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ALLOCATION OF RESOURCES IN THE SOVIET UNION AND CHINA—1982

HEARINGS

BEFORE THE

SUBCOMMITTEE ON INTERNATIONAL TRADE, FINANCE, AND SECURITY ECONOMICS

OF THE

JOINT ECONOMIC COMMITTEE

CONGRESS OF THE UNITED STATES

NINETY-SEVENTH CONGRESS

SECOND SESSION

PART 8

EXECUTIVE SESSIONS

JUNE 29 AND DECEMBER 1, 1982

Printed for the use of the Joint Economic Committee

Military Burden-262
Soviet Military Technology-25

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(Created pursuant to sec. 5(a) of Public Law 304, 79th Cong.)

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[1] Resigned from the U.S. House of Representatives on Aug. 25, 1982. Representative Augustus F. Hawkins, of California, was subsequently appointed on Sept. 23, 1982, to fill the existing vacancy on the full committee.
[2] After Aug. 25, 1982, a vacancy existed on the subcommittee.

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ALLOCATION OF RESOURCES IN THE SOVIET UNION AND CHINA—1982

TUESDAY, JUNE 29, 1982

CONGRESS OF THE UNITED STATES,
SUBCOMMITTEE ON INTERNATIONAL TRADE, FINANCE, AND
SECURITY ECONOMICS OF THE JOINT ECONOMIC COMMITTEE,
Washington, D.C.

The subcommittee met, pursuant to notice, at 10 a.m., in room 6226, Dirksen Senate Office Building, Hon. William Proxmire (vice chairman of the subcommittee) presiding.

Present: Senator Proxmire.

Also present: James K. Galbraith, executive director; Richard F. Kaufman, assistant director-general counsel; Charles H. Bradford, assistant director; and Kent H. Hughes, professional staff member.

OPENING STATEMENT OF SENATOR PROXMIRE, VICE CHAIRMAN

Senator PROXMIRE. The subcommittee will come to order.

I'm pleased to welcome Lt. Gen. James A. Williams, Director of the Defense Intelligence Agency, to the start of this year's hearings on the Allocation of Resources in the Soviet Union and China.

General, I have seen your prepared statement and I want to congratulate you on that statement, both for its high quality and the fact that it is unclassified, which is very helpful. That will enable us to release it shortly after today's hearing.

Of course, the ultimate consumers of your best estimates and analysis must be the Members of Congress and the general public, and I view it as critical to my role to be able to help raise the level of discussion and the public dialog concerning the Soviet Union and China.

WORKSHOP ON SOVIET MILITARY ECONOMIC RELATIONS

This year we want to pay special attention to the Soviet defense sector and the way it interacts with the economy. As you know, I have scheduled a workshop on Soviet military economic relations, to take place next month. The discussion that takes place in the workshop will be relevant to the issues discussed today and later when the CIA testifies.

Finally, I want to discuss with you this morning whether Americans, and we in Washington in particular, have a correct perception of the state of the Soviet economy. We hear a lot about the burden of defense and economic slowdowns and the many serious inefficiencies in the Soviet economy. Some people talk about a Soviet system that is not working and may already have entered a crisis. So I wish you would consider as you present your testimony the following questions:

First, is the Soviet economy in crisis or about to enter a crisis?

Second, is it so weak that it would become unstable or even collapse in the foreseeable future?

Third, does the slowdown in growth mean that there has been no further developments and even a deterioration of conditions and standards of living from a Soviet perspective? Or is there just a slowing down in the rate of improvement?

I notice, for example, you show personal income rising in the latest year. While we don't have GNP statistics that are comparable to ours, our gross national product and that of Western European countries in the last year or so is stagnant or even declining.

General, you can proceed with your testimony and then we will have some questions.

STATEMENT OF LT. GEN. JAMES A. WILLIAMS, DIRECTOR, DEFENSE INTELLIGENCE AGENCY, ACCOMPANIED BY JOHN J. DZIAK, SPECIAL ASSISTANT FOR SOVIET MILITARY-POLITICAL AFFAIRS; FRANK E. DOE, JR., ACTING CHIEF, SOVIET INDUSTRIAL ECONOMICS SECTION; JOHN B. MALLON, CHIEF, ASIAN ECONOMICS SECTION; ALAN S. YURIDITSKY, CHINA MILITARY/POLITICAL SPECIALIST; AND RONALD DAVIS, CHIEF, WARSAW PACT ECONOMICS SECTION

General WILLIAMS. Thank you very much, Mr. Vice Chairman.

It is a pleasure for me to represent DIA before the subcommittee for this year's hearing. I have brought with me individual experts so that we can address in detail some of the questions that you have presented and some that I anticipate you might ask. Also, I have slides that I will be using to supplement my testimony.

[Slide 1 follows:]

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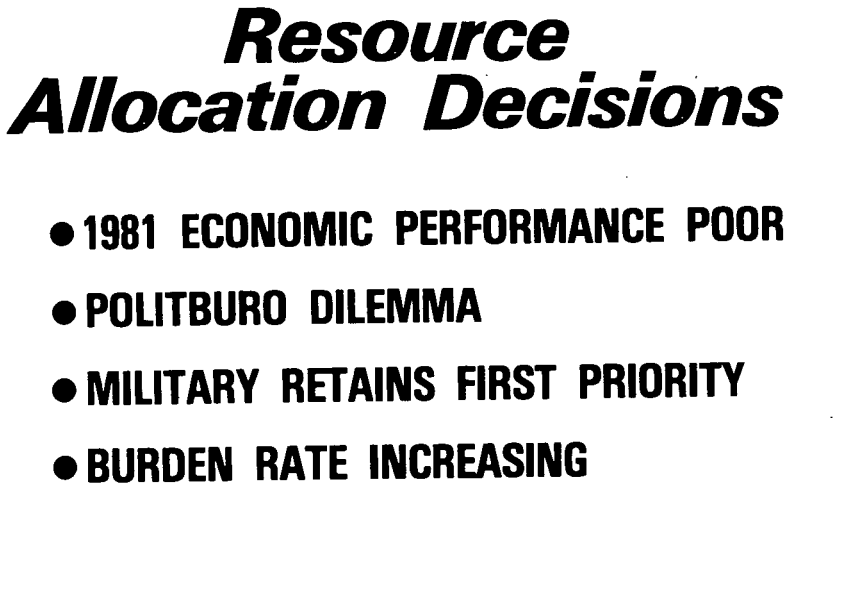
SLIDE 1

General WILLIAMS. My testimony today will cover Soviet and Chinese military economic trends. I will highlight the key points of the background paper provided to you last week. This testimony is presented at the "SECRET" level. The list of witnesses accompanying me is included in the material before you.

As we stated last year, Soviet and Chinese leaders have reacted to their changing situations in divergent ways. These differences are continuing. I will cover the Soviet resource allocation trends first.

[Slide 2 follows:]



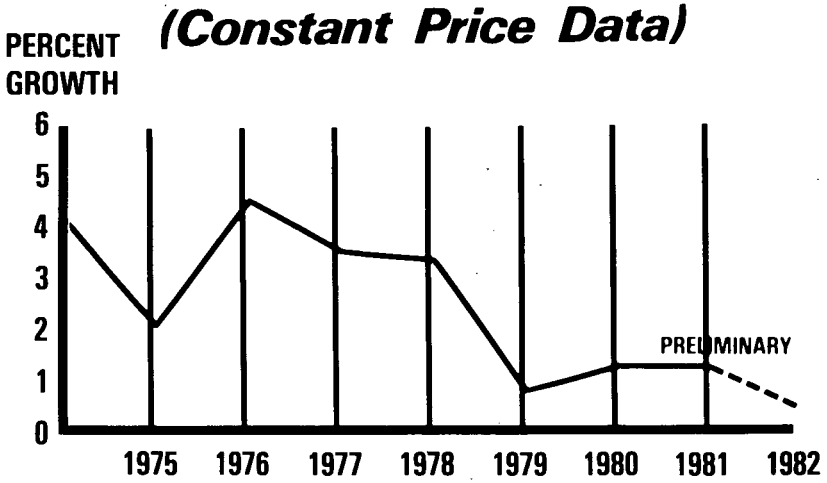
SLIDE 2

General WILLIAMS. Last year was a weak beginning to the Soviets' 11th 5-year plan. The negative developments of the late 1970's have continued to place serious pressures on the economy. Because of these pressures the Soviet leadership is now faced with a serious resource allocation dilemma. Keenly aware of the intimate relationship between the military and the economy, Soviet leaders realize poor economic performance has the potential to seriously constrain their actions.

Despite these problems, we see no change to the rising trend in defense expenditures in the past decade. The increasing burden of these outlays in 1982 will conflict with Soviet goals for securing economic growth at rates fulfilling both domestic and foreign requirements.

[Slide 3 follows:]

Growth of Soviet GNP (Constant Price Data)



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SLIDE 8

General WILLIAMS. While the Soviet economy has been growing, the increases have generally been lower each year. Preliminary estimates for 1981 and early 1982 indicate growth has remained below 2 percent annually. As a result, economic growth, as measured in the Western sense, is at a postwar low, particularly when adjusted for reduced quality of output and supply irregularities.

Senator PROXMIRE. Incidentally, do you have figures on the GNP that you just showed? Do you have the rate of growth? Do you also have the figures?

General WILLIAMS. We can supply them, sir.

Senator PROXMIRE. Fine. We appreciate that.

Are the GNP figures comparable to our figures, roughly?

General WILLIAMS. I don't know, sir. I will have to ask one of my experts.

Mr. DOE. Yes, sir. We adjust the Soviet data to a consistent Western definition of gross national product.

Senator PROXMIRE. Thank you.

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

SOVIET GROSS NATIONAL PRODUCT

[In billions of rubles]

	1980	1981	Percent change
Indexed from 1970 (in constant 1970 ruble prices)	525	534	1.8
Estimated from Soviet national income data (in current prices)	625	645–655	3.2–4.8

General WILLIAMS. Poor performance in several key sectors during 1981 has been responsible for furthering this decline. According to the somewhat overstated official data shown here, even the modest goals set for the first year of the new 5-year plan were not met, calling into doubt the goals of the remaining period.

[Slide 4 follows:]

Soviet Economic Performance - 1981
(Official Soviet Data)

	PLAN GOAL	*ACTUAL RESULT*
NATIONAL INCOME (PERCENT)	3.4	3.2
INDUSTRIAL OUTPUT (PERCENT)	4.1	3.4
AGRICULTURAL GROSS OUTPUT (PERCENT)	7.5	-2.0
OIL (MILLION TONS)	610	609 (-0.2%)
GAS (BILLION CUBIC METERS)	458	465 (+1.5%)
COAL (MILLION TONS)	738	704 (-5%)
ROLLED FERROUS METAL (MILLION TONS)	109.2	103 (-6%)
STEEL PIPE (MILLION TONS)	18.5	18.3 (-1%)
HOUSING (SQUARE METERS)	108.9	106 (-3%)

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SLIDE 4

General WILLIAMS. As a result, formal approval of the 5-year plan was delayed while major revisions were made. In his speech before the party's central committee plenum in November of last year, General Secretary Brezhnev cited the serious food situation, industrial shortages, and increased international tensions as reasons for these changes.

[Slide 5 follows:]

Impact on 11th Five Year Plan (1981-1985)

- ONE YEAR DELAY IN APPROVAL
- LAST MINUTE MAJOR PLAN REVISIONS
- 30 BILLION RUBLE INVESTMENT CUT

DIA8730E

SLIDE 5

General WILLIAMS. These new goals reflect a sober reassessment in the face of a very serious economic situation. The final civilian economic goals are generally at the lower end of the original guidelines. This illustrates Moscow's lowered expectations for growth in the immediate future. Should the current difficulties persist, however, even these revised goals may be optimistic. Already the 1982 plan goals are inconsistent with the 5-year plan.

[Slide 6 follows:]

Revisions to 11th FYP

- LOWERED INDUSTRIAL GOALS
- LOWERED CONSUMER DURABLES GOALS
- RETAINED MILITARY GROWTH TARGETS
- ADOPTED LOW RANGE ECONOMIC GOALS
- 1982 PLAN INCONSISTENT WITH FYP

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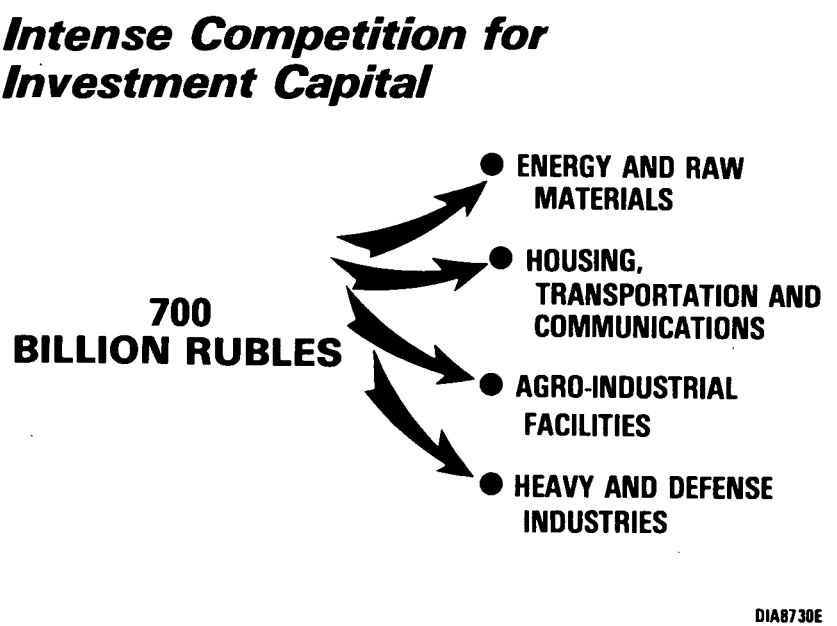
SLIDE 6

General WILLIAMS. A 4-percent cut in total planned investment for the 5-year plan, to 700 billion rubles, was among the most important revisions. This reduction signifies the extremely difficult decisions Moscow has been forced to make. Not only has total investment been reduced, but declining productivity of new capital means lower economic returns. Furthermore, certain key sectors need more investment, not less.

In the case of energy this need has been recognized, and investment in gas, oil and coal will be increased 50 percent above the last 5-year plan. In contrast, investment in housing, transportation, and other social infrastructure has apparently been cut back.

The precise details concerning allocations between the agroindustrial sector versus heavy and defense industry are not yet available. However, evidence from the May 1982 central committee plenum suggests no shift in the traditional high priorities for heavy and defense industrial production.

[Slide 7 follows:]



SLIDE 7

General WILLIAMS. Shown here are some of the major factors causing the Soviet economy to falter. In addition, two unprecedented developments have occurred that have greatly compounded Soviet economic problems: a third major crop failure and the crisis in Poland.

[Slide 8 follows:]

Factors Limiting Economic Growth

- AGRICULTURAL PROBLEMS
- LOW RETURN ON INVESTMENT
- MOUNTING AID TO CLIENT STATES
- LACK OF INCENTIVES – LOW LABOR PRODUCTIVITY
- NEGATIVE DEMOGRAPHIC TRENDS

1981-TWO SHOCKS

- THIRD CROP FAILURE LEADS TO FOOD CRISIS
- ECONOMIC IMPACT OF POLISH CRISIS

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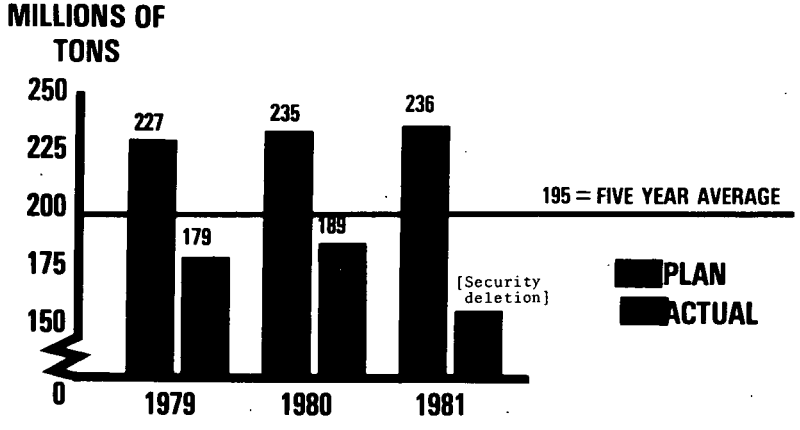
SLIDE 8

General WILLIAMS. The third consecutive grain crop failure, last year being the worst of the three, is a major reason for the economic deterioration in 1981. The grain problem has combined with poor potato and sugar beet crops. As a result, a food crisis has developed. The severity of the current grain shortfall was demonstrated by the Soviet's failure to publish 1981 grain harvest results. In addition, the outlook for the 1982 crop is steadily worsening.

[Slide 9 follows:]

Soviet Grain Crop Production



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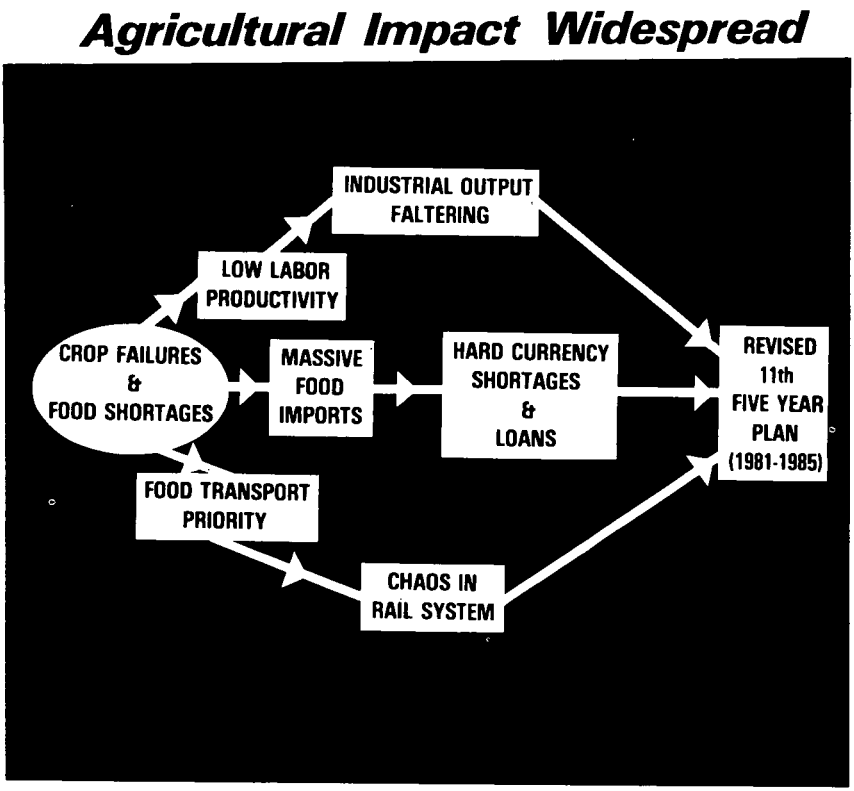
SLIDE 9

General WILLIAMS. The food crisis is spilling over into virtually all sectors of the economy. In addition to the obvious problems for consumers, food shortages have reduced worker incentives, thereby lowering labor productivity and slowing industrial output. At the same time, the need for huge food imports is weakening the country's hard currency position. In addition, transportation is being disrupted by the priority given to food shipments.

[Slide 10 follows:]



SLIDE 10

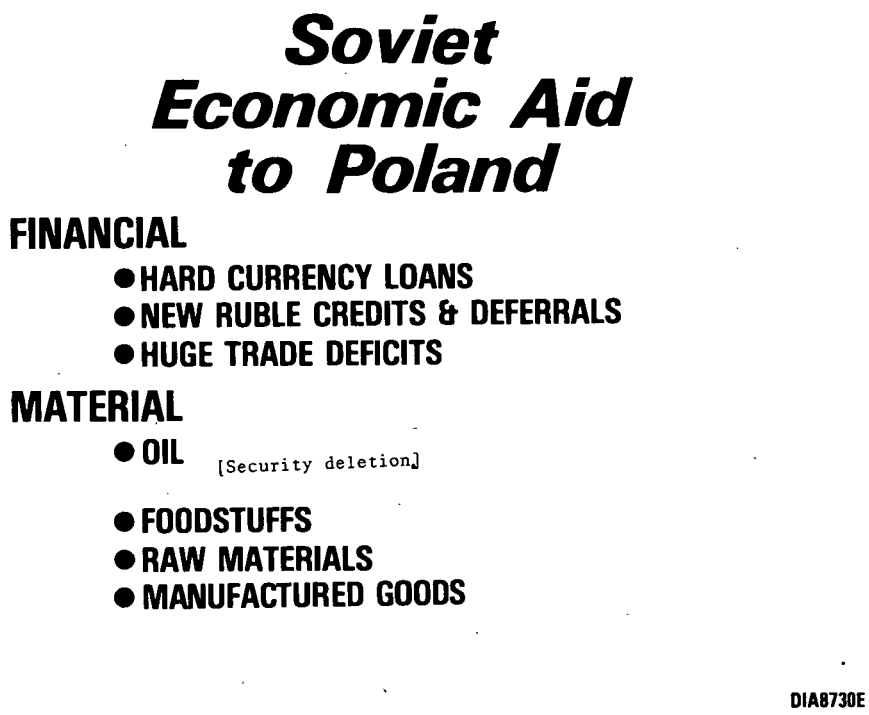
General WILLIAMS. The other shock to the Soviets has been the Polish crisis. The events in Poland are having a very disruptive impact on the Soviet economy as well as the rest of Eastern Europe. Soviet planners have had to contend with these major disruptions.

[Slide 11 follows:]

SLIDE 11

General WILLIAMS. At the same time, the Soviet Union has been attempting to underpin the failing Polish economy with its own and other East European economic aid, now placed at about [security deletion]. They have provided hard currency loans, ruble credits, and above-plan shipments of oil and other raw materials [security deletion].

[Slide 12 follows:]



SLIDE 12

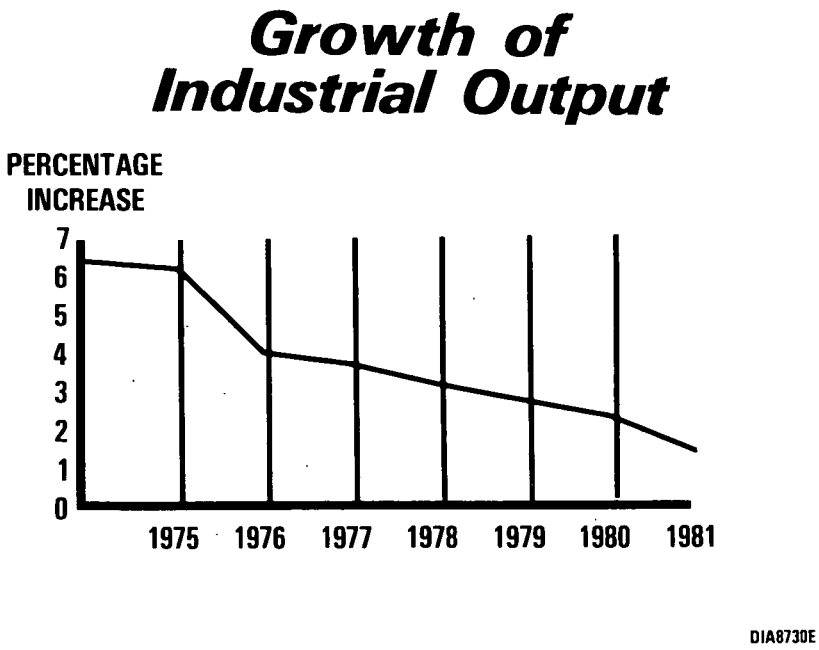
General WILLIAMS. Underlying many of the Soviet problems is declining growth in worker productivity. Food shortages, lower standards of living, and a system which provides few incentives are key factors in this trend. These developments are threatening to undermine the regime's attempts to stimulate economic growth by improving worker output. The sharp drop in 1979 was due to an unusually severe winter.

[Slide 13 follows:]

SLIDE 13

General WILLIAMS. Low labor productivity, supply shortages and transportation bottlenecks have further reduced the growth in industrial output. This growth rate has been in a downward trend throughout recent decades.

[Slide 14 follows:]

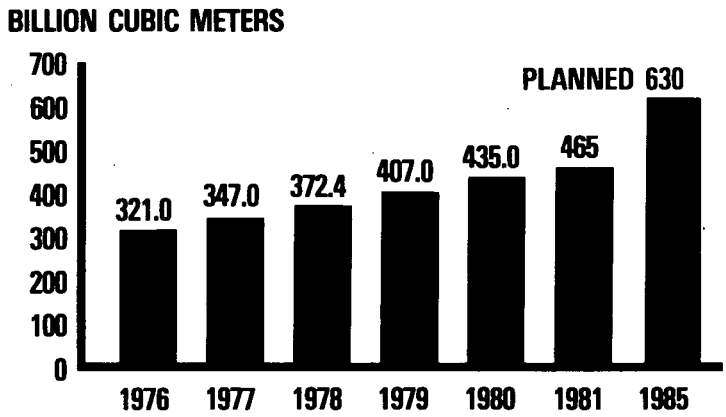


SLIDE 14

General WILLIAMS. It is only in the area of energy that Soviet prospects are somewhat brighter. Soviet reserves of natural gas are plentiful. As shown here, gas production is expected to continue to grow by roughly 7 percent annually through 1985.

[Slide 15 follows:]

Soviet Natural Gas Production
(Billion Cubic Meters Per Year)



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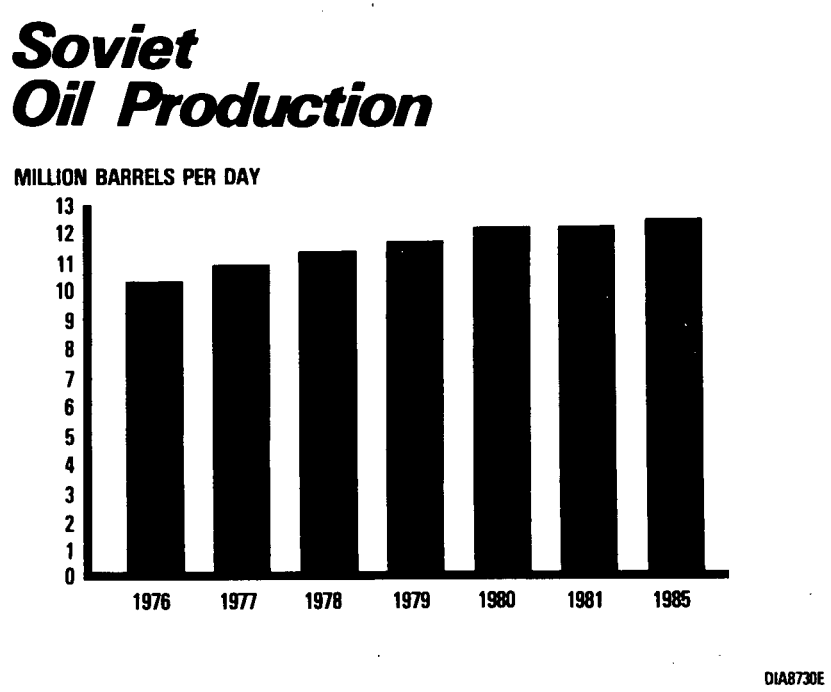
SLIDE 15

General WILLIAMS. Oil production is expected to rise slowly through 1985 and level off during the late 1980's. Oil and gas exports are the country's major hard currency earners.

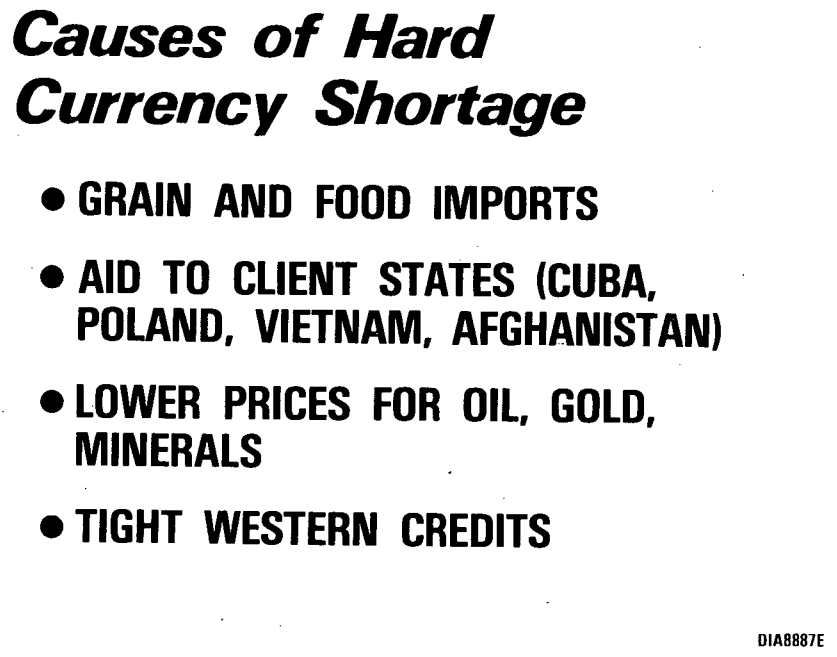
[Slide 16 follows:]



SLIDE 16

General WILLIAMS. The severe hard currency shortage which the Soviet Union has been experiencing since late 1981 complicates resource allocation issues. The major reasons for this development are shown here.

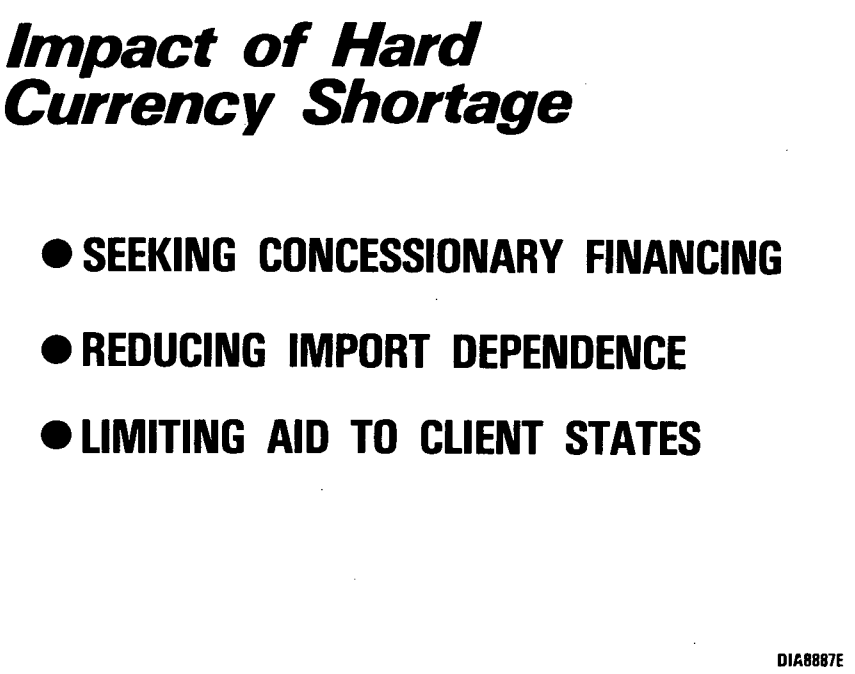
[Slide 17 follows:]



SLIDE 17

General WILLIAMS. The current tight financial conditions are not viewed by the Soviets as being shortlived. This is most evident in Moscow's requests for very concessionary terms on machinery and plant purchases and in efforts to develop domestic sources of imported industrial components. The impact of this situation has also been felt by Soviet client states. There have been cuts in food and oil aid shipments to some client states and there are indications that Moscow has informed [security deletion] that [security deletion] is at its aid limit, now about [security deletion] annually.

[Slide 18 follows:]

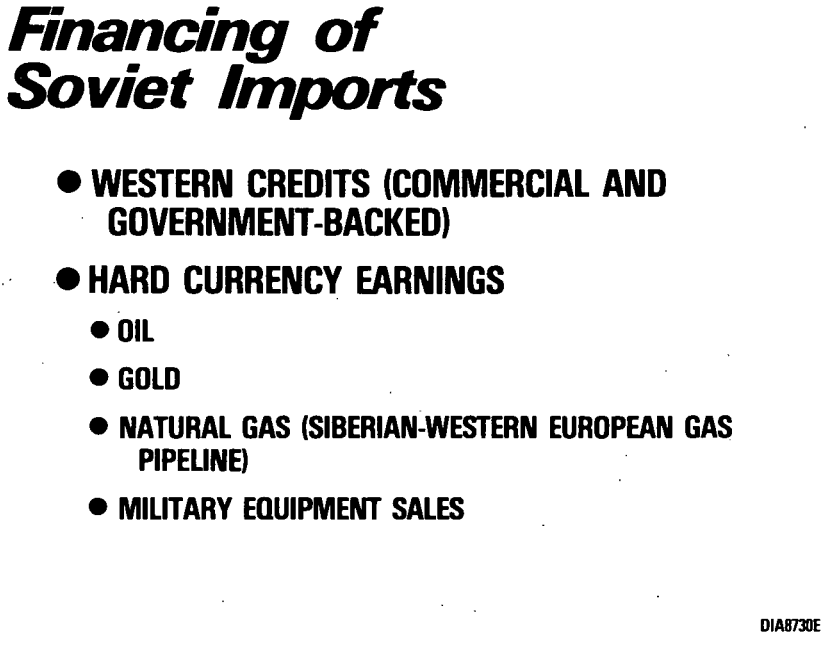


SLIDE 18

General WILLIAMS. The issue of hard currency earnings is a critical one as Soviet planners seek ways to finance imports. The willingness of Western governments to back loans and credits will be key, particularly if oil and gas prices remain stable or weaken further. This makes increasing gas exports to western Europe in the mid-1980's more important. An all-out effort is going into pipeline projects and the first stages could be completed by late 1983. When the pipeline is operational gas exports will earn at least an additional $5 billion annually. These earnings will help meet major economic goals in the late 1980's.

Agreements for the sale of Soviet arms in 1981 totaled about $8 billion, and future increases should help to finance imports of Western goods.

[Slide 19 follows:]



SLIDE 19

General WILLIAMS. An increasing share of hard currency earnings is being spent to compensate for the failures of agriculture. As a result of poor grain harvests, food imports, half of which are grain, have increased to more than twice the level purchased in 1979.

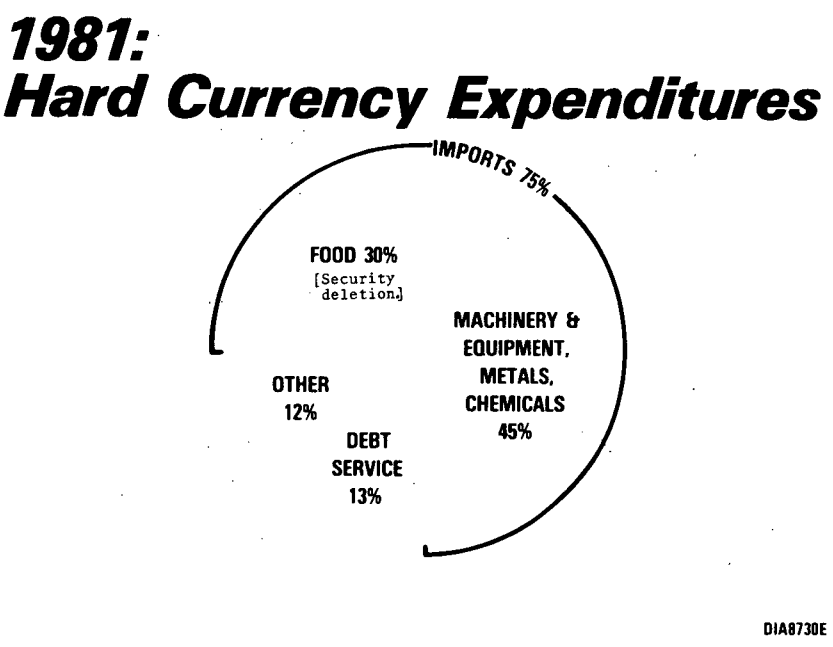
[Slide 20 follows:]

SLIDE 20

General WILLIAMS. However, further increases may be constrained by the shortage of hard currency. The Soviets are currently forced to seek costly short-term credits from the international financial community. Although loans will allow the Soviets to extend their supply of hard currency, the present high interest rates add substantially to the cost of imports.

Should these conditions persist, Moscow would face the problem of an increasing share of imports going to food purchases and an increasing debt service requirement. Already the resulting competition for foreign exchange has been felt by imports of Western goods destined for industry. These products embody higher Western levels of technology and their acquisition has been a high priority for the Soviet leadership.

[Slide 21 follows:]



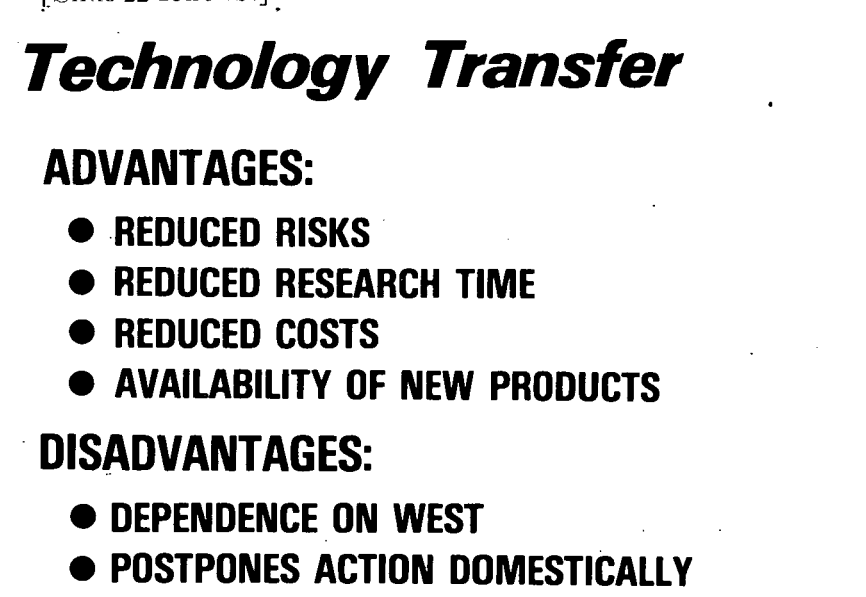
SLIDE 21

General WILLIAMS. The Soviets remain committed to acquiring Western technology as a means for improving economic performance. More reliable, sophisticated Western technology has made large contributions in some sectors of industry.

Through imported technology the Soviets have been able to reduce their engineering risks, research time, and production costs. Soviet industrial specialists have stated that without Western imports certain products, such as high quality fertilizers, drill bits, and third-generation computer technology, would never have been produced.

On the other hand, Moscow is increasingly concerned that heavy reliance on foreign technology has created an ongoing dependence on these Western products. In response, the Soviets have placed renewed emphasis on domestic research capabilities. As yet, however, the leadership has not carried out the basic reforms necessary to encourage technological innovation.

[Slide 22 follows:]



SLIDE 22

General WILLIAMS. There are three major branches of industry in which the key role of Western technology imports is most evident. These are the machinery, chemical, and electronics industries. Half of total hard currency imports during the 1970's went to these industries. Of this amount, approximately a third was financed by low interest credits and loans backed by Western governments. Moreover, for a number of major projects 80 percent financing was provided by the West. These branches are closely integrated with Soviet military production.

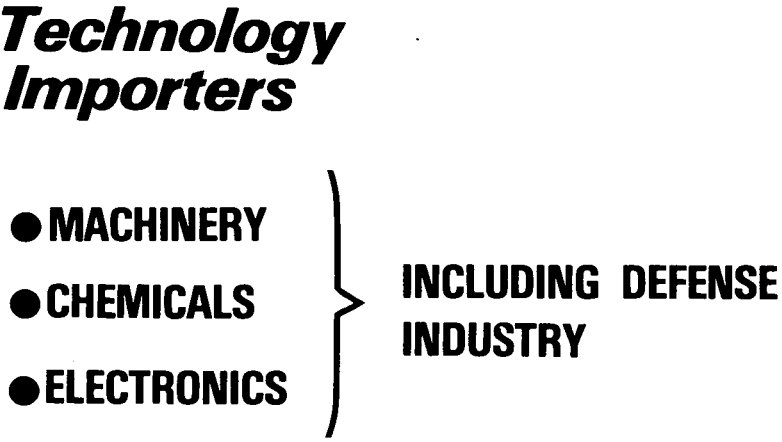
In recent years there have been a large number of instances where goods imported from the West went into or supported the production of defense related items. These instances include the Kama River truck plant, where $1.5 billion of United States and West European automotive production equipment and technology has been used to produce military trucks. This has occurred despite explicit assurances to the contrary.

These vehicles are now in use in Afghanistan and in Soviet military units opposite NATO forces in Europe. Use of these trucks increases military transport capacity by roughly 60 percent compared to older Soviet trucks.

Another instance involves the Soviet purchase of two huge floating drydocks. This was a major advance for Soviet drydock facilities. These are the only drydocks capable of serving the new [security deletion]. Furthermore, these drydocks are so large that no Soviet shipyard could have constructed them without very costly modifications.

Once again, despite assurances that the western products would remain in the civilian sector, the Soviet military has been given direct support. Soviet [security deletion] have used these drydocks for repair.

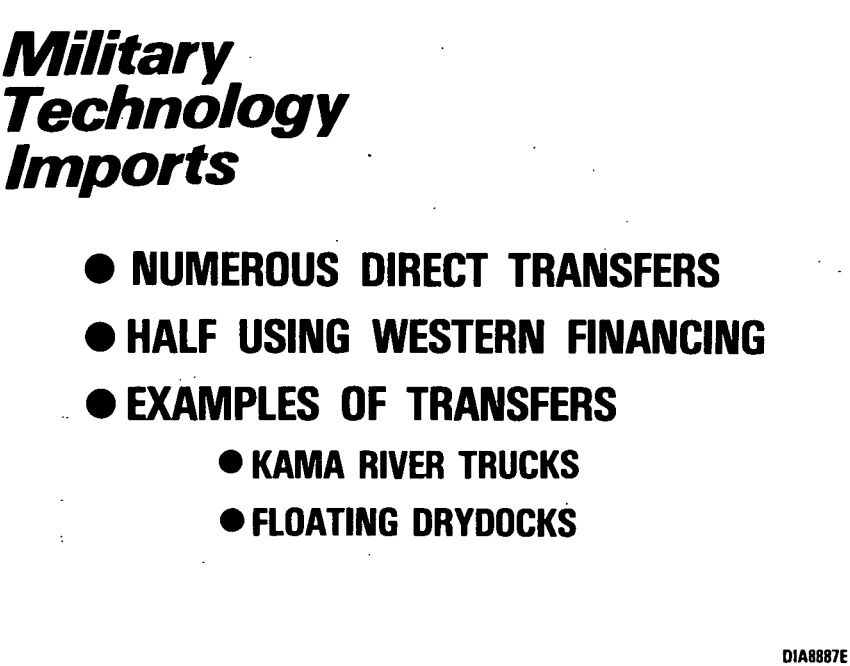
[Slide 23 follows:]



SLIDE 23

General WILLIAMS. Improved technology is especially important to the Soviets as they are placing increasing emphasis on quality improvements. This emphasis will only heighten their need for Western products, particularly highly productive robotic technology, large capacity jet engines, and computer software, during the coming period of economic stagnation.

[Slide 24 follows:]



SLIDE 24

General WILLIAMS. In spite of widespread economic problems in 1981, Soviet data indicate the value of output in the machinery sector, the source of military hardware, continued to grow at a very rapid rate. The defense related portions of this sector have the highest growth rate in Soviet industry and account for a rising share of total machinery output.

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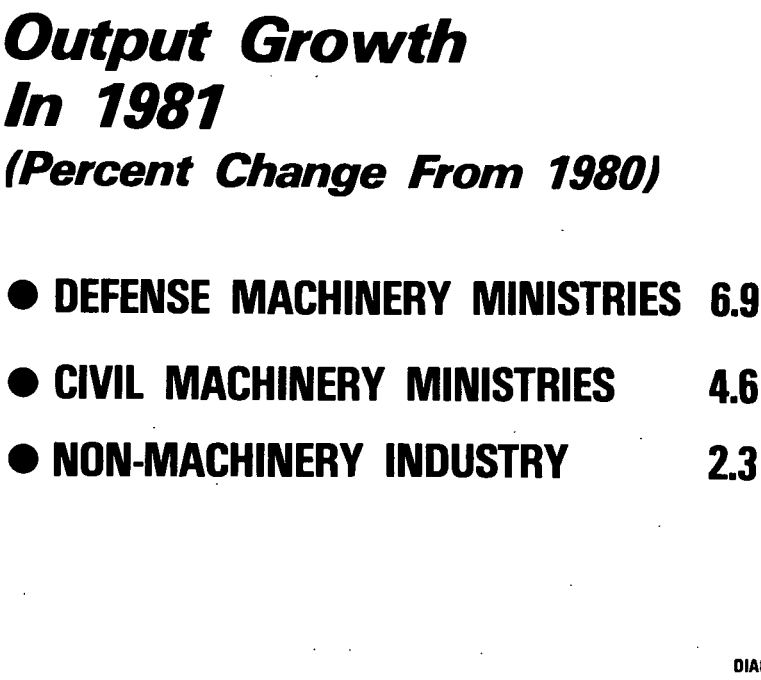

SLIDE 25

General WILLIAMS. The trends in Soviet military production measured in physical quantities are basically consistent with the value data for defense machinery ministries.

As this slide shows, some systems were produced at lower rates in 1981 than during the previous year. These military production quantities vary over time as systems are modified and newer systems replace older ones. However, the general trend is toward more sophisticated and larger systems that require longer research, development, and construction times and greater inputs of resources. Those systems that increased were, on balance, more expensive and more numerous than those in decline, and the mix of systems within the categories tended toward newer, more expensive models. The net result was a rise in the quantity of resources used and the value of military production in the year 1981.

[Slide 26 follows:]

Major Military Production Trends

	1977	1978	1979	1980	1981
FIGHTERS	1,200	1,300	1,300	1,300	1,350
ICBMs	300	200	200	200	200
SLBMs	175	225	175	175	175
SUBMARINES	13	12	12	13	9
MAJOR COMBATANTS	12	12	11	11	9

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SLIDE 26

General WILLIAMS. Based on the evidence available, this growth trend is likely to continue. The 11th 5-year plan indicates the traditional high priority for military related industries will be maintained in the future. The 43-percent increase shown could understate future growth in military procurement. Preliminary and incomplete data on the uses of machinery output imply an increase in military procurement of roughly 50 percent by 1985.

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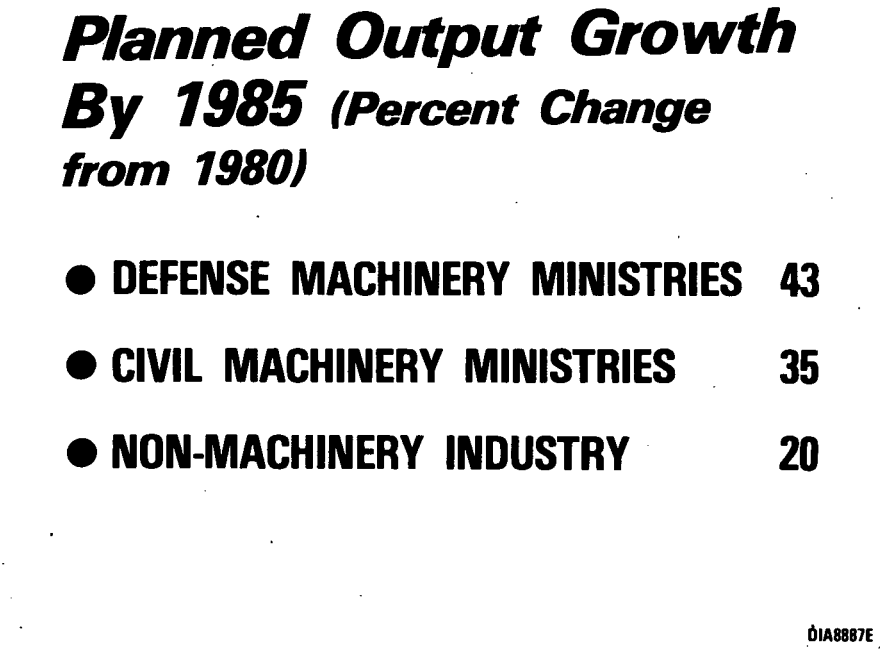

SLIDE 27

General WILLIAMS. In addition, a vigorous military research and development effort is producing designs for increasingly sophisticated weapons. [Security deletion.] We also see continued growth in defense industry floor space which will provide the capacity to accommodate future production increases.

The continued slowdown in economic growth means that the rising trend of military expenditures is placing an increased burden on the civilian economy. The most recent DIA estimate is that the share of gross national product presently allocated to defense needs has risen to between 14 and 16 percent when calculated in current prices. We expect this burden rate to increase further as the decade progresses.

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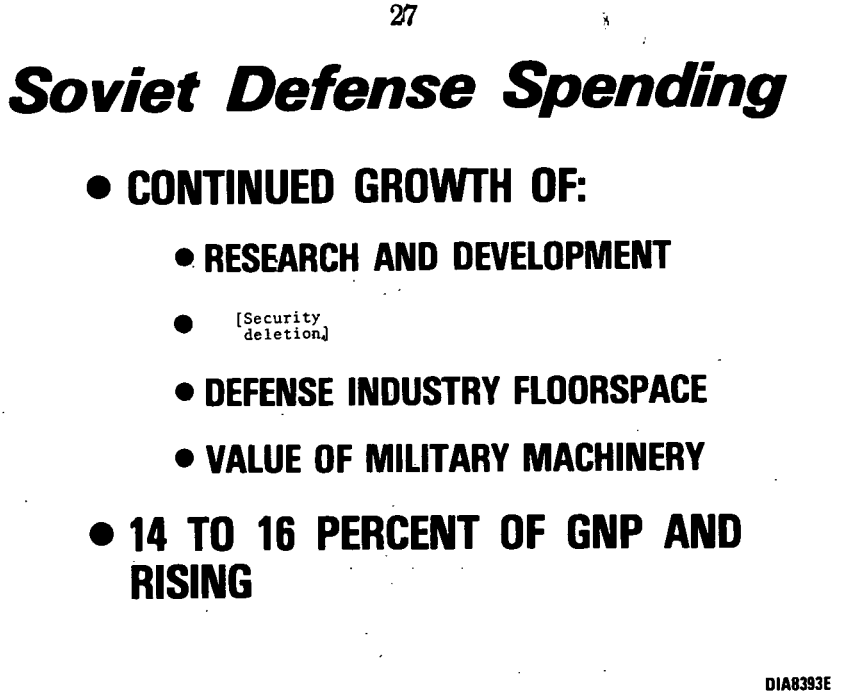

SLIDE 28

General WILLIAMS. The true economic impact of these outlays is rising as resources become less available. While a percentage point of economic growth was not critical during the 1960's and early 1970's, the continued allocation of the highest quality goods to the military in the future could make the difference between some growth and none at all. The Soviet leaders have not yet resolved this dilemma but have maintained the military's preferential treatment in the allocation of resources.

Senator PROXMIRE. Before you get into the Chinese part of your presentation, General, let me ask you some questions about the Soviets.

General WILLIAMS. Certainly.

DIA AND CIA SAY SOVIET EMPHASIS ON DEFENSE HURTING THEIR ECONOMY

Senator PROXMIRE. For years your agency and the Central Intelligence Agency have been telling us that the Soviet emphasis on defense is hurting the rest of their economy and that a large part of the slowdown in goals can be attributed to the priority given to defense. Do you agree with that view?

General WILLIAMS. Yes, I do agree with that view, Senator. Everything that we see indicates that there are increasing shortages of consumer items in the Soviet Union. The simple inspection of stores, not

only in Moscow, but in other places, shows that there are long lines and that the living standard of the average Soviet citizen, which rose modestly through the 1960's and 1970's, has somewhat leveled out, reached a plateau and may even be deteriorating. The impact on everyday life is evident.

Senator PROXMIRE. Is there a concern within the Soviet Union, within the Soviet policy circles over the military burden? And is the concern growing? And how do Soviet leaders view and rationalize it?

General WILLIAMS. I am not an expert on Soviet psychology, so I hesitate to say how they rationalize it, but I believe they are concerned. However, when we look at the way the Soviet leaders view the world, I believe it is obvious that they fully intend to maintain their historic preoccupation, if you will, with a strong Soviet Union, a strong mother country capable of defending itself from what they see as a hostile world.

They also fully intend to export their ideology when the opportunity presents itself. Traditionally, they have not been good at exporting their ideology through economic aid and support for the economies of other countries, but they are quick to support it with military assistance, and they will maintain the industrial base to do that.

Senator PROXMIRE. I would like to return to my questions I raised in my opening remarks.

SOVIET ECONOMIC GROWTH

Many observers, including a member of the staff of this subcommittee, who returned from a recent visit to the Soviet Union report that while it is true the Soviet economic growth is slowing down and there is virtually no chance that planned targets will be met this year, there are no signs of a crisis, a deterioration of general economic conditions. Is the Soviet Union in or about to enter an economic crisis in your judgment?

General WILLIAMS. If you are talking about a crisis in what I regard as typical Western terms where there is a run on the banks, the banks close and a lot of people are out of work like we had in the 1930's, I don't believe the Soviets will approach that. An economic crisis in the Soviet Union would involve their capability to manage the transport system because they have not allocated their resources in the proper way, even though they do have the right resources, the inability to produce the grain to supply their people, the concomitant shortage of animal feed because they don't have the right grains, and shortages of food supplies which show up in the store.

I believe they are in the early stages of that kind of crisis, but I would like to have one of my experts address that more fully.

Senator PROXMIRE. Before he does that, by a crisis I would agree with you. They don't have a run on the banks because they have a different system than we have here. On the other hand, I would think that a crisis might manifest itself in strikes, slowdowns, and a degree of lack of cooperation on the part of labor and farmers and others who are bitter about hardships.

General WILLIAMS. I think in those terms, yes, sir, it reinforces my belief that they are in the early stages of a crisis. We see evidence of declining worker productivity, increased use of alcohol among the workers, and a greater reliance upon the private sector to produce the food that is available in the cities.

Senator PROXMIRE. How about the strikes or work stoppages?

General WILLIAMS. That's difficult to judge. In 1980, food shortages triggered work stoppages at the Togliatti and Gorkiy auto and truck plants, and similar incidents reportedly continue to occur in other regions.

Senator PROXMIRE. How do they measure the increased use of liquor? I would think that would be one thing that in a Communist state, a totalitarian state there would be a degree of control. Do they have bathtub gin? Do they make their own liquor out of a contraband, underground operation?

General WILLIAMS. You can buy liquor in the Soviet Union. I don't know how they regulate its use. We rely basically on the figures that they release, on the complaints that we see in their press and on party statements on the need to control hooligans and things like that. As you read between the lines and judge what the official party organs say, you can tell pretty much where the crisis areas are.

Senator PROXMIRE. How about a Polish type crisis where they couldn't pay their foreign debts?

General WILLIAMS. I believe the Soviet crisis, if it occurred, would be [security deletion].

SOVIET GOLD PRODUCTION AND NATURAL GAS PRODUCTION

Senator PROXMIRE. Isn't the Soviet economy, maybe because of their gold production and their natural gas production and so forth, at a fairly strong foreign exchange position?

General WILLIAMS. I would like to ask somebody else to answer that one, sir, if I may.

Mr. DOE. Yes, sir. Historically, the Soviet Union has been in very good shape compared to the remainder of Eastern Europe from a foreign currency standpoint. The problems that they are beginning to run into have included a drop in the price of oil and a very sharp drop in the price of gold relative to 2 years ago. Given the increased demands for supporting their client states, as well as their increase in imports of grain, they are now suffering from a fairly severe hard currency shortage.

Senator PROXMIRE. Is there any evidence that if this continues, if oil prices stay down and their crop failures continue that they are going to be in a position where they will have to default or will be unable to buy what they need from abroad?

It seems to me that a lot of this analysis of agricultural difficulties depends on the assumption that they can't import. As long as they have that foreign exchange they can and will, and have in the past.

Mr. DOE. Yes, sir. They will continue to import. The problem may be what the mix of those imports happens to be. If they have to spend

more than half their hard currency earnings on grain, that obviously leaves less for machinery and equipment, and that historically has been their major import from the West.

Now as we move into the mid-1980's it may well come about that the Soviet debt service ratio, that is, the percentage of their total hard currency earnings they have to use to pay off debts, will be rising. It is now in the midteens as a percentage. This will be rising toward the 25-percent level and then above, depending on the performance of the agricultural sector.

Eventually they could approach the situation in Eastern Europe where you have some countries that spend more than half of their annual hard currency earnings to service their debts.

Senator PROXMIRE. Eventually is a long time. I take it that you are not contending—or are you?—that there is a real possibility that the Soviet Union may be put in a position where they simply cannot continue their military buildup and would have to curtail it to a considerable extent.

Mr. DOE. That is not on the immediate horizon.

Senator PROXMIRE. Thank you.

General WILLIAMS. Senator, I would like now to shift my focus to a brief discussion of the economic trends in the People's Republic of China.

SOVIET ECONOMIC CONDITIONS AND STANDARD OF LIVING

Senator PROXMIRE. Before you do that, I did want to ask some more questions. I want to make sure I understand the economic conditions. Are the economic conditions and standard of living getting worse or are they improving more slowly than has been planned?

What you showed was an increase in personal income and an increase in gross national product, but at a very definitely, clearly retarded rate. That would suggest conditions may be getting better, or it may not, because I didn't have a per capita analysis of that.

Mr. DOE. Given that the population of the U.S.S.R. is increasing on the order of 1 percent per year, and our best measures of GNP growth approximate that same rate, there is not a significant, observable decline in the average standard of living. There is, of course, variation by region, with some areas being in the midst of an absolute decline in their standard of living while others are still obtaining appreciable improvements in the standard of living.

