whether their system is sufficiently flexible to permit them to do those things.

Senator PROXMIRE. You are saying there are things they can do but to the extent their economic potential is less than we perhaps thought it might be in the past suggests that what they can do is more limited than it was before, the extent to which their manpower is more limited, their agricultural supplies are more limited.

The Soviet economy also suffers from low productivity, chronic delays in the complex of major construction projects, industrial inefficiency, and continuing lags in advanced technology.

They have serious inflation and shortages and consumer standards of living are far inferior to several East European nations and far below Western levels.

SOVIET ECONOMY UNBALANCED

Do you agree their economy is unbalanced, and would you say their problems are being aggravated by the enormous military burden?

Mr. WARNKE. I think that is an accurate statement of the situation, yes, Mr. Chairman. I think it has been demonstrated and I think, certainly, our present reassessment of the relative burden of defense demonstrates that their efficiency is not anywhere near comparable to ours, that technologically they are really far behind us and that their system certainly needs some drastic overhaul at the present point.

One of these circumstances you cannot help but believe is that a military burden, which is something between 12 and 15 percent of the GNP, is a very, very heavy overhang, and that it must cause economic dislocations.

SOVIET MILITARY SPENDING

Senator PROXMIRE. I have been fascinated by the fact that if you put yourself in the position of the Soviet leaders and want to provide the maximum military power, you could make a strong argument, you would do so in the long run, over a period of, say, 10 or 15 or 20 years, by decelerating the military investment, by putting more into industry, by building up their economic potential and capacity so they would have a stronger economic base which is at the very heart of any kind of military power in modern nations.

Mr. WARNKE. Mr. Chairman, I think it probably reflects a couple of quite human trends. One of them is inertia, and the fact that it is awfully difficult to set off on a new course even where you decide that, perhaps, you are not headed in the right direction. For them to spin their economy around, I think, would be much more difficult even than it is for us.

The other factor is that whether it is a reasoned or an unreasoned fear, there seems to be every indication of the facts that the Soviet Union does genuinely fear for its security. It has been said by some that the Soviet Union, of course, is the only country which is surrounded by hostile Communist neighbors, and perhaps this affects their thinking to some extent.

U.S. Technological Leverage

Senator Proxmire. You say it remains to be seen whether their economic problems increase their incentives to reduce military spending. Assume the adverse trends result in economic stagnation or worse.

What leverage does the United States gain with regard to our sophisticated equipment and technology which the Soviets need as well as our grain, which they may need again?

Mr. Warnke. I am not sure I fully understand the question, Mr. Chairman.

Senator Proxmire. What I am driving at is, if their economic situation does worsen, and if they need our technology, don't we have at least the option of considering exporting some of the technology to them, if, in return, we can secure from them a degree of arms control, of limitation, and so forth, which would be in the interest of both countries, that plus our exporting of grain which would give us the same kind of leverage.

Mr. Warnke. I would like to think that would be a possibility, and that in the event their economy began to worsen, we would have increased leverage in terms of arms control negotiations. I am not sure, however, that is the case, because I think that arms control is awfully hard to link to anything else. It goes to the essence of national security, so as a consequence you would have to have both the economic leverage which we unquestionably would have, and some means of assuring the Soviet Union that their national security would not be jeopardized by making some concessions on the arms control front.

I think the latter would be a difficult assurance for us to give because of the fact that they don't view us as the exclusive threat to their national security.

Senator Proxmire. We are also not the exclusive source of technology, are we? They can get it from Western Europe, also from possibly Japan and others.

Mr. Warnke. I think they would regard us as being the most desirable trading partner in that respect. We have got all the resources, both agricultural and technological, that I think they would like very much to have.

I would think that perhaps the indirect effects of improved trade between the Soviet Union and the United States would be beneficial to the arms control front, that it would, in fact, indicate a lessening of tensions and, perhaps, would at least diminish the Soviet preoccupation with security.

Senator Proxmire. Let me put it a little different way. One view is we might induce the Soviets to cut spending by withholding our technology and other trade, thereby forcing them to reallocate military resources to more productive uses.

That is one view. Another view is that they are more likely to invest heavily in civilian projects if they are assured of needed western technology. We could make it clear that they would have it with the notion they would be likely to invest more capital in that technology and in the industrial development and, therefore, less in military.

Would you comment on those two approaches?

Mr. Warnke. I have a feeling, Mr. Chairman, that I am here under false pretensions. I am a lawyer rather than an economist. So,

making this kind of assessment is rather difficult for me. Let me try it.

There are, as you say, two schools of thought with regard to trade with the Soviet Union. One is, don't help by providing technology so as to force them to divert more expenditures from the military side to the civilian side so they can keep pace, and the other is that encouragement in the form of technology will make them just as fat and happy as we are and have them put more money into automobiles and less into tanks.

I don't think either thesis is susceptible of demonstration. I feel, as I said, before that what drives their military expenditures is a combination of two things: First, that is what they are used to doing and it is difficult for any bureaucracy to turn itself around. Second, and more important, they feel a genuine concern about security.

In my view, and I say this perhaps somewhat paradoxically, if we were able to enter into an effective arms control agreement with the Soviet Union which diminished the confrontation between the Soviet Union and the United States, and which lessened their apprehensions at the same time as it lessened our apprehensions, this, perhaps, would do more than either of the others to encourage a reallocation of expenditures to the civilian sector rather than the military sector.

Sale of Technology to Soviet Union

Senator Proxmire. Supposing new energy sources do not come on stream in the Soviet Union and the Soviets become net importers of oil—of course, they are big exporters now. Would it be in our interest to sell them the technology that might make available new domestic supplies rather than seeing them compete with the rest for the Middle Eastern oil and forcing the prices up?

Mr. Warnke. I think that is an option that ought to be considered. That to me is quite different from trying to use our economic leverage for exacting concessions from them. The indications today that we have had are that that kind of pressure is really counterproductive—they react to it negatively rather than positively. I think if the kind of direct help you suggested were tied to some effort to support leverage in arms control negotiations, it could have a beneficial effect.

Possibility of Defense Spending Agreement

Senator Proxmire. You are to be followed this morning, as you know, by three outstanding experts who have been called to the hearing. One of them puts a lot of emphasis on the possibility of shifting arms control agreements from specific arms to overall budget amounts.

That would seem to have a lot of advantages, although I can see it is very difficult. Maybe we are not prepared at the present time to even think much about this but let's explore it for a minute.

Wouldn't that prevent ballooning into areas that are not covered by the specific limitations? Wouldn't it ease the burden on our taxpayers and wouldn't it tend to win more public support, at least, in this country for arms control inasmuch as then the taxpayer would see that what you are working toward is an easing of this burden and an easing of the inflationary pressures of arms expenditures—

and it would—you then have a clear indication of the progress and the advantage of arms control?

Mr. WARNKE. I would agree with that, Mr. Chairman, because, otherwise, you always have the problem which I referred to in my opening statement that you cannot be sure that the money which is saved in some part of the defense budget because of an arms control agreement is not being utilized in some other sector of the defense budget. If you could find some way in which you could have parallel reductions in military expenditures, this would certainly be an effective way of measuring progress in arms control terms and would achieve both the primary objective of arms control and the secondary objective of having some sort of budgetary savings.

The problem, of course, is to try to find some kind of reliable agreed basis for possible military expenditure limitations.

Now, our Agency has been supporting this effort within the United Nations during the past few years. In 1974 and 1976, we supported financially Abraham S. Becker, who was the U.S. representative in the expert groups in the 1974–76 U.N. sessions, and this year we nominated and supported John Koehler, Assistant Director of the Congressional Budget Office.

Mr. Koehler has served as the Government's budgetary export in a followup U.N. study this summer.

We think this is an area which is very, very promising, but it is also extraordinarily complex, as I am sure Mr. Becker can tell you. It is difficult for the reasons I outlined in my statement to find some way of getting some sort of parallel comparison between our expenditures and those of other nations, particularly where you have an economy that is no different in structure as that of the Soviet Union.

Senator PROXMIRE. Very hard to measure, very hard to enforce, but something that I think has a lot of promise and we ought to do all we can to determine the extent to which it might be practical.

Mr. WARNKE. One thing that would help a great deal would be if we could persuade the Soviet Union to participate constructively in this effort. At this time their participation has been minimal. I think if they were prepared to get into this particular effort——

Senator PROXMIRE. What would they need to do to participate significantly, in your view?

Mr. WARNKE. There really has been very little support of the U.N. effort, I think, since 1974. Again, I think Mr. Becker can give you more information on that. In 1974, there was a Soviet expert who served on the experts group, but since that time their interest has been almost nonexistent.

BUREAUCRATIC INERTIA IN SOVIET UNION

Senator PROXMIRE. You say it is difficult for the U.S.S.R. and the United States to shift military spending to civilian sectors. That does not seem to make sense to me because of the difference in our economy you just explained.

They don't have a free market economy. It seems to me it should be a relative breeze in the U.S.S.R. They need the manpower desperately in other areas. They need the capital investments. They have no problem with unemployment as we have, a very serious problem.

We decide to stop the B–1 bomber and 9,000 people in California are out of work the next day—like that. The Soviet Union does not have that problem. They can shift the manpower saved in defense into areas where they are needed, where the work can be useful for the economy. It seems to me arms reduction would be much more useful for them.

What did you have in mind when you indicated it is just as tough for them as it is for us other than the usual bureaucratic inertia?

Mr. WARNKE. It is basically just that. I think logic supports what you have just said. It should be easier for them because they don't have the problem of the free market economy and they can just decide that a certain number of Soviet people are going to be employed doing x rather than y.

But my impression has been, and I think that this is the impression that most people that negotiate with the Soviets have, that when they have made a particular decision, it is awfully hard to get it reversed. They have a process of bargaining within their government which is far, far more complex even than it is within our Government. When they have decided that a certain amount of funds are going to be allocated toward certain defense programs, it is more difficult for them than it is for us to shut that off.

They don't have the degree of, perhaps, coordination that we have within our system. There is a rigidity in their decisionmaking process that makes it difficult for them, as I said, to abandon a course even when the course no longer seems to be the most productive one.

ECONOMIC EFFECTS IN SOVIET UNION OF U.S. DEFENSE DECISIONS

Senator PROXMIRE. I wonder if it is possible to analyze the economic effects in the Soviet Union of our decisions concerning their programs.

For example, what will be the effects on the Soviet Union of our decision to accelerate the cruise missile. The current program is estimated to cost over $5 million, but it involves technology which now appears beyond the reach of the Soviets, so it will cost them much more to develop that weapon if they could, indeed, do it.

Is there any analysis of what it would cost them and how it would affect their defense industry and if not, should we have that kind of analysis?

Mr. WARNKE. I think this would be very useful information to have, Mr. Chairman. To the best of my knowledge, we do not have it at the present time. I think it is really too early to tell what the impact would be, because our own plans are still not firm.

What we have talked about doing as a substitute for the B–1 is utilizing the B–52's with cruise missiles. Now that, it seems to me, should not significantly change the approach taken by the Soviet Union to defense expenditures. What it would do is really what the B–1 would have done, which is to preserve the bomber part of our deterrent force.

Senator PROXMIRE. Why wouldn't it affect the Soviet Union's defense inasmuch as the problem of stopping the cruise missile is quite different than stopping the B–1. The B–1 cross section is like the Washington Monument coming in as compared to a seagull with the cruise missile, so it seems to me they would have to refine, change, modify,

improve their defense system if they are going to have any hope of stopping the cruise.

Mr. WARNKE. Again, Mr. Chairman, I think it depends upon the context in which you study this kind of a problem. We, for example, spend very little on air defense as compared with the Soviet Union. We reached the conclusion some years ago that there was no effective defense against nuclear ballistic missiles, and that as a consequence to try to defend against the secondary threat was probably a futile course.

Possibly the cruise missile decision by the United States could lead them to reevaluate their air defense plans. So, rather than there being some sort of an increase in expenditures, there might, in fact, be a decrease. We just cannot tell.

I say, if they reach the same kind of conclusion that we have reached, they might decide that air defense is no longer worth the expense.

Senator PROXMIRE. Using your argument that inertia is greater in the Sovet Union than here, if we go ahead with new systems involving new technology such as the cruise missiles, the M–X, or the neutron bomb, isn't it likely the Soviets will do the same, and won't changes in priorities become even more difficult to achieve?

Mr. WARNKE. I think there is no question of the fact, Mr. Chairman, that we do, in practice, react to one another. I suggested in my statement that you cannot explain our respective defense expenditures strictly in terms of reaction to the other superpowers. But nonetheless, that has to be a paramount factor in defense planning, and, certainly, they would have to give consideration to matching whatever it is that we have done in the way of new armaments either in the strategic field or in the conventional field. We do the same.

That is why, in my opinion, we ought to try to reach some sort of effective arms control measures so that we get out of this competition, which seems to me is nothing that can add to the security of either country.

NEW WEAPONS AND THE ARMS RACE

Senator PROXMIRE. Do you just get the feeling we are on a treadmill moving the wrong way, because while you have done a fine job and while we have made some progress in the strategic arms limitations, the new weapons that are seen coming on appear to be much more threatening as well as much more burdensome and expensive, much more destabilizing.

Mr. WARNKE. I think that is always the risk, Mr. Chairman. You have one of two ways to go in preserving your national security. One way is to continue to develop every new weapons system that can come to mind in the hope that somehow this is going to give you some sort of an edge which will prevent the other side from contemplating attack.

The risk of that, of course, is that as our technology improves, as our weapons systems come into being, we cannot be sure they are going to contribute to our security at all. In many instances, we find that they have decreased our security. I believe that former Secretary of State Kissinger said during the closing months of the Ford administration that he wished they had thought through the implications of the MIRV's, the multiple independently targetable reentry vehicles.

The net result, in the minds of any observer who looks at it objectively, has not been any increase in security. As a matter of fact, stability would be greater if neither side had MIRV's. That is the kind of development which is costly. When one side does it the other side has to match it, but the net result is a diminution in the strategic balance that prevents nuclear war.

U.S. Technological Lead Over Soviet Union

Senator Proxmire. There have been many arguments about the comparative strength of the United States and the Soviet Union, their greater megatons, our greater reliability, and so forth.

One central aspect of military power and economic power, of course, is technological capacity. Some think it is by far the most important. There is growing evidence of our technological lead over the Soviet Union in both the military and civilian sectors.

Do you agree that there is no weapon in the Soviet inventory that we are not capable of producing but that there are many U.S. weapons that the Soviets could not produce?

Mr. Warnke. It is awfully difficult for us to have any kind of meaningful comparison of military expenditures. We cannot cost out what it would cost the Soviets to build some of the things we have, because they could not build them at any price.

I think, technologically, it is clear we have a very, very substantial lead.

Senator Proxmire. Do you agree the United States now enjoys a technological lead over the Soviet Union?

Mr. Warnke. I do.

Senator Proxmire. Is it true that our strategic missiles are much faster and more accurate than theirs, and that they may not have a hard target kill capability? Until deployment of the next generation of missiles?

Mr. Warnke. The entire question of hard target kill, Mr. Chairman, is a very difficult, and as far as I am concerned, a very troubling one. We have, at the present time, much greater accuracy than the Soviet Union has, but at the same time, as you pointed out, they have greater megatonnage.

If in time they catch up to where we are today or where we may be a year from today, then they have a possibility of a limited counterforce capability against our land-based missiles which would be something, of course, which would be dangerously destabilizing.

So we do have the technological lead. They have demonstrated in the past, however, that what we do today, they can do 5 to 10 years from today. We have to take that, I think, into our calculations in determining what the impact will be.

Senator Proxmire. There has been a lot of talk about the weakness of NATO compared to the Warsaw Pact, and there is a serious political weakness that all are concerned about.

Is it correct that NATO forces have technologically superior ground equipment, tactical aircraft that are superior to the Warsaw Pact forces, and our qualitative advantage will continue or widen in the foreseeable future?

Mr. Warnke. This, I think, Mr. Chairman, is a much debated point. Certainly, we have had a technology lead which has tended

to diminish the impact of their quantative lead. I think we still continue that technological lead, but the indications are that their aircraft are more sophisticated than they have been in the past and the technological lead in that respect is diminishing. As far as antitank defenses, I think we still have a substantial technological lead. There again we cannot prevent the growth of technology within the Warsaw Pact forces as well.

So we have to be increasingly concerned as time goes on about the quantitative aspects of the balance in central Europe. It is one of the reasons why I feel we ought to accelerate our efforts at the mutual balanced force reduction talks to see if we cannot find some way to pull the forces apart and to lessen the chances that under any sort of international circumstances, there might be a desire to react.

U.S.-Soviet Readiness

Senator Proxmire. In addition to the technological difference, there seems to be a readiness difference that is very emphatic; it has not been discussed very much. In the current posture statement the Chairman of Joint Chiefs of Staff said the Soviets keep only 11 percent of their strategic submarines at sea, one out of nine, while we keep 50 percent of ours at sea at all times.

Can you explain the low level of readiness on the part of the Soviet Union? Does it tend to nullify any advantages they may have in the greater numbers of submarines of sea-based strategic missiles?

Mr. Warnke. My own feeling is we are under no disadvantage at all in terms of our strategic nuclear forces, and this discrepancy as far as ability to keep submarines at sea, is one illustration of that fact.

I think it demonstrates a couple of other things, too. One is that they put less stress on their ballistic missile submarines than we do. They have invested more of their total strategic resources in their land-based ICBM's.

I think also that there have been indications that they just cannot do as good a job as we can with respect to submarine launched ballistic missile forces.

Senator Proxmire. In addition, I understand the Soviet land-based ICBM's have much lower readiness levels than U.S. levels. Some of their ground equipment may be kept at lower readiness than ours, and in addition to the submarines, their other ships at sea are a smaller percentage.

I wonder if this lower readiness overall may not give us an advantage, and if it suggests that the Soviets may have a reliability and maintenance problem with their weapons. The willingness to deploy weapons may suggest that they would not be as ready, available, and reliable as weapons that are in use or have been in use.

Mr. Warnke. There are such indications, Mr. Chairman. I think it is certainly one factor we have to take into consideration. I think that the problem we see at the present time is that Soviet forces are increasing, particularly as far as their conventional strength in Europe is concerned, and there is apprehension that the state of readiness and the actual deployments may be such as to give them the capability of some sort of at least limited gains.

Quality Control in Soviet Defense Production

Senator Proxmire. I think we ought to be properly concerned on all of these things and they undoubtedly do have more in many areas, more weapons, more men, but it seems to me that may reflect a degree of Soviet inefficiency, a degree of unreliability.

Isn't it true they have the basic problem of quality control in their defense production, they try to compensate for poor quality with greater quantity and their tendency to produce great numbers of weapons sometimes reflects their inefficiency rather than their military superiority?

Some people call it brute force. If they cannot do it by technological means, they do it by producing more and that this is their security blanket, in a way.

Mr. Warnke. I think there is a good deal of fact to that sort of analysis. But it does not change the overriding fact that they do represent a formidable military force. However, we have certain advantages over them.

Comparative Military Strength

Senator Proxmire. I didn't mean to play that down at all. All I wanted to do is try to put in perspective, if we look at the numbers, and the numbers are very important, we look at the numbers in terms of technology, look at the numbers in terms of readiness, look at the numbers in terms of reliability.

It seems to me we get a more complete perspective of what you have called, as I understand it and sometimes in the past, a degree of parity, a degree of equality.

Mr. Warnke. I believe that could be true and I think we should not either underestimate or overestimate their military strength. I don't think we ought to feel they are 10 feet high. They are not.

I don't think that we are militarily at a disadvantage at the present time, either in strategic forces or in overall conventional forces. Certainly, some of the attributes I have mentioned such as greater readiness, greater efficiency, higher technology to a considerable extent offset the quantitative leads they may have.

We are both at a stage in military development that I believe the risks are increasing, and as a consequence, we ought to be turning our attention, with priority, as we are, toward arms control measures that might diminish that risk.

Need for Good U.S. Intelligence

Senator Proxmire. What this very helpful colloquy has brought out is the great need for the best possible intelligence, the best possible information on the Soviet Union, their weapons systems and so forth.

That is to our great interest and certainly in the interests of security. Under the Nixon and Ford administrations, the economic analysis group in ACDA was reduced and suddenly deemphasized with the result that you didn't have the potentiality for getting the kind of information which could best serve us by making it as accurate and up to date as possible.

Do you intend to change this policy within your agency, or are you satisfied that you can get the intelligence analysis you need from the intelligence agencies and the State Department.

You stated you are a user, not a producer.

Mr. WARNKE. We are a user and not a producer, and I think we have to remain that way. I believe, however, it is important that we have the ability within the agency to do our own analysis of the information that has been provided.

Senator PROXMIRE. You get it from different sources and it seems to me that you would be able to evaluate it carefully and arrive at conclusions that may be different from those of your providers.

Mr. WARNKE. I think that is correct. I think that we ought to have an improved ability to do exactly that. We have endeavored to improve that capability within the Agency in certain respects.

