Military-Economic Advisory Panel

21 March 1984

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20 March 1984

MEMORANDUM FOR: Director of Central Intelligence

FROM: SA/DCI/IA

SUBJECT: Your Meeting with Your Military-Economic Advisory Panel (MEAP), 21 March 1984

1. You had requested that a meeting be scheduled with MEAP in advance of their next regularly scheduled bi-annual session. This session is part of your program to find out more about what your many panels are doing. Thus, there is no formal agenda for this meeting. Those in DDI/SOVA who have set it up, have billed it as a "getting acquainted" session.

2. At Tab A are possible talking points for your use. Included are suggestions that you encourage the panel to continue their efforts in directing talented analysts our way. Among other suggestions that you might consider is the possibility that the panel undertake a review of DIA's military-economic analysis.

3. At Tab B is a copy of the MEAP charter. Their focus is on Soviet and Non-Soviet Warsaw Pact military-economic analysis and SOVA, for one, hopes that MEAP's efforts are not diluted through their involvement in diverse and unrelated undertakings. At Tab C are the biographies of the six panel members. MEAP's charter calls for a membership of nine--hence there are three vacancies and you may wish to obtain the views of panel members on possible new appointments. At Tab D is an assessment of MEAP's performance, and at Tab E are the assessments performed by MEAP on the subjects of Soviet military-economic analysis. At Tab F are the minutes of the most recent MEAP meeting, which occurred in November of last year. And finally, at Tab G are open press articles dealing with the question of Soviet military-economic analysis.

4. If I can do more to help in your preparation for this meeting, please call.

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DCI TALKING POINTS
21 March 1984 Meeting
with Members of the
Military-Economic Advisory Panel

1. At this meeting the Panel will not be making any formal report to you and none of the members have indicated to SOVA any particular issues they would like you to discuss. Because the Panel recommended strongly the resumption of the publication of unclassified reports on the costs of Soviet defense programs however, you may wish to discuss that issue with them.

2. The following paragraphs outline some additional points you may wish to raise with them, in some cases to share your ideas and direction with them and in others to draw from them their own perceptions and reactions:

-- On continuing need for the Panel.
The DDI's military-economic products have in the past and will continue in the future to be subjected to considerable scrutiny and criticism. The issues of greatest concern currently appear to be: the relationship between DIA's estimates and our own--where comparable measures are possible they are in essential agreement; and the flatting out of Soviet recourses devoted to weapons procurement--DOD is greatly concerned about our consumer's reaction to this because growth in recent years of US weapons procurement places it closer to the level of the dollar costs of Soviet procurement than at any time in the last 10 years. The Panel's insights on these issues are eagerly sought and you may wish to get their comments directly.

-- How the Panel has been of use to us recently.
The Panel's recent efforts in reviewing the Agency's estimates of Soviet military expenditures were thorough and fair in every sense. Their reports stated that the work was generally of high quality but also provided useful guidance and criticism. The external, independent review by the Panel is now and will continue to be of value in responding to an external critics. Their recommendations are of value as well and SOVA has dedicated most of its new positions in FY84 to upgrading the military-economic work (including research specifically on the military-industrial complex).

-- Possible future topics for the Panel. Special focus by the Panel could be helpful to SOVA on subjects such as: ways to upgrade our estimates of resources for Soviet military R&D; techniques to improve the accuracy or at least reduce the uncertainty in our projections of Soviet forces; and reviews of CIA estimates pertaining to Soviet energy. In addition, if you might wish to discuss with the Panel the usefulness of having the Panel undertake a review of DIA's military-economic analysis.

-- The Panel and the quality of DDI analysis. Strong analysts and excellent managers are the key to our efforts to providing a quality product to our consumers. We urge you to encourage the Panel to continue, as they have in the past, to recommend and indeed assist us in recruiting top-flight scholars for this work.

CENTRAL INTELLIGENCE AGENCY

Military-Economic Advisory Panel

CHARTER

The Director of Central Intelligence has established the Military-Economic Advisory Panel (MEAP) to provide a continuing review of the US Intelligence Community's military-economic analysis of the Soviet Union, China, and other Communist countries. The Panel will focus its attention on research relating to:

- The economics of the Soviet defense effort.
- The economy of the USSR, particularly as this relates to Soviet defense activities and capability.
- Economic, political, and military considerations that determine the size, pattern, and direction of the Soviet defense effort.
- Such other topics that may be specified from time to time by the DCI.

In so doing, the MEAP will

- Review and critique the data, concepts, and methodologies used in military-economic estimates as well as the appropriateness, form, and scope of reporting the research findings.
- Examine alternative methodologies, and recommend actions--including the creation of new research areas--to enhance existing analyses.

-- Investigate and recommend ways of establishing limits and benchmarks with which to check the reasonableness of estimates.

The MEAP is composed of nine members, each with expertise in one of the following areas:

-- Economics and political economy, with emphasis on the Soviet Union.

-- Formulation of National Security Policy.

-- Weapons technology and defense industries.

To accomplish the work of the Panel, the members will have access to all information and methodologies in use and to all the Intelligence Community resources involved in military-economic analysis.

The Military-Economic Advisory Panel will meet at least twice a year. It will prepare a comprehensive written report annually for the DCI, and will offer interim reports as appropriate.

MILITARY-ECONOMIC ADVISORY PANEL EVALUATION

1. The Military-Economic Advisory Panel (MEAP), which was formed in 1976 by the DCI, has provided a continuing review of the Intelligence Community's military-economic analysis pertaining to the Soviet bloc countries. The Panel primarily focuses attention on research relating to the economics of the Soviet defense effort, the economy of the USSR, particularly as this relates to the burden of Soviet defense activities, and the economic, political, and military considerations that determine the size, pattern, and direction of the Soviet defense effort. In doing so, the MEAP reviews and critiques the data, concepts, and methodologies used in military-economic estimates as well as the appropriateness, form, and scope of reporting the research findings. Moreover, it examines alternative methodologies and recommends actions to enhance existing analyses and investigates and recommends ways of establishing limits and benchmarks with which to check the reasonableness of existing estimates.

2. During the Panel's regular two-day meetings, which are held in May and November each year, the Agency's managers and analysts concerned with military-economic issues have benefited from the give and take at these sessions. The Panel's expertise has proved valuable over the years of controversy surrounding the level and trend of Soviet defense spending. Those members who are economists have provided an independent evaluation of new intelligence in this area. The members with past government experience in national security Agencies have advised on a more efficient manner of communicating new information, and the weapons-oriented members as well as the economists have evaluated alternative approaches to estimating the Soviet defense effort in monetary terms. The Panel also has identified areas of concern requiring increased analytical effort, has recommended changes in the organizational structure of the military-economic effort, and has suggested undertaking high priority projects of interest to the consumer. In all, the MEAP has provided the DCI and DDI with an independent evaluation free of institutional interest in the results or implications of the military-economic analysis.

3. During the past year, five members of the MEAP served with a special working group that reviewed our economic analysis of Soviet defense activities. One conclusion they reached was that the Panel itself could enhance its contribution by narrowing the focus of its attention. Whereas the Panel at times has sought to enlarge the scope of its interests to Chinese issues, technical collection programs, and studies of the institutional environment within which Soviet policy is decided and implemented, the focus now will be fixed on the complex problem of military-economic analysis. Meanwhile, consideration will be given to qualified candidates to fill the three vacant positons on the Panel. We believe that informed criticism offered by the MEAP in the area of military-economics will redound to the credit of the Agency and the Community.

REPORT OF THE WORKING GROUP

ON

SOVIET MILITARY ECONOMIC ANALYSIS

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July 20, 1983

STAT
Chairman

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REPORT OF THE WORKING GROUP ON SOVIET MILITARY ECONOMIC ANALYSIS

INTRODUCTION

The Working Group on Soviet Military Economic Analysis has finished its review of the CIA estimates of Soviet military expenditures. Our instructions were to address three questions:

- How good are the current estimates of Soviet military expenditures and how can they be improved?

- How are the estimates used and how can they be made more useful?

- Given the intrinsic uncertainties in the estimates and the uses to which they are put, would it be better not to publish some (or all) of the estimates?

The working group chose to attack the problem as analysts rather than as a blue-ribbon panel of experts representing divergent individual views. By this distinction we mean the following: The group built up a considerable record of transcripts and documents, seeking data on precisely how the estimates are made and used, and collecting opinions from a wide range of users and observers on strengths and shortfalls. The group then drew its conclusions based on the record rather than on the previous knowledge and opinions of its individual members. In contrast, a blue-ribbon panel would encompass the entire responsible range of opinion and attempt to find common ground among the views and expertise brought to the panel by its disparate members.

We divided into two panels, one on methodology and one on uses, then met as a single group to perform our evaluations and reach our conclusions. The methodology panel received extensive testimony from the Office of Soviet Analysis (SOVA) within the CIA's Directorate for Intelligence, the group that prepares Soviet military economic analyses. The panel also interviewed a number of people who use the CIA estimates as a basis for further analyses and who hold expert opinions on the methodology that goes into the estimates. Outside observers and academic critics of the estimates also testified.

The uses panel interviewed staff members from most of the relevant congressional committees and Pentagon, State, and White House officials, past and present.

In reviewing the dollar and ruble estimates of Soviet defense programs, we made one very important decision: we did not review the process by which the underlying military quantities -- forces, manpower, items of procurement -- are estimated. We concentrated, instead, on the pricing of these quantities, largely because most of the controversy on the CIA estimates has centered on problems of valuation. However we are aware that disputes on quantities, between CIA on the one hand and DIA on the other, have arisen from time to time.

There are three parts to the final report. The first is this document, containing the overall evaluation and the executive level recommendations. The second is the report of the methodology panel directed to the professionals in the intelligence community. The third document will be an annex that we have asked SOVA to prepare, documenting in one place the methodology currently used by the CIA in making the dollar and ruble estimates. It is both necessary and opportune to prepare this annex. Necessary because the current estimates are very badly misunderstood both inside and outside the intelligence community; opportune because SOVA witnesses presented a more

thorough yet concise description of their methodology than is available anywhere else.

USES

Our principal findings concerning uses of the estimates are as follows:

1. There is a truly amazing lack of understanding -- both by users and by other analysts -- of what the estimates of Soviet military expenditures represent, how they may be used, and how they are developed. Even analysts outside the CIA who work regularly with these estimates have glaring gaps in their knowledge of the estimates themselves and conceptual blind spots in regard to what the various estimates signify.

The dollar estimates of Soviet military spending are conceptually rather straightforward. The CIA first estimates the "q's," or quantities, of various items allocated to the military establishment each year. These quantities are then priced in dollars. There are, of course, many technical problems in developing dollar valuations for the military quantities; but the principle is clear -- it is an attempt to put a measure on the military goods and services procured by the USSR in one year, in the dollar units familiar to US policymakers, which can then be compared with the US budget for acquiring the same military goods and services in the same year. The military spending estimates do not measure relative capabilities. They do not even price the capabilities of the two military establishments at a given point in time. For this purpose, one would have to price stocks, taking into account inventories, obsolescence, and other sources of depreciation. Instead, the current procedures estimate the prices of annual flows or additions to the stocks. The estimates do not measure the base stocks at the beginning period or the depletions to stock through consumption or depreciation.

In any pricing process there arises the question, "At what point in the process should the price be recorded?" The Soviet dollar prices reflect the

price at the point where the goods and services are delivered to the military, rather than the point at which inputs are first committed to military ends.

Dollar estimates of Soviet defense spending offer no clue to the Soviet military burden as the Soviets must see it. For these uses it is necessary to estimate Soviet military spending in rubles, which is more difficult to do. Dollar and ruble estimates are discussed at greater length below.

Even this rudimentary picture of the role of dollar and of ruble estimates is not understood by many of the people who use and quote the estimates. There is also a widespread lack of knowledge, on the part of people who should know better, concerning the way the estimates are made. Gross errors in methodology were attributed to the CIA analysts without any justification at all.

2. Related to the gross misunderstandings currently rampant concerning the economic estimates, many of the users quote or exploit the estimates in a way that reflects badly on the credibility of the CIA. The Soviet military expenditure estimates have been politicized over the past decade in the conflict between proponents and opponents of increased U.S. military budgets. The partisans of higher U.S. spending in the Pentagon or in the Congress tend to emphasize the Soviet-American gaps in the dollar calculations and not be concerned about the methodology of the dollar estimates, but they are frequently suspicious of the ruble burden estimates. On the other hand, those who oppose the Administration's defense proposals incline to be skeptical of both the dollar costing of Soviet forces and the validity of expenditure comparisons in general.