Overall there has been at best no change in the last 2 or 3 years, and given supply irregularities and shortages, the increasing amount of time people have to spend in lines, perhaps from a total quality-of-life standpoint, yes, the standard of living has probably declined.

Senator PROXMIRE. Well, you showed a 3-percent increase in 1981, the latest year, in personal income. Say you have an annual increase in population of about 1 percent. That would indicate a per capita real increase which was very low, but nevertheless positive rather than negative.

Mr. DOE. The figure to which I think you are referring is a Soviet measure of total economic output, called national income, but that is

not the same as personal consumption. It is basically Western style GNP minus services such as education and health. That is in Soviet current prices which are overstated. There is an ongoing rate of inflation in the Soviet Union of between 1 and 3 precent, and what that 3.2 percent growth rate indicates is that there was nearly zero change in per capita national income in real terms.

LACK OF PROGRESS TOWARD REFORM IN THE SOVIET AGRICULTURAL SECTOR

Senator PROXMIRE. General, you mentioned the lack of progress toward reform in the agricultural sector during the recent special meeting of the Communist Party Central Committee in May. One explanation is that as Brezhnev's departure becomes more imminent and apparent the political struggle to replace him has already begun; in effect the political transition has started and economic reforms will be postponed until the transition is completed. Can you comment on this interpretation and give us your view?

General WILLIAMS. I think that is entirely consistent with what we are saying, because of the uncertainties over which way the Soviet Government wants to move and who is going to supply the impetus. Any time you get group leadership there is going to be a certain amount of jockeying. But we would still expect that if there had been some progress the plans would have been published on time and the figures would have been more consistent with their stated goals.

Yes, I think that that statement is probably true and I agree with it.

SOVIET OIL PRODUCTION

Senator PROXMIRE. Soviet officials are saying that oil production will increase modestly, according to plan, through 1985 and through 1990. Now that is contrary to some U.S. estimates in predicting a downturn in oil production in the early 1980's. What is your view?

General WILLIAMS. We have had quite a discussion with our colleagues at CIA on that, and I think you will see modest improvement probably through about 1985 and then it will begin to level out.

Senator PROXMIRE. That depends, I take it, on developments which we can't foresee perfectly, obviously, because they may have further exploration successes or failures.

General WILLIAMS. The problem is, Senator, that the only areas where they are likely to have a significant find are in the areas that are very difficult to exploit, and whether they get anything significant out of those is a matter of great speculation. The Siberian areas are awfully difficult for extraction.

FALLING PRODUCTIVITY OF SOVIET CAPITAL

Senator PROXMIRE. Your prepared statement discusses a falling productivity of capital and the fact that although the value investment has been rising in increments, the capital stock in some sectors is falling in real terms. This means that there is inflation in the industrial sector despite Soviet official statements to the contrary. You in-

dicated a minute ago that there was that inflation. How much hidden inflation is there in the Soviet economy in industrial production? Is it about 1 to 3 percent?

General WILLIAMS. I personally believe it is about 1 to 3 percent, but I will defer to Mr. Doe on that one.

Mr. DOE. Of course, the rate of inflation varies from sector to sector. You will find that inflationary pressures due to real cost increases are highest in those raw material sectors where essentially they are running into more trouble extracting the same amount of resources. For example, in the energy industry you have cost increases on the order of 4, 6, or more percent per year.

Senator PROXMIRE. My question is directed especially at industrial production rather than mining.

Mr. DOE. Machinery and equipment?

Senator PROXMIRE. That is correct.

Mr. DOE. In the machinery sector, what you have is a Soviet measure of output that is biased upward because of the nature of their pricing system and the nature of the measure they use to evaluate changes in output. The real increases in output in the machinery sector are on the order of 2 to 4 percent below what the Soviets publish.

Senator PROXMIRE. Thank you.

RATE OF INFLATION IN THE SOVIET MACHINE BUILDING SECTOR AND THE RATE OF GROWTH IN DEFENSE PRODUCTION

I understand there is disagreement among analysts over the rate of inflation in the machine building sector where military hardware is production. Of course, variations in the rate of inflation will influence estimates of real output. What is your estimate of the rate of inflation in the machine building sector and the rate of growth in defense production over the past 10 years?

Mr. DOE. The rate of growth in costs and prices in the machinery sector is on the average around 3 percent. The indications are that the military portion of machinery output, that is, hardware, is increasing in cost and price at a rate of a little above that. [Security deletion.]

Senator PROXMIRE. Is it correct that the rate of growth of defense production has been slowing down?

Mr. DOE. That's a very difficult question to answer. The nominal rates of growth inthe Soviet data, as they publish that data, have been slowing. They have been slowing throughout their entire economic system. Our estimates in constant 1970 prices, which is the best way to measure real trends, show that [security deletion] although there was a deceleration, as older systems were phased out, recently there has been a resurgence in the rate of growth.

Senator PROXMIRE. Let me ask you this. Is the rate of defense procurement slowing down over the past 10 years?

Mr. DOE. [Security deletion.]

Senator PROXMIRE. That it is [security deletion].

Mr. DOE. Nineteen seventy was a very high rate of growth period.

Senator PROXMIRE. What is the trend? If those were unusual years, what is the trend over that time?

Mr. DOE. Over about the past 15 years we have seen an annual average rate of growth in constant prices of Soviet military procurement of about 4 percent a year.

Senator PROXMIRE. What does that imply about inflation in that sector?

Mr. DOE. As an independent measurement, I would estimate "inflation"—and that's not an easy term to define and apply to military systems because it really encompasses cost increases on new weapons.

Senator PROXMIRE. About 3 to 5 percent a year?

Mr. DOE. Yes, sir.

Senator PROXMIRE. In other words, that would be higher than the rest of the economy.

SIBERIAN NATURAL GAS PIPELINE

Now there has been a great deal of public talk about the Siberian natural gas pipeline, and there has been a difference of opinion, both the administration and Congress, on that. Some feel that that pipeline could be of a very considerable value to the Soviet Union and that we might have an opportunity to impede the construction of the pipeline to some extent and it would be in our interest, since the Soviet Union is our principal adversary in the world, to do so, and particularly since the foreign exchange they can develop through developing a pipeline might also give them an advantage in procuring absolutely essential materiel that they need, and equipment that they need, for the production of military hardware.

Now as I interpret your statement about the Siberian natural gas pipeline to Western Europe, your estimate is that it is already under construction and gas delivery commitments will be met by the end of 1984. Is that correct?

General WILLIAMS. That is correct, sir.

Senator PROXMIRE. As you know, the White House recently ordered new restrictions on the transwer of technology from the United States and from U.S. subsidiaries in Europe to the Siberian pipeline. If this technology is denied to the Soviets will it prevent completion of the pipeline by the end of 1984?

General WILLIAMS. I believe it will delay, but I don't believe it will prevent it.

Mr. Ron Davis is knowledgeable on Soviet oil and gas.

Senator PROXMIRE. The question was, Would that prevent its completion by the end of 1984. I should have put it perhaps a little differently. Will it delay it until after the end of 1984?

Mr. DAVIS. The original design concept would be prevented, in effect. They will take a different approach. By this I mean the Soviet Union already has been exporting natural gas to Western Europe via a pipeline system. This pipeline system has some additional capacity. That capacity can be increased by technical improvement. The Soviet Union produces small-sized compressors. Of course, the Soviets continue to import Western and Japanese pipe. So that, in addition to what they produce themselves, most of the pipe itself will continue to be imported.

They have a very elaborate and complete pipeline system that runs from Siberia to Eastern Europe and Western Europe. This can be improved and enhanced. So some additional, substantial amount of natural gas can be provided in this timeframe that you are discussing, but this would not be the volume and obviously the value that had been originally planned for and agreed upon preliminarily.

Senator PROXMIRE. Roughly what would be the difference in volume if our restrictions are successful, as we would hope they would be, and we prevent the transfer of technology that would enable them to develop the pipeline to the fullest extent that they expect to develop it in 1983 and in 1984? How much would it cut it? Would it cut it by half? by 25 percent? by 10 percent? what?

Mr. DAVIS. I do not have that information with me. It would be very dependent on certain key assumptions as to certain deliveries and financing that had been originally contemplated. It would vary according to certain scenarios.

Senator PROXMIRE. At any rate, the effect would be to have some perhaps significant reduction at the end of 1984, but it would be delayed rather than permanently limited; is that correct?

Mr. DAVIS. Yes, sir. That is the DIA position on that issue.

General WILLIAMS. Mr. Vice Chairman, I would like to volunteer to do some more research on that one and come back with an answer to that question.

Senator PROXMIRE. We would appreciate that. That is a matter of concern not only to the President, of course, but for us in the Congress, and we would like to get as much information on that as we can.

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

U.S. PIPELINE SANCTIONS

Estimates are that the initial volume of gas contracted to be delivered to Western Europe by the end of 1984, via the new pipeline, is no more than 5 to 7 billion cubic meters (m^3). The highest annual volume to be carried by the pipeline to Western Europe (3–8 billion m^3 is expected to go to Eastern Europe) is 20–26 billion m^3/year and will not be reached until the mid-to-late 1980's, after all planned compressors have been installed. The buildup in capacity will be gradual.

The pipeline itself will almost certainly be in place by the end of 1984. The Soviets have no problems with pipe imports from the West, and they are experienced pipelayers. [Security deletion.]

The existing natural gas pipeline system which runs from the U.S.S.R., through Czechoslovakia, to Western Europe is currently operating at an estimated 10–13 billion m^3 under capacity, annually.

We estimate that U.S. sanctions could possibly delay the achievement of the pipeline's initial, designed throughput capacity by as much as six months. However, since the new pipeline with at least a few of its compressor stations will have been installed by the end of 1984, we believe that its capacity at that time, supplemented by existing, unused pipeline capacity, should more than suffice in meeting the planned delivery of 5–7 billion m^3 of gas to Western Europe.

Senator PROXMIRE. What is your estimate of the longer term effect of the new restrictions on the Soviets? I guess you have answered that.

General WILLIAMS. Yes, sir, I think so.

WILL U.S. TRADE RESTRICTIONS AGAINST THE SOVIET UNION CAUSE IT TO COLLAPSE OR CHANGE ITS MILITARY POLICY?

Senator PROXMIRE. All right. Is it your assessment that a policy of trade denial or trade restrictions by the United States against the Soviet Union will bring it to collapse or cause Moscow to change is military policy?

General WILLIAMS. I do not believe it will cause it to collapse, and over the short term I do not believe it will cause Moscow to change its military policy.

Senator PROXMIRE. Over the short term. What is the short term?

General WILLIAMS. Five years.

Senator PROXMIRE. How about over 10 years? Could it do it over 10 years?

General WILLIAMS. You are approaching the limit of my crystal ball, but we might have some impact at that point.

As the former director of estimates in DIA, I am always reluctant to try and make a forecast out that far, even though our estimates ask us to. We don't understand, in many cases, the Soviet's willingness to endure hardship, or the willingness to put the necessary expenditures into the military.

Senator PROXMIRE. What is the objective of this if we can't get them to change their military policy? That would seem to me to be a principal purpose of it. If we can't get them to do that, what do we gain? We obviously lose some support from our friends and allies in Europe, and we lose jobs in this country, perhaps.

General WILLIAMS. Yes, but we aren't looking at it only in economic terms.

Senator PROXMIRE. That's right, and I am not saying that we should do that. I think that sacrifice of jobs here and of support in Europe might be well worth the battle, but not if it is not going to have any effect.

General WILLIAMS. As an intelligence officer, it is my responsibility to report the facts, but I will give you an opinion, which is outside my realm of responsibility. As we attempt to fathom what is happening to the Soviet economy and we see how they confront other problems based upon the resolve of the West in political terms and our own military trends, it seems to me that the approach that the West takes makes their choices far fewer, and if we have presented them a difficult economic choice over a longer period of time, then in fact we may have some success.

Of course, as you yourself said, we are not just dealing in the economic area. I think that when we force them to make as many difficult choices as possible, therein lies the real crux of this dilemma.

Senator PROXMIRE. Your agency places great weight on the fact that the Soviet defense industrial base has been continually expanded by increased floor space in defense industrial facilities. Do we know whether the annual increases of floor space is actually being used, or how it is being used for defense production? And if not, should we put a question mark over the growth of floor space?

Mr. DOE. The Soviets expand their defense floor space for a number of reasons. It is not always for [security deletion]. They have a very

extensive system of [security deletion]. In other cases it may be specifically for a brand new system.

Senator PROXMIRE. So the answer is we don't really know.

Mr. DOE. Exactly.

Senator PROXMIRE. Does the table showing annual weapons production include weapons transferred to other countries? If so, can you provide a breakdown of foreign transfers for the years covered in the table?

Mr. DOE. Yes, sir. That production table does include transfers.

Senator PROXMIRE. Can you break that down for us for the record?

General WILLIAMS. Yes, sir, we can do that.

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

MAJOR SOVIET ITEMS OF NEWLY PRODUCED EQUIPMENT FOR SOVIET FORCES

Soviet Military Production Without Exports

	1977	1978	1979	1980	1981
Ground force materiel:					
Tanks	2,200	2,000	2,000	2,500	1,400
Other armored vehicles	[1] 3,700	[1] 4,400	[1] 4,500	[1] 4,800	[1] 4,000
SP field artillery	900	400	100	50	150
Towed field artillery	1,000	1,100	1,200	1,000	1,400
Mutiple rocket launchers	300	200	200	300	400
SP AA artillery	200	200	100	100	200
Towed AA artillery	0	0	0	0	0
Infantry weapons (thousands)	[2] 349	[2] 450	[2] 450	[2] 398	[2] 400
Missiles:					
ICBM's	300	200	200	200	200
IRBM's	100	100	100	100	100
SRBM's	200	250	300	300	300
SLCM's	600	600	700	700	750
SLBM's	175	225	175	175	175
ASM's	1,500	1,500	1,500	1,500	1,500
SAM's [1]	[2] 50,000	[2] 50,000	[2] 50,000	[2] 50,000	[2] 53,500
ATGM's [1]	[2] 35,000	[2] 35,000	[2] 40,000	[2] 50,000	[2] 60,000
Aircraft:					
Bombers	30	30	30	30	30
Fighters/fighter bombers	750	950	700	750	750
Transports	350	325	350	350	325
Trainers	10	5	0	0	0
Helicopters	850	600	600	650	650
Communications/utility	100	100	100	100	25
Naval ships:					
Submarines	10	12	11	12	9
Major combatants	10	10	9	9	7
Minor combatants	27	26	27	33	25
Auxiliaries	6	4	7	8	3

[1] Includes between 600 and 800 vehicles imported yearly from Eastern Europe.
[2] This represents total estimated Soviet production and it is not known what percentage was exported to other Warsaw Pact countries, or Third World countries. It is not believed that more than 2 to 5 percent were exported.

SIGNIFICANT SLOWDOWN IN PRODUCTION OF SOVIET TANKS AND ARMORED VEHICLES IN 1981

Senator PROXMIRE. The table shows a significant slowdown in the production of tanks and other armored vehicles in 1981. What is the explanation for that? You pointed out that there were some slowdowns.

General WILLIAMS. As the Soviets go to a more highly sophisticated kind of weaponry they have not been producing those in the same numbers that they have been producing the earlier models of tanks.

Mr. DZIAK. I think part of that has to do with the follow-on models, sir, that involve new technology, which is a much more costly and time-consuming operation.

Senator PROXMIRE. The same problem we have in our fighter planes, for instance.

General WILLIAMS. That's right.

Senator PROXMIRE. I know that at the end of World War II we were producing over 10,000 a year. In 1944 we produced 10,000. This year we will produce about 250.

General WILLIAMS. That trend seems roughly correct, but I do not have those figures with me.

Mr. DZIAK. It is much more complicated.

Senator PROXMIRE. And much more expensive.

General WILLIAMS. One thing they have also done is try to reduce the number of people in those tanks so that they can stretch their manpower a lot further too. If you reduce the crew by one, that's a 25 percent saving. They have made some significant changes in their approach to it. Basically it is the more sophisticated and more costly units replacing the less sophisticated ones.

Senator PROXMIRE. I am a little puzzled that you are not prepared to make estimates of the cost of Soviet military activities for 1981. Usually they are completed by this time. What is the explanation and when will they be available?

Mr. DOE. The estimates for the Soviet side have just been made. The computer runs were made recently, and we haven't adjusted those raw figures to come up with the final figures.

Senator PROXMIRE. But why are they so late? You usually have them the first of the year, January or February, for the preceding year.

Mr. DOE. [Security deletion.]

Senator PROXMIRE. What office is that?

Mr. DOE. [Security deletion.]

Senator PROXMIRE. It is hard for me to believe you had a reduction in force.

General WILLIAMS. I don't think we are cutting that back. I don't think he is saying it is a reduction in force; I think it's an increase in the total requirements. We do not have that many analysts for those kinds of things.

Senator PROXMIRE. It is such a critical number, and we would like to have it up to date. I would think that would be very helpful. We are 6 months behind now. You say it is coming on now, but that is still a 6-month lag.

Mr. DOE. It seems likely that the director of CIA can provide those figures to you when he appears before you.

Senator PROXMIRE. They are not currently available to anybody in the Government, is that right, until the middle of the year? So that is a real loss, it seems to me, in military intelligence.

General WILLIAMS. Yes, sir. That is one area in which my agency has not maintained those kinds of figures in recent years.

Senator PROXMIRE. In the past, whatever figures we have gotten we have gotten on a more timely basis.

General WILLIAMS. Yes, sir. I realize that. I will talk to the DCI's people and see if we can speed it up or get you an explanation. Right now I do not have the figures.

Senator PROXMIRE. Doesn't your agency make estimates of the cost of Soviet military activities?

General WILLIAMS. Yes, sir.

Senator PROXMIRE. Do you have those up to date?

General WILLIAMS. Well, insofar as we have the data. We do not have all that data. We do depend a certain amount on CIA for those figures.

METHODS OF ESTIMATING SOVIET MILITARY PROCUREMENT

Senator PROXMIRE. As you know, there is a disagreement among analysts over the way to estimate Soviet defense spending in rubles. Some DIA analysts prefer the indirect approach, using Soviet-published statistics on machinery output to derive the residual that goes into military hardware. If that approach is valid, how do you explain the fact that the Soviets keep their defense outlays a secret and yet permit them to be derived from other economic statistics?

Mr. DOE. There is a great deal of uncertainty regarding the absolute numbers that we use in these alternative methods of estimating Soviet military procurement. It is a very involved process.

Senator PROXMIRE. When you say uncertainty, does that mean you don't know whether it is valid or not, your estimates are correct or not, they may be accurate or they may not be?

Mr. DOE. We believe that there are wide ranges of possible error in the results of those calculations. However, we think that they do indicate trends over time when properly adjusted and understood. There are a variety of alternative methods by which you could estimate Soviet military activities. [Security deletion.]

Senator PROXMIRE. Well, if it is a secret for them, why should they publish data at all that would be able to be translated by us into a reflection of their expenditures?

Mr. DOE. The data that we utilize in this process is vital economic data for a centrally planned economic system. [Security deletion.]

We also use data on [security deletion]. All these numbers have to be used.

Senator PROXMIRE. I realize that. My question is that it looks bad from their standpoint. If they are anxious to keep these figures secret, why would they provide information from which we can derive judgments of value to us? Because they don't want us to make them accurate.

Mr. DOE. I am sure that they believe that those estimates that we produce based on their data are imperfect. We also believe they are imperfect.

Senator PROXMIRE. Well, if we both agree that they are imperfect, which is another way of saying they are not true or accurate, what good are they?

Mr. DOE. There are degrees of imperfection. No estimate that we make is perfect, to my knowledge. I am not aware of a 100-percent confidence estimate.

Senator PROXMIRE. Well, I am not asking for 100 percent. I just wondered what value they are. A great deal of debate on the floor of the Senate, for example, and policy determinations, I am sure, in every administration depends on what efforts the Soviet Union is making in their military. And again and again and again you run into the argument, well, they're spending a whale of a lot more money than we are, not only in relationship to their economy, but in absolute terms. I take it that that is a guess. It could be a lot more or it could not be a lot more.

General WILLIAMS. Mr. Vice Chairman, there are a number of official Soviet publications. An astonishing amount of unclassified data goes into the Soviet planning system. [Security deletion.] We may not see as much as their planners do. Therein lies a degree of imperfection.

As the analyst said, trends are probably as important to us as anything else, and if we try to measure these trends over time, we think we have more competence there. [Security deletion.]

Senator PROXMIRE. But all we can do in the trend is to know that they are producing more or less.

General WILLIAMS. That's true.

Senator PROXMIRE. Lately it has been more, but we don't know how much more really, do we? We can't be very precise or accurate on that.

General WILLIAMS. No, but we make the best judgments we can based upon the amount of information we can get our hands on. There are imperfections in that.

Senator PROXMIRE. Some analysts believe the indirect approach is unreliable because of the wide margins of error involved in subtracting from machinery output, the correct amounts for producer durables, consumer durables, and all the other amounts necessary to devise the residual for military hardware. What is your view?

General WILLIAMS. Sir, I am not an economist, and I have to defer to somebody else.

Mr. DOE. Yes, sir. There are significant possible ranges of error around every number involved in that particular type of a residual calculation. We think we have a fair idea of what those ranges of possible error are. We understand that the problems are with each of the numbers used.

Senator PROXMIRE. Well, wouldn't it be wise, then, for us to just judge this whole estimate as unreliable?

Mr. DOE. I think that would be to ignore some valuable implications, at least, that you can draw from that data.

Senator PROXMIRE. Well, if the implications are untrue, inaccurate——

Mr. DOE. I think that they are accurate within a measure of error. Over time you can narrow those ranges of error.

Senator PROXMIRE. You can say that about almost anything.

General WILLIAMS. But if you will follow that reasoning a little bit further, Senator, then we would just disregard all the data from the Soviet Union and say that those statistics are unworkable, and then we wouldn't do any analysis.

Senator PROXMIRE. What margin of error would you assign to it?

Mr. DOE. As a very rough guess, which is not supported by any statistical analysis, I would say that the potential for error is perhaps plus or minus one-third.

Senator PROXMIRE. Very good. Thank you. That's what I wanted to get.

OVERESTIMATING OR UNDERESTIMATING SOVIET WEAPONS

Can you cite specific examples of Soviet weapons that may be over counted or under counted by the intelligence community and discuss whether such problems significantly influence the yearly cost estimate of Soviet spending?

General WILLIAMS. I know personally that we have a terrible time counting [security deletion]. How that relates to the economic process, I would defer to the analysts. But we do know that we have a terrible time counting the total number of [security deletion] in the Soviet inventory [security deletion].

How that impacts on our economic estimates, I would like to defer again to the analysts.

Senator PROXMIRE. Let me ask this first. Are we over counting or under counting the Soviet [security deletion] production? I guess you don't know, and you take a midpoint, is that right?

General WILLIAMS. As we have seen in the past, we have [security deletion].

Senator PROXMIRE. In the past we have [security deletion].

Mr. DOE. If the question is how much difference does that make in the accuracy of the direct costing methodology, it is relatively little. There are, of course, ranges of error that we have to take into account. What we find is that we can go back, say, 10 years and look at what we estimated then for the quantities and what the value trends were. Say that in 1970 we said that there were x thousand aircraft produced. Now with 10 years of looking at what their inventories did, what their exports did, we go back and check those numbers. Those numbers look pretty good. Some of them are high estimates; some of them are low estimates; on average they are quite good.

Senator PROXMIRE. Last year the Defense Department issued a document entitled "Soviet Military Power," followed by a publication by the Soviet defense military entitled "From Whence the Threat." I would like you to comment on the chapter in the Soviet publication concerning the East-West military balance, in particular the tables and figures which lead the Soviets to conclude that there is a balance between NATO and Warsaw Treaty countries, and point out any places where the Soviet figures are incorrect.

General WILLIAMS. I would like to do that for the record and supply it to you in detail, sir.

Senator PROXMIRE. All right.

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

ACCURACY OF "WHENCE THE THREAT TO PEACE"

The Soviet document "Whence the Threat to Peace" is Moscow's most recent propaganda effort designed to support the anti-INF campaign. Like its predecessor, "The Threat to Europe," it is a highly sophisticated study that is presented in a fashion to influence the reader, primarily educated, middle class West Europeans. The 78-page document is published in seven languages, including Russian and English. It is highly readable, persuasively argued, almost free of communist jargon, and presents the reader with numerous tables of comparative order of battle data. The purported aim of this document is to present a "com-

parative" and "objective" analysis of the strategic and conventional military balance between the U.S. and the U.S.S.R. The real aim is to provide a sophisticated propaganda vehicle focused at undermining continued Western European support for the Atlantic alliance.

As with all Soviet propaganda, the document attempts to portray the United States as "aggressive," "bellicose," "imperialist," etc., while indicating that the U.S.S.R. is "rational," "reasonable," "committed to peace, and world understanding." Each position is backed by numerous quotations to support the argument, with special care taken to exploit the openness of Western society by quoting from Western sources wherever possible.

The general thrust of the document is that the U.S. seeks military superiority for its "strategy of aggression." It contests the idea that the U.S.S.R. may have surpassed the United States in military strength, and quotes Defense Minister Ustinov as stating that a "rough parity" exists between the two countries. While it acknowledges that some quantitative advantage accrues to the Soviet ground forces, the booklet reminds the West of "China with it growing nuclear potential and the largest army in the world." It attempts to alleviate any doubt whether there is rough equivalency by, allegedly, quoting Chancellor Schmidt: "American politicians are trying to create the impression that they are determined to restore the balance whatever the cost. In my view, the balance hasn't in fact been upset."

The U.S.S.R. is said to be peace-loving, and a state that never violates international law, treaties or agreements; Leonid Brezhnev assures the reader of this. The pamphlet also follows a recent propaganda line intended for Western readers that victory in nuclear war is impossible, rules out first strike as a Soviet strategy, and speaks of the defensive nature of Soviet doctrine. The booklet attempts to draw attention away from the Soviet leadership's view that its forces are designed, developed, and deployed in order to be able to fight, survive, and win in war, regardless of the means or geographical area of combat.

As in any propaganda document, a number of incomplete arguments are included. For example, the map on pp. 22 to 23 is presented as an example of U.S. force projection capabilities. In reality it is little more than a demonstration of geostrategic realities in which the U.S.S.R. is a continental power and the United States an oceanic power.

(It is for this reason that Soviet improvements in naval capabilities are so disturbing to the Western alliance, because they are not offset by compensating improvements in Western continental capabilities.)

On pp. 25–28, the Soviet authors discuss U.S. overseas bases, yet this purportedly objective examination fails to point out that shortly after the U.S. withdrawal from Vietnam, Soviet naval units arrived, and established a permanent presence at Cam Ranh Bay. Nor does it mention Soviet use of casernes and airfields in Eastern Europe, or facilities in Cuba, Yemen, Ethiopia, and Guinea.

On pp. 28 to 29, the Soviets argue that the U.S. is attempting to achieve military superiority by using "its material and financial resources and its manpower to the maximum degree." A true comparison of U.S. and Soviet defense expenditures as demonstrated in percentage of GNP reveals that the U.S. devotes 6 percent of GNP to defense while the Soviets devote roughly 15 percent of their GNP.

On pp. 65–69, the Soviets significantly understate the number of their nuclear delivery vehicles for use in Europe and make no mention of the availability from other areas of the U.S.S.R. At the same time they include in the NATO count U.S. carrier-based aircraft. Similarly, on p. 69 the Soviets refer to 8,000 U.S. and NATO tanks in storage but make no mention of any Soviet or Warsaw Pact tank storage figures.

Much of the effort of the piece is focused on the terror of nuclear war. Extensive efforts are made to catalogue improvements in U.S. strategic weapons, and, so that the reader does not miss the central point, the authors explicitly argue that these developments, as well as follow-on improvements such as INF or the neutron bomb, have made Europe hostage and could result in Western Europe becoming a nuclear battlefield and wasteland while the U.S. remains untouched. The comparisons of forces are carefully depicted and reveal no Soviet data heretofore unknown. Carefully orchestrated throughout each section is the theme that the United States is at fault for the threat to global peace.

The accuracy of the Soviet figures presented in the East-West military balance section of the publication "Whence the Threat to Peace" is extremely difficult to determine. The figures range from being understated by as much as 20 percent for the medium-range threat, to being very close to the published unclassified DIA

order of battle for the Navy. The problem is further compounded by the lack of explanation of the counting rules the Soviets used to produce the figures. The tables below provide the various Soviet figures stated in the publication and the DIA holdings at about the time the Soviet publication was produced.

[The tables referred to are security deletions.]

ALLEGED U.S. IMBALANCE IN NUCLEAR ARMS

Senator PROXMIRE. The Soviets argue that when Salt II was signed in the summer of 1979 there was a consensus that a strategic nuclear balance then existed. Within 2 years President Reagan began alleging that no parity existed and that the United States had fallen behind in nuclear arms. Yet nothing had happened in the interim to create such an alleged imbalance. How would you respond to that?

General WILLIAMS. I think that in the last 2 years one of the most startling things that we have seen occur is the continued deployment of the Soviet SS–20 IRBM's, the mobile ones. They are being deployed at a continuing rate even as we talk here, and that has constituted a significant change in the balance. We don't have anything like that. Ours have not been deployed. They are in the talking stage. So we are talking about an actual being versus a theoretical being.

[Security deletion.]

Senator PROXMIRE. How do you respond to the Soviet argument that there is a balance of medium-range nuclear weapons in Europe because each side has about 1,000 units when one considers all the main missile and airborne nuclear weapons of NATO countries capable of reaching Soviet territory from Western Europe and adjoining areas?

General WILLIAMS. I would like to defer to Mr. Dziak, sir.

Mr. DZIAK. Sir, this is one also where we get into more or less a net assessment between the U.S. systems and NATO systems and the Soviet systems. We have not seen, especially in that book, for instance, that they have given candid representation of all systems available to the Soviet Union from the Warsaw Pact. Many of the presentations in that book and in other places that they use are really subject to scenario-dependent situations. They don't address the issue of resupply for the Soviet Union; they don't address the issue of the Western military districts or some of the more interior military districts where you also have nuclear capable assistance.

I think this also might be one that we could address in the written response analyzing "whence the threat."

Senator PROXMIRE. Does the recent success of Israeli forces show that U.S. weapons are superior to Soviet weapons, at least in some respects, and suggest that perhaps there is a balance of conventional forces in Europe?

General WILLIAMS. Sir, we don't in DIA do any examination of the technical characteristics of U.S. or friendly weapons on a net assessment basis. It looks like the Israelis have been outstandingly successful, but I am not prepared to address the equivalency at this time. That will have to wait until the Department runs some kind of an evaluation.

BUILDUP OF SOVIET FORCES ON THE CHINESE BORDER

Senator PROXMIRE. One more question before you might go into the Chinese situation. The buildup of Soviet forces on the border with

China it seems has been going on since the early 1960's. How do the Soviets justify or explain this buildup? Was there any increase or letup in the buildup in 1981?

General WILLIAMS. The Soviets have always regarded the Chinese as a major threat to their well-being. They see those millions and millions of people as posing a potential threat. [Security deletion.]

So it is a historic thing, one which they regard as continual. The trend continues, but at a gradual pace.

Senator PROXMIRE. All right, sir. Go right ahead.

General WILLIAMS. I would now like to shift my focus to a brief discussion of the economic trends in the People's Republic of China.

[Slide 29 follows:]

SLIDE 29

General WILLIAMS. Although it has now been almost 6 years since the death of Mao Zedong, the new Chinese leadership continues to be confronted by deep-rooted economic problems. The recent economic trends highlight these difficulties and illustrate the approach that Beijing is using in its attempt to reach solutions.

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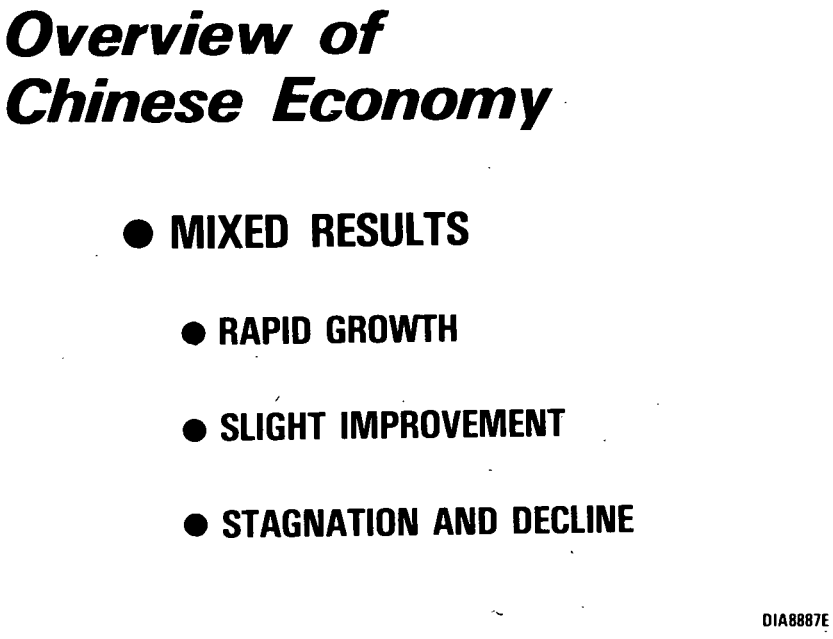


SLIDE 30

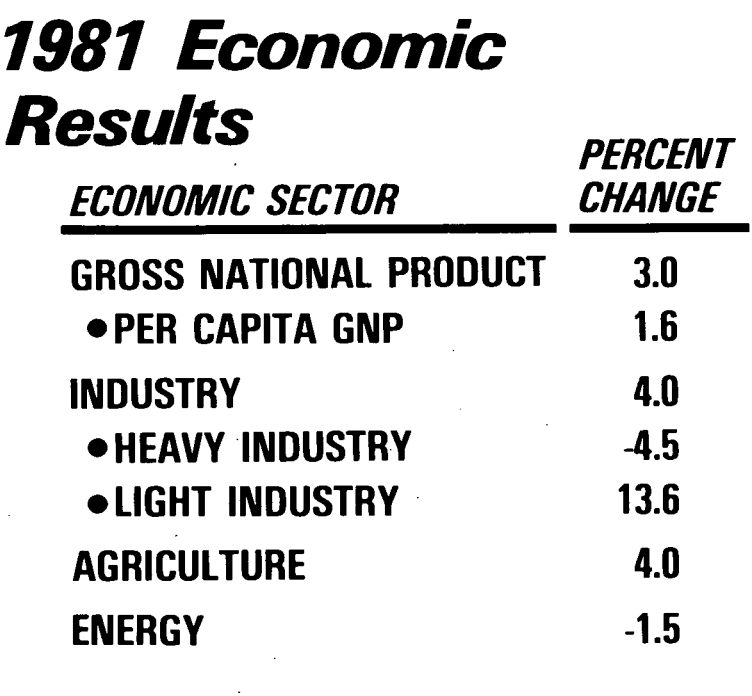
General WILLIAMS. During this last 6 years the Chinese economy has demonstrated mixed results with some sectors such as light industry and tourism growing rapidly while agriculture and other areas have shown little overall improvement. There are also reports that indicate that parts of heavy industry and energy suffer from stagnation and even decline.

[Slide 31 follows:]

SLIDE 31

General WILLIAMS. Overall the economic problems of unemployment, inflation, a continuing budget deficit, and inefficient management have combined with low labor productivity, energy shortfalls, transportation bottlenecks, and structural imbalances to prevent substantial improvements.

[Slide 32 follows:]



SLIDE 32

General WILLIAMS. Last year's economic performance is an example of how the Chinese were only partially successful in coping with the economic realities of attempting to expand their economic base with insufficient resources. Although economic growth was predicted to be about 5 percent, the actual increase was only 3 percent. However, with a population growth of about 14 million, the per capita increase was only about 1½ percent, a very modest improvement.

The other key economic indicators show that the policy decision to emphasize light industry resulted in a significant gain for that sector while the heavy industrial and energy sectors actually declined.

[Slide 33 follows:]

China Energy Production

	1978	1979	1980	1981
COAL (MILLION METRIC TONS)	618.0	635.0	620.0	604.8
OIL (MILLION METRIC TONS)	104.0	106.2	105.9	101.0
NATURAL GAS (BILLION M^3)	14.3	14.5	14.3	14.2

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SLIDE 33

General WILLIAMS. To a large extent energy production is the most disappointing economic sector in China. The oil industry especially has been highly touted as a panacea for Beijing's problems. All three of the major energy sectors—coal, oil, and gas—have declined for the second consecutive year. Increased energy output is needed not only for expanding domestic demand, but also as an export. Without oil and coal sales the People's Republic of China will not have sufficient hard currency earnings to pay for vital Western technology and equipment.

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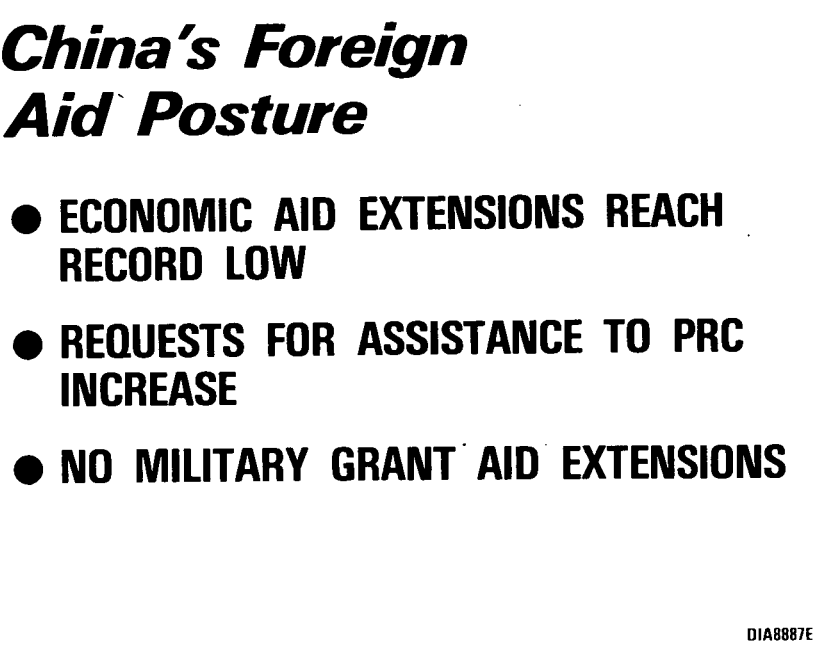

SLIDE 34

General WILLIAMS. In addition to lagging energy output during the last 2 years, China's policies regarding economic aid are also indications of the difficulties being confronted. New economic aid extensions in 1981, for example, were a record low of only $80 million. At the same time, Chinese requests for grants and low interest loans from international financial and economic development institutions intensified.

It is evident that Beijing's pragmatic leadership recognizes the benefits of such low cost or free funding and is attempting to obtain as much as practical.

As a corollary, military aid extended by China in 1981 was the largest ever but was 100 percent sales with no grant aid provided. This compares to several recent years when over half of China's military assistance was by donation.

[Slide 35 follows:]

Announced Chinese Military Budget (Billion Yuan)

	MILITARY BUDGET	PERCENT OF TOTAL NATIONAL BUDGET
1977	14.9	17.7
1978	16.9	15.2
1979	22.3	17.5
1980	19.4	16.9
1981	16.9	15.5
1982	17.9	15.8

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SLIDE 35

General WILLIAMS. An integral part of China's overall economic picture is the level and trend of defense expenditures. As can be seen, the announced budget for 1982 shows an increase of 1 billion yuan after 2 years of decreases. Although it is possible that these figures are a reasonable reflection of the direction costs are going, the order of magnitude has relatively little meaning. It is almost certain, for example, that military research and development outlays are in the education and science portion of the national budget. In addition, other defense expenditures such as procurement, construction, and retirement pay are also probably not in the allocation announced by Beijing for the military.

Although at present a U.S. dollar estimate is not available for the PRC's total military budget, the yuan figure based on a direct costing methodology is approximately twice the announced figure.

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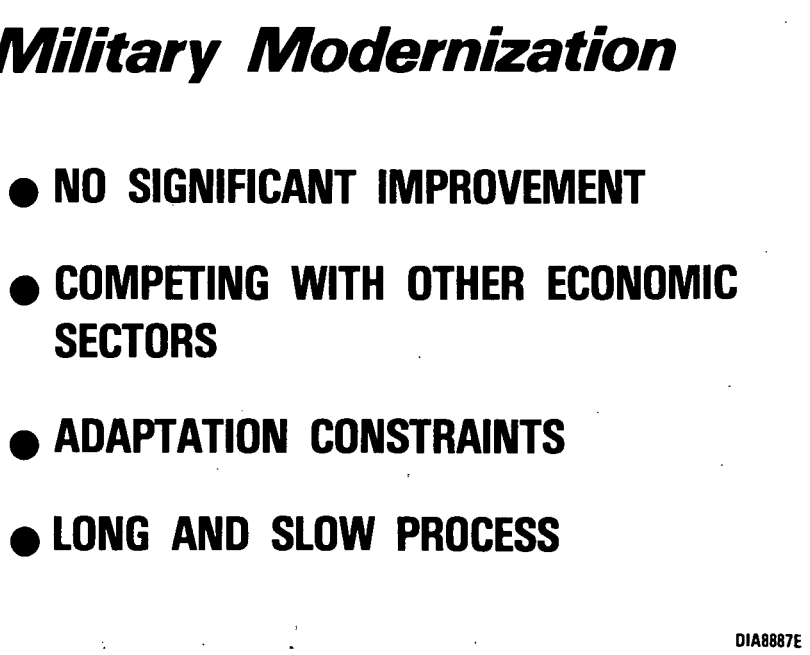

SLIDE 36

General WILLIAMS. Even if it is accurate that this year's total allocations to the military increased, it appears that there will be no significant improvement in the overall status of military programs. In terms of the national development strategy, defense continues to have a low priority and except for some special programs the military must wait for other economic sectors to develop first. In addition, because of adaptation constraints, rapid improvement through technology transfers would be extremely difficult. Consequently, military modernization will continue to be a long and slow process.

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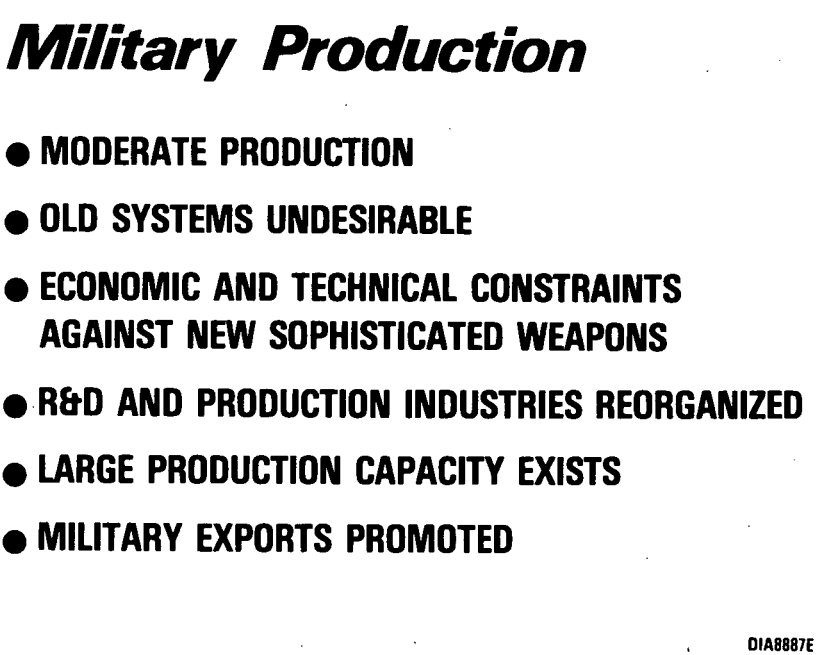

SLIDE 37

General WILLIAMS. An example of the military's low priority has been the moderate level of military weapons production during the last 5 years. It appears that the Chinese are currently caught in the difficult position of being reluctant on the one hand to continue massive procurement of old, unsophisticated systems while at the same time having both economic and technical constraints against the more desirable modern weapons.

In addition, as part of the current economic readjustment program, Beijing has been compelled to reorganize the military R&D and production industries in an attempt to increase flexibility, save resources, and improve efficiency.

In spite of these recent changes, the Chinese are capable of producing large quantities of selected military equipment.

Also, as discussed earlier, Beijing is now actively pursuing the export market and has been successful in increasing its foreign sales. In addition to earning valuable hard currency, these sales are helping to keep defense production plants active.

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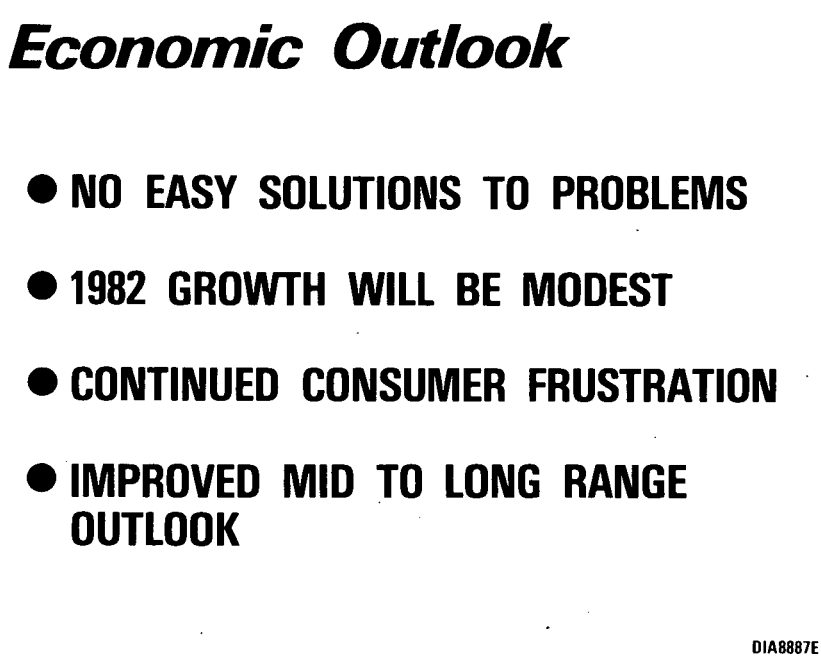

SLIDE 38

General WILLIAMS. The Chinese experience has apparently now convinced the Beijing leadership that simplistic resolutions to their complex problems do not exist. In light of their shortcomings, the anticipated 1982 economic growth is a modest 4 to 5 percent. Although this is higher than last year's 3 percent, it is considerably lower than the 7-percent rate experienced during the 1970's.

During 1982 and at least the immediate future the Chinese people will continue to be frustrated by low per capita income and by persistent unemployment and underemployment problems.

In addition, with inflationary pressure still strong, the typical Chinese will likely see little improvement in their standard of living, although the increase of private markets will allow for selective advancement.

Beijing's continued attempts to rationally control the economy, however, should help to ease the problems associated with readjustment and reform and begin to create conditions for more rapid economic improvement in the mid- to late 1980's.

[Slide 39 follows:]

Conclusion

USSR: MILITARY PRIORITY HIGH

PRC: MILITARY PRIORITY LOW

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SLIDE 39

General WILLIAMS. It is evident that both the Soviets and Chinese have economic problems that limit their resource allocation options. As has been discussed, however, Beijing and Moscow have reacted very differently to these constraints on their economies. Simply stated, the U.S.S.R. continues to emphasize the military sector at the expense of the consumer, while conversely the Chinese have opted to assign the military a relatively low priority. The presently available evidence indicates the leaders of both countries fully intend to maintain these divergent resource allocation patterns.

Mr. Chairman, that concludes my statement.

[The prepared statement of General Williams, together with an appendix, follows:]

PREPARED STATEMENT OF LT. GEN. JAMES A. WILLIAMS*

SUMMARY

USSR

The Soviet Union has experienced slowing economic growth since the 1950s. During the past two decades the resource allocation pattern has remained fairly constant: the military has had first claim on resources, particularly those incorporating the newest technology and the highest quality, while the investment-oriented civilian sector has been expected to achieve sufficient economic growth to support a slowly rising standard of living and further increases in the military effort. This approach worked very well, in light of Soviet goals, so long as the industrial labor force increased rapidly, the industrial infrastructure was new and increasingly productive, mechanization and expansion of arable land raised agricultural output, and workers could observe improvements in their living standard.

By the end of the 1970s, the Soviet economy had ceased to obtain the growth rates necessary to support both rapid increases in military outlays and steady improvements in the lives of the average citizen. Agricultural output stagnated and even declined, infrastructure, such as transportation, was overloaded, workers' demands for consumer goods were not being met, the growth of the labor force was falling off, new capital investment was becoming less efficient rather than more productive, and the Soviet ability to meet domestic and foreign hard currency demands was declining. In contrast, the growth of the military effort continued, with the result that a rising share of economic output was being allocated to the military.

The Soviet leadership has not addressed these trends effectively in the Eleventh Five-Year Plan (1981-1985). Even after the revisions of the Plan during 1981 in response to changing conditions, Soviet leaders have not discovered the

*This document is a product of the Directorate for Research. Major contributors include the Strategic Defense Economics Branch, the Military Materiel Production Branch, and the Energy Branch.

formula for attaining both their economic and military goals simultaneously. Available evidence indicates the military will continue to receive additional resources even as the civilian economy expands at very low rates. The result of current trends will be an increasing military burden.

PRC

Like the Soviet Union, the People's Republic of China has severe economic problems that sharply limit its resource allocation options. Beijing and Moscow, however, have reacted very differently to these constraints on their economies. While the USSR continues to emphasize the military sector at the expense of the consumer, the PRC has opted to relegate the military to a relatively low priority after agriculture, light and heavy industry, and science and technology. This development scheme is designed to first modernize the civilian sectors of the economy and then, after a broad, firm base has been established, emphasize defense buildup.

An integral aspect of Chinese military modernization is the expenditures that Beijing has allocated to the defense sector. Announced annual figures are now available from 1977 to 1982 and are believed to be a rough indicator of the cost trend. An increase in 1982 comes after two years of decline and does not significantly alter the long-term tendency of moderate outlays. In addition, it is very evident that the announced figures exclude major portions of the total defense allocations, probably understating actual outlays by about half.

An example of the military's low priority has been the moderate level of weapons production during the last five years, e.g., only 165 aircraft and 15 ICMBs in 1981. The Chinese are caught in the difficult position of being reluctant on the one hand to continue massive procurement of old unsophisticated systems, while at the same time having both economic and technical constraints against adopting the more desirable modern weapons.

Even though emphasis has been placed on the non-military sectors of the Chinese economy, overall performance in these areas in 1981 was not particularly noteworthy. Economic growth was predicted at about 5 percent, for example, but was officially only 3 percent at the end of the year because of adverse problems. Specific sectors where difficulties were particularly acute were energy which declined 1.5 percent and heavy industry which decreased 4.5 percent below the 1981 performance. The problems that have haunted them throughout the post-Mao era--inflation, unemployment, poor labor productivity, budget deficits, and so forth--continue as unresolved obstacles.

During 1982 the Chinese will continue to be frustrated as per capita income remains low and umemployment and other problems persist. Although some individuals are benefiting from the opening of a mixed market economy, the vast majority of Chinese will unlikely see little improvement in their standard of living. Beijing's continued attempts to rationally control the economy, however, should begin to create conditions for more rapid improvements in the mid to late 1980s.

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RESOURCE ALLOCATION TRENDS IN THE SOVIET UNION AND CHINA - 1982

1. INTRODUCTION

This statement examines economic and military resource allocation trends in the two largest Communist countries, the Union of Soviet Socialist Republics (USSR) and the People's Republic of China (PRC). Economic growth in both countries during the 1980s will be significantly below that achieved in past decades. The optimistic expectations held by Soviet and Chinese leaders will be increasingly difficult to meet.

Soviet growth prospects are poor due to aging industrial infrastructure, perennial agricultural difficulties, low incentives for workers, slow labor force growth, inefficient capital investment, and deteriorating ability to meet the hard currency requirements of both the domestic economy and client states. The Soviet leadership has not adopted reform measures to deal with these economic problems, but has instead maintained the prominence of the military in the resource allocation process.

The Chinese economy is continuing its turbulent readjustment and reform period which will likely last to at least the mid-1980s. As Beijing attempts to solve, or at least alleviate, its numerous problems, the economic priorities have been revised and a long-run approach to modernization has been adopted. The Chinese leadership now recognizes that the complex difficulties that plague their economy cannot be overcome by slogans and simplistic solutions. It can be expected that given the competing demands for limited resources and the conscious decision to have the civilian sectors take precedence over defense, military modernization will continue to be long and slow.

2. SOVIET ECONOMIC TRENDS

The year 1981 witnessed major shortfalls in production levels in virtually all areas of the economy. Using the Western concept of gross national product at constant prices, the Soviet economy grew only 2 percent during 1981. The Soviet measure, national income in current prices, rose 3.2 percent, but this figure overstates true growth (table 1).

Output trends in 1982 have continued to slide (table 2). Only natural gas among major industrial commodities is showing significant growth.

a. Industry

Conditions in the country's industrial sector, the traditional pacesetter, reflect an unusual degree of disruption from bottlenecks and poor labor productivity. Industrial growth (Western concept) slowed from three percent annual growth in 1980 to only two percent in 1981. This decline in growth was highlighted last year by shortages and delays of materials and products essential to both civil and defense production. These shortfalls were attributed to lack of materials, including metals, fuel shortages, and transportation disruptions. In many cases, chaotic conditions in the Soviet rail system were responsible for the disruptions. The need to move large quantities of grain and potatoes on a priority basis imposed a great strain on scarce rolling stock. The combination of rail bottlenecks, rolling stock shortages, and lack of materials became self-reinforcing and had an impact on all manufacturers.

The underlying reasons for these developments are directly related to Soviet investment decisions throughout the 1970's which consistently directed capital to heavy industry, especially the machine building sector with its large defense output. While Soviet military output has always had first priority, the cost of denying resources to the transportation, energy, chemical, agricultural machinery and food processing sectors is now being felt.

Table 1

Soviet Economic Performance: 1981
(preliminary data)

Category	Output in 1980	Output in 1981	Percent Growth Over 1980*
National Income (billion rubles, comparable prices)	437	451	3.2
Steel (million tons)	148	149	0.4
Iron Ore (million tons)	244	242	-0.9
Oil (million tons)	603	609	0.9
Coal (million tons)	716	704	-2.0
Natural Gas (billion m^3)	435	465	7.0
Cement (million tons)	125	127	2.0
Freight Turnover (trillion ton-kilometers)	6.2	6.3	2.3
Fabrics (billion m^2)	10.7	11.0	2.0
Timber (million cubic meters)	275	247	-0.3
Meat (million tons)	15.0	15.2	1.0
Milk (million tons)	90.9	88.5	-2.6
Eggs (billions)	67.9	70.9	4.4
Grains (million tons)	189	160 (approx.)	-15
Cotton (million tons)	9.7	9.6	-1.0

*Some percentages are based on rounded output figures.

Table 2

Soviet Economic Performance: January-April 1982
(preliminary Soviet data)

Category	Output in 4 months of 1982	Percent Growth Over 1981
Industrial Output	Not available	2.1
Steel (million tons)	49.3	-3.0
Oil (million tons)	200.0	0.2
Coal (million tons)	247.0	0.1
Natural Gas (billion m^3)	166.0	7.0
Cement (million tons)	29.1	-7.0
Fabrics (million m^2)	3.8	-0.1
Timber (million m^3)	110.0	-0.2
Meat (million tons)	2.6	-2.0
Milk (million tons)	8.3	-1.0
Rail Locomotives (thousand horsepower)	2,494.0	-4.0
Mainline Freightcars (thousands)	20.4	-6.0

b. Agriculture

At the forefront of the deteriorating economic situation has been the further decline in food availability in an economy where such shortages were already common. After years of increased stress on agriculture, the Soviet Union is facing the worst food situation the Brezhnev regime has ever experienced. More importantly, food shortages are the most severe in the memory of that vast majority of Soviet workers whose adult experience is confined to the past twenty years.

The poor crops in 1979, 1980, and 1981 were caused by numerous factors other than bad weather. Fertilizer production shortfalls, failure to remedy the problems of repair that have kept as much as 50 percent of harvesting equipment idle, the lack of incentives for maintenance that makes it necessary for 80 percent of new Soviet tractor supplies to go for replacement of retired tractors in some areas, inadequate storage facilities, and the unavailability of covered railcars for transportation are some of the problems. The availability of meat and dairy products at state stores is normally erratic and long lines are common.

Soviet efforts to partially offset food shortages through continued massive imports have led to record purchases of grains, meats, wheat flour, butter and other products. The importation of record levels of processed foods shows that the Soviet crop failures were impacting directly on consumers and not just the livestock sector as has often been the case in the past.

Table 3

Soviet Grain Imports
(millions of metric tons)

1976/77	1977/78	1978/79	1979/80	1980/81	Preliminary 1981/82
10	18	15	30	35	45

Rising food purchases, both for domestic consumption as well as for client states, has also led to record hard currency outlays, now well over $10 billion per year.

The Soviet leadership addressed the food problem at a special Party Central Committee Plenum in May 1982. The result of the Plenum was largely a reaffirmation of long-standing policies with a few relatively minor changes at the margin. General Secretary Brezhnev described the Soviet agricultural policy followed since 1965 as

> **a scientific policy, a correct policy, from which we did not depart, nor will depart.**

The new program adopted at the Plenum calls for subsidies to agriculture over and above the current 30 billion rubles, or 10 percent of the entire country's budget. In 1983 alone, some 16 billion rubles are to be added to subsidies on food production, roughly 11 billion rubles in long-term credits to farms will be cancelled and exempted from repayment, and 3 billion rubles will be invested in improvements to rural living conditions.