We have, for example, upgraded our operations analysis group and made it a separate office of the ACDA reporting directly to me. We are endeavoring at this point to increase the personnel that are available to us who can engage in this sort of analysis.

It is an ongoing effort. I am not satisfied with our capability at this point. I hope to see it improve.

Senator PROXMIRE. Mr. Warnke, thank you very much for a fine statement, and for a most responsive handling of the questions. We deeply appreciate it.

Our next witnesses will be a panel consisting of Abraham Becker, senior economist, Rand Corp., Santa Monica, Calif.; Barry Blechman, head of defense analysis, the Brookings Institution, Washington, D.C.; and John Hardt, senior specialist in Soviet economics, Congressional Research Service, Library of Congress, Washington, D.C.

Gentlemen, we have your prepared statements and, if you want to abbreviate them, the prepared statements will be printed in full in the record if you would like to highlight them.

We will start off with Mr. Becker.

STATEMENT OF ABRAHAM S. BECKER, SENIOR ECONOMIST, RAND CORP., SANTA MONICA, CALIF.

Mr. BECKER. Thank you very much, Mr. Chairman, for the opportunity to present my views before this subcommittee.

In my prepared statement, I took the liberty of concentrating on one question posed in your letter of invitation. I became aware only at a relatively late date that I would be asked to submit a prepared statement. I apologize for the number of typos in that statement which was drawn up rather hurriedly.

Let me take a few moments to summarize the major points that I tried to make in that prepared statement and then hold myself available for any questions you may have on that particular question, that is to say on military expenditure limitations, or on any of the other aspects of this morning's rather full agenda.

POSSIBLE DEFENSE SPENDING AGREEMENT

I am suggesting in this statement, first, that there are a number of reasons why it would be awfully nice if we could reach an expenditure

limitation agreement with the Soviet Union. These reasons, of course, held generally for international agreements to limit military expenditure, but I will concentrate, as you suggested, on the issue of the United States and the Soviet Union. Mr. Warnke indicated that arms control, itself, may have the effect of increasing the size of the military budget; and this, of course, has been an aspect that has been understood in the arms control literature since the early 1960's.

Apart from that, there may also be "balloon" effects, where the constraints that are established by arms control negotiations on particular forces or weapons may result in compensating increases in outlays on other elements of the military forces, or even on those actually being limited because of qualitative change. So, if one wants to save money—and surely, given the large volume of resources devoted to military expenditure the contemporary world, that is a laudable goal—it may be necessary to concentrate specifically on agreements to limit the size of military budgets.

In addition, there are other reasons that make expenditure limitations interesting. Expenditure restrictions can cover the whole gamut of military activities, some of which may be difficult to limit in physical terms, such as research and development. Moreover, since money is the most general of all possible yardsticks, any limitation on arms expressed in money terms allows both sides the flexibility to rearrange their budgets to meet their national requirements within the agreements.

All of that is well and good, except that there are some difficult problems that lie in the way of negotiating and completing such agreements between any pair of states and certainly between the United States and the Soviet Union. These are both technical and political. I have concentrated in my statement on the technical issues, and in the conclusion dealt rather briefly with the political problems.

Measure of Military Expenditures

To be very brief, indeed, about it, there are three sets of technical issues that have to be resolved before an agreement can be successfully negotiated and implemented. One deals with the measurement of military expenditure, which involves such aspects as defining the scope and content of the military expenditures—what the activities and goods and services actually are going to be that will be considered to be part of the element that is going to be constrained by the agreement. Intimately connected with that is how resources are going to be valued: What prices shall be considered appropriate in valuing and weighing military goods and services entering into what we would call military expenditure.

Inflation

Third, within that same first group of measurement problems is the issue of correcting for inflation or price change, since we have been experiencing extraordinarily rapid rates of growth of inflation in the economy generally and in the military sector as well. The major difficulty involved in trying to correct for price changes is the very rapid rate of quality change that takes place in military technology in both

societies. While we have no idea what goes on in the Soviet Union with respect to adjustments for price change in the military sector, we have by no means succeeded in solving that problem within the United States.

Index Number Problem

Finally, still within the first group of measurement problems, is the issue of international comparisons. There the fundamental issue of the index number problem poses such a difficulty that I have suggested it would be terribly useful if, in framing the agreements to limit military expenditures between the two superpowers, we could somehow bypass the requirements to revalue the expenditures of each side in the currency of the other.

Effects of Spending Limitation

The second set of issues that I have outlined in my prepared statement concerns the question of what happens to military expenditures under the impact of a limitation. Given such a limitation, both sides are likely to reallocate their budgets in order to adjust to the constraint that has been imposed on them. Unfortunately, one does not have to strain one's imagination to suggest possibilities in which such reallocations could be destabilizing in the sense of either arms competition stability or crisis stability, the two classical categories of stability in the arms control literature.

Verification

Finally, there is the issue of verification. Each side will be very concerned to make sure that the partner to the agreement will faithfully carry out the obligations and constraints of the agreement.

All of these issues unfortunately involve the requirement for a great deal of information and, to add to the difficulties, this is not the sort of situation in which we can obtain the information by such things as "national technical means," which have proved to be so useful from the point of view at least of concluding agreements in the strategic arms limitation field.

The kind of information that is crucial here is financial and economic, and that cannot be obtained except to a very small degree by the utilization of "national technical means."

I suggest that in the later two sets of problems there are very important tradeoffs between the amount of information that is supplied by each side and the degree to which the agreements would have to be made more stringent by either adding constraints or by adding requirements for additional verification procedures. That is to say, the more information supplied by each side, the more confident each side will feel in its ability to detect the structure of military expenditures of the other, the less it will insist on a variety of subsidiary and complementary restraints that are designated to ensure that the security of either side will not be harmed by any actions that are taken by the partner.

Soviet Union Opposes Efforts in U.N.

Unfortunately, the Soviet Union does not seem to be impressed by any arguments of that kind. It's true that there was a Soviet member who was a colleague on the 1974 United Nations expert group looking at the reduction of military budgets, and he did, indeed, sign the group's report which embodies many of the, I would not say pessimistic but rather not terribly optimistic, ideas that I have outlined here. However, I am not sure that Soviet Union didn't regret that decision.

In any case, since that time there has been no indication on Moscow's part that it is at all interested in pursuing these questions further.

The Soviet Union has consistently opposed the work in the United Nations to examine these questions in greater detail so we can make progress toward agreements, and the current U.N. effort to develop a standardized reporting system has no Soviet support at all.

Efforts Should Continue

I believe, nevertheless, that this effort to develop a system of international standardized reporting of military expenditure is an effort that deserves the full support of the U.S. Government. I am hopeful that with the continued understanding and support of not only the industrially developed states, but also the developing countries, that this effort will bear fruit in the shape of an institutionalization of such reporting within the United Nations system. Gradually we will perhaps be able to wear down the opposition of the Soviet Union to such a system and thereby offer the Soviet Union a framework within which it might see it possible to alter its heretofore adamant position on the disclosure of Soviet military expenditure.

Thank you, Mr. Chairman.

[The prepared statement of Mr. Becker follows:]

Prepared Statement of Abraham S. Becker [1]

Prospects for Agreement To Limit Soviet and American Military Expenditure

My statement this morning, Mr. Chairman, is addressed to the question in your letter of invitation regarding a defense spending limitation agreement between the United States and the U.S.S.R. The material that follows draws on my experience as the American member of the United Nations Expert Group on the Reduction of Military Budgets in 1974 and 1976, as well as on the material of a forthcoming book on the subject.[2]

FINANCIAL VERSUS PHYSICAL LIMITATIONS

The attention of the world in the sphere of arms control has been concentrated almost exclusively on negotiations to restrict forces or weapons in physical terms. Thus, the salient arms control issues between the United States and the U.S.S.R. have been SALT and MBFR, both involving constraints expressed in physical units. This reflects the general belief that men and weapons constitute the significant threat to peace and therefore must be the focus of control arrangements.

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[1] The views expressed in this statement are those of the author alone and are not necessarily shared by the Rand Corp. or any of its research sponsors.

[2] Abraham S. Becker, "Military Expenditure Limitation for Arms Control: Problems and Prospects." With a documentary history of recent proposals, Cambridge, Mass., Ballinger Publishing Co., in press.

However, neglect of the financial dimension in arms control may exact its own cost. Where explicit attention is not paid to the military budget, physical constraints alone may produce a "balloon" effect; the limitation on particular forces or weapons results in compensating increases in outlays on other elements of the military forces, or even on those actually being constrained as a consequence of qualitative change. Although the underlying motivations and explanations are surely complex, it is clear that U.S. and Soviet expenditures on strategic forces have not been reduced as a consequence of the SALT I agreements. Given the large volume of resources devoted to military use in both countries, it seems desirable to complement the arms control element of agreements by arrangments to actually save money. To do so, it may be necessary to restrict military budgets directly.

In addition to this primary directive of reducing the "burden of defense" in both countries, an agreement to limit military expenditure may have two other advantages. First, because they are expressed in money terms, expenditure restrictions can cover the whole spectrum of military activities, including elements that are difficult to control in physical terms, such as research and development. Second, because money is the most general of all metrics, agreements on expenditure limitations would afford the United States and the USSR the flexibility to meet their specific national requirements through the freedom to reallocate military resources within the limits of the agreement.

However, while there are distinct advantages that can be foreseen for agreements to restrain military outlays, they also pose significant technical and political problems. Candor requires acknowledgment that the prospects of reaching an agreement with the U.S.S.R. in the near future appear doubtful. This statement will concentrate an outlining the technical issues but will touch on the political side in conclusion.

TECHNICAL ISSUES OF AN EXPENDITURE LIMITATION AGREEMENT

There are three sets of technical issues that need to be resolved for successful negotiation and implementation of an agreement to limit military expenditure. The first is the definition and measurement of such outlays: it is necessary to be reasonably precise about what the parties agree to limit, and they will want to be assured that the constraints to be imposed are equitable. Moreover, the parties will be concerned with the effects of such limitations on their security and will therefore wish to examine the changes in military structure that are likely to result from the limitations. Finally, each will be determined to make sure that the restraints of the agreement are being complied with by the other signatory.

Usually, proposals to reduce military outlays refer to "military budgets" as the object to be reduced. The meaning of "military budgets" may appear self-evident, but the scope and content of these outlays differ sharply between states. Outlays treated as military by some states may be excluded by others from the corresponding budget categories. Some central governments use only a single category for military expenditure; others have several that bear a close relation to military expenditure. The coverage and structure of military budgets vary with the economic organization and the system of public finance in different states. Hence, a prerequisite for any meaningful proposal to reduce—or, more generally, to limit—military budgets is a common understanding by the partners to the agreement of the principles of classification of military outlays in the national budgets of the two states and an accepted definition of the aggregate to be reduced.

It is well-known that the Soviet Union reveals almost nothing about its military spending, neither the accounting organizational structure nor the actual values. This secretiveness has posed a major obstacle in past discussions on the possibility of limiting the military outlays of the great powers. The United States and other Western governments have been unwilling to consider agreements with the Soviet Union and with its allies where neither equity of sacrifice nor basic compliance with treaty constraints could be verified. How much and what kind of information would be required for such an agreement is a critical issue that is outlined below. But since the U.S.S.R. reveals virtually no military budget information, it seems clear that unless there is a change in Soviet disclosure policy, the prospects of any initiative to limit the military budgets of the United States and the U.S.S.R. are poor.

The first step, then, of negotiations for a financial limitation would be to define the meaning, scope, and content of military expenditure. This is a broad-

ranging task which includes not only delimitation of the kinds of goods and services that are to be included in military expenditure but also the criteria for valuing these goods and services. The latter issue poses special problems. An accurate measurement of military expenditure is likely to require that relative prices of military goods and services correspond to relative real costs. Unfortunately, in few countries do relative prices correspond neatly to relative real costs, and the degree of divergence differs across international boundaries and according to national economic systems. This is particularly true for economies as different as those of the United States and the U.S.S.R. One area in which military expenditure often diverges sharply from real costs in many countries is military manpower. The Soviet Union uses a conscription system and thereby the true social cost of military expenditure is understated in comparison with the United States, which uses competitive wage rates to raise a volunteer force. Other sources of divergence exist in both countries, such as indirect taxes and subsidies. It will not be easy to reach agreement on a common set of criteria for valuing military activities in the two countries.

The two sides will want to agree also not only on the scope, content, and meaning of aggregate military expenditure but also on significant dimensions by which it can be structured. Thus, in the United States much attention in recent years has been paid to concepts of military programs as a more meaningful way of structuring military expenditure. Distinctions can also be made between capital and current inputs and between primary factors and intermediate goods and services. Accounting models of military expenditure have been studied by the United Nations Expert Group on the Reduction of Military Budgets, and the 1976 Expert Group Report recommends a specific and relatively detailed expenditure matrix for international reporting under UN auspices. Such a matrix form could also serve as the basic instrument for a bilateral agreement.

For any agreement intended to last more than a year or two, the negotiators will have to solve another problem under the heading of measurement of military expenditure—deflation for price change. The principal difficulty of price deflation is the problem of quality change in military systems, which has proceeded at extraordinarily rapid rates in the United States and the U.S.S.R. While we know nothing about the procedures used in the Soviet Union to deal with this problem, even in the United States the study of methods for dealing with inflation in the military sector is still in an intermediate stage. No satisfactory general solution to the problem of deflating military expenditure has yet been devised, and the deflation of particular components of military expenditures, such as R. & D., would present particular difficulties. Nevertheless, deflation cannot be ignored, for the failure to provide protection against inflationary effects could prevent the conclusion of an agreement or cause one to break down after ratification. Differential rates of inflation would leave the participants with different levels and rates of real expenditure, relative to each other and possibly to the treaty specifications, creating the threat of unequal benefits and gains from treaty limitations.

Analogous to the problem of deflation for price change is that of comparing the military expenditures of two countries at a point in time. While structural change within a single country over a short period of time may be slow enough so that the problems of index number construction may appear less serious, this cannot be the case in international comparison, where even among countries closely related by trade ties relative price and quantities differ perceptibly. It is clear that the ratio of Soviet to American military expenditures should appear greater valued in dollars than in rubles; the size of the margin of difference is still in dispute. Thus, the problem of defining the base from which the agreement starts could be significantly complicated by this index number problem of international comparison. To avoid erection of a major obstacle to agreement on reducing military expenditure, it would be useful if an agreement could be framed so as to avoid the necessity of international value comparison. This may be impossible if the participants are concerned about asymmetry of their initial levels of military expenditure. If translation into a common currency seems required, there will be a problem of choosing one of the two states' prices as weights. On economic grounds, the choice should be governed by the relative meaningfulness of prices in the two states, but political considerations will surely enter the picture.

If the negotiations successfully solve the several issues of measurement of military expenditure, the sides will face two other problems. The first is the effect of a limitation of military expenditure on the security of the two states.

Will the adjustments of outlay structure and force posture that will inevitably take place after the limitation is in place contribute on balance to damping or inflaming the Soviet-American arms competition? Will such adjustments make it more or less likely that crises anywhere in the world will tend to escalate, possibly to a general war? Unfortunately, analysis of this problem suggests that there may be nonnegligible possibilities of destabilizing effects of reallocations of military expenditure by either or both sides. It will, therefore, be necessary to take careful account of this reallocation problem if an equitable and durable agreement is to be reached.

Some of the problems that occur under this heading may be dealt with by adding constraints, linking an overall military expenditure limitation to constraints on expenditure components (e.g., on strategic forces) or on physical forces or weapons. In pondering the possible choices, it is important to recognize the trade-off that exists between information about the structure of military forces and outlays on one hand, and the need for limitation of the military expenditure component or physical force on the other. There is a clearly defined dilemma: the more encompassing the scope of the limitation, the less likely any disruptions of the military balance, but the more onerous and therefore (probably) the less acceptable the limitation. However, if each side were both free to react to and fully informed about reallocations by the other side, the post-agreement budgetary changes would tend to cancel each other out, since the action of one signatory would be quickly perceived and countered by the other. In such a situation, information on the structure of military forces and military expenditure of each participant could be a partial or full substitute for an actual limitation on one or more expenditure components or on physical forces.

A similar trade-off is an essential element of the verification problem. Because any arms control limitation restricts the participant's ability to respond to changes on the other side, it imposes the necessity for each side to obtain at least as complete and accurate information on the military activities of its treaty partner as was obtainable before the limitation was brought into force, if the sides are to have confidence that participation will not damage their security. The need for information is even broader and deeper in an agreement to limit military expenditure, because the data required for verification are largely economic and financial, as contrasted with the estimates of physical forces on which states depend for general assessment of the external threat, as well as for monitoring physical-unit arms control agreements. Moreover, the physical force data may be obtained by what has come to be called "national technical means," while the economic and financial data cannot be so obtained.

To be able to verify changes in military expenditure, it will be necessary to specify base levels with confidence. Therefore, verification requirements include precise and comparable definitions of military expenditure and its structure as well as the value data to complement such definitions, probably national price indexes, and possibly international purchasing power parities, as previously discussed. However, while such information contributes to verification, it is not sufficient in itself. Assurance of compliance with treaty limitations requires supporting data on financial and physical flows compiled at intermediate or even primary levels in order to neutralize potential opportunities for evasion.

All this suggests an intrusiveness that will trigger charges from the U.S.S.R. that the United States is intent only on easing the CIA's intelligence problems. Here again, the stringency of the requirements would depend on the U.S.S.R.'s flexibility on information disclosure prior to the agreement. The degree of verification intrusion will depend on the state of confidence between the partners with respect to knowledge of each other's military expenditure structure.

THE PROBLEM OF SOVIET DISCLOSURE POLICY

Information is obviously the heart of arms controls. Hence, agreements between the United States and the U.S.S.R. are the more problematic because of Soviet secretiveness. Strategic arms limitations are possible, if at all, only because of the existence and legitimation of "national technical means." With respect to expenditure limitation, no such device exists and information must be actually disclosed.

Although a Soviet official served on the 1974 Expert Group and approved its report, the U.S.S.R. has continued to be unimpressed by these arms control arguments. I noted earlier that the U.S.S.R. provides almost no information on its military expenditure and little economic information bearing on military expendi-

ture. There has been no significant change in Soviet disclosure policy in the last decade or so. Tantalizing hints from time to time that Moscow is about to lift the curtain have turned out to be illusions. Indeed, even a superficial exploration of the roots of Soviet secretiveness reveals the important functional role that secrecy plays in Soviet policy and society. There do not seem to be any major forces in Soviet society pressing for significant alteration of Soviet disclosure policy.

It seems a fair assumption that Soviet leaders are interested in restraining the pace of their military spending because of its high opportunity cost in an era of relatively slow general economic growth. However, I believe it unlikely that Moscow will find military expenditure limitation, with all its accompaniment of outlay comparison and verification, a useful or desirable means of dealing with the growth problem. This judgment depends partly on the assumption that Soviet planners will be able to preserve the moderate rates of growth of the past decade. If that should prove to be impossible, it is conceivable that Soviet concessions on military expenditure limitation might be reconsidered, particularly if Moscow believed that there was a close link between such concessions and the possibility of invigorating technology flows from the West.

Is alteration of disclosure policy a necessary prerequisite to some form of Soviet-American agreement on military expenditure limitation? Two kinds of proposals have been broached which are intended to circumvent the disclosure hurdle: one is reduction by "mutual example;" the other involves an expenditure limitation linked to a physical limitation, for example, on strategic arms. With regard to the mutual example case, I believe that the 1963–1964 precedent has been misunderstood and exaggerated beyond its intrinsic importance. From an account of the critical conversations among President Kennedy, Secretary Rusk and Andrei Gromyko that took place in September and October 1963, it seems apparent to me that the U.S. interest was in the improvement of "atmospherics." Moreover, the reduction in U.S. outlays was nominal. It is not clear whether any change occurred on the Soviet side, but it could not have been significant. If, in the future, we should happen again to be interested in effecting a small, one-time cut in our defense budget, we might try to replay the 1963–64 episode. However, I do not believe mutual-example is capable of sustaining the weight of significant reductions or of reductions extending over several years.

In the book mentioned earlier, I have examined the notion of a military expenditure limitation linked to a physical limitation—for example, SALT II or III—and unfortunately have found that it does not provide a bypass of the disclosure problem. Such a scheme could perhaps satisfy the stability criterion of arms control, but it would probably raise serious questions on the score of equity and verifiability.

PROSPECTS

What then remains of the idea of military expenditure limitation? In 1975, the General Assembly accepted the (basically American) notion of taking another small step on the road to actual limitation by detailed examination of the first of the three set of technical issues surveyed in the 1974 Expert Group report. The report of the 1976 Expert Group recommended a specific instrument for standardized universal reporting of military expenditures and a set of guidelines for testing and refining that instrument. It is to be hoped that the next session of the General Assembly will call for a pilot study of the reporting instrument.

