

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
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NINETY-FIFTH CONGRESS
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PART 1

EXECUTIVE SESSION—JUNE 23, 1977
SUMMARY OF STATEMENTS AND EXCERPTS FROM
ORAL TESTIMONY

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(II)

FOREWORD

On June 23, 1977, CIA Director Adm. Stansfield Turner et al. appeared before the Subcommittee on Priorities and Economy in Government of the Joint Economic Committee in executive session (closed hearing). The following is a summary of statements and excerpts from oral testimony given that day. The full hearing will be published at a later date.

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SUMMARY OF STATEMENTS

PART I - SOVIET ECONOMY

CIA Director Admiral Stansfield Turner told the Joint Economic Committee of the Congress recently that the USSR will soon enter a period of reduced economic growth and that this will have important implications for the West. Speaking in a closed hearing on June 23, Admiral Turner said his conclusion was based mainly on a sharp reduction in the growth of the population of working age in the 1980s, coupled with anticipated Soviet bottlenecks in key commodities-- especially crude oil. As a result, Moscow will face new uncertainties and difficult policy options regarding energy use, imports from the West, relations with Eastern Europe, and the size of its armed forces.

According to the CIA Director, Moscow's formula for successful economic growth over the past 25 years--increasing inputs of labor and capital--is not likely to work in the 1980s. Already in 1976, despite a record grain crop, Soviet Gross National Product grew only 3.7 percent, continuing the downward trend of the past 15 years. Admiral Turner noted first that the rate of growth in the labor force is already slowing because of the fall in the birth rate during the 1960s and is expected to drop sharply in the 1980s. Moreover,

additions to the labor force are coming mostly from the ethnic minorities of Central Asia, who do not readily move to the northern industrial areas.

Second, productivity gains have been slowing for years, and this trend is likely to continue. One reason is that fuel and mineral reserves west of the Urals are being depleted while new resources in Siberia and Central Asia are costly to develop. Other reasons include the increasing complexity of the economy, making efficient central control more and more difficult, and the increasing costs of technologically sophisticated products.

Most important, according to Admiral Turner, is a looming oil shortage. CIA analysts have predicted that oil production will start to fall by the late 1970s or early 1980s because the Soviets are not finding and developing new deposits fast enough to offset declining output from older fields. Last year's production of 10.4 million barrels per day was close to the estimated maximum production of 11 to 12 million b/d. By 1985 oil output is expected to fall to between 8 and 10 million b/d. Moreover, Soviet production techniques, such as excessive water flooding, are geared to short-term gain rather than maximum life-time

recovery. Most large new oil deposits and alternative energy sources, on which the Soviets are counting beyond the mid-1980s, lie east of the Urals. Development will take years and entail massive investment and high transportation costs.

The projected fall in oil production will slow the growth of total energy output, probably dramatically in 1981-85, according to the CIA Director. The decline in the growth of energy output will constrain economic growth unless Moscow finds ways to save massive amounts of energy or shifts from a net oil exporter to a net importer, Admiral Turner predicted. Areas for large oil savings are more difficult to find in the USSR—where there are few automobiles and most are for commercial or industrial use. And under any but the most optimistic assumptions on energy production and savings, the Soviets will be unable both to maintain imports of industrial goods from the West and to keep supplying Eastern Europe with the bulk of its oil and gas.

Oil exports accounted for almost half of Soviet hard currency earnings last year, according to Admiral Turner.

With no change in current energy policy, he said, oil imports in 1985 could be costing the Soviets \$10 billion, making it difficult for them to afford any manufactured goods from the West.

The CIA chief cited a number of steps Moscow could take to try to boost hard currency earnings and reduce oil import costs—export promotion, gold sales, arms sales, barter deals—but noted that there are limits on all of these measures. He said Moscow would be under great pressure to force Eastern Europe to share the burden of the oil shortages, but would have to weigh carefully the danger of worsening Eastern Europe's already difficult economic situation and of undermining its political stability.

Lastly, Admiral Turner observed that, in addition to rising energy problems, agriculture will remain a major headache for Soviet leaders. Farm production is well above the level of a decade ago, the result of massive inputs of investment and good luck with weather. Even so, Turner noted, imports of farm products have accelerated in recent years. Should the climate revert

to the harsher and more normal conditions of the early 1960s, the Soviets will have to continue large grain imports.

Various options in addition to those on energy are available to Moscow--retention of older workers, cuts in its armed forces, shifts from defense production, and limited economic reforms--to increase productivity gains. CIA projections, however, indicate such measures would do little more than sustain economic growth (the growth of GNP) at around 4 percent a year through 1980 and would not prevent a decline to 3 to 3.5 percent in the early and mid-1980s. Without strong action, however, especially on energy, the annual rate of economic growth could decline to around 3.5 percent in the near term and to 2 to 2.5 percent in the early 1980s.