We found a curious ambivalence on the part of congressional staff committees, and in fact on users in general. On the one hand, most of the government witnesses think that the CIA people do a good job and are honest in explaining their assumptions; on the other hand, many of the congressional staff expressed the belief that the dollar estimates in particular are pol-

itically motivated and can be made to support any story that an administration wishes to make. This suspicion of political motivation, when coupled with the 1976 major revisions of the ruble estimates and the current recalibration of the 1976-1981 procurement estimates, undercuts overall CIA credibility.

The finding that the CIA estimates are frequently misunderstood as well as misused for political purposes suggests the possible conclusion that CIA should simply stop publishing or even preparing estimates of Soviet military expenditures. For reasons that we discuss below, we think this idea is both undesirable and impractical. Instead, it is essential that CIA do a better job of explaining, documenting and qualifying the estimates. Obviously, some users will not wish to heed the explanations and qualifications that should accompany the estimates, but others will respond to better information. We recommend, in fact, the opposite action; i.e., that the CIA itself publish the estimates, that their meaning and limitations be explained more fully, and that the CIA put restrictions on their use by other executive branch agencies, requiring that they be quoted only with the appropriate qualifications. In particular, the CIA should be prepared to brief and explain its estimates more fully to the Congress, and should push for the right of prior approval of descriptions of "the threat" in Department of Defense statements and congressional testimony.

3. The estimates of Soviet military expenditures have other uses of which the users are generally unaware. The dollar estimates have an indirect value -- they force the analysts to pay attention to military topics that would not otherwise get the care that they merit, such as maintenance policies, ammunition stocks, production, and mobilization base. These topics are essential to an understanding of readiness and combat effectiveness, but are well analyzed only because they so strongly affect the quantities to be priced as part of a dollar estimate.

The dollar estimates support broad comparisons between US and Soviet forces, either in toto or by category. Examples are comparisons by mission

(e.g., strategic forces), by account (e.g., procurement or total investment), or by theater, although the latter should cover NATO and Pact forces also, as discussed later. The dollar estimates are also a necessary intermediate stage in the development of ruble estimates.

The ruble estimates, although more difficult to produce with confidence, are equally important to a wide range of professional users. The ruble estimates are essential to any overall analysis of the Soviet economy, an obvious point when one realizes that the military economy comprises 1/6 to 1/7 of the overall Soviet economy. It is highly regrettable that CIA has ceased open publication of summary reports on Soviet military expenditure, in dollars and in rubles. The public dissemination of this information contributed to enhanced understanding of Soviet policy and of the Soviet economy and by feedback of criticisms and reactions helped improve the quality of SOVA's analytical products.

The users were unanimous in their opinion that the various players in the defense debate -- the military services, the Secretary of Defense and his office, the congressional committees and their staffs, and the general public -- absolutely demanded a shorthand yardstick to compare US and Soviet military spending, as a surrogate for an overall comparison of capabilities. Several of the witnesses said that they would prefer or would settle for a comparison of investment-type expenditures (i.e., procurement, R&D and military construction) rather than or in addition to overall defense spending comparisons.

The service representatives need to continue to receive dollar comparisons by service, while several OSD and congressional staff claimed that they would also use comparisons by mission area, at least for strategic forces. A widespread desire was expressed for matching up NATO versus Warsaw Pact, particularly for Europe-oriented forces. This desire seemed to come from two groups -- those who wanted to picture the "spending balance" in a light more favorable to the West, and those who believe correctly that, because so much of the USSR's forces are oriented towards NATO, a comparison of the re-

lative strengths of both alliances is necessary to obtain an accurate picture.

In the current situation the CIA produces standard dollar comparisons, and then the advocates argue about the policy implications of these comparisons. All parties argued strongly that this was a better situation than that which would be obtained if the CIA abstained from publishing dollar comparisons and each advocate published his own. In fact, the users all argued that the CIA should produce a wider range of comparisons and more fully describe and qualify these. As a practical matter, the Defense and Intelligence Committees argued that Congress would not let the CIA cease producing estimates and comparisons of military spending even if the CIA wanted to. In any event, the users all agreed that the objective of informed policymaking was better served by having an impartial body like the CIA do the comparisons, rather than having each advocate prepare his own.

These three findings on uses, taken all together, lead to the following conclusions:

- The CIA should continue to produce and publish both dollar and ruble estimates of Soviet military expenditures.

- The CIA should be more, not less, aggressive in explaining and supporting the estimates, including the dollar comparisons, and more assertive in assuring that the executive branch uses and qualifies the estimates properly.

- On the dollar side, comparisons of subcategories are useful: current comparisons by service, by mission, by account (i.e., procurement, O&M, manpower, construction). Comparisons not now made, e.g., by theater, or at least NATO vs. Pact in Europe, would also be useful. The latter comparison is difficult and would require much more work.

- The ruble estimates are controversial and under appreciated. Al-

though these are required for a number of legitimate economic purposes, it is these estimates that also cause most of the credibility problems for the CIA.

METHODOLOGY

Our principal findings concerning methodology are the following:

1. Overall, and in spite of the range of deficiencies that we will delineate in the next several paragraphs, the CIA does an excellent job of estimating Soviet military expenditures. We will recommend a number of badly needed improvements below. However these criticisms should not obscure our principal conclusion: the staff performing these estimates combines professionalism, competence, ingenuity, and interest in their work to a very high degree.

2. There is a single concept that underlies all of the dollar valuations of Soviet defense expenditures except those for R&D. This concept is the price that the US would have to pay to buy or make the device, or procure the service, using US production practice or prices but Soviet design, personnel, or operating practice. We believe that this is a fundamentally sound concept, quite appropriate for the limited uses, outlined on pp. 3-8, to which the dollar estimates can be put. To repeat, the primary use is to put a price on the basket of military products and services acquired by the USSR in one year for comparisons with the same products and services that the US purchases. The secondary goal is to form the basic cost estimates for those accounts -- procurement and O&M -- in which the ruble estimates are developed from the dollar estimates.

3. The R&D estimate is made on a different conceptual basis from the others. Instead of trying to decide how much it would cost the US in dollars to produce the same technical advances that the Soviets produce, the CIA tries to estimate the dollar value of resource inputs to Soviet military R&D, which is the concept of the ruble measure. The current method-

ology of estimating the ruble value of R&D, which is then translated into dollars, is based on a limited foundation of evidence. Alternative methodologies are now being investigated. Since R&D comprises a major share of the total value of Soviet military expenditure, introduction of an alternative methodology is of the highest priority. In the meantime, improvements in the current estimating basis can still and should be made.

4. Several criticisms are repeatedly voiced concerning the dollar estimates, but we have found most of these to be groundless. Three of the most commonly heard are:

- That the dollar estimates of Soviet military pay are severely misleading. If US pay increases, dollar valuations of both Soviet and US military spending increase, hardly affecting the comparison. Furthermore, the ratio of US to Soviet military pay shows less change going from dollars to rubles than do the ratios for procurement, O&M or any other account. In large part this is because the Soviets use higher ranks in a given job than would the US, offsetting the higher US pay for a given rank. Both the dollar and ruble pay estimates are meticulously prepared and are among the most reliable of any of the military expenditure estimates.

- That the CIA fails to take into account technological improvement in Soviet weapons and thus understates the dollar prices, as well as the ruble unit values derived by translation from dollar prices, of modernized Soviet weaponry. This charge reflects misunderstanding of the CIA procedures, which do attempt to allow for qualitative change over time.

- That the CIA uses learning curves incorrectly, and thus underestimates procurement costs. Learning is a real phenomenon that does reduce military costs, and we believe that SOVA uses learning curves in a conceptually correct and careful way -- by applying learning at the component and sub-assembly level rather than by entire weapon system.

5. The recent change in the estimates of procurement growth demonstrate an important fact: even spending estimates for recent years, although they ostensibly refer to realized expenditures, in fact contain forecasts. In particular, estimates made for the immediate past two or three years are really based on limited information, and have the range of uncertainties associated with forecasts. Spending estimates for periods three to four years in the past are only slightly revised in successive updates and therefore can be considered as having high confidence. Moreover, estimates for the more recent past cannot be used to support conclusions, for instance, about rate of growth of Soviet military spending in the last two or three years.

This point is extremely important. Estimates of Soviet military spending are not accurate enough to decide if this year's or next year's military budget is growing faster or more slowly than the overall Soviet economy.

6. The ruble estimates serve a range of analytical uses and policy issues as important as those for which the dollar estimates are made, since the ruble estimates relate the military economy to the overall economy. Questions of burden and of growth can only be answered in the context of ruble spending. Any serious analysis of overall Soviet economic performance must deal with the military economy in ruble terms.

Unfortunately, some of the most difficult conceptual and practical problems in estimating Soviet military expenditures occur in trying to make ruble estimates that will adequately address those issues. One of the problems with ruble pricing is that the ruble price basis is now very old -- military expenditures and GNP are estimated in constant 1970 prices. SOVA is now engaged in an effort to update the price basis of the estimates to 1982, the year of the latest major Soviet price reform. This is a very high priority task. This updating must include national income accounts,

as well as military spending accounts.

A second problem, at least in the procurement account, is the limited amount and range of ruble price information. There are several ways available to improve ruble pricing. One is to make greater use of the extensive ruble price lists we have for foreign trade items, in spite of the problems that these involve. A second is to estimate Soviet cost of production for many of the major military systems. These cost estimates should provide plausibility checks on the ruble prices, especially once prices are updated to 1982 rubles. A third is to study and learn more about price setting, particularly the profit component, in Soviet defense industries.

7. The CIA estimates of Soviet military expenditure in rubles and the Soviet defense burden are well thought out and carefully drawn. Within their own frame of reference, these are meaningful calculations. However, there are two purposes for which complementary calculations are desirable. First, the Agency seeks to approximate an estimate of burden as Soviet decisionmakers might calculate it. But the Soviets do not measure the size of their economy in terms of gross national product as we do. They use the concept of net material product, which excludes services. Therefore, a calculation of burden in these terms ought also to be made, especially to trace the trend. Second, it is to be expected that the Soviets use current, not constant, ruble prices to measure military spending.

The Agency wishes to estimate the true opportunity costs of Soviet military activity, from a Western point of view. Comparisons of US and Soviet military spending are done on a comparable basis, but the definition of Soviet military spending is too narrow to reflect the full burden that defense puts on the Soviet economy. For Soviet burden, as opposed to US-Soviet comparisons, one should reflect the importance of the following items, listed in increasing order of difficulty to quantify:

- Civil defense
- Costs of maintaining reserve defense production facilities

- Mobilization base
- Construction, such as extra highway costs and railroads
- Strategic reserves of grain, petroleum, etc.
- Opportunity cost of running defense industry on a separate supply system.

8. The ruble estimates also suffer from a conceptual problem which has become significant in light of the observed procurement slowdown. The ruble prices are fixed at the same point in the resource flow as are the dollar prices, i.e. when acquired items pass into the hands of the military. This methodology can be described as one of pricing outputs, not inputs. If procurement costs go up due to falling productivity, bottlenecks, technical or production problems, or other such problems, the current methodology will not catch these increases until the Agency succeeds in transferring the estimates to a new price base. We literally do not know whether the Soviets have deliberately kept procurement investment constant for the last five years, or are merely having trouble getting new deliveries out of their procurement pipeline as fast as the flow of resources into production is rising. However, with the current methodology both explanations would show up in flattened estimates of ruble procurement expenditures, whereas intuition requires rising expenditures if they keep increasing inputs.

This point is extremely important because it bears on the assessment of changes in the burden. Although the ruble military expenditure series is essentially a quantity index with 1970 price weights, it was legitimately interpreted as a measure of real change in expenditure as long as there was no evidence of divergence between growth of inputs and outputs. If such a divergence has been taking place, the Agency series will not reflect the real change in burden. This limitation must be carefully explained in the ruble expenditure paper.