I believe that this effort merits the full support of the U.S. government. Not surprisingly, the Soviet Union remains hostile to universal standardized reporting. However, the developing countries have continued to support the idea. If we can maintain that support and the continued pressure of the developed states for a careful step-by-step approach, the opposition of the USSR to adoption of such a system can be circumvented. The erection of a system of universal standardized reporting will put increasing pressure on the USSR, and such a system offers a framework within which it may be possible to see a gradual alteration of Soviet disclosure policy.

Senator PROXMIRE. Thank you very much.

Mr. Blechman.

STATEMENT OF BARRY M. BLECHMAN, SENIOR FELLOW AND HEAD OF THE DEFENSE ANALYSIS STAFF, THE BROOKINGS INSTITUTION, WASHINGTON, D.C.

Mr. BLECHMAN. Thank you, Mr. Chairman.

I have been asked to address the question of relative Soviet and U.S. military capabilities, particularly focusing on a regional assessment I can address the other questions during the questioning period, if you would like.

NEED FOR NET ASSESSMENTS

In my prepared statement, which I have submitted, improvements which have been made in Soviet military capabilities, over the past 12 years, are detailed. Still, increases in the strengths of Soviet military units and improvements in Soviet weapon systems are really not sufficient reason to spend more money on U.S. military forces.

Gains in Soviet capabilities must be judged, of course, in the light of past and prospective changes in the United States and its allies' military capabilities. What we need are net assessments in relative capabilities, judgments about the changes likely to occur in the military balance should the present trends continue, and the consequences of those changes. I have my own opinions on where the trends stand now, which I would like to share with you.

I will begin with Europe.

THE BALANCE IN EUROPE

The importance of Europe to the security and economic and political well-being of the United States needs no elaboration. The maintenance of a not unfavorable balance of conventional power in central Europe is an essential, if not by itself sufficient, factor in protecting these interests. Consequently, U.S. capabilities to fight in Europe deserve, and generally receive, first priority in U.S. defense planning.

Most public comments on the military situation in Europe emphasize improvements in Warsaw Pact capabilities. This reflects the pronounced and persistent effect of adverse developments during the late 1960's and early 1970's. During this period, U.S. capabilities to fight a conventional war in Europe declined as the fiscal, materiel, and manpower demands of the war in Vietnam caused delays in weapon modernization programs, drawdowns in equipment stocks and manpower in Europe, and erosion of the operational readiness of military units not engaged in Southeast Asia. At the same time, substantial improvements were initiated on the Soviet side.

I have already noted the rise in the number of Soviet divisions in and near Eastern Europe. Additionally, the size of each of the 20 divisions that comprise the Group of Soviet Forces Germany has been increased, with a better than 20-percent rise in the manpower assigned to each, a 40-percent increase in the number of tanks in each of the motorized rifle divisions, and a doubling of artillery assets.

The Soviets have markedly improved their military hardware in Europe. New tanks and armored personnel carriers have been deployed, each clearly superior in design to its predecessors. Soviet armored personnel carriers now mount cannons and antitank weap-

ons, the first in any army to do so. The mobility of Soviet forces is much greater because towed artillery has been augmented with self-propelled units, and because mobile gun and missile air defense systems have been introduced. New Soviet aircraft appeared first in Europe and, when they have been developed in large numbers, Soviet capabilities to strike preemptively at NATO airfields, weapon storage sites, and command and control facilities will be substantial. All in all, these new weapons finally provide the mobility and firepower needed to generate the attack shock and achieve the high rates of advance long emphasized in Soviet military doctrine.

In more recent years, however, the trend has been more favorable from NATO's perspective. Since the early 1970's, both sides have been expanding and modernizing their forces at comparable rates. As a result, gross comparisons of force levels, like the one depicted in table 5 of my prepared statement, show no significant change so far in the 1970's.

Changes in the balance of forces resulting from the modernization of weapon systems are more difficult to assess, yet in side-by-side comparisons of similar weapons' technology, NATO appears to be at least holding its own.

The modernization of Warsaw Pact air forces has been substantially matched by NATO. While the Warsaw Pact has acquired more new combat aircraft in the last few years, the aircraft acquired by NATO can carry a larger total payload. Other improvements, such as those in avionics and precision-guided ordnance, may also have favored NATO.

Both the U.S. M–60 and the West German Leopard I tanks appear to be as capable as the new Soviet tank—the T–72. The Warsaw Pact, which traditionally has emphasized armor, continues to have about three times the tank inventory of NATO, but NATO has halved the gap in tank production rates.

Increases in antitank capabilities also seem roughly balanced. NATO's antitank guided missiles are considerably easier to operate and have shorter flight times than those deployed by the Warsaw Pact. Shorter flight times are a significant advantage, among other reasons, because they reduce the amount of time the gunner must remain exposed to enemy fire. This advantage is offset, however, by the greater protection offered to pact antitank gunners because their weapons are often operated from inside armored vehicles.

Improvements in air defense capabilities also appear roughly balanced. Since 1970 the Soviet Union has introduced four mobile air defense missile systems, which have greatly increased the protection offered by pact air defenses to combat units on the frontlines. This specific effort has not been matched by NATO. However, with NATO's deployment of very capable fighter aircraft such as the F–15, its air combat capabilities have probably increased more than those of the Warsaw Pact.

The list could go on, but it seems evident—within the limits of uncertainties surrounding any such assessments—that since about 1970 the modernization of Warsaw Pact forces has been essentially matched by NATO improvements.

Still, there is some reason for concern as to the military balance in Europe and a need, in my view, for further improvements in the U.S.

force posture there. These concerns stem from the longstanding mismatch between Soviet emphasis on intense short wars and NATO's broad stress on preparations for more protracted conflicts. The new Soviet military hardware greatly augments their capabilities to fight the sort of quick-start lightning war celebrated in their doctrine. And the problem is aggravated by the directions in which military technology itself is evolving; the characteristics of modern military equipment seem likely to insure that battle in Europe would result in heavy losses and the rapid consumption of materiel.

For all these reasons, it is important for NATO to increase the amount of online firepower it could muster with little warning, and its ability to shift and effectively control ground and air forces flexibly, according to the dictates of the tactical situation. I can elaborate on these desirable changes later, if the subcommittee so desires.

The Balance in the Middle East

The extent to which the United States can honor its commitments and protect its interests in the Middle East has been tested on many occasions, most recently during the October 1973 Arab-Israel war. There are bound to be future tests of similar importance and danger. A key factor in resolving such crises relatively favorably has been the perception of local actors and Soviet leaders alike that the United States is both willing and able to prevent the Soviet Union from intervening unilaterally in the region with combatant forces. The continued maintenance of this perception is thus a key element in any successful United States-Middle Eastern policy.

Neither the United States nor the Soviet Union currently station combat forces in the Middle East itself, but each maintains a large and powerful naval force in the Mediterranean. These fleets are nearly the same size, but their capabilities differ significantly.

The Soviet Mediterranean squadron typically consists of some 50 to 55 ships. Roughly half are combatants; of these about half are submarines and half are various types of surface ships. The remaining 25 or so units are auxiliaries. The submarine contingent, which includes both torpedo- and cruise-missile-launching units, provides the squadron's most effective firepower. Before 1972 the squadron was supported by aircraft operating from bases in Egypt. Since the expulsion of the Soviet military from Egypt, however, Soviet naval forces in the Mediterranean have operated largely without direct air support. The size of the squadron itself also has decreased, as it became difficult for the Soviets to sustain their units at sea without Egyptian or alternative facilities.

The Soviet Mediterranean squadron seems to be designed for use primarily against surface ships, principally as a counter to U.S. aircraft carriers—and it poses a serious threat to them. It also has some capability for antisubmarine warfare, but apparently lags in this area.

The size and composition of the 6th Fleet do not change often, nor by much. The 6th Fleet is normally composed of some 40 to 45 units. Three-fourths are combatants, organized into two aircraft carrier task groups and one amphibious landing force. Roughly 2,000 marines are embarked on the latter. A network of underway replenish-

ment and afloat maintenance and repair forces supports all three groups.

In contrast to its Soviet counterpart, 6th Fleet's most effective firepower is concentrated in its air component—about 200 aircraft, most of which are carrier based. Some reconnaissance and maritime patrol-antisubmarine aircraft are based ashore, operating from airfields in Spain, Italy, and Greece. Sixth Fleet's submarine component, much smaller than that of the Soviet Mediterranean squadron, is employed primarily for antisubmarine warfare.

If military resources were employed with equal skill, the eventual result of combat between United States and Soviet forces in and near the Mediterranean would almost certainly be Soviet defeat. Achieving that outcome could cost the United States a great deal, however, although losses would be reduced substantially if the United States were joined in combat by its NATO allies.

Assessments of the specific losses which the United States might suffer in a Middle Eastern conflict vary widely. They depend largely on factors which are not really knowable in advance: the specific disposition of the two sides' forces, the strength and tactical character of the attack, the actual performance of weapons and electronic systems. Still, estimates of these factors can have a significant impact on events, in that military advice to political leaders is likely to be conditioned, at least in part, by whatever best estimates of relative capabilities are available and credible. If the U.S.S.R. believes itself unable to impose a significant price on the United States in the event of war in the Mediterranean, it is unlikely to press whatever issues might be at stake. If, on the other hand, the price for the United States is estimated by Soviet leaders to be high, deterring Soviet intervention in the Middle East is likely to be more difficult.

Consequently, steps to enable the United States to increase its capabilities in the Mediterranean may be important. In the short term, these steps mainly involve changes in the prevailing patterns of U.S. naval and Air Force operations and deployments; the thrust would be to increase the U.S. ability to rapidly move additional forces into the region when the political situation dictated such a move. Over the longer term, a reorientation of the shipbuilding program is required. Again, I can discuss these matters later if the subcommittee so chooses.

The Balance in East Asia

The situation in East Asia is quite different from that in Europe or the Middle East. Here, the possibility of direct military confrontation between the United States and the U.S.S.R. is remote. The Soviet Union does maintain approximately one-fourth of its ground and tactical air forces in the Far East, but they are arrayed primarily against China. They do not threaten U.S. interests directly and the likelihood of U.S. forces being drawn into conflict with them is minute. Despite previous concerns about what might happen in China following Mao's death, there is no indication of an improvement in Sino-Soviet relations such that these Soviet military forces would be freed for use against NATO.

Direct U.S. military involvement with China is also a remote possibility. China, though its armed forces are immense, has little ability

to project military power beyond its borders. Its small nuclear weapons inventory is a threat primarily to the U.S.S.R. Since the early 1960's, when China's direct access to Soviet military technology was severed, its forces have been operating with increasingly obsolescent equipment.

The reason for a U.S. military presence in East Asia is not that U.S. interests are directly threatened, but that long-term trends in the Asian military balance might influence the policies of the principal U.S. ally in the region, Japan. That Japan has eschewed the building of a strong armed force despite its obvious economic capacity to do so, and particularly that Japan has chosen not to develop nuclear weapons, is in part the result of a continuing faith in the U.S. defense commitment. Since Japan is unlikely to decide to develop nuclear weapons unless it is suddenly imbued with an overriding sense of national insecurity, the U.S. forces that provide visible confirmation of American defense commitments in Northeast Asia have thus assumed major political significance.

While watching with interest the relative strength of all U.S. Armed Forces, Japanese leaders take special note of the naval balance in the Western Pacific and prospects for stability on the Korean peninsula.

Fortunately, compared to Soviet naval capabilities elsewhere, the maritime threat in the Pacific is a relatively small one. There has been an increase in the Soviet Pacific Fleet's strength since 1968, but this reflects the initiation of Soviet naval operations in the Indian Ocean. These deployments are supported by the Pacific Fleet, which has received additional resources to carry out this task. Even so, the Soviet Navy in the Pacific remains relatively weak as compared to the fleets that deploy forces into the Atlantic and Mediterranean.

Arrayed against the Soviet Pacific Fleet are the small but relatively modern Japanese Navy and the more powerful U.S. 7th Fleet. The latter includes two aircraft carrier task groups, one of which is home ported at Yokosuka, Japan. The United States also maintains the 3d Fleet—including four more carrier task groups—in the Eastern Pacific. Many of these ships could move westward fairly rapidly to reinforce the 7th Fleet if needed. Finally, the United States maintains some land-based antisubmarine and fighter aircraft in the Western Pacific, which could be useful in any naval battle that took place there.

On balance, the task of countering the Soviet Navy in the Pacific does not seem excessively difficult. Most of the Soviet Pacific Fleet's operations originate in Vladivostok; ships from this naval complex must pass through one of several straits bounded by Japanese territory before reaching open waters. The straits are choke points that can be mined or blockaded, bottling up Soviet submarines and warships caught inside the Sea of Japan and isolating those already deployed. To circumvent the restricted access from Vladivostok to the open ocean, the U.S.S.R. has expanded operations at Petropavlovsk on the Kamachatka peninsula, but this has not solved the problem. Petropavlovsk does not have adequate road or rail links with the mainland and must be supplied by ship, a vulnerable link.

Thus, fewer forces are needed to counter the Soviet Navy in the Pacific than elsewhere; the Soviet Pacific Fleet is less capable and the

geography of the region places the Soviet Navy at a distinct disadvantage. In all likelihood, the forces the United States now maintains in the region are larger than required by a realistic assessment of needs. Hence, from a military standpoint, shifting some U.S. naval forces from the Pacific to the Atlantic to help counter the threat to U.S. interests in the Middle East seems sensible.

The prospect for a stable military balance in Korea also seems optimistic. Today, South Korean ground forces are well armed, reputed to be tough, well trained, and disciplined, and outnumber their opponent. ROK forces have developed significant capabilities against armor—the essence of the threat against them. In addition, the mountainous terrain in Korea means that invading tank forces would be generally restricted to corridors. Consequently, the amount of armor that the North could usefully employ in battle would be limited and its massed road-bound armor would be vulnerable to attack by air or ground forces. In short, the balance of ground combat forces appears to be adequate; from a military standpoint, the administration's decision to withdraw the last U.S. Army forces from the peninsula is a sensible one. In my view, it makes even more sense from a political standpoint.

The ROK Air Force, on the other hand, is not adequate for South Korea's needs. The North has about three times as many aircraft as the South. Although ROK aircraft are generally more modern and its pilots are believed to be better trained, South Korea could not rely on its air power surviving against the North. The United States maintains a full air wing of F–4D/E tactical fighter aircraft in Korea, 66 in all. These units train with ROK units and are prepared to operate jointly with them. Although adding in the U.S. aircraft does not wholly eliminate the North's advantage in numbers, the combined ROK and U.S. air resources represent an overall capability at least comparable to that of North Korea. Moreover, U.S. Air Force and Marine Corps aircraft based in Japan would be available for rapid reinforcement, as would U.S. Navy aircraft based on carriers. All these air forces, in my view, should remain in the region.

The Balance in Strategic Capabilities

Finally, let me say just a word about the balance in strategic nuclear capabilities.

There is general agreement that, at present, rough overall parity exists between U.S. and Soviet strategic capabilities. Still, the momentum in the Soviet strategic program has given rise to two sorts of concerns in the United States.

One pertains to a projected Soviet advantage in the two nations' relative ability to destroy hardened targets. In extreme crises, it is argued, this superiority would give the U.S.S.R. more options than would be available to the United States. Moreover, the argument goes, the exercise of these options need not actually occur for this disparity to have an effect on world affairs. Such Soviet superiority in hard-target kill capabilities supposedly could make the United States timid and the Soviet Union bold when confrontations occurred, leading to outcomes unfavorable to the United States.

Recent growth in Soviet strategic capabilities have also evoked a less tangible sort of concern in some Americans—that the sheer pace and range of Soviet strategic developments will soon result in a world-

wide image of Soviet power in the ascendant. Although specialists are aware that U.S. strategic capabilities have improved significantly since 1964, these changes have been far less dramatic than the regular unveiling of new Soviet missiles, and it may appear that the United States is being overwhelmed. Such impressions, superficial though they may be, presumably could have political consequences if they became widespread.

Much of the U.S. strategic program is justified on the basis of these concerns. The question is whether these worries are realistic.

There seems little doubt that the second fear—a growing image of Soviet momentum and ascendancy in the strategic field—is well founded. Increasingly, statements by public officials in this country and abroad indicate awareness of and concern about the scope and pace of the Soviet strategic buildup. It is not clear to what extent the Soviet Union itself shares the view that it is gaining the upper hand in the strategic balance, but it cannot have failed to note the apprehension in the West, and that in itself might lead to behave rashly under certain circumstances. Although the links between perceptions of relative strategic capabilities and foreign policy behavior are not well understood, the fact that many decisionmakers around the world believe such links exist is sufficient reason for prudent defense planners not to discount the phenomenon.

Concern about Soviet hard-target kill capabilities is less easily substantiated. The size and number of its ICBM's certainly provide the Soviet Union with a theoretical ability to destroy most of the U.S. ICBM's in a first strike, once it masters the techniques necessary to improve the accuracy of its missiles. But carrying out a preemptive first strike is likely to prove far more difficult in practice than in theory. Such a military operation would require split-second timing and coordination, and its effectiveness would be influenced by factors of which we know very little—such as the effects of the first nuclear explosions on warheads arriving later, the reliability of missiles, and so forth.

In conclusion, I believe that the assessments presented demonstrate the value of detailed analyses of the Soviet military buildup. An across-the-board U.S. response stemming from a diffuse sense of unease would only waste resources, diverting people and money not only from important domestic needs, but also, within the defense program, from those areas where the Soviet Union presents more significant challenges. In East Asia, the Soviet buildup threatens not the United States, but China. Given improvements in United States-China relations and more narrow U.S. definitions of its interests in Southeast Asia, the U.S. force posture in the Pacific can be scaled down, freeing resources for use elsewhere. In Europe and the Middle East, on the other hand, improving Soviet military capabilities do threaten important U.S. interests and require a clear and strong response. But even here, there are more and less efficient ways of enhancing U.S. military capabilities; concern about trends in the military balance should not cause the neglect of rigorous examinations of proposals on pragmatic grounds.

That concludes my statement, Mr. Chairman. I am prepared to answer questions.

[The prepared statement of Mr. Blechman follows:]

PREPARED STATEMENT OF BARRY M. BLECHMAN [1]

Mr. Chairman, members of the Subcommittee, I am grateful for the opportunity to testify today. Although the tables in this statement are taken from the forthcoming Brookings' publication, "Setting National Priorities: The 1978 Budget," I trust the Subcommittee understands that I appear before you as an individual; the opinions expressed are mine alone and should not be attributed to the Institution, its trustees, officers, or other staff members.

I have been asked to assess the military balance between the United States and the Soviet Union, looking particularly at a regional breakdown of relative capabilities; that is the focus of this statement. I can also address the related questions considered by Messrs. Warnke and Becker, but will save those thoughts for the question period.

GAINS IN SOVIET MILITARY CAPABILITIES

According to U.S. intelligence sources, Soviet defense spending has been rising steadily since the mid-1960s, averaging either 3 or 5 percent growth each year, depending upon the method used to price their military expenditures.

Highest priority seems to have been accorded to the strategic rocket forces. Since 1964, Soviet aggregate strategic nuclear capabilities have increased roughly fivefold, regardless of which static measure of capability is examined, as shown in the table below:

TABLE 1.—SOVIET STRATEGIC FORCES

Description	1964 [1]	1970	1976
Force levels (launchers)	473	1,685	2,498
ICBM's	190	1,287	1,567
SLBM's	108	254	791
Heavy bombers (long range)	175	145	140
Throw-weight (millions of pounds) [2]	2.2	6.6	9.6
Missiles only	0.8	5.5	8.6
Targetable warheads (missile reentry vehicles and bombs) [3]	649	1,832	3,228
Missiles only	298	1,541	2,948
Equivalent megatonnage [4]	1,102	3,396	4,861
Missiles only	534	2,923	4,406

[1] Figures for 1964 include *Golf*-class and *Zulu* class ballistic missile submarines.
[2] The weight-carrying capacity of missiles and bombers is not directly comparable. This index includes the payload of each system that could be used to carry nuclear weapons, its protective structure, and associated guidance system.
[3] Targetable warheads include only weapons associated with on-line forces.
[4] Equivalent megatonnage is a measure of the area destruction capacity of a nuclear arsenal based on the number and explosive yields of its various component weapons and the fact that the extent of the ground area that would be destroyed by a nuclear explosion does not increase one-to-one with increases in the yield of the nuclear warhead.

Sources: Authors' estimates derived from International Institute for Strategic Studies. *The Military Balance, 1975–77* (London: IISS, 1976), pp. 8, 73–75; Stockholm International Peace Research Institute, *World Armaments and Disarmament, SIPRI Yearbook 1976* (M.I.T. Press, 1976), pp. 24–27; "Annual Defense Department Report, fiscal year 1978," p. 58; and declassified posture statements of the Secretaries of Defense to the U.S. Congress, fiscal years 1963–73 (processed).

Moreover, the Soviets continue to invest heavily in strategic weapons: Although the present generation of Soviet ICBMs is still being deployed, a new family of missiles is apparently moving into advanced development.