The economic uncertainties and policy choices facing Moscow in the next few years can have important effects on the West, according to the CIA Director. Even assuming Moscow can increase its hard currency earnings and cut back on oil exports to Eastern Europe, the USSR will still experience a hard currency squeeze in the early and mid-1980s. As its ability to import from the industrial West

declines, Moscow may ask for long-term US credits to help develop its oil and gas resources. The squeeze could also trigger debate in Moscow over the future levels of military expenditures.

Admiral Turner believes the Soviet consumer will fare poorly over the next five to 10 years compared with consumer gains of the past decade. As a result, there is likely to be no progress toward matching the living standards of the West, or even of Eastern Europe.

PART II: SOVIET DEFENSE COSTS

CIA estimates of Soviet resource allocation for defense were presented to the Joint Economic Committee by Dr. Sayre Stevens, CIA Deputy Director for Intelligence. Because the Soviets go to some lengths to conceal their true expenditures for defense, Dr. Stevens said that CIA makes its own estimates. These are made in two forms: in rubles in order to assess impact of defense on the Soviet economy, and in dollars in order to permit a meaningful comparison with our own defense effort.

The Deputy Director told the Committee that the Agency's research and analysis over the past year have strengthened

its confidence in its last ruble estimate, in which defense spending was projected as substantially higher than previously estimated. That increase, Dr. Stevens pointed out, did not mean the Soviets had suddenly increased actual defense programs, but rather that CIA had developed a much better information base and now knew that Soviet defense industries were considerably less efficient than previously thought. The revised estimate did not alter previous conceptions about the magnitude of Soviet defense activities or about Soviet military capabilities.

Concerning CIA's latest estimate for 1976, Dr. Stevens said that Soviet military spending--defined to include roughly the same range of activities encompassed in the US defense budget--totalled 52-57 billion rubles, as compared with 40 to 45 billion in 1970. Under a broader definition of activities, including among others the entire space program--the way the Soviets might see total defense costs--estimated Soviet outlays in 1976 would have been 57 to 62 billion rubles, as compared with 45 to 50 billion in 1970.

Ruble estimates of defense spending as well as ruble estimates of Soviet economic performance are calculated in a

constant 1970 price base in order to measure real rather than inflationary changes, according to Dr. Stevens.

One way of measuring the economic impact is to estimate defense spending as a share of gross national product.

Under the US definition of defense activities, the Soviet effort absorbed 11 to 12 percent of Soviet GNP in 1976; under the broader definition, the share was 12 to 13 percent. Because of comparable growth in both defense spending and GNP, the defense share has changed little since 1970, Dr. Stevens said.

Measured another way, the CIA official reported, Soviet defense spending currently takes about one third of the output of the machine-building and metal-working sector of the economy--the sector that also produces investment goods--as well as about one fifth of metallurgy, one sixth of chemical and one sixth of energy output. Even these measurements understate the impact of defense on the economy by failing to take account of qualitative factors--the high grade scientific, technical, and managerial talent and the high quality materials and equipment devoted to defense.

According to CIA projections, Soviet defense spending will continue to increase into the 1980s at an annual rate of 4 to 5 percent. These projections are based on the escalating costs of new and more complex Soviet weapons systems that will eventually replace existing systems and on a continuing high level of defense research and development activity.

Estimated dollar costs of Soviet defense spending are based on what it would cost in the US to develop and operate the Soviet military forces, Dr. Stevens said. The data expressed in 1975 prices show that cumulative dollar costs of Soviet and US defense programs for the entire period 1966 to 1976 were roughly comparable. Estimated dollar costs of Soviet programs, however, have grown steadily at a rate of about 3 percent annually over the period, whereas US real spending has declined since 1968 and since 1972 is lower than in 1966. As a result, estimated dollar costs of Soviet defense exceed US outlays by a widening margin after 1971. In 1976, the margin is 40 percent; or, if military retirement programs are included, 30 percent.

Estimated dollar costs of Soviet defense programs in 1976 exceed US defense outlays in all major resource categories. For investment, including such categories as pro-

curement of weapons and spare parts and construction of facilities, the estimated cost is twice as much. The dollar cost of operating Soviet forces is 15 percent greater than for US forces; if personnel alone are compared, it is 60 percent greater, reflecting the larger Soviet manpower base. Dr. Stevens acknowledged that estimates of some Soviet items could contain a substantial margin of error and that confidence is highest in aggregate totals.