9. There is some benefit in comparing the Soviet-US spending ratios expressed in both dollars and rubles, on the expectation that the ruble

ratio will be lower than the dollar ratio, and that the "truth" lies somewhere in between. The CIA is subject to legitimate academic criticism for not publishing the ratio expressed in rubles, and hence exaggerating the Soviet spending excess. To allow for this, the CIA does attempt to reprice US military spending in rubles in order to compare it with Soviet spending in rubles, but the resulting ratio is used mainly to show that the two ratios differ by less than 15-20%. The working group is split on the implications of this statement -- the Chairman believes that, all in all, the work that would be needed to perform US ruble estimates is better invested elsewhere. The methodology panel believes that more effort should be invested in improving the US ruble estimates and in incorporating them into the analysis of US-Soviet comparisons.

10. The basis for all Soviet military expenditure estimates is a building-block, bottom-up approach. Although this is the only approach that can produce the accuracy and detail required by the many uses to which the estimates are put, there is always the risk that components not easily visible as major blocks will be left out. In order to check overall plausibility of these estimates, it would be desirable to concurrently prepare a top-down gross estimate via an alternative methodology, utilizing Soviet economic and financial statistics to derive estimates of concealed military outlays in the announced reports on the state budget, net material product and output of the machinery industry. These methods have been tried in the past with anomalous results. However, it is important to continue monitoring the data sources to see whether better results can be obtained.

11. It would be moderately useful to have comparisons of Europe-oriented NATO vs Europe-oriented Warsaw Pact military spending. It would make no sense merely to total up the spending of the alliances, since member states have dissimilar worldwide obligations and forces. Therefore, to get a meaningful comparison it would be necessary to disaggregate Soviet (and US!) forces by theater before trying to put pricing of the forces of all the alliance states on a common dollar basis. Soviet order-of-battle are kept on a theater basis, but the same is not true for the theater-ori-

ented rear forces and activities. Disaggregation would be a very large job. The quantity estimates for eastern Europe are poorer than those for the Soviet Union. Pricing factors in dollars for both eastern and western Europe would be necessary for a wide range of equipment, operational practices, military pay, and manning policies.

12. Organization and resource questions enter as well. The recent SOVA reorganization substituting regional for functional offices was intended to allow cross-cutting interdisciplinary studies to take place, an objective which is to be commended. However cross-cutting studies can be effective only when they integrate well-done component analyses in the individual functional areas. When the total amount of resources devoted to analysis are thin, as appears to be the case today, redirecting efforts to the major cross-cutting studies at the expense of the component analyses means that the component analyses will suffer, and these major studies will be built on a shaky foundation. Since the military economic estimates are component analyses, they have suffered badly from the redirection of effort under the SOVA reorganization and the consequent reduction in the number of analysts doing these estimates. These effects were also reflected in the 1982 update, which proceeded much more slowly and with greater difficulty than did earlier ones.

We think that it is a serious mistake to no longer have a single point of focus for military-economic analysis within SOVA. By splitting up these estimates among the various branches SOVA has lost the centralized methodology, discipline, and continuity that characterized these estimates in the past.

13. SCAM, the computer program that is used to generate the economic estimates, is obsolete and needs updating or replacement by a modern program with interactive data entry and editing, a data base management system, and various other data processing improvements. SOVA is now working out a follow-on system with the aid of an outside contractor. The panel expresses its support for this effort.

RECOMMENDATIONS

Our recommendations fall into three categories. The first set might best be characterized as policy recommendations dealing with the objectives and management of the program as a whole. The second set deals with interactions with the using community; while the last set deals with methodology. Since methodology recommendations carry resource implications, we place relative priorities on this set of recommendations. Additional recommendations are contained in the report of methodology panel.

Policy

1. Because the overall military economic program is worthwhile and, in fact, demand for results exceeds the current capacity of the analysts to produce, the program should be continued and at a higher level of resources than is currently available.

2. A single, SOVA-wide coordinator for military expenditure estimates should be appointed. This is a top priority item. Continuity of assignment for the analysts is also required.

3. When estimates are published within the government (whether or not on a classified basis), the CIA should affix mandatory qualifications. Qualifications on dollar estimates should deal with their limited scope of application. Qualifications on ruble estimates should deal with uncertainties involved in inferring burden and trend.

Authority over intelligence data within the executive branch should be established, such that these data may not be published or quoted without the mandatory qualifications.

4. One should distinguish between retrospective analyses of historical data, on the one hand, and forecasts or analyses of policy alternatives on

the other. The former should be published widely and on an unclassified basis as far as security will permit; the latter should be kept in government channels. Summary ruble and dollar expenditure reports should be published regularly and in unclassified form, too, as far as security considerations will permit. SOVA's existing efforts to engage outsiders in helping to improve its analytical product deserve encouragement and support.

5. Because the Soviet R&D estimates are so poor, they badly distort estimates of Soviet military spending. Until the R&D estimates can be improved, therefore, overall comparisons of US and Soviet military spending should exclude R&D spending from both totals.

User relations

1. The basis for both the dollar and the ruble estimates should be aggressively explained and briefed with emphasis on what these are supposed to represent and limitations on their applicability. One possibility is to have a separate spokesman/briefer on the topic.

2. The annex documentating current methodology for making the estimates of Soviet military spending, as discussed at the beginning of this report, should be prepared.

3. It would probably be worthwhile to organize an annual users group to confer on the current state of the estimates and to discuss the research plan for the coming year.

Methodology

1. The current methodology of estimating Soviet ruble R&D should be reviewed, making fuller use of the accessible information. To the extent possible, the work on alternative ruble and dollar methodologies should be accelerated. This is a top priority item.

2. The current effort to replace the 1970 ruble price weights with 1982 prices should be encouraged and fully supported. This is a top priority item.

3. To compare military spending with the size of the overall economy, one needs a good estimate of the size of the overall economy. GNP methodology should be reviewed and Soviet GNP estimates prepared in 1982 ruble prices.

4. The sources of data and analysis used to derive ruble prices for procurement can be expanded. Possibilities include use of foreign trade ruble prices and estimates of cost of production for military items. More detail is given in the methodology paper. This is a high priority item.

5. While the ruble price basis is being changed, special studies should be performed to evaluate the possibility that productivity is declining in the industries that produce defense items. Inputs may be rising faster than outputs, making ruble procurement estimates, computed according to the current methodologies, overstate defense procurement.

6. In performing Soviet burden calculations, the impact of the additional coverage items described in paragraph 7, p. 12 above, should be examined. This is a medium priority item and should be part of a longer term effort to describe the impact on the overall Soviet economy of the extensive militarization of many civilian sectors.

7. A program should be initiated to review the alternative, top-down methodologies for verifying the building-block estimates. This is a medium priority item.

8. A longer-term program should be initiated to concentrate on NATO and Warsaw Pact forces. This requires a number of steps: disaggregation of

Soviet forces by theater; determination of Pact quantities other than order of battle; pricing of Pact forces, each in its own currency; disaggregation of US forces by theater; pricing of NATO forces. This is a lower priority, long-term program, but some plan should be developed in the near term.

9. A move should be made quickly to replace SCAM with a new system. The first step should be a requirements study of the standard OMB circular A-76 type. The study should identify whether significant efficiencies in the use of analysts' time can be effected. An objective is to decide if a simple reprogramming using new technology will suffice, or if a new system design is required.

Report of the Methodology Panel
of the Working Group
On
Soviet Military Economic Analysis
July 1983

Methodology Panel

[redacted] Chairman STAT

Chairman of the Working Group

[redacted] STAT

CONTENTS

REPORT OF THE METHODOLOGY PANEL OF THE WORKING GROUP ON SOVIET MILITARY ECONOMIC ANALYSIS

0. OVERVIEW AND KEY FINDINGS

This report by the methodology panel of the ad hoc working group assembled by the Deputy Director for Intelligence, CIA, is concerned with the quality of the methodology used by SOVA to estimate the ruble and dollar costs of Soviet military activity, the burden of Soviet defense, and the ruble value of U.S. military programs. The panel has been concerned only with costing, not with the estimates of physical quantities, and it has focused on the estimates made in recent years. The quality of the estimates is assessed in terms of their replicability, appropriateness of valuation concepts, fidelity of implementation of the concepts, plausibility, accuracy and robustness.

The need for such estimates arises in two main contexts: (a) measuring the comparative resource inputs into military activity in the United States and the USSR, for which purpose dollar costs are one of two theoretically appropriate sets of trade-off relationships, the other being rubles; (b) assessing the burden of defense on the Soviet economy and society, for which rubles are the most appropriate yardstick. The indicator of comparative resource inputs that is the CIA measure, whether both countries' activities are measured in rubles or dollars, is to be sharply distinguished from measures of military capability, which require estimates of the military capital stock, adjusted for depreciation and obsolescence. Military expenditure aggregates cannot readily be framed for that purpose, largely because of: the dependence of military capabilities on scenarios envisaged for the use of force and on such military intangibles as leadership and morale; non-optimal defense procurement decisionmaking; the problems of calculating depreciation and obsolescence; and the practical difficulty of developing estimates of physical stocks in the United States. One of the increasingly important tasks of Agency presentation of the estimates, in oral or published form, is making sure that users understand which questions the estimates can be used to address, and which they cannot answer.

The panel finds that the conceptual criterion guiding the production of dollar costs of Soviet defense is well-thought out and appropriately chosen among the alternative concepts. CIA measures the flow of resources to military uses at the point where goods and services are acquired by the military forces, and they value the quantities involved at the cost in the United States of buying the particular item--that is, in its Soviet configuration and design, but with allowance for U.S. production

techniques and factor proportions. With the exception of RDT&E, discussed separately below, the estimates are generally successful in achieving consistent execution of that rationale.

Our major conclusions regarding the dollar estimates are:

- Personnel costs are one of the most meticulously estimated parts of the whole system of estimates, applying U.S. pay rates and allowances to a detailed breakdown of the Soviet forces by function.

- Procurement costs have been sharply improved by shifting to contractor studies producing engineering analyses or more sophisticated improved cost estimating relationships. We find room for improvement in the effective guidance by the Agency of these contractor studies, but the quality of procurement estimates is now high. We believe criticism of these estimates on the grounds of failing to take technical progress into account or improper accounting for learning in production to be unfounded.

- Improvement in the procurement account should also have benefitted the estimate of the dollar cost of O&M.

Except with respect to 1970 itself, the ruble estimates in 1970 prices must be seen as an intellectual construct rather than as an attempt to replicate an actual figure recorded somewhere in Soviet official accounts. Our major conclusions regarding the ruble estimates are:

- Personnel costs are one of the most satisfactory components of the total; they are estimated on the basis of detailed ruble cost information and supported by an elaborate manpower model.

- Construction is first direct costed in rubles. The estimate has been raised sharply and improved significantly as a result of a new sampling methodology intended to get systematic coverage of less easily observed elements of military construction. The ruble cost factors are based on extensive Soviet information.

- O&M outlays are estimated by norms relative to ruble values of equipment stocks and procurement costs.

- Procurement poses the most difficult challenge to cost estimation. Some items are estimated directly in rubles--ship hulls of major surface combatants, based on a Soviet merchant-ship estimating model, or some tanks

and aircraft, for which ruble prices are available. Others are converted from the dollar side with the aid of ruble-dollar ratios. The methodology of processing ruble prices and constructing average ruble-dollar ratios has recently been conceptually and empirically refined. The methodology now takes conscious account of uncertainty in the prices and attempts to minimize bias caused by uncertainty. However:

-- The ship model needs updating at an early opportunity.

-- There is a need for further analysis of Soviet price formation, the plausibility of the weapons prices in SCAM, and the uncertainty attaching to these prices.

-- Insufficient attention has been given to the possibility of estimating ruble-dollar ratios from available Soviet foreign trade data as alternatives to or checks on currently used ratios.

The panel has little confidence in the estimates of RDT&E in either rubles or dollars. Up to 1979 the starting point of the ruble estimate was the official series on total science expenditures. The 1970 update substituted a calculation based on manpower numbers, the average wage in R&D and the share of wages in total R&D outlays. Since 1980, the estimate is obtained by scaling down the implied growth rate of the 1970s to a little over 6 percent, on the basis of observations about the growth of military R&D facilities. The panel believes there is little evidential basis for any of these procedures. The conversion to dollars proceeds on the basis of an aggregate ruble-dollar ratio, one of whose components can no longer be reproduced by SOVA analysts.

Studies of alternative approaches are underway, but the work is proceeding slowly and it does not seem likely that the results will be ready for introduction into the system soon. The panel recommends that until the alternative approaches are ready:

° More effort should be put into the present approach, and into making it more defensible, by more thorough exploitation of available Soviet data.