It is the ground forces, however, which dominate the Soviet defense establishment. As shown in table 2, from 1964 to 1976, Soviet ground forces expanded from 140 divisions to 170, and were extensively redeployed. The largest increase took place in the Far East. The number of Soviet divisions deployed in Eastern Europe also was increased, when one of the army groups that occupied Czechoslovakia in 1968 remained there. And in the western Soviet Union, where the immediate strategic reserve for war in Europe is located, the number of divisions rose as well.

Even more impressive have been qualitative improvements in the hardware used by Soviet ground forces; I will elaborate shortly.

[1] Barry M. Blechman is a senior fellow and head of the defense analysis staff at the Brookings Institution.

TABLE 2.—CHANGES IN SOVIET GROUND FORCES

[Number of divisions]

Type	Eastern Europe		Western U.S.S.R.		Far East		Central and southern U.S.S.R.	
	1964	1976	1964	1976	1964	1976	1964	1976
Armored	13	16	20	23	3	7	14	4
Motorized	13	15	34	37	13	35	23	26
Airborne	0	0	6	6	1	1	0	0
Total [1]	26	31	60	66	17	43	37	30

[1] There are also 20 mobilization divisions (including at least 1 airborne unit) that are under strength but assigned full-division equipment sets.

Sources: Authors' estimates derived from data appearing in IISS, "The Military Balance, 1964-65" (London: IISS, 1964); IISS, "The Military Balance, 1976-77," and "Fiscal Year 1978 Authorization for Military Procurement, Research and Development, and Active Duty, Selected Reserve, and Civilian Personnel Strengths," Hearings before the Senate Armed Services Committee, 95:1 (GPO, 1977), pt. 2, p. 1155.

The Soviet Navy, by contrast, accounts for a relatively small share of their defense spending. Since 1964, as shown in table 3, the number of major surface combatants in the Soviet Navy has dropped slightly (5 percent), and the number of minor surface combatants and submarines have each declined more sharply (35 percent each). Given the building rates which have prevailed since the late 1960s, further reductions are likely in the future.

TABLE 3.—SIZE AND CAPABILITIES OF THE SOVIET NAVY

Description	1964	1976
Aircraft carriers	0	1
Helicopter cruisers	0	1
Cruisers	20	31
Destroyers	114	87
Frigates	102	107
Minor combatants carrying missiles	110	137
Minor combatants	700	391
Conventional submarines	371	176
Nuclear submarines	22	78
Amphibious ships	12	82
Minesweepers	450	365
Other [1]	250	255
Total displacement (millions of tons)	2.2	2.6
Surface-to-surface missile launchers	456	1,270
Surface-to-air missile rails	20	302
Area (long-range) antisubmarine weapons	0	184

[1] Includes a variety of support ships, such as intelligence collection vessels, oilers, repair ships, and depot ships.

Sources: Author's estimates derived from IISS, *The Military Balance, 1964–65*, pp. 5–6; *Jane's Fighting Ships, 1965–66* (McGraw-Hill, 1965), pp. 425–46; IISS *The Military Balance, 1976–77*, pp. 8–9; *Jane's Fighting Ships, 1976–77* (McGraw-Hill, 1976), pp. 688–753; and *Fiscal Year 1978 Authorization for Military Procurement*, Hearings, pt. 2, p. 945.

Despite its smaller size, the Soviet Navy is a more capable force today than it was in 1964. Aggregate tonnage, a crude measure of capabilities, increased considerably, and there were sharp jumps in the number of surface-to-surface and surface-to-air missiles deployed on Soviet warships. Conventional submarines are being replaced with nuclear-powered submarines. Moreover, a new type of weapon system—area (long-range) antisubmarine torpedo and rocket launchers—first appeared on Soviet warships during the period and have been deployed extensively since.

Perhaps the most dramatic changes are taking place in the five Soviet air forces. This is shown in table 4:

TABLE 4.—COMPOSITION OF SOVIET AIR FORCES

Description	1963		1976	
	Fixed wing	Helicopters	Fixed wing	Helicopters
Air Defense Command:				
Number of aircraft	4,040		2,590	
Total weight (millions of pounds)[1]	65.6		86.4	
Nava laviation: Number of aircraft	800	200	950	250
Long-range aviation: Number of aircraft	1,100		849	
Frontal aviation:				
Number of aircraft	3,360	NA	4,600	2,950
Offensive load-carrying capacity (millions of ton-miles)[2]	1.2		3.2	
Military transport aviation:				
Number of aircraft	1,700	790	1,550	320
Total lift (millions of ton-miles)[3]	9.5	NA	25.8	NA

[1] A rough measure of aggregate capability; heavier aircraft often have greater range and carry more avionics and air-to-air missiles. The relation between weight and capability is influenced by numerous factors, however, including the materials used to construct the aircraft, engine efficiency, and the aircraft's design.
[2] The product of combat radius and payload, summed over all frontal aviation aircraft.
[3] The product of combat range and lift capacity per day, summed over all airlift aircraft assigned to military transport aviation.
NA=Not available.

Sources: Authors' estimates derived from James D. Heessman. "The Soviet Union Moves Ahead: On Land, On the Sea, and In the Air," "Armed Forces Journal" (Aug. 17, 1970), p. 34; IISS, "The Military Balance, 1976–77," p. 10; "Allocation of Resources in the Soviet Union and China—1975," hearings before the Subcommittee on Priorities and Economy in Government of the Joint Economic Committee, 94:1 (GPO, 1975), pt. 1, p. 148; and William Green and Gordon Swanborough, "The Observer's Soviet Aircraft Directory" (Frederic Warne, 1975).

Essentially, the thrust has been to de-emphasize air defense capabilities, and to place new stress on capabilities to support Soviet ground forces. This can be seen in the one-third cut in the number of aircraft assigned to PVO Strany, their Air Defense Command, and the coincident one-third increase in the size of Frontal Aviation—their tactical air arm. It can also be seen in the characteristics of new Soviet fighter aircraft, which generally have greater ranges and payloads, but lesser dog-fighting capabilities than the aircraft they are replacing.

Increases in the strength of Soviet military units and improvements in Soviet weapon systems are not sufficient reason to spend more money on U.S. military forces. For one thing, gains in Soviet military capabilities must be judged in light of past and prospective changes in U.S. and allied military capabilities; they are constantly improving, too. Needed are net assessments of relative capabilities—judgments about the changes likely to occur in the military balance should present trends continue—and of the consequences of the changes that seem likely. It is to such judgments that I now turn.

THE BALANCE IN EUROPE

The importance of Europe to the security and economic and political well-being of the United States needs no elaboration. The maintenance of a not unfavorable balance of conventional power in Central Europe is an essential, if not by itself sufficient, factor in protecting these interests. Consequently, U.S. capabilities to fight in Europe deserve, and generally receive, first priority in U.S. defense planning.

Most public comments on the military situation in Europe emphasize improvements in Warsaw Pact capabilities. This reflects the pronounced and persistent effect of adverse developments during the late 1960s and early 1970s. During this period, U.S. capabilities to fight a conventional war in Europe declined as the fiscal, materiel, and manpower demands of the war in Vietnam caused delays in weapon modernization programs, drawdowns in equipment stocks and manpower in Europe, and erosion of the operational readiness of military units not engaged in Southeast Asia. At the same time, substantial improvements were initiated on the Soviet side.

I have already noted the rise in the number of Soviet divisions in and near Eastern Europe. Additionally, the size of each of the 20 divisions that comprise

the Group of Soviet Forces Germany has been increased, with a better than 20 percent rise in the manpower assigned to each, a 40 percent increase in the number of tanks in each of the motorized rifle divisions, and a doubling of artillery assets.

The Soviets have markedly improved their military hardware in Europe. New tanks and armored personnel carriers have been deployed, each clearly superior in design to its predecessors. Soviet armored personnel carriers now mount cannons and antitank weapons, the first in any army to do so. The mobility of Soviet forces is much greater because towed artillery has been augmented with self-propelled units, and because mobile gun and missile air defense systems have been introduced. The new Soviet aircraft have appeared first in Europe and, when they have been deployed in large numbers, Soviet capabilities to strike preemptively at NATO airfields, weapon storage sites, and command and control facilities will be substantial. All in all, these new weapons finally provide the mobility and firepower needed to generate the attack shock and achieve the high rates of advance long emphasized in Soviet military doctrine.

In more recent years, however, the trend has been more favorable from NATO's perspective. Since the early 1970s, both sides have been expanding and modernizing their forces at comparable rates. As a result, gross comparisons of force levels, like the one depicted in table 5 below, show no significant change so far in the 1970s:

TABLE 5.—BALANCE OF FORCES IN NORTHERN AND CENTRAL EUROPE, 1970 AND 1976

Component	NATO			Warsaw Pact		
	1970	1976	Change (percent)	1970	1976	Change (percent)
Combat and direct support troops (thousands)	580	635	9	900	910	1
Tanks (number deployed with units)	5,500	7,000	27	14,000	19,000	35
Tactical aircraft	2,200	2,100	−5	3,940	4,200	6
Tactical nuclear warheads [1]	7,000	7,000	0	3,500	3,500	0

[1] Warsaw Pact figures have not been verified in official sources.

Source: IISS, "The Military Balance, 1970–71 and 1976–77" (London: IISS, 1970, 1976).

Changes in the balance of forces resulting from the modernization of weapons systems are more difficult to assess, yet in side-by-side comparisons if similar weapons' technology, NATO apears to be at least holding its own.

The modernization of Warsaw Pact air forces has been substantially matched by NATO. While the Warsaw Pact has acquired more new combat aircraft in the last few years, the aircraft acquired by NATO can carry a larger total payload. Other improvements, such as those in avionics and precision-guided ordnance, may also have favored NATO.

Both the U.S. M–60 and the West German Leopard I tanks apears to be as capable as the new Soviet tank—the T–72. The Warsaw Pact, which traditionally has emphasized armor, continues to have about three times the tank inventory of NATO, but NATO has halved the gap in tank production rates.

Increases in antitank capabilities also seem roughly balanced. NATO's antitank guided missiles are considerably easier to operate and have shorter flight times than those deployed by the Warsaw Pact. Shorter flight times are a significant advantage, among other reasons, because they reduce the amount of time the gunner must remain exposed to enemy fire. This advantage is offset, however, by the greater protection offered to Pact antitank gunners because their weapons are often operated from inside armored vehicles.

Improvements in air defense capabilities also appear roughly balanced. Since 1970 the Soviet Union has introduced four mobile air defense missile systems, which have greatly increased the protection offered by Pact air defenses to combat units on the front lines. This specific effort has not been matched by NATO. However, with NATO's deployment of very capable fighter aircraft such the F–15, its air combat capabilities have probably increased more than those of the Warsaw Pact.

The list could go on, but it seems evident—within the limits of uncertainties surrounding any such assessments—that since about 1970 the modernization of Warsaw Pact forces has been essentially matched by NATO improvements.

Still, there is some reason for concern as to the military balance in Europe and a need, in my view, for further improvements in the U.S. force posture there. These concerns stem from the long standing mismatch between Soviet emphasis on intense short wars and NATO's broad stress on preparations for more protracted conflicts. The new Soviet military hardware greatly augments their capabilities to fight the sort of quick-start lightening war celebrated in their doctrine. And the problem is aggravated by the directions in which military technology itself is evolving; the characteristics of modern military equipment seem likely to ensure that battle in Europe would result in heavy losses and the rapid consumption of material. For all these reasons, it is important for NATO to increase the amount of on-line firepower it could muster with little warning, and its ability to shift and effectively control ground and air forces flexibly, according to the dictates of the tactical situation. I can elaborate on these desirable changes later, if the Subcommittee so desires.

THE BALANCE IN THE MIDDLE EAST

The extent to which the United States can honor its commitments and protect its interests in the Middle East has been tested on many occasions, most recently during the October 1973 Arab-Israeli war. There are bound to be future tests of similar importance and danger. A key factor in resolving such crises relatively favorably has been the perception of local actors and Soviet leaders alike that the United States is both willing and able to prevent the Soviet Union from intervening unilaterally in the region with combatant forces. The continued maintenance of this perception is thus a key element in any successful U.S. Middle Eastern policy.

Neither the United States nor the Soviet Union currently station combat forces in the Middle East itself, but each maintains a large and powerful naval force in the Mediterranean. These fleets are nearly the same size, but their capabilities differ significantly.

The Soviet Mediterranean Squadron typically consists of some 50 to 55 ships. Roughly half are combatants; of these about half are submarines and half are various types of surface ships. The remaining 25 or units are auxiliaries. The submarine contingent, which includes both torpedo- and cruise-missile-launching units, provides the Squadrons' most effective firepower. Before 1972 the Squadron was supported by aircraft operating from bases in Egypt. Since the expulsion of the Soviet military from Egypt, however, Soviet naval forces in the Mediterranean have operated largely without direct air support. The size of the Squadron itself also has decreased, as it became difficult for the Soviets to sustain their units at sea for so long without Egyptian or alternative facilities.

The Soviet Mediterranean Squadron seems to be designed for use primarily against surface ships, principally as a counter to U.S. aircraft carriers—and it poses a serious threat to them. It also has some capability for antisubmarine warfare, but apparently lags in this area.

The size and composition of 6th Fleet do not change often, nor by much. 6th Fleet is normally composed of some 40 to 45 units. Three-fourths are combatants, organized into two aircraft carrier task groups and one amphibious landing force; roughly 2,000 Marines are embarked on the latter. A network of underway replenishment and afloat maintenance and repair forces supports all three groups.

In contrast to its Soviet counterpart, 6th Fleet's most effective firepower is concentrated in its air component—about 200 aircraft, most of which are carrier-based. Some reconnaissance and maritime patrol-antisubmarine aircraft are based ashore, operating from airfields in Spain, Italy, and Greece. 6th Fleet's submarine component, much smaller than that of the Soviet Mediterranean Squadron, is employed primarily for antisubmarine warfare.

If military resources were employed with equal skill, the eventual result of combat between U.S. and Soviet forces in and near the Mediterranean would almost certainly be Soviet defeat. Achieving that outcome could cost the United States a great deal, however, alhough losses would be reduced substantially if the United States were joined in combat by its NATO allies.

Assessments of the specific losses which the United States might suffer in a Middle Eastern conflict vary widely. They depend largely on factors which are not really knowable in advance: the specific disposition of the two sides' forces, the strength and tactical character of the attack, the actual performance of weapons and electronic systems. Still, estimates of these factors can have a significant impact on events, in that military advice to political leaders is

likely to be conditioned, at least in part, by whatever "best estimates" of relative capabilities are available and credible. If the U.S.S.R. believes itself unable to impose a significant price on the United States in the event of war in the Mediterranean, it is unlikely to press whatever issues might be at stake. If, on the other hand, the price for the United States is estimated by Soviet leaders to be high, deterring Soviet intervention in the Middle East is likely to be more difficult.

Consequently, steps to enable the United States to increase its capabilities in the Mediterranean may be important. In the short term, these steps mainly involve changes in the prevailing patterns of U.S. naval and Air Force operations and deployments; the thrust would be to increase the U.S. ability to rapidly move additional forces into the region when the political situation dictated such a move. Over the longer term, a reorientation of the shipbuilding program is required. Again, I can discuss these matters later if the Subcommittee so chooses.

THE BALANCE IN EAST ASIA

The situation in East Asia is quite different from that in Europe or the Middle East. Here, the possibility of direct military confrontation between the United States and the U.S.S.R. is remote. The Soviet Union does maintain approximately one-fourth of its ground and tactical air forces in the Far East, but they are arrayed primarily against China. They do not threaten U.S. interests directly and the likelihood of U.S. forces being drawn into conflict with them is minute. Despite previous concerns about what might happen in China following Mao's death, there is no indication of an improvement in Sino-Soviet relations such that these Soviet military forces would be freed for use against NATO.

Direct U.S. military involvement with China is also a remote possibility. China, though its armed forces are immense, has little ability to project military power beyond its borders. Its small nuclear weapons inventory is a threat primarily to the U.S.S.R. Since the early 1960s, when China's direct access to Soviet military technology was severed, its forces have been operating with increasingly obsolescent equipment.

The reason for a U.S. military presence in East Asia is not that U.S. interests are directly threatened, but that long-term trends in the Asian military balance might influence the policies of the principal U.S. ally in the region, Japan. That Japan has eschewed the buildup of a strong armed force despite its obvious economic capacity to do so, and particularly that Japan has chosen not to develop nuclear weapons, is in part the result of a continuing faith in the U.S. defense commitment. Since Japan is unlikely to decide to develop nuclear weapons unless it is suddenly imbued with an overriding sense of national insecurity, the U.S. forces that provide visible confirmation of American defense commitments in Northeast Asia have thus assumed major political significance.

While watching with interest the relative strength of all U.S. armed forces, Japanese leaders take special note of the naval balance in the western Pacific and prospects for stability on the Korean peninsula.

Fortunately, compared to Soviet naval capabilities elsewhere, the maritime threat in the Pacific is a relatively small one. There has been an increase in the Soviet Pacific Fleet's strength since 1968, but this reflects the initiation of Soviet naval operations in the Indian Ocean. These deployments are supported by the Pacific Fleet, which has received additional resources to carry out this task. Even so, the Soviet Navy in the Pacific remains relatively weak as compared to the Fleets that deploy forces into the Atlantic and Mediterranean.

Arrayed against the Soviet Pacific Fleet are the small but relatively modern Japanese Navy and the more powerful U.S. 7th Fleet. The latter includes two aircraft carrier task groups, one of which is home-ported at Yokosuka, Japan. The United States also maintains the Third Fleet—including four more carrier task groups—in the eastern Pacific. Many of these ships could move westward fairly rapidly to reinforce the Seventh Fleet if needed. Finally, the United States maintains some land-based antisubmarine and fighter aircraft in the Western Pacific, which could be useful in any naval battle that took place there.

On balance, the task of countering the Soviet Navy in the Pacific does not seem excessively difficult. Most of the Soviet Pacific Fleet's operations originate in Vladivostok; ships from this naval complex must pass through one of several straits bounded by Japanese territory before reaching open waters. The straits

are choke points that can be mined or blockaded, bottling up Soviet submarines and warships caught inside the Sea of Japan and isolating those already deployed. To circumvent the restricted access from Vladivostok to the open ocean, the U.S.S.R. has expanded operations at Petropavlovsk on the Kamchatka peninsula, but this has not solved the problem. Petropavlovsk does not have adequate road or rail links with the mainland and must be supplied by ship, a vulnerable link.

Thus, fewer forces are needed to counter the Soviet Navy in the Pacific than elsewhere; the Soviet Pacific Fleet is less capable and the geography of the region places the Soviet Navy at a distinct disadvantage. In all likelihood, the forces the United States now maintains in the region are larger than required by a realistic assessment of needs. Hence, from a military standpoint, shifting some U.S. naval forces from the Pacific to the Atlantic to help counter the threat to U.S. interests in the Middle East seems sensible.

The prospects for a stable military balance in Korea also seems optimistic. Today, South Korean ground forces are well armed, reputed to be tough, well-trained, and disciplined, and outnumber their opponent. ROK forces have developed significant capabilities against armor—the essence of the threat against them. In addition, the mountainous terrain in Korea means that invading tank forces would be generally restricted to corridors. Consequently, the amount of armor that the North could usefully employ in battle would be limited and its massed road-bound armor would be vulnerable to attack by air or ground forces. In short, the balance of ground combat forces appears to be adequate; from a military standpoint, the administration's decision to withdraw the last U.S. Army forces from the Peninsula is a sensible one. In my view, it makes even more sense from a political standpoint.

The ROK Air Force, on the other hand, is not adequate for South Korea's needs. The North has about three times as many aircraft as the South. Although ROK aircraft are generally more modern and its pilots are believed to be better trained, South Korea could not rely on its air power surviving against the North. The United States maintains a full air wing of F–4D/E tactical fighter aircraft in Korea, 66 in all. These units train with ROK units and are prepared to operate jointly with them. Although adding in the U.S. aircraft does not wholly eliminate the North's advantage in numbers, the combined ROK and U.S. air resources represent an overall capability at least comparable to that of North Korea. Moreover, U.S. Air Force and Marine Corps aircraft based in Japan would be available for rapid re-inforcement, as would U.S. Navy aircraft based on carriers. All these air forces, in my view, should remain in the region.

THE STRATEGIC BALANCE

Finally, let me say just a word about the balance in strategic nuclear capabilities.

There is general agreement that, at present, rough overall parity exists between U.S. and Soviet strategic capabilities. Still, the momentum in the Soviet strategic program has given rise to two sorts of concerns in the United States.

One pertains to a projected Soviet advantage in the two nations' relative ability to destroy hardened targets. In extreme crises, it is argued, this superiority would give the U.S.S.R. more options than would be available to the United States. Moreover, the argument goes, the exercise of these options need not actually occur for this disparity to have an effect on world affairs. Such Soviet superiority in hard-target kill capabilities supposedly could make the United States timid and the Soviet Union bold when confrontations occurred, leading to outcomes unfavorable to the United States.