Brezhnev also discussed the formation of regional agro-industrial organizations (RAPOs). While purportedly meant to decentralize decisionmaking and improve the responsiveness of agricultural entities to diverse local conditions, the RAPOs may end up as simply another bureaucratic layer in the managerial/planning system. Until implemented on a wider scale than at present, the RAPO's effectiveness cannot be judged.

Overall, there were few changes in resource allocation as a result of the Plenum. Agriculture's share of investment will remain at 27 percent, roughly

where it has been for the past decade. Some increased investment in industrial sectors producing agricultural machinery was already scheduled, but the long lag times involved will delay any noticeable impact until the late 1980's. True reform in the Soviet Union's weakest sector has been avoided once again in favor of marginal, and probably ineffective, changes.

c. Failure of Economic Strategy

The Soviet economic formula was one by which wages were to be increased as an incentive for harder, higher quality work. The plan failed when the regime was not able to provide the food and other consumer goods to even approach satisfying demand. This pent-up demand is illustrated by the growth of savings deposits at a rate of over 10 percent annually during 1975-1981, in sharp contrast to wage increases of 2.8 percent annually.

Table 4

Individual Savings Deposits
(billions of rubles; current prices)

1975	1976	1977	1978	1979	1980	1981
91.0	103.0	116.7	131.1	146.2	157	166

d. Capital Investment Trends

A major component of Soviet economic growth strategy has been to create massive amounts of new fixed capital for the labor force to utilize in raising output levels. Capital investment has consistently absorbed over one-fourth of Soviet economic output during the post-war years and has risen as shown below.

Table 5

Capital Investment and Unfinished Construction
(billions of rubles; Soviet comparable (mixed) prices)

	1965	1970	1975	1979	1980	1981 (preliminary)	1982 (plan)
Total Capital Investment	56.0	80.6	112.9	130.6	133.5	138.0	137.4
Average Annual Increase (%)	-	7.5	7.1	.7	2.3	3.4	-.3
Unfinished Construction	29.6	52.5	76.7	106.4	105.1	108.1	-
Average Annual Increase	-	12.2	7.9	8.5	-1.2	2.9	

However, the real output capacity of Soviet capital has been dropping even as the value of investment rises. Soviet economists point to numerous factors that contributed to the falling productivity of capital: the need for extensive retooling of old equipment; worsening conditions for extracting minerals, petroleum, and other raw materials; increased investment in environmental protection equipment; poor results from large investments in agriculture; and, the failure of the work force to take advantage of the new equipment to raise productivity.

A contributing factor in the decline of output received per unit of capital is the continuing rise in unfinished construction. After a slight drop in 1980, the volume of unfinished construction rose sharply in 1981.

The meaning of these trends is that even though the value data indicate substantial increases in additions to fixed capital in recent years, the increments to the capital stock in at least some sectors are falling in real terms. While further research is necessary to define these trends more precisely, it is clear that the rising costs of capital are driving Soviet economic growth potential downward from its already low level.

In sum, the real quantity of new capital added to the Soviet production base annually has not been rising at nearly the rate shown by the raw data, and may have actually been declining in recent years.

e. Energy Production

Although Soviet oil production continues to grow, the rate of growth has slowed over the past several years as we predicted as early as 1977. Output in 1981 was 609 million tons, slightly lower than planned, but about one percent higher than 1980 production (603 million tons). Oil production for 1982 is projected at 614 million tons, a growth of about 0.8 percent over 1981. We expect the Soviets to reach this goal.

Natural gas production continues to grow at a rate of around seven percent annually, and the USSR should become the world's leading gas producer within a few years. Production in 1981 was 465.3 billion m^3, seven percent higher than in 1980. Production in 1982 is projected by the Soviets at 492 billion m^3, or about six percent greater than 1981 production. We expect 1982 natural gas production to exceed the plan with roughly a seven percent growth rate. It should be noted that Soviet proved, recoverable natural gas reserves equate to over 200 billion barrels of oil and that production is constrained only by the limits of the pipeline system.

Soviet coal production, despite the world's largest reserves, continues to fall. After peaking in 1978 at 724 million tons, coal production had fallen nearly three percent by 1981 to 704 million tons. Plans for 1982 call for a growth of around 2.5 percent over that of 1981, but it is unlikely that this goal will be met. Preliminary reports for 1982 indicate that production continued to fall. Reasons for this continuing shortfall are numerous, but

mostly have to do with shortcomings in industry infrastructure. Insufficient coal reserves is not one of the reasons.

Table 6

Soviet Fuels Production

	1970	1975	1980	1981	1982 Planned	1985 Planned	1990 Planned
Oil (million MT)	353.0	491.0	603.0	609.0	614	630	630
Natural Gas (billion m3)	191.9	289.3	435.0	465.3	492	630	780
Coal (million tons)	577.4	644.9	716.0	704.0	721*	765*	775*

*Even though coal production plans have been lowered considerably, they remain unreachable. If production can be increased, a more reasonable 1982 estimate would be 705-710 million tons. However, a more likely figure for 1985 would be 720-725 million tons.

f. Future Energy Trends

We believe the Soviets will achieve their 1985 oil production goal of 630 million tons. This represents an annual growth of less than one percent and should be attainable if the Soviets meet their drilling requirements.

Natural gas production goals, currently projected at 630 billion m^3 for 1985, should easily be met and will very likely be exceeded if annual production growth continues at seven percent. Natural gas is expected to satisfy an estimated 32 percent of the Soviet energy requirement by 1985, up from 27 percent in 1981.

Despite Soviet plans to the contrary, coal production is not likely to show any appreciable growth during the current Five-Year Plan. We do not expect the production goal for 1985 to be met.

We continue to expect Soviet oil production to level off between 1985 and 1990, with a probable resurgence of growth near the end of the decade. Natural gas production will continue to grow through 1990 and beyond, making up for any slowdown in oil production growth. With adequate labor and financial investment, Soviet coal production can, between 1985 and 1990, show renewed growth.

g. Yamburg Pipeline

The "Yamburg" pipeline, scheduled to begin delivering Siberian natural gas to Western Europe by 1984, is currently under construction. Thousands of kilometers of pipe have been delivered and are being laid at several sites along the line's projected route. At peak capacity, the line, which will be almost 5,000 km in length, will deliver up to 40 billion m^3 of natural gas annually.

The "Yamburg" line is but one of six large-diameter natural gas pipelines slated for construction during this Five-Year Plan. All of these lines originate at the super-giant Urengoy field in West Siberia which, by 1985, will provide over half of Soviet gas production. Two of the six lines have already been completed, and construction continues on "Yamburg" and the three other lines.

The Soviets expect the Yamburg line to be completed by 1984, although not at peak delivery capability at that time. Pipelines already in place between the USSR and Western Europe are not operating at full capacity but could be used to help meet initial delivery commitments. The Soviets expect the Yamburg line to reach full capacity by 1985.

h. Eleventh Five-Year Plan

The Soviets first published the draft guidelines for the Eleventh Five-Year Plan in December 1980. During the ensuing eleven months poor economic

performance and a perceived need to increase military spending caused major revisions to the Plan. The final version, passed into law in November 1981, reduced goals for nearly all civilian sectors while leaving military-related resources unscathed. Generally, the 1985 goals were set at the lower end of the ranges cited in the 1980 guidelines. The major exception is capital investment, which was cut from a range of 711 to 730 billion rubles for the five-year period to 700 billion rubles (table 7).

Even the revisions could not keep pace with the decline in actual performance during 1981. The annual plan for 1982 was approved at the same time the Five-Year Plan was adopted, yet the two documents are inconsistent. A major tenet of the Five-Year Plan was to have been more rapid growth for consumer-related industrial goods than for capital equipment used in industry and other sectors. However, while 1981 results indicate consumer-related industry grew three tenths of one percent faster than the capital equipment sector, the 1982 Plan calls for the capital sector to outpace the consumer sector. In addition, the capital investment trends are moving in a direction opposite to that mandated in the Five-Year Plan (table 8).

Table 8

Inconsistency of 1982 and Five-Year Plan Data
(percent change from previous year)

	1981		1982	
	Five-Year Plan	Actual Result	Five-Year Plan	Annual Plan
National Income	3.4	3.2	2.6	3.0
Industrial Output	4.1	3.4	3.9	4.7
Capital Equipment	4.1	3.3	3.9	4.8
Consumer Goods	4.2	3.6	3.9	4.6
State Capital Investment	4.0	0.4	-0.7	0.9

Table 7

Revision of the Eleventh Five-Year Plan
(1980 = 100)

	Original 1985 Goal	Revised 1985 Goal
National Income	118-120	118
Industrial Output of which:	126-128	126
Capital Equipment	126-128	125.5
Consumer Goods	127-129	126.2
Industrial Labor Productivity	123-125	123
Capital Investment	112-115	110.4
Agricultural Output* of which:	112-114	113.2
Grain*	116-118.5	117
Meat*	115-118.2	115
Retail Trade	122-125	122.9
Electric Power (billion Kwh)	120-124	120
Oil (million tons)	103-107	104.5
Gas (billion cubic meters)	138-147	145
Coal (million tons)	108-112	108

*Average for 1981-1985.

i. Expectation of Accelerated Growth

The targets set for 1982 and the Eleventh FYP as a whole indicate the Soviets are counting on accelerated growth to occur in many sectors during 1983-1985. This acceleration is very unlikely to occur as labor force growth and increments to capital investment move lower. Table 9 indicates the growth rates needed to meet the FYP target, given complete fulfillment of the 1982 plan. The likely result of current trends will be significant shortfalls from expected performance as the Plan period develops.

Table 9

Growth Needed to Meet Plan Targets, 1983-1985
(average annual rates)

	1981-1982 Growth	1983-1985 Growth
National Income	3.1	3.5
Industrial Output	4.0	5.1
Capital Equipment (Group A)	4.0	5.0
Consumer Goods (Group B)	4.1	5.2
Machinebuilding and Metalworking	5.7	7.7
Freight Turnover	2.6	4.2

j. Technology Transfer

The acquisition of Western technology, machinery, and equipment remains a continuing high priority for the Soviet leadership in the 1980s. These acquisitions have made a considerable contribution since 1970 to Soviet military capabilities, not only by means of direct military applications, but also through improved labor productivity and the qualitative enhancement of the industrial production capabilities of both defense and defense-related industries. The

increased economic efficiencies resulting from technology transfer are particularly important in the face of the steady deterioration of overall Soviet economic performance.

The Soviet import strategy for the rapid expansion and modernization of the Soviet chemical industry is indicative of the Soviet commitment to the acquisition of Western technology and its consequent benefits. The chemical industry is a major defense-related industry, as chemical industry products include military explosives, rocket fuels, and chemical warfare materiel as well as feedstocks and semi-finished goods for defense industrial production. The Soviets have purchased substantial quantities of Western chemical equipment and related process technology for more than two decades. Between 1970 and 1979, Soviet chemical machinery and equipment imports underwent an eightfold increase. With Western assistance, Soviet output of nitrogen fertilizers and plastics has doubled in the past decade while output of synthetic fibers has tripled.

The Soviet leadership has acknowledged and is increasingly concerned that the current and growing heavy reliance on foreign inputs of technology and equipment has created a strong dependence on the West. This dependence is apparent not only in the chemical industry, but throughout much of the entire Soviet economy, including computers, electronics, precision machine tools and heavy vehicles. Recent Soviet policy statements and decisions indicate a renewed emphasis upon the need to develop domestic research and development (R&D) capabilities in lieu of technology acquisition abroad. The Soviet leadership, however, has not instituted the reforms necessary to overcome the constraints on domestic technological innovation. The ability to apply basic scientific knowledge to industrial production has historically been among the weakest links in Soviet industrial development. The Soviet system lacks the incentives

necessary to stimulate the ongoing transformation of the results of pure research into new, more efficient manufacturing processes. The artificial price system, frequent breakdowns in material supplies, and the varied, numerous and frequently conflicting bureaucratic measures of effectiveness, as well as management wariness of the uncertainties of change, all contribute to a resistance to innovation at the enterprise level.

At the same time, Soviet economic development goals are premised on an intensive growth strategy dependent upon technological innovation. As part of the Eleventh Five-Year Plan (FYP), 1981-1985, a broad program for the use of new technology in industrial and economic development has been published. This program provides for 170 scientific and technological (S&T) projects over the next decade; forty-one of these are to be completed during the 11th FYP period. Major efforts will occur in the areas of industrial robots, automation and mechanization of manual labor, computer technology, powder metallurgy, lasers, improved energy acquisition, transportation, and refining. Unlike previous S&T plans, this plan is said to be directly tied to funding and the allocation of resources in the 11th FYP.

Despite the enhanced commitment to S&T development, the Soviet need for Western technology and equipment will remain. Western know-how continues to be required to renovate and modernize the aging capital stock in the Soviet Union, to stimulate energy development and conservation, and to substitute for increasingly scarce labor resources. Western technology is of such importance that Soviet acquisitions, both legal and illegal, will continue despite growing hard currency constraints.

3. SOVIET MILITARY RESOURCE TRENDS

a. Military Production Capabilities

The Soviet military industrial base is by far the world's largest in number of facilities and physical size. The Soviet Union produces more individual systems in greater quantities than any other nation.

The Soviet industry has grown steadily and consistently over the past 20-25 years. Its physical growth and the commitment of large quantities of financial and human resources is its most dynamic aspect, but its cyclical production is its most important. Production plants appear to be continually active, suggesting that as old weapons programs are phased out, new ones are begun, leaving no down times or long periods of layoffs and inactivity. The cyclical process, the continuing facility growth, and the high rates of production keep the arms industry in a high state of readiness to meet any contingency.

Table 10

Soviet Ground Force Materiel Production

	1977	1978	1979	1980	1981
Tanks	2,500	2,500	3,000	3,000	2,000
Other Armored Vehicles	4,500	5,500	5,500	5,500	4,500
SP Field Artillery	950	850	250	150	200
Towed Field Artillery	1,300	1,500	1,500	1,300	1,500
Multiple Rocket Launchers	550	550	450	300	400
SP AA Artillery	300	300	300	200	200
Towed AA Artillery	250	100	--	--	--
Infantry Weapons (thousands)	350	450	450	400	400

Table 11

Soviet Missile Production

	1977	1978	1979	1980	1981
ICBMs	300	200	200	200	200
IRBMs	100	100	100	100	100
SRBMs	200	250	300	300	300
SLCMs	600	600	700	700	750
SLBMs	175	225	175	175	175
ASMs	1,500	1,500	1,500	1,500	1,500
SAMs	50,000	50,000	50,000	50,000	53,500
ATGMs	35,000	35,000	40,000	50,000	60,000

Table 12

Soviet Aircraft Production

	1977	1978	1979	1980	1981
Bombers	30	30	30	30	30
Fighters/Fighter-Bombers	1,200	1,300	1,300	1,300	1,350
Transports	400	400	400	400	400
Trainers	50	50	25	25	25
Helicopters	900	650	700	750	750
Communications/Utility	100	100	100	100	25

Table 13

Soviet Naval Ship Construction

	1977	1978	1979	1980	1981
Submarines	12	13	12	13	10
Major Combatants	12	11	11	11	9
Minor Combatants	52	51	53	65	44
Auxiliaries	6	4	7	8	4

b. Military Exports and Assistance

During 1977-81, some $35 billion worth of Soviet military equipment was delivered. The Near East and South Asian countries were the main receipients with 74 percent of the total. The rapid increase in arms transfers during this period can be attributed to: the new Arab wealth following the rise in oil prices in 1973 and 1974; the sale of more sophisticated equipment such as MiG-23 and MiG-25 jet fighters, IL-76 transports, MI-24 combat helicopters, surface-to-air missile systems, T-62 and T-72 medium tanks; and, higher Soviet prices.

Table 14

Soviet Military Deliveries by Area, 1954-1981
(millions of US dollars)

East Asia and Pacific	11,410
Latin America	3,890
Near East and South Asia	42,380
Africa	5,000
Third World	62,680

As shown in table 15, Moscow delivered a variety of equipment during the 1977-81 time frame including: roughly 24,000 tanks, APCs, armored cars, and artillery pieces; over 50 guided-missile boats; 2,500 combat aircraft; and almost 12,000 surface-to-air missiles. Libya, Iraq, and Syria were the main recipients.

Table 15

Major Soviet Items of Equipment Delivered, 1977-1981

	1977-1981
Ground	
Tanks and SP Guns	7,050
APCs and Armored Cars	8,640
Artillery Pieces	8,450
Naval	
Major Surface Combatants	32
Minor Surface Combatants	128
Submarines	6
Guided Missile Boats	53
Air	
Supersonic Combat Aircraft	2,230
Subsonic Combat Aircraft	290
Helicopters	915
Other Aircraft	345
Missile	
Surface-to-Air	11,670

These advanced weapons have required more extensive training as reflected in the increase of military trainees in the USSR, from 6,760 in 1977 to over 11,200 in 1981.

Table 16

Foreign Military Trainees in the USSR

	1977	1978	1979	1980	1981
East Asia and Pacific	NA	NA	NA	NA	1,500
Latin America	2,000	2,000	2,050	2,000	2,010
Near East and South Asia	1,800	2,000	2,260	6,600	5,950
Africa	2,960	2,235	2,680	1,930	1,770
Third World	6,760	6,235	6,940	10,530	11,230

NA = Data not available.

Also, these weapons required more maintenance, so larger numbers of Soviet military advisers and technicians are now in developing countries. The number has grown from over 10,600 in 1977 to more than 19,500 by the end of 1981. As is true for exports, the Near East and South Asian region has the largest number.

Table 17

Soviet Military Advisers and Technicians Abroad
(minimum estimate)

	1977	1978	1979	1980	1981
East Asia and Pacific	800	800	1,500	3,000	3,000
Latin America	2,100	2,100	2,100	2,085	2,000
Near East and South Asia	5,615	6,830	11,100	12,100	11,700
Africa	12,100	2,560	2,640	2,960	3,420
Third World	10,615	12,290	17,340	20,145	19,590

The Soviet arms transfer program has been a success and is the major military means for projecting power and influence in the Third World. Arms exports have provided the Soviets with an entree into developing countries.

Moscow has also profited economically from its arms exports. The Soviet Union continues to lead in the delivery of major items of equipment to the developing countries. The roughly $8 billion in accords signed in 1981 demonstrates Moscow's readiness to continue to supply its clients with modern military equipment and enhance its position in the developing countries.

c. Military Spending

The Soviet Union includes a figure for expenditures on defense in the state budget published each year. The specific items covered by the "Defense" appropriation are not revealed by the Soviets, and no breakdown of expenditures by military services or resources has been given in recent years. It is known that a detailed "estimate" (smeta) of expenditures on items for miltary use is compiled each year. The Soviets have not made this "estimate" public, but they have indicated that it is not defined in the same manner as the published "Defense" budget.

The level and trend of the published "Defense" budget in the past two decades have not matched the observed changes in Soviet military manpower, operations, and weapons procurement. Rather than leveling off or declining in the 1970s and 1980s as the "Defense" budget indicates, Soviet military activities have actually expanded fairly steadily year to year.

The unreliability of published Soviet data on military spending makes it necessary to estimate the level and trend of their military effort using other approaches. The Intelligence Community begins by determining, in detail, the manpower and material goods used by the Soviet military each year. These diverse quantities are converted to the common denominator of monetary cost using specific values for each component of the military effort. Both the Soviet ruble and the US dollar are used as common denominators.

Estimated Soviet defense spending in rubles reflects the costs of military activities within the Soviet economy and is meant to replicate, in a general sense, the resource allocation choices confronting the Soviet leadership. Prices and pay rates are those that were in effect in the Soviet Union in 1970. This eliminates the impact of price change and allows the underlying trends in manpower and physical quantities to be revealed. Most of the Soviet military activities are costed directly in rubles. Some items are costed by converting the dollar costs of Soviet activities into rubles using ruble-dollar ratios. These ratios reflect the relative price structures in the two countries.

Ruble defense spending is defined in two ways. A lower range of spending estimates is based on the definition of defense used in the US and is comparable to the coverage of the dollar costs. The definition of spending is broadened in the upper range to include additional military-related activities which the Soviets may view as part of their defense effort. These include civilian space activities, which would be run by the National Aeronautics and Space Administration in the US, construction, railroad, and MVD internal security troops, foreign military assistance, military stockpiling, and some civil defense activities. The rubles values are aggregated by resource category and military service as required for analytical purposes. Estimated ruble defense spending in 1981, based on constant 1970 ruble prices, totaled nearly 70 billion rubles for the narrow definition of defense, and as much as 75 billion rubles for the broad definition. In contrast, the official Soviet "Defense" budget for 1981 was 17.054 billion rubles and the 1982 figure is 17.050 billion rubles.

The estimated dollar value of Soviet defense activities represents what it would cost in the US to hire the manpower, procure the hardware bought by the Soviet military, and operate that force as the Soviets did in a particular year. The activities covered by the estimated dollar costs include those military functions which would be funded in the US by the Department of Defense, the Department of Energy, and the Coast Guard, and exclude retirement costs. These estimated costs are denominated in constant 1983 dollars in order to remove the effects of inflation and reveal the underlying trends in physical quantities and activities. Dollar costs are useful in determining the overall size and trend of Soviet military activities in terms familiar to US policymakers and in making comparisons with US expenditures on similar activities. The cost of Soviet military activities in 1980 totaled $252 billion. US outlays for similar military activities in 1980 totaled $168 billion. Comparable estimates for 1981 are not yet available.

Since 1978, Soviet military spending has continued to increase at roughly its long-term historical rate of four percent (in constant prices) while economic growth has slowed sharply. Intelligence Community estimates indicate that the share of economic output absorbed by the Soviet military has risen to the range of 12 to 14 percent as a result. While these estimates use the Western concepts of constant prices and gross national product in making these judgments, it is likely that similar trends would appear when Soviet officials made their calculations using current prices and net material product (roughly equivalent to gross national product minus depreciation and services such as education and health).

The costs of Soviet weapons systems are rising rapidly as new and modified versions replace older ones. The general trend is toward larger, more

sophisticated, and much more expensive weapons. While the Intelligence Community uses constant prices in official estimates to measure real growth trends in the burden of Soviet military spending, the Soviets use the current prices in effect each year as they make resource allocation decisions. If current prices for military spending and gross national product are used in the burden calculation, it is likely that the share of economic output allocated to the Soviet military is presently in the range of 14 to 16 percent.

d. Outlook for Military Resources

Soviet leaders, being well aware that economic growth is hindered by military spending, must carefully wend their way between the fulfillment of the conflicting goals of greater military power and an improved economic base. The indications are that the military has retained its preferential status in the resource allocation process.

Data on planned growth in machine building and metalworking (the key military production sector), capital investment, and consumer durables indicate that substantial room has been left for significant increases in military procurement. It should be noted that there is a large element of uncertainty in these trends due to the preliminary and incomplete nature of the Soviet plan data.

Production of machinery and equipment for use as producer durables in industry and elsewhere is to rise by less than 20 percent by 1985 and production of consumer durables such as refrigerators and automobiles is to rise by 40 percent. However, the output of the machine building and metalworking sector (MBMW) is to increase by 40 percent also. Investment absorbs less than one-half of MBMW output currently, while consumer durables absorb a much smaller

proportion. The remainder is largely military procurement, though the export and import of machinery and equipment and some other minor uses of MBMW output should be accounted for as well.

Comparison of the available planned growth rates for each of these subsectors, using the estimated distribution of output in 1980, suggests that the allocation of MBMW output for military purposes could grow at a rate well in excess of that for the economy as a whole, perhaps even as high as 10 percent per year.

An additional set of economic indicators provides similar evidence. the value of output of the nine defense-related machinery ministries is slated to rise by roughly 43 percent during the Eleventh Five-Year Plan (table 18).

Other indicators of Soviet intentions also show that a continued upward trend in military spending is likely. The high priority Soviet leaders place on military power has resulted in continued increases in expansion of military production facilities even as economic growth has slowed. There has been no significant reduction, to date, in the rate of expansion of such facilities.

In addition, the number of weapon systems in development and testing has remained virtually constant for the past decade. Both of these trends point to ongoing increases in military production and procurement.

The Soviets are planning to allocate substantial additional resources to the military, with full recognition of the harm to the economy.

Table 18

Machinery Output: 1980-1985

Ministries	1980-1985 Growth (percent changes)
Automotive Industry	25
Electrical Equipment Industry*	(40)
Tractor and Agricultural Machinebuilding	50
Instrumentbuilding, Automation Equipment, and Control Systems	30
Heavy and Transport Machinebuilding	31
Machine Tool and Toolbuilding Industry	40
Chemical and Petroleum Machinebuilding*	(40)
Machinebuilding for Light and Food Industry and Household Appliances	26.9
Construction, Road, and Municipal Machinebuilding	30
Machinebuilding for Animal Husbandry and Fodder Production	43.5
Power Machinebuilding*	(40)
Total Civil Ministries	34.8
Total Defense Ministries	43.4
Total Machinery Ministries	40

*Due to lack of data, these ministries' shares of total machinery output in 1985 is assumed to be the same as for 1981. This probably results in an underestimate of the defense ministries' growth rate and share of output because all three of these ministries have grown more slowly than total machinery in recent years.

4. PRC ECONOMIC TRENDS

a. Introduction

During the late 1970s and early 1980s, the Chinese economy has demonstrated mixed results, with some sectors growing rapidly while others have shown little growth, stagnation, or even decline. Overall, the economic problems of growing unemployment, a continuing budget deficit, low labor productivity, and inefficient management have combined with energy shortfalls, transportation bottlenecks, and structural imbalances to prevent substantital improvements.

In order to help alleviate these problems and facilitate long-term stability and continuity of the economic policies, the Chinese central leadership, under the direction of Vice Chairman Deng Xiaoping, is currently reorganizing the party and government structures. This is accomplished by the placement of people who share a common commitment to the PRC's economic future in leadership positions throughout China. The accomplishment of these efforts combined with the ongoing economic readjustments and reforms are vital to the ultimate success of the modernization program.

b. 1981 Economic Performance

Economic growth in 1981 was originally predicted by Beijing to be about 5 percent. However, even by mid-year it was clearly recognized that this was too optimistic and that 3 percent would be much more realistic. Considering that the population increased by 1.4 percent, despite an official program to hold down growth, the per capita increase was only about 1.5 percent, a very modest improvement.

In regard to specific economic sectors, agriculture performed well in 1981, with total output up almost 6 percent over the previous year. Grain production increased to 325 million metric tons, the second best ever, only

2 percent less than 1979 record harvest. As expected, the final figures for industrial output showed a massive increase in light, consumer-oriented production as that sector grew by 14 percent. Unfortunately for Beijing, however, this was largely offset by a decrease of almost 5 percent in the heavy industrial area. As a result, total industrial growth was only 4 percent. In keeping with the overall economic plan, the Chinese outlays for investment in capital construction dropped over 20 percent. The vital energy sector basically is suffering from stagnation and is discussed at greater length elsewhere in this report.

Table 19

PRC: Key Economic Indicators, 1981
(percent change compared to 1980)

Sector	1981
GNP	3.0
Per Capita GNP	1.6
Industry	4.0
Heavy Industry	-4.5
Light Industry	13.6
Agriculture	4.0
Energy	-1.5

Overall, the Chinese are less than elated over their 1981 economic performance. The problems that have haunted them throughout the post-Mao era--inflation, unemployment, financial deficits, and so forth--continue as major hurdles that they are attempting to overcome. Basically a poor country, the PRC has now recognized that modernization is an extremely ambitious goal that may take decades, if ever, to reach.

c. Economic Planning

China is still in the process of fine-tuning both the Sixth Five-Year Plan (1981-1985) and a Ten-Year Economic Program (1981-1990), even though 1981 and the first half of 1982 are past. Although details of these interrelated development schemes are not known, possibly even to the Chinese, the basic objectives have been announced.

It is relatively clear, for example, that the primary task of the new Five-Year Plan is to continue the readjustment of the national economy, to correct structural imbalances, and reduce inflationary pressures. In order to accomplish these general goals, the plan will pursue balanced growth policies so that the proportional relationships among agriculture, light industry, and heavy industry will be more reasonable. The current restrictions on capital investment will also continue as an integal part of the plan to help maintain the proper ratio between accumulation and consumption and to ensure that priority areas receive sufficient funding. The production of consumer goods is also being emphasized to ensure that the quantity of products available keeps pace with rising purchasing power so that prices will increase as little as possible. In addition, the problem of national budget deficits is being attacked by seeking to improve economic efficiency to help expand the revenues received by the state and, therefore, meet expenditures.

All of the above is in keeping with the guidelines of the forthcoming Ten-Year Economic Program. In general, the PRC leadership has acknowledged that the readjustments and reforms will continue as the overall economic structure, enterprise management, and resource planning are altered. In order to alleviate the basic economic imbalances, Beijing has assigned top priority to the development of agriculture, energy, transportation, communications, education, and

scientific research. It is anticipated that by emphasizing these areas where the most fundamental problems exist, the economic bottlenecks can be broken. If these underlying difficulties can at least be overcome enough to allow significant growth, then the other economic sectors, including the military, will be able to accelerate their modernization.

A major aspect of the long-term program is to conduct more effective economic and technical interactions with other countries especially the US, other Western countries, and Japan. The importation of advanced technology as part of an overall trade expansion combined with the increased use of foreign credits will enable Beijing to facilitate its economic development program. The Chinese leadership has recognized that this interaction combined with "capitalist" experiments of decentralized decisionmaking and a limited market system are vital aspects of their modernization planning.

d. Energy Production

Production of basic fossil fuels fell again in 1981, following a downward trend that first became evident in 1980. Each energy sector faces many long-standing problems that Beijing is attempting to address during the Sixth Five-Year Plan.

Table 20

PRC Energy Production (1970-1981)

	1970-77	1978	1979	1980	1981
Coal (million metric tons)	330-550	618.0	635.0	620.0	604.8
Oil (million metric tons)	30-94	104.0	106.2	105.9	101.0
Natural Gas (billion m^3)	3-13	14.3	14.5	14.3	14.2

Although oil is China's most publicized energy resource, coal provides at least 70 percent of the country's energy needs while oil supplies about 20 percent, natural gas about three percent with the remaining output coming from hydroelectric and other sources. Proven coal reserves, which are the third largest in the world, are estimated at more than 600 billion tons. Annual output is also third largest, behind the United States and USSR. Even though coal production has risen dramatically since 1949, the industry, like other industrial sectors, is inefficient and incapable of meeting increasing demands. The lack of modern machinery and other mine equipment, a shortage of coal preparation plants, and inadequate rail transport from mine to consumer are all nagging factors that inhibit expansion. Beijing, in the Sixth Five-Year Plan, reaffirmed its committment to a coal-based economy and to coal exports, and has launched an ambitious program to build several new coal bases and to introduced advanced extraction technology. New railroads and port facilities are currently under construction to expedite shipment of coal to coastal export facilities.

Western assistance is the cornerstone of Chinese plans for modernizing and expanding coal production. Japan, which is already committed to financing three new mines, port improvements, and rail construction, expects to benefit from increased Chinese coal exports by 1985. A major US corporation also recently agreed to undertake a feasibility study of what could become the world's largest open-pit coal mine. Preliminary plans call for linking the new mine by rail with a newly expanded coal port. China is also considering exploiting other large reserves.

Coal will continue to provide most of China's energy needs far into the future. With the infusion of foreign assistance, coal output could be increased substantially within three to five years, particularly in those areas where surface mining is practical. Beijing expects to increase coal exports sharply in this decade.

The outlook for China's oil industry is still uncertain. The failure to increase yields at existing oilfields and the lack of new, major discoveries onshore in the past several years led to overall declines in output in 1980 and 1981. Nevertheless, Beijing has vowed to maintain production at 100 million metric tons through 1985. Until offshore reserves can be developed in the late 1980s, China is expected to rely heavily on conservation, on substitution of coal for oil in industry, and on technological improvements at existing production facilities to meet demands.

In February 1982, Beijing announced that bids would be accepted for rights to develop selected areas of the South China and Yellow Seas. At least 46 companies, many of them from the United States, were involved in geophysical surveys along the Chinese coast in 1980 and 1981 and thus are eligible to bid for concessions. (Japanese and French companies are already drilling offshore in concessions granted in 1980.) Contracts will probably not be ready for signing before mid-1983, which is much later than originally expected.

The long delay in bid invitations must be a matter of concern to Beijing since it pushes production from potential offshore fields further into the future at a time when onshore production is stagnant. Furthermore, the delay has coincided with falling oil prices and concurrent surpluses in worldwide crude supplies. At present, there is evidence that the worldwide oil glut is ending,

which may signal higher prices, nevertheless, foreign companies may be reluctant to bid on blocks that are thought to have marginal potential, and bids may be lower than Beijing expects.

A great deal of preliminary survey work and exploratory drilling remains to be done offshore before commercial oil reserves are proven. Moreover, Beijing's delay in inviting bids and its insistence on being intimately involved in any development work, suggest that establishment of a viable offshore oil industry will be a long and difficult process.

e. Governmental Reorganization and Constitutional Changes

The Beijing leadership under Deng Xiaoping's influence is in the process of making both administrative and constitutional changes that may have a substantial affect on the economic activity of China. All of these changes have been designed to improve efficiency and legitimize the presence of foreign business activity in China. Many of the proposed administrative changes have already been completed; however, the proposed constitution has not yet been approved.

The Chinese bureaucracy had become so unwieldly that it seriously inhibited economic development. In an effort to streamline the government, state ministries were reduced from 52 to 41 while many of the ministry directors have been replaced with younger more technically competent individuals and the numbers of vice-ministers have been reduced. Also, ministers and vice-ministers no longer have lifetime tenure and are "responsible for the work of their departments." In addition, agency responsibility has been more strictly defined to reduce overlapping responsibilities by multiple ministries.

As examples of this reorganization, the 6th Ministry of Machine Building, which was responsible for civilian and military shipbuilding, was abolished and its functions were transferred to the newly created China Shipbuilding Industries Corporation and the newly created China Automotive Industry Corporation has absorbed the automotive bureau of the former 1st Ministry of Machine Building. By transferring industrial management responsibilities to corporate organizations, greater efficiencies can hopefully be achieved.

The new draft constitution expunges most of the highly politicized Cultural Revolution rhetoric remaining in the 1975 constitution. It spells out due legal process as well as the rights and obligations of the PRC citizen. The rights of the citizens in rural collectives to have private agricultural plots and to raise animals for private use are also clearly established and the responsibilities and functions of the various governmental offices and organs are explicitly laid out. Finally, the rights of foreign enterprises and economic organizations, joint ventures, and foreign investments are now protected by law and recognized by the constitution.

Although Deng Xiaoping is suffering from the ravages of old age, he still appears to have a firm hold on the reigns of power. The longer he can maintain the momentum in his reorganization plans, the more firmly entrenched his programs will be when he no longer is in power. Consequently, the prospects for Chinese economic development will improve as a result of the reorganization and the constitutional changes.

f. PRC-US Economic Relations

It has now been slightly over one decade since the resumption of economic relations between the US and the PRC. During the last ten years, China's domestic and international economic policies have undergone drastic and often

sudden shifts that have affected both the magnitude and composition of Sino-American trade. Prior to the 1970s, for all practical purposes, there was no trade between the two countries. In 1971, when bilateral relations improved slightly, the US imported about $5 million worth of Chinese goods. By the next year, 1972, when direct trade resumed, total two-way commerce was almost $100 million. Total trade increased rapidly to over $800 million in 1973 and slightly under $950 million in 1974. During the next three years, however, the annual level of trade was only about $400 million because of a decrease in US agricultural sales which had been a significant aspect of the earlier gains.

In 1978, following poor Chinese harvests, US agricultural exports resumed on a large scale, pushing US-PRC trade to a record $1.1 billion. The balance of trade became favorable that year for the US (US exports to China exceeded imports), and has remained so since that time. In 1979 when formal diplomatic relations were established, bilateral trade doubled to $2.3 billion. After the 1980 signing of the US-China Trade Agreement, trade more than doubled again to $4.8 billion in 1980. For a variety of reasons on the part of China, primarily its economic readjustment and budget cutbacks, trade growth between the two countries in 1981 slowed considerably to only 14 percent and was valued at $5.5 billion.

Table 21

US-China Trade, 1971-1981
(Millions of US Dollars)

Year	Total Trade	US Exports (FAS)	US Imports (Customs Value)	Trade Balance
1971	5	-	5*	-5
1972	96	63	32	31
1973	805	740**	65	675
1974	934	819**	115	704
1975	462	304	158	145
1976	337	135	202	-66
1977	374	171	203	-31
1978	1,142	818	324	494
1979	2,309	1,716	592	1,124
1980	4,808	3,755	1,054	2,701
1981	5,495	3,603	1,892	1,710

*Via third countries only.

**Includes $50 million in 1973 and $12 million in 1974 shipped via third countries and not reported destined for China.

The prospects for continued growth in US-PRC trade are good, although the 1979 and 1980 annual expansion rates of 100 percent are unlikely to be repeated. The economies of the US and China are in part complementary with a significant Chinese demand for US agricultural goods, technology, and equipment offset somewhat by a potentially large market for Chinese goods, especially primary products and light manufactures. Currently, the US is China's third largest trading

partner following Japan and Hong Kong. Last year, 1981, over 13 percent of Beijing's trade was with the US. Although it is very unlikely that the US share will reach or surpass the Japanese share of almost one-fourth, with improved economic conditions, the share could perhaps reach as much as 18 percent.

Table 22

Composition of US-China Trade, 1977-1981
(Millions of US Dollars)

	1977	1978	1979	1980	1981
US Exports, Total	171	818	1,716	3,749	3,599
Manufactured Goods	87	192	653	1,223	1,135
Agricultural Commodities	64	573	990	2,209	1,956
Other	20	52	73	316	508
US Imports, Total	203	324	592	1,058	1,895
Manufactured Goods	130	235	370	733	1,164
Agricultural Commodities	62	74	80	119	334
Other	12	14	142	206	398
Total Trade	374	1,142	2,309	4,807	5,494

Based on preliminary projections, two-way US-PRC trade could possibly reach $6.5 billion in 1982, an increase over last year by almost one-fifth. However, this is based on optimal conditions which likely will not be attained. At least some growth is predicted with US exports continuing to exceed imports.

g. PRC-USSR Economic Relations

On 10 April 1980 the "Sino-Soviet Treaty of Friendship, Alliance, and Material Assistance" came to an end after being in effect for 30 years. The low-key approach taken at that time by Beijing with no major policy statements or

announcements is a reasonable reflection of the overall disinterest that the Chinese have shown toward economic contacts with the Soviets. Compelled by geographic and limited economic factors, the PRC has indicated that certain agreements and interaction are necessary. Significant activities beyond the minimum, however, are clearly not being encouraged by China. For example, although agreements have been reached during the last two years for river navigation, railway and other transportation, and trade, these constitute only the basic essentials to maintain contact at their common border and to continue trade.

Trade between Beijing and Moscow dropped precipitously in 1981 to about $250 million, less than half the previous year. The trade agreement for 1982 calls for an increase of about 20 percent but the Chinese have made it very clear that this minor additional level of commerce has no political importance. At the same time that PRC-USSR trade has decreased, total Chinese trade has skyrocketed by 45 percent between 1979 and 1981 to over $40 billion. This has forced the proportion of Sino-Soviet trade to fall to only slightly above one-half of one percent of Beijing's total turnover; an almost negligible amount. Although this trade is clearly not significant, both countries find its continuation to be somewhat advantageous. Most Soviet imports from China are used to supply remote regions of the eastern USSR while those goods imported by China are used in the modernization program. Beijing's exports consist primarily of textiles, light industrial goods, and agricultural products. These are exchanged for Soviet trucks, agricultural equipment, machinery, other manufactured items, timber and fertilizer.

Table 23

PRC-Soviet Trade 1976-1982
(millions of US dollars)

	PRC Exports	PRC Imports	Total Turnover	PRC Balance
1976	179	238	417	-59
1977	178	162	340	16
1978	257	242	499	15
1979	241	268	509	-27
1980	230	294	524	-64
1981	132	116	248	16
1982*	150	150	300	0

*Stated by PRC to be 20 percent higher than 1981 and planned to be balanced.

Table 24

A Comparison of PRC-Soviet Trade and Total PRC Trade 1976-1982
(billions of US dollars)

	PRC-Soviet Trade	Total PRC Trade	PRC-Soviet As a Percent of Total PRC
1976	.4	12.9	3.1
1977	.3	14.7	2.0
1978	.5	20.5	2.4
1979	.5	28.2	1.8
1980	.5	38.8	1.4
1981	.2	41.0	.6
1982*	.3	47.0	.6

*Estimated.

Given the longstanding animosity toward Moscow, it seems unlikely that Beijing will soon encourage closer bilateral economic relations. This is particularly true considering the Soviet's unsympathetic responses to China's political/military demands regarding Soviet withdrawal from Afghanistan and Mongolia and an end to aid for Vietnam. Although low-level contacts and agreements will continue, a radical economic improvement is not promising even though minor increases in trade volume could occur.

h. Economic Assistance Provided

For China, 1981 was a year for adjustment of the country's economic policies. This reassessment of the allocation of economic resources is evident in last year's precipitous decline in economic aid extended by the PRC to Less Developed Countries.

During the past ten years, China's economic aid to the non-Communist developing countries has been an important aspect of its foreign policy. While Beijing significantly reduced such assistance last year, fluctuations in aid extensions are somewhat characteristic of the Chinese record in this foreign policy arena. In the early 1970s, the PRC exerted its influence in developing countries by committing about $600 million in economic aid annually. However, unsettling domestic problems during the remainder of the decade consumed more of China's resources, and, as a result, there were substantial cutbacks in economic assistance activity.

Chinese economic aid levels stabilized at about $200 million per year in the late 1970s, but once again followed an erratic path into the 1980s. Reflecting both the domestic and international situation, Beijing decreased its aid extensions in 1979 to almost half the previous year's level and then reversed itself once more by expanding assistance to LDCs to over $300 million in 1980.

In 1981, the pendulum swung in the other direction and Chinese economic aid plunged dramatically to under $100 million, the lowest level committed in over ten years. While the magnitude of assistance seemingly defies prediction, China continues to be consistent in the geographic distribution of aid recipients. The record of total aid commitments since 1972 shows the PRC's keen interest in the developing countries of Africa and Asia. Since 1972, the nations of Sub-Saharan Africa have received over half of the total value of economic assistance from the PRC, and the countries in Asia were the recipients of 25 percent of total aid extensions. The remainder went primarily to Middle East and North African countries. In spite of the sharp decline in assistance activity registered by the PRC in 1981, the geographic pattern of recipients remained fairly consistent with this established preference.

Table 25

China: Economic Aid Extended to Less Developed Countries
(millions of US dollars)

Year	Value
1972	607
1973	600
1974	282
1975	366
1976	150
1977	210
1978	219
1979	125
1980	320
1981	80

Table 26

China: Geographic Distribution of Economic Aid Extensions to Less Developed Countries, 1972-1981

Regions	Percent of Total
Sub-Saharan Africa	52
Asia	25
Middle East and North Africa	17
Latin America	4
Europe	2

A closely related aspect of Chinese assistance activity is the number of economic technicians Beijing places in host countries. While financial resources were obviously strained in 1981, the PRC was able to marginally augment its overseas presence last year. Although during most of the 1970s the Chinese were able to provide over 20,000 technicians each year to developing countries, in 1979 Beijing withdrew the level of this support to about 13,000 technicians. It appears that China is attempting to build up its assistance again by achieving a moderate growth in economic personnel it sent to LDCs in the past two years to the 1981 level of 15,000.

Table 27

China: Economic Technicians in Less Developed Countries, 1972-1981

Year	Number of Technicians
1972	22,000
1973	23,000
1974	23,000
1975	25,000
1976	20,000
1977	24,000
1978	22,000
1979	13,000
1980	14,000
1981	15,000

The geographic distribution of Chinese economic technicians over the past decade closely resembles the regional pattern of aid recipients. Clearly of major interest to the PRC, China's financial assistance to the Sub-Saharan African region has been substantiated by the receipt of an overwhelming preponderence of economic technicians since 1972. The balance of trained Chinese personnel were sent to countries in Asia, the Middle East, and North Africa. If the geographic distribution of economic technicians provides an indication of China's interests, however, over the past four years Beijing has reduced its presence in Sub-Saharan Africa and increased its presence in the Middle East and North Africa. This shift in the provision of economic technicians indicates an approach that more closely resembles the distribution of Chinese economic aid.

Table 28

China: Geographic Distribution of Economic Technicians in Less Developed Countries, 1972-1981

Region	Percent of Total
Sub-Saharan Africa	82
Asia	5
Middle East and North Africa	12
Latin America	.5
Europe	.5

i. Economic Assistance Received

Foreign aid has consistently been viewed by the PRC as an important part of its overall international economic policy. Until 1979, however, Beijing saw itself solely in the role of an aid donor. China's acceptance of economic aid presented a significant departure from policies that were in effect for 30 years, when Beijing steadfastly refused even to consider external assistance. China's

pragmatic leadership has since scaled down the country's aid donations to a more modest level, and in 1979, Beijing broke its longstanding policy of self-reliance and sought financial aid in the form of grants and concessional loans from non-Communist countries and international agencies.

The value of receiving well-planned economic aid was recognized by Chinese leaders who have had to struggle with economic policy readjustment. Beijing's financial problems were led by its ambitious long-term modernization program and the resulting realization that the PRC lacked sufficient domestic capital resources to accomplish its objectives.

China's new financial policy was first applied with the acceptance of bilateral aid in the form of concessional, interest-free loans from Japan, Belgium, and Australia which were obtained between 1979 and 1981. The loans are being used by the Chinese for a wide range of programs, varying from agricultural and civil engineering projects to the purchase of capital goods and industrial equipment. Although such small bilateral aid proposals are popular with donor nations because they do not require huge outlays and may facilitate donors' entry into the Chinese market, such agreements have not been able to fulfill the country's extensive economic needs.

Having accepted the status of aid recipient, the PRC extended its access to funds through its membership in international development and financial organizations. China's relationship with the United Nations (UN) is a case in point. Following admission to the UN in 1971, China was designated as a donor to the UN Development Program (UNDP) on the basis of a UN figure of about $450 for China's per capita gross national product (GNP). However, by 1979, vanity gave way to realism as Beijing formally declared that its per capita GNP was only $210, one of the lowest in the world. As a result, China's aid status changed,

and the country became a net recipient of UN assistance. Shortly thereafter, in January 1980, the PRC became a member of the UN-related International Fund for Agricultural Development (IFAD). While the Chinese have not yet actively sought loans from the IFAD, they availed themselves of UNDP resources in 1979 when they received a $15 million allocation for various approved development projects.

In a natural outgrowth of its progress towards resuming a place in the international community, China joined the International Monetary Fund (IMF) and the World Bank in 1980. Beijing's membership in these international financial institutions has already begun to have a far-reaching impact on the organizations and on China's role in the world economy. Because the aggregate size of a member's economy determines its capital share, the PRC could eventually receive substantial assistance at a relatively low cost.

In fact, the Chinese have already begun to accrue the benefits of belonging to these associations. In the first year of membership, the IMF granted Beijing three series of loans to help improve that country's balance of payments problems. Then, working with unusual speed, the World Bank and its soft-loan affiliate, the International Development Association (IDA), approved their first loans to China in June 1981. The $200 million assistance package provides a $100 million loan from the Bank at 9.6 percent interest and an interest free IDA loan of equal amount for a university development project. The loans will assist China in its efforts to develop higher education and engineering to help alleviate the persistent shortage of trained manpower.

Having made inroads in the procurement of multilateral assistance, Chinese involvement in and funding from international institutions will probably increase substantially during the 1980s. While Beijing realizes the need for and seeks a variety of external support including commercial funds and official

supplier credits, the country's requirements for large-scale, long-term economic development funding has made international financial aid increasingly desirable. Thus, supplemented by limited bilateral assistance, international aid will likely expand to be a more integral part of China's economy.

j. Economic Outlook for 1982

China's inability to quickly assimilate new technology and adopt managerial changes are obstacles that will continue to hold back the economy in 1982. It appears that Beijing is somewhat willing to accept these problems along with its other shortcomings and has anticipated 1982 economic growth to be a modest 4 or 5 percent. This comes after more than two decades of emphasizing rapid growth. In the past, the Chinese leadership has taken oversimplistic approaches to their complex economic situation and as a result have run into massive problems. Beijing now hopes that its multifaceted plans will allow long-term reliable growth.

During 1982 China is attempting to keep the deficit under control by closely watching both income and expenditures and by promoting overall economic efficiency. Consumers, however, will continue to be frustrated as per capita income remains low and unemployment problems persist. With inflationary pressure still strong and wages unlikely to improve, the typical Chinese will unlikely see little improvement in their standard of living. In addition, continued economic mismanagement coupled with persistant natural disasters of droughts, floods, and so forth, will likely produce further fluctuations, especially in localized areas. Beijing's continued attempts to rationally control the economy, however, should help to ease the problems associated with readjustment and reform and begin to create conditions for more rapid economic improvements in the mid to late 1980s.

5. PRC MILITARY ECONOMIC TRENDS

a. Military Expenditures

Significant insights are available about China's plans to modernize its armed forces through analysis of military expenditures. In 1979, China revealed information about its national budget for the first time in 20 years. In that year, data were also provided for spending in 1977 and 1978. The Chinese have continued to furnish a rough outline of their national spending since the 1979 announcement.

The sharp rise in spending in 1979 reflects additional costs related to the intense border war between China and Vietnam. In 1980, Beijing announced that defense outlays were to be severely curtailed. However, the reduction in military spending was basically a return to the former upward trend of the late 1970s.

Although the initial 1981 military budget announced a continued upward trend, the retrenchment policies of late 1980 caused a substantial revision, resulting in a 13 percent drop from the 1980 level of under 20 billion yuan. China's state budget for 1982 includes a 6 percent increase for the military which compares to a 4 percent increase in the central government budget, suggesting that Beijing is placing slightly more emphasis on military programs.

Table 29

Announced Chinese Military Budget, 1977-1982
(billions of yuan)

Year	Military Budget	Share of Total National Budget
1977	14.9	17.7
1978	16.9	15.2
1979	22.3	17.5
1980	19.4	16.9
1981	16.9	15.5
1982	17.9	15.8

A major problem with the figures announced by the Chinese is the determination of what these figures include. It appears very likely that other military allocations are hidden elsewhere in the central government budget. Analytical constructs which are designed to gauge military expenditures through a direct costing approach suggest that the components of the Chinese defense effort--as defined in US terms--add up to over twice the yuan value published in the Chinese budget. Although a dollar estimate of total Chinese military outlays is not available, the direct costing approach indicates that the value of Chinese procurement for 1982--what it would cost in the US to produce similar equipment--is about $6 billion.

Although the allocation to the military has been increased in 1982, it appears that there will be no significant change in the overall status of military programs. In terms of Beijing's Four Modernizations--agriculture, industry, science and technology, and national defense--the military will probably continue to rank fourth. This implies that military modernization will be tied to the development of the complete economy. Consequently, even if large amounts of foreign technology should become available for weapons production, limits of absorption would tend to constrain rapid military developments.

b. Military Weapons and Equipment Production

China has maintained a relatively low level of military production over the past five years. Domestic requirements for many of the dated items have been filled and the military is probably reluctant to procure much more of these older items. In addition, for economic and technical reasons follow-on equipment is often not ready for serial production. However, increased exports orders are probably keeping some production lines active.

As part of the recent government-wide reorganization, both defense research and development entities as well as the industrial ministries that produce military materiel have been reorganized to improve efficiency. This change follows an attempt during the past few years to better coordinate and in some cases, integrate civil and military production with the aim of increasing flexibility, saving resources, and improving efficiency.

China produced over 35 ground forces related weapons during the past five years; these weapons range from tanks to rifles and, while lacking sophistication, are considered fairly effective. The Chinese produce three tank models, all of dated design, while development of an improved tank continues. Towed artillery pieces similar to Soviet models are produced in sufficient quantities but only a few self-propelled howitzers have been made. China still produces moderate quantities of towed AAA guns in lieu of the mobile surface-to-air missile (SAM) systems adopted by most countries. A recent trend in artillery production is the emphasis on multiple rocket launchers which are mounted on trucks or armored personnel carriers. A standard armored personnel carrier has been in production for over a decade. A complete range of infantry weapons of dated but proven design has been produced for decades and many have been exported.

Table 30

Chinese Army Materiel Production, 1977-1981

	1977	1978	1979	1980	1981
Tanks	600	700	1,000	600	600
Other Armored Vehicles	350	400	500	500	500
SP Field Artillery	20	20	50	0	100
Towed Field Artillery	500	400	300	300	500
Multiple Rocket Launchers	400	400	400	400	400
Towed AA Artillery	900	900	1,000	1,000	700
Infantry Weapons (Thousands)	275	275	375	300	200

Production of naval ships is considerably lower than a few years ago but sophistication is somewhat greater. Construction of both diesel-electric and nuclear powered attack submarines is continuing at rather low rates. An SSBN launched in the spring in 1981 is not expected to be fully operational for several years. Current production of surface ships includes combatants of up to destroyer size, medium-size amphibious ships, a new design patrol craft, and an old design minesweeper. Among the auxiliary ships added to the fleet recently were underway replenishment ships.

Table 31

Chinese Naval Ship Construction, 1977-1981

	1977	1978	1979	1980	1981
Submarines	6	3	6	3	5
Major Combatants	3	2	4	3	2
Minor Combatants	18	28	46	21	18
Auxiliaries	4	2	2	3	6

China's aircraft output during the 1977-81 time period comprised designs which, for the most part, incorporate 1950s technology and which are obsolete in comparison to Soviet and Free World aircraft manufactured in the same period. Aircraft types in series-production during the past five years have included two bombers, three fighters and one helicopter. While no new aircraft designs entered production during the past five years, the Chinese are known to have a new fighter in the advanced stages of development and it is possible that this aircraft will enter series production in the near future. At least one of the afore-mentioned programs--the H-5/Mi-4/HOUND--was terminated in the late 1970s and it is possible that several of the longer running programs may be nearing the end of their production runs. Fighters have been and continue to be the

principal product of the Chinese aircraft industry, with output of fighter-type aircraft accounting for approximately two-thirds of China's aircraft production effort since the mid-1950s. The F-6 fighter, basically a copy of the Soviet-designed MiG-19/FARMER, has been produced in larger numbers than any of China's other domestically-produced aircraft. However, it is believed the later generation aircraft, such as the F-7/FISHBED, will dominate the industry throughout the 1980's.

Table 32

Chinese Aircraft Production, 1977-1981

	1977	1978	1979	1980	1981
Aircraft Type					
Bombers	60	40	50	40	30
Fighters	175	225	275	250	125
Transports	10	5	0	0	5
Helicopters	50	50	10	0	0

Chinese missile production during the 1977-81 time period continued to focus on defensive missile systems, although a new submarine-launched ballistic missile (SLBM) is in development. All five tactical missiles currently in production are copies or modifications of older Soviet systems reflecting 1950s and 1960s technology. Chinese versions of older Soviet surface-to-air and naval cruise missiles have been produced since the mid-1960s and continue in production at annual rates of about 100 and 200, respectively. Two other systems, an air-to-air missile (AAM) and an antitank missile (ATGM) entered series production during the time period and now lead production with annual rates of 1,000 or more for both systems. Several current research and development programs are focused

on improvement to these existing systems or follow-on systems incorporating newer technology generally acquired from a wide variety of sources. In addition to these programs, the Chinese are probably developing other SAM systems to improve operational support for field units.

Ballistic missile production during the 1977-81 time period averaged between 35 and 45 annually. This moderate rate of production includes the new SLBM under development. Ballistic missile development in China is very slow but steady. Also under development is the Long March 3 space launch vehicle (SLV) which is partially based on an existing ICBM. This newest SLV will greatly increase China's satellite payload capacity and will be used to place geosynchronous communication satellites in orbit in the mid-1980s.

Table 33

Chinese Missile Production, 1977-81

	1977	1978	1979	1980	1981
ICBMs	15	15	15	15	15
IRBMs	20	20	20	20	20
SLBMs	-	-	-	-	5*
Cruise	200	225	225	225	225
SAMs	90	100	100	100	100
ATGMs	100	300	500	800	1,000
AAMs	-	400	1,000	1,200	1,200

*In testing.

China's large electronics industry, which has recently been somewhat reorganized, continues to make steady if unspectacular progress. China's access to foreign technology, especially Japanese, has been important to the progress made so far and will increase the ability to produce both improved military and civilian items.

During the past several years there has been a limited expansion of floorspace at known Chinese military production facilities; also some facilities have partially converted to nondefense production. This represents financial restrictions placed upon the military and military capital construction by the current economic reforms and also reflects the underutilization of existing facilities.

The Chinese have additional plants in the interior of the country devoted to military production. The decision to build these facilities was made in the mid-1960s in order to counter a perceived Soviet threat. It is believed that some of these facilities are to be used mainly in the event of war and at present do not greatly contribute to China's military production.

The acquisition of modern weapons by direct purchase or technology transfer has been attempted by the Chinese on a number of occasions. In some cases, these negotiations ended in failure because the Chinese made unrealistic contract demands; in others China was unable to pay, or changed its priorities.

Two possible exceptions are the contract with the UK regarding China's licensed-production of the Rolls-Royce-designed Spey turbofan engine and the agreement with France concerning China's licensed-manufacture of Aerospatiale's Dauphin 2 helicopter. Both of these agreements provide the Chinese with relatively up-to-date technologies that should aid in the advancement of their aircraft industry, particularly the engine production segment of the industry. It must be noted, however, that the Chinese will require a number of years before they can assimilate much of this technology into their aircraft production industry and that in some instances, this assimiliation process may be extremely difficult and costly, if not prohibitive.

Problems with advanced technology have plagued a number of China's key weapons programs in the last decade. One example of this is China's program for the development and production of an advanced fighter aircraft. Although this program began in the early 1970s, the Chinese have yet to initiate series-production of such an aircraft--due primarily to the fact that the Chinese have been unable to produce an adequate jet engine to power the aircraft. The propulsion unit was also the reason for the delay of the launchings of China's nuclear powered submarine. In addition, the Chinese began testing of their submarine-launched ballistic missile (SLBM) after ten years of development.