° The published analyses should skip lightly over the RDT&E numbers and exclude them from the totals developed.

CIA estimates of the burden of Soviet defense, the ratio of

military expenditure to GNP (both in rubles) are widely misunderstood and heavily criticized. There may be shortcomings in the factor cost adjustments of both numerator and denominator, owing to insufficient information on Soviet prices. With this exception and in its own terms, this measure is well defined and executed. However:

- There is a need to develop a measure that incorporates a better evaluation of the greater degree of militarization of the Soviet economy relative to those of the West. Such a measure would take account of and attempt to measure activities excluded from the current definition--e.g., civil defense, maintenance of reserves for expansion of defense production, maintenance of mobilization potential, and the like. The subject of mobilization potential and strategic reserves deserves renewed study.

- In the broader measure, an effort should be made to reflect the full opportunity costs of the imposition of military priorities on the civilian economy.

- More thought should be given to measures of military outlay that Soviet leaders might consider in appraising the burden.

- The CIA measures of burden are also handicapped by using the prices of 1970, which are increasingly remote from present scarcity relationships. Programs are underway to change the valuation basis for the ruble estimates to a 1982 base. To accomplish this task a major effort will be necessary in 1984-85. The changeover will be incomplete, however, unless a set of national income accounts in 1982 prices is also developed. The panel is concerned that the SOVA team dealing with national income accounts is losing its key analyst.

- Shifting to a new price base will also enable SOVA analysts to deal more effectively with the problem that recently appeared of a possible divergence between the Agency's series for Soviet defense in 1970 ruble prices and changes in the physical volume of resources actually allocated to defense.

Size comparisons of U.S. and Soviet military activities are and should be made in rubles as well as in dollars. CIA's ruble costing of U.S. defense is complicated by the difficulties of estimating U.S. quantities and the costs of producing U.S. equipment in the USSR. The panel finds:

- The Agency's effort to compensate for the intrinsic difficulties of the calculation involves a number of adjustments relying heavily on judgment but which significantly undercut major criticism of these estimates.

- The spread between USSR/U.S. defense size ratios in rubles and dollars is smaller than those for other categories of GNP, but this probably reflects a tendency on both sides to produce forces in accordance with military, not economic, criteria.

- However, the ruble estimates of U.S. defense receive distinctly secondary attention in SOVA's work, and quality improvements in the methodology are possible.

Size comparisons of annual flows continue to be misinterpreted in a capability sense. There is a need for estimates of weapons stocks, taking account of depreciation and obsolescence.

The panel notes that there is considerable pressure for NATO-Warsaw Pact comparisons. This does not appear to us of the highest priority, but extension of the existing estimates to include non-Soviet Warsaw Pact countries would help respond to criticism of U.S. government use of Soviet-American comparisons alone.

The Strategic Cost Analysis Model now used as the foundation of the costing effort has considerable power but also deficiences in its programming component. These are well appreciated by SOVA and a follow-on to SCAM is now being planned to eliminate most of them. The panel expresses its strong support for this effort.

The Agency's work on methodologies for estimating Soviet military expenditure that are complementary to the building block approach has been intermittent and conducted at a lower level of intensity, in part because of doubts about the feasibility of attaining significant results with these alternative approaches. However, they have the potential of furnishing at least a partial verification test of the comprehensiveness of the building block estimates and therefore should be pursued more systematically.

Except for the major revision of 1975-76, the estimates appear to have been relatively insensitive to refinements in concept and methodology or improvements in data collection over time, thus exhibiting a healthy degree of robustness.

The panel examined the management of the costing effort,

particularly in its reflection in the 1982 update. It finds:

- The 1982 update revealed the toll on military economics resulting from the regional reorganization of the Directorate of Intelligence, in the course of which the Military-Economic Analysis Center (Division) was dissolved, and from reduction of the scale of the military-economic effort. The effect of these changes could be seen in prolongation of the update and difficulties in maintaining normal processes of quality control. On the other hand, the joining of military and economic research within SOVA enabled a more integrated approach to dealing with the questions raised by the apparent slowing of procurement growth.

- The military-economic estimating process requires a central focus to maintain quality control and evaluate new findings.

- The process is costly. With reduced resources, ways would have to be found to alter the mode of estimation and to reduce client expectations with regard to the questions posed to SOVA. However, the panel considers it unreasonable and impractical to cut back on quality and ability to respond to customer demands. It sees no way to avoid augmenting resource allocation to the effort.

The panel has no doubts about the value of the estimating effort, in terms of the need for and the usefulness of the product, and in terms of the quality and analytical relevance of the estimates. We have high regard for the talents of those who have been responsible for development of the estimates over time. We recommend strongly that the effort be continued and supported appropriately.

I. INTRODUCTION

A. Origin and Mandate

At the request of the Deputy Director for Intelligence, CIA, an ad hoc working group of non-government experts was assembled to conduct an independent review of the CIA's Soviet military expenditure analysis program. The group was headed by [redacted] 25X1 [redacted] The 25X1 DDI requested that the group consider "the accuracy of the estimates and the uses to which they are put, including the possible need for changes in methodology, analysis or presentation."

Based on the above guidance, the working group determined that it would attempt to answer three sets of questions:

1. How accurate are the estimates that have been developed to date? What are the major gaps in information/data, and how severely do they affect the estimates? What are the strengths and weaknesses of the analysis of the estimates performed by SOVA?

2. To what uses are the estimates put? How well do they serve these uses? Are the estimates being misused?

3. If the estimates are not as useful as they might be, or are being misused by the consumers, should the effort be curtailed in whole or in part? Alternatively, could the estimates be made more useful by: (a) improvements in accuracy through changes in estimating methodology or by direction of more resources to the estimating effort; (b) improvement in the analysis of the estimates; (c) changes in the methods of presentation of the estimates?

The working group divided into two panels, the first concerned with the methodology and the second with the uses of the estimates. The task of the methodology panel, consisting of [redacted] 25X1 [redacted] was essentially to address the first set 25X1 of questions. However, the panel also paid considerable attention to a part of the third set covering changes in methodology or resources to be committed to the estimating effort.

The methodology panel conducted its investigation on the basis of extensive interviews, recorded and transcribed. Some 40-50 hours were spent interviewing SOVA analysts, in order to

understand precisely what the current methodology is and how it has changed over time. In addition, the methodology panel consulted or conducted interviews with a considerable number of current and former officials of the U.S. government, as well as outside, non-government academic experts who were critical of the CIA estimates. A list of those consulted by the panel is included with this report (Appendix A) along with a list of the supporting documents submitted by several of the individuals consulted (Appendix B).

B. Scope of the Review

The subject of this inquiry is the CIA's estimates of Soviet military expenditure. By "the estimates" we mean the Agency's calculation of (a) the dollar costs of Soviet military activities, (b) the ruble value of Soviet defense expenditures, (c) the ruble value of U.S. military programs and (d) the burden of Soviet defense as the ratio of defense expenditures in rubles to the gross national product in rubles. In addition, we will also refer to CIA-reworked values of U.S. budget outlays in dollars used to draw size comparisons of U.S. and USSR military activities. However, we have not reviewed the CIA procedures for developing these values from U.S. budget outlays.

Several other disclaimers about the limits of this inquiry should be stated:

1. The panel has not reviewed the estimates of physical quantities--that is, manpower numbers, quantities of weapons procured, and the like. The report concentrates on the valuation and costing part of the military-economic effort. The distinction between quantity and value is a not always clear and in several categories of the estimates cannot be maintained. Thus, the presently used procedure for estimating R&D does not concern itself with physical quantities at all; much of operations and maintenance is estimated with the aid of norms related to values of procurement or stocks. Nevertheless, it remains generally true that estimates of quantities have been taken as given, and the methodology panel has inquired only into the validity of the valuations.

2. The panel has not attempted to trace the complete history of the estimating effort and to examine in detail the reasons for the changes that have taken place over time. In particular, we did not undertake to examine the justifications for the major change in the ruble estimates that took place in 1975-76. Our effort concentrated on the recent estimates and their formation.

3. An important disclaimer relates to the criteria of quality we have used in assessing the estimates, as is explained below.

C. Assessment Criteria

The panel's assessment of the estimates takes into account the following criteria for assessing the quality of the CIA's estimates.

Replicability. There should be explicit documentation of data sources, definitions, estimating rules and assumptions, such that all the numbers in the system may be individually replicated. It is assumed that fully reproducible estimates are also free of calculating error.

Comprehensiveness. The estimates should have the scope and coverage, in both concept and implementation, to meet the objectives of the measurement.

Appropriateness of Valuation Concepts. The valuation concepts should reflect and fulfill the purposes of measurement and be consistent across the various categories into which the whole is subdivided.

Fidelity of Implementation. The methodology of estimation should result in the creation of a system of prices, wages, unit costs, etc., which fully accord with the valuation concepts.

Plausibility. This may refer to various stages of the results--to the units of valuation (prices, wage rates, or unit costs) or to aggregates at various estimating levels. Plausibility may be gauged against intuition--the numbers may have an apparent meaning and magnitude that is intuitively acceptable--or external evidence.

Accuracy. Accuracy is generally understood as accord with an empirical reality--for example, Soviet outlays on R&D. The accuracy of such an estimate may be tested by developing alternative measures of the empirical referent. When the estimate bears on an intellectual construct of the system under examination--for example, the dollar cost of Soviet military programs--the accuracy of concepts and methodology can be gauged only in the sense of conformity to the desired standard. Even here, however, external evidence may be relevant as a test of plausibility or perhaps even of accuracy of components. One test of the quality of the whole estimating effort is the extent to which external evidence is sought and adduced to test plausibility and accuracy.

Robustness. The estimates should be relatively insensitive to refinements in concept and methodology or improvements in data collection.

With respect to the first criterion, the panel was concerned primarily with documentation; we have not attempted to manipulate the estimating system in order to test replicability. We will discuss the other six criteria in varying depth, paying particular attention to the valuation concepts and their implementation. Thus, the panel has not attempted to "audit" the estimates, and even within the coverage limitation discussed above, this report cannot pretend to represent a complete evaluation of the estimates. Nevertheless, we believe we have reviewed the system in sufficient detail to express supportable judgments regarding major aspects of its quality.

D. Contents of the Report

Part II discusses the costing concepts and the procedures for applying them in practice, beginning with the general rationale for such value aggregates and then continuing on to examine the ruble and dollar estimates in some detail. In relation to the criteria outlined above, the assessment concentrates on conceptual appropriateness and fidelity of implementation. The other criteria are dealt with in Part III. Part IV considers the management of the estimating effort, and the report concludes with a set of recommendations in Part V.

II. CONCEPTS AND METHODOLOGIES

A. General Analytical Rationale

The fundamental rationale for producing these estimates is that for various purposes one needs an aggregate--a single number that answers the question, "how large is the Soviet military effort?" This is true whether the concern is Soviet trends over time, comparison with the U.S effort, or comparisons with other Soviet aggregates such as GNP. For many purposes it may be more useful to look at disaggregated measures in physical units, but at some level of analysis policymakers instinctively ask for an aggregate. It usually turns out that prices are the most useful way to combine incommensurable physical quantities. Only in this way is it possible to bring together the various aspects of the U.S.-Soviet comparison, and the divergent trends for various elements in the Soviet program. Moreover, inasmuch as CIA devotes large resources to estimating force levels, assessing technologies and designs, and estimating output of military hardware, it is extremely valuable to have the aggregate costing effort as a framework to guide and discipline this work for completeness, quality, and consistency.

The search for broad perspectives on the size of the Soviet military program arises primarily in two analytical contexts. One is concern with the size of the Soviet effort in relation to that of the United States in various breakdowns. For this purpose the Agency's effort focuses on dollar valuation. This provides figures that U.S. policymakers can intuitively understand and react to. Moreover, this is an appropriate basis for valuation, since the dollar price system represents one of the two theoretically relevant sets of trade-off relationships that can be used to assess comparative resource inputs of the two countries. The other set is rubles, but for reasons indicated later, ruble size comparisons have not received equal prominence.

The second use of the monetary value or cost of Soviet military activities is to aid in assessing the burden of defense on Soviet society. There is a presumption that in the context of other information regarding Soviet policies, a burden measure can tell us something about Soviet priorities and intentions, limits on Soviet military expenditures, and on possible Soviet reactions to arms control overtures or changes in U.S. military posture. Since the concern is the burden as Soviet decisionmakers might perceive it, it is appropriate for this purpose to aggregate quantities with ruble price and cost weights.