Recent growth in Soviet strategic capabilities have also evoked a less tangible sort of concern in some Americans—that the sheer pace and range of Soviet strategic developments will soon result in a worldwide image of Soviet power in the ascendant. Although specialists are aware that U.S. strategic capabilities have improved significantly since 1964, these changes have been far less dramatic than the regular unveiling of new Soviet missiles, and it may appear that the United States are being overwhelmed. Such impressions, superficial though they may be, presumably could have political consequences if they became widespread.

Much of the U.S. strategic program is justified on the basis of these concerns. The question is whether these worries are realistic.

There seems little doubt that the second fear—a growing image of Soviet momentum and ascendancy in the strategic field—is well founded. Increasingly, statements by public officials in this country and abroad indicate awareness of and concern about the scope and pace of the Soviet strategic buildup. It is not clear to what extent the Soviet Union itself shares the views that it is gaining the upper hand in the strategic balance, but it cannot have failed to note the apprehension in the West, and that in itself might lead it to behave rashly under certain circumstances. Although the links between perceptions of relative strategic capabilities and foreign policy behavior are not well understood, the fact that many decisionmakers around the world believe such links exist is sufficient reason for prudent defense planners not to discount the phenomenon.

Concern about Soviet hard-target kill capabilities is less easily substantiated. The size and number of its ICBMs certainly provide the Soviet Union with a theoretical ability to destroy most of the United States ICBMs in a first strike, once it masters the techniques necessary to improve the accuracy of its missiles. But carrying out a preemptive first strike is likely to prove far more difficult in practice than in theory. Such a military operation would require split-second timing and coordination, and its effectiveness would be influenced by factors of which we know very little—such as the effects of the first nuclear explosions on warheads arriving later, the reliability of missiles, and so forth.

Moreover, an examination of official statements on relative hard-target kill capabilities over the past few years indicates a proclivity on the part of the United States to emphasize potential Soviet capabilities and to underestimate its own. For example, U.S. officials do not now expect Soviet hard-target kill capabilities to increase significantly until the early 1980s whereas improvements to Minuteman will augment U.S. capabilities much sooner; however, statements of U.S. defense officials over the past five to ten years left a more alarming impression.

In short, although the United States can not afford to let its strategic capabilities stagnate, neither should it permit growth in Soviet strategic forces to stampede it into unnecessary expenditures on strategic weapons. Given the enormous risks of any nuclear exchange, nuclear weapons play on a limited role in world affairs. So long as the United States maintains an unquestionably secure retaliatory capability and rough parity in overall capabilities, the use of nuclear weapons, both actually and politically, will continue to be deterred. We can afford to examine proposed strategic weapons on their merits, not approve them automatically because of a diffuse fear of Soviet gains. To do otherwise would be to needlessly divert resources from more compelling needs.

CONCLUSION

This prescription has more general application, as well. The assessment presented demonstrate the value of detailed analyses of the Soviet military buildup. An across-the-board U.S. response stemming from a diffuse sense of unease would only waste resources, diverting people and money not only from important domestic needs, but also, within the defense program, from those areas the Soviet Union presents more significant challenges. In East Asia, the Soviet buildup threatens not the United States, but China. Given improvements in U.S.-China relations and more narrow U.S. definitions of its interests in Southeast Asia, the U.S. force posture in the Pacific can be scaled down, freeing resources for use elsewhere. In Europe and the Middle East, on the other hand, improving Soviet military capabilities do threaten important U.S. interests and require a clear and strong response. But even here, there are more and less efficient ways of enhancing U.S. military capabilities; concern about trends in the military balance should not cause the neglect of rigorous examinations of proposals on pragmatic grounds.

That concludes my statement, Mr. Chairman. I am prepared to answer questions.

Senator PROXMIRE. Mr. Hardt.

STATEMENT OF JOHN P. HARDT, SENIOR SPECIALIST IN SOVIET ECONOMICS, CONGRESSIONAL RESEARCH SERVICE, LIBRARY OF CONGRESS, WASHINGTON, D.C.

Mr. HARDT. I would like to take advantage of your offer to include the full prepared statement and limit my comments as well.

I would like to make three points in a general way about the limitations and opportunities that we have in the kinds of assessments that this committee and other committees of Congress have had in the past, and make some suggestions as to new approaches that might add to and improve the kinds of assessments we make on the allocation of economic resources in the Soviet Union.

SOVIET SECRECY

The first of these limitations relate to the area of secrecy alluded to by both Mr. Warnke and Mr. Becker in their earlier statements.

Our governments have a very different attitude toward disclosure. We, in our pluralistic, individualistic, Western democratic tradition, emphasize the publics need to know as a requirement for an informed debate whether it be on the B–1 bomber, food stamps, or birth control policy.

The Soviet Party and Government, in their tradition of unitary control, collectivism, and Leninist democratic centralism, strictly limit the disclosure of comparable data to top decisionmaking circles.

Our Freedom of Information Act and their all-pervasive State Secrecy Acts illustrate the legal expressions of this difference of view.

On examining the State Secrecy Act, I find that the act is very broad and open ended.

This open endedness is illustrated by the reference in the law to the ability of the Council of Ministers to add to elements that are covered by the Secrecy Act at their discretion.

Senator PROXMIRE. Will you submit a copy of the law and a translation for the record, please?

Mr. HARDT. I would be delighted to.

[The following information was subsequently supplied for the record:]

SUPPLEMENT 47—SECRETS LAW OF 1956[1]

Decree of the Council of Ministers USSR, 28 April 1956

The Council of Ministers USSR decrees:

To establish the following list of types of information representing state secrets:

MILITARY INFORMATION

1. Mobilization plans and other documents containing overall information on preparation for mobilization of the whole country, the armed forces, the arms of the service, the military districts, the armies, the fleets, the flotillas and also of all-union and union-republic ministries of the USSR and of enterprises of union importance.

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[1] Notice should be taken that the Russian text in the 1971 version of the Secrets Law omits the text indicated with black brackets from this Secret Law.

These omissions most likely represent the changes in the Secrets Law, which allegedly was amended in 1966. (See "Encyclopedia of Soviet Law," Oceana Publications, Dobbs Ferry and A. W. Sijthoff. Leyden [The Netherlands], 1973, vol. 2, p. 600.) However, the Encylopedia does not indicate the source of its information.

Source: Russia (1917–RSFSR) Laws, statutes, etc. Ugolovnyi kodeks RSFSR. Moscow, 1957.

2. Over-all information concerning storage places and present and planned stock piles of all types of state and mobilization reserves, and also of certain types of products having a defense or strategic significance as a whole, for the USRS, [for the Main Administration of the State Material Reserves of the USSR Council of Ministers and for its territorial administrations.]

3. Operational plans and over-all information concerning the location and the number of troops, the amount of armament and military equipment as a whole for armed forces, the arms of the service, the military districts, the armies, the fleets and the flotillas.

4. Generalized information concerning the military training of the troops and the condition of discipline as a whole for the USSR Ministry of Defense, the USSR Ministry of Internal Affairs, the arms of the service, the military districts and the fleets.

5. Over-all information on the number of military reserves as a whole in the USSR, and in the military districts, and also information on the recruitment of troops as a whole through regular drafts for the armed forces of the USSR, for the military districts and for the fleets.

6. Plans with descriptions, sketches, and photographs of fortified regions, naval bases, central and district bases and warehouses for armament and ammunitions, and also data on their armament and equipment.

7. Over-all information concerning the airfield network and the condition and capacity of airfields as a whole for the USSR.

Over-all information on defense, airfield, base and special construction as a whole by armed forces, military districts and fleets.

8. Plans for the preparation for local anti-air defense of cities and of large industrial, defense and special objectives.

9. Information on the state of defense of state borders.

ECONOMIC INFORMATION

10. Over-all information on the location of military industry enterprises; production capacities and plans for the production of armament, military equipment and ammunition and information on the fulfillment of these plans in concrete terms as a whole for the USSR, the all-union and union-republic ministries, the main administrations and enterprises of union significance.

11. Over-all information on production capacities and plans for the production of non-ferrous, noble and rare metals; and reports on their fulfillment in concrete terms as a whole for the USSR, for the USSR Ministry of Non-Ferrous Metallurgy, [the Kazakh SSR Ministry of Non-Ferrous Metallurgy, and their main administrations.]

12. Information on underground reserves of radioactive elements in the USSR and on their extraction; production capacities and plans for production of radioactive and trans-uranium elements and information on the fulfillment of these plans, in absolute figures, as a whole for the USSR, the ministries, main administrations and enterprises.

13. Data on the sizes of underground reserves in the USSR of non-ferrous, rare and noble metals, of titanium, of diamonds and of piezo-optical minerals as a whole for the USSR, the ministries and large deposits, and also of petroleum for the USSR Ministry of Petroleum Industry as a whole.

14. Discoveries and inventions having considerable military significance.

15. Discoveries and inventions having considerable scientific and economic significance, before the heads of the ministries and departments give permission to publish them.

15. The condition of currency stocks, balance of payments information, over-all information on state stocks and storage places of noble metals and precious stones for the USSR as a whole.

16. Government codes.

17. Other information which may be added by the USSR Council of Ministers to the list of types of information representing state secrets.

In connection with the publication of the present decree, to consider no longer in force the decree of the USSR Council of Ministers of June 8, 1947, No. 2009,

"Concerning the Establishment of a List of Types of Information Representing State Secrets, the Divulgence of which is Punishable by Law."

Mr. HARDT. Criminal penalties for smaller offenses in disclosure of state secrets may range from 2 to 5 years' confinement.

To act, as we seem to, as if we can obtain information on defense activities in the U.S.S.R. in spite of their best effort to control its disclosure to a very small circle of top leaders is a bit presumptuous. To be sure, information from aerial satellite photography, direct observation by those who report to us, and other less direct means helps circumvent their secrecy system.

From this approach reasonably precise information on missile sites, Soviet forces in the German Democratic Republic, et cetera, may be obtained.

DIFFICULT TO MEASURE SOVIET R. & D.

The resources allocated to military research and development in the Soviet Union, however, whether measured in ruble outlays, numbers of scientists and scientific workers, cannot be measured precisely because of our inability to circumvent their secrecy system in this area.

Actually, several previous directors of the Central Intelligence Agency have noted that estimates of military R. & D. are among the most difficult and imprecise.

Yet time and again official witnesses have told congressional committees precisely how much the Soviet Union was expending in military R. & D. and precisely how much more in dollar terms they were spending than we were.

In years of following these matters, I have found little credible analysis or evidential support for such precise claims.

Our ability to circumvent their disclosure system, or "break the code"—to use a phrase employed by a senior U.S. defense official several years ago—may be open to argument.

INTELLIGENCE COMMUNITY APPROACH

By using the traditional intelligence community approach to costing out their order of battle, assessing residuals in economic sections of presumed military outlays, use of empirical information, or other methods, more refined insights are possible. However, the degree of detailed precision in dollar value of detailed Soviet budgets, often presented, is at best synthetic. This may be illustrated if we asked ourselves the following question:

Suppose we could be given some Alladin-type wish to have available to us person or persons of our choice with their records and willingness to talk freely—who would we choose and what would they tell us?

My hypothesis is that they would not be able to provide the kind of detailed information our intelligence community has been seeking, an analogy of the U.S. defense budget because the Soviet institutions

do not work the way ours do, nor are they likely to keep accounts the way we do.

This leads me to my second point.

Soviet Decisionmaking

Soviet decisionmaking is markedly different from ours, and that of most Western parliamentary nations, and the methods of accounting for defense and nondefense allocations are therefore significantly different.

Some Western specialists argue that the Stalinist system and the past priorities have not changed.

Under the rule of Joseph Stalin in the Soviet Union allocations for defense and civilian programs were compartmentalized. The plan for the Red Army and the economic 5-year plan coincided in the quinquennial time periods but were separately prepared and published.

The judgments on needed tanks, aircraft, manpower, and the like appeared to be stipulated by the party and the military and approved by the top leader.

My inclination is to assess the current system as significantly changed from that of the Stalinist period but still more similar to the Soviet past than the system and priorities in the Western industrial economies. The changes I see include the following:

(*a*) Greater accountability within the Ministry of Defense for allocations and the introduction of some measures of efficiency.

(*b*) Some limitations on increases in military demands on resources even within generally approved missions. For example, I subscribe to the view that Admiral Gorshkov's famous articles in his official organ, Naval Digest, represented part of a debate on the role of the Navy and the portion of the proposed naval demands that the economy should be asked to support.

Those who view Admiral Gorshkov's view as merely a statement of approved policy would tend to associate it with the Stalinist allocation system of the past.

The Stalinist system was characterized by defense decisions made in physical resource terms and with little attention to nondefense tradeoffs or opportunity costs.

Our system of defense allocation is characterized by defense decisions limited by financial decisions and with great attention to civilian tradeoffs.

President Carter and Senator Robert Byrd illustrated this in their explanation of their view on our need for the B–1 program.

Several Secretaries of Defense have called for a public debate on our defense budget. This committee has contributed to such a development.

In the Soviet Union such a public debate would be unlikely. In contrast to the Stalinist period, however, the current Soviet leadership has become more sensitive to the economic tradeoffs and opportunity costs of maintaining a large defense sector.

Internal institutional debates on resource allocations have, however, become more common. This change should be noted and included in our current assessment of United States-Soviet defense allocations.

My third limitation or oportunity for reassessment is the following:

Questions American policymakers often ask and the assessments they appear to be prepared to address are often unclear, contradictory or self-serving.

(A) TOWARD IMPROVED CLARITY

Allowing for limits on disclosure and differences in the Soviet decisionmaking system, what is it we would like to know and what is the most objective way to provide insight for our defense debate?

A combination of economic and military analyses may provide useful insights on major military decisions and likely economic consequences.

The major Soviet commitments to a strategic buildup and to manning the China border were evident in economic terms in the early sixties, whereas the military consequences or evidence of development were available in the current decade.

This suggests more emphasis on time sequential trends and less on synthetic annual budget estimates.

(B) TOWARD MORE USEFUL ASSESSMENTS

Attempts to provide dollar valuation in estimates, "What would it cost to produce a Soviet tank in Detroit" and "what would it cost to sustain a Soviet soldier in the All-Volunteer U.S. Army" are questions providing answers of limited utility and insights.

The Soviet dollar value defense budget may be more misleading to the user in terms of the level and composition of the real Soviet defense outlays than cruder or more direct measures.

(C) TOWARD MORE OBJECTIVITY IN ASSESSMENTS

Often intelligence or threat assessments are prepared by the agency advocating the adoption of a particular defense program.

Realistically, we may expect such an advocate to provide the worst case Soviet estimate and select those aspects of the threat most likely to validate the proposed program.

It does not seem by chance that Soviet defense expenditures consistently appear to be going up in absolute and relative terms in the periodic presentations of advocacy agencies.

In contrast, many objective Western observers have noted cycles in Soviet defense policies and outlays as well as the variations in impact on the economy of major programs as they go through the research, development, and production cycle.

Possibly, the right questions have not been asked or the right analysts asked to respond as we have little information on these important cyclical changes in resources allocation patterns.

Insight into these patterns would provide substantially improved bases for judging the credibility of the estimates presented annually by the interested agencies.

A New Approach to Soviet Defense Allocation Estimates

First, acceptance of limitations on our insight from Soviet disclosure policy.

To suggest that American decisionmakers relate their defense requirements to realistic estimates limited by the Soviet restricted disclosure system may be running against human nature.

The desire to have a Soviet analogy to the U.S. format for presenting defense expenditures is persistent and persuasive especially among a constantly changing executive management.

This committee has attempted to bring this problem into focus by questioning confidence limits of various estimates. But what appears to be needed is a more comprehensive reassessment of the type of data that can be expected and provided by our intelligence system.

There would certainly be a payoff in improved insights from such a reassessment. There may also be return in terms of increasing the level and structure of research efforts on the Soviet economy within our intelligence community.

I know that you and your staff have been generally interested in this question. Your inquiries may be of specific utility in assessing the cost effectiveness of collection, processing, analysis and production efforts currently underway.

To this end we might ask:

One, how much effort is appropriate in preparing synthetic measures of resource allocation that provide insight of possibly limited utility?

Two, what fruitful lines of inquiry are being inadequately funded?

Mission-Oriented Approach

Second, relating our assessment to Soviet mission oriented assessments.

Adm. Stanfield Turner last year in Foreign Affairs related the Soviet naval buildup to their concept of missions.

It seems reasonable that the Soviets would consider their required shipbuilding in terms such as a perceived need to deny their coastal waters to the ships of other nations.

By applying Admiral Turner's logic to Soviet economic planning, it seems reasonable to assume they relate a perceived need for a modern automotive transport industry to the construction of the giant Kama River truck plant.

They might also perceive a need for a minimum level of combined forces to cope with the threat of the People's Republic of China or to maintain political stability in Eastern Europe.

If we were to use this mission-oriented approach to evaluate Soviet allocation of resources to defense I believe we would design a different

methodological approach to gathering and analyzing information and a different format for presenting conclusions.

Precisely what the best methodology and format might be is a subject for further thought and discussion. However, if the results more accurately reflected their decisionmaking approach, I believe we could obtain more useful insights.

Having structured Soviet objections in terms of mission-oriented military and economic objectives, I suggest we will find them in conflict, in the current Soviet perception; that is, in debate among policy circles. Moreover, we may have some marginal influence on their choices, which leads me to my third and last point on a reassessment and new approach.

Defense Versus Economic Modernization

Third, the need to evaluate Soviet conflicts in defense and economic modernization objectives in terms of our security risks and economic opportunities.

As suggested in the paper attached to my prepared statement, which was presented to the NATO commanders in SHAPEX and subsequently at the North Atlantic Assembly in May, the Soviet leadership faces a dilemma in their choices between military buildup and economic modernization.

They appear to be committed to a program designed to bring about the kind of "miracle" in economic change that American technology brought to the Western industrial nations in the postwar period.

Committed as they are to a series of mutibillion-ruble programs in energy, metals, regional development—for example, the Baikal-Amur Railroad—computer-related management, agriculture, modernization, and automotive transport, et cetera, they have fallen short in the full commitment to timely completion of the projects.

Because each of the giant projects requires foreign technology and Western hard-currency credits, balance-of-payments problems have led to limitations on actual import levels. This East-West trade question has both an economic and political basis. Moreover, as each of the projects requires substantially more domestic investment and human resources for timely completion, the conflict with defense priorities seems implicit.

Soviet Energy Policy

A case study of this general Soviet problem of modernization involving Western imports and domestic investment priorities is their energy policy.

Under the best of circumstances energy will be a problem area for the U.S.S.R. as it is for us. There is little doubt that proven petroleum reserves and output will not be adequate to sustain past trends in demand.

However, with substantially increased investment and stepped up imports from the West, especially the United States, the energy crisis might be ameliorated.

A crucial question to U.S. policymakers, therefore, might be whether exports of energy technology to the U.S.S.R. would reinforce pressures to shift resources from the military to the energy programs.

Whatever the answer to this significant question the type of analysis and information used would be different from that normally presented to this committee. It might be a case study useful in providing a new approach to Soviet defense allocation estimates.

Senator PROXMIRE. Thank you, Mr. Hardt.

[The prepared statement, with an attachment, of Mr. Hardt follows:]

PREPARED STATEMENT OF JOHN P. HARDT

Mr. Chairman in responding to the specific questions in your invitation to testify I should like to make some general observations on the limitations and opportunities for insight open to the Congress and other decision makers assessing the allocation of resources to the military in the Soviet Union over the years. After enumerating some of the continuing limitations, I should like to suggest that it may be timely to review the general approach and methodology employed.

1. AVAILABILITY AND ACCURACY OF SOVIET DEFENSE DATA IN WESTERN ASSESSMENTS LIMITED BY SOVIET SECRECY POLICY

Our governments have a very different attitude toward disclosure. We—in our pluralistic, individualistic, Western democratic tradition—emphasize the public's need to know as a requirement for an informed debate, whether it be on the B–1 bomber, food stamps, or birth control policy. The Soviet Party and Government—in their tradition of unitary control, collectionism and Leninist democratic centralism—strictly limit the disclosure of comparable data to top decision making circles. Our Freedom of Information Act and their all-pervasive State Secrecy Acts illustrate the legal expressions of this difference of view.

May I further note that State Secrets include not only military-related matters like petroleum reserves and refined products output but, according to the "List of Information Constituting State Secrets" promulgated in 1956, may be extended to ". . . such other information as may be added to the Council of Ministers of the U.S.S.R. to the list of matters subject to State Secrecy." Criminal penalties for smaller offenses in disclosure of State Secrets range from 2 to 5 years' confinement.[1]

To act, as we seem to, as if we can obtain information on defense activities in the U.S.S.R. in spite of their best effort to control its disclosure to a very small circle of top leaders is a bit presumptuous. To be sure, information from aerial satellite photography, direct observation by those who report to us, and other less direct means, help circumvent their secrecy system. From this approach, reasonably precise information on missile sites, Soviet Forces in the German Democratic Republic, etc., may be obtained. The resources allocated to military research and development in the Soviet Union, however, whether measured in ruble outlays, or numbers of scientists and scientific works, cannot be measured precisely because of our inability to penetrate their secrecy system in this area. Actually, several previous Soviet Directors of the Central Intelligence Agency have noted that U.S. estimates of military R. & D. are among the most difficult and imprecise. Yet time and again official witnesses have told Congressional committees precisely how much the Soviet Union was expanding in military R. & D. and precisely how much more in dollar terms they were spending than we were. In years of following these matters I have found little credible analysis or evidential support for such claims.