In response to concern that the comparisons of US and Soviet defense programs made in dollars might be significantly different if made in rubles, CIA has also made some rough calculations of the ruble value of US defense activities. Although there are problems in this approach, such as an inadequate basis for estimating Soviet costs of producing some US military equipment or the Soviet inability to produce some high technology items, Dr. Stevens said that tentative calculations suggest no radical difference between dollar and ruble comparisons. For 1976, the relative level of Soviet to US defense activities (excluding retirement pay) is about 1.4 to 1 measured in dollars and roughly 1.25 to 1 measured in rubles.

PART III - THE CHINESE ECONOMY

For the Chinese economy, Deputy Director Stevens observed that 1976 was an extraordinarily disruptive year as a result of the deaths of both Mao Tse-tung and Chou En-lai, the arrest of and accusations against Mao's widow and others in the so-called "gang of four," and the massive earthquakes that caused enormous loss of life and industrial damage.

CIA's estimates show no growth in China's gross national product in 1976, Dr. Stevens reported. A slight gain in agricultural output was offset by a decline in industrial production. The earthquakes in the Peking-Tientsin-Tang-shan area probably caused a loss of 20 to 30 percent of output in an area which normally provides a tenth of the national total. The coal industry probably felt the greatest impact, but direct loss to the steel industry was probably around a million tons, and rail transport was significantly disrupted and strained.

Although crude oil output increased by 13 percent in 1976, this was the second year in which the rate of growth

slowed after averaging some 20 percent for a decade. As for agriculture, grain output probably remained at 1975 levels--280 to 285 tons--and cotton production was down. China held down its grain imports for most of the year, but accelerated purchases abroad after November; grain imports this year will be close to 7 million tons.

China's foreign trade in 1976 declined by about 10 percent to \$12.9 billion. Imports were down almost 20 percent, reflecting the cutbacks in grain purchases and completed deliveries on contracts for whole plants. Although oil sales fell, exports held roughly at 1975 levels, and China's hard currency trade balance moved into surplus, easing pressure on the balance of payments. Trade with Japan, China's major partner, was off 20 percent. Trade with the US dropped nearly 30 percent, and for the first time, the balance favored China.

Economic prospects this year are mixed. Chinese officials see 1977 as a year of recovery and readjustment and are emphasizing month-to-month industrial and transport gains. Dry weather reduced the winter grain crop by 10 percent or more, but this could be made up by a good fall harvest. Only moderate growth is expected in foreign trade.

The new leadership, under Hua Kuo-feng, has given economic issues high priority, according to CIA's Deputy Director for Intelligence. It has confirmed Chou En-lai's earlier announced long-term economic modernization program as its basic blueprint. Agriculture will get top priority, but more resources will also go to raising the level of technology in industry. This, Dr. Stevens said, will require heavy investment and imports of equipment, along with management reforms and worker incentives to encourage efficiency. The new leaders are aware that this means modifying some of the Cultural Revolution's reforms, which were hostile to rapid economic progress, and they will give greater stress to higher academic standards and scientific and technological competence.

China's leaders will also look closely at the pace of military modernization plans, but on balance will probably prefer a period of military belt-tightening until problems in industry are solved, Dr. Stevens said. He also pointed to two major obstacles in the path of China's Fifth Five Year Plan: the difficulty of asserting central control over resource allocation in the provinces, where some local

officials have been violating state plans, and the need for some action to curb labor unrest, stemming from the lack of a significant wage increase over the past decade.

PART IV: THE COSTS OF CHINESE DEFENSE PROGRAMS

Admiral Turner told the Joint Economic Committee that China's defense spending preempts a larger portion of that country's advanced industrial sector than is the case in the US. Defense costs probably are in the neighborhood of 8 to 10 percent of gross national product. Noting that China still relies for the most part on copies of Soviet weapons developed in the 1950s, the CIA Director said estimated total Chinese military expenditures grew very rapidly in the late 1960s to a peak in 1971, then fell substantially in 1972 and have remained roughly at the 1969 level ever since. He suggested that the period of increase reflected increased Sino-Soviet tensions and the prominence of the military following the Cultural Revolution. The lower level of spending since 1971 is probably due to decreased fear of war with the Soviets, to competing economic priorities, and to difficulty in developing new advanced weapons systems, the Admiral suggested, and does not involve a reduction in total Chinese forces.

EXCERPTS FROM TESTIMONY

SOVIET OIL PROSPECTS

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. They are still tapping those fields, and also a very giant field east of the Urals called Samotlor in Western Siberia.

Senator Hatch. Thank you.

Admiral Turner. They are still tapping the Urals-Volga area but it is running down, and they are having to move progressively further 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 off-shore areas in the north or further 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.

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 that is as they use more and more water flooding, they get more and more water out per gallon 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-1980s, they will surely look at ways to find alternative energy sources: coal, water power, 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 those.

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 1.7 billion barrels a day.