In spite of this reduced level of China's defense industry, the Chinese are capable of producing large quantities of selected military equipment--albeit older types of equipment--if required and if funding is available. Also, they now appear to be exploring the export market and are aggressively and successfully selling army materiel abroad. In addition to earning foreign exchange, this also aids in keeping defense plants active.

c. Military Aid

Since signing the first military assistance agreement with Indonesia in 1958, the PRC has delivered about $3.9 billion worth of military materiel to 52 Third World countries. Almost three-fourths of this went to countries on China's borders, North Vietnam - $1.6 billion, Pakistan - $.7 billion, and North Korea - $.5 billion. PRC aid peaked in 1972 with deliveries worldwide valued at $840 million, highlighted by record deliveries to Vietnam of over $700 million. Since then PRC deliveries have averaged $190 million per year, up slightly from the $185 million in the pre-1972 period. Middle East and African countries are receiving an increasing share of Beijing's assistance. In contrast, deliveries to Asian Communist countries have been reduced significantly in recent years, and were nonexistent in 1981.

Table 34

Chinese Military Deliveries
(Millions of US Dollars)

	Third World Total	Near East & Asia	Sub-Saharan Africa
1955-65	205	160	Negl
1966-71	1,120	1,005	50
1972	840	825	15
1973-81	1,710	1,445	240
Total	3,875	3,435	305

Although China does not have the capability to produce sophisticated equipment such as the Soviet Union offers to developing countries, it has supplied substantial numbers of major equipment items in the last five years.

Table 35

Major Chinese Items of Equipment Delivered, 1977-1981

Ground:	
Tanks	385
Field Artillery	1,300
Naval:	
Minor Surface Combatants	14
Missile Attack Boats	4
Air:	
Supersonic Combat Aircraft	315
Subsonic Combat Aircraft	10
Helicopters	5
Other Aircraft	180

In 1979, China began to use military sales as a significant source of foreign exchange, discontinuing its policy of grant aid being a major factor in its military assistance program. In 1981, military equipment agreements by China reached a record high with over 90 percent contracted with Middle East countries.

Because of these record sales, arms deliveries by China in 1981 were valued at more than twice its recent annual averages and were exceeded only by the record year of 1972. Deliveries will increase in the future as China continues its more agressive sales program and begins to reduce its current backlog of equipment on order.

d. Technology Acquisition

One cornerstone of the PRC's economic policy of the late 1970s has been the modernization of its military forces and defense industries. An important aspect of the comprehensive defense plan formulated by the Chinese is the acquisition of advanced Western technology.

The succession of favorable developments in US-China trade relations since formalization of ties in 1979 has aided Beijing in the acquisition of some desired military equipment and technology. The reduction of trade restrictions brought about by the US granting Most Favored Nation Status to the PRC in February 1980 was closely followed by the removal of export restrictions to China for certain defensive items on the Munitions Control List in March 1980. A further substantial loosening of export restrictions on military equipment was announced by the US in June 1981. With this pronouncement, the US generally removed all munitions list restrictions on defensive or support arms and equipment to China and agreed to consider a much broader range of requests on a case-by-case basis.

While the PRC has utilized these legitimate channels to secure some appropriate technology, the Chinese have recently expressed displeasure through increased criticism of US export controls and the resultant delays in technology acquisition. Further evidence of Beijing's frustration over its inability to obtain a more desirable rate of access to and use of advanced technology is

reflected in a reported significant upsurge in the past year in surreptitious efforts to obtain Western computers and microelectronics technology restricted by COCOM. While the Chinese government does not seem to have devised a formal policy concerning illegal efforts for the importation of foreign technology, it is likely that the PRC is utilizing commercial channels and science and technology exchanges to supplement gains from legitimate purchases. Ploys such as the establishment of bogus trade companies, the use of friendly countries as third parties, misrepresentation of end-use, and the use of Chinese delegates and exchange students to obtain desired items are employed to bolster legitimate trade methods of obtaining technology needed for the military modernization program.

It is clear that the acquisition of Western advanced technology is vital to the PRC's defense efforts. In order to absorb and build on acquired technology in the future Beijing will continue to utilize diversified channels. In this process the Chinese will achieve immediate benefits such as reduced research and development risks, time, and costs. Although China's long-term aim is to establish an indigenous ability to develop and manufacture advanced conventional and strategic weapons systems, this goal will be somewhat stymied by a lack of trained manpower, hard currency problems, and an inadequate supporting infrastructure. The PRC is, however, improving its technological capabilities to modernize its military by a combination of selective purchases and illegal acquisitions of Western technologies.

APPENDIX

USSR: INFLATIONARY PRESSURES

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SUMMARY

The Soviet economy is experiencing widespread increases in costs and prices. These increases stem from a number of factors: the deteriorating accessibility and quality of natural resources, failure to provide adequate labor incentives in the form of goods of high quality as wages rise, inefficiency in developing and disseminating new technology, and an incentive system that encourages high costs and prices of output without sufficient regard for the effectiveness of the products.

Soviet officials are aware of these factors and have mandated that a general industrial price revision take effect on 1 January 1982. The revision is meant to realign prices to account for the significant changes in costs that have occurred since the major reform in 1967 and allow virtually all sectors of the economy to operate on a profitable basis.

This report examines five sectors of the Soviet economy to gain an appreciation of inflationary pressures in some major, but quite diverse, areas. On the basis of the data examined, estimated inflationary pressures existed that indicate cost or price rises per unit of output at the following annual rates during the past decade:

Agriculture - 3 to 5 percent

Extractive industry - 2 to 4 percent

Transportation - 7 to 10 percent

Machinebuilding - 2 to 4 percent

Capital construction - 5 to 6 percent

These data indicate the efficiency of the Soviet economy has been steadily declining and the real value of economic output has been rising at much slower rates than official Soviet statistics have indicated.

Appendix

USSR: INFLATIONARY PRESSURES

1. INTRODUCTION

The Soviet Union is confronting a period of slow economic growth unprecedented in the postwar years. A large number of economic reforms, mostly minor, have been instituted in an attempt to deal with declining growth. A significant change is the major revision of industrial wholesale prices effective 1 January 1982.* The stated purpose of the revised prices is to take account of changes in costs that have occurred since the previous reform in 1967. Soviet economists acknowledge that having prices remain fixed over long periods as costs change leads to misallocation of resources, in part because it removes the incentive to operate more efficiently. The new price revision, in conjunction with other changes designed to increase the effectiveness of the production process, is meant to recreate that incentive and result in significantly greater output from reduced increments of capital and labor. The new prices are also meant to allow the Soviet leadership to make more rational choices concerning consumption versus investment, agriculture versus industry, and the civilian sector versus the military.

The evidence presented below indicates that the cost trends in most of the Soviet economy during the past decade have been steadily upward. In some cases prices have changed to keep pace with costs, but in many instances the prices

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*The 1982 price change is actually more extensive than a simple revision (peresmotr) and approaches the scale of a major reform (reforma) similar to that of 1967. The manner in which prices are to be calculated is to be altered to account for quality much more rigorously and to include the costs of some activities and products that were formerly covered by budget outlays, for example, exploration and water.

have not been overtly increased. This has led to squeezes on profits, and even deficits, that must be counterbalanced by resource transfers from the rest of the economy through the state budget. This squeeze is in direct contradiction of the Soviet goal of having virtually all economic entities earn adequate profits and operate independently of the budget.

The five sectors of the Soviet economy addressed in this report are agriculture, extractive industry, transportation, machinebuilding, and capital construction. There is great diversity among these sectors, but all have experienced significant real cost and, in some cases, overt price increases.

2. THE NATURE OF SOVIET INFLATIONARY PRESSURES

Inflationary pressures in the Soviet Union do not generally arise from excessive growth in the supply of money or an expansionary fiscal policy confronting fully employed resources. There are, however, a wide variety of causes for these pressures, some of which are cited below.

In agriculture, costs rise due to the increased use of marginally productive land, wages rising faster than labor productivity, inefficient use of expensive inputs such as fertilizers, the purchase of much more expensive but only slightly more productive machinery, and the failure to utilize that machinery at rated capacity after it is purchased.

In extractive industry, costs increase due to the deterioration of the quality of deposits such as iron ore or copper, the necessity to exploit remote deposits using much more expensive equipment, and the need to transport the recovered material greater distances.

Transportation costs rise due to the use of more expensive equipment, overloading of routes such as rail lines causing average speeds to drop, insufficient incentives to guarantee rapid turnaround of transport equipment, increased amortization costs, and wage increases outstripping productivity.

Inflationary pressure in the machinebuilding sector is by far the most complex of the trends covered in this report. The machinebuilding sector is unique in Soviet industry due to the rapid introduction of new products and elimination of older ones. The measurement of inflationary pressure in this sector revolves largely around whether new products are more or less expensive per unit of output (or productivity) than older products. Economic entities purchase equipment and machinery from the machinebuilding sector not because the items are desirable in themselves, but because the responsible officials believe that the flows of output from the items are worth at least enough to cover the costs of the machinery and earn a reasonable rate of return (either enterprise profits or bonuses for the personnel as a result of plan overfulfillment). Whether a machinery price is "inflated" ultimately depends on the quality and quantity of the output flow compared to former machines. In machinebuilding as a whole, it is fairly clear that the productivity of these new products is not keeping pace with their costs and prices. There are features of the Soviet incentive system that encourage excessively high initial estimates of new product efficiency in order to gain approval, through a very cumbersome process, of prices at levels that allow for use of very expensive inputs, poor utilization of resources, and retention of at least an adequate profit rate.[1] The padding of cost estimates is also fairly common.[2] These cases often involve no great increase in profit rate, however, because costs are actually rising as well. This is a very important aspect of the inefficiency of Soviet industry in developing new technology. These phenomena, most common in the machinebuilding sector, are complemented by excessive wage increases, failure to utilize equipment for sufficiently long hours, and the increased costs of amortization, materials, and transportation in causing inflationary pressures.

The capital construction sector is subject to inflationary pressures similar to those cited above. Estimated costs are frequently exceeded by large amounts due to delays in receipt of materials, rising input costs, excessive wage increases, the use of vastly overpriced domestic and foreign equipment, and an incentive system that encourages high costs for completed work. The capital construction sector is basically a consumer of the goods originating in the branches of the economy noted above, and as such suffers from all of the inflationary pressures existing in those sectors.

3. AGRICULTURE

The Soviet leaders take great pride in asserting that retail prices for food have not risen in recent decades.[3] There have been selected increases, such as on 1 July 1979, when restaurant prices were raised 25 to 45 percent and beer in public catering establishments increased in price by 45 percent, and on 15 September 1981 when wine and vodka prices were raised by 17 to 27 percent.[4] However, the overall level of retail food prices in state trade has been increasing at a very gradual pace. The official Soviet retail price index for food is shown below. This official index understates the rate of price change in state stores by a small amount due to the methods used in the calculation, including the exclusion of products sold at prices that vary from those on official lists.

Table 1

Official Soviet Index of State Retail Food Prices

	1975	1976	1977	1978	1979	1980
(1970 = 100)	100.9	100.9	100.9	102	102	103

Sources: Narodnoye Khozyaystvo 1979, p. 469 and 1980, p. 437.

This degree of price stability is in sharp contrast to the conditions existing in the unregulated collective farm market in Moscow, where food prices rose 6.3 percent per year during 1970-77.[5] Price rises have probably become more rapid following the poor harvests of 1979, 1980, and 1981.

State retail prices are held virtually constant in the face of upward pressure only through large subsidies from the state budget. The government has increased the prices at which it purchases agricultural goods from collective farms (kolkhozes) and state farms (sovkhozes) by 50 percent since 1965, including a 5-percent rise in 1980.[6] The budget absorbs the difference between these rising prices and the nearly stable retail prices. The amounts of subsidies on agricultural products in recent years are presented below. These subsidies have grown by nearly 7 percent per year during the 1970s and now account for roughly 10 percent of total government budget outlays.

Table 2

State Budget Subsidies on Agricultural Products
(billions of current rubles)

1969	1970	1975	1978	1979	1980
7.88	14.33	19	22	26	30(Est.)
8.5	14.8	20.1			

Sources: C. Krueger, ACES Bulletin, Fall 1974, p. 66, for 1969-70; N. Glushkov, Current Digest of the Soviet Press, Volume XXIX, No. 6, p. 9, for 1975 (approximate total); USSR Daily Report, 1 March 1978, p. R2, for 1978; V. Lavrov, Ekonomicheskaya Gazeta, March 1979, for 1979. V. Treml, Agricultural Subsidies in the Soviet Union, Foreign Economic Report, No. 15, Department of Commerce, 1978, provides figures of 8.5 billion rubles for 1969, 14.8 billion for 1970, and 20.1 billion for 1975.

Even these large sums are not sufficient to provide adequate resources to the agricultural sector while maintaining stable retail prices. There is an additional subsidy from the state budget to cover the difference between the

enterprise wholesale price of machinery and industrial materials and the price at which Selkhoztekhnika (State Committee for the Supply of Equipment to Agriculture) sells them to the kolkhozes and sovkhozes. In 1976 the subsidy amounted to 1.9 billion rubles, and in 1980 the total was set at over 4 billion rubles.[7]

While these subsidies allow agricultural prices to remain nominally low, the impact of the cost and price rises is still felt throughout the economy. The budget revenues from other sectors of the economy have to be raised by enough to cover the subsidy to agriculture.

> Naturally, there are no free things: they are paid for with profits of state enterprises, incomes from state commercial transport, communications, trade, and so forth. (G. Pisarevsky, APN Weekly Review, 13 July 1978, pp. 1-3.)

The effects of this financial sleight-of-hand are described below.

> Compensations for the growth in material outlays through increased procurement prices to some extent promote the normalization of conditions for expanded reproduction in agriculture, but cause corresponding changes in the level of material outlays in the processing sectors, increased rates for services rendered by sectors in the circulation sphere and the infrastructure, and in the final event give rise to a tendency towards hidden increases in retail prices. (V. Tikhonov and M. Lezina, Voprosy Ekonomiki, January 1979, pp. 89-90.)

Production costs have risen fairly steadily for most agricultural products as shown in table 3. The one partial exception is the production of eggs, where mechanization has been most successful. Weighted according to 1970 costs and quantities, the average annual cost increase during the 1970 to 1980 period was between 4 and 5 percent.

There are a number of factors causing rapid increases in the cost of agricultural production. An example of such trends is provided below.

> The branches of sphere I of the AIC {agro-industrial complex} frequently unjustifiably increase prices of the means of production which are supplied to agriculture. For example, the

Table 3

Cost of Production of Basic Agricultural Products
(rubles per ton of output or weight gain)

	Kolkhozes				Sovkhozes			
	1965	1970	1975	1980	1965	1970	1975	1980
Grain	50	50	69	76	66	53	94	84
Raw Cotton	325	404	433	478	291	362	439	508
Sugar Beets	21	22	29	31	27	29	40	42
Potatoes	46	62	80	120	61	76	93	139
Vegetables	85	94	111	120	72	84	98	107
Cattle	1,017	1,166	1,574	2,177	1,052	1,277	1,842	2,344
Hogs	1,152	1,194	1,487	2,018	1,067	1,111	1,489	1,726
Sheep	660	801	1,053	1,393	612	736	1,048	1,357
Milk	160	177	217	287	163	189	247	308
Chicken Eggs (per 1,000)	78	73	74	87	75	63.9	60	64
Wool	3,201	3,862	5,311	7,410	2,907	3,585	5,373	6,983

Sources: Narodnoye Khozyaystvo 1965, pp. 408, 428 (cited hereafter as NK followed by the year to which the book pertains); NK 70, pp. 387, 399; NK 75, pp. 417, 437; NK 80, pp. 259, 276.

> prices for the new types of K-700 and K-701 tractors per unit of engine capacity are 30 to 40 percent higher than the prices for the same tractors of previous models. The prices for new trucks per ton of load capacity are also 20 to 40 percent higher than for the trucks at the beginning of the 1960s. In 1971-75 the cost of a single livestock "place" which had been built on the country's sovkhozes was 4.7 times higher than in 1961-65....Prices for new means of production have to be established strictly with regard to the effect of their use. An increase in prices must not outstrip the increase in the productivity of the corresponding means of production. (N. P. Fedorenko, Ekonomika i Matematicheskiy Metody, May-June 1979, pp. 444-453.)

The relative growth rates of output and fixed assets in agriculture during the 1970-80 period point out the problem even more clearly: during these years, the value of output rose 10 percent, while the value of fixed assets increased 139 percent.[8]

An important input to meat production, cattle feed, rose 69 percent in cost between 1970 and 1979.[9]

Overall, material outlays on production (in current prices) per ruble of gross farm output (in comparable 1973 prices) rose an average of over 5 percent per year between 1966 and 1977. A contributing factor to the cost increases has been the rise in wages per unit of output. Wages per ruble of output rose from 31.7 kopeks to 35.2 kopeks on kolkhozes and from 28.5 kopeks to 34.1 kopeks on sovkhozes during the period cited above.[10] During 1970-79, production costs in agriculture rose by "20 to 30 and more percent."[11]

Financial manipulations such as subsidies cannot prevent such real cost increases from being passed on to other sectors of the economy.

4. EXTRACTIVE INDUSTRY

As economic development occurs, normally the cheapest and most accessible resources are utilized initially, with more expensive resources being brought on line as time goes on. This is true in the Soviet Union as well as in market economies.

> In our country the Soviet Union fuel and energy resources are distributed very unevenly--90 percent are east of the Urals in unpopulated regions with extremely harsh natural and climatic conditions. The remaining 10 percent are in the European part of the USSR where over three-fourths of the country's productive forces are concentrated....
>
> The era of cheap energy has come to an end. Fuel is being acquired only with increasingly great labor and capital expenditure. While in 1975 expenditure on ancillary construction per oil borehole was 141,000 rubles, in 1980 it is expected to be 185,000 ruble--30 percent more. Another reason for the rise in the cost of extracting fuel is the depletion of rich deposits....To compensate for the inevitable future decrease at Samotlor as a result of the exhaustion of stocks, it will be necessary to exploit dozens of new deposits....Capital expenditure will naturally have to be increased considerably.
>
> It is the same with gas....Capital investment in ancillary construction for fields at the Medvezhey, Urengoy, and Vyngapur deposits is 19.14 rubles per thousand cubic meters of gas extracted, while...in the Uzbek SSR {investment costs} were almost four times less. Gas transportation costs have tripled. While, for instance, 1 kilometer of the Central Asia-Center gas pipeline cost 300,000 rubles, 1 kilometer of the Urengoy-Chelyabinsk gas pipeline of the same diameter costs 867,000 rubles.
>
> In the coal industry....whereas during the Eighth Five-Year Plan capital investment in commissioning new capacities in the Donetsk coal basin was 34.2 rubles per ton of coal, it has now reached 50-55 rubles. (E. Vertel, Sotsialisticheskaya Industriya, 10 August 1979, p. 2.)
>
> In the 8 years probably 1967-75 , the production cost of natural gas has doubled, that of petroleum has risen 41 percent, and that of iron ore and manganese ore (on the basis of metal content) has risen 24 percent and 22 percent, respectively. (I. I. Konnik, Dengi I Kredit, November 1980, pp. 16-20, citing Planovoye Khozyaystvo, January 1978, p. 69.)

The coal industry is a particularly good example of this phenomenon. During 1968-73, operating costs per ton of coal output in the Ukraine increased by .8 percent per year followed by a further rise of 5.6 percent per year in 1974-77. This was accompanied by a reduction in the quality of the coal produced. While the physical amount mined increased by 133.8 million tons between 1965 and 1976, the "standard fuel equivalent" value rose by only 66.5 million tons.[12]

Cost trends for electricity and fuel production, as calculated by the Soviets using methods that understate cost increases, are shown in table 4. While these cost trends have only been partially incorporated into prices charged to industrial users and consumers, the deteriorating level of utilization of material resources has had an adverse impact on efficiency, lowering the output-capital ratio, or the amount produced per unit of value of buildings and equipment, throughout the economy.[13]

Table 4

Trend in Outlays (Cost) per Unit of Marketed Output
(1970 = 100)

	1970	1975	1977	1978	1979	1980
Electrical Energy	100	102.6	102.9	101.7	102.9	103.4
Fuels	100	101.0	103.5	105.4	108.0	110.1

Sources: NK 76, p. 195, NK 79, p. 162; NK 80, p. 152.

An indication of how domestic prices for extracted materials will change in the very near future to reflect these trends is provided by A. Komin, Deputy Chairman of the State Committee on Prices.[14] In referring to the upcoming wholesale price revisions in 1982, Komin noted that

> for the purpose of eliminating unprofitability in the coal and timber procurement sectors and in the production of thermal power, it will be necessary to raise wholesale prices for coal by 42 percent, commercial timber by 40 percent, and rates for heat and {power} by 70 percent.
>
> ...Higher prices for fuel will affect outlays in power , ferrous and nonferrous metallurgy, and the construction materials industry....Thus, rates for electric{power}ought to be increased by 12 percent, the level of wholesale prices in ferrous metallurgy by 20 percent, and in nonferrous metallurgy by 14 percent. In view of raising prices for commercial timber, prices should also be raised for the pulp-and-paper and the wood-processing industry.

> Higher wholesale prices for fuel, raw, and other materials will result in increased costs not only in industry but also in other sectors and spheres of the national economy: construction, agriculture, transport, and the nonproductive sphere.

A further indication of the expected future rise in fuel costs is provided below.

Table 5

Change in the Cost of Fuel in the Future
(European USSR Costs in 1979 = 100)

	in European USSR		in Siberia	
	Coal	Electric Power	Coal	Electric Power
Short-Term	100	100	12-15	55-65
Medium-Term	120-150	110-120	25-30	65-75
Long-Term	165-175	115-125	30-35	75-85

Source: R. T. Semina and L. I. Tatevosova, Izvestiya Akademii Nauk (AN) SSSR -- Seriya Geograficheskaya, September-October 1979, pp. 50-59.

Rising costs have caused large losses at coal mining enterprises, which have been covered by budget subsidies. As in the case of agriculture, such financial manipulations merely spread the impact of the cost increases indirectly rather than through overt price increases. The new prices for fuel in the coming years will directly reflect these inflationary factors. A similar change is to occur in the peat industry.

In 1978, retail prices for fuel were raised sharply, roughly doubling for gasoline. The latest price increases for fuel occurred on 15 September 1981, when gasoline prices were again doubled. These price rises have generally been in the form of turnover (sales) tax increases rather than rises in the prices paid to producers directly. These taxes are then funneled back to the producing sectors as subsidies and capital investment funds. The table below provides

comparative data on Soviet official wholesale prices with and without the turnover tax to illustrate the difference in trend as reflected in this downward-biased index.

Table 6

Official Soviet Wholesale Price Indexes For Energy
(1949 = 100)

	1950	1965	1967	1975	1978	1979
Without Turnover Tax:						
Electric Power	92	62	83	83	79	79
Fuel	95	76	132	131	131	131
With Turnover Tax:						
Electric Power	92	70	80	80	80	80
Fuel	92	74	104	113	127	127

Sources: NK 78, pp. 138-139; NK 79, pp. 164-165. The price indexes do not appear in NK 80. Data in Vestnik Statistiki, September 1981, p. 78, indicate no change for electric power without turnover tax and a 1-percentage point rise for fuel without turnover tax in 1980.

Similar trends have appeared in the timber industry. In 1979 domestic furniture prices were increased by 10 percent, and on 15 September 1981 the prices of certain kinds of furniture were increased by 25 to 30 percent.[15]

5. TRANSPORTATION

Costs have also increased in the Soviet transport system in recent years. Data on the cost trends in motor, rail, and water transport have become more scarce since the Soviets dropped the previously published table on transport costs from the 1976 and later editions of Narodnoye Khozyaystvo. Cost trends as calculated by the Soviets through 1975 are provided in table 7.

Table 7

Cost of Shipments by Type of Transport
(in current prices)

	1965	1970	1975	Total Percent Change 1970-75
Freight Transport (kopeks/ton-kilometer)				
Rail	2.402	2.341	2.478	5.9
Sea	1.38	1.46	1.98	35.6
River	2.38	2.45	2.59	5.7
Motor	61.11	57.13	50.51	-11.6
Passenger Transport (kopeks/passenger kilometer)				
Rail	5.979	5.455	6.063	11.1
Sea	35.65	47.18	64.03	35.7
River	13.06	15.51	17.53	13.0
Motor	9.81	9.85	10.04	1.9
Combined Transport (kopeks/10 adjusted ton-kilometers)				
Rail	2.737	2.640	2.793	5.8
Sea	1.48	1.55	2.11	36.1
River	2.76	2.84	3.00	5.6
Motor	26.09	22.50	21.15	-6.0

Source: NK 75, p. 457. These are official Soviet data.

Table 8

Profits and Profitability in Transport

	1965	1970	1975	1980
Profit (million rubles)				
Rail	4,414	5,763	6,892	5,535
Sea	247	1,052	1,892	2,544
River	196	389	544	617
Motor	990	2,008	2,741	2,190
Profitability (profits as a percent of fixed and working capital)				
Rail	13.3	14.0	10.6	7.1
Sea	6.3	16.8	19.4	17.4
River	8.5	12.8	12.0	10.0
Motor	24.6	32.5	26.2	13.0

Source: NK 80, p. 507.

Freight transport in the 1970-75 period rose in cost by 10 percent per year, using 1970 quantity weights for the types of transport covered in table 7. Passenger transport costs increased 7.3 percent per year during the same period.

These cost trends have not yet affected the rates charged for transport. According to A. Komin's statement in the previous section, the price revisions in 1982 will have to take into account the negative profitability trends which have also developed since 1970, as shown in table 8. Eventually, the cost increases will result in either large subsidies or overt price rises in the transport sector, particularly for rail transport.

6. MACHINEBUILDING

The machinebuilding and metalworking sector (MBMW) produced 28.7 percent of gross industrial output in the Soviet Union in 1980.[16] This included investment goods such as machinery and equipment, consumer durables, and military hardware. Official Soviet price indexes for MBMW show steady decreases in price in recent years, as shown below.

Table 9

Official Soviet Wholesale Price Indexes for MBMW
(1970 = 100)

	1971	1972	1973	1974	1975	1976	1977	1978	1979
Without Turnover Tax:	92	92	87	85	85	82	79	79	77
With Turnover Tax:	95	93	88	88	88	85	83	83	80

Sources: NK 75, pp. 231, 233, NK 77, pp. 142, 143; NK 78, pp. 138, 139; NK 79, pp. 164, 165. Indexed to 1970 based on data indexed to 1949. The indexes were eliminated from NK 80. Data in Vestnik Statistiki, September 1981, p. 78, indicate no change for MBMW without turnover tax in 1980.

This rosy picture is spoiled by the fact that Soviet price indexes give a false picture of price trends. The sample of products included in the index was fixed in 1961 and has not changed since that time.[17] By 1980, most of the 1961 products had ceased being produced. Those that are still in production do not, as a rule, rise in price, but prices either remain steady or fall as costs drop over time. This accounts for the drop in the official price index.

There is a great deal of evidence that, in contradiction to the official index, prices are rising rapidly in the MBMW sector. These rises occur when a new product enters the output mix of an industrial enterprise. While the price set for the new product is based on costs plus a profit margin, the new product should, in theory, have a price which also accounts for changes in quality. If a product is 20 percent "better" than the product it replaces, the price should rise 20 percent, on average, in the absence of inflation or deflation. The Soviets believe that at least such a positive result should occur in their industry. In addressing the problems to be solved during the now-completed Tenth Five-Year Plan, one Soviet wrote that

> to a significant degree their solution depends on improvement of the system of prices for machinebuilding output, which should provide a relative decrease in the cost of new equipment per unit of useful effect, and also contribute to achieving the maximum national economic benefit with a lower cost of machinery and equipment per unit of capacity (productivity). (A. A. Gogoberidze, Planovoye Khozyaystvo, No. 9, September 1977, p. 72.)

Another Soviet author spoke of the difficulties in measuring the real value of new products. This difficulty should be kept in mind when addressing the rate of price change in MB.

> In branches with a rapidly replaced list of products the task of correlating the absolute and relative change in expenditures and prices is put in the forefront. There is no doubt that, for example, every year the output of machine-building becomes more and more expensive. This leads to an

> absolute increase in the value of the volume of production and a rise in the cost of capital construction and reconstruction and modernization at the expense of prices of consumed equipment. Thereby, the amount of depreciation allowances and expenditures on the maintenance and operation of equipment rises, and the proportion of overhead in the production costs of products produced by means of new machines increases. At the same time, new equipment, as a rule, is more productive than old equipment, makes it possible to obtain more output in a unit of time, and ensures an increase in many other operating parameters. Becoming absolutely more expensive, it should be relatively (per unit of useful effect) cheaper than the replaced basic equipment. This is the goal of scientific and technical progress and its result. However, the problem of measuring the relative change in prices and expenditures is quite complex and, methodologically, has not been solved completely. (Yu. Borozdin, Planovoye Khozyaystvo, No. 11, November 1980, pp. 100-106.)

There are numerous indications that the desired results are not coming about in Soviet machinebuilding. New products are often being priced in excess of their increased productivity. This effectively makes the new equipment more expensive than the old, reduces the relative productivity of the capital stock, and raises production cost and prices for the resulting products.

> A high price level, especially for equipment, leads to an increase in the cost of newly introduced fixed capital and to deterioration of the...capital-output ratio. (A. Komin, Planovoye Khozyaystvo, No. 10, 1976, p. 8.)

> ...it should be borne in mind that in accomplishing the replacement of the inventory of machines and equipment we are a long way from accomplishing the task delineated in the decisions of the 25th CPSU Communist Party of the Soviet Union Congress--to implement a reduction in the level of prices for new equipment per unit of useful effect. (Yu. Yakovets, Voprosy Ekonomiki, June 1980, pp. 12-21.)

This occurs in large part because the buyer of the overpriced equipment or other product has a clear incentive to make purchases which, in a market economy, he would never even consider.

> The point is that whereas the level of prices is of interest to the enterprise-supplier (as it affects the fulfillment of the marketing, profits, and profitability plans), frequently the

> purchaser displays no such interest. The enterprise may remain indifferent as to the price it pays for raw materials, semifinished products, and so on....Therefore, the prices are based on existing production costs and do not take into consideration the consumer quality of the goods, which is the most important factor. (V. L. Perlamutrov and L. V. Braginsky, Ekonomika I Organizatsiya Promyshlennogo Proizvodstva, No. 1, 1975, pp. 61-70.)

> ...when wholesale prices are formulated for specific products, profit has been included in them proportionately to the full prime cost, including the material expenditures contained therein....If total profit in the wholesale price depends upon the full prime cost of production, then it is more advantageous to produce articles that are relatively materials intensive; both the price and the amount of profit will be more. (G. Kiperman, Ekonomicheskaya Nauka, No. 1, January 1981, pp. 76-87.

> ...the buyer frequently "closes his eyes" to the high cost of components, since this cost will be completely included in the prices of finished products. And everyone knows that a higher price and a higher percentage of components make it easier to fulfill the plan for sales volume and commercial production output. (A. Komin, Khozyaystvo I Pravo, No. 3, March 1977, pp. 22-23.)

The designer and producer have similar incentives.

> ...the amount of the incentive markup is closely connected with the absolute amount of the standard profit, the price, and in the end the expenditures on the production of the new equipment. More expensive new products ensure the receipt of greater incentive markups additional profit . As a result, scientific research institutes, design bureaus, and enterprises are interested, when developing new equipment, in using more expensive components, raw materials, and other materials. This ensures the approval of a higher wholesale price and correspondingly a higher incentive markup. (V. Shalimov, Voprosy Ekonomiki, August 1978, pp. 63-64.)

> ...in pursuit of larger profits, plant specialists will artificially overstate planned expenditures in their drafts of prices for new articles. (D. Nikitin, Sotsialisticheskaya Industriya, 24 November 1976, p. 2.)

In part, producers accomplish this overpricing by exaggerating the effectiveness of the new machinery and equipment.

> The work experience of machinebuilding enterprises on the production of nonstandard equipment attests that at present its prices and production costs are tending to increase. This has been caused by the unfounded overstatement in the plan of the indicators of the profit, the production volume, and the labor productivity. (G. Kondrashov, Planovoye Khozyaystvo, No. 4, April 1981, pp. 67-71.)

One of the minor Soviet economic reforms being implemented currently is a change in the evaluation method for industrial performance from the old "gross output" concept to the "net output" concept. Soviet officials hope that the incentive to purchase excessively expensive inputs will be eliminated by this alteration. Basically, only value added (wages and profits) will be used to judge plan fulfillment, theoretically providing no benefit from raising the cost of goods purchased.

An additional cause of the increase in machinery prices is the ability of managers to falsely claim improvements in products when none have actually taken place, thus obtaining a higher price than is warranted by the quality of the product.

> For one-third of the machinebuilding products for which the USSR State Committee on Prices receives materials for the approval of wholesale prices, actual modernization consists solely of reapproval of technical conditions without any improvement in their quality or efficiency. (N. Glushkov, Planovoye Khozyaystvo, June 1980, pp. 3-14.)

While there are rules to prevent Soviet managers from unjustifiably obtaining higher prices, the enforcement mechanism is not very effective.

> Of the 7,000 industrial enterprises checked out by price-forming organs in 1979, practically every second enterprise was found to have violations of wholesale prices; 56 million rubles of illegally acquired profits were recovered for the budget from them. (N. Glushkov, Planovoye Khozyaystvo, June 1980, p. 14.)

One of the manifestations of the increase in machinery prices is a rise in the output-capital ratio (fondootdacha) in machinebuilding compared to other

branches of industry. The output-capital ratio is calculated as output in a year divided by the average annual value of fixed productive capital. This rising trend is the logical consequence of machinebuilding receiving increasing revenues compared to the value of its capital stock, while the remainder of industry must add higher-priced machinery to its capital stock without an equivalent opportunity to raise output prices because the incidence of new products is not as great. Table 10 provides data on the output-capital ratio for selected Soviet industries.[18]

Table 10

Trends in Output-Capital Ratios in Soviet Industry
(1970 Ratio = 100)

	1970	1975	1977	1979	1980
All Industry	100	94.7	90.9	85.2	82.4
Electric Energy	100	99.3	98.7	95.5	94.7
Fuel Industry	100	93.0	87.3	77.8	72.6
Ferrous Metallurgy	100	89.5	84.0	77.8	73.1
Chemicals and Petrochemicals	100	104.4	103.8	92.4	89.0
MBMW	100	107.5	105.6	103.9	101.2
Forestry, Woodworking, Paper	100	89.0	82.4	73.1	69.9
Construction Materials	100	92.2	85.3	77.4	74.3
Light Industry	100	86.2	81.8	76.9	74.8
Food Industry	100	90.9	83.8	78.5	74.5
Flour Milling	100	73.6	68.6	61.4	57.3

Source: Calculated from data in NK 80, pp. 127,141. Comparable price output and fixed productive assets are used in the calculation, in accordance with Soviet practice.

According to one Soviet writer,

> The rise in prices of machinebuilding output does have an influence upon the indices of the branches consuming that output....The delivery of new equipment frequently serves as the main reason for the reduction in the return on capital and profits. On the other hand, in machinebuilding the basic economic indices (capital required, labor productivity, profitability) are extremely favorable due to the setting of unjustifiably high prices for new products. (V.P. Krasovskiy,

Planirovaniye: Analiz Narodnokhozyaystvennoy Struktury Kapitalnikh Vlozheniy, 1970. A similar statement is included in an article by Ya. B. Kvasha and the author cited above in Izvestiya AN--Seriya Ekonomicheskaya, No. 6, November-December, 1976, pp. 52-57.)

The data indicate that MBMW is unique in Soviet industry. This uniqueness is largely attributable to the ability of factory managers to increase prices on new products beyond what the productivity of the machinery and equipment would justify.

These excessively high prices do not necessarily result in greater profits. Increasing costs of inputs, higher amortization rates, rising wages, and the widely noted Soviet inefficiency in developing, producing, and disseminating new products all contribute to cost increases at a rate approximately equal to, or in some periods even exceeding, the rate of price increase on new products.[19] Trends in machinebuilding profit and profit rates are shown in table 11.

Table 11

Machinebuilding Profit Trends
(current prices)

	1965	1970	1975	1976	1977	1978	1980
Profits (billions of rubles)	7.03	13.89	16.66	16.29	17.87	20.14	24.53
Profitability (profits as percent of fixed and working capital)	16.7	22.8	16.6	14.9	14.8	15.2	15.8

Source: NK 80, pp. 505, 506.

The recent rise in profits may reflect a greater degree of success in obtaining high prices due to the use of the tactic described below when applying for a price on a new product.

> ...the obtained impact (of new products) often does not correspond to the planned impact....the developers in the ministries producing the product overstate the economic impact on the average by 30 to 50 percent, and for some types of products by twofold, due to which the enterprises of the ministries using these products suffer. (Kondrashov, op cit.)

Given that cost and price increases on new products are the proximate cause of inflationary pressures in MBMW, the relevant questions are: how large is the output of new products compared to total output; how much overpriced are these new products; and, does this overpricing outweigh the gradual reductions of list prices on older products?

a. New Products in Machinebuilding

While there are very detailed data on the share of new products in MBMW for certain time periods, precise breakouts by ministries over time are not generally available. There is also occasional ambiguity regarding whether the percentage shares of new products are given in terms of the total products list, the number of physical items actually produced, or the value of new products as a share of total value of output.

Data for the period up through 1970, given in what is believed to represent the percent of the total products list, are provided in table 12.

The share of total machinery prices which were "temporary," and therefore high, in 1964 was 32 percent.[20]

An additional factor influencing MB prices in this period is the high share of MB output outside of series production entirely. This is composed of unique and special order products which are not included in any price list. These products comprised nearly 50 percent of MB production in the early 1960s,

Table 12

Percent of Machinebuilding Products List (in 1970) Introduced in Various Time Periods

All finished items	100.0
Those introduced:	
Before 1960	15.8
In 1960-64	28.6 (Avg. 5.72)
In 1965-67	27.7 (Avg. 9.23)
In 1968-70	28.8 (Avg. 9.27)
Of which:	
In 1968	10.0
In 1969	9.9
In 1970	8.0

Source: Yu. Yakovets, Tseny v Planovom Khozyaystve, 1974, pp. 158-163.

and may comprise the same share of metallurgical equipment today.[21] Kvasha and Krasovskiy are not precisely clear on whether the 50-percent figure refers to value of output, share of the products list, or the physical units themselves, but the context suggests that the reference is to value of output. These products are effectively "new" because they are not homogeneous over time.

Data by MB ministry for the share of sales provided by products introduced into series production during a 6-year period (presumably 1967-72) are given in table 13. The figures illustrate the rapid rate at which old products were replaced or reduced in significance in the value of output.

Table 13

Share of Sales Provided by Products Introduced in the Previous 6 Years (1967-72) (in percent of total sales)

All Machinebuilding	64.12
Electrotechnical Industry	58.0
Machine Tool Industry	50.68
Automotive Industry	72.1
Tractor and Agricultural Machinebuilding	62.97
Construction, Road and Municipal Machinebuilding	65.98
Machinebuilding for Light and Food Industry	86.39

Source: I. G. Filatov, Tekhnicheskiy Progress, Minsk, 1973.

Similar data for the 1967-72 period are provided below.

> For example, when new prices for machinebuilding output took effect on 1 January 1973, it turned out that in comparison to the makeup of output included on the price lists that had taken effect on 1 July 1967, the products list had been updated by 45 percent, on the average, and by 60 percent to 80 percent in certain machinebuilding branches. (A. Koshuta and L. Rozenova, Voprosy Ekonomiki, No. 9, 1975, p. 65.)

The rate of product replacement may have accelerated in the Ministry of Construction, Road, and Municipal Machinebuilding during 1971-75. During this 5-year period, 84 percent of the product list in that ministry was updated, presumably obtaining temporary, high prices on the new output; in the electrical equipment industry the number of new products tripled between 1968 and 1978.[22]

The general trend in product replacement in MB has apparently not changed greatly during the 1970s, remaining at approximately 50 percent in each 5-to-6 year period.[23] This average of roughly 10 percent per year is the same as that experienced during the 1960s, and higher than that for 1970.

In the machine tool industry, 80 percent of the products have approved list prices, with the remainder being sold at inflated prices.[24] This may indicate an acceleration to the 20-percent level for new product introduction since the 1970 data for MB as a whole given in table 12, but alternatively, the machine tool share may always have been higher than the average in MB.

In sum, the share of MB value of output provided by new products in series production appears to have remained fairly stable during the past decade at an average of roughly 10 percent per year. The share of nonseries output has probably remained at nearly one-half.

b. Overpricing of New Products

Complaints of overpricing on new products in Soviet economics literature are very common. They usually address the fact that the amount of price increase on new equipment is much higher than its increased productivity. A few samples are provided below.

> In the chase after the "gross" value of output based on costs of production , managers sometimes buy machines that cost two or three times as much as the old ones, but the increase in productivity is only 10 to 20 percent. (D. Valovoi, Pravda, November 10, 1977, p. 2)

> At the same time it is well known that a significant portion of the machine models developed in recent years are characterized by a sharp price increase as compared with previous models, and the increase of the prices considerably exceeds the increase of their productivity. (D. M. Palterovich, Seriya Ekonomicheskaya, July-August 1979.)

> The capacities of new machinery are increasing constantly, which is all well and good. But in many instances the prices

> of new equipment per unit of capacity are higher than the prices for the machinery they replace. (P. D. Podshivalenko, Voprosy Ekonomiki, March 1979.)
>
> At the same time, the prices for new machines are two to three times higher than the prices for similar old machines. And it turns out that their use in production instead of old machines worsens the economic indicators of the consuming enterprise. (V. G. Yankin, Finansy SSSR, August 1979.)
>
> Special attention must be paid to preventing instances where new commodities have unsubstantiated prices set for them which do not correspond to the degree of improvement in their consumer properties. (N. Glushkov, Kommunist, No. 8, 22 May 1980.)

Examples of specific items, the productivity of which is improved by less than the price increase, are given in table 14. There is clearly a wide variation in these figures. It is also clear that these are, for the most part, cited as extreme examples of negative aspects of pricing in the Soviet Union. A baseline estimate of product overpricing was provided by Kvasha and Krasovskiy in the 1964 article cited earlier. During the early 1960s, the prices of new nonseries machinery and equipment were overstated by 30 to 40 percent, on average. If the general product types had a life cycle of 5 to 7 years, as is true for series production equipment, the overpricing on an annual basis would have been 4 to 8 percent. Additional data on inflationary pressures by machinebuilding sector are provided in section 8 below.

c. Price Reductions

The official MB price index includes no new products at all. The reductions in price shown by that index are thus applicable to a miniscule portion of actual MB production, far less than 20 percent of the prices currently in effect given the data in table 12, and an even smaller share of the value of output. This index can be discarded as a measure of price change in MB. By 1980 the share of MB sales accounted for by new products (since 1970) should be well over 70 percent, if the data in section "a" above hold true for the 1970s as a whole.

Table 14

Productivity and Price Change Data

Product	Productivity Increase (Percent)	Price Rise (Percent)
Construction Equipment (1965-75)	22	52
Machine Tool Equipment (average for recent years)	1	14-15
Heavy Duty Machine Tools		
- Model 2637	30-40	300
- Model 2650	30-40	300
1A36 Machine Tool	15	300
PPM-4M Rock Loader	7	110
EGK-8 Excavator	80	160
T-150 and T-150K Tractors	100	140-180
Kolkhoz Trucks (1965-76)	47	95
BelAZ 549 Dump Truck	87.5	Over 400
Computer-Operated Machine Tools	40-60	900
Plowing Machine	20	55
Sowing Machine	35	210
Turbine	267	530
Spinning Machine BD-200	160	480
Spinning Machine PD-132-SL	30	70
Weaving Tool ShKV-140	50	180

Sources: V. Selyunin, Sotsialisticheskaya Industriya, 31 July 1975, p. 2, cited in Oxford Bulletin of Economics and Statistics, February 1978, p. 68; A. Koshuta and L. Rozenova, Voprosy Ekonomiki, March 1977, pp. 23-24; T.V. Ilina, Finansy SSSR, August 1977, pp. 43-47; M.G. Nazarov, Productivity of Labor, Ekonomika, 1977, p. 37; V.P. Dyachenko, Problems of Planned Price Formation, Nauka, 1974; V.G. Lebedev, Effectiveness of Socialist Production, Mysl, 1979, p. 255; Planovoye Khozyaystvo, translated in Current Digest of the Soviet Press, Volume XXXI, No. 13, p.11; N. Glushkov, Kommunist, 22 May 1980, p. 46; L.S. Glyazer, Ekonomika I Organizatsiya Promyshlennogo Proizvodstva, November 1979, pp. 21-33; V. Alferyev, Materialno-Teknicheskoye Snabzheniye, No. 10, 1978, pp. 40-46; A. Komin, Planovoye Khozyaystvo, No. 10, 1976, pp. 7-15; A. M. Birman, Ekonomicheskiye Rychagi Povysheniya Effektivnosti Proizvodstva, Mysl', 1980, p. 68.

Periodic changes of some MB prices in certain sectors have occurred during the past decade. Descriptions of the 1973 partial revision are provided below. These revisions affected only list prices, and had no effect on the prices of "new" products or nonseries production items.

> ...as of 1 January 1973. The wholesale price level of machinebuilding and metalworking enterprises was reduced by 8 percent in comparison with the 1972 prices....(A. Komin, Planovoye Khozyaystvo, September 1977, p. 9.)

> As a result of the introduction of new price lists on 1 January 1973 ...for electronic computer equipment, prices were lowered by more than 28 percent; for machine tools with programed control, 25 percent; for attachments accessories , 18-20 percent; and for medium- and low-capacity electrical machines, almost 16 percent. (N. Orlov, Planovoye Khozyaystvo, September 1975, p. 48.)

It is highly probable that the cost and price rises in MBMW have significantly outweighed the minor reductions that have occurred during the past decade on some series production items. Those reductions in prices on older products, however, probably do account for some of the profit rate declines that occurred during some years, as shown in table 11 above.

7. CAPITAL CONSTRUCTION

The Soviet capital construction sector is a consumer of the goods produced in the sectors examined above, so it is reasonable that similar inflationary pressures should exist there as well. A great deal of attention has been paid to the phenomenon of rising construction costs in recent years. The examples provided below highlight the role of the incentive system in raising costs.

> The increase in the cost of construction and installation work now taking place even in calculations made in fixed prices and costing standards is largely the result of the effort to increase the materials intensiveness of these operations, since the more expensive the building materials and fabrications used, the larger the wage fund and the more profit are planned for construction and installation organizations. At the same time even the volume of project planning work is determined as a function of the scale of construction and installation work

> embodied in the design, which motivates even project planning organizations to make the projects they design more expensive. On the whole the procedure used in determining economic incentives and in evaluating the performance of builders and project planners does not on the whole orient them toward making projects cheaper, but toward making them more expensive. At the same time this is having an impact on the drop in the output-capital ratio in the economy. (V. Krasovskiy, Voprosy Ekonomiki, No. 1, January 1979, pp. 59-69.)

> One of the major shortcomings of construction is the considerable increase in its costs as compared with the original estimate--sometimes by a factor of 1.5-2, or even more. The increase in construction costs can be explained only partially by objective reasons--rises in prices of materials and equipment, increases in wages. More frequently the surpassing of the estimated cost of construction is the result of subjective factors that are completely amenable to elimination. When developing the estimate, both the designers and the customers have a self-interest in assuring that the estimate is drawn up as rigidly as possible: the designers with a view to receiving a bonus, and the customers with a view to seeing that the "cheaper" project is included more quickly in the plan. But after it has been included in the master construction list, it is almost always necessary to reconsider the estimate for purposes of increasing it. (T. Khachaturov, Voprosy Ekonomiki, July 1979, pp. 120-132.)

> ...the construction organizations have an interest in including more expensive materials in their estimates....The higher prices for precast concrete items make it easier to fulfill contracting plans and lead to higher wage funds and increased labor productivity indicators in value terms. Accordingly, it is quite understandable that the construction organizations do not favor plans calling for cheaper types of construction than precast concrete. (V. Tolpygin, Voprosy Ekonomiki, No. 8, August 1979, pp. 118-128.)

There have been some areas of construction in which costs have overtly increased sharply for the same product over roughly the past decade. Table 15 shows cost trends for various kinds of bricks as one example.

Table 15

Cost Trends for Bricks in Estonia
(Unit Cost in Rubles)

	1968	1972	1976	1979	Average Annual Rise (Percent)
Clay Brick (per 1,000)	39.26	41.04	46.40	52.51	(2.7)
Lime and Sand Brick (per 1,000)	18.45	21.83	24.29	28.36	(4.0)
Peat Brick (per ton)	9.18	9.68	13.35	19.03	(6.8)

Source: Yu. Vladychin, Kommunist Estonii, September 1980, pp. 36-40.

An additional cause of rising costs is the excessive length of time needed to complete construction projects.

> An unfavorable effect is exerted upon the estimated cost of the project by the long delay in the completion of the construction operations: the longer the construction time, the greater its cost. Moreover, the cost, as a rule, increases progressively. Actually, the cost of construction greatly depends upon the organization of the construction operations and upon the prompt delivery of everything needed for construction. (T. Khachaturov, Voprosy Ekonomiki, No. 7, July 1979, pp. 120-132.)

The use of construction and other equipment that is more expensive per unit of output, as shown in section 6 above, is also an important factor in raising costs of finished construction projects. These cost trends are particularly relevant when evaluating the effectiveness of capital investment in the Soviet economy. A major component of Soviet economic growth strategy has been to create massive amounts of new fixed capital for the labor force to utilize in raising output levels. Capital investment has consistently absorbed over one-fourth of Soviet economic output during the post-war years and has risen as shown in table 16.

Table 16

Soviet Capital Investment Data
(billions of rubles; Soviet comparable (mixed) prices)

	1965	1970	1975	1978	1979	1980
Total Capital Investment	56.0	80.6	112.9	129.7	130.6	133.5
Average Annual Increase (Percent)	-	7.5	7.1	4.6	.7	2.3

Sources: NK 79, p. 363; NK 80, p. 333.

These data indicate a sharp downturn in investment growth in the late 1970s in accordance with the stress on "efficiency and quality" in the Tenth Five-Year Plan (1976-80). These data, however, may not be what they seem. Due to the increasing costs per unit of productivity of machinery, equipment, and new construction in general, the values of investment may be overstated.

> First of all, there is question as to the representativeness and usefulness of the very index of the volume of capital investments, which is based on the principle of estimating not output, as in other physical production industries, but the amount of expenditures incurred in the form of construction and installation work. Increasing the volume of the latter under modern conditions cannot serve the purpose of intensifying social production. Such an "expenditure index" stimulates...construction organizations to use heavy and expensive materials instead of cheaper and lighter ones....But, what is most important, the cost expenditure index prevents the organization of competition to achieve finished output in the form of completed production capabilities. (Ya. B. Kvasha and V. P. Krasovskiy, Izvestiya AN--Seriya Ekonomicheskaya, No. 6, November-December, 1976, pp. 52-57.)

Recent research by V. Faltsman has directly identified the degree to which these trends toward higher costs are complemented by falling productivity per unit of fixed capital added to the existing stock each year. Faltsman examined 54 of the most important product groups (coal extraction, steel production, output of metalcutting lathes, and so forth) for the change in the physical

output capacity of new capital added during recent Five-Year Plans.[25] His examination indicated that 38 of the 54 sectors had less physical output capacity introduced annually during 1976-78 than the average in the previous 5 years, even though the value of investment rose. Faltsman's analysis further indicated that the cost of one square meter of production area increased at an annual rate of 5 to 6 percent during 1960-72. During the Tenth Five-Year Plan (1976-80), the productivity (capacity equivalent) of new fixed capital is stated to have dropped by 6 to 7 percent per year.

The net effect of these trends, in Faltsman's view, has been the absolute drop in the efficiency level of the total of the new capital added to the existing stock.

> As a result of the costs of production capacities outstripping the growth rate for investment in fixed capital, an absolute drop is taking place in the commissioning of production capacities. (Faltsman, op cit.)

If the data above are correct for capital construction as a whole, then the figures on the growth of the Soviet capital stock are misleadingly high. Table 17 provides data on the nominal commissioning (bringing into operation) of fixed capital during some recent years, compared to those same figures adjusted for 6-percent increases in the cost of that capital in terms of output capacity per ruble of capital added.

Table 17

Soviet Capital Stock Commissioned
(billions of rubles; comparable (mixed) prices)[26]

	1975	1976	1977	1978	1979	1980
Nominal Quantity of New Capital Stock Added	105.6	107.1	110.5	120.1	120.1	130.2
Values Deflated @ 6 percent from 1975	105.6	101.0	98.2	100.8	95.2	97.3

Source: NK 79, p. 357; NK 80, p. 327.

The data from Faltsman, if generalized to all capital investment for the entire Tenth Five-Year Plan, indicate that real additions to the capital stock, ignoring retirements of older assets and capital repair activities, fell by roughly 8 percent between 1975 and 1980. This phenomenon requires further analysis due to the partial nature of Faltsman's data, but it appears consistent with the overpricing of machinery and equipment per unit of output capacity and the tendency for construction costs to rise excessively.

8. APPROXIMATE RATES OF REAL COST INCREASE

The data presented above allow some tentative conclusions about inflationary pressure in the Soviet Union over the past decade to be made. It is recognized that there are severe problems with the data in some areas and a great deal of ambiguity in the precise meaning of the Soviet measurements of price change and productivity. These problems are not due to the failure of Soviet economists to understand price index methodology.[27] The reluctance of Soviet economists to provide well-documented, detailed data on price change for specific products over a broad range of sectors very likely stems from the belief that such studies would be looked upon with less than total approval by high Soviet officials.

In agriculture, the rate of cost increase is probably bounded on the low end by the roughly 3-percent rate implied by Khachaturov's "20 to 30 percent or more." An upper bound would very likely be the 5 percent cited by Gumerov and the calculated rate of 4 to 5 percent for specific products during 1970-80.

Extractive industry cost increases appear to vary sharply among subsectors. The anticipated price increases cited by Komin indicate a rough range of annual cost rises from 1 percent (electric power and nonferrous metallurgy) to 6 percent (heat and power) per year during the 1970s, while Konnik cited a 9-percent rate

for natural gas during 1967-75. The range for all extractive industry is probably 2 to 4 percent.

The rate of cost increase in the transportation sector cannot be explicitly measured after 1975, but the basic causes of the 7- to 10-percent rate prior to that year have not been eliminated. This range is a reasonable estimate for the entire decade.

Machinebuilding is a very difficult area for which to calculate an accurate rate of cost and price change. The detailed data on new product output, price differences compared to older products, price reduction on series production items, and the productivity of the new machinery are not sufficiently precise to allow a reliable point estimate of inflationary pressure to be made. A rough calculation of the probable rate of machinery price change, adjusted for productivity, is provided below:

(a) Approximately 40 percent of machinery output is unique or nonseries domestic production. This machinery is overpriced compared to its productivity by roughly 4 percent per year on average. This is based on the 1980 and 1981 articles by Faltsman where the new machinery and equipment used in the investment sector are stated to have been over-priced, and excessively costly, by roughly 6 percent annually during the 1970s, with part of the rise (perhaps one third) attributed to the use of foreign machinery. This is consistent with the 30-to 40-percent price rise cited by Kvasha and Krasovskiy for the early 1960s, when adjusted for a 5- to 7-year average life for the general types of products created. Real price increases average approximately 1.6 percent per year for machinery as a whole due to this phenomenon.

(b) Approximately 10 percent of machinery output consists of "new" series production, defined as products that are intended for eventual long

production runs but are different in some way, perhaps very minor, from previous models. This machinery is overpriced and excessively costly, compared to its productivity, by roughly 30 percent in each year on average. This is based on Kondrashov's 1981 article and the 1964 statement by Kvasha and Krasovskiy that new products are overpriced by approximately 30 to 40 percent. Real price increases average approximately 3 percent per year for machinery as a whole due to this factor.

(c) Approximately 50 percent of machinery output consists of products on official price lists currently in long series production runs. During the 1970s the prices of such products were partially revised downward on numerous occasions. The approximate average rate of price decline for these products during the 1970s as a whole has probably been between 1 and 3 percent per year. Real price declines average approximately .5 to 1.5 percent per year for machinery as a whole due to this phenomenon.

(d) The net result of these price movements is a calculated rate of real price increase for Soviet machinery on the order of 3 to 4 percent per year during the 1970s. This rate of real price change for machinery is not perfectly comparable to rates calculated for the first three sectors in this study. The other sectors' rates of change basically reflect the influence of input costs. In contrast, the rate of change for machinery directly reflects the peculiar nature of the machinery sector on the output side: a rapidly changing product mix; an incentive system that encourages high costs and prices for "new" products; and, the general inability of the Soviet economy to develop new technology in an efficient manner.

Costs and prices are closely linked within machinebuilding as a whole: both value of output and profits rose roughly 50 percent between 1975 and 1980.[28] After adjusting for the quality of the machinebuilding output, the rate of real price and cost change can be used as a rough indicator of inflationary pressure in the Soviet machinery sector.

The calculated rate of 3 to 4 percent real price change is basically consistent with the trends acknowledged by Soviet economists, as shown in table 18. These rates of cost and price increase range between 2.7 and 5.2 percent per year. There should be a downward adjustment to these figures to account for occasional price reductions on items not similar to these product lines, such as electronic and radio equipment. The result of both calculations is an approximate rate of productivity-adjusted price change in MBMW within the range of 2 to 4 percent per year during the 1970s.