Our ability to penetrate their disclosure system, or "break the code"—to use a phase employed by a senior U.S. defense official several years ago—is open to argument. One commanding difficulty with all U.S. estimates of Soviet military

[1] For discussion of Soviet Secrecy Acts see John P. Hardt and George D. Holliday, "Research Burden of the Soviet Space Program," "Soviet Space Program, 1971–75." Vol. II, Senate Aeronautics and Space Sciences Committee, August 30, 1976, pp. S7–S9.

efforts is the difference between U.S. and Soviet reasoning processes and accounting system. By using the traditional intelligence community approach to costing out their order of battle, assessing residuals in economic sections of presumed military outlays, use of empirical information, or other methods, more refined insights or estimates are possible. But the ultimate utility may be illustrated if we asked ourselves the following question: Suppose we could be given some Aladdin type wish to have available to us person or persons of our choice with their records and willingness to talk freely—whom would we choose and what would they tell us? My hypothesis is that they would not be able to provide the kind of information our intelligence community has been seeking—an analogy of the U.S. defense budget—because their institutes don't work the way ours do.

This leads me to my second point.

2. SOVIET DECISIONMAKING IS MARKEDLY DIFFERENT FROM OURS—AND THAT OF MOST WESTERN PARTICIPATING NATION'S—AND THE METHODS USED IN THEIR ACCOUNTING FOR DEFENSE AND NON-DEFENSE ALLOCATIONS ARE THEREFORE SIGNIFICANTLY DIFFERENT

Some Western Specialists argue that the Stalinist System and the past priorities still persist. Under the rule of Joseph Stalin in the Soviet Union, allocations for defense and civilian programs were compartmentalized. The plan for the Red Army and the economic 5-year-plan coincided in the quinquennial time periods but were separately prepared and published. The judgments on needed tasks, aircraft, manpower, and the like appeared to be stipulated by the Party and the military, and then approved by the top leader.

My inclination is to assess the current system as significantly changed from that of the Stalinist period but still more similar to the Soviet past than the system and priorities in the Western inclusive economics. The changes I see include the following:

(*a*) A closer accountability within the Ministry of Defense for allocations and the introductions of some measures of efficiency.

(*b*) Some limitations on increases in military demands on resources, even within generally approved missions. For example I subscribe to the view that Admiral Gorshkov's famous articles in his official organ, Naval Digest, represented part of a debate on the role of the navy and the portion of the proposed naval demands that the economy should be asked to support. Those who view Admiral Gorshkov's view as merely a statement of approved policy would tend to associate it with the Stalinist System of the past.

The Stalinist System was characterized by defense decisions made in physical resource terms, with little attention to nondefense tradeoffs or opportunity costs. Our system of defense allocation is characterized by defense decisions limited by financial decisions and with close attention to civilian tradeoffs. President Carter and Senator Robert Byrd illustrated this in their explanation of their view on the B–1 program.

Several Secretaries of Defense have called for a public debate on our defense budget. This Committee has contributed to such a development.

In the Soviet Union, such a public debate would be almost inconceivable. In contrast with the Stalinist period, however, the current Soviet leadership has become more sensitive to the economic trade offs and opportunity costs of maintaining a large defense sector. Internal institutional debates on resource allocations have, become more common. This change should be noted and included in the current dialogue on U.S.-Soviet defense allocations. But U.S. access even to this enlarged policy process provides, at best marginal insights.

3. QUESTIONS AMERICAN POLICYMAKERS ASK AND THE ASSESSMENTS THEY APPEAR TO BE PREPARED TO ADDRESS ARE OFTEN UNCLEAR, CONTRADICTORY, OR SELF-SERVING

(*a*) *Toward Improved Clarity*

Allowing for limits on disclosure and differences in the Soviet decisionmaking system, what is it we want to know and what is the most objective way to provide

insight for our defense debate? A combination of economic and military analyses may provide useful insights on major military decisions and likely economic consequences. The major Soviet commitments to a strategic buildup and to manning the China border were evident to us in economic terms in the early sixties, and the military consequences or evidence of new military programs were available only in the current decade. This time sequence of economic commitment and military deployment suggest more emphasis on longer-range, time-sequential trends and less on synthetic annual budget estimates.

(*b*) *Toward More Useful Assessments*

Attempts to provide dollar valuation in estimates, "what would it cost to produce a Soviet tank in Detroit" and "what would it cost to sustain a Soviet soldier in the All-Voluntary U.S. Army" are questions providing answers of limited utility and insights. The Soviet dollar value defense budget may be more misleading to the user in terms of the level and composition of the real Soviet defense outlays than cruder or more direct measures, such as correlation of major program changes would provide.

(*c*) *Toward More Objectivity in Assessments*

Intelligence or threat assessments are often prepared by the agency advocating the adoption of a particular defense program. Such an advocate tends to provide the worst case Soviet estimate and to select those aspects most likely to validate the proposed program. It is not by chance that in the presentation of advocacy agencies Soviet defense expenditures always appear to be going up in both relative and absolute terms.

Many objective Western observers note cycles in Soviet defense policies and outlays, as well as the variations in impact on the economy of major programs, as the Soviet defense managers bring their technological systems through the research, development, and production cycle. Apparently we have not asked the right questions or they have not been addressed to the right analysts because we have little information on these important changes in resources allocation patterns. Insight into these patterns would provide substantially improved bases for judging the credibility of the estimates presented annually by the interested agencies.

A NEW APPROACH TO SOVIET DEFENSE ALLOCATION ESTIMATES

1. Acceptance of limitations on our insight from Soviet disclosure policy

It may run counter to human nature to suggest that American decisionmakers relate their defense requirements to realistic estimates even though we recognize that they are limited by the Soviet restricted disclosure system. The desire to have a Soviet analog to the U.S. format for presenting defense expenditures is persistent and persuasive, especially among a constantly changing executive management. This Committee has attempted to bring this problem into focus by questioning confidence limits of various estimates. But what appears to be needed is a more comprehensive as well as a more realistic reassessment of the type of data that can be expected of our intelligence system.

There would certainly be a payoff in improved insights from such a reassessment. There may also be return in terms of increasing the level and structure of research efforts on the Soviet economy within our intelligence community. I know that you and your staff have been generally interested in this question. Your inquiries may be of specific utility in assessing the cost/effectiveness of current collection, processing, analysis, and production efforts. How much effort is appropriate in preparing synthetic measures of resource alocation that provide insights of possibly limited utility? What fruitful lines of inquiry are being inadequately funded?

2. Relating Our Assessment to Soviet Mission Oriented Assessments

Admiral Stanfield Turner, last year, in Foreign Affairs related Soviet naval buildup to their concept of missions. It seems reasonable that the Soviets would

consider their required ship building in such terms as a perceived need to deny their coastal waters to the ships of other nations. By applying Admiral Turner's logic to Soviet economic planning it seems reasonable to assume they related a perceived need for a modern automotive transport industry to the construction of the giant Kama River Truck plant. They might also perceive a need for a minimum level of combined forces to cope with the threat of the People's Republic of China or to maitnain political stability in Eastern Europe.

If we were to use this mission oriented approach to evaluate Soviet allocation of resources to defense I suppose we would design a different methodological approach to gathering and analyzing information, and a different format for presenting conclusion. Precisely what the best methodology and format might be is a subject for further thought and discussion. However, if the results reflected their decision-making approach more accurately I believe we could obtain more useful insights.

Having structured Soviet objectives in terms of mission oriented military and economic objects I suggest we will find them in conflict in the Soviet perception.[2] Moreover, we may have some marginal influence in the choice, which leads me to my last point.

3. Evaluate Social Conflicts in Defense and Modernization Objectives in Terms of Our Security Risks and Economic Opportunities

As suggested in the paper attached to my testimony, prepared for presentation to NATO and the North Atlantic Assembly in May, the Soviet leadership faces a dilemma in their choices between military buildup and modernization. They appear to be committed to a program designed to bring about the kind of miracle in economic change that American technology brought to the Western industrial nations in the postwar period. Committed as they are to a series of multi-billion ruble programs in energy, metals, regional development (e.g., the Bailkal-Amur Railroad), computer related management, agriculture, modernization, and automotive transport, they have fallen short in the full commitment to timely completion of the projects. Because each of the giant projects requires foreign technology, credits and balance of payments problems have limited actual imports. As each of the projects requires substantially more domestic investment and human resources, the conflict of defense priorities seems implicit.

A case study of this general Soviet problem of modernization involving Western imports and investment priorities is their energy policy. Under the best of circumstances, energy will be a problem area for the U.S.S.R. as it is for us. There is no doubt that Soviet petroleum reserve and output will not be adequate to meet future extrapolation of past trends in demand. However, with substantially increased investment and stepped up energy equipment imports from the West, and especially from the United States. Soviet's energy crisis might be ameliorated. A crucial question to U.S. policy makers might be whether exports of energy technology to the U.S.S.R. would reinforce pressures to shift resources from the military to energy programs. Whatever the answer to this significant question, the type of analysis and information used would be different from that normally presented to this Committee. It might be a useful case study in providing a new approach to Soviet defense allocation estimates.

Soviet Economic Capabilities and Defense Resources[3]

(By John P. Hardt)

Although the Soviet Union with its massive military establishment may now project its power to the far corners of the globe and into space to influence the

[2] See enclosed NATO paper.

[3] Based on address to NATO Commanders, *Shapex*, 12 May 1977, Mons, Belgium. The views expressed are those of the author. They do not necessarily represent the views of the Congressional Research Service, the U.S. Congress, or the U.S. Government. To appear in "The Soviet Threat: Myth or Reality," proceedings, Academy of Political Science, Columbia University.

course of world events, the economic and technological power of this military colossus is limited. Efforts to reduce the technological lag of the backward Soviet civilian economy and raise the standards of living of its people—so important to a dynamic, modern economy—tend to fall short of plans and expectations. Moreover, the future economic and technological base of Soviet power does not match projected plans for military growth. Today, the U.S.S.R. is a dominant economic power in east or middle Europe, but nowhere else. For the *future*, if the U.S.S.R. continues its emphasis on economic autarky, it will remain a military power without the necessary economic base.

If it were prepared to reorient its priorities and methods this modern Sparta might join the Western industrial countries as a member of the elite group of economically and technologically advanced nations. Indeed, the Soviet resource base in energy, metal and other natural resources provides a better underpinning for development than that possessed by the current economic giants of Europe, Asia, or North America. Thus, the formula of economic interdependence—Soviet resources wedded to Western technology—is an attractive and officially-accepted recipe for future development. Indeed, there are precedents for this. The early Bolsheviks argued for joining the "Machine Shops of Germany" with the "Granary of the Ukraine." This earlier combination was to be attained, to be sure, by the spread of Communist revolution, whereas the current development of economic interdependence is to result from negotiation and understanding—the "West Politik" meets "Ost Politik", Detente gives hope of Entente, Stalin's world of two markets becomes one market, the spirit of the Helsinki Final Act is carried forward.

It is well known in the West that the Soviet Union has continued to expand its military arsenal. Perhaps less appreciated is the fact that it is also committed to a policy of economic interdependence designed to improve the overall Soviet economic and technological position. The image that appeals to some Soviet leaders is the post-war economic miracle of Japan. That Asian economic giant was able effectively to transfer technology from the then more advanced industrial countries during the 1950s and build on Western technology with minimum political and economic intervention from foreign states or multinational corporations. This formula appeals to some Soviet leaders as the best of possible worlds. But a key aspect of the Japanese formula, one that has escaped much public attention, has been the very small military burden—approximately 1 percent of their gross national product—that the Japanese sustained in this time period. The comparable Soviet figure is 13–15 percent.

The central questions then are: Can the Soviet Union attain the position of an economic and technological superpower while retaining its eminent position as a military superpower? How will efforts to bring in Western technology benefit or change the Soviet economic and political system? What margin of influence may Western nations or organizations have on the course and impact of economic interdependence and technological change in the Soviet system? Answers to these questions are not evident but certainly policies of both East and West in security and economic affairs are in conflict. The opportunities and risks in the policy of economic interdependence are central to East-West relations.

DIMENSIONS OF SOVIET POWER

It is important to consider the burden of military of military resource claims and the Soviet leaders' perception of their need. The Leninist formula for economic development, as expounded by Stalin, placed primary emphasis on the creation of an economic base for developing future military programs, including current production as well as stockpiles of military equipment. This approach was largely mission-oriented in the sense that the overtaking and surpassing of military support bases of Western industrial countries and the development of Soviet military arsenals were directly related to a presumed security threat. Indeed, the German invasion of the U.S.S.R. seemed to validate this priority. The continuation and expansion of Soviet postwar power was also mission-

oriented in the sense that it was to be the political base both for projecting Soviet power abroad and retaining power within adjacent territories. Stalin's views were often made quite clear on the direct political relevance of Soviet military power; e.g., in Italy the Communist takeover after the war was not successful because the Red army had not proceeded far enough. Later, the development of Soviet strategic forces, the naval outreach and the conventional buildup of strength on the China border, carried out under Stalin's successors, appear to have a political mission, albeit with more diverse goals than the arms buildup of the 1930s. In an article in Foreign Affairs, Admiral Stansfield Turner, Director of U.S. Central Intelligence Agency, usefully correlated this approach with the problems of assessing the significance of the Soviet naval buildup.

In dealing with the economic and technological capability of the Soviet Union it may be useful to consider economic missions more than comparative balances. For years one could say, in comparative terms, that the Soviet economy was about half the size of the U.S. economy in terms of goods and services produced; that it spent approximately as much (now somewhat more) than the U.S. on national defense; and that the Soviet technological efficiency in the civilian pursuits, was about one-third to forty percent of that in the United States. In measures of GNP per capita and energy production per capita the Soviets are similarly less advanced, not only compared with the United States, but with most of the Western industrial countries. It is more useful, however, to consider the economic and technological purposes of the Soviet economy. When we do so, we find that the relative quality of resources and approximate parity of military technology offer us a more useful basis for assessing the purposes of Soviet leadership.

There are signs that the Soviet leaders are becoming increasingly aware of the disadvantages inherent in their pattern of technological development. The progressive slowdown in their economic growth rate, the sharply rising capital requirements for incremental outputs, and the increased need for attractive consumer goods to provide incentives for a scarce labor force, have all brought home the need for improvement in the present efficiency of the Soviet economy for civilian as well as direct military support. It is also clear to Soviet leaders that the economic base for future power requires a modern technologically-advanced civilian economy in order to support future generations of military programs.

ECONOMIC MODERNIZATION: SPUTNIK TO DÉTENTE

In the late 1950s, a state of euphoria brought on by the successful launching of Sputnik and reasonably successful economic programs led Khrushchev to to adopt a policy of both "guns" and "butter." His seven-year plan, initiated in 1959, stresed broad economic modernization along Western lines in energy, metals, transport, agriculture, and other consumer-related sectors. It also involved overtaking and surpassing Western standards for food, housing and other measures of consumption. All this program was to proceed while the Soviet Union moved toward equivalence with the United States in the political use of military power.

Bad weather, and overcommitment of resources caused economic failures and resulted in reexamination of these ambitious modernization and consumer targets. The failure of the Cuban missile venture—Khrushchev's hopes for political projections of equality on a narrow military base of strategic weapon capability—led to a reappraisal of military programs by Khrushchev and his successors.

Late in 1964, Khrushchev's successors, Leonid Brezhnev and Alexei Kosygin, moved toward a selective policy of economic interdependence with the world economy. The historic decision to build passenger cars in the Volga Valley with industrial cooperation from the Italian company, FIAT, symbolized the change. This acceptance by the Soviets of selective Western involvement in developing automotive transport, marked a beginning of a policy of economic interdependence as a necessary ingredient for Soviet modernization. Brezhnev and Kosygin had apparently concluded that if some improvement in the Soviet

consumer's lot was to be forthcoming, selected areas, such as Western style passenger-car production and increased meat output, must be singled out for special attention. They adopted a policy of selective consumerism in lieu of the Khrushchev program of across-the-board economic modernization and improvement in living standards.

The FIAT Plant on the Volga became a featured project of the Eighth Five-Year Plan (1966–1970). This project was to be the forerunner of further developments with Western companies in the automotive field. The Kama River Truck Plant became, in turn, a key project involving Western technology in the Ninth Five-Year Plan (1971–1975). The Ninth Five-Year Plan further broadened this selective concept of Western-style economic modernization and consumerism. In the expanded scope of technological change the development of energy, metal production, agricultural processes, and computer applications were to be some of the key sectors for Western involvement in Soviet modernization.

The full political/economic implications of the FIAT venture within the Soviet economy are not yet clear. Still, its relative success may have encouraged a broadening of modernization priorities, or it may have reflected merely the deepening economic problems of the Soviet economy and its resistance to improvement without efficiency measures and technology brought in from Western sources. Or, as one Western observer put it, the Soviet leadership may have decided to stop denying themselves the advantages of Western economic and technological interdependence.

In any case, the advantages of economic interdependence have been well illustrated by the "economic miracles" of the advanced, Western industrial nations. The Soviet leaders were encouraged by the prospects held out by the agreements with the United States following the 1972 Summit that forecast improved trade facilities and the availability of long-term,low-interest government credits. The formula discussed for the West Siberian natural gas project, "North Star," was especially attractive in that the multi-billion ruble project was to be supplied with plant and equipment from the United States on a priority basis for development of the pipeline, liquefaction and energy transport facilities with no repayment required until after the facilities were operative. The sequential payback arrangement was then to be at reasonably favorable terms from the output of future gas generated in the new facilities, developed largely with Western technology and facilitated by Western credit. Although this project involved the reallocation of domestic Soviet investment resources within the Soviet plan, it posed no significant problem in terms of diversion of hard currency from other projects or incurring onerous indebtedness that might influence short-term import policies.

The Soviets apparently hoped that government credits and large multi-billion-dollar project financing, such as discussed in 1972 and 1973 for the North Star project, might also be forthcoming from West European countries as well as Japan. Their hope was for such projects as: (1) Japanese assistance on long-distance transmission of petroleum from Tyumen Province in West Siberia to the Pacific and joint development of Yakutia natural gas; (2) a deal with the Germans for joint development of the massive, modern Kursk metallurgical capability; and (3) a variety of smaller projects to be concluded with the French, the United Kingdom, and other West European countries. Partly because of the difficulties with the United States about trade preferences (MFN) and continuation of Export-Import Bank facilities, the actions of the U.S. Congress eliminated the possibility that the North Star formula might become a standard American vehicle for financing and facilitating large-scale Western technology transfer to the major Soviet projects, especially in resource development. Subsequently, parallel projects under discussion with the Germans and Japanese were revised from the earlier pattern of long-term preferential financing to that of more conventional commercial and business-like terms akin to those elsewhere in developing economies.

However, as preparation for the Tenth Five-Year Plan (1976–1980) proceeded, leadership interest in technological transfer, various forms of economic interdependence, and a broadening of sectors of priority for modernization involving

Western technology continued. This interest was dampened by hard currency trade deficits and rising indebtedness. Emphasis was given, and is still being given, to various modes of financing, and these financing ventures have the common feature of giving priority to those that provide returns or repayment out of products developed from imported technology in specific projects. So-called compensation agreements, i.e., projects financed by purchase of products from completed enterprises, became the vogue. This new formula also includes industrial cooperation characterized by royalties, quality control and other aspects of Western managerial involvement; it is expected by 1980 to account for as much as 40 percent of U.S.-U.S.S.R. comemrcial relations. The prototype is being set by the Bendix spark plug agreement now in final stages of negotiation. The common features of these institutional arrangements are that they improve the prospects of effective technology transfer and ease the hard currency deficit problem.

UNIQUENESS OF PROJECTED SOVIET ECONOMIC MIRACLE

In emulating the significant increase in the economic growth and overall performance of the postwar economies of West Europe and Japan associated with technology transfer, one must note significant differences in the projected Soviet pattern evidences specific differences:

1. Whereas the industrial nations of Europe and Japan had developed economic infrastructures on which a broader and technologically more modern economy could be built, the Soviet economy was narrowly geared to military-industrial needs.

2. Whereas the Western industrial nations were short of natural resources and unskilled labor, the Soviet economy was self-sufficient in most materials and unskilled labor required for a modern economy. Unfortunately these material resources and unskilled labor were poorly located for serving new Siberian industrial centers, and costs for their development are significantly higher than those required to develop earlier resource bases.