Two corollary concerns of interest to U.S. policymakers can also be dealt with only by value aggregates of varying degrees of comprehensiveness. One concern relates to the structure of

Soviet military allocations (by mission, region, resource category, etc.) and changes in structure over time. The other is the need to gauge the growth of the Soviet military effort: is the burden changing, is the USSR catching up, falling behind, or moving ahead in comparative level of effort? One can approach this last set of questions by calculating the burden or comparative size at successive points in time, but growth rate comparisons are often a helpful way of examining the issue.

One of the most serious confusions in using the CIA estimates is a temptation to interpret them in terms of capabilities--Soviet relative to the U.S., or changes in Soviet capabilities over time. These estimates are not intended to and cannot support such interpretations. The numbers measure the flow of resources allocated to the military end-use each year. That flow includes both current inputs, such as personnel services and outlays on operations and maintenance, which are used up within the year, and capital inputs, such as construction and procurement of hardware. Capabilities at a given time are a function of the flow of services from the stock of military capital (which includes equipment acquired at various points in the past) plus the flow of current inputs. Thus, the growth of the allocations of inputs to the military end-use is not a measure of the growth of capabilities, nor is the relative size of Soviet and American expenditures in a given period a measure of relative capabilities at that time. Comparison of cumulated flows of investment elements of military expenditure over extended periods of time are only a crude approximation to measures of relative capability.

It is sometimes suggested that the Agency's aggregate measures of Soviet military effort would be more useful if they were designed not to measure input flows, but to measure military potential or capabilities. Unfortunately, there seems to be no satisfactory way to use prices to aggregate across all the kinds of forces being measured to arrive at totals that can stand interpretation as measures of capability. Four main reasons block progress on this score: the dependence of capabilities on the scenarios envisaged for the use of force and on military intangibles; non-optimal defense procurement decisions; the problem of depreciation and obsolescence; and the practical difficulty of developing a set of physical quantities for stocks on the U.S. side, structured comparably with those of the USSR.

Military forces have important political uses in peacetime, but they are raised and maintained primarily for possible employment in war. The outcome of battle is, however, not a simple function of ability to apply physical force, of what might be called the "force potential" of weapons and soldiers. It depends also on the context in which war takes place--for example, conditions of terrain and weather, number and types of

allies on either side, and so forth. It also depends on a variety of intangible and probably inherently unquantifiable elements, such as leadership and morale.

Even if we abstract from context dependence or the role of intangibles and confine the meaning of capability just to force potential, there are still other difficulties. At the time of acquisition, any given piece of U.S. equipment is presumably subjected to the test of whether its contribution to U.S. military capabilities matches the cost of alternatives forgone, so that dollar values may putatively measure capability at the time. Many observers would dispute the validity of that interpretation, in view of the bureaucratic and political forces distorting the efficient allocation of military budgets in the United States or in other societies. Whatever position one takes on that issue, changes over time in the contribution of military equipment to military potential take place in complicated ways (simple wear and tear, obsolescence because of replacement on one's own side or technical advance on the other side, maintenance or enhancement of capability through repair and modernization), so that it is difficult to find acceptable ways of adjusting acquisition values to reflect changes in capability. Analysts do try to aggregate various kinds of forces using non-economic measures of military worth, such as firepower, and seek comparative evaluation of forces in scenario-specific situations. We encountered some experiments with aggregating stocks by prices, especially an effort to develop relative U.S.-Soviet stock values for naval surface combatants. None of these efforts, price-based or using other common denominators, involves aggregates of the scope attempted in the CIA estimates of military spending.

As for the fourth problem, estimating U.S. stocks in physical units, the task will probably have to be undertaken by other agencies; it seems outside CIA's mandate.

An important implication of the fact that the dollar totals are not intended to be used as measures of capability is that it is unnecessary, indeed inappropriate, when estimating the dollar cost of some Soviet unit to try to take account of performance differences. The same applies in figuring ruble values for U.S. equipment. The point is discussed further in section II B below.

To sum up, the Agency effort is clearly and advisedly conceptualized as intended to measure the cost of the resources the USSR allocates to military uses each year, either in rubles or in terms of what it would cost the United States to acquire the same amounts of the various inputs to military capability. It is the consistent application of this definition that gives the estimates their integrity, but this integrity is maintained only as long as the estimates are not loaded with other

interpretations. Making sure that users understand the questions the estimates can be used to address, as well as the questions they cannot answer, is a major and increasingly important task in presenting them, orally or in published form.

B. Dollar Costing Concepts and Methodologies

The first step in estimating the cost of Soviet military expenditures in either dollars or in rubles is to establish quantities--physical amounts of the resources allocated each year to military use, such as number of men, new facilities constructed, the number of ships newly commissioned, etc. The accuracy of those numbers is obviously an important determinant of the quality of the estimates. As noted, the panel did not attempt to review the methodology for estimating the underlying quantities, though a few evaluative comments will be made in Part III. Here we are concerned with the derivation of the dollar unit costs by which these quantities will be multiplied in the aggregation process.

1. Conceptualization of Cost

A central question motivating this review is whether the estimates are in fact conceived and implemented in a way that makes them suitable for the purposes described earlier. We find that the process of producing the dollar figures is guided by a well thought out conceptual criterion. A commonsense starting point would be the question, "how much would it cost the United States to buy the resources the Soviet leaders allocate each year to the military end use?" Simple as this sounds, it is in fact ambiguous because it leaves unclear at what point in the process of turning economic resources into military forces the flow is measured. One might for example, calculate the dollar cost of Soviet hardware procurements by asking what it would cost in the United States to hire the number of people that work in the Soviet defense plants producing the hardware, to buy the materials used in those plants, and so on. Alternatively, this resource flow could be measured much farther downstream, by asking what it would cost in the United States, using U.S. equipment design philosophies, manning approaches, repair practices, etc., to field a force matching the Soviet in capability. The first approach would generate a much larger dollar total than the second, since the former would not allow for higher U.S. productivity in producing military hardware, nor permit any latitude for resource-saving improvements on Soviet choices at any stage of the process--design of equipment, or technical and organizational choices for combining diverse elements into a given capability. The Agency's analysis of Soviet weapon design, organization and production practices suggests that there are, indeed, large system inefficiencies of

this kind.

In our view, the Agency analysts follow a clear rationale for choosing among alternative concepts of dollar cost, and generally succeed in getting consistent execution of that rationale. Their rule is to measure the flow at the point where goods and services are acquired by the military forces. That is, they measure how much it would cost in the United States to buy (at prices consistent with U.S. institutional arrangements, profit patterns, and the like) the goods and services the Soviet military establishment receives each year to maintain and expand the USSR's military forces. They seek uniformity in practice by figuring the dollar cost to acquire or support the "units" defined in the Agency's basic military-economic accounting framework, the Strategic Cost Analysis Model (SCAM), i.e. such things as an item of equipment, a military formation, or the annual O&M support for a piece of equipment or a military formation.

The approach used can be clarified in terms of some possible alternatives for costing an item of procurement--a set of concepts that has come to be called the X, Y, and Z costing models--whose features are summarized in the following tabulation. These models may be contrasted with an analogue approach.

Model	Production Technology	Design	Production History and Capacity
X	US	US	Sov
Y	US	Sov	Sov
Z	Sov	Sov	Sov

The X, Y and Z approaches approach require a reasonably full technical description of the item (which may come from actual possession of the piece of equipment or from technical intelligence), on the basis of which a contractor, usually a U.S. manufacturer of the corresponding kind of equipment, estimates the cost to produce it in the United States. The analogue approach is to find the closest possible U.S. counterpart of the Soviet item in terms of performance, and to assign the Soviet item the cost of the U.S. analogue. The analogue method was used extensively in earlier years, but it has been virtually completely dropped today.

The X, Y and Z alternatives are defined in terms of different combinations of assumptions about design and manufacturing technology employed. All three approaches assume that the required production capacity and experience are available in the United States, and (where this is relevant) that location on the learning curve is defined by Soviet production history.

The X model calls for estimating the cost of providing a unit similar to the Soviet unit, but allowing changes in design features and production techniques to conform to the practice of U.S. producers. In this conception, if the Soviet unit being costed were a piece of equipment employing tube rather than solid-state electronics, the cost would be estimated for producing a similar piece of equipment but designed with the solid state electronics that would be used in the United States to perform roughly the same function. The estimated cost for producing this design assumes the use of U.S. manufacturing methods and materials.

In the Y model the cost estimator accepts the physical design features of the Soviet equipment, but estimates the cost of producing that design using U.S. manufacturing technology and materials. If a Soviet ship lacks the damage control systems characteristic of U.S. ships of comparable types, or provides less room per person for its crew, those features of the Soviet design are accepted in figuring what it would cost a U.S. producer to produce such a ship.

The Z approach calls for the costs of providing the unit,

using not only the Soviet design but also Soviet materials and manufacturing techniques.

To see what this means, consider the way an aircraft would be costed under each of these models. Under the X model, the contractor estimating the production cost in the United States would be asked to characterize the aircraft in terms of such attributes as weight, speed, and range, and would use a cost-estimating relationship (CER) based on U.S. experience to estimate the cost of producing a plane with such characteristics. In the Y model, the Soviet equipment would be much more fully described in physical terms, and the contractor would be asked to estimate the cost of producing a plane of that design. The Z model would follow the concept, "what would it cost in the United States to replicate Soviet acquisition of the plane," even more literally in requiring that the U.S. manufacturer assume he were using Soviet materials and production methods.

With the important and unfortunate exception of RDT&E, the Agency analysts properly adhere to the Y concept throughout. The X model is a mixed performance and resource cost criterion, and therefore ambiguous in its interpretation. The Z model is conceptually extreme in demanding U.S. replication of Soviet factor allocation patterns, material use and manufacturing technologies. U.S. contractors would not have detailed knowledge of these matters, which would be expensive to develop. There remains some ambiguity in the Y model as to what is meant by accepting the Soviet "design" in all the different contexts in which the issue arises. In the case of equipment, for example, there is a hierarchical structure relating physical attributes of a piece of equipment to its performance, and we can specify "design" in terms of variables at various levels of that hierarchy. Imagine a Soviet piece of equipment in which a given degree of reliability is achieved by redundancy, where the American manufacturer would produce the same result by using higher quality components. We can tell the cost estimator to treat the actual physical layout as the "design" he is to reproduce, or alternatively to take the specified degree of reliability as the "design" feature he is to match. There is an inherent ambiguity here as to what is meant by "design." The higher the level at which design is specified, the more it appears as if one is trying to value the Soviet equipment in terms of its capability rather than its cost. In our view, any such contamination of the cost concept with capability overtones is of little quantitative importance, since it is confined within the "units" of SCAM. Given that there are some 1300 of these in the model, they tend to be at a low level of aggregation.

Though we have illustrated these concepts with equipment

examples, the Y concept of accepting Soviet design is followed in other contexts as well. In the case of repair, for example, the Soviet proclivity for buying more overhauls of a piece of equipment than U.S. forces do is taken as given, and the question is, how much would it cost to buy the number of spares and to do the number of major overhauls over the service life of the given piece of equipment that Soviet practice calls for?

As an important exception to the general approach outlined above, RDT&E is estimated as the dollar cost of Soviet outlays on these activities, rather than as the cost of replicating in the United States the RDT&E achievements produced for the military, such as developing a given communications satellite, or achieving a specified gain in missile accuracy. More will be said on this component of the estimates in Section II D below.

2. Implementation of Dollar Costing in Practice

How well is this concept realized in practice? Is CIA in fact able to develop dollar costs that fit this concept for the various resource components of total military expenditure (procurement, operations and maintenance, personnel, etc)? How in fact does CIA get dollar prices? The best way to evaluate this is to discuss practice for each account of the estimates:

Personnel. The largest component in the dollar total for Soviet military expenditures is pay and allowances of personnel, which accounted for over 30 percent of the total in 1981. This is one of the most meticulously estimated parts of the whole system, and is supported by a separate manpower model feeding into SCAM. A major feature of the methodology is the application of U.S. pay rates and allowances not to the Soviet rank structure but to the Soviet job structure, since the Soviets use a different set of rank-job assignments, often requiring officers for functions where the United States would use NCO's, for example. The Agency manpower model takes each person in the Soviet armed forces, specifies the kind of job he does, and assigns to him the U.S. rank that would be used to do that job. U.S. pay and allowances for the U.S. rank are then taken as the personnel cost of each serviceman.