Such a rate of price change is consistent with the results contained in a detailed study of machinebuilding list prices by the Office of Economic Research (OER), Central Intelligence Agency (USSR and the United States: Price Ratios for Machinery, 1967 Rubles - 1972 Dollars, ER 80-10410, September 1980). The study states that during the period 1955 to 1967, "the average annual rate of change in Soviet machinery prices...varied within the remarkably narrow limits of 1.9 percent and 2.1 percent," using US quantity weights for the various types of machinery (pp. 40-42 of Volume I). If Soviet quantity weights are used, the rate of Soviet machinery price change rises substantially. Merely using the Soviet quantity weights for motor vehicles (8 percent versus 34 percent for the United States, pp. 32-33 of Volume I), and leaving all of the other data combinations untouched, provides an annual rate of price change for Soviet machinery equal to roughly 3.5 percent. This change in the rate of increase occurs because in the

OER calculation the declining list prices for Soviet motor vehicles are very heavily weighted, as would be the case in the US, in contrast to the very low weight for motor vehicles in actual Soviet output. When Soviet quantity weights are used, the price declines for motor vehicles counteract the price rises on other machinery output to a much smaller extent, so the average price rise is higher than when US weights are used. As the OER study states,

> Soviet-weighted {price} ratios can also be used to gain insight into Soviet inflation. Indeed, Soviet-weighted ratios are the appropriate vehicle. They would provide a measure of ruble price change for a Soviet mix of goods, rather than for a US market basket as implied by US-weighted ratios. (Volume I, p. 39.)

The OER calculations are subject to substantial uncertainty due to problems with the comparability of items in the sample of goods examined, exclusion of some important types of machinery from the samples, differences in the coverage of the prices (some include transportation and installation costs while others do not), and the inability to include unique and nonseries production items. The chief point here is that trends in list prices during 1955 to 1967, a year of price reform, were very similar to those identified for the post-1970 period, and for very similar reasons. The problems with new products, such as machine tools, being overpriced relative to performance were detailed for the pre-1970 period by V. P. Krasovskiy in Planirovaniye i Analiz Narodnokhozyaystvennoy Struktury Kapitalnykh Vlozheniy (Moscow, 1970) and D. M. Palterovich in Park Proizvodstvennogo Oborudovaniya (Moscow, 1970). The rates of price change given in these two sources were approximately equal to the OER calculations.

Given the continued Soviet concern for increasing the efficiency of production throughout the period 1950 to 1980, the sharp cost and price increases for many machinery items during the period 1955 to 1967, and the existence of

Table 18

Broad Sectoral Rates of Cost and Price Change
(average annual percentage)

Ship Construction Costs (1971-75)	4-5
Metal Cutting Machine Tool Prices	
1968-72	5
Early 1970s	8.0
(adjusted for productivity)	5.2
Construction Equipment Costs (1965-74)	4.2
Construction Machinery Prices	10.7
1971-75 (adjusted for productivity)	2.7
Prices in Seven sectors of MB (1970-76)	3.3
Individual subsectors (1970-1975)	
Metalcutting machine tools	1.1
Trucks	2.1
Passenger Cars	1.5
Excavators	2.1
Bulldozers	-1.9
Tractors	4.9
Combines	11.9

Sources: V. Levitin, Vodnyy Transport, 29 May 1976; A. A. Koshuta, Kachestvo I Tseny, 1976; M. G. Nazarov, Proizvoditelnost Truda, 1977; V. Selyunin, Sotsialisticheskaya Industriya, 31 July 1975; T. Bakayeva, Vestnik Statistiki, March 1977; N. Mitrofanova, Voprosy Ekonomiki, August 1978 and Tseny v Mekhanizme Ekonomicheskogo Sotrudnichestvo Stran-Chlenov SEV, 1978, p. 74.

similar cost and price rises during the 1970s, it is reasonable that the rate of change for machinery prices adjusted for productivity would be similar during the two periods at roughly 2 to 4 percent per annum.

Capital construction is subject to similar rates of change for domestic equipment prices, but there is an additional factor directly involved: imported machinery. Faltsman attributes a significant share of the rise in the cost of construction to imported equipment being even more expensive than domestic machinery per unit of output, as utilized in the Soviet economy.[29] Faltsman's estimated range of 5 to 6 percent reduction in productivity per ruble of fixed capital increment during the Ninth Five-Year Plan (1971-75) is probably a fair estimate of inflationary pressure in this sector for the past decade.

9. CONCLUSION

Cost and price increases are clearly occurring throughout the Soviet economy. Rough estimates of the rate of cost and price increase during the 1970s for the five sectors examined above follow:

agriculture: 3 to 5 percent annually, reflecting cost increases;

extractive industry: 2 to 4 percent annually, reflecting cost increases;

transportation: 7 to 10 percent annually, reflecting cost increases;

machinebuilding: 2 to 4 percent annually, adjusted for productivity, reflecting both cost and price changes; and,

capital construction: 5 to 6 percent annually, adjusted for productivity, reflecting both cost and price changes.

These estimated rates of cost and price change are important in large part because they directly affect the measurement of real Soviet economic performance. Over a long period of time, the reported growth in output of each

of these sectors can be seriously misleading if accepted at face value. The precise application of the estimated rates of cost and price change to detailed Soviet economic data is, however, a complex and uncertain task.

Cost increases in agriculture, extractive industry, and transportation do not directly affect the prices of those goods and services purchased by other sectors except during years in which prices are revised and immediately thereafter. These costs are otherwise passed on indirectly through increased taxes on other sectors and are thereby dispersed throughout the economy. When analyzing the real growth of Soviet gross national product, subsidies on products such as coal, meat, milk, and peat are included in total output. These budget subsidies rise, in part, as a direct result of cost increases. In addition, when costs rise and prices remain fixed, the resources necessary to provide capital investment funds must come from other sectors of the economy. When higher taxes are the source of these funds, the costs in the consuming sector are raised as a result. Over time these cost increases are translated into price increases. The value of output of these producing sectors should be discounted from their nominal values by an annual percentage rate equal to the real cost increase being covered by the subsidies and other resource transfers, such as budgetary investment funds.

Inflationary pressures in machinebuilding and capital construction are different in nature from those in the sectors above. Rather than having a fairly homogeneous product rising in cost or price, the physical products themselves change over time. The only constant attribute of these two sectors' output is productivity, defined as the capacity to produce a measurable amount of output. The inflationary pressures in these two sectors manifest themselves by a rise in the cost and price of the physical output required to obtain a set amount of

productive capacity. To obtain real measures of growth in both machinebuilding and capital construction, the nominal values of output should be discounted by the rate of cost and price increase per unit of productivity.

The data presented in this study cover only a portion of total Soviet economic output and are not sufficiently detailed to calculate precise annual estimates of inflationary pressure. The estimates of cost and price increase for these five sectors alone indicate that the growth of Soviet gross national product should be adjusted downward by roughly 2 to 3 percent to obtain an approximate rate of real growth. Further research on these and additional sectors will be needed to gain a full understanding of the real rate of Soviet economic growth.

It is likely that inflationary pressures also apply to the Soviet military sector.

> Expenditures for the production of new military equipment and weapons have a more marked tendency to increase than do the expenditures for the production of new civilian products. This is due to the following factors; first, the use of critical, costly raw material, advanced expensive equipment, and a large amount of increasingly expensive electric energy and electronic equipment; second, the high relative share of expenditures for scientific research and experimental design work, which entails the hiring of a large number of skilled workers and the onetime production of the equipment necessary for these projects; third, the production of military products in small series in peacetime; and fourth, the necessity of putting out the needed type of product in a very short period. (P. V. Sokolov, Political Economy, Voyenizdat, 1974. Emphasis in original.)

It should be noted that the detailed official regulations on pricing do not apply to "defense output."[30] This may account, in part, for the "more marked tendency" of military procurement prices to increase. This issue will be treated in future studies.

The Soviet leadership is facing some very difficult choices. As capital and labor force growth continue to slow in the 1980s, efficiency must increase for economic growth to achieve acceptable levels. The 1982 price reform may be somewhat helpful in this regard when combined with some other measures currently being implemented. However, a real solution to Soviet economic problems will require greater reliance on the market mechanism to allocate resources efficiently. To date the Soviet leaders have shown little desire to undertake true economic reform, even in the face of constantly rising costs and slowing economic growth.

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FOOTNOTES

1. See V. G. Yankin, Finansy SSSR, No. 8, August 1979, N. Vasilov and L. Troparevskaya, Planovoye Khozyaystvo, No. 5, May 1979, Yu. Yakovets, Voprosy Ekonomiki, No. 10, 1978.

2. S. Davkin, Khozyaystvo I Pravo, No. 8, August 1978, p. 26; A. Deryabin, Pravda, 22 August 1980, pp. 2-3.

3. N. Glushkov, Current Digest of the Soviet Press, Volume XXIX, No. 6, p. 9.

4. Summary of World Broadcasts, SU/W1039/A/2, 6 July 1979; SU/6829/C/1, 16 September 1981.

5. B. S. Severin, "USSR: The All Union and Moscow Collective Farm Market Price Indexes," in ACES Bulletin, Volume XXI, No. 1, Spring 1979, p. 27.

6. A. Stolbov, Selskaya Zhizn, 23 June 1979, p. 2 and 12 February 1981, p. 2.

7. R. Gumerov, Planovoye Khozyaystvo, March 1979, p. 84-93; N. Glushkov, Planovoye Khozyaystvo, June 1980, pp. 3-14.

8. NK 80, pp. 205, 212.

9. Zhivotnovodstvo, No. 11, November 1980, p. 6.

10. Gumerov, op cit., p. 8.

11. T. Khachaturov, Voprosy ekonomiki, No. 7, July 1980.

12. P. Tkachenko, Ekonomika Sovetskoy Ukrainy, July 1979, pp. 79-80.

13. V. P. Loginov and M. N. Sidorov, Izvestiya Akademii Nauk (AN) SSSR--Seriya Ekonomicheskaya, May-June 1979, pp. 15-25.

14. Planovoye Khozyaystvo, May 1980, pp. 33-43.

15. N. T. Glushkov, Izvestiya, 1 July 1979, p. 2, and 15 September 1981, p. 3.

16. NK 80, p. 128.

17. M. Bornstein, "Soviet Price Statistics," in V. Treml and J. Hardt, Soviet Economic Statistics, 1972, p. 359. See also Yu. Borozdin and T. Egert, Voprosy Ekonomiki, October 1976, pp. 82-83, D. M. Palterovich, Park Proizvodstvennogo Oborudovaniya, 1970, pp. 186-189, and Yu. Yakovets, Voprosy Ekonomiki, No. 10, 1978, pp. 38-46, for concise statements that the MB price index does not include new products.

18. See V. K. Faltsman and V. N. Borisov, Ekonomika i Mathematicheskiye Metody, No. 2, March-April 1980; C. Budyanskiy, Izvestiya AN SSSR, No. 5, 1978; and B. Plyshevskiy, Voprosy Ekonomiki, No. 2, February 1981, for discussion of this calculation.

19. J. Berliner, The Innovation Decision in Soviet Industry, MIT, 1976, is perhaps the best available overall analysis of new product introduction in the USSR. A good example of sharp cost increases on new products, accompanied by large price rises, higher costs per unit of output, and net losses for the producer of the new equipment, is contained in Yu. Yakovets, Ekonomicheskaya Gazeta, February 1977, p. 10. These issues of cost and price increases in machinebuilding have been treated in many previous studies. Some of the more important of these are: A.S. Becker, "The Price Levels of Soviet Machinery in the 1960s", Soviet Studies, July 1974; J. Steiner, "Inflation in Soviet Industry and Machinebuilding", Central Intelligence Agency Working Paper, 1978; and An Analysis of the Behavior of Soviet Machinery Prices, 1960-1973, ER 79-10631, CIA, 1979. All of these analyses have concluded that significant cost and price increases have occured, at least during some periods, in Soviet machinebuilding.

20. A. Komin, Ekonomicheskaya Reforma I Optovyye Tseny v Promyshlennosti, Finansy, 1968.

21. Ya. Kvasha and V. Krasovskiy, Voprosy Ekonomiki, November 1964, pp. 8-16; V. Faltsman, Voprosy Ekonomiki, No. 8, August 1980.

22. Stroitelniye I Dorozhniye Mashiniy, November 1979, pp. 2-5; A. Akhmeduyev, Voprosy Ekonomiki, No. 3, March 1980, pp. 16-23.

23. Ekonomika I Matematicheskiy Metody, November-December, 1978; A. Koshuta and L. Rozenova, Voprosy Ekonomiki, March 1977, pp. 18-20; A. Kuznetsov and A. Koshuta, Voprosy Ekonomiki, No. 5, 1971, pp. 71-72.

24. A. Kostousov, Izvestiya, 14 March 1979, p. 3.

25. V. Faltsman, Voprosy Ekonomiki, No. 8, August 1980, pp. 121-132.

26. Soviet data on capital values are in mixed prices reflecting values as of 1969, with adjustments made in 1973 and 1976, and the actual current prices for capital created since that time. See B. Plyshevskiy, Voprosy Ekonomiki, No. 2, Februrary 1981, for further explanation of these data.

27. See S. G. Stolyarov, O Tsenakh i Tsenoobrazovanii v SSSR, Moscow, 1963, for a reasonably clear explanation of price index theory and practice.

28. NK 80, p. 128 and NK 80, p. 505.

29. Faltsman, op cit. See also V. Faltsman and A. Yu. Ozhegov, Izvestiya AN SSSR--Seriya Ekonomicheskaya, No. 2, March-April 1981, for some further discussion of this factor.

30. Ekonomicheskaya Gazeta, No. 51, December 1976, p. 16.

Senator PROXMIRE. Thank you, General.

CHINESE FORCES ON THE SOVIET BORDER

What portion of the Chinese military forces are deployed on the border with the Soviet Union, and has there been a buildup of these forces in the past several years?

General WILLIAMS. I can't give you the exact figure. I will supply it for the record. We see no significant buildup in those forces. There are roughly 2 million Chinese ground troops on the Soviet border.

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

The following two tables illustrate the number of Chinese ground troops and combat aircraft in the PRC military regions (MRs) constituting the Sino-Soviet border. Both sets of data are for the years 1977 through 1982 and provide respective totals within the MRs and the percent of the total forces for the entire country.

CHINESE GROUND FORCES ON THE SOVIET BORDER

Year	Number of ground troops	Percent of total Chinese ground troops
1977	Security deletion	Security deletion.
1978		
1979		
1980		
1981		
1982 [1]		

[1] Preliminary.

CHINESE COMBAT AIRCRAFT ON THE SOVIET BORDER

Year	Number of combat aircraft	Percent of total Chinese combat aircraft
1977	Security deletion	Security deletion.
1978		
1979		
1980		
1981		
1982 [1]		

[1] Preliminary.

ESTIMATES OF CHINESE DEFENSE SPENDING

Senator PROXMIRE. Will you supply a table for the record showing official annual Chinese statistics on defense for each of the years they have been published and your own estimates?

General WILLIAMS. Yes, we can do that, Mr. Vice Chairman.

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

ESTIMATES OF CHINESE DEFENSE SPENDING

[Billions of Yuan]

Year	Announced figures	DIA estimate
1977	14.9	Security deletion.
1978	16.8	
1979	22.3	
1980	19.3	
1981	16.8	
1982	17.9	

Senator PROXMIRE. Are any U.S. military equipment or equipment that can be converted to military use being sold to China?

General WILLIAMS. No.

Senator PROXMIRE. Are any NATO countries or Japan selling China military equipment or equipment that can be converted to military use?

Mr. MALLON. Sir, within the last month there were two [security deletion] that arrived in China.

Senator PROXMIRE. [Security deletion.] What country?

Mr. MALLON. [Security deletion] I believe, sir.

Senator PROXMIRE. Is that a forerunner of kind of a substantial sale?

Mr. MALLON. That, we don't know, sir. We are awaiting further developments. We do not anticipate further sales. The Chinese have shown us in the past, since 1979, that they have done a lot of selective looking, yet at the same time they have never made any significant purchases. The number of purchases they would need to substantially improve their capabilities would be massive.

Senator PROXMIRE. What would be their point in getting [security deletion] unless they just wanted to take them and make their own [security deletion] based on the [security deletion] models?

Mr. MALLON. We believe they want to look at them for possible use in their own research and development.

General WILLIAMS. They are masters, Mr. Vice Chairman, of looking at what we produce in the West and soliciting bids and getting drawings and then withdrawing at the last minute. In the meantime they have picked your brain as to all the technology that went into that product. I would think that they intend to do exactly the same thing with these [security deletion].

DIFFERENCES IN U.S. TRADE POLICIES TOWARD THE SOVIET UNION AND CHINA

Senator PROXMIRE. Now as both the Soviet Union and China are centrally planned Communist and despotic systems who have demonstrated their willingness to use military force against neighboring countries, how do you explain the differences in our trade policies toward these two nuclear powers?

General WILLIAMS. Sir, it is not my position to interpret U.S. trade policies. I try to report, and my agency tries to report, on what each country is about, but I do not have any charter to delve into policy.

Senator PROXMIRE. I presume it might be because the Soviet Union constitutes a serious threat to this country and China has a relatively pitiful air force, navy, and nuclear capability.

General WILLIAMS. Yes, sir, I would presume that.

SOVIET ECONOMIC AID TO THEIR EASTERN EUROPEAN ALLIES

Senator PROXMIRE. According to Soviet officials, Soviet economic aid to their Eastern European allies totals about $7.5 billion per year, not including any special aid given to Poland in the past year or so. That is far below some of our estimates which range as high as $20 billion yearly. What is your estimate of aid to East Europe and how much special assistance has Moscow given to Poland in the past 2 years?

General WILLIAMS. Sir, the way we break it down, our estimate was about $10 billion in 1980 for raw materials, primarily oil; the machinery and equipment subsidy we estimate to be about $6 billion.

Senator PROXMIRE. That's all Eastern European countries.

General WILLIAMS. I presume you are referring to the estimate that was provided by the [security deletion] where he said $7.5 billion. There are a couple of differences of opinion. One, we don't know what prices and exchange rates were used by the [security deletion] and there are differing judgments on these factors. Second, he may have taken into account the vital strategic, political, and economic factors that they assign to that. And third [security deletion].

So I would still rest rather comfortably with our estimate.

Senator PROXMIRE. Could you give us a breakdown of the $10-billion figure?

General WILLIAMS. I would be more than happy to supply that for you, sir.

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

SOVIET ECONOMIC SUPPORT TO EASTERN EUROPE

The economic cost of East Europe to the Soviet Union in 1980 was about $18 billion. This figure can be broken down into two parts; implicit subsidies totaling approximately $16.4 billion and trade surpluses equal to roughly $1.6 billion.

Implicit subsidies—the opportunity costs of doing business with the East Europeans—arise when the Soviets sell raw materials below world market prices and purchase East European machinery and equipment above world market prices. The cost to the Soviets of subsidizing oil, the primary natural resource sold, was about $10 billion in 1980. This subsidy is the result of the intra-Warsaw Pact pricing formula which in 1980 set the price of oil at $14 per barrel, over 50 percent less than the world market price of about $32 per barrel. An additional cost of $6.4 billion was incurred by the Soviets in 1980 through the sale of other raw materials at "bargain prices" and as a result of paying generous prices for East European machinery and equipment.

The second, and less significant aspect of subsidization of East Europe is the Soviet trade surplus—in effect credits extended to cover trade imbalances. Soviets, by allowing the East European countries to run deficits in their accounts, have incurred a cost of about $1.6 billion in this manner.

Senator PROXMIRE. All right, sir.

I have got some written questions from the vice chairman of the full committee, Senator Jepsen, for the record. I would appreciate it if you could answer those for us.

General WILLIAMS. Yes, sir. We would be happy to respond in writing.

Senator PROXMIRE. General, I want to thank you and your very able staff. I think the responses have been very helpful. We are anxious, of course, to get the responses for the record. As I said earlier, we are going to release your prepared statement which was unclassified. We would like to have your sanitized version as soon as you can, so that we can make printed copies available.

General WILLIAMS. We would be happy to respond, sir.

Senator PROXMIRE. Thank you very much.

General WILLIAMS. My pleasure to appear.

Senator PROXMIRE. The subcommittee stands adjourned.

[Whereupon, at 11:25 a.m., the subcommittee adjourned, subject to the call of the Chair.]

[The following written questions and answers were subsequently supplied for the record:]

RESPONSE OF LT. GEN. JAMES A. WILLIAMS TO WRITTEN QUESTIONS POSED BY SENATOR JEPSEN

PROSPECTS FOR CONSUMER UNREST

Question 1. Will there be growing unrest within the Soviet Union as a result of the failure to beef up the investment-oriented civilian sector?

Answer. The Soviet population enjoyed gradual, yet substantial, improvements in living standards in the 1960s and 1970s. However, over the past four years the food situation in particular and living standards in general have deteriorated. This is a consequence of the marked decline in economic growth. Three and probably four consecutive agricultural failures have much to do with the dismal food situation, even though record amounts of grain and food have been imported in an effort to ease the impact.

The Soviet leadership clearly recognizes that a deteriorating economic situation exists and is taking measures, such as Brezhnev's agro-industrial food program, that are expected to bring improvements. Even this minor step has generated serious internal debate [security deletion]. This debate largely explains why the leadership has taken such a cautious, conservative approach in its measures to reverse the economic decline. The reluctance of the leadership to make the fundamental resource or structural changes necessary to revitalize the economy means living standards may deteriorate further, thus increasing the potential for a limited number of sporadic incidences of consumer unrest occuring again this year.

PIPELINE SANCTIONS

Question 2. Has there been any determination as to the economic ramifications if the Soviets do not complete the Yamburg pipeline on time? How will this affect its hard-currency reserves?

Answer. D.I.A. estimates that U.S. sanctions against the Siberia-West Europe pipeline will only delay the project about six months. This will be accomplished primarily through increased use of alternate Western and domestic sources of the needed components. The economic ramifications of a delay of this length would be marginal.

Estimating the economic impact of any length delay is heavily dependent on the volume and value of gas ultimately exported. A world oil glut and lower demand by Western Europe has led to downward pressures on energy prices. [Security deletion] the volume of gas they may ultimately wish to purchase and what they are willing to pay. However, if gas prices do achieve parity with crude oil by 1985, earnings could reach at least $12 billion annually from 1985 through 1990. This would nearly equal the level of hard currency the Soviets now earn from oil exports. These oil earnings now account for half of hard currency export earnings.

If oil exports to hard currency customers show a decline by 1985, the Soviets would be counting on gas exports to at least compensate for this loss. Since hard currency is used to import food and badly needed industrial equipment and technology, reduced earnings could force the deteriorating Soviet economy into a steeper decline accompained by an even sharper drop in food supplies and living standards.

AGRICULTURAL TRADE

Question 3. What are the prospects for increasing agricultural trade with both the Soviet Union and China?

Answer. The prospects of the United States selling the Soviet Union more grain in 1982–83 than the 16 million tons sold in the past year is doubtful. The Soviets have major purchase agreements with Argentina, Canada, and Australia and will likely only need the same U.S. volume as last year. Soviet hard currency shortages and port capacity are restraints against the United States selling more than 16 million tons. Only under a change in U.S. policy regarding a new Long-Term Grain agreement which would include favorable financing terms would a major expansion in U.S. grain sales be likely.

In regard to China, the following table lists the value of U.S. agricultural exports and imports for 1981. Prospects for 1982 U.S. sales to the PRC are not very optimistic with shipments of cotton and soybeans expected to decrease significantly. Although corn sales may increase slightly, the outlook for increased wheat sales is doubtful. U.S. purchases in 1981 were dramatically different from previous years with a substantial import of peanuts accounting for almost half of the total. It is not expected that large scale peanut purchases will be repeated in 1982, while the import of other items will probably be about the same.

U.S. agricultural imports and exports from the PRC—1981

(Millions of dollars)

Commodity	*Value*
U.S. imports:	
Peanuts	$153
Feathers and Down	24
Mushroom	23
Tea	11
Vegetable oils	10
Vegetables (prepared)	9
Fruits	7
Hog bristles	7
Silk	7
Other	48
Total	299
U.S. exports:	
Wheat	$1,298
Cotton	464
Soybeans	130
Corn	63
Soybean oil	17
Other	14
Total	1,986

HARD CURRENCY CONSTRAINTS AND THE MILITARY EFFORT

Question 4. Is there any hard evidence that the military efforts is being shorted as the result of directing an increasing share of hard currency earnings to compensate for the failures of agriculture in the Soviet Union?

Answer. There is no hard evidence that the Soviet military effort is being reduced as a result of hard currency shortages. It is correct that as food imports have soared imports of Western machinery industrial products and technology. some having possible military application, have declined. However, the lead-time involved is such that years of reduced industrial imports would have to be experienced before this in itself would cause the military to suffer significantly.

ALLOCATION OF RESOURCES IN THE SOVIET UNION AND CHINA—1982

WEDNESDAY, DECEMBER 1, 1982

CONGRESS OF THE UNITED STATES,
SUBCOMMITTEE ON INTERNATIONAL TRADE, FINANCE, AND SECURITY ECONOMICS OF THE JOINT ECONOMIC COMMITTEE,
Washington, D.C.

The subcommittee met, pursuant to notice, at 10 a.m., in room 5110, Dirksen Senate Office Building, Hon. William Proxmire (vice chairman of the subcommittee) presiding.

Present: Senators Proxmire, Symms, and Mattingly.

Also present: Richard F. Kaufman, assistant director-general counsel.

OPENING STATEMENT OF SENATOR PROXMIRE, VICE CHAIRMAN

Senator PROXMIRE. The subcommittee will come to order.

I am happy to welcome the Honorable Henry Rowen, Chairman of the National Intelligence Council, to present this year's CIA assessment of recent economic developments in the Soviet Union.

I have asked that this year's presentation deal with the capabilities and vulnerabilities of the Soviet economy or its strengths and weaknesses.

There is much confusion about the state of the Soviet economy, partly because of the heavy emphasis in much of the literature about the Soviet Union on shortcomings and failures in their system. But all the knowledgeable persons who have followed the subject know that there have also been accomplishments and successes.

It is a case of a glass which can be correctly described as half full or half empty. But the problem is that, by looking only at the shortcomings, we may deceive ourselves into underestimating the economic strength of our principal potential adversary. We may also be drawing incorrect conclusions about the Soviet economic system.

In addition, this is an especially important time to try to take a fresh look at the Soviet Union because of the transfer of power from the late Lenoid Brezhnev to Yuri Andropov.

Finally, I have read your excellent prepared statement, and I appreciate it very much. I would like to ask that you provide me with an unclassified version of it as soon as possible so it could be made available to the rest of the Congress and the public. I also hope the transcript of today's hearing can be quickly sanitized so that it can be printed and released.

Mr. Rowen, after you have introduced the witnesses who have accompanied you, you may proceed with your oral statement, and then we will have a dialog.

I would appreciate it very much if you could summarize your prepared statement as much as possible. I did have a chance to read it. and you were very good to make it available well in advance. And I am grateful for that.

We would like as much as possible to maximize the time we have for questioning.

STATEMENT OF HON. HENRY ROWEN, CHAIRMAN, NATIONAL INTELLIGENCE COUNCIL, ACCOMPANIED BY JIM NOREN, MARTIN KOHN, MICHAEL MARTIN, AND ROBERT LEGGETT, OFFICE OF SOVIET ANALYSIS, CENTRAL INTELLIGENCE AGENCY

Mr. ROWEN. Yes. Thank you, Mr. Vice Chairman.

Let me introduce the people on this side of the table.

Jim Noren to my left, Chief of the Soviet Economy Division of the Office of Soviet Analysis of the CIA; Martin Kohn to his left; Michael Martin here; and Robert Leggett here [indicating]. They are all experts on the Soviet economy.

We will provide an unclassified version as quickly as possible.

Let me just hit a few high points from my prepared statement.

We agree that there is a good deal of confusion about the Soviet economy which has more to do with interpretation of the Soviet performance than it does with the assessment of that performance itself. Western observers have tended to describe Soviet economic performance as "poor" or "deteriorating" at a time when defense spending continues to grow and the GNP in real terms continues to increase to the point that it is second in size only to that of the United States.

So these conflicting interpretations are really not wrong; it is just that there is certainly a gap between Soviet performance and plans, stated goals, and what they actually do and a clear decline in the Soviet performance relative to the stated goals.

This does not mean that the Soviet Union economy is about to collapse, however, or that it has really lost its viability. In fact, collapse is a very remote possibility indeed. Our projections suggest that growth in GNP will continue, although at a slow and diminishing pace.

Growth is being retarded by a number of factors, some of which are beyond Soviet control and reflect weaknesses of the Soviet system. Others are within their control and represent policy choices. For example, the allocation of resources to defense. That could change. It is unlikely, however, to change substantially in the near term.

The upshot is that we expect annual growth to average 1 to 2 percent for the foreseeable future. Per capita consumption could level off or even fall slightly.

Now, let me turn to the Soviet objectives and priorities.

The first one is building military power. They have had that predominant goal for a very long time.

The U.S.S.R. has also put a high priority on rapid economic growth for about 30 years. And, indeed, the good life of the Soviet populace in the form of a rising standard of living has been important for almost 30 years. Soviet consumers, however, have generally been the residual claimants, with improvement in their material well-being subordinated to the demands of the military and to the high rate of capital investment necessary to insure rapid growth of GNP.

It appears that Soviet consumer interests are now being treated somewhat less cavalierly, a little more seriously, than before. One important piece of evidence for this is the fact that the Eleventh Five-Year Plan called for slower growth in investment than in consumption.

In pursuit of these national objectives, successive regimes have given heavy industry priority status because it is the source of military and investment goods. Despite some experimentation with decentralization of economic administration, the Soviet leadership has remained firmly committed to strict central planning and management of most economic activity.

The economic performance in terms of objectives has been mixed. It has clearly built a very powerful military force. Under Khrushchev, the emphasis was on stategic nuclear programs. Under Brezhnev, it was on across-the-board expansion.

In addition to developing its military power, it has been able to maintain a rapid rate of economic growth, an average annual rate of 4.6 percent from 1950 through 1981, a very respectable growth rate, as the CIA estimates it. The GNP of the United States during the same period increased by 3.4 percent per year. But the Soviet rate has slowed markedly in the last 4 years.

If you turn to the first figure of my prepared statement you have before you, you can see how this growth rate has progressively declined from the very high levels in the 1960's, in both GNP and industry, to progressively lower levels of growth, down to 1 to 2 percent in the last several years. This year, we expect GNP growth to be about 1.5 percent.

I might note that this slowdown is not unique to the Soviet economy; it has a parallel in the OECD countries. In fact, the slowdown of the West very closely parallels the slowdown in the East, a point that is noted. In 1980–81, GNP growth in OECD averaged 1.2 percent.

The slowdown in the Soviet Union reflects in part 4 consecutive poor or mediocre harvests, but the problems are not limited to the agricultural sector. Industry is also having problems. Serious bottlenecks have emerged that have nothing to do with agriculture. Growth in industrial output, which averaged 6 percent a year in the first half of the seventies, fell abruptly in 1976, and from 1976 to 1981 averaged just slightly over 3 percent. The decline in growth has been steady. Industrial production grew only 2 percent in 1981, and it is expected to rise by slightly less than 2 percent this year.

The high priority accorded to military strength is suggested by the continuing rise in defense spending which has prevailed for a long time, since the mid-1960's.

As observed earlier, the leadership concern about consumer welfare seems to have somewhat diluted the commitment to future growth. We know this because the share of the GNP allocated to fixed capital in-

vestment has more or less stabilized in the last few years at about 26 percent compared to 20 percent in 1960.

The slowing investment growth is associated with bottlenecks in sectors providing building materials and machinery. But it also stems from a political decision to protect Soviet consumers in a time of tightening economic constraints. Nonetheless, consumption—as shown in figure 2 of my prepared statement [1]—still accounts for only 55 percent of the Soviet GNP—far less than the share in most non-Communist industrialized countries.

Let me make some comments about the Eleventh (1981–85) Five-Year Plan so far. The results of the first 2 years of this plan have been most disappointing to Soviet leaders. It is clear most of the important goals cannot be met. The plan was excessively ambitious from the start, and performance has been far below plan. The small increase in agricultural output this year will do little more than offset the decline of 1981. The slump in steel is particularly damaging to machinery production. The shortfall, together with the shortfalls in the output of building materials, threatens to curtail growth in construction.

From the beginning, the Eleventh Five-Year Plan depended on large productivity increases. The underfulfillment of these productivity goals has been very striking. This rise in industrial labor productivity averaged only 1.4 percent in the years 1981–82, far below the 4.5-percent increase called for by the plan.

If you turn to figure 3 of my prepared statement, you will see what has happened to the incremental capital output ratios—that is, the amount of additional capital that has to be put in to obtain an additional unit of output. It has been rising very sharply since the early 1970's, and there is little prospect that this rise will soon end. So we have then not an explanation, really, but an observation that more capital is not producing that much more goods. Productivity growth is not occurring at anything like the rate looked for in the plan.

There have been a few bright spots in the Soviet economic performance, however. Natural gas production is most impressive and continues to rise at a rapid rate—7 percent in 1981, and nearly 8 percent this year. Overall energy production as a whole is a plus; 1982 oil production continues to inch ahead—about 0.7 percent this year. Coal output has reversed its decline and apparently will rise by about 2 percent. Even so, it will barely exceed the 1980 level.

The Soviet Union has also improved its hard currency balance of trade this year. If you turn to figure 4 of my prepared statement, you will see the experience during the 1970's when hard currency imports were rising more sharply than exports. The sharp dropoff in the growth of exports in 1981 produced a significant imbalance in hard-currency trade, a deficit which last year was about $4 billion, causing some anxiety in Western financial circles. Judging by the trade results in the first half of this year, this deficit has been reduced by about half, to perhaps $2 billion.

The Central authorities simply decided they would export more oil and hold down imports. The Soviets have paid a price for this, however. They had to reduce their deliveries of oil to Eastern Europe and domestic consumption. They also accepted a reduction in the value of

[1] Fig. 2 is a security deletion.

hard-currency imports, scaling back purchases of Western equipment and consumer goods needed to help modernize Soviet industry.

Let me say a few words about the basic strength of the economy. It is a big economy as figure 5 of my prepared statement shows, with about half or 55 percent of the U.S. GNP this year, $1.6 trillion. Per capita GNP is almost $6,000. It also has a large population and a large labor force, well trained and well educated. Literacy is almost universal, and the very heavy emphasis on mathematics, engineering, and science is important for a technologically oriented society. One-third of the total instruction time in secondary schools is devoted to mathematics and science.

There has also been an enormous growth in capital assets since World War II. The stock of capital increased almost elevenfold between 1950 and 1980 and over fourfold from 1960 to 1980. The amount of capital per worker has increased almost threefold. This capital is largely invested in industry, agriculture, transportation, communications, and construction. Only about a third of the total gross fixed capital consists of housing or is used to provide services such as health care and education.

The Soviet Union is also very well endowed with natural resources. Table 1 of my prepared statement, which I believe is before you, shows for various minerals, fuels, and nonfuel minerals, the size of Soviet reserves and their share of world reserves, and the years until exhaustion at 1980 levels of production. In 1980, Soviet reserves of natural gas represented 40 percent of the world's proven reserves. Coal reserves are very large.

Senator MATTINGLY. May I ask you a question?

Mr. ROWEN. Yes.

Senator MATTINGLY. I was talking about gas. You said that years to exhaustion was large. Is that 65 years?

Mr. ROWEN. Yes.

Senator MATTINGLY. Does that take into consideration the new pipeline they are building or not?

Mr. ROWEN. Yes. Well, that is 1980 production which doesn't include the pipeline. But that is really not such a large part of total production in any case.

Senator MATTINGLY. Sixty-five years is not very long.

Mr. ROWEN. Well, by Western standards, that is very long indeed, in terms of proven reserves, not estimated reserves. Typically, Western firms would have 10 or 15 years of proven reserves.

Senator MATTINGLY. Do you have any figures about what it would be with utilization of the new pipeline they are building?

Mr. NOREN. No. It might be reduced taking into account the probable growth of gas production after 1980, probably to 40 to 45 years, something like that.

Senator MATTINGLY. Thank you.

Mr. ROWEN. It is still very long by Western standards.

Senator PROXMIRE. You might point out that in the 15-year figure, we have kind of a moving average.

Mr. ROWEN. Oh, yes.

Senator PROXMIRE. If I can remember 50 years ago, they used to talk about how we had 15 years in this country. And I presume you might have the same kind of situation there; is that right?

Mr. ROWEN. Perhaps one of my colleagues could speak to their estimated and proven reserves. I was referring to the Western standard, but that is sort of a shelf inventory. It costs money to find it. So it is kept down to about a 10- to 15-year period.

I assume that this figure will grow, too, although it is a broader definition of reserves.

Mr. NOREN. Yes. It includes the gas reserves in West Siberia that have already been tapped. Up on the Yamal Peninsula, there is still a great deal of gas that remains to be proven and perhaps also in Siberia.

Mr. ROWEN. Given this wealth of human capital and material sources, the Soviet Union is highly self-sufficient.

The next chart of my prepared statement, figure 6, compares the degree of import dependence on the United States and the Soviet Union for a variety of minerals. And the pattern is clear. We have a high degree of import dependence relative to the Soviet Union, which has a sizable import share only for bauxite and tin. They are net exporters of energy; namely, oil and natural gas, a total of about 4 million barrels a day equivalent or about 15 percent of total energy production. They are major exporters of many metals, precious metals, as well as metal products, chemicals, and timber.

The U.S.S.R. is really highly self-sufficient, but not entirely. It is clear that imports from the West have become critical to efforts to improve or simply maintain the quality of the Soviet diet. In 1981, imports of grain and other agricultural products reached almost $12 billion, about 40 percent of the U.S.S.R.'s total hard currency purchases. The imports of grain have to do largely with providing the Soviet population with meat, with the composition of food consumed rather than calories. If you look at figure 7 of my prepared statement, you can see the composition of diets in the United States and the Soviet Union. The pattern is very similar for all categories except for meat and grain products. The Soviets consume much more grain products and potatoes and much less meat than we do. Imports are also important in relieving critical shortages in industry, spurring technological progress and generally improving Soviet economic performance.

The U.S.S.R.'s highly centralized, rigid system has many disadvantages, but one of its few advantages is that it enables them to mobilize resources and crash programs to achieve priority objectives. This, of course, is most obvious in its success in building up Soviet military might. But it has been able to do some other things aside from the military to achieve important economic goals. The most notable is in the development of natural gas, which is a big success story. They have a lot of gas, and they have succeeded in developing it, moving it, using it. It will play a pivotal role in meeting the energy needs of the economy in the 1980's, particularly as a substitute for crude oil in industry, but also as a hard currency earner.

The nuclear power industry, although it has not met the full expectations of the leadership, has done quite well. We expect that output of nuclear-generated electricity will increase by about 17 percent a year during the first half of the 1980's and supply about 11 percent of Soviet electricity by the end of that period.

And for some other natural resources, the U.S.S.R. is also doing pretty well. It is second only to South Africa in the production of gold.

Production in 1981 was about 325 tons. And the stock of gold is about 1,900 tons, worth over $25 billion at current prices. And they produce other metals, whose production is likely to increase.

Now to the weaknesses. These are, I think, generally familiar to you. Soviet performance has been hurt in recent years by declining increments to the labor force and by the difficulty of extracting and transporting energy and other raw material inputs.

First, let me take up the labor situation. If you turn to figure 8 of my prepared statement, you will see what is happening to increments to working-age population. It is falling very rapidly during this period and will fall further in the latter part of the 1980's.

RISING MORTALITY RATE AMONG SOVIET MALES IN THE 25- TO 44-AGE RANGE

Senator PROXMIRE. Let me interrupt you for a minute. I notice that you cite a rising mortality rate among males in the 25- to 44-age range. That is startling. What is the cause for that? That is in the prime of a worker's life.

Mr. ROWEN. The cause is speculative.

Senator PROXMIRE. Please explain——

Mr. ROWEN. We can only speculate about the causes. Growing alcoholism is a contributor, industrial accidents another. Perhaps there are other explanations.

Mr. NOREN. One possible cause that has been advanced is the effects, the delayed effects, of pollution as a result of the development of some of these industries 15 to 20 years ago.

Senator PROXMIRE. Has this risen to a point where the mortality rate is much higher than it is in this country, say, for males of that age or than it was in Russia before?

Mr. ROWEN. I believe so.

Mr. NOREN. Substantially higher.

Senator PROXMIRE. Twice as high; three times?

Mr. NOREN. I don't know; I'm sorry.

Senator PROXMIRE. That is the first time I have seen that observation.

Mr. ROWEN. On that point, it is my impression that the turnaround is clear and that the difference is substantial, but we can get those figures for you.

Senator PROXMIRE. It is confined to males, not females?

Mr. ROWEN. I believe in this range, it is confined to males. We have no demographic expert here, I believe, so we will have to provide that.

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

Death rates for most age groups in the USSR have been rising, particularly those for males aged 20–44, but the causes of the increase are not entirely clear. Alcoholism is a leading factor in the rise of mortality among working-age men, although heavy drinking is also increasing among women and teenagers. Western researchers cite accidents, poisonings, and injuries as the third most frequent cause of death among Soviet men; half of these are alcohol-related. Alcoholism is said to contribute to much of the sharp rise in the death rate for heart disease, the leading cause of death in the USSR. This rate has more than doubled since 1960, while the U.S. rate dropped 20 percent. Death rates from cancer, the second leading cause of death, have risen faster for men than for women. The medical system has expanded, but the emphasis has not been on upgrading facilities and services.

The age-specific death rates for males and females, last published for 1973–74, show that men fared much worse than women. In the prime working ages of 20–44, the death rates of males increased from levels which were 2 to 2½ times as high as those of females in 1963–64 to 3 to 3½ times as high in 1973–74.

U.S.S.R.: DEATHS PER THOUSAND POPULATION

	Males		Females	
	1963–64	1973–74	1963–64	1973–74
Age group:				
20 to 24	2. 2	2. 5	1. 0	0. 8
25 to 29	2. 8	3. 1	1. 2	. 9
30 to 34	3. 7	4. 4	1. 5	1. 4
35 to 39	4. 5	5. 4	1. 9	1. 8
40 to 44	5. 4	7. 4	2. 5	2. 6

Life expectancy for Soviet men is estimated to have fallen from 66 years in 1965 to 62 years in 1980; for women, it has remained static at about 74 years. This compares with 1980 life expectancy figures in the United States of 70 years for men and nearly 78 years for women.

Mr. ROWEN. Figure 8 shows the fall-off in the growth of the working-age population is very sharp. It grew by 24 million from 1971 to 1981, and from 1981 to 1991 it will grow by only 5 million.

Other factors are going to complicate the labor problem. Large-scale migration from the country to urban areas, which was an important source of labor for industry, has slowed considerably. In addition, rural residents in the central Asian republics where the increments to population of working age will be highest don't want to migrate.

Even in the raw materials that the U.S.S.R. has in great abundance, these are increasingly inaccessible, and the cost of exploiting them has been going up sharply. In oil, they are going to have to go to more remote regions. The infrastructure is not developed. There is a big investment required there. Their coal reserves in the European U.S.S.R. are increasingly depleted. And they have to dig deeper and mine thinner seams and go to more distant deposits. During the last half of the seventies, more than 80 percent of new mine output was needed to offset depletion in older underground operations. Even natural gas is becoming more expensive, as the U.S.S.R. moves to more remote areas, and the same is true of copper, nickel, bauxite, and iron ore.

If you will turn to figure 9 of my prepared statement you will see that the increase in fixed capital investment has also slowed markedly. This deceleration can be seen in connection with the 1981–85 plan. The plan called for investments in 1981–85 to rise by less than 2 percent a year, by far the lowest planned rate of increase in the post World War II period. The growth from 1971–75 to 1976–80 was nearly 30 percent.

All of this means that the traditional Soviet growth formula, relying on lavish use of labor, capital, and raw materials, doesn't work any more. And they recognize the need for a new approach and have been stressing the importance of switching from an extensive to an intensive pattern of growth. That is to say, growth must come largely from productivity gains, from more efficient use of resources.

But the productivity gains have not been forthcoming. The average productivity of plant and equipment has been falling for several years,

and labor productivity has been rising at steadily declining rates. Figure 10 of my prepared statement shows this very dramatic fall-off in the growth of labor productivity expressed in terms of GNP per worker or industrial production per worker.

LABOR PRODUCTIVITY AND PRODUCTION EFFICIENCY

Senator PROXMIRE. Still, as you point out their growth in labor productivity is much higher than ours.

Mr. ROWEN. Well, ours has been falling for a while. It has turned up most recently. I would say it is comparable in terms of growth. Of course, the absolute level of Soviet productivity is much lower than ours. The Soviet system is very poorly suited to foster production efficiency for many reasons.

Centralized management is one. Centralized control over economic activities has been on the increase for the last several years. It is headed in the wrong direction. They also have unrealistic goals which create a gap between what they want to do and what is possible. And this system chronically operates under conditions of strain and shortage, which, among other things, give enterprises a strong incentive to hoard—intensifying bottlenecks and leading to more hoarding in a depressing circle of waste.

A third reason is that centralization and unrealistic planning mean that the behavior of factory directors is largely dictated by the urgency of meeting the plan imposed. Trying to meet all of the various success indicators in the plan has adverse results because the array of indicators such as physical volume of output, gross value of output, value added, material savings, and productivity are often inconsistent and contradictory. And managers attempt to meet these targets at the expense of what is economically rational from the standpoint of the Central authorities and society as a whole. For example, managers try to maximize the gross value of output, which encourages them to make their production as material intensive as possible.

And, finally, technological progress has been impaired by the separation of research, development, and production in different organizations, which erodes the stimulus to innovation. They have no competitive marketplace to force the developer and producer to introduce better products and technologies. Andropov told the plenum of the Central Committee of the party last week that producers tend to view technological change with hostility, which is true because the introduction of new products at a plant initially disrupts serial output, jeopardizing plan fulfillment and rewards.

AGRICULTURE

One of the greatest areas of weakness has been and continues to be agriculture. Its performance over the last 4 years certainly makes that very clear. Farm output since 1978 fell steadily through 1981 and was 10 percent below the 1978 level and this year is expected to rise, but by only 1 or 2 percent.

This is partly bad weather. But bad weather is to be expected in the Soviet Union, and it is only a partial explanation for performance. The administration of Soviet agriculture is much too centralized. Prices of both farm inputs and outputs are set by the central author-

ities at levels which are inconsistent with the national plan. Although they have invested a lot in agriculture, direct deliveries to the agricultural sectors of needed inputs—for example, fertilizers—have been insufficient. Meanwhile, the proportion of aged and unskilled workers in the agricultural labor force is very high.

Brezhnev recognized the rise in popular demand for quality foods. He told the Central Committee in 1981 that food was the most important political and economic problem of the Eleventh Five-Year Plan. This increase in demand for meat, vegetables, and the like reflects rising consumer expectations and growing incomes. The inability to satisfy this demand is a function of both stagnant output of most livestock products and the regime's unwillingness to raise prices in state stores. This unwillingness was reinforced by what happened in Poland.

The Soviet leadership has tried to ease the imbalance between supply and demand by allowing various local rationing schemes under which customers may buy only limited amounts of certain foods in state stores. But long lines for meat, milk, and milk products remain widespread. To soften the effect of shortages on the work force, the regime has redirected substantial amounts of quality food from state retail outlets to factories and other economic enterprises. Naturally, the high-priority industries are given preference.

It was against this background that Brezhnev last May unveiled his food program, which was intended to boost food production and reduce dependence on imports. But it is mainly a repackaging of old policies. It does nothing to reduce day-to-day bureaucratic interference in agriculture, and it fails to restructure prices sufficiently or change the incentive system.

BOTTLENECKS

There are other problems as well. Steel is a case in point. Shortages of steel, both basic steel products and high-quality steel, are holding back growth of civilian machine building and other sectors. The appetite of the Soviet system for steel is probably unparalleled. Khrushchev used to speak of metal eaters in the Soviet Union. The consumption of steel in the U.S.S.R. is rather more—last year was rather more—than in the United States, although Soviet GNP is about half that of the United States. So steel consumption per unit of output is roughly twice as high in the Soviet Union as in the United States. And that is a major bottleneck. These shortages won't be remedied quickly. Investment requirements to cope with the declining quality of ore are escalating rapidly, and new capacity takes a long time to come on line. And supplies of coking coal and iron ore are likely to be tight for several years.

Another bottleneck area is transportation. You have seen the stories that the transportation minister was fired yesterday, I suppose. The snarls on the railroads have disrupted economic activity across the board, but most particularly in the development of raw materials—coal, iron ore, timber, and scrapmetal.

ENERGY

In energy, there are different problems. Coal production, as I mentioned, has been hampered by deteriorating underground mining conditions. The cost of increasing coal production has risen. Oil produc-

tion has increased, although slowly. And here, too, the effort required is very large. Finally, shortages of raw materials and depletion of fuel and power supplies have caused a slowdown in the production of construction materials.

TRADE

As I mentioned before, this system does not depend on trade for survival. Its imports equal about 12 or 13 percent of GNP. Those from the West are only about 5 percent. But these purchases can be quite critical in oil and gas, the sectors for which the U.S.S.R. will have to import a broad range of Western equipment in order to sustain production. Pipelaying equipment for large-diameter pipe, for example, has been produced only in the West. And we estimate that the Soviets will need to import at least 3 million tons of steel pipe per annum during the 1980's to build all the pipelines they have scheduled. They also need sophisticated exploration equipment, high capacity submersible pumps for the oil fields, and probably high-powered turbines for gas compressor stations.

Their requirements for quality steel should result in annual imports of steel other than pipe of about $2 billion, at least until the mid-1980's, and purchases of chemical equipment and technology probably will continue to be large. Imports of grain and other agricultural commodities, of course, almost certainly will remain high. Grain imports in 1979–82 averaged more than 30 million tons a year.

Soviet ability to earn hard currency is already under pressure and may well diminish. The fact that oil production has perhaps leveled off and may decline is one reason. We expect oil exports to the West, which account for about one-half of Soviet's hard currency earnings from merchandise exports, to fall. This will be partly offset by increased exports of natural gas, but only partly.

Primarily because of softening energy prices, Soviet terms of trade vis-a-vis the West will probably be less favorable in the 1980's than in the 1970's, when the upward spiral in oil and gold prices brought the Soviet Union a windfall gain. Soviet manufactured goods, which are generally not competitive in Western markets, are unlikely to take up the slack. And finally, less developed countries, including OPEC countries, probably will be less able to pay for Soviet arms, which is also an important source of hard currency.

While the U.S.S.R. has a lot of gold, it is reluctant to undertake massive sales and force the price down. So, on balance, the unpromising export outlook suggests that the U.S.S.R. may have to do with little if any increase in real imports in the 1980's.

EASTERN EUROPE

Another dimension is their strained economic relations with Easter Europe. Because it wishes to maintain political and social stability in Eastern Europe, the Soviet Union has given favorable economic treatment to five of the six Warsaw Pact countries, the exception being Romania. It takes a couple of forms—subsidization and credits.

Thus, subsidies are extended really through preferential terms of trade. In fact, the Soviet Union sells energy—namely, oil, increasingly natural gas, and other raw materials—for less than world market prices and pays more than world prices for the manufactured goods it

buys from Eastern Europe. The estimates of the cost of this subsidy are very controversial. It is hard to estimate, but one Western estimate puts the cost at almost $70 billion over the period 1960 to 1980.

The credits come mainly from the surpluses the Soviet Union has consistently run in its trade with Eastern Europe since the mid-1970's, although the Soviet Union has also given some direct hard currency assistance to Poland.

Eastern Europe, which has severe economic problems of its own, continues to depend on Soviet help, but the U.S.S.R.'s economic stringencies have increased greatly the cost of supporting Eastern Europe. Moscow has apparently decided to reduce the priority given to Eastern Europe's economic needs in the future. Oil exports to Eastern Europe, for example, were cut this year, and its trade surplus to that area apparently declined as well. The subsidies will probably fall also, but a drastic cut is unlikely for the reason I mentioned—the importance they attach to political stability in Eastern Europe.

GROWTH FORECAST

Finally, let me make a couple of comments about the uncertainties attached to the growth forecast. First of all, Mr. Andropov's advent to power has not altered our assessment of Soviet economic prospects. Moreover, Andropov's comments to the Central Committee last week point to no significant changes in economic policy, but this is very early, and there could be many changes ahead. So we could be wrong for this and other reasons. Our forecast of an annual average growth in real GNP of 1 to 2 percent could be off the mark.

Let me suggest some reasons why this growth might turn out to be more rapid than suggested. Good weather would help. A shift of resources away from defense to investment would help. If the regime were somehow to be able to divert resources from defense to consumption, morale and labor productivity would be improved. Above all, the Soviet economic future would be brighter if efficiency could be boosted by mitigating some of the most damaging features in the system. Productivity might be raised, for example, without a drastic overhaul of the system by a more balanced allocation of investment to vital economic areas such as transport and by stopping the proliferation of success indicators and overlapping lines of authority that has characterized the so-called reforms of past years. If Andropov could, assuming his rule is securely established, undertake basic changes that significantly reduced centralization and gave substantially greater play to market forces, the prospects would be very much better.

Things might be worse: Continued bad weather would depress agricultural output. In any case there is reason to believe that the generally favorable weather between the early 1960's and mid-1970's was an aberation and that while weather conditions for crops may improve they are unlikely to be as good as they were in the period when Soviet farm output increased rapidly.

If they decide to accelerate the growth of defense spending at the expense of investment, it would be difficult to sustain much, if any, growth. If the ripple effect of the current bottlenecks intensifies, GNP growth could fall off. And finally, if public cynicism and apathy deepen, work effort declines, and active unrest develops, economic growth could halt or go into reverse.

Of these possibilities, serious widespread unrest, as the Polish experience suggests, is the one most likely to hit aggregate output the hardest. However, we consider such an eventuality unlikely. It would probably require a steep and prolonged drop in living standards in the first instance. Large-scale labor disturbances might occur, however, if Andropov pursued with excessive zeal his promised campaign to impose greater discipline in the work force.

In sum, Soviet economic growth has slowed markedly in recent years, reflecting partly declining increments to the supply of labor and the stock of capital and sharply increased costs in producing and transporting energy and raw materials. The deceleration also stems from the inability of the system to increase productivity sufficiently. Indeed, economic growth has sharply decelerated even before the labor and energy shortages have reached their maximum severity.

The consequences of this slowdown are, first of all, harder choices for the leadership in making its allocation among consumption, investment, and defense. Second, the U.S.S.R. has certainly lost much of its attractiveness as a model for the rest of the world, especially the Third World. We are not saying, however, that the system is going to collapse. It is not going to collapse. Indeed, we expect GNP to continue to grow, although slowly. And so far, defense spending has continued to rise.

That completes the summary of my prepared statement, Mr. Vice Chairman.

[The prepared statement of Mr. Rowen follows:]

Prepared Statement of Hon. Henry Rowen

I. INTRODUCTION:

A. Mr. Chairman, in your request that we brief your subcommittee on Soviet economic prospects, you noted the "unusual amount of confusion in Congress and the general public today as to where the Soviet economy stands." You also suggested that our briefing be built around an assessment of "the capabilities and vulnerabilities of the Soviet economy."

1. We agree that confusion regarding the Soviet economy abounds.

2. We believe, however, that this confusion results not so much from disagreement over Soviet economic performance as from uncertainty as to how to interpret that performance.

3. Western observers have tended to describe Soviet economic performance as "poor" or "deteriorating" at a time when Soviet defense spending continues to rise, overall Soviet gross national product in real terms continues to increase, and Soviet GNP is second in size only to that of the US.

B. These characterizations are not wrong.

1. Given past rates of economic growth, the gap between Soviet performance and plans and expectations, and the marked departure from standards of economic

efficiency, the record compiled by the Soviet economy in recent years has indeed been poor.

2. Results that are unsatisfactory when measured by this yardstick, however, do not mean that the Soviet economy is losing its viability as well as its dynamism.

C. In fact, we do not consider an economic "collapse"--a sudden and sustained decline in GNP--even a remote possibility.

1. Our projections indicate that growth in GNP will remain slow but positive.

2. Growth is being retarded by a combination of factors. Some are beyond Soviet control, and some reflect the weaknesses of the Soviet economic system that even the new Andropov regime is not likely to change. Other factors holding down economic growth represent policy choices--for example, the allocation of resources to defense--that could be modified but are unlikely to change much in the near term.

3. Nevertheless, we expect annual growth to average one to two percent for the foreseeable future. Per capita consumption could level off or even fall slightly.

D. Returning to your initial questions, we will try to give as balanced a picture of the Soviet economy as possible. We will summarize and assess its basic capabilities and vulnerabilities.

1. We will, however, first identify the goals that economic activity is designed to serve in the USSR and then describe Soviet success in meeting these goals.
2. As a final piece of stage-setting, we will discuss how the 11th Five-Year Plan is faring, judging by the results of the first two years, 1981 and 1982.

II. Soviet Economic Objectives and Priorities

A. Turning first to Soviet economic objectives and priorities, we believe that Soviet economic activity has always focused on building military power.

1. But the Soviet leadership has also always placed great stress on rapid economic growth.
2. The good life for the Soviet populace, in the form of a rising standard of living, has been of importance to Moscow too for almost 30 years. But improvements in the welfare of Soviet consumers have generally been subordinated to the demands of the military and to the high rate of capital investment necessary to insure fast GNP growth. It appears, though, that consumer interests are now being treated somewhat less cavalierly. Breaking precedent, the 11th Five-Year Plan calls for capital investment to grow more slowly than consumption.
3. In pursuit of these national objectives, successive regimes have given heavy industry priority status

because it is the source of military hardware and investment goods.

4. Meanwhile, despite some experimentation with decentralized forms of economic administration, the Soviet leadership has remained firmly committed to strict central planning and management of most economic activity. The justification has been that rigorous centralization is required for fulfillment of national objectives.