3. Whereas the economic institutions of the Western industrial nations—aided by the development of the multi- or trans-national cooperation—were well suited for technology transfer, absorption, and adaptation, the Soviet economic system tended to resist technological change, especially when related to Western systems of management.

4. Whereas both Western and Soviet economic development plans aim at improving capital efficiency and labor productivity by increased capital and technology per worker and improved incentives from increased availability of consumer goods, the accommodation of measures of efficiency and incentives are especially difficult in the Soviet system.

5. Whereas each of the Western industrial nations accepted some military claims on their technologically advancing economies, none, including the United States, has accepted the burden of defense that the Soviet economy has consistently borne.

The theoretical prospect for an economic miracle—a significant improvement in economic performance through technology transfer—is certainly possible in the Soviet economy. It is a process that might get well underway in the current Fifteen Year Plan, one for which the rich Soviet resource base in energy, metals, timber, etc., may be helpful. Nonetheless, the five areas of uniqueness, noted above, make such a miracle unlikely in the near term.

BALANCE SHEET ON ECONOMIC MODERNIZATION AT THE OUTSET OF 15 YEAR PLAN (1976–1990) [4]

Let us take a closer look at some of the specific projects the Soviets have adopted in their long-term effort to build their general economic and technological capability up to the relative level of their military power.

[4] For more detailed insights see: "Soviet Economy in a New Perspective" released by the Joint Economic Committee, 1976, especially H. Hunter, M. Mark Earle, Jr., and Richard B. Foster, "Assessment of Alternative Long Range Soviet Growth Strategies" and Murray Feshbach and Stephen Rapawy, "Soviet Population and Manpower Trends and Policies."

The Soviet economic plan included a number of large multi-billion ruble projects involving long gestation periods and significant Western technological imports. Some of the major projects are the following:

1. Automotive plants: the passenger car facility at Tolyatti and the truck plant on the Kama River.
2. Baikal-Amur railroad Development (BAM) in the Far East and East Siberia.
3. Agricultural investment programs, including the opening of new non-black soil lands and construction of storage and transportation facilities.
4. Integrated energy development programs, including new primary energy sources as well as transmission and utilization facilities.
5. Metal processing and development projects, including ferrous and non-ferrous metals.
6. Computer systems for national economic reporting, planning and enterprise management.
7. Tourist facilities, including hotels, airlines, and facilities, etc. targeted toward the 1980 Olympics.

Each of these new project complexes, initiated during the preceding ten years, will continue to generate increasing demands for Western imports as well as expanding civilian requirements for domestic investment resources. The Soviet leadership expects significant and favorable results from these projects, as indicated by the continued high priority accorded to them.

Western analyses on the impact to date of imported technology suggest that the Soviet leadership has correctly assumed that Western technology should be a major factor in accelerating economic performance. Economy-wide, as well as individual industry studies, although preliminary, suggest a multiplier effect of three to four in value terms comparing the value of imports of Western plant and equipment with increased output from Soviet industry during the previous five-year plan periods.

Whatever the Soviet leadership expects for the future of these projects, there are several potentially disturbing factors in the formula for recent success in these Western-oriented projects. A primary problem is cost—the diversion of resource allocation from other priority projects, including military programs. These priority projects may place very high demands on scarce Soviet resources, including skilled manpower, for building effective facilities for increasing the output of finished goods. Especially resource demanding is the construction of the economic infrastructure for raw material development in the far reaches of Siberia. The cost, for example, of adding facilities for delivering oil and natural gas to Soviet markets from the permafrost regions of Siberia are many times the comparable cost of oil production or gas development in the older regions. Every one of the major projects placed by the Soviet leadership on its priority list in the multi-billion ruble complexes has a primary characteristic of requiring interrelated investments and long gestation periods before showing effective economic results. A second disturbing feature for Soviet decision-makers, is the requirement of systems as well as process transfer of technology. The transfer to the U.S.S.R. of managerial expertise may be the primary factor in the success of these priority projects in economic development systems. It may also have disturbing political and institutional side effects. The new variations in Party and economic control represent special exceptions and relaxations in traditional political and economic controls. These current variations in administration reflect the pattern of technological absorption of these new priority projects into the Soviet economy. To date, replication of Western type management and control within the Soviet political and economic bureaucracy has been managed or controlled on a small scale, and on an exception basis. In the future, if these exceptions in administration required for efficiency in absorbing and utilizing technology from Western developed countries are spread to many projects, the changes may influence the system itself. At stake in these two aspects of effective technology transfer are: (1) Priority in resource allocation, in particular the traditional priority of military or heavy-industrial claimants for high quality re-

sources, and (2) the traditional dominant role of the Party and the governmental bureaucracy at all levels of the Soviet economy.

Financing imports of technology has also proved to be a problem. The terms on which the Soviet leaders once hoped to obtain credits and technology from the West to support their economic modernization programs have not met their expectations. Project financing of the "North Star" type, with large scale, long term favorable terms and sequential payback has not materialized. In its place, the Soviets have been required to accept short-term competitive rates with concurrent payback for projects of lesser scale such as in mineral fertilizer and metallurgy development. With the succession of poor weather years, especially in 1972 and 1975, together with the adverse effect on Soviet exports of the Western recession, and the inflationary impact on their import prices from the West, a persistent and serious problem of balance of payments deficits has become a major factor in limiting trade with the West. The level of Soviet indebtedness reached in 1976 after a serious trade deficit in 1975 appears to have compelled deferral of many contemplated additional long-term projects. Furthermore, there have been negative effects on a number of the project areas noted above for which Western technology is critical. They include the following seven major deferrals:

1. Delay in projected production of Western auto and truck models in the U.S.S.R.

2. Delay in development of the power-consuming industries and resource development industries in East Siberia and the region around the Baikal-Amur railroad.

3. Delay in the development of the agribusiness complexes required for modernizing the feed grain livestock industry;

4. Delay in the development of long distance AC and DC transmission facilities for bringing cheap hydro and coal generated power from Siberia to European Russian markets; and delay in importing transmission, exploration, extraction and other facilities for petroleum and natural gas complexes to meet the projected plan of output increases both onshore and offshore;

5. Delay of the Kursk metallurgical project for pelletizing and direct metal reduction;

6. Delay in the introduction of an effective, computer-assisted national economic reporting system; and

7. Delay in completing facilities for tourist expansion for the 1980 Olympics.

What are the costs of further Soviet equivocation in opting for Western cooperation to achieve economic modernization and development? The costs are high indeed if the expensive multi-billion ruble projects are not brought to a level of effective production in the Fifteen-Year Plan context. The gestation periods for these major projects, so central to future Soviet performance, are long in any event, but the possibility for converting facilities, once the commitments are made, is very small. Regional energy, metal, and transportation facilities are sunk costs. The returns come only after completing the economic complexes which provide them.

Likewise, decisions to allocate investment resources to long-term defense projects have become increasingly difficult to reverse. With respect to strategic weapons systems, modern naval developments and even equipping modern conventional forces for the China border, the options for conversion of economic resources from military to non-military have become increasingly limited over time. The gestation period from decision on strategic weapons buildup after the Cuban missile crisis may have been a decade or more to deployment and utilization in some political sense. Writing at the time, I noted that, "Premier Khrushchev is using up today, in weapons systems decisions, many of the options of his successor and preconditioning the resource allocation pattern that will be his successor's inheritance." [5] That observation in 1962 is even more relevant in 1977 to the pattern of resource decisions. Once taken, the decision between guns and butter is not reversible within the 15-year plan time frame.

[5] John P. Hardt, "Strategic Alternatives in Soviet Resource Allocation Policy," Dimensions of Soviet Economic Power, Joint Economic Committee, 1962, p. 19.

The Soviet policy of economic modernization and emphasis on consumerism defined the limits within which the smaller countries of the Council of Mutual Economic Assistance (CMEA) could adopt their own new economic strategies. The new East European strategy emphasis is selective modernization, using Western technology and managerial techniques. East European efforts in the 1960s to achieve modernization on a broad front proved unacceptable to the Soviets and therefore unmanageable. The attempted Czech application of a broad policy of modernization was forcibly stopped by the intrusion of Soviet tanks into Prague. The Prague approach to economic modernization on a broad front proved, for most East European countries, to be difficult to manage. In its place the East European countries adopted a strategy of selective emphasis on growth areas and economic reform in specific mechanisms and sectors for the first five years of this current decade.

The East European countries embarked, albeit somewhat unevenly, upon large long-term projects for development of selective sectors with special emphasis on Western technology transfer. They also adopted a consumer oriented program designed to provide increasing incentives, but these also generated substantially increased expectations. A modern industrial structure, an accelerated rate of economic growth, and especially an increase in visible consumption, including availability of meat and other quality products, became a normal feature of East European economic policies.

In 1975 the East European leaders and planners were probably surprised when the Soviet Union, in the wake of the significant increase in world energy prices, radically changed the terms of trade with its East European partners. In 1973–74 the price of Soviet oil was about one-fourth that of the OPEC price and could be paid through export of goods not necessarily marketable outside of CMEA. In 1975 this situation was revised by a planning arrangement whereby the prices paid to the Soviet Union by the end of the decade would close the gap with the current OPEC prices and presumably increase the requirement on East Europe to make "hard" goods deliveries to the Soviet Union. The Soviet bargainers in the annual trade agreements also sought, and apparently obtained, enhanced cooperation and investment from East European economies in joint CMEA projects such as the Orenburg natural gas pipeline and other Soviet resource projects. Soviet planners had been pushing each of these projects for some time as they had the advantage to the Soviets of being a part of their domestic economy. One is tempted to wonder whether the Soviet use of the energy lever in these unequal negotiations has brought an increase in the military production burden on the East European countries, as well as in their share of other Warsaw Pact military costs.

One might expect the East Europeans to reduce their imports from the West in the face of pressing new requirements from the Soviet Union and irreducible, increasing requirements in their domestic economies. But modernization and improved consumer performance are tied to the elimination of bottlenecks in East European plans which only Western imports can provide. By the end of this five-year plan period, hard currency imports to the East European countries from the West may increase from 17 billion dollars in 1976 to as much as 28 billion dollars in 1980. The indebtedness of the East European countries has risen sharply, although unevenly. The Polish increase from less than a billion when Gierek replaced Gomulka in 1970 to over 12 billion dollars in 1976, is the pacesetter among East European countries for increased Western indebtedness.

Several questions may be asked in the above context. One is: Why do the Soviet negotiators not extract the maximum short-term economic returns from Eastern Europe? The answer may lie in a Soviet sensitivity to the political vulnerability of the East European Parties and in a Soviet desire to benefit from increasing long term productivity of the East European economies. The Soviets provided about 1.3 billion rubles in credit to the Poles in the Fall of 1976 after the price riots of the summer, presumably to keep Polish Party leader Gierek in

power. It appears that Gierek is the best political prospect for Polish leadership, combining Soviet and Polish interests, and is acceptable to Soviet leaders as long as he can control his party. In the longer term, the Soviet Union will benefit or suffer from the ability of the East European economies to produce more "hard" goods or products that can be sold under world market conditions. If they are politically committed to East European economic plans then they might wish to maximize their long-term economic returns from this continued alliance or at least minimize the East European burden on the Soviet economy.

East European political stability has been shaken by the response of their people to "basket three" of the Helsinki agreement. The reactions and public demonstrations, at considerable personal risk, of leading citizens in the German Democratic Republic and Czechoslovakia suggest the extent of the impact throughout Eastern Europe of the human rights aspects of these agreements. Economic improvement of the citizen's lot—effective consumerism—is one of the important counterweapons of the Party in maintaining political stability. Indeed, economic performance is linked to stability in other ways. The agreements, long sought by the Catholic Church to have churches built in new Polish towns, was a concession that seems to have a politcal-economic rationale.

The fear of political instability in Eastern Europe appears to make the Soviets cautious in pressing their advantage over East European economic life. It may also account for the buildup of Warsaw Pact forces in recent years as a mechanism through which Soviet control can be reasserted if necessary by force. This area of interaction between CMEA and the Warsaw Pact as instruments of Soviet policy deserves more detailed attention.

WESTERN OPTIONS AND POTENTIAL INFLUENCE

Commercial relations between the East and West may be promoted or restricted through government action. Both policies have been and are being followed by Western governments. Trade is restricted by tariffs, quotas, and other non-tariff barriers, including licensing. Trade is promoted by government credits, trade facilities, and subsidies. The avowed purposes of such restrictions are to protect the domestic producers and labor force while denying potential adversaries economic and technological facilities that would significantly enhance their military capability. Restrictions intended to enhance the interests of domestic producers are of particular interest during times of economic recession when domestic employment and production are threatened by foreign competition. Licensing of industrial products is employed when production processes are believed likely to enhance the military capability of a putative enemy. Trade promotion, in turn, is intended to provide new foreign markets for domestic producers thereby permitting large scale, more efficient operations, possibly keeping unit costs and prices down while profits rise.

Government loans and guarantees tend to reduce the risk of dealing in uncertain Eastern markets, to reduce credit charges, and thus to make Western exports more attractive to Eastern importers. These measures, while designed to facilitate Western exports to the East, also tend to keep down imports. This policy may be likened to a driver with one foot on the accelerator and the other on the brake. It is an uneven commercial policy for developing the national interests of either Western or Eastern nations.

Credit policy poses special problems in East-West commercial relations. As credits are made easier, the resulting trade deficits lead to increased indebtedness. As Eastern nations by their own policies and priorities tend to encourage imports and have difficulties in providing goods and services that would attract hard currency, this process is exacerbated. The rapid accumulation of Eastern indebtedness to a level of between 40–50 bililon dollars in recent years is the outgrowth of this situation. Restriction on Western export-licensing designed to restrict the enhancement of the Eastern military support economy adds uncertainty to the relationship. Measures intended to restrict export through control of products and processes that might influence Soviet military capability are

unevenly applied by the United States, as well as by other nations of NATO and Japan. The unilateral United States control list not covered by Cocom is testimony to this discrepancy. There is now a much shorter list of commodities that the United States may control or deny effectively e.g. certain computers, nuclear reactors, aircraft, and electronic equipment. The effect of U.S. limitations on the export of strategic technology is diminished as the capability of Warsaw Pact military production increases. To determine what production processes might significantly contribute to the military capability of a foreign power is a complex question. There is also the problem of identifying critical bottlenecks in the Soviet economy that may be released by technical breakthroughs achieved with the aid of Western technology. The U.S. Defense Science Board has attempted to unravel these complexities for the U.S. But as a member of NATO the United States should not adopt such policies nor should any other NATO powers in the absence of consultation with other North Atlantic partners.

In Europe two highly integrated groups face each other with conflicting economic and security priorities. The European Economic Community (EEC) is highly developed economically and technologically and has minimal barriers among its members to the useful flow of goods, services, and civilian technology. Degrees of specialization in industry, agriculture, and transportation have been worked out to conform with concepts of comparative advantage. The Warsaw Pact is a highly integrated military organization with standardized modern equipment, closely integrated forces, and unified command structures.

Europe also has two less-integrated, less-efficient groups facing each other: the North Atlantic Treaty Organization [NATO] and the Council for Mutual Economic Assistance [CMEA]. NATO suffers from lack of integration and standardization. Considerations of sovereignty and national interest often reduce the areas of common efforts and increased burden-sharing. The same kinds of problems plague CMEA.

The respective organizations for integrating of Europe—East and West—for economic and security needs illustrate the traditional differences in priorities. Now the Soviet Union and its East European allies seem to recognize that problems of an economic nature inherent in CMEA need to be addressed and remedied. Likewise, NATO nations express a need for more effective integration and a closer relationship between economic and security policy. A need for a common Western policy toward the Eastern nations on economic-security matters is a newly important item on the agenda. Certain areas for consultation derive from the problems posed for the NATO alliance by the combination of Soviet economic potential and military power. Among these are:

1. The need for continued and vigorous consultation about a common NATO policy on export licensing and technology transfer to the East. Consideration should be given not only to trade but to bilateral cooperative exchanges. Differentiation of alliance posture as between the Soviet Union and its allies should also be considered.

2. Reappraisal of Western policies on tariff and non-tariff barriers to Eastern trade, including quotas, determination of market disruption, and dumping.

3. Consideration of a coordinated Western credit and financing policy toward the East. Concepts of competitiveness should be reexamined. Conformance with reporting requirements of "Basket two" of the Helsinki Agreement should be considered.

4. A broader framework of multilateral Western consultation may be needed to interrelate bilateral East-West relations and cope with political-economic-security questions.

CHOICES FOR BREZHNEV'S SUCCESSORS

One factor in assessing current Soviet choices between short-term military, and long-term economic, improvements is the age of its leadership. The Brezhnev era has been characterized by consensus and status quo policies. Soviet acceptance of global economic interdependence must be assessed against this resistance to change.

The succession to Brezhnev may not be followed immediately by a firm, stable leadership. A rocky, transition may follow his political or physical demise. Whoever eventually succeeds him will take over his long-term commitments to competing military and economic programs. The worst of policies would then be one of equivocation. The Soviet leaders may be free to choose, but they are no longer free not to choose, and the consequences of their choice will have to be accepted, on the whole, by the successors to Brezhnev.

Our western policy on economic interdependence is important, especially to us as it is the area over which we have influence, but the major determinant in long-run Soviet economic and technological performance is their military policy. If the Soviets choose to stay on their current course of military superpower augmentation they must defer or forego the option of joining the Western industrial nations as an economic superpower.

If economic interdependence and economic modernization continued to be a priority aim of the Soviet leadership their country may, in time, join the Western industrial nations as an economic superpower. This would probably require a budgetary emphasis upon and raised priority to economic modernization rather than military augmentation. It would also require an expanding program of Western technology imports which could affect both the economic and the political system in the Soviet Union.

Were the Soviet Union to become an economic superpower that country might become economically competitive with Europe, Japan, and North America in the world market for industrial goods. Its leaders might, then, be less inclined to focus global competition upon areas where Soviet military competitiveness was dominant. This type of qualitative shift would make Moscow's long-term slogan of peaceful coexistence more meaningful.

Neutron Bomb

Senator Proxmire. Mr. Blechman, I can't resist getting into the neutron bomb controversy with you right now because of what you said in your prepared statement.

You indicate in one part of your prepared statement that the United States would prevail in a war in the Mediterranean. Then you indicate our weakness with respect to the Warsaw Pact nations, NATO versus the Warsaw Pact nations in Europe.

My questions are these:

Is there a Warsaw Pact superiority over NATO?

Would that superiority, in your view, perhaps result in a Warsaw Pact victory in the lightning war you describe using conventional weapons.

Would the neutron bomb correct that situation and be of a sufficient force to make it clear that in such a war that the NATO forces would prevail if NATO uses the neutron bomb?

Mr. Blechman. I don't think the likely outcome of a conflict in central Europe is sufficiently clear for anyone, either myself or a Soviet leader, to judge hard and fast or to be certain that they would prevail.

Certainly, they would make some gains. However, it is not at all clear that they would march rapidly through Western Europe as often alleged.

Moreover, I believe that an adequate conventional defense is well within NATO's grasp.

Senator Proxmire. How soon?

You point out they have 19,000 tanks compared to 7,000 for the NATO forces. You point out they are poised for a lightning attack.

Mr. BLECHMAN. Concerning tanks, Western tank production rates have been increasing, Western tanks seem to be at least as capable as Soviet tanks, and more importantly, the West has been making tremendous progress in antitank weaponry.

If these weapons were acquired on an accelerated schedule, and, most importantly, if changes were made in the structure and deployment of our forces, I believe an adequate conventional defense could easily——

Senator PROXMIRE. Yes, but my question related to neutron bombs and that is something that came up on the floor of the Senate Friday before we recessed and there was heavy emphasis on the fact that we need it for that precise purpose.

Mr. BLECHMAN. To the extent that the deployment of tactical nuclear weapons, whether they be neutron bombs or other types, causes the West to neglect its conventional defenses, then I believe it is a mistake to acquire them.

I believe the risks associated with any nuclear war, no matter at how low a level you begin, is so great that I would far rather spend whatever is necessary to build adequate conventional force.

So, in that sense, the sense that the neutron bomb holds the promise of a relatively clean nuclear war, a nuclear war that could be fought without totally devastating Europe, I think that leaves a false and misleading impression, one to be avoided.

Senator PROXMIRE. I thought there was general agreement if we used the neutron bomb they would come back with dirty nuclear weapons, and on the other hand the argument was we would be more likely to use the neutron and it would be a more effective deterrent and therefore the Warsaw Pact would not use its superiority in Western Europe to attack, feeling if they did we could use this weapon, and therefore they would be deterred.

Mr. BLECHMAN. In my experience the Soviets have never paid any attention at all to the fine points of nuclear strategy and the sophisticated gradations that Western analysts like to build.

When the Soviets speak of nuclear wars, they speak of massive exchanges; their weapons' technology backs up that approach.

As best I can tell, they have very large nuclear weapons and pay very little attention to the need or desirability of moving toward——

Senator PROXMIRE. So, your answer is they would not feel that the neutron bomb would be any more of a deterrent than the other nuclear weapons we have, and that they would be more likely to act absent the neutron bomb than they would with the neutron bomb?