This might be considered a slight departure from the Y model, since the personnel costing specifies Soviet "design" in terms of jobs, rather than accepting the literal rank structure of the Soviet forces. On the other hand, one can argue that the rank structure should be thought of as an aspect of "production technology" rather than "design." The effect of this choice is to reduce the value of Soviet manpower costs relative to a procedure that would attach U.S. pay and allowance scales to the Soviet rank structure.

Procurement. Procurement is the second largest component of the dollar total, accounting in 1981 for about 25 percent. The three most important categories are aircraft, missiles, and ships. Since together they account for about two thirds of the dollar value of procurement, the quality of cost estimation for these items has a powerful impact on the accuracy of the estimates. Land arms account for another 7 percent of the total. For all these categories we believe the estimates are done with the degree of thoroughness, care, checking and guidance needed to ensure trustworthy results. In an earlier period, costs were estimated by analogy with U.S. models of comparable capability or by crude parametric models. During the second half of the seventies, there was a shift to extensive contractor studies for estimating costs of major Soviet procurement items, and a notable growth in the sophistication of the cost estimating models used for all major equipment categories. Procurement is now costed largely on the basis of detailed engineering studies or elaborated, "Sovietized" CERs, which take into acount the specific features of the Soviet model.

Moving from simple analogue or parametric estimation to the more sophisticated techniques has often resulted in significant change in unit costs of particular weapons. A dramatic example is provided by the ZSU 23-4 anti-aircraft system. Originally costed on an analogue basis, direct engineering analysis subsequently raised the unit cost 13.4 times. However, most such improvements in costing result in far smaller changes, and not necessarily in one direction. At present, nearly 30 percent of all items are costed by engineering analysis, about 60 percent by "Sovietized" CERs, and only 10 percent by analogy with U.S. equipment.

Effective guidance and supervision by the Agency is crucial in determining the quality of these contractor studies. We believe this has been good, but it depends heavily on personal interaction between Agency analysts and contractor. The written guidance and documentation needed to communicate to contractors the precise concept of cost the Agency is seeking to reduce may be weak.

Two points regarding the cost estimating procedure merit special mention. One of the most insistent critics of the Agency estimates is Professor Steven Rosefielde, one of whose major claims in published work is that the dollar costs are understated because they are estimated on the basis of a "fixed-vintage" model, with inadequate allowance made for quality improvements between generations of equipment. In fact the CERs used in the Agency estimates take explicit account of intervintage changes in design complexity and the resulting effects on costs, and Professor Rosefielde's published criticism is based on an

inadequate understanding of the methodology followed. We are not able to judge the thoroughness with which technical change is allowed for in practice.

Along with some other critics, Professor Rosefielde has also disputed the way "learning" is handled in the estimation of dollar costs. The issue concerns the meaning and construction of "constant" prices. For many kinds of equipment, especially aircraft, Soviet production runs are very long, and presumed cost reduction by learning important. Hence satisfying the criterion of "what it would cost in the United States" to acquire the amounts of these aircraft the Soviets procure should take learning into account. It is the panel's view that it is appropriate to consider the "constant" procurement cost of a weapon subject to learning (whether in rubles or in dollars) not as a single value but as a schedule of costs in the base year that would have prevailed had the scale of output expanded accordingly during that year. The effect of taking account of learning is to reduce the level of costs (although not necessarily their rate of growth), relative to an approach that ignored learning. However, this is to be expected and seems clearly justified. In estimating the U.S. cost of aircraft acquired in a given year, their position in the Soviet production sequence is used to locate them appropriately on U.S. learning curves. This is the proper approach, since the question concerns how much those aircraft would cost in the United States if produced at Soviet output scales.

Learning is taken account of in a more subtle way than might at first appear, since it is applied at the level of the SCAM unit, rather than at the level of the complete weapon system. For example, aircraft engines are tracked separately from airframes in SCAM, allowing for the learning effect on aircraft cost separately for each. For a missile produced in large numbers and used in several missions, the benefits of long runs can be allowed for in each of the situations in which it is used.

Ships are another item for which learning is significant, but here the only distinction made is between the high cost of the lead ship of a given design, and the lower, uniform, cost of subsequent ships in the series.

Operations and Maintenance. This category accounted for 23 percent of total expenditure in 1981. The basic approach here is the use of O&M "factors" tied to quantities in the SCAM model. In a simple example, say, the maintenance of a building, annual expenditures on maintenance would be expressed as a fraction of the acquisition cost. For aircraft, repair cost is figured as a ratio of lifetime repair outlays to the original cost of the aircraft, and the resulting value is allocated over time in

accordance with Soviet practice. These estimates are basically made first in rubles and then translated into dollars with the aid of ruble-dollar ratios.

Construction. This is a fairly small item (about 4 percent of the dollar total in the early eighties). It is estimated first in rubles and then converted to dollars by use of ruble-dollar ratios. Issues in estimating the original ruble amount are discussed in Section II C.

Research and Development. This is the least satisfactory of any of the components. Our criticisms refer to it as a part both of the dollar estimate and the ruble estimate, and it will be easier to discuss it separately in Section II D below.

Price Adjustments. The dollar costs initially estimated for any element of the estimates carry a particular date: e.g., the cost of a given tactical aircraft generated by an in-house CER or, perhaps, estimated by a contractor, will be figured in prices of a particular year. Each such cost must eventually be expressed in the price level of the year serving as the weights for the annual updates. Thus, the tactical aircraft cost may have been calculated with reference to 1975 and must be expressed in, say, 1981 dollars for the 1982 update. For this purpose, CIA employs a large number of standard U.S. price indexes at a fairly disaggregated level, combined in a variety of weighting patterns to produce indexes appropriate to the various components. We did not review this part of the estimating procedure in detail, since the component price indexes used are not estimated independently by the CIA, and since it seems to be a reasonably straightforward task to manipulate them appropriately.

C. Ruble Costing

Estimates of Soviet military expenditure in 1970, the base year of the CIA's constant price ruble series, may be viewed as approximating an aggregate on the books of Soviet financial authorities. But as the entries in the CIA series move away from the base year, before or after, the ruble estimate must be seen as a construct rather than as an attempt to replicate an actual figure recorded in Soviet official accounts. This is so not just because the estimate is expressed in constant 1970 rubles rather than in current prices, but also because its scope is defined by the CIA concept of what should be included. Actually two totals of appreciably different scope are estimated. The first derives from the purpose of comparison with U.S. expenditures and accordingly reflects the DOD definition of defense activities. The second concept is broader and was developed as an attempt to approximate in coverage what the Soviet decision makers might see as defense outlays. Some questions on this issue are raised in

Section II E below.

The ruble total adds together components estimated in a variety of ways. Some are estimated directly in rubles, others are calculated by converting components originally costed in dollars to rubles by using appropriate ruble-dollar ratios. The best way to explain how this is done and to present our evaluation of the process is to review the accounts individually.

Research and Development. Soviet expenditures for RDT&E are first estimated directly in rubles. The panel considers the underlying methodology and the resulting estimate unsatisfactory, for reasons explained in Section II D.

Personnel. Personnel cost in rubles is derived from very detailed estimates of the number of military personnel (by ranks) and civilian employees of the Ministry of Defense, multiplied by rates of pay and allowances, adding the cost of clothing, food, and utilities. The total is adjusted upward by roughly estimated costs of pre-induction military training programs at various educational institutions. The estimate is well grounded in detailed ruble cost information and is supported by the elaborate, subsidiary (to SCAM) manpower model mentioned earlier.

Construction. First direct costed in rubles, construction is a fairly small item (only about 3 percent of the ruble total in the early eighties). Until recently it was done somewhat crudely. The biggest problem with construction in a building block approach is the difficulty of covering construction comprehensively by observation. Work in early years concentrated on getting the best possible estimates for such expensive and easily visible items as airfields and silos. In 1980, a careful review was carried out in an effort to get systematic coverage of the less easily observed forms of construction. The chief innovation involved intensive imagery-based study of the components and the time pattern of development of the capital infrastructure in a sample of typical military units, with extension of the fully developed patterns to all corresponding units. The ruble cost factors are based on extensive Soviet information on cost estimating norms for various components and types of construction, regional and climatic adjustments, and cost overruns that are well substantiated in Soviet source material. As a consequence of successive revision of the construction estimate through the 1970s, the level of the series was raised several fold.

Operations and Maintenance. Estimates of ruble costs of O&M are based on norms for such expenditures related to ruble values of weapons and other equipment stocks reflecting actual Soviet

practices. Specific rates for maintenance and repair, expressed as percentages of procurement prices, are derived from civilian analogs (based on a special study of aircraft and ship maintenance and repair), and are applied to the estimated value of the stock of equipment on hand. Other costs, such as POL, are calculated on the basis of the stocks of equipment and estimated rates of use, as well as extensive ruble price information.

Procurement. This is the largest resource category in the ruble estimate, acccounting for nearly half the total in the early 1980s. Given the paucity and ambiguity of the ruble price information available for this large, heterogeneous category, it is also the one posing the most difficult challenges to cost estimation in rubles.

Costs for some procurement items are estimated directly in rubles. The costs of major surface combatants (excluding electronics and armaments) are derived from a Soviet merchant-ship cost-estimating model relating to the early 1970s. The model was developed on the basis of ships smaller than most major surface combatants. But it is sufficiently complex to permit taking into account most of the developments in basic ship structure that have resulted from vintage change. It should be emphasized that ship electronics and armaments are costed separately.

Another portion is estimated esentially by multiplying quantities of equipment procured by actual ruble prices. The major items treated in this way are aircraft and tanks. At present CIA has a significant number (approximately 100) of ruble prices, encompassing most of the important components of procurement. Unfortunately, these are rather heterogeneous with respect to date and definition and they must be processed extensively to make them suitable for use as "constant 1970" prices, either for direct costing or for forming ruble-dollar ratios. The first step in using these prices is to define their meaning in several dimensions. It is necessary to specify the year to which they probably refer; whether the weapon is subject to learning; at what point on the learning curve the particular price emerged; and so on. Some judgments must also be made as to the reliability of the source.

The next step is to define a best estimate of the "1970 constant price" for the item, a process in which a statistical procedure is used to minimize the bias involved in the uncertainties attaching to each element of the price identification. Ideally, prices for years later than 1970 should be adjusted for price level change. In the absence of reliable price indexes however, possible inflationary change since 1970 simply becomes an additional element of uncertainty in the bias-minimizing process. The resulting "constant 1970" prices are

used to value those procurement items with which they are associated, for inclusion in the ruble procurement total.

For the remaining procurement items, ruble values are obtained by converting the dollar cost estimates of the corresponding categories (originally estimated as Soviet quantities times estimated dollar unit costs) to rubles by means of average ruble-dollar ratios. These synthesized ruble-dollar ratios are created by aggregating the known ruble-dollar ratios in a given product group, derived from division of a known ruble price by its dollar cost counterpart, using a weighting procedure that minimizes the variance in uncertainty.

In brief outline, this is the basic procedure for estimating procurement in rubles. In evaluating the resulting total, the major issues on which one should focus are: the validity of the ship costing model; the reliability of the set of available ruble prices (used directly in costing and indirectly in constructing the average ruble-dollar ratios); the appropriateness of the methods used to process this price information into individual ruble-dollar ratios and for aggregating these ratios to construct group averages.

The panel is persuaded that: a) While the ship model dates from the early 1970s, it is apparently sufficiently detailed to encompass vintage changes. However, the model is best suited for ships that are somewhat smaller than the surface combatants to which it is applied. It would seem desirable to update the model at an early opportunity; b) There is enough ruble price information available to validate what is done for the remainder of the account and to generate acceptably close results; c) SOVA analysts have exercised care in screening the price information to be reasonably sure they know what they have; d) the statistical techniques used for minimizing the bias introduced by uncertainty in the price information represent a methodologically sophisticated and intelligent approach.