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 noncommunist countries, and the balance of 1.2-1.3 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 there will be about 3.5 to 4 percent annual increase in demand in the Soviet Union, and that, plus continuing to supply the Eastern Europeans, who expect not 1.3 million but 1.6 million barrels a 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 now 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.

SOVIET DEFENSE COSTS

Dr. Stevens. 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 that occurred in the Soviet defense industries in the 1960's, and a change in pricing policies which 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?

Dr. 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.

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.

Dr. 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 these 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.

CHINESE DEFENSE CAPABILITIES

Senator Proxmire. 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.

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

SOVIET TECHNOLOGY LAG

Senator Proxmire. One of the sections of your excellent testimony 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 US 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. 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.

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.

SOVIET DEFENSE

Senator Proxmire. Are you saying that the USSR 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 US technology and production that enter into these estimates, so it is what it would cost us to reproduce the Soviet design.

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 expenditure, would it not?

Admiral Turner. Yes sir. The Soviets have deployed a much more ambitious air defense system than the US.

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 towards 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 worldwide demonstrable capability, including even small aircraft carriers.

SOVIET OIL PRODUCTION

Senator Proxmire. 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 two 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 or 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 that 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 towards 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, 40,000 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 b/d. Half went to other Communist countries; half to other areas. That means that they used about 7-1/2 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 the record; their economic growth and their energy use have been in parallel all these years.

SOVIET PARTICLE BEAM WEAPON

Senator Hatch. I have one other question. 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 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 technologies 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 weapon 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.

SOVIET-CHINESE RELATIONS

Senator Roth. 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 USSR it is pretty much the opposite in terms of their top priority. The Soviets are placing their consumer 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 USSR 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 USSR.

Is there any evidence or any reason that you can see that there may be an effort for rapprochement 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.

SOVIET OIL PROSPECTS

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-1980s, 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-1980s. That kind of help is not likely to start producing oil for probably another decade.

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, Doug?

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 U.S. but also from Western Europe, production may not turn up in the last half of the 1980s or early 1990s.

The required investment effort boggles the mind. For example, in this 1976-80 five year plan, they are putting in 20 million tons of pipe or 24,000 miles of oil and gas pipeline, just in this five year plan. The Alaska pipeline is only 800 miles long. To accomplish this goal, the Soviets would have to lay an Alaskan pipeline every six to eight 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 and 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.

SOVIET ECONOMY - CONSUMER PRESSURES

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.

Doug?

Mr. Diamond. Senator, there are really three types of pressures. As we measure Soviet per capita consumption, it is roughly one-third of the U.S., perhaps half that of

Western European, and 70 percent of that of Hungary and Poland.

Secondly, 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 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.

Thirdly, 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 observe 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 pressures 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.

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 are 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 dis-

content 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.

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, United States banks. As a matter of fact, it is only about \$1.5 billion to the U.S.S.R.

SOVIET ACCESS TO CREDIT AND TECHNOLOGY OF WEST

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.

SOVIET ECONOMY

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

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?

Amiral Turner. Yes, sir.

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 significant 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 travelling 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.

SOVIET GRAIN PRODUCTION

Senator McClure. Thank you very much.

I have no further question.

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 dropoff 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.

Senator Proxmire. An article in "The Washington Post" about six 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.

TEAM A - TEAM B REVIEW OF CIA

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 Estimates 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 re-evaluate 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.

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 policy-makers. For example, he suggested that: the CIA has consistently 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 range of the Backfire bomber in order to salvage the SALT II accords?

Admiral Turner. No.

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.

SOVIET ARMS EXPORTS

Senator Proxmire. Can you give us figures for total Soviet arms exports during the past five 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.

COMMITTEE INSERT

Soviet Military Deliveries to the Third World
1972-1976

	Million US\$				
	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>
Total	<u>1,205</u>	<u>3,010</u>	<u>2,250</u>	<u>1,685</u>	<u>2,190</u>
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

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 two or

three--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.

COMMITTEE INSERT

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.

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 levelled 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.

COMMITTEE INSERT

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

Senator Proxmire. Would you agree that Soviet weapons possess less sustainability and reliability than U.S. weapons? For example, is it correct that Soviet logistics are not too good, that they do not have good turn-around capabilities, that they have a kind of throw-away 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.

Senator Proxmire. How about turn-around capabilities?

Admiral Turner. By turn-around, 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.

Sayre, 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.

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. Sayre?

Mr. Stevens. 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.

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 Dr. 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.

Sayre?

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

Senator Proxmire. That would increase its cost, wouldn't it? My question was two-fold. 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 difference in cost when the MIG-25 was designed--1961-1963.

CHINESE ECONOMY AND DEFENSE

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

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, Mike?

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 five to ten 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 allocation 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 allocation 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.

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 producing advanced radars.

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 two or three 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.

This committee will stand adjourned.

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