Mr. BLECHMAN. I don't think so.

I think the essence of the deterrent is the simple fact of the risk of total devastation that would accompany any nuclear exchange. The risks involved once you get on that escalator are so great; that is what deters them.

ECONOMIC LEVERAGE

Senator PROXMIRE. Mr. Becker, would you address the issue of leverage?

If the Soviets incur severe economic problems, or even if they don't, is it in our interests to withhold trade or to extend it in order to extend the Soviet priorities and allocations?

Mr. BECKER. While I am very conscious of the fact that leverage is a tricky business and that it involves understanding about the way the

Soviet system operates, to a degree I don't think we actually yet have, I nevertheless believe it is not something we should give up. I do believe that there is an imbalance of interests, that the Soviets have a greater interest in this relationship than we do, and that from that point of view it is of interest and concern to us to try to develop some sort of political quid pro quo for the economic——

Senator PROXMIRE. That is what I had in mind by leverage, that we would use the technology we can export to secure behavior of one kind or another, which would promote the security and peace between the two nations.

Do you think that is——

Mr. BECKER. Yes; in general I would adhere to that view.

Senator PROXMIRE. You suggest that it would be to our advantage to ameliorate the energy crisis that might occur in the Soviet Union with exports of technology to the U.S.S.R. because this would reinforce pressure to shift resources from military to energy programs.

The opposite is often argued, that is, if we don't export technology they will have to spend more to develop their own and will thus be forced to shift their military resources.

So, would you explain your approach?

Mr. HARDT. Senator Proxmire, we have been talking a great deal about Soviet energy of late and it is generally agreed that the Soviet oil production in particular is going to fall short of their desired levels and perhaps their needs.

Their natural gas deposits and reserves are quite substantial, but the ability to get them to their users, domestic and foreign, is going to be difficult and this is likewise true with coal.

In each of those cases we can identify specific areas in which Western technology, particularly U.S. technology would represent a critical factor in improving their ability to meet their required goals.

In each of those cases, whether they be production facilities for oil, such as submersible pumps or offshore drilling rigs or for pipe for natural gas or other specific areas we could identify to be precise about our Western technology sales, these would require, in addition to importing these elements of Western technology, investments on their own part in order to make them productive in terms of output and use of energy, and in that case I would support the notion that the pressures on domestic investment would be increased by increased imports of Western technology.

Imports of Western technology, of course, are not free. Moreover, our Export-Import Bank is not open, as you well know, and these purchases would be made for market prices and we would, in some cases as illustrated by some current deals that are negotiated, receive directly energy imports ourselves to pay for the exports in technology. For example, in the offshore drilling equipment for the Caspian Sea.

Senator PROXMIRE. You are implying strictly from the standpoint of diverting military investment into industrial investments which is more peaceful and might create a more peaceful posture between the United States and the Soviet Union, without extracting from them any commitment for our sale of this technology; is that right?

Mr. HARDT. The commitment would be a commitment for accepting the terms of the world market. The commitment would be normal com-

mitments in terms of commercial relations. If we are to try to calibrate or fine tune our leverage——

Senator PROXMIRE. We are haunted by that probably most famous line on this which was that during World War II, just before World War II when we exported steel to the Japanese and some Senators and Congressmen were talking about how we sent steel to the Japanese and it came back in the bodies of American boys—that is probably the most vivid expression I can remember of the effort of that kind of thing.

Then, of course, the apocryphal quote of Lenin that when the Communists get ready to hang the capitalists, the capitalists will sell them the rope.

The feeling is that we have to be very careful about this to make sure that if we do provide technology it is not going to come back and haunt us.

You are saying that just strictly on the basis of economics, without any political agreements, anything of the kind that there is an advantage to us in exporting technology.

Mr. HARDT. I think there can be political benefits, but being from an agricultural State you can appreciate that we have talked a great deal about using wheat, corn, and other agricultural products as leverage.

We have talked about that in years of shortage. This year is not a year of shortage. What would happen with our leverage this year with 18 percent excess of production over world needs as estimated by the FAO?

It is a very difficult process for us to use explicit leverage. I would certainly agree with Mr. Becker's notion, as I understand it, that we get as much as we can politically, if that is the sense of the comment, out of these arrangements, that we use them for maximum influence elsewhere.

But calibrating or negotiating from one basket to another, to use the Helsinki parallel, is very difficult, and very likely not to be productive.

Senator PROXMIRE. Congresswoman Heckler.

Representative HECKLER. Thank you, Mr. Chairman.

LIMITED INFORMATION ABOUT SOVIET UNION

Mr. Hardt, I thought your assessment of our data and informational gathering system was devastating. If we know as little as you claim, how can we possibly even budget our resources?

I would like to question Mr. Blechman about whether or not he agrees with your assessment of our present method of evaluating the economic and defense allocations of the Soviet budget.

Mr. Blechman, as you know, in your statement you suggest that this country should be pursuing an expenditure limitation, military expenditure limitation with the Soviet Union.

If we don't have any information and our data gathering procedure is as inadequate as Mr. Hardt suggested, how could we possibly have a meaningful spending limitation, or do you agree with Mr. Hardt?

Excuse me, Mr. Becker, it is your statement I was reading from.

Do you agree with Mr. Hardt on the total inadequacy of our present system of gathering data and intelligence and information on a system on the Soviet defense system?

Mr. BECKER. Like Mr. Hardt, I have for many years also been concerned about the misuse and misunderstanding of the measures of Soviet economic potential and military potential measured by value

magnitudes, defense expenditures, share of GNP, and so on, which have been issued from the Government. I am not sure, however, that I would go quite as far as he in what I take to be an implication that we should really do away with it.

Let me first suggest that there are several different issues that we ought to keep clearly separate. One is the issue of internal consistency of the estimates, about which there has been a certain amount of questioning. Do we value manpower of the Soviet Union in the same way we value procurement? That is one set of issues. Let us keep that distinct from the issue of the margin of error. I fully agree, and also have long argued, that we should pay explicit attention to the question of estimating error and make that as explicit as possible so the users may be aware of the fragility of the numbers they are given.

Dollar Estimates Do Not Measure Military Capabilities

But both of those elements should be kept apart from the question of the meaning and the utility of value-based estimates of Soviet military expenditures, which I think is the heart of the issue. Here it seems to me we have to understand what it is we are actually doing with these dollar measures.

The basic problem is that they are frequently taken to be indexes of military capability, which, as everybody knows, they are not. Unfortunately, neither in the Soviet Union nor in the United States, do relative prices correspond to rates of transformation of military capabilities. So, expenditures are a very poor proxy indeed for military capability. That does not mean they have no use at all. With some adjustments that can be made, expenditures can be measures not so much of military output or capability but of the flow of inputs, or the flow of resources into the military sector, whose job it is to convert such input into military utilities. Clearly, that is not an estimate of military capability. It is a proxy for it and very distinctly a second best, but it is not a useless measure.

Need for Ruble Estimates of U.S. Defense

The problem has been in part that we have used only a dollar measure for the Soviet Union without the counterpart, necessary measure of the ruble values of U.S. expenditures. Had we had both of them, we would have been able to say that there is a comparative sizing problem requiring a measure of the two countries' expenditures in terms of both rubles and dollars, producing different results. These are equally legitimate, equally distorting measures but the best that we can have, and in each case they present indications of the flow of inputs into the military sector.

Mr. Blechman has dealt with net assessment in physical terms. That is a perfectly legitimate measure, but should not stand on its own. It has to be augmented. It is not totally aggregative. It does not give us a full picture of the whole set of activities and only value measures can give us that. Therefore, it is our responsibility to try to make the latter as good as we can.

The problem, it seems to me, has been our failure to understand that value measures have a degree of utility, limited, it is true, but nevertheless important.

Mr. Hardt. May I add to that?

Representative HECKLER. Yes.

Mr. HARDT. What I indicated in my prepared statement was a need for a more comprehensive reassessment of what we are doing. I did not intend to do away with what we have traditionally done, but to review priorities in collection, processing, and publication.

Representative HECKLER. But you are stating it is inadequate and Mr. Warnke seems to agree with that.

ADDITIONAL MEASURES

Mr. HARDT. I would suggest we can improve on what we are doing. Whether or not we can reach the point at which we can be satisfied or feel the system is adequate in large part is up to the disclosure policy of the Soviets.

But, specifically, we have used methods of economic estimating based on their order of battle, we have used methods of looking at the economy and trying to impute measures on the basis of allocating resources known to be in a civilian area and then estimating what the unknown areas were and building up an economic budget.

What I am specifically suggesting is more additional measures which will improve our insights, and I have in mind using the kind of Soviet economic models that have developed in the recent Joint Economic Committee publication, and I am particularly referring to the model developed at the University of Pennsylvania's Wharton School, Stanford Research Institute, Foreign Demographic Analysis of the Department of Commerce, and Duke University, to look at the time sequence of the 5-year plan, the 15-year plan, and make, as they do, assessments of the military implications of changes, using different scenarios.

That would be incremental to our understanding and my comments are not intended to suggest the absence of utility in the present method, but to indicate potential areas of improvement. Net assessment analyses has been a recent improvement, I think, in our military intelligence area. I think we can likewise improve in the economic area.

This is not to suggest we discard methodology but that we change and improve our approach.

RELIABILITY OF PRESENT DATA GATHERING SYSTEM

Representative HECKLER. How reliable is our present data gathering system?

Mr. BLECHMAN. I think you have to differentiate. The quality of information depends on what you want to measure.

When we want to count how many things they have, how many ships, airplanes, and so forth, it is very good. When we want to know how well those systems might perform, it is not quite as good but still pretty good. We know the range of their aircraft, the accuracy of their missiles, and so forth, pretty well.

When it comes to knowing what size support establishment they have, how many scientists they have working, how many administrators, there the information is very weak. I am not sure we know how many administrators we have working for us.

So, you have to be careful as to what sort of information you want and what you want to use it for.

Use of Dollar Estimates

Second, as to the use of dollar estimates that, too, depends on what the purpose is. Dollar estimates of their spending as compared to our spending doesn't indicate very much.

However, if you want to look at how their spending has changed over time, dollar estimates are fine, ruble estimates are fine. You could estimate it in any currency as long as you apply consistent assumptions and then compare year to year.

Representative Heckler. Obviously, the more information we have the more valuable our policy will be, it will reflect a much more sophisticated spectrum of data. But what I would like to know fundamentally is: How much of a problem do we have in terms of information, in terms of data, and at the point of negotiating do we have the informational systems and the data base to have reliable information and be able to then formulate a policy that will really be protective of our interests as a country?

Mr. Blechman. In terms of an expenditure limitation agreement, I don't think we do.

Defense Spending Agreement

I personally don't believe that pursuit of an agreement to limit defense spending is a sensible thing to do.

I think the chances of success are minimal. I think the differences in available information make it extraordinarily difficult. I think it diverts effort from the more serious, more important arms control initiatives, and in turn I think it could be counterproductive.

It could counteract some of the more important objectives of arms control, limiting the risk of war, promoting political cooperation, because if expenditures are limited the money might be spent on more destabilizing systems.

Increase in Soviet Military Capabilities

Representative Heckler. There are so many questions that should be raised for such a distinguished panel. Why is it, in your judgment, each of you, that the Soviet Union is increasing its military capabilities or investing as much as it does, expanding its ground forces and so forth?

What is their purpose in that?

I would like each of you to respond to that. Mr. Becker.

Mr. Becker. If one believes in more ultimate and malevolent goals of Soviet policies, such as crushing world capitalism, one can rely on that, but it seems to me one does not need that to provide some sort of minimum explanation. The minimum explanation I would look for is that the Soviet view of deterrence is fundamentally different from our own. Theirs sees deterrence as arising by and large from the capability, if so required, to fight and win a nuclear war.

Representative Heckler. If so required by outside forces?

Mr. Becker. By whatever forces. If you wish to throw in initiation by the Soviet Union itself, so be it.

However, the war may occur, a nuclear attack in which the Soviet Union is involved seems possible to the Soviet leaders, perhaps un-

likely but possible, and the catastrophic has to be dealt with and taken into account.

For that purpose, they seek to achieve a deterrent capability which in their minds is very little separated from a war-fighting capability. For a variety of reasons connected with Soviet history, with the structure of society, its general size and organization and so on, that war-fighting requirement involves the general belief in the utility of an overwhelming force. To a large extent, some of the difficulties we have encountered in trying to achieve understanding with the Soviet Union about stable structures of arms control, stable strategic balances, revolve around the fact that their deterrent view, in effect, asks us to sit still while an overpowering Soviet force is being built up.

That seems to me a sort of minimum kind of motivation for the U.S.S.R. and that, of course, leaves open the question of where they would stop. There are, I think, very few people capable of answering that question.

Chinese Threat to U.S.S.R.

Representative Heckler. Mr. Becker, why is it the Soviets have allocated one-fourth of their ground troops to the Sino-Soviet border?

Mr. Becker. I think they take the threat very seriously.

Representative Heckler. Are they the threat or are the Chinese the threat?

Mr. Becker. An observer from Mars may have a different view, but I think from Moscow the existence of a nation as populous as China, as disciplined, as potentially powerful, and with clearly hostile orientation toward the Soviet Union, at least at present, seems to constitute a threat which cannot be neglected. That buildup may have had other purposes, such as compellence, coercion, call it what you wish, in a desire to alter Chinese policy, but it has been triggered by the Soviet perception that the border is not quiet, and that the Chinese constitute a threat.

Soviet Policy Under Khrushchev

Representative Heckler. Mr. Blechman, what is the Soviet purpose?

Mr. Blechman. I think I know why they started their military buildup, but I don't know why they continue it. From around 1957 through 1962, under Khrushchev, the Soviets pursued a very aggressive foreign policy. They initiated threats in Berlin, the Congo, and elsewhere.

At the same time, they were cutting back their armed forces. As a result, they could not support this aggressive foreign policy. They suffered serious setbacks; in Cuba, for example. Mr. Khrushchev lost his job. When Brezhnev came in, determined to avoid a similar fate, he thus initiated in 1964 the buildup which has continued until the present time.

Difficult To Explain Military Buildup

That is a good explanation for why they began. But, by around 1972 or so, they had achieved formal strategic parity with us, recognized the SALT agreements. Their position in Eastern Europe had been legitimized in various agreements. And they needed the money

for domestic reasons. Yet they continue to spend more and more on defense.

It becomes increasingly difficult to explain. Perhaps it is a simple thing—they turned on these bureaucracies, and the central leadership there is not firm enough to shut them off.

For example, they set up three or four design bureaus to build strategic missiles and sure enough, every several years, each one of those design bureaus turns one out.

Perhaps it is the price Brezhnev had to pay to secure the military's support to pursue a policy of political rapprochement with the United States. Or perhaps they have more sinister intentions and in fact intend to build up sufficient military power so that eventually they could coerce and perhaps dominate the West.

I don't know. I think though that they have made a serious mistake. In the late fifties they underestimated us. We are again turning around and reacting to this buildup by boosting our own defense spending. So we see the arms race upped another notch, with very little to show for it on either side.

Representative HECKLER. Mr. Hardt.

Mr. HARDT. I think the Soviet Union is engaged in a series of programs which provide for many claims on their resources:

First, projecting themselves, as they did initially under Khrushchev, as a global power required that they have a capability for influence in every corner of the world and their best influence card is still military. This placed a heavy military demand on them.

Second, in Eurasia, they have problems everywhere they look, as Mr. Warnke alluded to, and you, in your questioning referred to the China border, Eastern Europe. Eastern Europe is especially unstable politically now, and I think the recent increases of Warsaw Pact forces is related to that instability.

Third, the historic concern of the Soviet leadership with military and defense is often commented on, and I agree it is a real concern of Soviet leaders. We should recall Alexei Kosygin was in Leningrad during the Nazi siege. Two million people lost their lives. He saw the military threat. To talk about this historical fear as an abstraction is not valid.

These are all factors in their decisionmaking. But the bottom line question to Soviet leadership is the choice, or the dilemma, on economic modernization or the military in this time period. In energy it makes good sense especially in the long run, for them to commit more resources now. But it is not unique to the Soviets that they are reluctant to make this full current commitment at this time to ameliorate these problems in 1985 or 1990. Some other countries have been reluctant to make necessary longer term commitments to resolve energy problems.

There appears to be a constant current pressure on Soviet politicians to live year by year and make only the necessary commitments in the short run and defer, albeit, at considerable future cost, decisions that should be made now but can be deferred. This is an old Soviet leadership and I think that fact reinforces their tendency for present priority-mindedness.

Chinese Perception of Soviet Threat

Representative Heckler. It seems to me we tend to develop very benign interpretations of Soviet buildup but if one listens to the Chinese their perceptions are quite different.

Mr. Hardt. The Chinese have the longest exposed border of the Soviet Union of any country in the world.

Representative Heckler. They point to the Soviet buildup and they see war, they see the question of NATO as being central and the need for conventional strength as being pivotal because they do not believe that a nuclear war is really possible in terms of the capacity of the world to survive.

Therefore, although they warn of war, they stress the likelihood that such a war, if it were to emerge in their future, would possibly erupt in the weakest place, which would be NATO, in Europe, and most likely in their view be a conventional war.

That is an interesting assessment on their part.

Senator Proxmire. Thank you, Congresswoman Heckler, very much.

Soviet Decisionmaking

Mr. Hardt, you suggest that even if we could talk freely with the most informed Soviet expert, we would still not get the kind of information about military spending that our intelligence community is trying to get.

Are you saying that nobody in the Soviet Union has the information we want or it would not be useful if they got it?

Mr. Hardt. Their kind of decisionmaking, which controls what kind of information we put together and what kind of format you put it in, is different.

Senator Proxmire. Wouldn't they have some kind of resource allocation system that they debate and discuss and decide on?

Mr. Hardt. I am not, again, saying that a key person immigrating here with all the files and so forth would not be enormously beneficial to us.

Senator Proxmire. I am talking about Brezhnev or one of their leaders. You say nobody in the Soivet Union has the kind of information we would like to get because they are on a different wavelength than we are.

Mr. Hardt. To fill out all the precise accounts to meet the structure of our budget.

Soviet-Chinese Tensions

Senator Proxmire. All right. Incidentally, I just can't resist pointing out that what Congresswoman Heckler has brought out and I think what she brought home from China is very helpful, when you look at those two countries, China with a gross national product about the size of Italy, with 850 million people to feed, with a pathetic navy, a pitiful air force, what kind of threat do they present to the Soviet Union?

You can see where this country might represent a very powerful threat maybe. China is very powerful within its borders, but outside of its borders it would really be overwhelmed, it would seem to me, by the Soviet Union.

The Soviet technology, the Soviet economic power, the Soviet weapons, just everything, is so vastly superior.

Mr. BLECHMAN. That is certainly true now, but I think the Soviets take a much longer term view. They are concerned of the future when a very large, populous, resource rich China might be mated with technologies available not only in the United States but closer——

Senator PROXMIRE. That brings me to my conclusion that there is a terrific hyper concern with defense on the part of the Soviet Union, you can see that in their heavily defensed air space, the way they design their armed forces with that colossal commitment they have on the Chinese border.

They are so concerned about being invaded which they have been, that they seem to adopt this colossal, expensive military machine they have got for defense, and that seems to me one explanation, maybe too benign, but it seems to me more logical based on their history and what they are doing.

Mr. BLECHMAN. I think it is certainly true that they are extremely concerned about defense. Now they are quite concerned about Iran and the development of the Iranian Armed Forces. They view this as a third threat developing against them.

Still, in some areas, like strategic nuclear weapons, each year it becomes more and more difficult to explain their continuing investment of such large resources based only on defensive concerns.

I think there are many factors involved.

U.S. MILITARY BUILDUP

Senator PROXMIRE. The facts you presented about the United States and Soviet military spending indicates that while the Soviets build up and modernize equipment during the period of the Vietnam war that we have been matching or exceeding their buildup of the modernization efforts since the early 1970's.

Is that a correct interpretation of the data?

Mr. BLECHMAN. Yes, that is my view of what has gone on.

Current perceptions of a very bad balance in Europe really stem from this mismatch of some 5 years ago; the situation has improved, we need to improve it even further, but it has improved.

Senator PROXMIRE. As of now, you consider not only a quantity where they are way ahead of us, but when you consider quality, technology, accuracy, et cetera, would you say there is a rough balance between NATO and the Warsaw Pact?

Mr. BLECHMAN. I would say in NATO, as the Washington Post reports this morning the Government has concluded in PRM–10, the outcome of any war in Europe is just uncertain. No Soviet leader or Western leader could be certain what would happen.

Senator PROXMIRE. You are talking about conventional war, right?

Mr. BLECHMAN. Conventional war.

SOVIET DEFENSE DEBATE

Senator PROXMIRE. You said Admiral Gorshkov's recent articles represent part of the internal Soviet debate over the role of the Navy. in effect, that his writings represent the Navy's claim for resources.