B. Soviet economic performance in terms of the objectives and priorities established by the leadership has been mixed.

1. The Soviet Union has built an exceedingly powerful military force. Under Khrushchev the emphasis was on strategic nuclear programs, but Brezhnev presided over an across-the-board expansion and modernization of all Soviet forces.

a. Since the mid-1960s the USSR has increased its arsenal of intercontinental nuclear delivery vehicles nearly sixfold--overturning US quantitative superiority--and giving itself an assured nuclear retaliation capability.

b. During the same period, Moscow has more than tripled the size of its battlefield nuclear forces, reducing the credibility of NATO's nuclear weapons as a counterweight to the Warsaw Pact's larger conventional forces.

c. Meanwhile the Soviet Union has more than doubled the artillery firepower of its divisions, increased ninefold the weight of ordnance that tactical air forces can deliver deep in NATO territory, and reduced the West's qualitative lead in such key areas as tank armor.

d. At sea, the USSR has introduced new, heavily armed surface ships, nuclear-powered submarines, and naval aircraft and quadrupled the number of missile launchers on ships and submarines.

e. Meanwhile, under Brezhnev the USSR has expanded its military activities in the Third World--ranging from arms sales to Soviet forces in defensive roles and support of Cuban forces in combat to intervention in Afghanistan.

2. While developing its military power, the USSR has until recently been able to maintain a rapid rate of economic growth.

a. Soviet GNP, as measured by CIA, grew at an average annual rate of 4.6 percent from 1950 through 1981. During the same period US GNP increased by 3.4 percent per year.

b. Soviet growth, however, has steadily slowed during this period--especially after 1978. The deceleration can be seen in Figure 1. The average annual rate of increase in GNP was about 6 percent during the 1950s, 5 percent during the

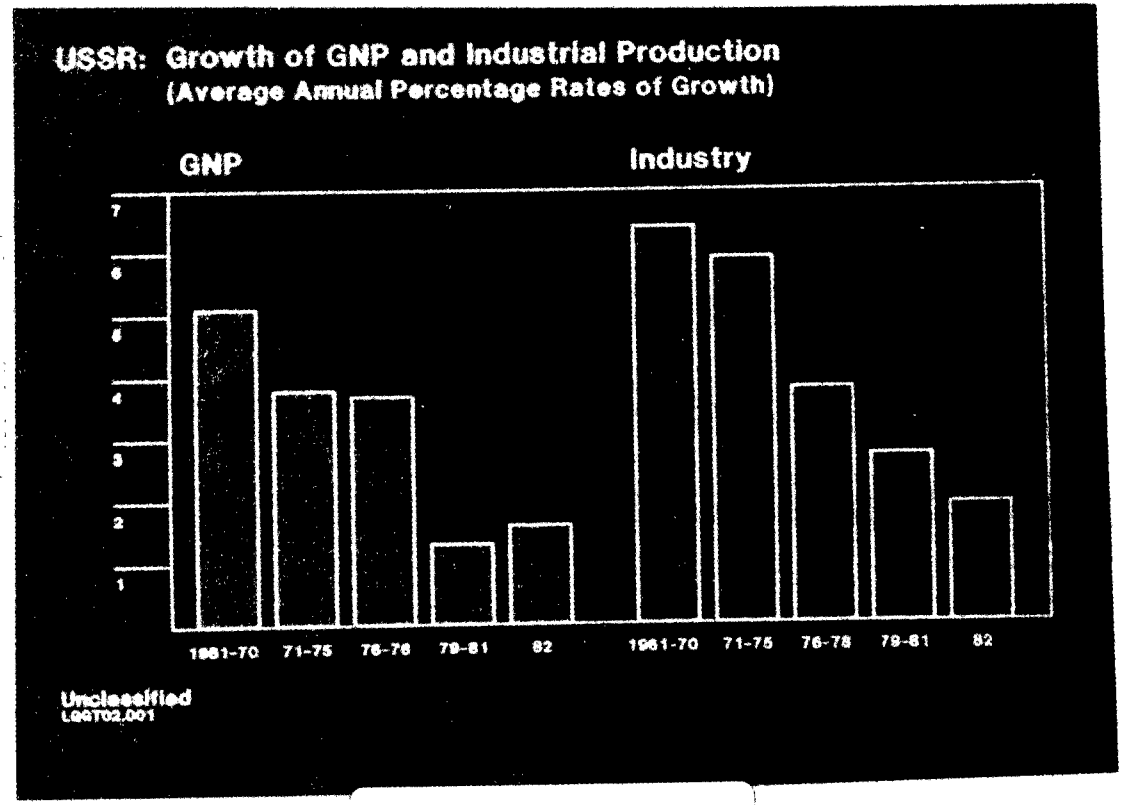

USSR: Growth of GNP and Industrial Production
(Average Annual Percentage Rates of Growth)
GNP
Industry
7
6
5
4
3
2
1
1961-70
71-75
76-78
79-81
82
1961-70
71-75
76-78
79-81
82
Unclassified
L86T02.001

FIGURE 1

1960s, and nearly 4 percent between 1970 and 1978. In 1979-81, yearly growth averaged less than 2 percent. This year we expect GNP growth to be about 1.5 percent.

c. To a remarkable degree, the slowdown in Soviet economic growth has a parallel in OECD countries. During the first three years of the seventies, OECD GNP increased at the rate of 5 percent per year. The crisis induced by OPEC oil prices brought OECD growth to a halt in 1974-75. Then in 1976-79, GNP resumed a respectable rate of growth of 4 percent per year. In 1980-81, however, GNP growth in the OECD collapsed to 1.2 percent per year.

d. The slowdown in the USSR in part reflects four consecutive poor or mediocre harvests. But most sectors of the economy have been sluggish, especially industry.

(1) In large measure, industrial performance has been held back by the emergence of serious bottlenecks unconnected with agriculture. Growth in industrial output, which averaged almost 6 percent a year in 1971-75, fell abruptly in 1976 and in 1976-81 averaged just slightly over 3 percent annually.

(2) The decline in growth has been steady. Industrial production grew by only 2 percent

in 1981 and is expected to rise by 1-1/2 to 2 percent this year.

3. The higher priority accorded to military strength is suggested by the continued rise in defense spending at the average annual rate of 4 percent that has prevailed since the mid-1960s.

   a. Growth in defense spending has continued in spite of competition for resources that might ease strains in the rest of the economy.

   b. Defense spending is now about 13 to 14 percent of GNP.

4. At the same time, leadership concern about consumer welfare seems to have somewhat diluted the commitment to growth.

   a. The share of Soviet GNP allocated to fixed capital investment--the driving force behind Soviet economic growth--has more or less stabilized in the last few years at about 26 percent (factor cost), compared with about 20 percent in 1960.

   b. Slowing investment growth is explained partly by bottlenecks in sectors providing building materials and machinery. But it probably also stems from a political decision to protect Soviet consumers in a time of tightening economic constraints.

c. Nonetheless, as shown in Figure 2, consumption still accounts for only 55 percent of Soviet GNP, far below the share in most non-communist industrialized countries.

III. The 11th Five-Year Plan So Far

A. Turning to recent developments, the results of the last two years must have been most disappointing to Soviet leaders. It is already clear that most of the important goals of the 11th Five-Year Plan cannot be met.

1. The plan was excessively ambitious from the start. For example, both industrial production and agricultural output were to grow by about 5 percent annually, even though production in both sectors had grown at much slower rates in 1976-80.

2. Performance has been far below plan. The small increase in agricultural output this year will do little more than offset the decline in 1981, while stagnation or falling output in key industrial branches threatens to intensify already serious bottlenecks.

3. Production of steel and steel products continues to sputter, with output this year little changed from two years ago and below the peaks reached in 1978. Cement production, meanwhile, fell below the 1980 level, and freight car production will decline this year, for the sixth consecutive year.

Figure 2.—U.S.S.R.: Percentage Shares of GNP by End Use, 1960 & 1982

[Figure 2 is a security deletion.]

4. The slump in steel is particularly damaging to machinery production. Along with shortfalls in the output of building materials, it also threatens to curtail growth in construction. Even the moderate 1981-85 investment targets could be in jeopardy.
5. From the beginning the 11th Five-Year Plan goals depended on large productivity increases. Underfulfillment of the productivity plans has been striking, however. The rise in industrial labor productivity, for instance, averaged only 1.4 percent a year in 1981-82, far below the 4.5 percent-per-year increase called for by the plan.
6. The unrealistic, almost fantasy-like character of the plan can be illustrated by comparing production goals with investment plans. As our next chart (Figure 3) shows, incremental capital output ratios--that is, the amount of additional capital needed to produce an additional unit of output--have been rising steadily and steeply in the USSR for many years, with little prospect that the rise will soon end. Yet, based on little more than admonitions that productivity must rise, capital investment targets in conjunction with output goals imply a decline in these ratios.

B. Bright spots in economic performance in 1981-82 are hard to find. But there have been a few.
1. On the production side, natural gas continues to rise at a rapid rate--7 percent in 1981 and nearly 8

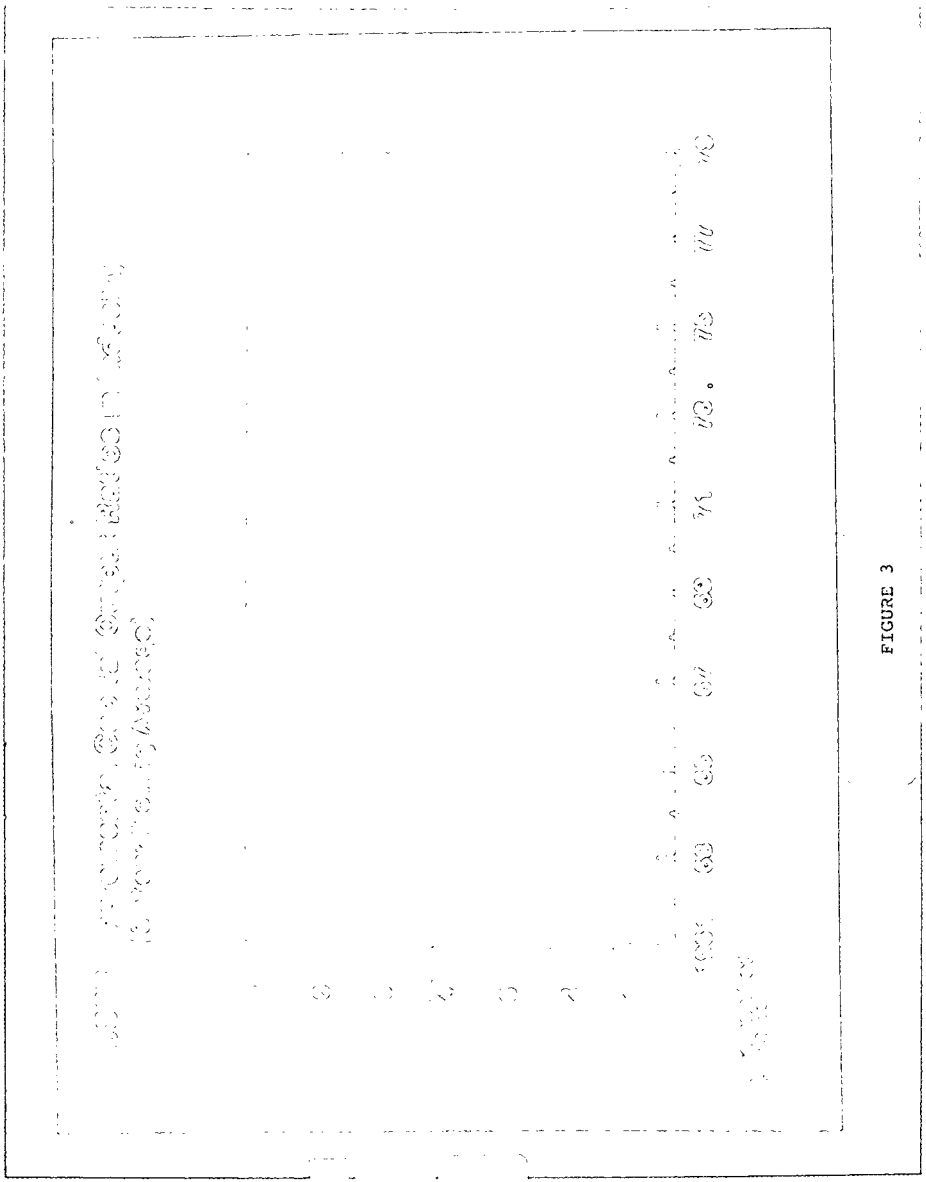


FIGURE 3

percent this year.

2. Overall energy production might be considered a plus. In 1982 at least, output of all major forms of primary energy rose. Oil production continues to inch ahead--by about 0.9 percent this year. And coal output, reversing a three-year decline, evidently will rise by about 2 percent. At best, however, it will barely exceed the 1980 level.

3. The USSR has also substantially improved its hard currency balance of trade this year. Our next chart (Figure 4) illustrates the point.

   a. The hard currency trade deficit last year was about $4 billion, causing some anxiety in Western financial circles. Judging by first half 1982 results, the deficit this year will be reduced to perhaps $2 billion.

      (1) The central authorities, with their total monopoly of control over foreign trade and the allocation of key resources, sharply raised the volume of oil exports to the West, despite softening prices in world markets. At the same time, they held the value of hard currency imports steady.

      (2) The result was a trade deficit in the first half of 1982 that was almost $4 billion lower than in the same six months of 1981. The already relatively small hard currency debt--

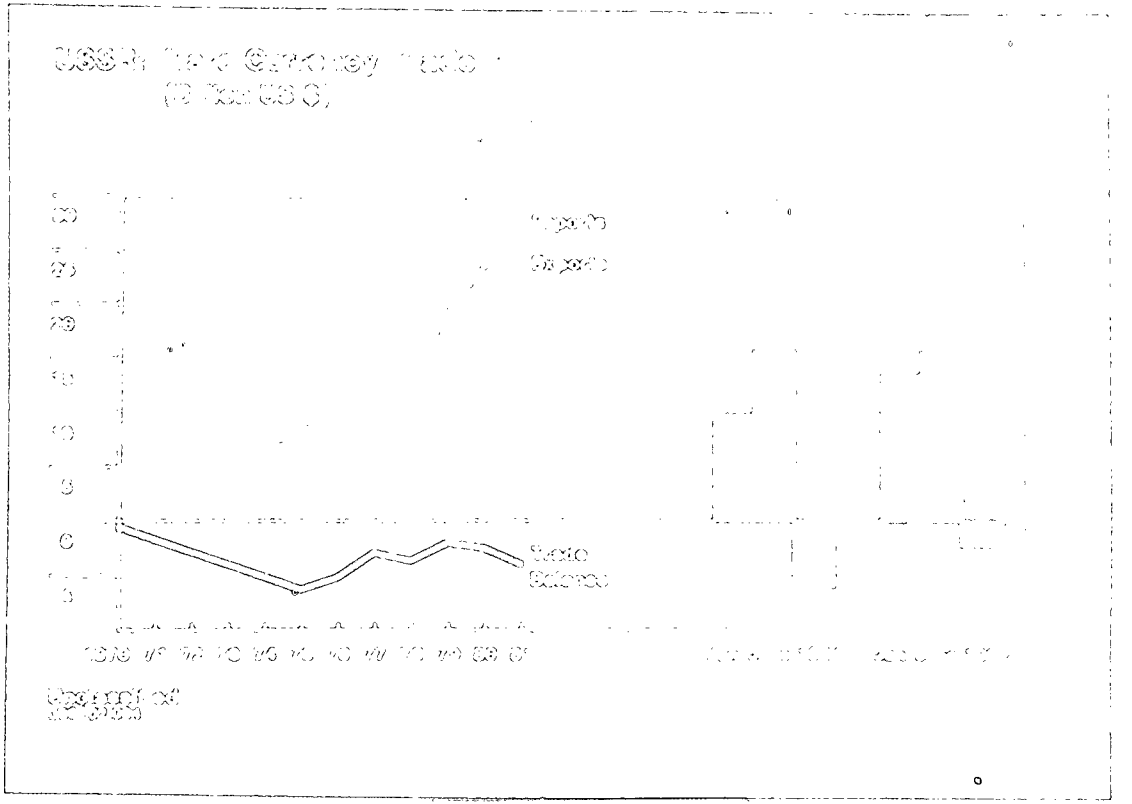


FIGURE 4

$11.5 billion at the end of 1981--will rise little if at all.

b. The Soviets have paid a price for this success, however.

(1) The increase in oil exports to the West came at the expense of deliveries to Eastern Europe and domestic consumption.

(2) In holding the value of imports steady, Moscow also accepted a reduction in the volume of hard currency imports. In particular, it scaled back purchases of Western equipment and consumer goods needed to help modernize Soviet industry and meet consumer needs.

IV. Basic Strengths of the Economy

A. We turn now to our discussion of the strengths and weaknesses of the Soviet economy. We will look first at the USSR's economic strong points, starting with those attributes that shore up the economy as a whole, and then move on to identify specific sectors that are performing in a particularly effective fashion.

B. The sheer size of the economy, reflecting the substantial growth since World War II, is one of its strengths. As the next chart (Figure 5) indicates, Soviet GNP in 1982 will equal about $1.6 trillion, roughly 55 percent of US GNP this year. Per capita GNP is almost $6,000.

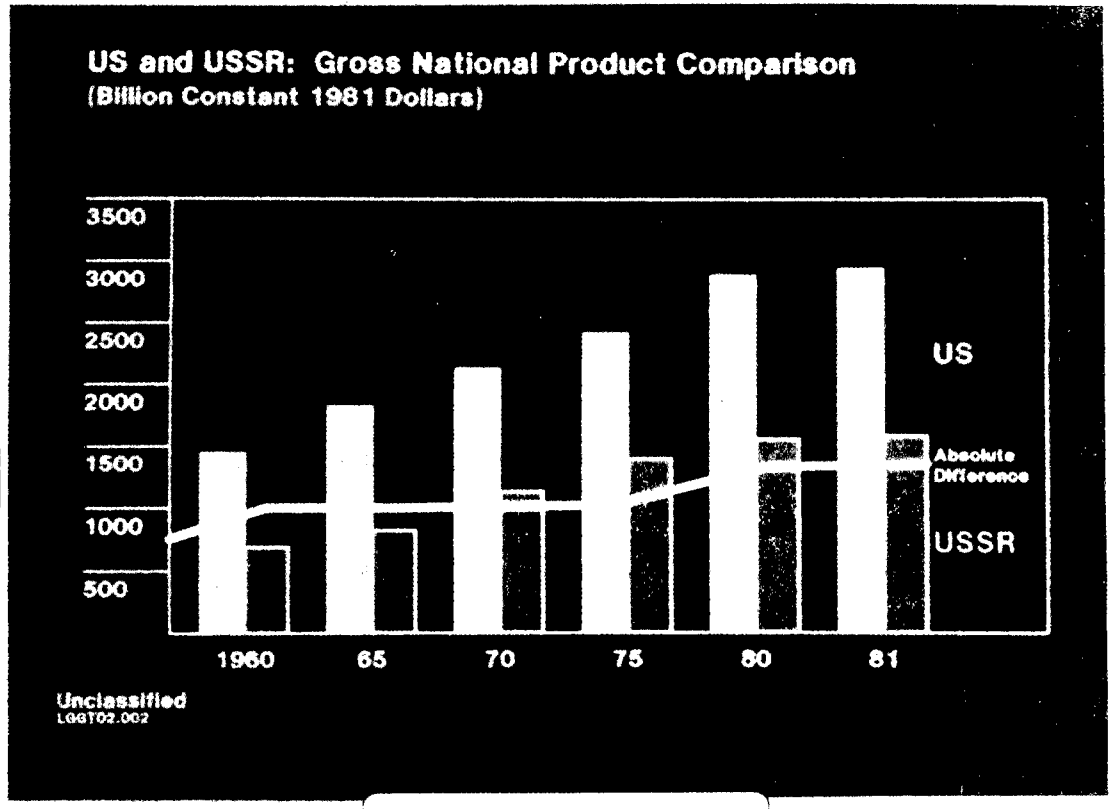

US and USSR: Gross National Product Comparison
(Billion Constant 1981 Dollars)
3500
3000
2500
2000
1500
1000
500
1960
65
70
75
80
81
US
Absolute Difference
USSR
Unclassified
LG8T02.002

FIGURE 5

C. The population is also large, currently numbering about 270 million. The labor force totals about 147 million and, by world standards, is well-trained and well-educated.

1. Literacy is by now almost universal in the USSR. The educational level of the population has been rising rapidly. Twenty-three percent of those over 16 in 1979 have completed at least a secondary education (10th grade in the Soviet Union) compared with only 14 percent in 1970. In 1979 an additional 7-1/2 percent also had completed higher education, compared with 5 percent in 1970.

2. A particular effort is being made to expand the education of the indigenous nationality groups in the Central Asian republics. The USSR wants to upgrade the skills of the relatively large pool of labor available there and possibly encourage outmigration by assigning these better educated young people to labor-short areas. Graduates of higher, specialized secondary, and vocational-technical schools receive compulsory work assignments at specific enterprises where, it is hoped, they will continue to work.

3. The emphasis on mathematics, engineering, and science in Soviet schools is also a plus for the technologically oriented Soviet society. About one-third of total instruction time in secondary schools is devoted to mathematics and science. There are

serious flaws, however, in Soviet education, including too much rote learning and, at the university level, narrow specialization early on.

D. Another of the strengths of the Soviet economy is the tremendous accumulation of capital assets that has occurred since World War II.

1. The value of gross fixed capital assets--buildings, machinery, equipment, and the like--amounted to over 1.74 trillion rubles in 1980 according to Soviet published data. The value of Soviet capital assets expressed in constant prices increased almost 11-fold between 1950 and 1980 and about 4.4-fold from 1960 through 1980--long after the USSR had recovered from wartime devastation.
2. This phenomenal expansion reflects the allocation of a large and, until recently, rising share of Soviet resources to capital investment. The rapid growth of capital assets has resulted in a more than three-fold increase in the amount of capital per worker. The rise was almost 3-1/2 fold in industry and over five-fold on state and collective farms.
3. Two-thirds of the stock of capital assets is in industry, agriculture, transportation and communications, construction, and wholesale and retail trade. The remainder consists of housing (almost 20 percent) and facilities in education, health care, municipal services, the arts, and scientific research (almost 15 percent).

4. Although the rapid accumulation of capital assets is one of the Soviet Union's strengths, the capital stock includes a disproportionately large share of worn out and technologically obsolete equipment. Soviet policies have kept retirement rates of existing assets artificially low and have prolonged their service lives through repeated capital repairs.

E. The USSR is exceptionally well endowed with natural resources, as the reserve estimates in Table 1 indicate.

1. Beginning with energy, the Soviet Union has about 40 percent of the world's proved reserves of natural gas--the 30 trillion cubic meters under Soviet control exceed the reserves of all industrialized nations combined.

   a. Soviet reserves of coal account for 30 percent of the world's total recoverable reserves and are sufficient to insure over 200 years of output at current rates of production.

   b. The Soviets do not publish figures for oil reserves, as they do for gas and coal. Our estimate is that oil reserves, at least in West Siberia, are substantial, though increasingly difficult to exploit.

2. The USSR is abundantly stocked with other important raw materials.

TABLE 1

USSR: Estimated Reserves of Selected Fuels and Nonfuel Minerals *

	Size of Reserves	Share of World Reserves (Percent)	Years to Exhaustion (At 1980 Production)
Gas	30 Trillion m^3	40	65
Coal	165.5 billion tons	27	230
Iron ore	63.3 billion tons	40	250
Manganese	2.5 billion tons	40	250
Chromite	271.2 million tons	10	80
Copper	40.0 million tons	7	28
Nickel	11.3 million tons	18	48
Cobalt	100 million tons	NA	17
Lead	17 million tons	11	28
Zinc	22 million tons	10	24
Gold	200 million troy ounces	35	20
Platinum-group metals	90 million troy ounces	25	25
Tungsten	215 thousand tons	11	24

* Corresponding to Western concepts of proven and probable reserves, exploitable at current prices with existing technology.

a. According to Soviet studies, iron ore reserves amount to about 60 billion tons--some 40 percent of the world's total.

b. With as much as one-fifth of the world's forest resources, the USSR has a virtually inexhaustible source for producing wood and wood products.

c. In addition, the Soviets claim--and may well have--the world's largest reserves of manganese, nickel, lead, molybdenum, mercury, and antimony. They also say that reserves of chromite, gold, platinum-group metals, zinc, and copper are among the largest in the world and sufficient to support Soviet mine production for many decades.

d. The Soviets also have substantial reserves of potash and phosphate rock--raw materials for the production of chemical fertilizers--although a large portion of the newer phosphate deposits consist of poor quality ore.

F. With its wealth in human, capital, and material resources, the USSR is highly self-sufficient--another of the economy's major strengths. Our next chart (Figure 6) illustrates this.

1. The high degree of Soviet self-sufficiency in vital raw materials is shown by its position as a net exporter of a large number of these materials. Net exports of energy--mostly of oil and natural gas--now

FIGURE 6

total about 4 million barrels a day equivalent or about 15 percent of total energy production.

2. The Soviets are major exporters of precious metals, ferrous and non-ferrous ores and metal products, chemicals, and timber. Because of expected gains in output the Soviets will be able to expand sales of key minerals such as platinum group metals, nickel, cobalt, manganese, chromite, and gold during the 1980s. We also anticipate major increases in the Soviet exports of ammonia, nitrogen, and potash fertilizer and methanol.

3. Though highly self-sufficient, the USSR is not autarkic. Indeed, for at least the last decade, trade with the West has been an important element in the USSR's efforts to modernize the Soviet economy and render it more efficient.

   a. I will develop this point in detail later, but let me mention here that the Soviets now must rely on Western imports of capital and technology to increase or maintain production of some of the raw materials in which they are abundantly endowed and self-sufficient.

   b. I would also like to note that imports from the West have become critical to Soviet efforts to improve, or simply maintain, the quality of the Soviet diet. In 1981, imports of grain and other agricultural products reached almost $12 billion,

or about 40 percent of the USSR's total hard currency purchases.

c. But despite the large-scale expansion in agricultural imports, the Soviet Union remains basically self-sufficient with respect to food.

(1) These imports are intended mainly to prevent a decline in meat consumption and are not essential to maintaining an adequate quantity of food consumption.

(2) At 3,300 calories--see our next chart (Figure 7), which compares the composition of the US and Soviet diets--average daily food intake is equivalent to that in developed Western countries. Grain production is more than sufficient to meet consumer demand for bread and other cereal products.

4. To summarize, when we say the USSR is self-sufficient, we do not mean that the Soviets neither need nor benefit from trade.

a. Imports, particularly from the West, can play an important role in relieving critical shortages, spurring technological progress, and generally improving Soviet economic performance.

b. What we do mean is that the ability of the Soviet economy to remain viable in the absence of imports is much greater than that of most, possibly all, other industrialized economies.

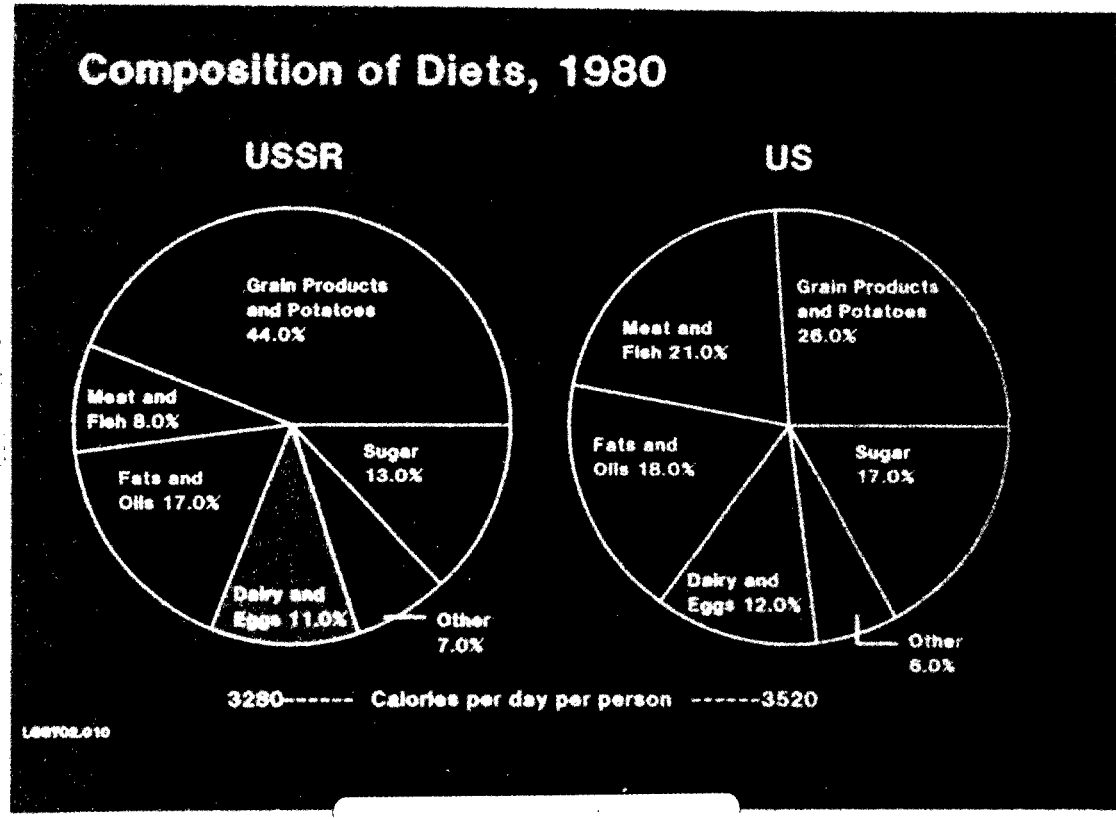

Composition of Diets, 1980
USSR
Grain Products and Potatoes 44.0%
Meat and Fish 8.0%
Fats and Oils 17.0%
Sugar 13.0%
Dairy and Eggs 11.0%
Other 7.0%
US
Meat and Fish 21.0%
Grain Products and Potatoes 26.0%
Fats and Oils 18.0%
Sugar 17.0%
Dairy and Eggs 12.0%
Other 6.0%
3280------ Calories per day per person ------3520

FIGURE 7

Consequently, the susceptibility of the Soviet Union to economic leverage tends to be limited.

G. In considering fundamental strengths, the highly centralized, rigid system of administering the economy--while perhaps the Soviet Union's major economic millstone--has had its advantages in enabling the leadership to mobilize resources in crash programs to achieve priority objectives.

1. The prime example of this capability has been Moscow's success in building up its military might. This has been achieved through centrally-directed mobilization and allocation of the USSR's highest quality human and material resources and a rigorous system of quality control in military production that prevents the shoddiness so characteristic of Soviet civilian output.

2. Centrally directed concentration of resources does not of course work everywhere. Agriculture, which we will discuss in more detail later, is an example.

a. Even though over a quarter of total investment has been allocated to the farm sector for many years, agricultural output continues to be a disappointment to Soviet leaders. There are many reasons for this, but one overriding reason is that effective central supervision over an activity conducted over so vast a geographical area is virtually impossible.

b. Another is that economic administration by fiat is singularly ill-suited to a sector where incentives to individual producers are so crucial a determinant of output.

H. We turn now to specific areas where Soviet economic performance has been especially strong.

1. As we mentioned, natural gas has been a major Soviet success story. It will play a pivotal role in meeting the energy needs of the economy in the 1980s, particularly as a substitute for crude oil in industry and in home use but also as a potential hard currency earner.

2. The nuclear power industry, although it has not met the full expectations of the leadership, has also done quite well. We estimate that the annual increase in nuclear-generated electricity will increase by about 17 percent a year during 1981-85 and supply about 11 percent of the country's electricity by the end of the period.

3. Development and production of some Soviet natural resources are proceeding at respectable rates despite the obstacles of remote location and conditions that make extraction exceedingly difficult.

a. The USSR is second only to South Africa in the production of gold. Production in 1981 was about 325 tons. Its stock of gold is about 1900 tons, worth over $25 billion at current prices.

b. Soviet production of platinum-group metals, nickel, and cobalt will jump sharply during the 1980s. Output of these resources will be adequate to meet domestic needs and also to provide increasing quantities for export.

c. Prospects for production of those resources located in more easily accessible regions look even better. Rich new deposits coming on stream in Kazakhstan and Georgia should generate sizable increases in production of both chromite and manganese.

V. Basic Weaknesses of the Economy

A. We will now look at the weaknesses or vulnerabilities represented on the Soviet economic ledger. We will focus first on problems stemming from circumstances beyond Soviet control and then turn to the shortcomings and vulnerabilities of the economy that are inherent in the USSR's system of economic planning and administration. Then we will consider specific weaknesses.

B. Soviet economic performance has been hurt in recent years by declining increments to the labor force and by the increasing difficulty of extracting and transporting vital energy and other raw material inputs.

1. Because of lower birth rates in the 1960s, an increase in the number of workers reaching retirement age and a rising mortality rate among males in the 25 to 44 age range, increments to the working-age

population have been declining since the mid-1970s. The falloff became particularly sharp starting in 1980, and--as our next chart (Figure 8) shows--increments will remain very low throughout this decade.

a. From 1971 to 1981, the working-age population grew by about 23 million. In 1981-91, it will increase by only about 4 million people. The decline in growth of the labor force--that is, of people actually employed--will be less, largely because of a rise in the share of the population in the 20 to 39 age group, where labor force participation rates are highest. But the decline in growth will still be substantial. The increment to the labor force in 1981-91 is expected to be only 9 million, compared with 19 million in 1971-81. With participation rates in the labor force already very high, there are few unemployed people to draw on to offset adverse demographic conditions.

b. Other factors will aggravate the labor shortage. Large-scale migration from the countryside to urban areas, formerly a rich source of labor supply to the rest of the economy, has slowed considerably in the past decade. The agricultural sector itself faces shortages of qualified manpower in most areas.

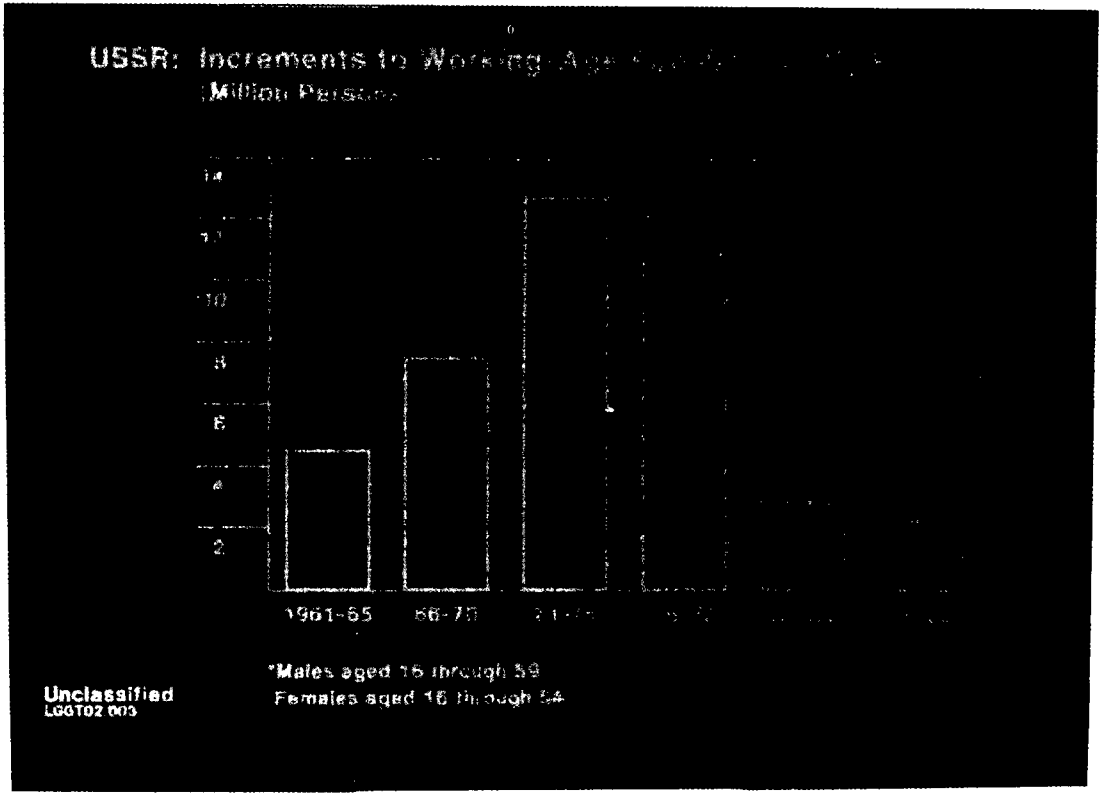

USSR: Increments to Working Age
Million Persons
10
8
6
4
2
1961-65
*Males aged 16 through 59
Females aged 16 through 54
Unclassified
LGGT02 003

FIGURE 8

This problem is compounded by the fact that rural residents in the Central Asian republics, where increments to the working age population will be highest and where there still is substantial redundant labor, are reluctant to migrate.

2. As we noted earlier, the Soviet Union is blessed with enormous quantities of a large array of raw materials. But in many instances these materials are increasingly inaccessible, and thus the cost of exploiting them has been rising sharply. This has been strikingly true of Soviet energy resources.
   a. With the decline in production in the Volga-Urals oil fields in the mid-1970s, growth in Soviet oil production has come from West Siberia, much of it from the giant Samotlor field. However, production in this field probably has peaked, compelling the Soviets to seek oil in even more remote and forbidding regions. In 1981-85, just to achieve the slowest growth rate planned in oil output since World War II will require greatly expanded drilling and pumping operations.
   b. Decades of mining have depleted the underground coal mines of the European USSR. The Soviets must tunnel deeper shafts and mine thinner seams just to maintain coal output at current levels.

During 1976-80, for example, more than 80 percent of new mine output was needed to offset depletion at older underground operations.

c. Even the extraction and distribution of natural gas has grown considerably more expensive.

(1) Natural gas deposits in the old producing areas--North Caucasus, Transcaucasus, Ukraine, Volga-Urals, and western Turkmenistan--are severely depleted. More and more gas must be piped from central Asia and especially Tyumen oblast to replace exhausted local supplies.

(2) Such long-distance transmission of natural gas requires construction of lengthy pipelines and a great many compressor stations, a very expensive operation.

d. Easily accessible supplies of many non-energy raw materials have also been exhausted.

(1) The Soviets have largely depleted reserves of copper, nickel, and bauxite in the Ural Mountains and are beginning to tap deposits in northern Siberia or, in the case of bauxite, are exploiting non-bauxite ores and boosting imports. Similarly, the richest deposits of phosphate rock in the Kola peninsula have been depleted, forcing the Soviets to move to lower-quality deposits in

Siberia.

(2) In the case of iron ore, the Soviets have depleted their richest deposits in the Western USSR. To compensate for declining ore grades, increasing amounts of investment must be devoted to ore-enriching facilities, raising both production costs and manpower requirements.

(3) The Soviets are also faced with the depletion of forests in the traditional logging areas of the north-western USSR. Government planners have chosen to overcut these forest tracts beyond the point of natural regeneration so that, at least temporarily, the scale of operations in Siberia could be held down. But when loggers are forced to expand operations in Siberia--and the Far East--recovery costs will be high because of the distances involved, the harsh climate, and the lack of infrastructure.

3. As our next chart (Figure 9) shows, the increase in fixed capital investment has also slowed markedly in recent years. This deceleration can be seen as both forced upon the leadership by shortages of key inputs and--as I noted earlier--as a conscious policy choice.

a. Growth was 7 percent a year in 1971-75, slowed to

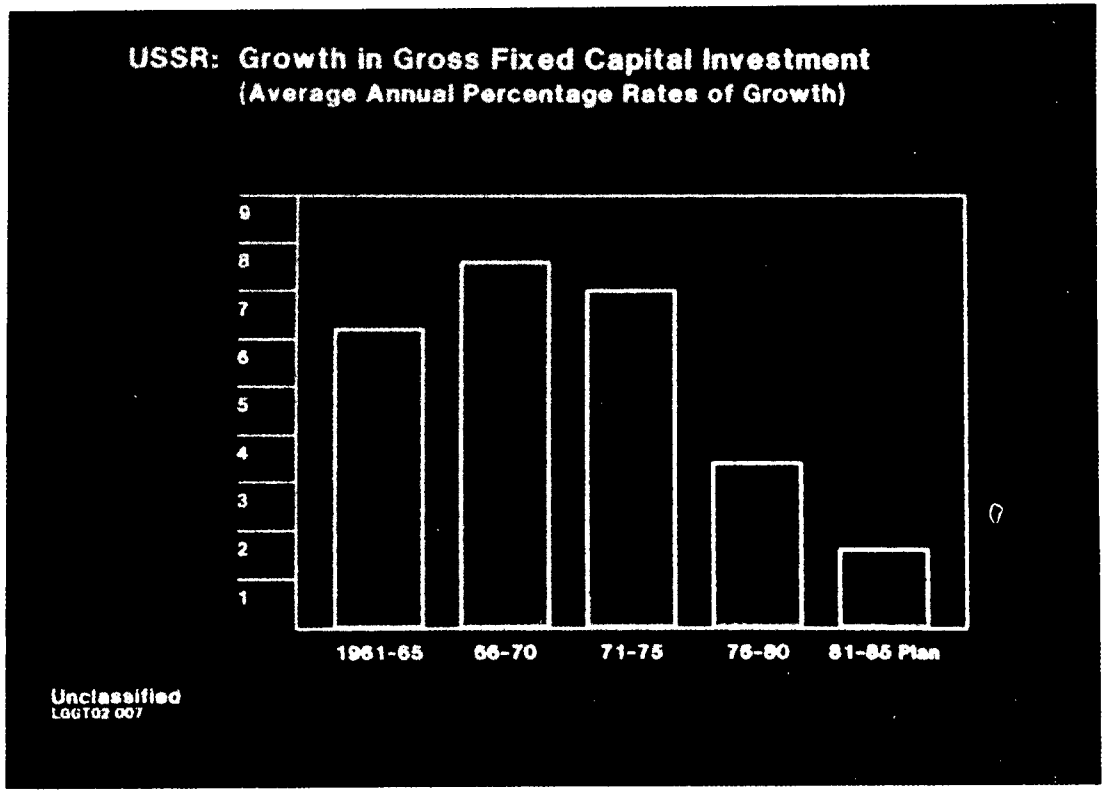

USSR: Growth in Gross Fixed Capital Investment
(Average Annual Percentage Rates of Growth)
9
8
7
6
5
4
3
2
1
1961-65
66-70
71-75
76-80
81-85 Plan
Unclassified
LGGT02 007

FIGURE 9

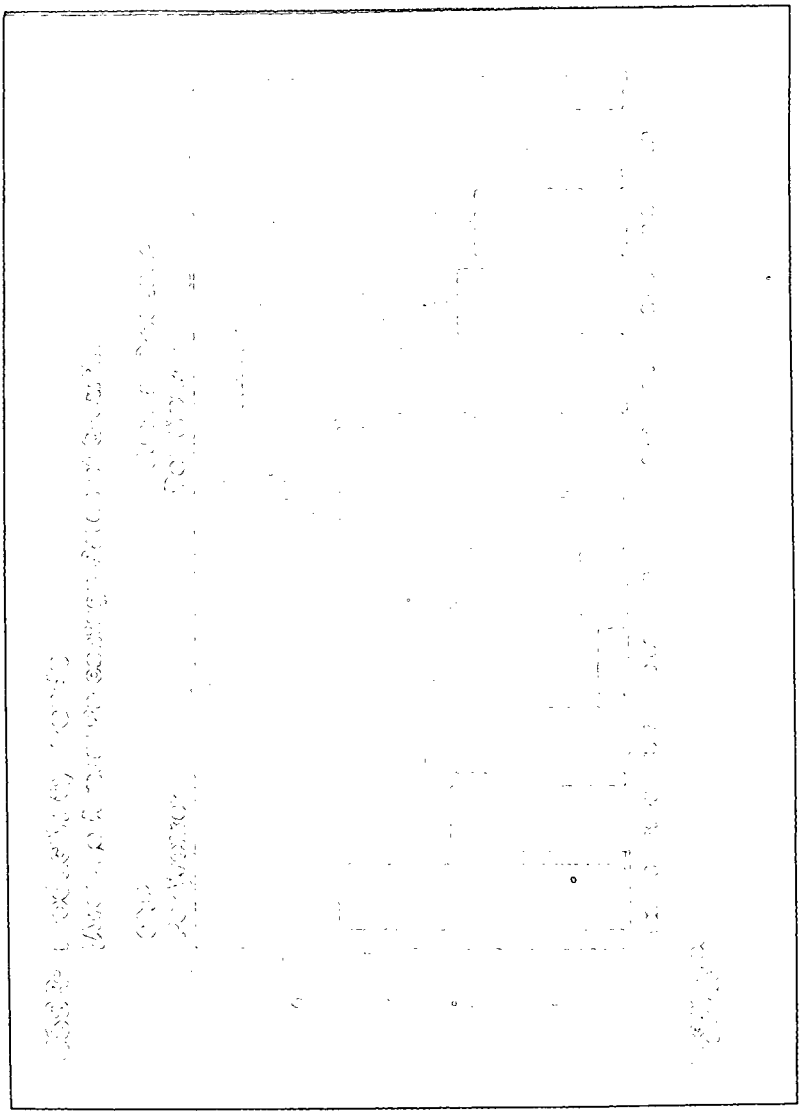
about 5 percent a year in 1976-78, and fell sharply to an average annual rate of only about 1.5 percent in 1979-80.

b. Growth picked up in 1981--fixed investment rising by 3 percent--but the 11th Five-Year Plan calls for investment in 1981-85 to rise by less than 2 percent a year. This is by far the lowest planned rate of increase in the post World War II period. The rise from 1971-75 to 1976-80 was nearly 30 percent.

C. Because of tightening demographic, investment, and resource constraints, the traditional Soviet economic growth formula of relying on lavish use of labor, capital, and material inputs is no longer applicable.

1. The Soviets themselves have long recognized the need for a new approach. For at least a decade they have been stressing the necessity of switching from an extensive to an intensive pattern of growth. This means essentially that growth must largely spring from productivity gains--from more efficient use of resources for any given level of technology and from faster technological progress.

2. But the productivity of capital has actually been falling for several years, and labor productivity--see our next chart (Figure 10)--has been rising at steadily declining rates. For this, shortcomings in the Soviet system seem largely to blame, a matter to



which I will now turn.

D. The Soviet economic system is peculiarly ill suited to promote efficiency and technological progress. Four features of the system help to explain why.

1. First, economic planning and management are highly centralized, with resources allocated mainly by administrative fiat. Reforms aimed at increasing the degree of enterprise autonomy have generally come to naught.

   a. Indeed, central control over economic activity has been on the increase for the last several years, as indicated by an increase in the number of commodities that are allocated in physical terms according to central planning decisions.

   b. The arbitrary nature of central decisions on allocating inputs and assigning outputs, which is aggravated by the absence of prices that accurately reflect relative scarcities, precludes efficient planning.

2. Along with overcentralization, the goals the central authorities impose on the economy have generally been unrealistic. Faced with a gap between what they want to do and what is possible, Soviet leaders have tended to call for productivity gains and material savings that are beyond the system's capacity.

   a. The economy thus chronically operates under conditions of strain and shortage. And, as I

indicated earlier, the number and severity of supply bottlenecks have been increasing in recent years.

b. With inputs regularly hard to come by, enterprises have a strong incentive to hoard. This intensifies bottlenecks and leads to more hoarding, in a depressing circle of waste.

3. Overcentralization coupled with unrealistic planning has meant that the behavior of factory directors is largely dictated by the urgency of meeting the plan imposed by higher authorities.

a. Fulfillment, however, is generally measured by multiple and often inconsistent "success indicators" of varying degrees of priority, such as physical volume of output, gross value of output, value added, material savings, and productivity.

b. The principal drawback of this system is that managers often strive to meet the targets even at the expense of what is economically rational from the standpoint of the central authorities and society as a whole.

c. For example, if gross value of output is a prime goal, waste is encouraged, as managers seek to make their production as material-intensive as possible.

d. The Soviet Union is currently elevating value

added in production to the position of the prime success indicator. Though probably less perverse a target than gross value of output, it, too, is subject to abuse. For example, it could induce managers to increase employment at a time of labor stringency.

4. Finally, Soviet economic performance has long been impaired by the separation of research, development, and production into different organizations. Each organization operates according to different planning targets.
   a. Scientific Research Institutes do basic research and are paid for successful completion of research projects whatever their practical benefit to the economy.
   b. Design Bureaus develop the blueprints for new equipment and are largely rewarded for the successful testing of the prototype. Rewards are only loosely linked to successful incorporation of the new product into serial production.
   c. Production plants, meanwhile, are rewarded for increasing both physical output and the value of output.
      (1) The introduction of new products at a plant initially disrupts serial output, jeopardizing plan fulfillment and resulting

rewards.

(2) The Soviets have no competitive marketplace to force both developer and producer to introduce better products and technologies. Indeed, hostility to technological change at the producer level is characteristic of the Soviet economy--as Yuri Andropov told the Central Committee of the Party a week ago.

d. Because of this division of labor and the systems rewards, Soviet products remain in production for an inordinately long time, new products frequently embody only minimal change, and the fruits of truly advanced research impact on serial production only with great delay. Over the last decade and a half, the Soviets have reorganized development and production establishments to deal with this problem. But the problem persists.

E. Moving from generalizations to particulars, we will look now at the areas in which the USSR seems particularly weak or vulnerable.

F. Historically, agriculture has been the economy's leading problem sector. Its performance over the past four years has strengthened its claim to that dubious distinction.

1. After peaking in 1978, farm output fell steadily through 1981, when it stood over 10 percent below the 1978 level. This year production is expected to rise

but by only about two percent.

2. The grain crop which reached a record high of 237 million tons in 1978, has not reached 190 million tons in any subsequent year. Last year the grain harvest was so low that Moscow never announced a figure, although unofficial statements put the crop at 158 million tons.

3. Production of meat--a key commodity in the regime's drive to better the Soviet standard of living--has also fared poorly. It reached 15.5 million tons in 1978 but has been below that level since, ranging from 15 to 15.3 million tons over the last four years.

4. Bad weather has been a major factor in the decline in agricultural production since 1978, but harsh weather and unfavorable geographical conditions constitute a permanent threat and obstacle to agriculture and only partly explain why Soviet efforts over the years to boost farm output have not yielded more dividends.

   a. Mishandling of the sector by the Soviet authorities has also had much to do with its disappointing performance.

   b. Management and planning processes are much too centralized. Farm efficiency is seriously handicapped by constant intervention of unqualified officials regarding what to plant, when to plant, when to harvest, and the like.

c. Prices of both farm inputs and outputs set by the central authorities are encouraging an assortment of output that is inconsistent with the national plan. At a time when Moscow is striving to expand output of meat, milk, and eggs, relative prices are such that farmers find it more profitable to concentrate on growing crops.

d. Though investment in agriculture has been heavy--over a quarter of total investment outlays has gone to the farm sector for many years--much of it has been misdirected.

(1) There has been too much emphasis on construction, not enough on equipment.

(2) Furthermore, the quality of farm machinery is low, with the incidence of breakdowns high.

e. Deliveries to the agricultural sector of needed material inputs, such as fertilizers, have been insufficient while the proportion of aged and unskilled workers in the farm labor force--which accounts for about 20 percent of the total labor force--is high.

f. The regime has also failed to take maximum advantage of the potential of the private sector in agriculture, even in periods, such as the present, when it is encouraging expanded output there.

5. In recognition of the rising popular demand for quality food, Brezhnev told the Central Committee in late 1981 that food was the most important "political and economic problem" of the 11th Five-Year Plan.

   a. The increase in demand reflects rising consumer expectations and incomes. The inability to satisfy that demand is a function of both stagnant output of most livestock products and the regime's unwillingness--reinforced by Poland's experience--to raise prices in state stores.

   b. The leadership has attempted to ease the imbalance between supply and demand by allowing various local rationing schemes under which customers may purchase only limited amounts of certain foods in state stores. But long lines for meat, milk, and milk products remain widespread. To soften the impact of shortages on the work force, the regime has redirected substantial amounts of quality foods from public state retail outlets to special distribution outlets in factories and other economic enterprises.

6. Against this background, Brezhnev last May unveiled his Food Program--in preparation for a year and a half. The objective of the program was to boost Soviet food production and reduce dependence on

ports--quickly. The Food program attacks agriculture's problems from three directions:

a. First, it reorganizes the agricultural administration by creating commissions at all levels of government to coordinate agricultural operations and all related activities, ranging from sectors providing supplies to agriculture to the processing, distribution, and marketing of farm output.

b. Second, without significantly raising previous targets for total expenditures, the program seeks to redirect investment to weak links in the food production chain. Investment in sectors producing machinery for agriculture is to rise sharply. To reduce waste, investment in on-farm food processing and storage facilities has been given top priority. More investment in rural housing and roads is scheduled to improve farm-to-market transportation and stem the flow of younger workers to the cities. Upgrading the plant and equipment in food processing is another major target.

c. Third, financial incentives are to be raised. Prices paid by the state to farms for a large variety of agricultural products will increase on January 1. At the same time, prices paid by the

farms for equipment, fuel and fertilizer will be lowered.

7. For the most part, however, the Food Program represents relatively minor variations of old policies.

   a. One exception is the reorganization of agricultural administration, which--by increasing friction and confusion within the bureauracy--is likely to cause more problems than it solves.

   b. The basic defect of the Program lies in its omissions. It does nothing to reduce day-to-day bureauratic interference in agriculture, and it does not do enough to restructure prices or to change the incentive system so that rewards are directly keyed to performance.

G. As the recent meetings of the Communist Party Central Committee and the Supreme Soviet made clear, there are very serious problems in other sectors as well.

1. The Soviet steel industry, for example, has become a major bottleneck.

   a. Shortages of steel, especially high-quality products, are holding back the growth of civilian machine building and other priority sectors of the civilian economy.

   b. The appetite of the Soviet economy for steel is probably unparalleled--and a reflection of its relative technological backwardness. Last year

the USSR with little more than half the GNP of the United States used 103 million metric tons of rolled steel products compared with US consumption of 94 million tons.

c. The shortages of steel won't be remedied quickly. Investment requirements to cope with the declining quality of ore are escalating rapidly, and new capacity requires long gestation periods before it can be brought on stream. In addition, supplies of coking coal and iron ore are likely to continue to be tight in the next several years.

2. Transportation is another sector responsible for recent poor economic performance. Snarls on the railroads--the backbone of the system--have disrupted economic activity across the board, but most particularly in the delivery of raw materials such as coal, iron ore, timber, scrap-metal, and chemical fertilizer.

a. The Soviet economy requires a large volume of transport services not only because of its size and complexity but also because the country's resources and people are spread widely over a very large land mass.

b. Compared with North America and Europe, the USSR is poorly served by year-round water transport, and government policy has held back the

development of an adequate highway system. The brunt of the transport burden, therefore, has fallen to the railroads.

c. The railroads, however, appear to have reached their capacity ceiling with present technology and facilities. Consequently, the transport sector will find it difficult to support economic growth through the next several years at least.

3. In the energy field the leadership faces rather different problems in the coal and oil industries.

a. Coal production, which dropped during 1979-81, has been hampered by deteriorating underground mining conditions at larger, established mines, by shortages of labor and declining labor productivity, and by insufficient capital investment.

b. Oil production continues to increase, though slowly. Even the very small growth of the last few years has required an enormous effort.

4. Finally, shortages of raw materials and depletion of fuel and power supplies have caused a marked slowdown in the production of construction materials.

a. Current output, for example, increased by less than 2 percent annually during 1976-80 compared with nearly 5-1/2 percent annually in the preceding five year period.

b. Shortfalls in the production of cement, roofing

materials, construction resources, and wall materials have restricted construction activity throughout the economy.

H. As we emphasized earlier, the Soviet economy does not depend on trade for survival. Total imports equal about 12 or 13 percent of GNP, those from the West--only about 5 percent. But, because of the difficulties just enumerated, the elimination or easing of critical bottlenecks and the achievement of key elements in Soviet development plans are closely tied to imports from the West.

1. The USSR will have to import a broad range of Western oil and gas equipment if it is to minimize the fall in production in fields where depletion is at an advanced stage, increase output elsewhere, and help locate and develop reserves.

   a. Pipelaying equipment capable of handling large-diameter pipe is produced only in the West, and we estimate that the Soviets will need to import at 15-20 million tons of steel pipe during the remainder of the 1980s to build the pipelines they have scheduled.

   b. They will also continue to need sophisticated exploration eqipment, high capacity submersible pumps for the oil fields, and probably high-powered turbines for gas compressor stations.

2. Soviet requirements for quality steel should result in annual imports of steel other than pipe of about

$2 billion (current prices) at least until the mid-1980s.

3. Imports of chemical equipment and technology probably will continue to be large, reflecting the still antiquated character of some parts of the chemical industry and the importance of the industry for agricultural production.

4. Imports of grain and other agricultural commodities have soared in recent years and almost certainly will remain high. Grain purchases in 1979-82 averaged more than 30 million tons a year.

I. The USSR's ability to earn the hard currency it needs to pay for its Western imports is, however, already under pressure and may well diminish in the future.

1. The main reason is the leveling off and possible decline in Soviet oil production.

   a. Because domestic consumption will continue to rise and because of ongoing demands from Eastern Europe, we expect oil exports to the West--which account for about half of Soviet hard currency merchandise export earnings--to fall.

   b. According to our projections the rise in hard currency earnings from stepped up exports of natural gas will only partially offset the anticipated decrease in receipts from oil.

2. Other factors also have restricted Soviet hard currency earning capacity.

a. Primarily because of the softening of energy prices, Soviet terms of trade vis-a-vis the West will be less favorable in the 1980s than they were in the 1970s, when upward spiraling oil and gold prices brought the USSR windfall gains.

b. In addition, demand for Soviet raw materials will be weak if Western economic activity fails to pick up.

c. Soviet manufactured goods, which are generally not competitive in Western markets, are unlikely to take up the slack.

d. Finally, less developed countries, including OPEC countries, probably will be less able to pay cash for Soviet arms.