However, there are some uncertainties concerning the 1970 ruble prices and ruble-dollar ratios and a number of steps could be taken to strengthen the reliability of the estimate:

1. There is need for further analysis of various economic parameters entering into price setting in Soviet defense industries, with particular emphasis on those, such as capital-output ratios, that affect profit levels. It would also be useful to select several Soviet weapons for which reliable prices and other relevant data (length of the production runs, level of subcontracting, etc.) are available and test the "reasonableness" of these prices by estimating current costs of production using input-output data. Such studies have not been undertaken before

and their potential utility is considerable, not only for dollar-to-ruble conversion but as a basis for the factor cost adjustments introduced in the calculation of the defense burden, which at the present time, are rather rough.

2. We do not know enough about cost accounting and price-setting rules in Soviet defense industry and this introduces an element of uncertainty in cases where the ruble price of a Soviet weapon is estimated by applying an average ruble-dollar ratio to the estimated U.S. dollar price. As a rule, profitability rates (ratio of profits to capital or profits to cost) differ significantly among Soviet industries and even among products within the same industry or plant. By using an average ruble-dollar ratio based on a sample of Soviet prices, the methodology "creates" a ruble price with an averaged profitability ratio which may or may not correctly reflect the profitability norm set for the weapon by Soviet planners. This is an element that might well be considered in setting subjective uncertainty limits on the raw ruble prices.

3. Although there is a considerable volume of Soviet foreign trade prices for both military and general purpose machinery, these have so far not been used to develop procurement ruble prices and ruble-dollar ratios. SOVA argues that Moscow often heavily discounts the prices of weapons and equipment exports to meet foreign competition, and that the sample of available foreign trade prices is both small and lacking in definitional information. Nevertheless the panel believes there may be room for plausibility testing of ruble prices and ruble-dollar ratios on the basis of information on arms exports. Ruble-dollar ratios calculated from this information might even provide alternatives to ratios being currently used by SOVA. Ruble-dollar ratios can be computed for identifiable weapons and general purpose machinery for which we have domestic ruble prices and foreign currency prices at which these items were either sold or purchased abroad.

In any event, there is a considerable discrepancy between some producers durables ratios estimated by CIA (published in 1980) and ratios estimated using Soviet export data. For example the unweighted CIA ruble-dollar ratio for 9 Soviet trucks was 0.37 rubles per dollar but a ratio of 1.27 rubles per dollar can be computed using the price at which these trucks were sold abroad. In the latter set of ratios we know that the prices are those of identical products. Similar discrepancies can be cited for tractors and construction machinery. The spread between the two sets of ruble-dollar ratios is alarming and strongly suggests the need for more comprehensive work on machinery prices.

D. RDT&E

In the 1981 estimate RDT&E accounted for 17 percent of the dollar total and almost a quarter of the ruble total. It is also the fastest increasing component in the Agency's estimate of total military expenditures, growing at about 8 percent in the 1970s and since 1980 at something over 6 percent per year. Between 1976 and 1981 nearly half the increment in the Agency's estimate of total military expenditures in rubles is accounted for by R and D (4.9 out of 11.2 billion rubles). The credibility of the overall series thus depends in an important way on the credibility of the R and D series. In the view of the panel, there is very little foundation for the estimates of R and D, either in rubles or in dollars, and we consider R and D the component of the estimates most needing attention.

Military R and D is estimated first in rubles. Originally the starting point was the official series on total science expenditures. Since this was thought to be incomplete in coverage, a new methodology introduced for the 1979 update estimated total R and D on the basis of manpower numbers, the average wage in R and D and the share of wages in total R and D expenditure. This comprehensive total was then split between civilian and military on the basis of a few vague statements in Soviet sources interpreted to refer to the share of military in total R and D. In our view, none of the underlying Soviet statements really says what is attributed to them. The correction of this current price series to a series in 1970 prices was done in a manner that seems to us incomplete and unsatisfactory.

The method used in the last several years is even cruder. Applying the original approach in the 1970s generated a series showing growth at about 8 percent. The Agency analysts thought that was reasonable on the basis of what they knew about the expansion of facilities, the growth of major programs, and other evidence. In the latter part of the seventies, however, it was thought that this approach was producing an unrealistically high growth rate, and since 1980 the estimate of R and D expenditure produced by the methodology described has been scaled down to a little over 6 percent on the basis of what can be observed about the growth of facilities known to be devoted to military R and D.

In our view, there is very little evidential basis for any of these procedures. The statement about how much the official "science" series understates all R and D is very vague and no serious work has been done on how this relates to the difference between U.S. and Soviet definitions of what is in R and D. The estimated share of military in total R and D is based on a similarly vague Soviet statement concerning what fraction of R and D is used to raise productivity in the economy, and there is

no indication in the source of what the author means by that, or what total his figure refers to. The few additional benchmarks used to check the current estimate are all equally undefined. The evidence on which SOVA relies as to the share of wages versus other inputs in the total is not necessarily applicable to he coverage of the military manpower figures with which the 1979-update methodology starts. The panel does not have alternative evidence to offer on what these figures should be, but the support for the current numbers is extremely weak, and the Agency has not fully explored the range of evidence available.

For the estimates in dollars, rubles are converted with the aid of an aggregate ruble-dollar ratio, which originated in the mid-seventies by weighting ratios for separate components of the total, specifically labor and nonlabor. For nonlabor, a general ruble-dollar ratio thought to represent relative costs in manufacturing generally was used; documentation for the labor ratio is no longer reproducible.

The implicit overall aggregate that emerges, .46 1970 rubles per 1980 dollar, seems high. As a kind of calibration, in the work done by one of the panel members for the NSF, the ruble-dollar ratio for total R and D that emerged was about .20 rubles per dollar, less than half that used in the Agency estimates. The main reason for the difference is that the Agency estimate attributes a large share of total R and D expenditure to industrial production-type activities, and the NSF study may well have underestimated that share. The effect of using a ruble-dollar ratio lower than the one now used would be to make the CIA's dollar series even higher than it is now.

On the other hand, the dollar value of Soviet R&D seems implausible. At 37.6 billion dollars in 1981, it is twice the U.S. value of 17.9 billion dollars. The Soviet-U.S. expenditure ratio seems improbably large for a comparison parallel with those in the other accounts, namely, how much technological advance is being delivered to the military. We would expect the RDT&E comparison to be exaggerated on methodological grounds in any case, since it is handled differently from the other resource categories: Inputs to the production of knowledge and prototype systems are being measured rather than the outputs of this "production" delivered to the military. Thus, the RDT&E estimate does not take into account what many would assume to be very low productivity on the Soviet side.

The Agency analysts themselves are far from pleased with the estimate and with the underlying methodology, and in the last several years some work has been done on alternatives to replace it. One new approach would start from an inventory of known major R and D facilities, developed and tracked in part through

imagery, and then on the basis of manning factors produce an estimate for the labor force. Multiplication by an appropriate set of wage rates would generate a wage bill, and this would be scaled up to a total expenditure figure for the known facilities from evidence about the ratio of wage bills to total expenditure in various kinds of facilities. Work on this methodology has proceeded very slowly, because of the lack of enough analysts to allocate to it, and it seems unlikely that much will be done soon to put it into operation.

Still another new methodology is under development. A contractor study has been underway for several years to determine whether it would be possible to estimate dollar costs of the R and D programs that would be required in the United States to create particular weapons systems or particular technical advances that have been identified in Soviet defense production programs. If this approach succeeds, one of its advantages would be the provision of estimates conceptually consistent with the rest of the cost estimating methodology because it would generate the dollar cost of what the Soviet military is getting--i.e. the development of some system. Progress on this methodology will probably be slow and it will be difficult to make it operational in the costing effort, since it can cover only R and D of major systems. The sum of these major system R&D costs would have to be blown up by some large factor (perhaps 100 percent or more) to cover all R and D, and this would require careful calibration with some correctly known total for a recent benchmark date. Since the present series is based on a very different concept, and since we are dubious about its validity even on its own terms, splicing in numbers from this new methodology presents problems. Even when the contractor is finished, then, it will be some time before the new approach can actually be incorporated into the estimating procedure.

Our overall conclusion on both ruble and dollar sides is that this part of the CIA estimates is at a distinctly lower professional level than the other major components. The method used may well result in exaggeration of the rate of growth of total Soviet military expenditure and of its size relative to that of the United States. Considering the importance of this estimate, it is the area most urgently in need of improvement.

E. The Burden of Defense

As indicated earlier, the chief purpose of calculating the ruble cost of Soviet defense activities is to measure the burden of defense on the Soviet economy in the form of the share of total resources allocated to defense. This indicator of defense burden has become one of the most widely misunderstood and heavily criticized products of SOVA's military economic

analyses. The confusion and criticism stem from the very special nature of the measurement and perhaps from the manner in which the results have been communicated inside and outside the government.

The defense burden is calculated as a ratio of Soviet defense expenditures to Soviet GNP, with both numerator and denominator expressed in factor-cost adjusted constant 1970 rubles. Factor cost adjustment is a statistical procedure that presumably eliminates some or most distortions in the measurement of cost of resources stemming from the arbitrariness of the Soviet price system. It consists of estimating, removing, and reimputing, as appropriate, taxes, profits, and subsidies in Soviet economic accounts, both civilian and military.

There may be inherent shortcomings in these measurements as presently defined and estimated by SOVA. The recomputations and corrections necessary to make both defense expenditures and GNP conform to an adjusted factor cost basis introduce some uncertainty, particularly in the recomputation of profits in the defense industry. Also, the current methodology does not consider the cost of possible direct and indirect subsidies built into 1970 prices of industrial inputs (including possible favorable foreign-to-domestic ruble exchange rates for intermediate and final products in Soviet imports).

Apart from this possible estimating error and in its own specific terms, the SOVA measure of defense burden is well defined and well executed. However it has been argued that adjusted factor cost, although an improvement over the Soviet established prices, is still an incomplete measure of the opportunity costs of Soviet military activities. This argument, as it is usually developed, actually consists of two charges against the current estimates of burden:

1. The burden of defense estimates are inadequate in scope because they limit the coverage of "military" outlays to a set of activities that is essentially the counterpart of those usually measured in western defense accounting. But the USSR is a different society and economy in which the boundary between military and civilian activities is drawn differently than in the West. There is a need to develop a much better evaluation of the degree of militarization of the Soviet economy and, the range of military activities not encompassed by standard measures. We return to this subject in Section III B below.

2. The prices used in the current burden estimates to aggregate quantities do not reflect the full costs of the imposition of military priorities borne by the civilian economy. Thus, one should add the opportunity cost of operating distinctly different civilian and military systems of supply and

distribution of material inputs and manpower (e.g., the priority given to supplying defense industries with scarce inputs and to allocating better trained university graduates to defense-related productive activities).

The Panel recommends that SOVA initiate studies (done "in house" or by outside contractors) to develop a broader concept of the burden of defense on the Soviet economy which would measure the real resource costs that are not captured by present measures.

The above discussion relates to a western view of the burden on the economy. As noted, CIA develops a "narrow" and "broad" concept of the ruble value of Soviet military expenditure,with the latter intended to approximate Soviet perceptions of the burden. But there is clearly a need to extend the process further. It is desirable to give much more thought to the kinds of measures of military outlay that Soviet leadership might be looking at. In this connection, we note that an experimental effort several years ago developed measures of expenditure at current and "comparable" prices, the latter a Soviet statistical concept, to juxtapose against the CIA measure. It would be useful to return to that exercise and develop it further, including measures of production of military goods and possibly military production by ministry. In this effort, CIA might seek ways of cooperating with DIA, which has been studying ministry production for some time.

The defense-burden ratios estimated by SOVA offer less insight than they might into the Soviet leadership perception of the burden because they are cast in terms of GNP rather than "national income" (net material product), which is the much narrower aggregate that the Soviet statistical system uses to measure the total output of the economy.

As measures of burden in the 1980s, the CIA estimates at ruble prices are also handicapped by using the prices of 1970, a year increasingly remote from present concerns. If the price movements for military goods have diverged from those for civilian output, the burden measured in current year costs may also diverge, perhaps increasingly, from the measure in 1970 prices. SOVA recognizes the need to develop measures in a more contemporary set of prices. Programs are being developed to change the valuation basis for the ruble estimate to a 1982 base, 1982 being the year of a major Soviet price reform intended to bring prices into line with costs. Current plans include contracting out for a study of the overall impact of the 1982 price reform and the preparation of price indexes, including exploratory work on price indexes for general purpose machinery and weapons. A small team in SOVA is preparing the data base of

recent ruble prices of military hardware. The work seems to be progressing satisfactorily, but a major commitment of analysts' time will be required in 1984-85 when the pertinent Soviet data will have been collected and the contracted studies completed.