3. The Soviet capacity to buy from the West is of course backstopped by the USSR's huge stock of gold. But the USSR is reluctant to undertake massive sales of gold in an uncertain market because of the downward pressure that Soviet sales exert on prices.

4. On balance, the unpromising export outlook suggests that the USSR may have to make do with little if any increase in real imports in the 1980s.

J. The USSR's relations with Eastern Europe add another dimension of strain. Because it wishes to maintain political and social stability in Eastern Europe, the Soviet Union has given favorable economic treatment to five of the six Warsaw Pact countries--Czechoslovakia, East Germany, Bulgaria, Poland, and Hungary. The

exception has been Romania.

1. This special treatment, or "assistance", has taken two basic forms: Subsidization and credits.

   a. Subsidies have not been given directly. They have instead been extended through preferential terms of trade. That is, Eastern Europe's terms of trade vis-a-vis the Soviet Union are more advantageous than those that would prevail if Eastern Europe conducted that same trade with the non-communist world.

   b. In essence, the USSR sells energy, mainly oil, and other raw materials to Eastern Europe for less than world market prices and pays more than world prices for the manufactured goods it buys from Eastern Europe.

   c. Estimates of the cost to the Soviet Union of giving preferential terms of trade to Eastern Europe are rough--and controversial. According to the highest Western estimate we know of, these subsidies totaled almost $70 billion in 1960-80, with about 90 percent of this amount accumulating after 1974. The huge jump implicit in subsidies reflects the explosion in world oil prices in 1973-1980 and the large rise in opportunity costs to the USSR of its oil exports to Eastern Europe.

   d. The credits come mainly from the trade surpluses the USSR has consistently run vis-a-vis Eastern

Europe since the mid-1970s, although the Soviet Union has also given some direct hard currency assistance to Poland.

2. Eastern Europe, battling severe economic problems of its own, continues to depend on Soviet assistance. But economic stringencies in the USSR have increased greatly the cost to the Soviets of aiding Eastern Europe.

3. The USSR apparently has decided to give reduced priority to Eastern Europe's economic needs in the future. Soviet oil exports to Eastern Europe were cut this year, and the USSR's trade surplus with the area apparently declined. Soviet subsidies will probably fall too. But a drastic cut in exports of raw materials and in trade credits and subsidies is unlikely.

VI. Uncertainties Attached to the Growth Forecast

A. Before summing up our main points, Mr. Chairman, I would like to note that Andropov's advent to power has not altered our assessment of Soviet economic prospects.

1. The exogenous factors impeding economic growth are not affected by the change in leadership.

2. Moreover, Andropov's comments to the Central Committee last week point to no significant changes in economic policy.

a. He indicated that he will take a cautious approach to economic reform.

b. He further made clear that defense and heavy industry will retain their priority.

3. The smattering of economic targets for 1983 announced at the Supreme Soviet meeting a week ago are overambitious, suggesting that relief of economic strains and bottlenecks from more realistic planning is not to be expected.

B. Andropov is, however, in an extremely early point in his reign. Thus major policy changes could lie ahead. For this reason--and for reasons unrelated to leadership changes--our forecast of average annual growth in real GNP of 1 to 2 percent could be off the mark.

1. Growth could be more rapid, for example:

a. If the USSR enjoyed a run of good luck with the weather, leading to a succession of good harvests.

b. If the new leadership were willing to undertake a substantial reallocation of resources from defense to investment.

c. If the new regime were able somehow, perhaps by diverting resources from defense to consumption, to improve morale and labor productivity.

d. Above all, if efficiency could be boosted by mitigating some of the most damaging features of the existing system. Productivity might be raised, for example, without a drastic overhaul of the system through

(1) more balanced allocation of investment to end the neglect of such vital sectors as transport, and by

(2) stopping the proliferation of success indicators and of overlapping lines of authority that has characterized the so-called "reforms" of past years.

e. If Andropov--his rule securely established--undertook basic changes that significantly reduced centralization and gave substantially greater play to market forces, the prospects would be even better. Such a reform, however, would be constrained by the imperatives of maintaining political control in a large multinational society. Furthermore, attempts to implement reform would encounter stubborn non-compliance by party and economic bureaucrats.

2. Growth could be less rapid, for example:

a. If the bad weather of the last few years continued, causing a permanent depression in agricultural output. In any case, there is a theory, substantiated by evidence, that the generally favorable weather that prevailed between the early 1960s and mid-1970s was an abberation. Although the weather for crops in the past several years was surely worse than any long-run average, a return to the pre-1975

conditions is unlikely.

b. If the new leadership decided to accelerate the growth in defense spending at the expense of investment.

c. If the ripple effect of current bottlenecks intensified.

d. If public cynicism and apathy deepened markedly or active unrest developed.

3. Of these possibilities, serious widespread unrest--as the Polish experience suggests--is the one most likely to hit aggregate output the hardest. However, we consider such an eventuality unlikely. It would probably require a steep and prolonged drop in living standards in the first instance. Large-scale labor disturbances might also occur if Andropov pursued with excessive zeal his promised campaign to impose greater discipline in the work place.

VII. Concluding Comments

To sum up our presentation, then

A. Soviet economic growth has slowed markedly in recent years. The slowdown partly reflects declining increments to the supply of labor and the stock of capital and sharply increased costs in producing and transporting vital energy and raw materials. But it also stems from the inability of the system to offset these constraints by bringing about substantial increases in efficiency and productivity. Indeed, economic growth has sharply decelerated even before the labor and energy shortages have reached their maximum severity.

B. The consequences of the slowdown are:

1. First, much harder choices for the leadership in allocating resources to consumption, investment, and defense.

2. Second, the further invalidation of the USSR's claim that its economy is an appropriate model for the rest of the world, particularly the third world.

C. In spite of its disappointing performance, the Soviet economy, however, is not going to collapse. Indeed, we expect GNP to continue to grow, although slowly. Furthermore, so far, defense spending continues to rise.

Senator PROXMIRE. Thank you very much, Mr. Rowen.

DOMESTIC AND FOREIGN POLICIES ANDROPOV MAY INITIATE

Mr. Rowen, now that Brezhnev has been replaced, what changes in domestic and foreign economic policies or priorities is Andropov likely to initiate based on statements made thus far? And what do you know about him?

Mr. ROWEN. We think there has been some exaggeration by the press of his commitment to Hungarian-style reform. He has recommended, did recommend a few days ago, some cautious experimentation, increasing the operational autonomy of some production units. And he stated the U.S.S.R. might learn from the Eastern European experience. This repeats the line that Brezhnev voiced earlier. It is not new to say such things about experimentation. On the other hand, there is little reason to believe he would manage the economy differently in a fundamental sense.

Perhaps one of my colleagues could expand on it.

Mr. NOREN. Well, the straws in the wind that we have are first his speech to the Party Plenum in which he seemed to be indicating his preference for more discipline. And he has, since coming to power, brought in Aliyev, who was in Azerbaydzhan as First Party Secretary. He has now been made the First Deputy Chairman of the Council of Ministers. Aliyev had a background in the KGB. He came to Azerbaydzhan when it was saturated with corruption, cleaned it up, and has gotten high marks for restoring discipline. And the fact that he was brought in as the second man in the governmental hierarchy suggests that is the way they would like to go, focusing on tightening discipline within the existing system rather than reforming the system except after a long period of experimentation perhaps.

SOVIET ECONOMIC REFORM AND/OR DECENTRALIZATION

Senator PROXMIRE. Mr. Rowen, you put a lot of emphasis on the failure of the Soviet Union to improve its productivity because they were too highly centralized. You also indicated that Andropov was more likely to promote decentralization if he were secure—felt secure. When are we likely to get some indication of this? And do you feel thoroughly convinced that this is a problem for the Soviet Union, one of the reasons why they have been unable to improve their economic performance?

Mr. ROWEN. I have really seen nothing to suggest that he is thoroughly convinced that major economic reform/decentralization is required. There is evidence that he leans in that direction to some degree, but I would stand corrected by my colleagues about it. But I haven't seen anything that suggests he is a thoroughgoing reformer/decentralizer.

He obviously has a major problem with the party apparatus. The whole structure, the whole system, has built into it an enormous amount of rigidity. A lot of people would lose power and jobs and perquisites if there is a reform. And he has to proceed very carefully to shape that system. Whether he will try to is really hard to say. My guess is it will take a long time for us to be clear on it.

Senator PROXMIRE. Isn't there some indication of this in the experience that Andropov had in Hungary? There has been a Hungarian-kind of decentralization in the farm sector, I understand, which has been viewed as fairly successful. And as a result, it seemed to have been one of the elements in their improved productivity as compared to the Soviet Union and also as compared with their performance in the past.

Mr. ROWEN. There is no doubt the Hungarian performance has been better. But how much he has learned from that, is committed to it—as Jim Noren suggested, if we look at his early appointments, they don't show it.

Senator PROXMIRE. He was as opposed to that as anybody in the Soviet Union. Wasn't he as Ambassador to Hungary and later the person who perhaps had more to do with the Hungarian revolution and so forth than anybody? Is that correct?

Mr. ROWEN. I am not sure more than anybody, but perhaps he was. Can you comment on it, Mr. Kohn?

Mr. KOHN. I just wanted to mention that at the Central Committee meeting he did make reference to learning from the experience of fraternal countries. In reference to Hungary, I assume, he said that it is necessary to act with caution, to conduct experiments. Well, when you talk about conducting experiments, that has been the kiss of death to Soviet reform. Over the years they have proceeded much too cautiously. And it has only been in very narrow sectors that they have introduced reforms. And if he is going to proceed along those lines, the outlook, I don't think, is a very promising one.

Senator PROXMIRE. I appreciate that, It is a very helpful answer. But would you provide for the record English translations of any statements he may have made about the subject of economic reform in the Soviet Union?

Mr. ROWEN. We will certainly do that.

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

QUALITY IMPROVEMENTS IS A VITAL PRODUCTION TASK

Moscow YU. V. ANDROPOV: IZBRANNYYE RECHI I STAT'I [Yu. V. Andropov: Selected Speeches and Articles] in Russian, 1979 pp 42-45

[Speech by Yu. V. Andropov delivered at the Second Congress of the Karelian Communist Party (Bolsheviks) on 25 April 1949]

[Text] Comrades! Our republic's national economy has a solid foundation not only for expanding production but also comprehensively improving quality indicators. The republic's industry has been enriched with new production sectors. It has received a substantial amount of equipment and new cadres of skilled workers and specialists have been trained.

The party organizations in the industrial enterprises have achieved good work results. The fact that the party organizations in many enterprises were able to give priority to the task of improving quality production indicators and to involve the broad toiling masses in the struggle for reaching them is positive.

The creative initiative of workers, engineering and technical personnel and employees is manifested in a great variety of forms. This is confirmed, among others, by the increased activeness of rationalizers and inventors. During the past 2 years 1,087 rationalization suggestions were submitted at Petrozavodsk enterprises alone and the application of many of them resulted in material and fuel savings worth nearly 4 million rubles. The application of rationalization suggestions at the Segezha Order of Lenin Cellulose-Paper Combine saved more than 1 million rubles. The republic's enterprises number 150 excellent quality brigades organized on the initiative of Aleksandr Chutkikh. Thousands of workers, engineers and technicians are participating in the struggle for above-plan accumulations and the accelerated turnover of working capital.

The party organizations in many republic enterprises were able to promote in workers and specialists an interest in progressive labor methods, technical innovation and the desire to make such important levers in production upsurge universally available. More than 1,000 woodcutters at timber industry enterprises are following the method of Gotchiyev, the noted woodcutter in the country and state prize laureate; as many as 20 percent of the fishing brigades have adopted the progressive methods of the noted fishermen Yefremov and Mironova.

However, no more than the initial steps have been taken in the efforts to improve quality indicators in industry. Many party organizations, raykoms and Central Committee departments have learned how to work properly in order to meet quantity indicators. However, they ignore the qualitative aspect of enterprise work and obvious facts of negligence and violations of cost-effectiveness.

The fact that the level of organizational and technical management is below our production and technical possibilities hinders our efforts to improve quality indicators. This is manifested in the poor utilization of the equipment and transport facilities, the low labor productivity and the tendency to fulfill the production program by steadily increasing resources while using them with extreme inefficiency. This applies mainly to industrial sectors such as timber cutting, fishing and construction.

One of the reasons for this situation is the fact that the managers of some enterprises do not study the equipment and do not improve their knowledge in the area of production management. Let me cite examples. Only three of the 27 directors of enterprises in Petrozavodsk are upgrading their skills through systematic studies. Only four of all timber farm directors are attending courses.

The shortages in the work of industry, described by the congress delegates, are largely explained by the fact that some leading workers lack the necessary knowledge for handling modern progressive production equipment. This faces the Central Committee with a major responsibility. We have organized the political training of the ministers but failed to organize their technical training. We failed to display the necessary concern to enable managers to learn the art of enterprise management. The new Central Committee membership should think of the publication of a series of books and pamphlets summing up progressive experience in enterprise management and utilization of new equipment. Many economic and party managers play a timid approach to resolving problems of utilization of reserves due to insufficient familiarity with the new equipment.

In many cases the party organizations and party raykoms and gorkoms ignore the fact that in some areas the work is based on the old lower experimental-statistical norms which hinder the enhancement of labor productivity. Sometimes we revise norms without adequate technical support, as a result of which even the new norms are low. Thus, at the Petrozavodsk automotive repairs plant norms were reviewed on three occasions. After each occasion they were reached quickly and reviewed once again and once again they proved to be below capacity.

The example of the Onega plant was indicative. Only 20 percent of the norms at the instruments shop were technically substantiated. However, even this enabled the shop to increase labor productivity by 38 percent.

Occasionally we come across cases in which the engineering and technical forces of a given production facility are used poorly. This shortcoming

particularly affects industrial sectors such as fishing, timber and construction materials industries and areas in which major technical retooling is taking place.

Production costs remain high in a number of industrial sectors. For example, they are high at the brick plants in Sulazhgorsk, Kondopoga and Solomensk. This is no accident, bearing in mind the huge equipment idling and its poor utilization at the Solomensk plant.

We also have enterprise managers who have become accustomed to negligence and high losses. For example, in 1947 the Olonets timber industry enterprise was repeatedly fined for allowing the idling of barges, ships and freight cars, underfloating of timber, shipping unordered timber, failure to load freight cars to the top, etc. Last year 12 enterprises under union jurisdiction paid fines in excess of 2.5 million rubles and caused 1 million rubles' worth of losses from defective goods. This confirms once again that the principles of cost-effectiveness have been severely violated at some republic enterprises.

In order to strengthen cost-effectiveness, the new Central Committee membership and the republic's council of ministers must decisively improve enterprise planning and streamline intraplant planning, without which there could not even be a question of real cost-effectiveness.

Currently most ministries limit themselves to issuing the enterprises' assignments on gross output, variety and several other general indicators, without drafting technical-economic norms on the use of materials, fuel and electric power.

We must improve intraplant cost-effectiveness. In order to apply shop cost-effectiveness in 1949, we must train cadres and organize intraplant planning. The party organizations at the enterprises must become the initiators and organizers of this work.

The need to improve intraplant planning faces the state planning and accountability organs, above all the republic's council of ministers Gosplan, with strict requirements. Yet the work of these organs suffer from major shortcomings which consist of poor knowledge of the local situation and lack of properly organized accountability. Let us point out that planning on the rayon level is also unsatisfactory. The republic's council of ministers Gosplan is providing poor leadership to the planning departments of rayon and city soviet executive committees. The party organizations have not done sufficient work among this important group of personnel. The turnover of planning workers, economists and bookkeepers is high in many enterprises. Frequently plant planning is in the hands of insufficiently trained and skilled people. As to financial workers, we are faced with intolerable cases in which some managers belittle the role of bookkeepers and do not support them as they should when they are waging a principle-minded struggle for saving state funds, undeservedly accusing them of bureaucratism and chicanery. Usually, in such cases the primary party organizations assume a neutral position or even cover up such improper actions.

During the remaining 2 years of the five-year plan the republic's industry must take a new major step forward. As in the rest of the country, it must steadfastly struggle for the implementation of the production program and provide good variety and high-quality goods at the lowest possible cost. Our republic's enterprises have all the necessary opportunities to achieve this and to fulfill the postwar five-year plan ahead of schedule (applause).

5003
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PARTY CONTROL IN PRODUCTION

Moscow YU. V. ANDROPOV: IZBRANNYYE RECHI I STAT'I [Yu. V. Andropov: Selected Speeches and Articles] in Russian, 1979 pp 52-56

[Article by Yu. V. Andropov published in the 12 April 1951 PRAVDA issue]

[Text] The successful solution of the problems of building communism requires further improvements in the work level of the party organizations. The skillful combination of political with economic work is the key to achieving new successes in all sectors of economic and cultural construction.

Properly organized control of execution is a major prerequisite guaranteeing the firm implementation of party and government decisions and of state plans and enterprise assignments. The force of party control in production lies in the fact that it helps to train the cadres in a spirit of strictest possible observance of party and state discipline.

In implementing the decisions of the 18th VKP(b) Congress and the 18th All-Union Party Conference, the party organizations acquired a certain amount of experience in supervising the implementation of party and government decisions. This experience indicates that wherever party and economic work are properly combined and the party organizations do not take over the functions of the economic organs but, conversely, comprehensively upgrade the responsibility for the implementation of state assignments, production problems are resolved more successfully.

In controlling the economic activities of enterprise administrations, the party organizations must not limit themselves merely to a formal investigation of the state of affairs or the formulation of decisions based on investigation data. The main thing is to involve the broad party member masses and all working people in the struggle for the implementation of the planned measures.

Noteworthy in this respect is the practical experience of the party organization at the Gumbarucheyskiy timber center in Karelia. The organization studies the production life of its enterprise extensively on a daily basis. All party members are participating in supervising the economic activities of the administration as a result of which the party organization is well familiar with the work situation and can expose and eliminate shortcomings promptly. It does not take over the functions of the economic managers and does not work for them but keeps in touch with them and helps them to carry

out the most important measures. The party organization has been able to ensure the normal work of the timber center which is successfully implementing the state plan.

A number of examples of skillful organization of party control over production can be cited. However, we must also admit that many party organizations in the republic are exercising poor control over enterprise administration activities. This largely explains the fact that a number of timber and fishing industry enterprises are failing to fulfill their production plans.

In analyzing the activities of industrial party organizations we are bound to note that some of them make very poor use of this right granted to them in accordance with the VKP(b) bylaws. In a number of cases the methods used to supervise the economic activities of enterprise administrations suffer from one-sidedness, for which reason they fail to yield the necessary results.

Frequently control is reduced merely to a discussion of the reports submitted by economic managers at party meetings and party bureau sessions. Occasionally such reports are heard without any profound study of the matter. The result is that the adopted resolutions frequently resemble each other. They include few specific instructions on how more rapidly to eliminate observed shortcomings, and the abundance of decisions deprives the party organization of the opportunity to ensure efficient control over their implementation.

The inability to focus the attention on decisive problems which determine the successful work of the enterprise is a major shortcoming in the work of some party organizations. Instead, they try to resolve petty and secondary problems, frequently assuming extraneous functions or doing the work of economic managers.

Some economic managers consider the party organization and the party raykom as a kind of "pusher." They frequently address themselves to the party committee with the request to help them in obtaining additional quantities of raw and other materials. In turn, the party committees frequently yield to the insistence of the economic managers and support them even when their requests are totally unjustified.

Thus, the Pryazhinskiy Raykom asked the republic's communist party Central Committee to help a timber industry enterprise to obtain bricks, glass, nails and other construction materials to repair housing. An investigation revealed that the warehouses of the enterprise contained the necessary quantities of bricks, glass and stove-repairing instruments.

By taking over the functions or unnecessarily supervising the economic managers, some party committees are willy-nilly seriously harming the bolshevik upbringing of cadres. Such practices encourage an irresponsible attitude on the part of economic managers toward their assignments, and develop in them a mood of carelessness and tolerance, and the desire to fulfill their plans without particular efforts.

Proper party control is an effective means in organizing the masses for the fulfillment of the assignments facing them or their enterprise. Organizational work must assume a most important role in the activities of the party organizations. Making a decision and earmarking measures for the elimination of shortcomings are not enough. The main thing is the ability to mobilize the masses for the implementation of such measures. This requires daily organizational and political work among the masses.

Unfortunately, this is forgotten by some party organizations. Judging by the number of investigations and resolutions, the Segezhskiy Rayon party committee, for example, should be considered a model to others for its attention to the work of timber enterprises. However, its decisions frequently resemble the orders issued by the trust manager, as though they had been simply edited. The raykom forgets the fact that it must organize and educate the people and that its work methods must be distinct from those of the economic organs. It does not rely in its activities on the primary party organizations of the enterprises. Given this situation, one cannot seriously speak of efficient party supervision of the production process.

The strength of the party organization lies in its close ties with the masses. Party supervision of the production process can be efficient and effective only when it involves the participation of the broad toiling masses along with managers and party members, and when the masses control the managers, point out their errors and help them to eliminate work shortcomings.

Practical experience indicates that whenever the party organizations ignore the increased political and labor activeness of the masses and pay no attention to their remarks and suggestions, shortcomings in enterprise work are not always promptly exposed and eliminated.

The party organization of the Segezh paper combine is an example of this. The party bureau paid no attention to worker reports on major difficulties in the organization of accounting and accountability and negligence, as a result of which for a long time the combine suffered from serious work breakdowns. The combine's party bureau involved in the organization of control a small group of activists only who, furthermore, were dependent on the administration. This failed to create the necessary conditions for the development of criticism and self-criticism.

There are still cases in which some primary party organizations and raykoms deal with production problems "in general and as a whole." However, true bolshevik control over economic activities presumes a profound knowledge of enterprise life and the ability to understand the details of one matter or another. Here again one must not content oneself with general instructions. The decisions of the party organization must be specific. They must be based on the thorough knowledge of the situation and the work. This does not mean in the least that the initiative of the economic manager must be bound by the implementation of the party's decision. Specific decisions help both the economic manager and the party organizations in ensuring the most successful implementation of assignments.

In supervising the economic activities of enterprise administrations, the republic's party organizations focus their attention on the struggle for the use of anything that is new, progressive and advanced. This can be seen, in particular, in the party organizations of many timber industry enterprises.

The modern equipment which the state is generously supplying the timber procurement workers called for the use of new technology. The assembly-line method, which makes it possible to increase the comprehensive output of the individual worker by 50 to 100 percent, proved to be entirely applicable at mechanized timber enterprises. Hundreds of followers of Aleksey Gotchiyev, State Prize laureate, appeared. They are showing their ability and skill and are dedicating their creative energy to ensuring the upsurge of the timber industry. Tractor operator Komsomol member Ivan Kotov initiated the movement for a thrifty and efficient use of machines and mechanisms, an initiative which was extensively supported by the party organizations.

However, production innovators are still encountering a great number of difficulties and hindrances along the way. The new equipment and the new most productive work methods are being introduced too slowly. We still come across cases of inertial attitudes on the part of some timber enterprise managers concerning worker suggestions. Here and there antimechanization feelings remain.

In controlling the economic activities of enterprise administrations, the primary party organizations need the substantial aid of the party organs. We must admit, however, that the party gorkoms and raykoms are still poorly teaching the party organizations the skill properly to combine party-political with economic work. Until recently the republic's communist party Central Committee itself had been passing a number of different resolutions which encouraged the party organizations to apply an unnecessary petty supervision of economic managers.

The party gorkoms and raykoms are poorly encouraging the initiative of the primary party organizations in the use of the internal reserves at the disposal of enterprises.

We are still insufficiently training party organization secretaries in a spirit of strict exigency in supervising the activities of enterprise administrations, and in a spirit of intolerance of any kind of manifestation of buresucratism and red tape. In some cases urgent production matters remain unresolved for months by enterprise managers. The efficient solution of problems is replaced by drafting plans for future measures or by management promises.

The republic's party organization faces major tasks. It is taking measures to improve the work of enterprises, to upgrade labor productivity and to ensure the most effective utilization of the equipment. Further successes in industrial work largely depend on upgrading the role of party management. Steps are being taken comprehensively to upgrade the responsibility of the

primary party organizations for enterprise work. The proper combination of political with economic work and the comprehensive development of bolshevik criticism and self-criticism are the most important means for a new and even more powerful upsurge in socialist industry.

5003
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CPSU CENTRAL COMMITTEE PLENUM HELD 22 NOVEMBER

'Information Announcement'

LD221618 Moscow TASS International Service in Russian 1558 GMT 22 Nov 82

["Information Announcement on the Plenum of the CPSU Central Committee" -- TASS headline]

[Text] Moscow, 22 Nov (TASS) -- A regular plenum of the CPSU Central Committee was held on 22 November 1982. The plenum heard a report entitled "On the State Plan for Economic and Social Development of the USSR in 1983" presented by Comrade N.K. Baybakov, deputy chairman of the USSR Council of Ministers and chairman of the USSR State Planning Committee; and a report entitled "On the USSR State Budget for 1983" presented by Comrade V.F. Garbuzov, USSR minister of finance.

Speaking in the debates on the reports were: Comrades V.V. Grishin, first secretary of the Moscow Gorkom; G.V. Romanov, first secretary of the Leninigrad Obkom; E.A. Shevardnadze, first secretary of the Central Committee of the Communist Party of Georgia; A.P. Lyashko, chairman of the Council of Ministers of the Ukrainian SSR; G.S. Zolotukhin, USSR minister of procurement; G.P. Bogomyakov, first secretary of the Tyumen Obkom; N.V. Pereverezeva, team combine operator of the Lenin's Way Kolkhoz in Rostov Oblast; V.P. Demidenko, first secretary of the Kustanay Obkom of Kazakhstan; G.P. Lotsmanova, assembly worker at the Kazan computer works; L.G. Kletskov, first secretary of the Grodno Obkom of Belorussia; and B.V. Bakin, USSR minister of installation and special construction work.

An important speech at the plenum was made by Yu.V. Andropov, general secretary of the CPSU Central Committee. The speech is published in the press.

The CPSU Central Committee plenum unanimously adopted a decision on the issues discussed. The decision is published in the press. The CPSU Central Committee plenum considered organizational issues. The Central Committee plenum transferred Comrade G.A. Aliyev from candidate member to member of the CPSU Central Committee Politburo. The Central Committee plenum released Comrade A.P. Kirilenko from his duties as member of the Politburo of the Central Committee and secretary of the CPSU Central Committee for health reasons and at his own request. General Secretary of the CPSU Central Committee Comrade Yu.V. Andropov pointed out that Comrade A.P. Kirilenko worked actively for many years both in local party bodies and in the CPSU Central Committee and said that we pay tribute to his services to the party and the country.

The plenum elected Comrade N.I. Ryzhkov as secretary of the CPSU Central Committee.

The plenum transferred the following candidate members of the CPSU Central Committee to members of the CPSU Central Committee: Comrades V.S. Alkhimov, chairman of the USSR State Bank; V.S. Makarenko, first secretary of the Crimean Obkom of the Ukrainian Communist Party; and N.V. Pereverzeva, combine driver team leader from the Lenin's Way Kolkhoz in Rostov Oblast.

The Central Committee plenum approved a decision by the CPSU Central Committee, the USSR Supreme Soviet Presidium and the USSR Council of Ministers entitled "On Immortalizing the Memory of Leonid Ilich Brezhnev." The decision is to be published in the press.

With this, the plenum ended its work.

Andropov Plenum Speech

LD221856 Moscow TASS in English 1848 GMT 22 Nov 82

[Moscow Domestic Television Service in Russian at 1800 GMT on 22 November carries an announcer-read version of the Andropov 22 Nov CPSU Central Committee plenum speech. This has been compared with the TASS English version and found to be identical except for several variations. Moscow PRAVDA in Russian on 23 November in the First Edition on pages 1 and 2 publishes a version of the Andropov Speech. The PRAVDA version has also been compared with the TASS English version and several variations have been noted. The variations noted in the Moscow Television Service and Moscow PRAVDA versions will be provided in brackets within the text of the speech.]

[Text] Moscow November 22 TASS -- Yuriy Andropov, general secretary of the CPSU Central Committee, made a speech today at a plenary meeting of the CPSU Central Committee. Follows the full text of the speech: [The Moscow Television version omits the TASS introductory paragraph, picking up the first line of the second paragraph with the added word "Comrades,"]

"We are concluding the discussion of the draft plan and draft budget for the next year of the five-year period. A number of substantial remarks which were made at the Political Bureau have already been taken into consideration in the documents that have been submitted to us. I think that during the implementation of the plan the Council of Ministers will take into consideration also the proposals which we are expressing today, comrades.

Judging by what was said by comrades who spoke at the plenary meeting, our general opinion is this: The draft plan and draft budget on the whole accord with the guidelines of the 26th Congress of the CPSU and they should be approved.

What is characteristic of the draft plan? It is intended to accelerate the rates of economic development and to increase the absolute amounts of increment in national income, industrial and agricultural output and in the volume of retail goods turnover. Provision is made for a continuation of work to raise the effeciency of the economy -- strenuous assignments must be implemented with a comparatively lesser increase in material expenditure and labour resources.

It is of importance to emphasize that the party's line towards raising the people's well-being is maintained in the draft. It is planned to ensure a priority growth of the group "B" industries and an increase in the manufacture of consumer goods. Big material and financial resources are allocated for the further development of the agro-industrial complex. The population's real incomes will continue to grow. The volume of housing construction also conforms to the targets of the five-year plan.

Thus, the draft plan confirms that concern for Soviet man, for his working and living conditions and spiritual development remains the party's priority goal. [PRAVDA version reads "priority program goal" adding word "program"]

Defence requirements as usual [PRAVDA version reads: "as always"] have been sufficiently taken into account. The Political Bureau has considered and considers it compulsory, particularly in the present-day international situation, to provide the Army and the Navy with everything necessary.

The draft budget ensures the financing of the economy and socio-cultural development.

Comrades,

This plenary meeting of the party's Central Committee is taking place at an important stage of efforts to implement the plans of the eleventh five-year period — on the eve of its third, core-life, so to say, year. We have done a good deal. But difficult and strenuous work lies ahead.

I would like emphatically to draw your attention to the fact that by a number of key indicators the planned targets of the first two years of the five-year period turned out to be unfulfilled. This, naturally, also tells on the draft plan which we are discussing today. The Central Committee members remember the last speeches by Leonid Ilich Brezhnev and his notes to the Political Bureau of the Central Committee on economic development matters. The question was put thus [Moscow television adds "by him"]: At party congresses and at plenary meetings of the Central Committee we have worked out a scientifically substantiated economic policy and have taken a course towards raising the efficiency of production and towards its intensification. But the switching of our economy to these lines, the turn towards efficiency are being carried out still slowly.

The chief indicator of the economy's efficiency — labour productivity — grows at a rate which cannot satisfy us. The problem of lack of coordination between the development of raw-material and processing branches still remains. The materials intensiveness of output does not practically diminish.

Plan targets continue to be met at the price of large outlays and production costs. There still are quite a few economic managers who, while readily quoting Leonid Ilich's famous words that the economy should be economical, are doing little in practice to accomplish this task.

Apparently, the strength of inertia and adherence to old ways are still at work. Moreover, some people, perhaps, just do not know how to set about doing the job. Thought should be given to the help that must be accorded such comrades. The main thing, however, is to speed up work to improve the entire sphere of economic management, including administration, planning and the economic mechanism.

Conditions, both economic and organizational, should be provided to encourage quality and productive work, initiative and enterprise. Conversely, shoddy work, inactivity and irresponsibility should have an immediate [PRAVDA reads "the most immediate"] and unavoidable effect on the earnings, official status [Moscow Television version reads: "job status (sluzhebnoye polozheniye)" instead of "official status"] and moral prestige of workers.

Responsibility for observing the interests of the whole state and the whole people should be enhanced and departmentalism and parochialism should be resolutely uprooted. It should become law [Moscow Television version reads: "It should become the rule (nado sdelat pravilom)" instead of "It should become Law"] that any new decision on the same question be taken only after past decisions have been fulfilled or after any new circumstances have emerged. Any breaches of party, state and labour discipline should be combatted more resolutely. I am certain that we will be given here unqualified support by the party and trade union organizations, support by all the Soviet people.

A good deal has been said lately about the need to extend the independence of amalgamations, [Moscow Television Versions reads "associations" instead of "amalgamations"] enterprises and collective and state farms.

The time seems to have come to tackle this problem in practice. The Politbureau has instructed the Council of Ministers and the State Planning Committee on this score. [PRAVDA rewords sentence as follows: Instructions have been given to the Council of Ministers and State Planning Committee on this score.] It is necessary to act with caution here, to conduct experiments if need be, to make appraisals and to take account of the experience of fraternal countries. The extension of independence should in every case be combined with the enhancement of responsibility and with concern for the interests of the entire people.

We have large reserves in the national economy. This was pointed out, in particular, in today's speeches. These reserves should be sought in speeding up scientific and technical progress and in the large-scale and speedy introduction of scientific and technological achievements and advanced experience in production. This question is not new, of course. It has been raised more than once at the party's congresses and at the Central Committee's plenary meetings. Nevertheless, progress is slow. Why so? The answer, too, is long known: To introduce a new method or new technology, production has to be reorganized in one way or another, and this affects fulfilment of plan targets. Moreover, you may be taken to task for failing production plans by only scolded at the most for poor introduction of new technology.

If we really want to advance the introduction of new technology and new work methods, it is necessary that the central economic management bodies, the Academy of Sciences, the State Committee for Science and Technology and the ministries should not merely popularise them but should identify and remove the actual difficulties hampering scientific and technical progress. The alliance of science and production should be prompted by planning methods and by the system of material incentives. It is necessary to create a situation in which those who boldly introduce new technology do not find themselves at a disadvantage.

Another major reserve is the rational use of material and labour resources. The plan for 1983 fixes higher targets for saving these resources. I should like to draw the attention of comrades to the fact that now the question of saving material resources should be considered in a new light and not like "I have saved -- good, I have not saved -- not so bad either."

Today saving, a thrifty attitude to the people's weal amount to the question of our plan targets being realistic. [PRAVDA reads: "Today economy and a thrifty attitude toward the people's property (dobro) are a question of the reality of our plans.] The solution of this question should be ensured by a whole system of practical measures to be taken primarily by the State Planning Committee of the USSR, the State Committee of the USSR for Material and Technical Supply, ministries and departments. A good deal is to be done by all the parties committees, by all the party organisations.

We have quite a few examples of creative work and of a truly thrifty attitude to the people's weal. [PRAVDA reads: "property" instead of "weal"] This experience, regrettably, is not properly disseminated. Meanwhile, [PRAVDA reads: "However" instead of "meanwhile"] as a rule, no particular expenditures are needed here. This means that another thing is lacking, namely, initiative and resolute struggle against mismanagement and wastefulness.

Naturally, this task can only be accomplished with the participation of every worker, everyone working at our enterprises and collective and state farms. We should strive to ensure that they perceive this task as their own cause.

To sum it up, comrades, there are many ripe tasks in the national economy. Of course, I do not have ready receipes for their solution. But it is all of us, the party's Central Committee, who are to find answers to them through drawing general conclusions from domestic and world experience and through accumulating the knowledge of the best practical workers and scientists. In short, you cannot get things moving by slogans alone.

It takes large-scale organizational work of the party organizations, economic managers and engineering and technical personnel for each of these vast and important tasks to be analysed not only in the context of every economic sector but in the context of every plant, workshop, production section and, if you wish, every workplace.

I would like to stress that these questions are of primary importance and vital to the country. If we resolve them successfully, the economy will continue to grow and the living standards of the population will rise.

The measures related to the fulfilment of the Food Program are central to our plans.

The initial steps to fulfill the decisions of the May 1982 plenary meeting of the Central Committee had to be taken in a rather difficult situation. The weather did not smile on us this year either. This makes it all the more important to commend agricultural workers on their dedicated efforts. Thanks to this and thanks to the strengthening of the material and technical basis of agriculture, a number of regions, territories and republics have achieved good results. [PRAVDA reads "quite good results (neplokhiye)" instead of "good results"] The grain harvest has perceptibly grown over last year's and good harvests of cotton, vegetables and grapes have been gorwn. The production of milk and eggs has increased. The subsidiary farms of industrial plants are gaining strength. Concern for the development of personal subsidiary plots is justifying itself as well. At the same time interruptions in the supply of certain food products have not yet been removed.

Everyone understands, of course, that the country's Food Program cannot be fulfilled one year. [PRAVDA reads "...the country's Food Program is not the work of a single year."] This is so. But we should forthrightly say, too, that the fulfilment of the Food Program must not be dragged out. Workers of the agroindustrial complex should increase their efforts from day to day and work so that the huge resources allocated to accomplish this task should pay back already today and yield even a higher payback tomorrow.

The Politbureau believes that the forthcoming plenary meetings and meetings of activists of party committees and the sessions of the soviets of people's deputies which will review plans for next year should discuss progress in the implementation of the decisions of the May 1982 plenary meeting of the Central Committee. It is necessary that all practical actions in this important section of the economy should be evaluated in the context of the Food Program.

I will not dwell at length on the need to complete the agricultural year successfully, to preserve the gathered harvest, to do the groundwork for next year's harvest and to ensure successful livestock wintering. All this goes without saying. It is necessary to pass on promptly to the solution of new problems and to consider them in close relationship with the basic directions of the development of the agroindustrial complex with due account of the fact that we have here a complex in which there are no secondary tasks.

The plan for 1983 attaches much importance to the growth of production and improvement of quality of consumer goods, a question which Leonid Ilich thought particularly important. The task here is not only to increase the production of consumer goods but also to considerably improve their quality. This applies not only to light and local industries but also to plants in the heavy and defence industries.

As Comrade Baybakov rightly [PRAVDA reads "quite rightly" instead of "rightly"] stated here, local party and government [PRAVDA reads "soviet" instead of "government"] bodies should concern themselves directly with the production of consumer goods. Indeed, we cannot consider it normal when questions of the production of a number of ordinary goods are decided almost by the State Planning Committee of the USSR. It is necessary that local bodies concern themselves with these matters and assume full responsibility for tackling them.

Now permit me to address certain key problems of the development of basic industries. To begin with, the further development of the fuel and energy complex. An increment of about 41 million tons of standard fuel in the primary energy resources planned for 1983 is quite realistic. It makes it possible to ensure the uninterrupted and smooth work of all the energy systems.

It is particularly important to use thriftily coal, natural gas, oil, petroproducts, heat and electric energy.

Of course, this calls for certain reorganization in all the sectors, first and foremost for the large-scale introduction of energy-saving technology and production processes, for improved rates and quotas, for using material and moral incentives in the struggle for thriftiness, and for a stricter attitude to excessive expenditures, to exceeding rates and limits.

It is planned to make the proposal at the forthcoming session of the USSR Supreme Soviet to organize at the Soviet of the Union and at the Soviet of Nationalities standing commissions on energy which will be able to supervise the work of ministries and to call to task economic managers of any rank for wasteful use of resources.

The work of the commissions set up in territories, regions and republics to supervise the organization of such control at enterprises should be revitalized.

The Politbureau is concerned over the situation in transport. The Ministry of Railways still does not meet the needs of the national economy in the transportation of fuel, timber and other cargoes. Many signals to this effect are coming to the CPSU Central Committee from local government [PRAVDA reads "soviet" instead of "government"] and economic management bodies. This was mentioned also at the Central Committee plenum today.

The performance of railroads, regrettably, is deteriorating from one year to the next despite the substantial assistance given to the Ministry of Railways by the government. The volume of capital investments set aside for this ministry has grown by 43 percent as compared with 1975 and the fleet of trunk diesel and electric locomotives has increased by 23 percent.

The CPSU Central Committee and the government have taken a number of decisions on improving social conditions for railway workers and perfecting the economic mechanism of transport. However, the measures that have been taken have not yet paid back properly.

The organization of repairs and use of locomotives and the organization of traffic are at a low level at the Ministry of Railways. Apparently, not only the leadership of the ministry but also the USSR Council of Ministers and the CPSU Central Committee will have to draw serious conclusions from the criticism which was expressed at the plenum here.

Setbacks in ferrous metallurgy have become more frequent. [PRAVDA reads: Hitches in the work of ferrous metallurgy enterprises have become more frequent.]

Last year the industry did not meet its plan targets and the situation is the same this year. The national economy has not received several million tons of rolled stock. Responsibility for the situation in the industry should be borne primarily by the Ministry of Ferrous Metallurgy. Of course, there are objective difficulties as well. A large portion of the fixed assets requires reconstruction and modernization. The ministry needs serious aid from the State Palnning Committee, the State Committee for Material and Technical Supply and the engineering ministries.

We set aside vast resources for economic development, for the construction of new production capacities and for building housing and cultural and communal projects.

It is a task of paramount importance to use them effectively. At the same time quite a few problems are persisting in capital construction. The scattering of forces and resources between a host of projects should be combatted even more resolutely. The share of reconstruction and modernisation should be increased and the number of new construction projects reduced. We are not pleased in many ways with the organisation of construction as such either. The shortcomings here result year after year in failure to meet plan targets for putting new production capacities into operation. A number of ministries concerned with construction are reducing the volume of construction and assembly work, although the government sets aside considerable financial resources, machinery and equipment to strengthen the material and technical basis of those ministries. The quality of construction and assembly work remains poor in many cases. Building organisations are not sufficiently mobile.

No new decisions have been taken to remove these shortcomings and these should be undeviatingly [PRAVDA omits "undeviatingly"] carried out. Putting capital construction in better order is one of the central tasks in the national economy.

I shall not dwell today on other spheres and branches of the economy. All of them are important to our society, our people. And every ministry and every department should thoroughly [PRAVDA reads "most carefully" instead of "thoroughly"] analyze again and again the state of affairs, to plan and carry out measures to solve the existing problems. The main criterium by which they should assess their work is the degree to which the branch in question satisfies the ever-growing requirements of society.

A steady rise of the economy and improvement of the welfare of the people are both our duty to the Soviet people and our internationalist duty. In posing the question in this way the party is guided by Lenin's far-sighted injunction that we are exercising our main influence on the world revolutionary process through our economic policy.

Comrades,

The death of Leonid Ilich Brezhnev caused abroad a lot of conjecture concerning the future policy of the CPSU and the Soviet state in international affairs. Just think how many attempts have been made in recent years to ascribe to the Soviet Union all kind of sinister intentions, to portray our policy as an aggressive one, jeopardizing the security of now one state, now another. But now it turns out that they worry lest this policy might be changed. The continuation of this policy is seen as an important precondition for peace and tranquility in the international arena.

I must say with a full sense of responsibility that Soviet foreign policy has been and continues to be determined [PRAVDA reads: ...Soviet foreign policy has been and will continue to be as determined....] by the decisions of the 24th, 25th and 26th ongresses of our party. The invariable aims of our foreign policy are to ensure a lasting peace and to defend the right of the peoples to independence and social progress. In the struggle for these aims the leadership of the party and the state will be acting consistently and thoughtfully in line with its principles.

We think that the difficulties and tension characteristic of the present international situation can and must be overcome. Mankind cannot endlessly put up with the arms race and with wars unless it wants to put its future at stake. The CPSU does not want the dispute of ideas to grow into a confrontation between states and peoples, it does not want arms and the readiness to use them to become a gauge of the potential of the social systems.

The aggressive designs of imperialism compels us, together with the fraternal socialist states, to show concern, and in earnest at that, for maintaining our defence capability at a proper level. But, as was stressed by Leonid Ilich more than once, military rivalry is not our choice. The ideal of socialism is a world without arms.

The primary concern of our party will continue to be the strengthening of the socialist community. In unity lies our strength, an earnest of ultimate success even in most serious trials.

All the plans of the community of socialist states are plans of peace and construction. We want comradely cooperation and socialist mutual assistance among the fraternal countries to grow deeper and more effective, specifically in the joint solution of scientific and technical, production, transport, energy and other problems. Further joint steps are now being planned toward this end.

The CPSU and the Soviet state sincerely wish for the development and improvement of relations with all socialist countries. Mutual goodwill, respect for each other's legitimate interests and common concern for the interests of socialism and peace should prompt correct solutions also there, where appropriate trust and mutual understanding are still lacking for various reasons.

This also refers to our great neighbour, the People's Republic of China. The ideas formulated by Leonid Ilich Brezhnev in his speeches in Tashkent and Baku, the emphasis he put on common sense, on the need to overcome the inertia of prejudices expressed the conviction of all our party, its desire to look ahead. We pay great attention to every positive response to this from the Chinese side.

The importance of the group of states which created the Nonaligned Movement is growing in international life. With many of them the Soviet Union has all-round friendly ties which benefit both sides and make for greater stability in the world. One example of this is the Soviet Union's relations with India. Solidarity with the states which have gained freedom from colonial oppression, with the peoples who are upholding their independence has been and remains one of the fundamental principles of Soviet foreign policy.

Since the early days of Soviet power our state has been invariably expressing readiness for open, honest cooperation with all countries which reciprocate these sentiments. Deferences in the social systems must be no obstacle to this, and they are no obstacle where there is good will on both sides. This is borne out convincingly by the marked progress in the development of the Soviet Union's peaceful cooperation with many West European countries.

We are deeply convinced that the seventies, characterised by detente, were not -- as is asserted today by certain imperialist leaders -- a chance episode in the difficult history of mankind. No, the policy of detente is by no means a past stage. The future belongs to this policy.

All are equally interested in preserving peace and detente. Therefore, statements in which the readiness for normalising relations is linked with the demand that the Soviet Union pay for this with preliminary concessions in different fields, do not sound serious, to say the least. We shall not agree to this and, properly speaking, we have nothing to cancel: We did not introduce sanctions against anyone, we did not denounce treaties and agreements that were signed and we did not interrupt talks that were started. I should like to stress once more that the Soviet Union stands for accord but this should be sought on the basis of reciprocity and equality.

In our opinion the point of talks with the USA and other Western countries, primarily on questions of restraining the arms race, does not lie in the statement of differences. For us talks are a way of joining efforts by different states in order to achieve results useful to all sides. The problems will not disappear by themselves if the talks are held for the sake of talks, as it unfortunately happens not infrequently. We are for the search of a healthy basis, acceptable to the sides concerned, for a settlement of most complicated problems, especially, of course, the problems of curbing the arms race, invloving both nuclear and conventional arms. But let no one expect a unilateral disarmament from us. We are not naive people.

We do not demand unilateral disarmament from the West. We are for equality, for consideration for the interests of both sides, for honest agreement. We are ready for this.

As to the nuclear strategic arms possessed by the USSR and the USA [PRAVDA adds "in particular,"] the Soviet Union, as is known, agrees that the two sides should, as the first step on the way to a future agreement, freeze their arsenals, and thus create more favourable conditions for the continuation of talks on the mutual reduction of these weapons.

Generally speaking, the Soviet Union rejects the viewpoint of those who are trying to impress on people the idea that force, arms decide and will always decide everything. [Moscow Television begins sentence: The Soviet Union totally rejects....(omitting "generally speaking" and adding "totally")] Today, as never before, the peoples come to the forefront of history. They have gained the right to have their say and their voice will not be muffled by anyone. They are capable of removing, by vigorous and purposeful actions, the threat of nuclear war, safeguarding peace and hence life on this planet. The Communist Party of the Soviet Union, the Soviet state will do everything possible that this should be so.

The 26th Congress of the CPSU concretized the party's long-term strategy for the eleventh five-year period and for the eighties as a whole. This stategy is aimed at securing that Soviet people live better from year to year and that their work yield more and more tangible results and that our socialist system reveal more and more fully its humane essence and its creative possibilities.

Big and to a considerable extent new tasks have been set in all fields of economic and social progress. Success, of course, is dependent on many factors and first of all on the purposeful collective work of the Central Committee and on our ability to concentrate the activities of the party, state and economic bodies, and of all working collectives on key directions.

It is essential to mobilize all means which are at our disposal and to start popularising widely and explaining the targets of the 1983 plan. They must be concretized in reference to the taks of each enterprise, each work collective. This is first.

Secondly, it is necessary to place personnel correctly so that in the decisive sectors we would have politically mature, competent and resourceful people, with organizing ability and a sense of the new, without which it is impossible to manage [PRAVDA reads "successfully manage"] modern production in our days.

Thirdly, it is necessary to give a boost to the activity of the masses of working people themselves. Today this is a key task of the party committees, the soviets, trade-union and Komsomol bodies. The party's ideas, plans and calls [PRAVDA adds "as is well known,"] become a material force when they get hold of the masses. At present, it is particularly important and necessary that each worker understand that the implementation of the plan depends on his labour contribution, too, and that everyone understand well the simple truth that the better we shall work the better we shall live. As Lenin emphasized, the greater the scope of our plans and our production tasks "the larger must be the number of those enlisted [PRAVDA substitutes "...the number of people enlisted in their millions...." for "...the number of those enlisted..."] for the purpose of taking an independent part in solving them."

And this means that it is essential further to develop socialist democracy in its broadest sense, i.e. to secure a still more active participation of the masses of working people in managing state and social affairs. And, of course, it is needless to prove here how important it is to show care for the needs of the workers and for their working and living conditions.

We shall always and invariably be true to the Leninist norms and principles which have become firmly established in the life of the party and the state.

Comrades, the tasks lying ahead are immense and complex but it is within the party's power to accomplish them.

The days when we bade last farewell to Leonid Ilich Brezhnev have shown to the whole world again that our Communist Party and the Soviet people are inseparable and that their striving is common -- firmly and undeviatingly to proceed along the Leninist road.

Soviet people have again shown their utter devotion to the ideas of Marxism-Leninism, their deepest respect and love for their own party, a high degree of organization, self-control, and confidence in their strength.

We are on the eve of an important event in the history of our multinational socialist state -- the 60th anniversary of the formation of the Union of Soviet Socialist Republics. These days Soviet people turn their best thoughts to our Leninist party which stood at the beginnings of the formation of the USSR and wisely leads the peoples of our country along the road of building communism.

To strengthen the unity of the party and the people and firmly to follow the behests of great Lenin -- herein lies the earnest of all our future triumphs!

Plenum Resolutions

OW230047 Moscow PRAVDA in Russian 23 Nov 82 First Edition p 1

["On the draft State Plan for the Economic and Social Development of the USSR and the Draft USSR State Budget For 1983"]

[Text] 1. To approve in general the drafts of the state plan for the economic and social development of the USSR and the state budget of the USSR for 1983. The USSR Council of Ministers is to submit these drafts for examination by the USSR Supreme Soviet.

2. To wholly and completely approve the practical work of the CPSU Central Committee Politburo in implementing the course in the sphere of domestic and foreign policy drawn up by the 26th party congress and in fulfilling the tasks of communist construction.

To approve the points and conclusions contained in the speech of Comrade Yu.V. Andropov, general secretary of the CPSU Central Committee, at the CPSU Central Committee plenum, and to make them the basis of the work of all party organizations.

The Central Committees of the communist parties of union republics, kraykoms, obkoms, okrug committees, gorkoms and raykoms of the party, party organizations, soviet, trade union and Komsomol organs, ministries and departments are to launch organizational and mass political work aimed at the implementation of the latest economic and political tasks, and the further strengthening of the economic and defense might of the USSR. They are to take the necessary measures for the successful fulfillment of the tasks of the current year, the fulfillment and overfulfillment of the economic and social development plan for 1983.

Mr. ROWEN. You know, Mr. Andropov is 68 years of age, I believe.

Senator PROXMIRE. That is pretty young by the standards of leadership in the Soviet Union, isn't it?

Mr. ROWAN. Well, this is a fellow who is just starting.

Senator PROXMIRE. None of them are spring chickens.

Mr. ROWEN. If experimentation is to be taken literally, it would take years, really, to experiment. If that is to be taken seriously, it takes years to get experimental results. How long will he be here? Nobody knows. But I wouldn't say his access to power is a clear signal by any means that there are going to be Hungarian-type economic reforms.

DIFFERENCE BETWEEN THE SOVIET AND WESTERN ECONOMIC SLOWDOWN

Senator PROXMIRE. The Soviets are experiencing a slowdown in economic growth, as is virtually all of the industrialized West and Japan. It seems to be a worldwide slowdown. Yet, the Soviet economy is often described as in a state of crisis while we view ourselves as temporarily in the down side of the business cycle. What do you believe is the fundamental difference between the economic slowdown in the Soviet Union and what is happening in the West? Are the slowdowns in the two camps related in any way?

Mr. ROWEN. Good question. And I can only give you a conjectural answer.

The slowdown in the East seems to me to be systemic. The statement really dealt with most of what we know about the causes of it. The one in the West seems to me to be more cyclical. It has to do a lot more with the effect of the sharp increase in the price of oil in the early seventies and the high degree of world inflation that is associated with that. The wringing out of that inflation, which has been going on for the last couple of years, has partly caused the downturn. It is very likely a cyclic process. There is likely to be a pickup, although not necessarily a vigorous one, but some improvement. It is a different economic system, different causes.

Senator PROXMIRE. You don't think there is a sufficient amount of trade between the Soviet Union and the other Warsaw Pact countries and our country and NATO countries to relate them to some extent so that a recovery here would also spread to some recovery there?

Mr. ROWEN. The amount of trade is really so modest.

Senator PROXMIRE. What is that?

Mr. ROWEN. It is very modest; indeed, the trade of the entire Eastern bloc with the West is extremely small.

SOVIET SECONDARY EDUCATION

Senator PROXMIRE. May I just ask you about another element of this? You talk about their strong element being secondary education, but the figures that you gave were pretty weak compared to ours and compared to European standards. That is the 23 percent. Then, was that the figure of the students graduating from high school?

Mr. ROWEN. Yes.

Senator PROXMIRE. It is much lower than ours. How would you compare their standard with ours and with the Japanese? Would you say that their elementary secondary education is better than ours in the scientific area—mathematics about the same or not as good?

Mr. NOREN. It is unquestionably not as good as the Japanese; I'm almost certain not as good as the Japanese, but better than ours in terms of the curriculum.

Senator PROXMIRE. On the other hand, the numbers are less.

Mr. NOREN. I think that referred to the percentage of population who had a high school education which includes all of those growing up in the 1920's and 1930's who did not have. But now education through high school is almost universal.

BENEFITS TO THE SOVIET UNION ON COMPLETION OF THEIR GAS PIPELINE

Senator PROXMIRE. Then, I wanted to know about the benefits to the Soviet Union of the completion of the pipeline. How much foreign exchange—hard currency—would that engender? Would that double or increase it by 20, 25, or 50 percent? I just have no idea, and it would be helpful if you could give some notion.

Mr. KOHN. The figures that I have are that by 1990, the gas pipeline would increase their hard currency export earnings by $5 billion. They are earning now about $24 billion in hard currency from commodity exports. So it would be substantial.

Senator PROXMIRE. About 25 percent, about a one-fourth increase?

Mr. KOHN. Yes.

Senator PROXMIRE. There may be almost 25 percent now—increase it by about $5 billion—about one-fourth increase.

Mr. KOHN. This is by 1990. And at the same time, it will not offset the loss in revenues from oil exports which we estimate by 1990 are likely to be lower by some $7 to $10 billion.

Senator PROXMIRE. Thank you.

Senator Symms.

Senator SYMMS. Thank you, Mr. Vice Chairman.

SOVIET PURCHASES OF SILVER

Mr. Rowen, as you know, I come from Idaho. And we are a State that produces about half of this country's silver production. Last year, during the annual or biannual effort made in Washington by the Silver Users Association to try to dump the national stockpile of silver—we go through this trial about every 3 or 4 years; I am sure you are aware of this, but in 1981, the price of silver continued to decline until we have about half of our mines closed now.

And Paul Sarnoff, from the Mining Association, Spokane, Wash., a very well respected metal specialist, who speaks in my State quite often, and who is now, I believe, the head metal specialist for Paine Webber, has made some pretty outspoken observations: that when we had a policy that—the government policy opposing the sale of silver out of the stockpile—drove the price of silver down: the ratio between gold and silver went to about 55 to 60 ounces of silver being equal to 1 ounce of gold, and at that time, the Russians were making massive sales of gold and converting it into silver.

Do you have an indication that is true?

Mr. ROWEN. Buying silver? That is interesting——

Senator SYMMS. Not our silver; for you see, our silver sale laws say we can't sell it to a foreign buyer—but the way it works out, you can buy silver on the London Metal Market, so it doesn't really matter. Is there any way to substantiate that? I get asked that question.

Mr. NOREN. They have made from time to time very large sales of gold. They sold about $2.7 billion worth in 1981. When they have sold gold, it has been because they had a hard currency trade deficit.

I can track the gold sales against their hard currency trade accounts.

Senator SYMMS. They use that for grain or anything?

Mr. ROWEN. We will have to submit to you any information we have on silver purchases.

Senator SYMMS. Do you have any information on them purchasing it?

Mr. ROWEN. We will have to submit that to you.

Mr. NOREN. I have not seen any indication they were selling gold to buy silver.

Senator SYMMS. Or just buying silver.

Mr. NOREN. They have bought silver from time to time.

Senator SYMMS. Substantial amounts of it? Are they a net importer of silver?

Mr. NOREN. No, they are not. They are providing silver, I believe, to Eastern Europe, importing some on their own. But we can provide you with what we know about the trade in silver.

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

Reports in the press and from traders and other sources suggest that Soviet purchases of silver since September have been larger than usual. The reported magnitudes of these purchases have varied widely, however. We doubt that Soviet purchases have reached the unprecedentedly high figure of 10 million ounces, as reported in several stories in the Western press. In the past, the Soviets have sporadically brought large quantities of silver—a strategic metal of importance to the USSR's defense effort—but not at this very high level. Possibly these stories have confused new purchases with deliveries of previously purchased silver. Normally, the Soviets import about one million ounces a year.

SOVIET GRAIN PRODUCTION

Senator SYMMS. What would you think would happen to American agriculture which relies quite heavily—another subject here—on exporting agricultural products? Without an export market, we wouldn't be able to survive.

I notice you make reference to their bad weather. But isn't it a fact that most of their problem with their weather is really just a figment of the government's imagination over there and if they just had relaxed on the farmers, they would produce all they use and then some?

Mr. ROWEN. Once upon a time, they were an exporter of agricultural products to the world, before the Communist revolution.

Senator SYMMS. Is it true they grew more grain per capita in 1913 than they do today?

Mr. ROWEN. I am not sure. Does anybody know that figure?

Mr. NOREN. I am not sure.

Mr. ROWEN. It is possible. I wouldn't exclude that.

Senator PROXMIRE. Would you find out for the record? We would like to have that.

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

No. Not since 1965 has per capita Soviet grain production been lower than it was in 1913 for the same territory now occupied by the Soviet Union.[1]

Senator SYMMS. The point I would like to make is sometimes I wonder if we could ever inundate a Sears Roebuck catalog, we would lose our agricultural market because I don't believe their weather is any worse than in northern Minnesota or Western Canada.

Mr. NOREN. The studies that have been made, climatic analogs of Manitoba or Saskatchewan or even comparisons between the Western U.S.S.R. and Western Europe, Finland, and Sweden show that they have considerable potential for an increase in yields of some crops, especially forage crops. They have less potential for large increases in grain yields.

Senator SYMMS. Senator Proxmire made reference to in some areas where maybe you were talking about Hungary, but some areas, isn't it true in Russia where they allow people to make a profit off of what they——

Mr. ROWEN. Private plots are permitted. It is not a regional thing, but they do permit private plots where people do private farming. The area is really very small, very limited. And it produces a very large, very disproportionate share of output for the obvious reason that there is an incentive for people to do it.

Senator SYMMS. I have never seen it, but have talked to my colleagues. And you can look right down the fence line. It is bad weather on one side and on the other side fertile crops. Is that a verifiable fact?

Mr. ROWEN. Absolutely well-known. A large part of the value of output of agricultural products—not grain, but other products—comes from these private plots.

Mr. NOREN. The private plots don't suffer as much from drought. They get the water.

Senator SYMMS. Where they have freedom, they can produce agriculture, and where they don't have freedom, they have bad weather.

Mr. ROWEN. That's about it.

Senator SYMMS. So their weather forecasts or properties are the one that gives them the bad weather.

Mr. ROWEN. The only reason for me mentioning weather is that the system is permanently unproductive. And so if you look at the fluctuations from year to year, that is mostly weather, it appears.

Senator SYMMS. Right. In other words, their system is so inflexible in agricultural production that if everything goes right from the weather standpoint, they might get a good crop in spite of themselves and the system. But otherwise, we can look for continued——

Mr. ROWEN. It has to be unusually good weather for them to do reasonably well.

Senator SYMMS. Thank you very much.

Thank you, Mr. Vice Chairman.

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[1] See table on p. 269 for an additional response to Senator Symms question.

ECONOMIC GROWTH SLOWDOWN OF THE U.S.S.R. AND OECD COUNTRIES

Senator PROXMIRE. Mr. Rowen, you show a parallel in the economic growth slowdown of the USSR and OECD countries during the 1970's. You referred to that, I guess, a little earlier. But this was a coincidence or were there similar factors at play?

Mr. ROWEN. I believe it was a coincidence. As a matter of fact, the Soviet Union is not an exporter of finished goods, but a raw material exporter and generally benefited from the high inflation in the West during much of the 1970's.

Senator PROXMIRE. And they would also suffer from the world glut; isn't that right?

Mr. ROWEN. That's right. The Soviet Union did benefit very much from developments which hurt the Western economies. It is true that in the last several years commodity prices have fallen, which has hurt many Western countries. It has also hurt the Soviet Union as a raw material exporter. So there has been some convergence in the last few years for that reason. Prices turned against Mexico and against Brazil, many raw material producing countries, and also against the Soviet Union.

SOVIET ECONOMIC RELATIONS WITH CHINA

Senator PROXMIRE. How about improved relations with China? What effect, if any, would that have, economic effect? Obviously, there might be some reduction in the Soviet troops stationed on the border or near the Chinese border. But would there be any other significant benefit to the Russian economy?

Mr. ROWEN. It is hard to see it. They don't really have much to offer each other economically. China is more seriously embarked on economic reforms than the Soviet Union shows signs of so far. But those are Western-type economic reforms. And China's trade with the West is much more than the trade with the Soviet Union. And simply from the Soviet standpoint, I would be very skeptical that there is much promise there for any significant improvement in their economic performance.

Anybody disagree with that?

Mr. KOHN. No.

SOVIET ECONOMIC CRISIS

Senator PROXMIRE. I want to be sure, I think I know what you said on this, but I want to have it clear on the record. Is the Soviet economy in or about to enter a state of crisis or is it so weak and vulnerable that it could become unstable or collapse in the near future?

Mr. ROWEN. It is in a sort of crisis in the sense that the decline in productivity growth I showed in those figures discussed in my prepared statement shows that they are in a kind of crisis all right. But it is not one that seems to us likely to result in collapse. We are obviously looking for glimmerings or signs that might indicate real collapse, Polish-type collapse, for example, with the economy going down 20 percent in economic output.

Those signs are not evident. The system has gotten stagnant. It is practically in a state of level output, but collapse seems most unlikely.

GROSS NATIONAL PRODUCT OF THE SOVIET UNION, 1961 TO 1970

Senator PROXMIRE. Now, you show that in 1961 to 1970, there was a better than 5-percent growth during those 10 years in the gross national product of the Soviet Union. And industrial growth was even greater. It was 6.5 percent. That was more than 40 years into the economy's domination of the Soviet Union with a roughly similar political system, a change to some extent in personalities and so forth.

But yet, 43 or 44 years after the revolution in 1961 and in 1970 with 50 years after it, you have this enormous growth. Why couldn't conditions such as existed in 1961 to 1970—what is there to make us believe that they won't recur again and permit another period of very sharp growth compared to the situation now and compared to the situation in this country?

Mr. ROWEN. Well, during that period, they still had lots of labor, lots of raw material; cheap raw materials——

Senator PROXMIRE. They still do have raw materials, don't they?

Mr. ROWEN. More costly now.

Senator PROXMIRE. But your presentation indicated they had a great abundance of a whole series.

Mr. ROWEN. They have, but they are located in increasingly remote parts of the country where the costs of extraction and transportation are growing very rapidly. So once they could devote a significantly larger share of output to investment, but this is not true today. They don't have the influence of abundant labor, increasing investment capital, or really cheap raw materials they had in the earlier time.

SOVIET DEFENSE SPENDING TAKES UP 11 TO 14 PERCENT OF GNP

Senator PROXMIRE. Much has been said about the fact the Soviet defense spending takes up 11 to 14 percent of their gross national product, an enormous burden compared to our own. But that approach to estimating the defense burden assumes there are opportunity costs to defense allocations and that defense activities can be compared with the costs of equivalent activities in other sectors. How significant is that way of estimating the defense burden in a system that does not employ market prices?

Mr. ROWEN. Mr. Martin.

Mr. MARTIN. The alternative is to do it in established prices that the Soviets use themselves, and to try to assess the burden that way. I don't believe we have ever done that, but I don't think it would differ greatly. The burden estimate might be a percent or two different.

Mr. NOREN. I think you may be asking about the effect of the vagaries of the Soviet pricing system in which relative prices do not really reflect the relative amount of resources used. And it has been argued that you can't use the ruble value as a measure of the opportunity cost. You can take the resources and put them into many occupations and get a different return, depending on where you put them.

I think this makes it difficult to measure the burden. I think this means that to measure the burden, you have to conduct some sort of simulation. And we have tried to do this through economic modeling efforts, tried to some extent to assess the effect of taking money away

from defense and putting it into investment and then determine the effect on GNP. And if one were to arrest the growth in defense spending, better yet reduce it, you can have a quite significant impact on the rate of growth of GNP according to our calculations.

Senator PROXMIRE. Is it possible that some of the explanation for that dramatic change that you have told us about in figure 1 of your prepared statement is because in that earlier part, they had a smaller proportion of their gross national product in defense and this latter part where their production, their growth, is less, they had a much heavier part? Is that a part of the explanation?

Mr. NOREN. I think that is very true. And I can give you one example. We have been talking about the problems in steel. We have estimated that Soviet defense, for example, takes about 10 percent of the rolled steel output in the Soviet Union. We have projected steel output through 1985. If defense spending continues to increase at about 4 percent per year, we have calculated that of the total increment in rolled steel output between 1980 and 1985, defense would take 40 percent, 40 percent at a time when steel is short throughout the economy.

SOVIET MILITARY CONSCRIPTION USED AS A NATIONAL EDUCATION AND TRAINING PROGRAM

Senator PROXMIRE. Is the fact that military conscription is used as a kind of national education and training program, especially for young men from rural areas, and that troops and equipment are used in construction, harvests, and elsewhere in the civilian economy adding to the difficulty of understanding the defense burden?

Mr. ROWEN. Mr. Martin.

Mr. MARTIN. It does somewhat because you have to figure out the appropriate opportunity costs of these people in the civilian economy. This is complicated because military training teaches them to do things that benefit the civilian economy—for instance, to drive trucks that they have never seen before.

In any estimate of total defense costs in rubles, personnel costs, however you want to calculate them, are relatively small. Labor is cheap. Procurement is expensive. Procurement of highly sophisticated weapons is taking an increasing share of the Soviet defense effort. And thus, procurement costs have a far greater impact on our burden estimate than do personnel costs.

Senator PROXMIRE. Could you make an estimate of the part of the Soviet so-called military that actually goes into construction, goes into agriculture, goes into education, and goes into these other areas?

Mr. MARTIN. Not really. We estimate the number of Soviet construction troops, for instance, and keep track of what they are doing. We don't estimate separately the value of their output in, say, civilian construction.

Senator PROXMIRE. Is it conceivable that any significant proportion of this 11 to 14 percent of the GNP for defense is actually expended for nonmilitary purposes by the military?

Mr. MARTIN. It would be a very small proportion.

Senator PROXMIRE. As much as 1 percent?

Mr. MARTIN. Less than 1 percent.

VIEW OF THE MILITARY BURDEN BY THE SOVIET LEADERSHIP

Senator PROXMIRE. What evidence is there of how the Soviet leadership and the central planners view the military burden? That is, whether they believe it is growing, how they measure it, and the effects it is having on the civilian economy.

Mr. ROWEN. They certainly don't regard it as a burden in the same sense that defense is a burden in any Western democratic society. The system is so dependent on the power of the state, the essence of the system, the concept of burden, I believe, doesn't have the same connotation as in the West.

Senator PROXMIRE. In some of the responses they gave to MX, for example, and our initiatives in the defense area, condemning, criticizing ours, don't they argue this is something that forces them to spend money in this area and us, too, and the result is a loss on the part of both countries of improved opportunity for more productive life?

Mr. ROWEN. Well, it is hard to know how much of that is for effect and how much they believe. I think a lot of it is for effect. They have learned that with time, that is the sort of thing that plays well in the West. And therefore they say it. I repeat that the concept of consumer welfare being dominant doesn't exist in the Soviet Union.

Senator PROXMIRE. Maybe I misstated my question. What I was thinking of is the loss in the productivity opportunities. Obviously, if instead of building a big ship or building tanks, they could build a plant, they could make increased investment. They could construct, build more tractors. They could do many other things that would be helpful not in making life easier, but in making the economy more productive—in the long run perhaps build a stronger military power.

Mr. ROWEN. I am sure the opportunity cost concept is there. I understand that at least the technical people, the planners understand that, and if the bind has gotten more severe, as these figures show, the fact must be weighing on them heavily. I think they have reached a stage where, as you suggest, they have to be concerned about their future military power. They need a growing economy that will support their future power base at a high enough, strong enough level.

If they do take something from defense they will do it for this reason. It is a matter of meeting politically necessary requirements which are certainly very different from those in the West.

Senator PROXMIRE. Do you think they would, if you have a figure like this, know of it? They must know of it. And it must haunt Andropov and all the Communists seeing what has happened to their gross national product, industry growth, especially in view of their plans and so on. They must see when they put money into defense, although they are going to do it if they feel they have to, and it is their top priority, that if they didn't have to do that, they might be able to have a little more for civilians.

Mr. ROWEN. That is true but as our defense spending has fluctuated over time, over decades, up and down, up and down, the Soviet Union has had continued growth. I mean, the priority it gets is absolutely No. 1.

SOVIET FOOD SELF-SUFFICIENCY

Senator PROXMIRE. The point you make that the Soviets are basically self-sufficient with respect to food is worth emphasizing because we

hear the statement made so often that the Soviets can't feed their own people. Would you discuss briefly their food self-sufficiency in light of the fact that they import so much grain?

Mr. ROWEN. The statement has to do with their ability to grow calories. They can grow enough calories to feed themselves, but it would mean very much less meat. So it is a meat issue rather than a calorie issue with them.

Mr. NOREN. That's right. If they had not imported Western grain, consumption per capita of meat would have fallen over the last 6 years.

Senator PROXMIRE. But there again, I read about strikes and riots when there has been a shortage of meat. Doesn't this have an effect on their production and an effect even on their military capability if they don't have the protein that they need, that their people demand?

Mr. ROWEN. I think the reports are true, but a little overplayed. Meat is important for the reasons you suggest. It is important for consumers who think it is important. They have good reason to believe that. And they can't produce enough of it themselves.

Senator PROXMIRE. I understand that Soviet foreign grain purchases have lagged behind our expectations. They haven't bought as much from us as we thought they would. What is your estimate of their import requirements? How much have they purchased so far and from whom? And how do you explain the fact that so far, they have bought so little from us and from others?

Mr. NOREN. Our most recent estimate of grain requirements has been defined as simply being able to maintain meat production at current levels or at the levels of last year through this next fiscal year, which is about 42 or 43 million tons of imports. That is a residual calculation, assumes no changes in stocks, and relies on preliminary estimates about availability of fodder crops and so forth.

I think that they have either bought or lined up about 24 or 25 million tons of grain. But we can provide that to you with the rest of the figures.

Senator PROXMIRE. Can you tell us maybe for the record who bought that?

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

U.S.S.R.: GRAIN IMPORTS BY SUPPLIER COUNTRY

[In millions of metric tons]

	1981–82 [1]		1982–83 [1]	
	Quantity	Percent of total	Quantity purchased so far [2]	Percent of total
Total	45.0	100	25.4	100
United States	15.4	34	6.0	24
Canada	9.2	21	8.3	33
Australia	2.5	6	1.0	4
EC	2.4	5	5.4	21
Argentina	13.3	30	3.0	12
Eastern Europe	1.1	2	1.1	4
Others	1.1	2	.6	2

[1] July 1 to June 30.
[2] Data as of mid-January 1983.

Source: USDA.

The Soviet Union has purchased only 6.0 million tons of U.S. grain since the current marketing year began on 1 July. In the previous marketing year, Soviet purchases from the U.S. totaled 15.4 million tons, well above the minimum of 6 million tons of wheat and corn that the Soviets were obliged to buy under the U.S.-U.S.S.R. Long-Term Grain Agreement.

Soviet officials have indicated that the U.S.S.R. is reluctant to purchase U.S. grain because it views the U.S. as an unreliable supplier. With the world market struggling with sluggish demand, depressed prices and mammoth additions to already record stocks, we expect that the U.S.S.R. will have no trouble finding the grain we think it needs this marketing year even if it limits its purchases from the U.S.

Mr. NOREN. Curiously enough, even after the food program was announced in May and at a time when the drought in some parts of the Soviet Union was already known to the leadership, their imports of grain tailed off, reached a level of about 4 or 5 million tons per month in April and May and tailed off through the summer.

Senator PROXMIRE. Why was that?

Mr. NOREN. We don't know. We don't know whether they had a more favorable estimate of what the——

Senator PROXMIRE. Have the imports picked up since then?

Mr. ROWEN. Mr. Noren.

Mr. NOREN. They have picked up a little this fall, but not nearly as much as we would have expected. One possibility is that they have improved their import handling capacity so much that they can, if they step up their purchases quickly in January through June, still import as much as 40 million tons of grain. Whatever our estimates say, we don't have the evidence yet that they have stepped up those purchases. Now, as far as not buying from the United States, they say, they have told a large number of Western visitors, Western firms, that they were going to buy from the United States only as a last resort.

GROWTH OF SOVIET STRATEGIC AND CONVENTIONAL FORCES

Senator PROXMIRE. Now, this is on an entirely different subject. You summarized the growth of Soviet strategic and conventional forces overturning the former U.S. numerical superiority in intercontinental nuclear delivery weapons and reducing the credibility of NATO's forces.

Let me ask you, do you conclude that the Soviets now have superiority over the United States in strategic forces and over NATO in conventional forces?

Mr. ROWEN. That is really a different subject from our subject of the Soviet economy and its performance—the military. No, I wouldn't conclude that. But I think there is no question that they have made vast strides, and everybody has agreed on that.

Senator PROXMIRE. You wouldn't conclude they had superiority over the United States?

Mr. ROWEN. This isn't an intelligence question, but I wouldn't personally conclude that.

Senator PROXMIRE. And how about NATO conventional forces?

Mr. ROWEN. It is clear that they have that.

Senator PROXMIRE. It is clear, you say, that they have?

Mr. ROWEN. That they have that, yes.

Senator PROXMIRE. Well, now, let me just ask a little bit about that. If it is clear, how do you determine, for example, the NATO balance? Don't we have far greater fire power, for example, far greater tonnage? They have more ships, but it seems to me it is a very, very hard thing to compare our aircraft carrier fleet, for example, with anything they have, it is so overwhelmingly superior. And our submarines. They have more submarines, but their submarines are more vulnerable, I understand, not as quiet as ours.

Mr. ROWEN. Again, this isn't an intelligence question. I was referring to the balance in Europe, on the ground in Europe. Our naval forces are a substantial element. That is certainly a decisive theater. It is a decisive factor really at sea.

But this really is a far cry from our subject, and we didn't come up here to——

Senator PROXMIRE. It is a far cry, but, on the other hand, it relates to it. One of the reasons why we are so curious and interested in their economy is because it does relate to our better understanding of the military capability. And there, of course, to the extent that the economy is a vital part of your military potentiality, at least, obviously, the NATO countries have a far greater economic potential than the Warsaw Pact; isn't that correct?

Mr. ROWEN. Oh, yes. If you add up the calculations, I am sure the GNP's of the NATO countries——

Senator PROXMIRE. The GNP of the Common Market, for instance, is bigger than ours.

Mr. ROWEN. The combination substantially exceeds that of the Soviet Union, but that isn't the same thing as fielded forces and troops.

Senator PROXMIRE. We have a Japan that seems to be ready, willing and able and anxious to get moving militarily, too. But that is something else, I agree.

SOVIET GROWTH IN OIL PRODUCTION AND OIL EXPORTS TO THE WEST THROUGH 1985

What is the likelihood that the Soviets will be able to maintain modest growth in oil production and oil exports to the West through 1985?

Mr. NOREN. As Mr. Rowen said in his prepared statement, we have an examination of this underway. It will be available in a month or two. I think the preliminary feeling is that oil production will hold up close to its present level through 1985. The prospects for exports are hard to determine. Our estimates suggest that the requirements for domestic consumption are going to continue to increase in this period. They have not been able to make the substitution or conservation that they had planned. If this continues to be true, then exports would be squeezed. If you believe that they can't cut back much more on Eastern Europe, that would mean that exports to the West would decline.

I must say, however, that in response to the hard currency trade deficit of 1981, as Mr. Rowen said earlier, they did make some extraordinary efforts. They cut back on sales to Eastern Europe. Exports to the West, which had been declining for 2 years, were increased from

about 920,000 barrels per day to perhaps, as much as 1.1 million barrels per day.

In the process, they sustained the kinds of costs that Mr. Rowen indicated in his testimony. I think, on balance, our feeling is they can't continue to do that and that exports to the West will decline again.

CREDIT TERMS TO THE SOVIET UNION

Senator PROXMIRE. Will you also tell us the results of recent talks with our allies about credit terms to be extended to the Soviets, the effects of the U.S. decision to lift the Siberian gas pipeline equipment restrictions, and whether the Soviet leadership views this episode and the controversy that still exists in the West as a victory for them?

Mr. ROWEN. I can't really deal with that authoritatively. We were not involved with those discussions with the allies directly. From the Soviet side, I could comment. It is pretty clear that they welcomed the disagreements among the West. And they were probably disappointed to see these disagreements wind down. And if you divide NATO nations internally, that has to be beneficial to them.

SOVIET EXPORTS OF MINERALS

Senator PROXMIRE. How do you assess the possibility that the Soviets might be capable of increasing their exports of nonfuel minerals, such as manganese, nickel, and chrome, with which they are richly endowed, in order to increase their hard currency earnings so as to be able to purchase more Western equipment or control their trade balance?

Mr. NOREN. We have completed a study—in fact, there is a study in draft that deals with the question of their ability to increase nonenergy exports for hard currency through the 1980s. We concluded, after looking at a series of these possible sources of increased earnings, that they could increase exports only marginally. Let's say by about $3 to $4 billion in 1981 dollars between now and 1990.

The reasons, sir, for that are that the costs of extraction have increased greatly. The minerals, the raw materials, and timber, are coming more and more from the eastern parts of the U.S.S.R. It is very expensive. And that while there is a great potential there, they have not yet undertaken investments that would allow them to increase exports very substantially in this decade. There is a very long gestation period involved in developing coal out of eastern Siberia, or turning the coal into energy, and in developing timber out in eastern Siberia and some of these minerals up in Noril'sk.

LARGE SOVIET TRADE DEFICIT WITH THE WEST BY 1985

Senator PROXMIRE. A study by the Commerce Department for the Joint Economic Committee earlier this year projects a large Soviet trade deficit with the West by 1985. Is it your assessment that a large deficit is likely, or might they take actions as they did this year to avoid it?

Mr. ROWEN. A large deficit would have to be financed. And there is a question about the willingness of Western banks to provide the credit.

It would be more likely they will keep trade in closer balance as they proved this year. But there may be another opinion on that.

Mr. NOREN. Well, sir, I think they still have room to cut imports as they did this year. They may also choose to hold down grain imports. If they have a little luck with the weather this coming year, grain import requirements might drop into the range of 20 to 25 million tons, which is less than we project for this year. So I think there will be a substantial trade deficit, but perhaps not all that much larger than the one, for example, that occurred in 1981.

Senator PROXMIRE. You correctly describe the slow growth of the labor force as a weakness. And I think it is. But isn't the other side of the coin that slow population growth means fewer mouths to feed and reduced demands for energy, consumer durables, and so forth? Do you take that into account?

Mr. ROWEN. Over the long run, that is certainly the case, but the sharpness of the change in the growth in the labor force, the rapidity of the change, is really what dominates. It is not a gradual, roughly offsetting, adjustment as you say by both in the mouths to be fed as well as in the hands that are working. This is a striking reduction within a very short period of time in the growth of the work force, and the increase in the number of mouths to be fed will not be affected to nearly the same extent. In fact, the population is still growing.

OPINION ABOUT MR. ANDROPOV

Senator PROXMIRE. Mr. Rowen, there are two theories about Andropov. I would like to get your opinion on them. The first is that Mr. Andropov has come previously out of the KGB so has a better grasp of Soviet economic data, Soviet societal problems, U.S. strengths and weaknesses, than any other Soviet leader. Being exposed to the West over the years, he has moderated his viewpoint, it is alleged in theory.

Some have even gone as far as to say he is a closet liberal.

The second theory is Mr. Andropov has manipulated the Western press and opinion leaders by spreading the theory that I have just enunciated, and is really no more than an extremely ruthless KGB chieftain who put down the Hungarian rebellion in 1956 and has imprisoned tens of thousands of dissidents.

What is your assessment of those?

Mr. ROWEN. There is a contradiction here. There may be some truth in both positions. In intelligence, he was obviously in a position to learn a great deal about the world and how it works. And being, apparently, an intelligent man in that sort of position, he may indeed have learned a lot. It is also clear there has been a line peddled by the KGB that he is really a nice guy, and this is not inconsistent with his also being a smart and tough guy.

So, I think we have to wait and see.

Senator PROXMIRE. It could go either way?

Mr. ROWEN. Well, I don't think there is any question that he is very competent.

Senator PROXMIRE. And no question that he is what?

Mr. ROWEN. That he is very competent.

Senator PROXMIRE. Competent?

Mr. ROWEN. Yes. I mean, he is a very able person. There is plenty of evidence for that. And there also is no question that he has been in a position to observe how the West works.

Senator PROXMIRE. In a way that is bad news and good news. The bad news is if he is competent, we don't want as a coach to be playing against a team that may have a lot of competence in their coach. We don't like that. On the other hand, if competence means he is realistic and understands that nuclear holocaust would be suicide for both countries and understands that kind of military realism, it could be good news.

Mr. ROWEN. You stated it well.

Senator PROXMIRE. Now, is there evidence of Mr. Andropov's ties to the Soviet military that would suggest that he has ever taken a questioning role about defense spending versus economic development?

Mr. NOREN. I don't know of any evidence.

SOVIET COST OF AFGHANISTAN WAR

Senator PROXMIRE. What is the war in Afghanistan costing the Soviet economy in dollars, or rubles? Can you give us any idea?

Mr. MARTIN. We have estimated the cost at about $2.7 billion in 1980. We are currently working to update that figure, but I don't expect it to change much.

Senator PROXMIRE. $2.7 billion in 1980. Was that a full year? When did that start running?

Mr. ROWEN. December 1979.

Senator PROXMIRE. December 1979? Do you have any seat-of-the-pants estimate whether that would have been the same in 1981 and 1982?

Mr. MARTIN. I think it would be about the same. And in all 3 years, costs associated with Afghanistan amounted to about 1 percent of total Soviet military costs. We are coming up with a little bit better estimate because we have some better evidence on equipment losses and things like that which we didn't have in 1980. About two-thirds of those costs are incremental. The other costs would have been incurred anyway.

Senator PROXMIRE. We have some written questions, Mr. Rowen, for the record.

I want to say you have done a superlative job. I think your presentation here this morning has been most enlightening. And I am very anxious for that reason to get a sanitized copy or version for the members of the subcommittee and Congress. I think it is a real public service to make this kind of information available on the Soviet Union.

And I want to thank you and your colleagues, too, for their very helpful participation.

The subcommittee will stand adjourned.

[Whereupon, at 11:40 a.m., the subcommittee adjourned, subject to the call of the Chair.]

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

RESPONSE OF HON. HENRY ROWEN TO ADDITIONAL WRITTEN QUESTIONS POSED BY SENATOR PROXMIRE

Questions 1 and 2. What were the annual total and per capita rates of grain production in the Soviet Union in the years preceding the revolution and other representative prerevolutionary periods, and also since 1950.

Answer.

U.S.S.R.: PER CAPITA GRAIN PRODUCTION

	Grain production (million metric tons)	Population midyear (millions)	Kilograms of grain per capita
1913 [1]	86.0	159.2	540
1950	81.2	180.1	451
1951	78.7	183.2	430
1952	92.2	186.4	495
1953	82.5	189.5	435
1954	85.6	192.7	444
1955	103.7	196.2	529
1956	125.0	199.6	626
1957	102.6	203.2	505
1958	134.7	206.8	651
1959	119.5	210.5	568
1960	125.5	214.3	586
1961	130.8	218.1	600
1962	140.2	221.7	632
1963	107.5	225.1	478
1964	152.1	228.1	667
1965	121.1	230.9	524
1966	171.2	233.5	733
1967	147.9	236.0	627
1968	169.5	238.3	711
1969	162.4	240.6	675
1970	186.8	242.8	769
1971	181.2	245.1	739
1972	168.2	247.5	680
1973	222.5	249.8	891
1974	195.7	252.1	776
1975	140.1	254.5	550
1976	223.8	256.8	871
1977	195.7	259.0	756
1978	237.4	261.3	909
1979	179.3	263.4	681
1980	189.1	265.5	712
1981	[2] 158.0	267.7	590

[1] Grain production and population data for 1913 are based on the present boundaries of the U.S.S.R. Data prior to 1913 were not available.
[2] Unofficially reported by Soviets.

Source: USDA.

Question 3. What is your estimate of the crop losses in the past four years due to poor weather conditions?

Answer. Using the yardstick of weather conditions during 1974–78 and assuming a slow increase in production due to improving technology, we estimate that Soviet grain losses caused by poor weather during the 1979–82 crop seasons could have amounted to 110–150 million tons.

If weather conditions over the past four crop seasons had approximated conditions during 1974 through 1978, Soviet grain production probably would have ranged from 200 to 210 million tons; total production for the 1979–82 period would thus have been in the range of 800–840 million tons. We estimate that actual production totaled only some 690 million tons, or about 173 million tons per year, on a gross, or bunker weight basis—that is, including excess weed seeds, trash, moisture, and other grain admixtures. To convert to a net of standard weight comparable to Western measures, the total should be reduced by an average of 11 percent.

The figure of 110–150 million tons of grain "lost" due to unusually poor weather is only a "rough" estimate for several reasons: (1) the sizes of the 1981 and 1982 Soviet harvests have not been announced by Moscow, (2) the estimate of the impact on production of technological progress is approximate, and (3) factors other than weather and technology trends—including availability and quality of material and capital inputs, timeliness in applying them, and organizational and management arangements—also affect yields.

Question 4. By what annual rates did consumption grow in the period 1971–1981 and how do these rates compare with the growth of investment?

Answer.

U.S.S.R.: Average annual growth rates of consumption and investment, 1971–81

	Percent
Consumption	3.0
Total investment[1]	4.7
New fixed investment	4.1

[1] Includes new fixed investment and capital repairs.

Question 5. Did the Soviets decide to cut back on consumption or civilian investment in order to accommodate the defense increase of the 1970s, and what conclusions do you draw about that decision?

Answer. Neither consumption nor civilian investment has been cut back, but both have been growing more slowly in recent years than in the first half of the 1970s. Growth in consumption has slowed only moderately, from an average annual rate of about 3½ percent a year in 1971–75 to an average annual rate—that has been remarkably steady—of about 2½ percent since then. The drop in the rate of increase of investment has been much more pronounced. Growth of new fixed investment averaged about 5 percent a year in 1971–78, then fell below 2 percent a year in 1979–80. The rate of increase was somewhat higher in 1981–82 but still far below pre-1979 rates.

These data suggest that the Soviet leadership may have singled out the investment sector to bear the brunt of tightening economic constraints, not only to accommodate a continuing substantial rise in defense spending but also to prevent more than a modest drop in the rise in consumption. The slowdown in investment, however, may not stem solely from policy considerations. Unforeseen bottlenecks in sectors producing inputs for investment may have played a considerable role also.

Question 6. What conclusion do you draw from the fact that in the current Five-Year Plan investment is scheduled to grow more slowly than consumption and why do you believe consumption may not grow or may even decline?

Answer. As indicated in our answer to the previous question, we believe that there are at least two possible explanations for a lower planned rate of growth in investment than in consumption: first, a policy decision to keep a decline in consumption growth moderate even at the expense of the traditionally high rates of growth in investment; second, an assessment by the planners that bottlenecks, although affecting all sectors of the economy, are particularly severe and intractable in industrial branches—such as steel and building materials—that provide key inputs to investment.

In fact, new fixed investment grew faster than planned in 1981–82. The actual average annual rate of increase was about 2½ percent compared with a planned annual rate of growth of 1.6 percent. We do not know why growth exceeded the planned rates. One possibility is that the leadership—realizing that its expectations for advances in capital productivity were far too sanguine—increased the planned volume of investment. Or perhaps the above-plan increase was inadvertent, reflecting mismanagement or some loss of control over the investment process by the central authorities. Or perhaps Soviet investment figures, though given in "real" terms, do not take adequate account of inflation and thus exaggerate growth.

A leveling off or decline in consumption could occur under the following circumstances:

A decrease in growth of overall GNP below the 1 to 2 percent rate we project;

A refusal to stabilize or reduce the share of resources devoted to defense; and/or

A decision to raise the share of resources going to investment, reflecting a leadership judgment that without such an increase prospects for future growth would be seriously imperiled.

Question 7. What values do you project for Soviet exports of oil and gas to the West in 1985?

Answer.

OIL

If production remains stable at about its current level (12.3 million d/b) through 1985 and growth in domestic oil consumption slows because of lower economic growth and increased substitution of natural gas in the Soviet economy, total oil available for export in 1985 would be on the order of 3 million b/d, only about 10 percent below estimated net oil exports in 1981. How the USSR will choose to allocate oil available for export over the next several years is difficult to predict. On the one hand, oil is the USSR's major hard currency earner and a decline in oil sales to the West would aggravate an already tight hard currency position. The 920,000 b/d of oil sold to hard currency customers in 1981 earned the USSR $12.2 billion and were equal to one-half of all commodity export earnings.

At the same time Soviet oil exports are vital to the economies of most countries in Eastern Europe. Further cuts in the USSR's oil deliveries there would thus risk serious economic and political damage to the Soviet Union's Warsaw Pact allies. If Soviet planners choose to maintain the current proportion of allocations, the roughly one million barrels of oil a day available for sale in hard currency markets would earn the USSR $12.8 billion in 1985, assuming a price of $35 per barrel.

NATURAL GAS

We project that West European purchases of Soviet natural gas will reach nearly 34 billion cubic meters (560,000 b/d oil equivalent) in 1985. This amount includes both purchases under existing contracts with Austria, Finland, France, Italy, and West Germany (26.5 billion cubic meters) and initial deliveries under new contracts with West Germany and Austria through the Siberia-to-Western Europe gas pipeline. Additional exports to France are not expected to begin until after 1985. In 1981, natural gas exports earned the USSR $4 billion in hard currency.[1] We expect hard currency earnings from natural gas exports to approach about $6 billion in 1985.

Question 8. What was the volume of oil exports to the West in each of the years 1980, 1981, and 1982?

Answer.

U.S.S.R.: VOLUME OF SOVIET PETROLEUM SALES TO THE WEST

[In thousands of barrels per day]

	1980	1981	1982 (January–June)
North America	1	6	1
Canada	0	0	0
United States	1	6	1
Western Europe, of which	1, 132	1, 032	1, 274
Finland	194	198	164
France	168	162	155
Italy	138	134	163
Netherlands	145	161	240
Sweden	47	26	42
West Germany	138	100	186
Middle East, of which	NA	NA	NA
Egypt	0	0	NA
Greece	25	33	40
Africa, of which	30	35	NA
Ghana	0	0	NA
Morocco	9	10	NA
Asia, of which	85	115	NA
Japan	11	11	8
Latin America	NA	NA	NA
Total	1, 285	1, 240	NA

Sources: Primarily OECD statistics supplemented where possible by Soviet and Western trade statistics.

[1] Excluding $130 million in earnings from gas deliveries to Finalnd, a soft currency trading partner of the USSR.

Question 9. What were the monthly volumes of oil exports to the West in 1982 and the prices per barrel received in each month?

Answer.

U.S.S.R.: VOLUME OF OIL EXPORTS TO THE OECD COUNTRIES IN 1982

[In thousands of barrels per day]

	1982, 1st quarter	1982, 2d quarter
Totals, OECD	1, 127	1, 520
Netherlands	195	286
West Germany	156	216
France	142	168
Finland	141	186
Italy	136	190
Belgium	69	112
Switzerland	58	49
United Kingdom	49	93
Others	181	220

Source: OECD data, which are reported only on a quarterly basis. Monthly volume and value data available in individual Western country statistics are inconsistent with totals reported by the OECD and with volumes implied by official Soviet trade statistics. Because of an OECD reporting gap, the volume series for Belgium supplements first quarter OECD data with Belgian data for April–June.

OIL PRICE TRENDS IN 1982 [1]

[U.S. dollars per barrel]

	OPEC average crude official sales price	Heavy fuel oil, f.o.b. Rotterdam spot price	Gas oil, f.o.b. Rotterdam spot price	Gasoline (premium) Rotterdam spot price
January	34. 29	30. 51	41. 67	40. 00
February	34. 13	28. 28	37. 42	37. 32
March	33. 72	27. 09	35. 27	35. 03
April	33. 42	28. 14	37. 56	38. 83
May	33. 28	28. 92	39. 28	43. 28
June	33. 42	27. 95	37. 97	43. 70
July	33. 50	26. 14	36. 80	42. 40
August	33. 57	25. 77	38. 15	41. 06
September	33. 69	26. 68	40. 34	42. 72
October	33. 58	28. 15	41. 75	42. 67

[1] Consistent information is not available on the price that the U.S.S.R. receives for oil sold in the West. Because Soviet petroleum prices have in the past closely followed world market prices, however, a price series can be approximated by weighting Western prices paid for OPEC crude and the major oil products the U.S.S.R. sells in the West. In 1981, the roughly equal mix of crude and product in total sales yielded an average price of about $37 per barrel. In contrast, the blended price during January–October 1982 was close to $35 per barrel.

Question 10. Provide a table showing the trend of consumption relative to oil production from 1970 to the present.

Answer.

U.S.S.R.: OIL PRODUCTION AND CONSUMPTION

[Millions of barrels per day]

	Production [1]	Net exports	Apparent consumption [2]
1970	7. 06	1. 82	5. 24
1971	7. 54	1. 97	5. 57
1972	7. 99	1. 95	6. 04
1973	8. 58	2. 07	6. 51
1974	9. 18	2. 22	6. 96
1975	9. 82	2. 46	7. 36
1976	10. 37	2. 82	7. 55
1977	10. 92	3. 01	7. 91
1978	11. 43	3. 14	8. 29
1979	11. 71	3. 14	8. 57
1980	12. 03	3. 19	8. 84
1981	12. 18	3. 16	9. 02

[1] Including gas condensate.
[2] Excluding changes in stocks.

Sources: "Narodnoye khozyaystvo SSSR.," Moscow (various years); "Vneshnyaya torgovlya SSSR.," Moscow (various years); "World Energy Supplies," 1950–74, New York, United Nations, 1976; "International Energy Statistical Review," Washington, CIA, Nov. 30, 1982.

Question 11. Several years ago, the OECD countries agreed to maintain certain minimum interest rates in credit transactions with the USSR. Describe the original and current levels of interest rates established under this agreement and the record of compliance.

Answer. In 1976, members of the Group of Export Credits and Credit Guarantees (ECG) of the OECD Trade Committee reached an informal agreement aimed at ending competitive terms on export credits extended by OECD members. The so-called "consensus" established floors for interest rates and ceilings on maturities for most officially supported export credits. It also stipulated minimum downpayments and minimum local-cost financing allowances for such credits.

On 1 April 1978 these rules were incorporated into an Arrangement on Guidelines for Officially Supported Export Credits, in which all OECD members except Iceland and Turkey are participants. Under the terms of the agreement, any participating country must notify other participating countries in advance when it intends to offer a credit that exceeds the maximum degree of permitted concessionality. It must also explain the reason for the intended action.

The permitted interest rates and maturities vary according to the classification of the recipient: the highest rates and shortest maturities apply to buyers whose countries are considered "relatively rich" (Category I), while progressively more lenient terms are permitted to "intermediate" (Category II) and "relatively poor" (Category III) countries.

The minimum ECG consensus rate on credits of more than five years to Category II countries—which included the USSR prior to July 1982—was raised to 7.75 percent in March 1978, to 8.5 percent on 1 July 1980, and to 11 percent on 16 November 1981. Beginning in July 1980, participants were required to notify the OECD of existing non-conforming credit lines and outstanding prior commitments. On 6 July 1982, the USSR was elevated to Category I country status, and the rate accordingly was raised to 12.4 percent. (For OECD members, such as Japan with domestic bond rates below the "consensus" rate, the floor rate is set 0.3 percent over some measure of the long-term domestic market rate.)

While we are not in a position to make a categorical statement on compliance with the "consensus" with respect to official credits extended to the USSR, we believe the general record has been satisfactory. Although the agreement itself contains no effective enforcement provisions, all the participating OECD countries recognize the need to avoid a resumption of the cut-throat competition in export financing that gave rise to the agreement in the first place. Even in cases where interest rates fall below the OECD minima, it is often difficult to determine whether the agreement has actually been violated. This is true because exporters, in such cases, frequently argue that they have offset low interest rates by charging a higher price for the goods sold than they otherwise would have.

Question 12. What is the estimate of annual Soviet coal production over the next five years?

Answer.

U.S.S.R.: ACTUAL AND PROJECTED COAL PRODUCTION

[In millions of metric tons raw coal]

Year	Plan	Actual	
1980	[1] 790–805	716	
1981	738	704	
1982	728	[2] 715	
		Estimates	
		Midpoint	Range
1983	723	716	714–718
1984	([3])	717	715–720
1985	775	720	715–725
1986	([3])	725	720–730
1987	([3])	730	725–735

[1] Original 1976–80 goal.
[2] Estimate based on 11-mo. output.
[3] Not available.

Question 13. Describe the magnitudes and exact location of the new chromite and manganese deposits coming on stream in Kazakhstan and Georgia, when production will begin, and what the capacities will be. Describe any other major new mineral deposits coming on stream.

Answer. The Soviets recently commissioned the first section of a huge chromite deposit at Molodezhnaya in northwestern Kazakhstan. The mine is located outside of the city of Khromtau, about 60 miles east of the city of Aktyubinsk. The first section of the mine will have an annual capacity of 800,000 tons. This level of output probably will be reached by 1985 at the latest. The Soviets have announced plans to increase production at Molodezhnaya to 2 million tons per annum by 1990. Allowing for the depletion of older chromite deposits, we believe that Soviet production will increase from 3.3 million tons in 1981 to about 3.8 million tons by 1985 and to some 4.5 million tons by 1990.

The Soviets recently commissioned a new manganese mine at the huge Chiatura deposit, roughly 60 miles northwest of the city of Tbilisi. This mine will have an annual capacity of 1.5 million tons per year. Another mine was commissioned at the Bolshoye Tomakskoye deposit, some 100 miles west of the city of Zaporozh'ye. Production at this mine will amount to about 1 million tons per annum. We believe that Soviet manganese production will increase from about 9.5 million tons in 1981 to perhaps 11 million tons by the mid-1980s.

In addition to chromite and manganese, the Soviets are continuing to develop and bring other new mineral deposits into commercial operation. Some of the most important examples include:

The Kostumuska iron ore deposit in the Kola Peninsula with an ultimate capacity of 24 million tons per year, roughly 10 percent of current Soviet output.

The huge Talnakh deposit near Noril'sk which has the potential to boost Soviet production of copper and nickel, strengthen the USSR's already major role as an exporter of platinum-group metals, and eliminate dependence on imports of cobalt.

The Vostok II tungsten deposit which was commissioned in 1977 and has since been expanded. This deposit could add to Soviet production for at least 20 years.

The Pevek deposit in Magadan Oblast, which will add slightly to Soviet production of tin, tungsten, gold, and silver.

New gold deposits at Karamben and Dukat (Magadan Oblast) and Mardzhambulak (Uzbek SSR), which could increase Soviet gold production by as much as 10 percent by 1985.

Question 14. Discuss the Baykal-Amur Mainline railroad project, its size, costs, and purpose, the extent to which it will open up Siberian resources to greater development, and its present status.

Answer. The Soviet Union is constructing the Baykal-Amur Mainline (BAM), a 3,200-kilometer long railroad, in Eastern Siberia through rugged terrain that presents enormous engineering problems. When completed, the new line will open up valuable Siberian mineral and timber resources and provide a back-up for the vulnerable Trans-Siberian trunkline which lies close to the Sino-Soviet border.

Construction of the BAM was started in 1939, discontinued during World War II, and resumed after the war using Japanese POWs. The project was again halted in the late 1950s as part of a shift in national economic priorities. By that time 1,166 kilometers had been completed at the eastern and western ends. In 1974 the Soviet regime declared the BAM to be one of the two major projects of the 1976–80 Plan with a target completion date of 1983. (The other was the redevelopment of agricultural lands in the western USSR).

Environmental conditions along the BAM route pose serious hindrances to the construction effort. Rugged mountains calling for extensive tunneling and bridging extend from Lake Baykal eastward for 1,150 kilometers, and less imposing but still difficult terrain continues on to the Amur River. The route crosses permafrost which requires special construction techniques. Water-logged lowlands in summer and cold temperatures in winter also pose additional problems. Earthquakes and avalanches further increase construction costs, which in BAM zone are estimated to be up to 3 times greater than normal. Total investment in the BAM has not been announced, and estimates from unofficial reports vary widely and are only speculative. Total construction costs, however, may well

approach 27 billion rubles (roughly $36 billion 1981 dollars at purchasing power conversion rates for construction resources).

The economic implications of the BAM construction are far-reaching, involving access to valuable new mineral resources, regional development, and international trade. Mineral resources to which access will be gained include (a) copper deposits estimated at 1.2 billion tons in the Udokan Mountains, (b) high caloric coking coal south of Yakutsk and iron ore at Aldan, (c) natural gas in the Vilyuy basin and oil in the upper Lena region, and (d) large deposits of asbestos, phosphate, mica, gold, tin, and vast timber resources.

The short-range (to 1990) prospects for returns on BAM investments are not auspicious. Early benefits will come mainly through sales of timber and coking coal to Japan. Marketing of some of the other resources, especially copper and iron ore, may also be possible by the end of the 1980s, but the chief impacts from sales of these commodities will be felt sometime after the year 2000.

In January 1982, the BAM was only 58 percent complete. A total of 1,825 kilometers of track had been laid, of which some 460 kilometers had full rail service, 370 kilometers had temporary service, and 995 kilometers were open to worker-use. Much of the remaining 1,360 kilometers had been cleared and bulldozed for track-laying equipment. Based on the current rate of progress, the BAM could be completed sometime in 1986 and would be open to partial-to-full-service traffic by mid-1987. A "settling-in" period of roughly two years would place full operational capability in 1989. Unexpected delays by materials suppliers and tunnel excavators or unforeseen changes in construction priorities could push the completion date further out. By 1986, freight movements could conceivably increase from their current levels of 9 million tons to some 15 to 20 million tons.

Question 15. One of the most difficult things to measure is the productivity of capital. There is no good measure of it in our own economy, yet you claim to be able to measure it for the Soviets. Discuss the methodology for measuring capital productivity and the level of confidence you place on this measure.

Answer. Productivity is the relationship between outputs of goods and services and inputs of basic resources—labor, capital goods, and natural resources—expressed in real (physical volume) terms. When the ratio of output to inputs rises, it indicates an increase in productive efficiency, or productivity. Over the long run, total productivity advances chiefly reflect improvements in the technology and organization of production—the states of the art. In short periods, they reflect changes in the rate of utilization of fixed plant and equipment and, possibly, changes in labor efficiency.

To measure the productivity of one kind of input, capital, we divide the volume of output produced in a given year by the value of the capital stock used to produce that output. The measures of output produced are CIA estimates derived according to Western economic concepts and expressed in constant prices. The capital stock data used are those published in annual issues of the Soviet statistical handbook, also expressed in constant prices. Changes in the output-to-capital ratios (or their reciprocal, capital-to-output ratios) over time should provide reasonable estimates of the trends in capital productivity in the USSR, for the economy as a whole as well as for individual sectors. The table below presents such calculations for selected years during 1960–80. They attest to the rising trend in capital-output ratios (falling trend in output-capital ratios) in the USSR during this period.

U.S.S.R.: CAPITAL-OUTPUT RATIOS

	1960	1965	1970	1975	1980
Total economy (GNP)	1.6	1.9	2.2	2.7	3.3
Industry	1.5	1.9	2.1	2.4	2.8
Ferrous metals	2.2	2.5	3.0	3.5	4.5
Fuels and power	3.1	3.4	3.8	4.1	4.8
Machinery	.9	1.1	1.3	1.5	1.8
Chemicals	1.9	2.5	2.9	3.1	3.9
Agriculture	.6	.8	1.0	2.0	2.9
Transportation and communications	3.1	3.1	3.2	3.4	4.0
Construction	.4	.6	.8	1.0	1.3

Sources: Ratios were constructed by dividing values of gross fixed capital stock found in CIA reference aid "Soviet Statistics on Capital Formation" by values of output found in CIA GNP accounts, unpublished. GNP is the measure of output for the "total economy." Value added is the measure of output for the individual economic sectors and branches listed in the table.

Because of shortcomings in Soviet prices as indicators of scarcity there is inevitably some uncertainty as to the accuracy of our measure of the level of Soviet capital-output ratios. Furthermore, there are additional problems with the capital stock figures. For example, the impact of inflation in the U.S.S.R. on the published investment and capital data (officially expressed in "constant prices") is currently being debated in the West. Our research, however, indicates that inflation does not distort these data to any substantial extent. Consequently, we are confident that our data give an accurate picture of trends in capital-output ratios, which reflect trends in capital productivity.

Question 16. Can you break down for 1980, 1981, and 1982 the estimated amount of Soviet subsidies to Eastern Europe, the amounts the Soviet say they are providing and the amounts of direct hard currency assistance given to Poland?

Answer. Soviet subsidies to Eastern Europe have not been given directly but through preferential terms of trade. That is, Eastern Europe's terms of trade vis-a-vis the Soviet Union are more advantageous than those that would prevail if Eastern Europe conducted the same trade with the non-Communist world. In essence, the U.S.S.R. sells energy, mainly oil, and other raw materials to Eastern Europe for less than world market prices and pays more than world prices for the manufactured goods it buys from Eastern Europe.

We estimate that in 1980 implicit subsidies to the USSR's six Warsaw Pact partners in Eastern Europe totaled about $16.5 billion. Well over half of this amount—about $10.2 billion—was accounted for by the low prices the USSR charged Eastern Europe for oil. Soviet oil prices to Eastern Europe (except for Romania, which pays current world prices) in any given year are based on the average world price over the preceding five years. The huge implicit Soviet subsidy on oil in 1980 is therefore a reflection of the fact that, under the price setting formula, the enormous rise in world oil prices in 1980 was excluded in determining the 1980 price of Soviet oil sold to Eastern Europe.

We do not have figures for total implicit Soviet subsidies to Eastern Europe in 1981 and 1982. However, subsidization may have fallen slightly in 1981 and almost certainly declined sharply in 1982. Because of a narrowing of the gap between Soviet oil prices to Eastern Europe and world oil prices, and a drop in the volume of Soviet oil deliveries to its CEMA partners, oil subsidies fell to $9.7 billion in 1981 and to $6.1 billion in 1982. If—as we can reasonably assume—the deviation of CEMA trade prices from world prices for commodities other than oil did not change much in either 1981 or 1982, total implicit subsidies would have been on the order of $16 billion in 1981 and $12½ billion in 1982.

The USSR also assists Eastern Europe through trade credits, reflected in trade surpluses with its Warsaw Pact allies. As the table shows, the overall surplus fell steeply in 1982 after a substantial rise in 1981. Direct Soviet hard currency aid to Poland, we believe, amounted to about $1 billion in 1981. This type of aid probably was discontinued in 1982.

The Soviets publish no statistics on aid to Eastern Europe. Last May, however, Oleg Bogomolov, Chairman of the Institute for the Economics of the World Socialist Systems, in conversations with visiting US officials, put the total amount of aid to Eastern Europe in 1981 at only $7.5 billion, a figure much lower than our estimate for 1981. For reasons unknown, the Institute calculates the oil subsidy as only $5 billion. Bogomolov also acknowledged that the Institute does not compute total Soviet subsidies. Other factors may also contribute to the gap between the Institute and CIA aid esimates. Definitions of assistance may differ, for example.

U.S.S.R.: SOVIET ECONOMIC ASSISTANCE TO EASTERN EUROPE

[In millions of U.S. dollars]

	1980	1981	1982	1980–82
Total	19, 300	20, 400	13, 900	53, 600
Subsidies	16, 500	[1] 16, 000	[1] 12, 400	[1] 44, 900
Trade surpluses	2, 800	4, 400	[2] 1, 500	[2] 8,700

[1] Assumes no change from 1980 in implicit subsidies on goods other than oil.
[2] Estimated.

Question 17. Provide a detailed summary of the current dollar cost and ruble cost estimates of Soviet defense activities.

Answer. Table 1 presents our estimates of the dollar costs of Soviet defense activities and corresponding U.S. outlays over the period 1972–81. Over the decade, the estimated dollar costs of Soviet defense activities exceeded U.S. defense outlays by 45 percent. The dollar costs of Soviet defense activities measure what it would cost the United States, using prevailing U.S. prices and wages, to produce and man a military force of the same size and with the same weapons inventory as that of the USSR and to operate that force as the Soviets do. U.S. dollar cost data are in terms of outlays and are derived from the Five-Year Defense Program (FYDP) issued by the Department of Defense in February 1982 and the U.S. Budget for fiscal years 1972–82. The U.S. data have been converted from fiscal- to calendar-year terms. Defense-related activities of the Department of Energy, the Coast Guard, and the Selective Service have been added to maintain comparability to Soviet activities. Dollar costs of both Soviet and U.S. defense activities are expressed in constant 1981 prices.

[Table 1 is a security deletion.]

Question 18. List the annual rates of change of Soviet defense activities in both dollar and ruble terms, for the period 1970–1982.

Answer. When expressed in constant 1981 U.S. prices, the dollar costs of Soviet defense activities grew continuously over the last decade at an average annual rate of approximately 3 percent. Growth was evident in nearly all major elements of the Soviet defense establishment.

In ruble terms, Soviet defense spending increased over the past decade at an average annual rate of about 4 percent. The costs of Soviet defense activities rose at a faster rate in rubles than in dollars because ruble prices place a relatively greater weight on those defense activities that grew the fastest in the U.S.S.R. in this period—the acquisition of complex and expensive military equipment. Conversely, dollar prices give relatively greater weight to the defense activities that grew slowly—manpower, for example.

Question 19. Compare the uses and limitations of the direct cost, building-block methodology for measuring Soviet defense activities and the indirect or residual approach employing official Soviet statistics used by William T. Lee and others.

Answer. Two principal methods are used to eliminate Soviet defense spending. One, known as the "residual" method, relies on deriving implicit defense spending from published Soviet statistics. This is the approach that most non-governmental researchers have taken because they are limited by lack of time, money, manpower, and information. The other, the building block approach, is used only in the Intelligence Community because of the mass of data needed to apply it. In this method, physical elements of the Soviet defense effort are identified and enumerated. Direct cost factors are then applied to them. Though any method is uncertain, we find the building block approach more reliable and useful.

Lee does not contend that his estimates are error-free or that they cannot be improved upon. He does, however, believe that they reflect the trend and magnitude of actual Soviet defense expenditures. He provides range estimates based on uncertainties in the data. We believe, though, that Lee tends to minimize these uncertainties.

We have calculated an alternative estimate to Lee's which, although largely based on Lee's own method, utilizes alternative or updated interpretations. We found that Lee's estimates of Soviet defense spending are consistently higher than the alternative estimate. The latter attempts to reflect more completely the actual degree of uncertainty by broadening the range of the estimates that can be calculated from Soviet statistics.

We feel that the uncertainty in the estimates of Soviet defense spending based on published Soviet statistics severely limits our ability to use it to answer questions regarding aggregate Soviet defense spending. Moreover, our building block approach allows us to:

Analyze the level and real trend in the annual Soviet resource commitment to its military forces.

Compare US and Soviet defense activities using dollars as a common currency, not only in the aggregate, but also in terms of the individual components of the defense efforts of each country.

Analyze the organizational, functional, and geographic distribution of Soviet military resources.

Assess the cost and resource implications for the Soviets of alternative force levels, such as the costs associated with SALT or MBFR agreements or the incursion into Afghanistan.

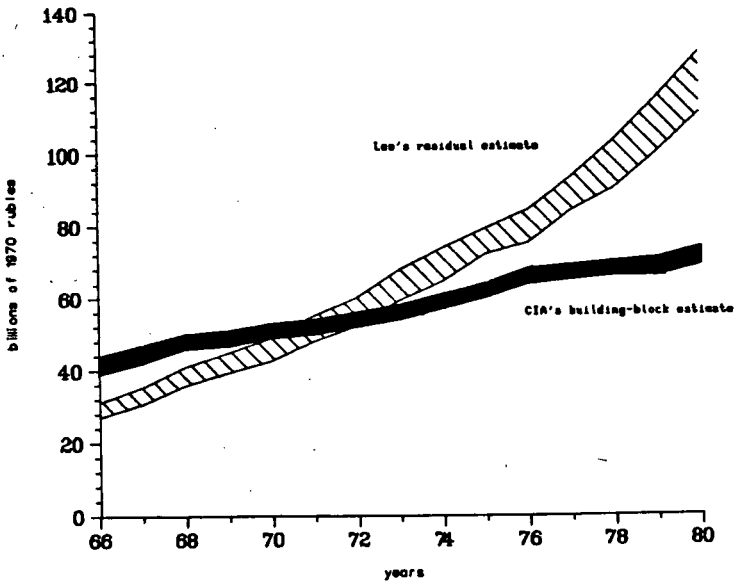
Examine the burden of defense on the Soviet economy expressed in real terms, that is, in constant ruble prices as a share of its macro-economic performance.

A comparison of the results of Lee's residual method with the results of our building block approach in Figure 1 shows that we estimate Soviet defense spending in the late 1960s to be higher than that estimated by the residual method. Lee's estimate grows faster, however, and by the early 1970s, is above our own. Our estimate shows a 4 percent average annual rate of growth between 1966–80, while Lee's estimate grows at nearly 11 percent. Lee's use of the official Soviet price index for machinery—which has been declining since 1950—implies that he believes there has been deflation in the Soviet Union. We disagree; we believe the available evidence suggests that there has been considerable inflation.

FIGURE 1

COMPARISON OF BUILDING-BLOCK AND RESIDUAL ESTIMATES

20 DEC 1982



Question 20. What margins of error do you assign to the direct costing and residual methodologies?

Answer. As indicated in the answer to question 19, we believe that the uncertainty inherent in the use of Soviet statistics to estimate Soviet defense spending limits the usefulness of the residual method. We feel that our estimates are unlikely to be in error by more than 10 percent for each year. The margin of error can be much wider for some individual items and categories. We are more confident in our estimates for higher levels of aggregation than in those for lower levels. At the lower levels, our confidence varies from category to category. Further, we are generally more confident about trends than absolute levels.

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