SOVA has justified its continued use of 1970 prices by the absence of sufficient information on Soviet prices and costs for the later years of the 1970s. However, considering the volume of individual prices accumulated since the 1970 base year, we wonder whether crude price indexes could not have been developed from this growing sample. We understand that prices for the most recent years are not available in abundance, but a rough measure of price change for several categories of procurement could perhaps be obtained at least for the period through the mid-1970s.

The change to the 1982 price base for estimating military expenditures will require a new set of 1982 national income accounts (Soviet GNP in adjusted factor cost prices) similar to those for 1970. A preliminary estimate of 1982 GNP in 1982 prices is supposed to be started this fall and to be completed in early 1984. The panel notes with regret that the SOVA team concerned with Soviet national income accounts is losing its key analyst.

Shifting to a new price base will also enble SOVA analysts to deal more effectively with a basic issue of the concept of the 1970 ruble-price measure of Soviet defense.

The 1982 update pointed up the possible gap between CIA measures of the ruble value of Soviet defense and the volume of resources actually expended on defense (even at "constant 1970" prices). This is a corollary of the SCAM conceptualization of costs, which measures the flow where goods and services are procured by the military establishment. Especially in relation to hardware procurement, the size of the flow of resources into production at points further upstream in the process may not vary directly with the flow to the military of the resulting output. The post-1976 leveling off of procurement conceivably may have been accompanied by a continued rise in the volume of resources allocated to production of military hardware (even after allowance for inflation), which resources, because of various technical holdups, are not being fully converted into output deliverable to the military.

As long as procurement seemed to be growing without interruption and roughly in accord with the growth of the infrastructure of weapons production, this uncertainty, which is inherent in the Agency's ruble estimate, did not arise. In the last half of the 1970s, however, there may have been a divergence

between the value of procurement at constant prices and the volume of real resources the economy had to devote to obtain that flow of weapons. This distinction must be made clear in SOVA's presentation of the estimates to the policy community.

Transfer of the CIA's price base to 1982 should help provide a better feel for the way in which contemporary prices, relative to those of 1970, affect burden calculations. However, only a continuous time series of current-price calculations of defense expenditures would provide an indication of the degree to which Soviet spending on defense was changing at the same or different rates than the constant-price CIA measure.

F. Ruble Valuation of U.S. Expenditures

Comparisons of economic aggregates such as Soviet and U.S. military expenditures most often generate an "index number effect." If the relative quantities of the items entering into each aggregate and the comparative prices of those items differ between the two countries, the relative size of the two aggregates measured in one set of price may differ from what it is measured in the other set of prices. The existence of this effect, its strength and the direction of difference in the measures, depend on the strength and sign of the correlation between price relatives and quantity relatives. It must also be emphasized that neither of the two possible comparisons between the two countries' aggregates is uniquely correct; they are equally legitimate and should be used in tandem.

When two economies are so unlike with respect to basic scarcity relationships as are those of the United States and the Soviet Union, the index number effect would be expected to be strong at the level both of GNP and major subaggregates. The literature on U.S.-Soviet comparisons has emphasized the existence of this effect, and practictioners in the field expect it to show up strongly in all aspects of economic comparisons of the two countries. The CIA's dollar comparison, used alone as a measure of how large the Soviet effort is compared to ours, has often been criticized on the grounds that it fails to allow for the index number effect.

In response to this criticism, the CIA supplements its primary comparison in dollars with a comparison in which both the Soviet and the U.S. programs are costed in rubles. Because of the difficulty of providing the U.S. quantities and estimating what U.S. items would cost if produced in the USSR, this can be done only imperfectly. It is obviously not possible to employ in reverse the method used in estimating dollar costs of Soviet equipment, i.e. asking Soviet contractors to estimate what it would cost to produce items of U.S. equipment in the USSR.

Therefore, it is necessary to estimate relative Soviet-U.S. unit values in some other way. Unfortunately U.S. physical quantities for individual items of procurement are not available; CIA must work with U.S. dollar aggregates. The task then is to develop average ruble-dollar ratios applicable to the U.S. product-group values from the relatively few individual ruble-dollar ratios available.

Nevertheless, the Agency has found it possible to do a reasonably detailed calculation, and the results suggest that the index number effect is not serious for defense: while the dollar comparison shows the cost of Soviet programs as 145 percent of the U.S. outlays, a ruble comparison narrows the difference only to 125 percent. This result is explained by the fact that both sides tend to procure forces in response to military rather than economic criteria, as illustrated by the finding that man-hardware ratios within particular Soviet missions are similar to those in the U.S. forces.

There is one issue with respect to the calculation of procurement that has drawn extensive criticism from an academic scholar. Given available ruble prices for some procurement items and corresponding dollar costs, individual ruble-dollar ratios are established. Averages of ratios are then applied to the dollar values for groups of U.S. expenditures within which the samples of ruble-dollar ratios fall. For example, ruble-dollar ratios for tactical aircraft are averaged, adjusted in a way to be described below, and then applied to U.S. expenditure on tactical aircraft.

The resulting estimates of U.S. expenditure in rubles have been criticized by Professor Franklyn Holzman as biased downward by improper weighting. That is, Professor Holzman claims that since ruble-dollar ratios are only applied to aggregates of values, such as tactical aircraft, the calculation is degraded because individual equipment quantities are, in effect, weighted by dollar prices instead of ruble prices, as they should be. He is correct in principle, but CIA attempts to correct for this deficiency. For example, with respect to tactical aircraft, since the U.S. acquisitions include aircraft of a considerably higher technological level than those in the sample, and with a presumably higher ruble-dollar cost ratio than the older types, CIA raises the average ruble-dollar ratio by a judgmental, though significant, amount to take account of the fact that the average is unrepresentative of newer models that the Soviets would presumably find more costly to produce. There is little evidence as to how large that adjustment ought to be, and the judgment is essentially speculative. (See also our discussion of a related issue in Section III D.)

For some other resource categories it seems likely that the index number problem is much less serious, and it is possible to apply average ruble-dollar ratios to the category values, like personnel costs. In converting RDT&E, the average ruble-dollar ratio is adjusted by 20 percent on the grounds that much of U.S. R&D activity is more sophisticated than the Soviet, and could be replicated in the USSR only at a relative cost higher than that of the activities both countries perform.

Despite our belief that the index number spread is probably narrow, as CIA contends, work in this area appears to be conducted at a low level of intensity. Little effort has been made to break down the U.S. budget outlay aggregates so that more disaggregated ruble-dollar ratios can be used. Also, the ruble value of U.S. expenditure receives distinctly secondary attention in published CIA analyses. Moreover, the Agency treats the defense index number problem differently than it does that for the other end uses of GNP: Both ruble and dollar-based ratios of other end uses are presented and then averaged, whereas the defense ratios are rarely averaged, and the analysis of comparative defense costs proceeds almost exclusively on the basis of the dollar values. Lack of interest on the part of government customers helps explain but does not really justify the situation.

III. VALIDITY AND RELIABILITY OF THE ESTIMATES

A. The Strategic Cost Analysis Model

SCAM consists of two parts. The first is a data base developed according to a carefully designed set of concepts. The data include information on the physical quantities of the various items used in the Soviet military forces--partly as annual flows, and partly as stocks from which flows can be derived. Covering a total of thirty years, past and future, the data base includes information on the dollar cost being used for each item, such ruble prices as are available, and learning curve parameters. Finally, there is a large set of price indexes for adjusting prices and price ratios from their heterogeneous original dates to the common-year price basis used in the various estimates.

The second part of the model is a programming component for manipulating this data to generate the various aggregates and subaggregates produced in the costing effort, such as total expenditures in rubles and in dollars, and expenditures for individual missions and resource categories. The programming component also contains simple routines for checking consistency of various kinds of information in the data base.

SCAM is supplemented with several auxiliary programs for feeding the SCAM data base proper with information coming from the analysts working on various accounts, such as manpower and construction.

The programming component of SCAM currently has serious deficiencies. It is an inflexible system requiring batch processing rather than permitting on-line interactive relationship with analysts; it is also a black-box system that cannot accept modifications. Some features of the estimating and recordkeeping process are not covered by programming, and must be handled outside the model. Examples are foreign trade, calculations of uncertainty measures and confidence limits, and recordkeeping on items withdrawn from inventory. None of the documentation of sources and estimating procedures is stored in the model itself. The panel is not sure that the present system is documented in sufficient detail to make it possible to continue to operate if there were a large scale turnover in personnel. The checking routines are limited, and involve mostly such mechanical tasks as finding sharp breaks in series, and making some microconsistency checks. Plausibility checks within the model (for example, directing attention to a series that remained constant or grew at a constant rate for some number of years) have to be done by inspection, and all checks for consistency with outside data are the responsibility of the

individual analyst. The model does not now contain programs to support experimentation with stock values, life cycle costs, or variations in learning curve parameters.

These deficiencies are more an inconvenience than a direct interference with the reliability and accuracy of the estimates, but improvements in the model would make the estimating process more flexible and efficient, and would help ensure timely updating and revision of the estimates. The power to do a great deal more consistency checking would be important in ensuring that errors did not creep in unnoticed. There are some capabilities in the present system that have not been fully exploited (such as the use of regional identifiers), but in general it has reached the limits of its capabilities and needs to be remodeled. The accounts branch is now working with a contractor to develop a follow-on model that will eliminate most of these difficulties. The panel believes that it important that this work go forward.

B. Comprehensiveness of the Estimates

One of the primary shortcomings of any building block method of estimating an aggregate is the always present possibility of missing some elements. Unfortunately, because of the deficiencies of Soviet data, the Agency was not successful in developing an acceptably accurate methodology for estimating total Soviet defense spending independently of the building block method. The SOVA staff, however, is alert to the need to ensure the maximum possible coverage of all main resource category components. Completeness of coverage in all but RDT&E is sought through continuously updated order-of-battle of the Soviet armed forces, enumeration of quantities of major systems with the aid of all-source intelligence, and application of norms or analogues for less observable but also less important elements. The only improvement in this regard we can suggest is developing a more rigorous methodology of tying together production, changes in inventories, losses, and exports of all major weapons.

To test the plausibility or the accuracy of values derived by the building block method, it would be highly desirable to have independently estimated ruble values of Soviet defense expenditures or of the major components, such as procurement or personnel cost. A number of possible approaches and methodologies based on published Soviet statistics have been developed in the past by the Agency, other groups in the intelligence community, and by academic researchers, but so far with little, success. Briefly, these approaches can be grouped as follows:

1. Total defense expenditures are estimated on the basis of

various unexplained and unidentified residuals in the Soviet state budget, combined with the published "defense" budget and a share of expenditures on "science."

2. Total defense expenditures are estimated as the residual in net material product, the Soviet measure of "national income," after all identifiable non-defense expenditures have been removed.

3. Value of procurement of military hardware is estimated as the residual in the gross value of the output of machinebuilding and metalworking (MBMW) after all non-defense final and intermediate uses have been estimated and removed.

4. Value of procurement of military hardware placed in stockpiles is estimated as the residual in net investment in Soviet net material product after all non-military investment has been estimated and removed.

5. Value of procurement (output) of military hardware is estimated on the basis of plan fulfillment reports by various non-military ministries and estimated total output of MBMW.

6. Value of exports and imports of weapons is estimated from various product and country residuals in the published Soviet foreign trade listings.

Most of these approaches share the basic weakness of any "residualizing" method--the estimates are affected to an unknown extent by cumulative errors generated by the inability of the estimator to accurately separate military from non-military elements. Thus, none of the numerous studies done in the past produced acceptably accurate estimates.

SOVA has in the past intermittently evaluated studies based on alternative methodologies undertaken by specialists outside the Agency and explored the feasibility of such methodologies "in house". Reassessment of these studies was outside the purview of this panel, but we did interview several outside specialists associated with these approaches, seeking their views of the Agency's building block method and any insights their own work could provide in this area. These interviews did not indicate significant progress in the outside efforts.

Poor results of earlier studies within the Agency, the tenuous nature of conclusions reached in similar studies undertaken by outside specialists, and staffing problems seem to have resulted in very low priority for work on alternative methodologies within SOVA. This is regrettable and should be corrected, as the set of alternative methodologies has the

potential to provide at least a partial verification test for estimates derived by the building block method.

The recent publication of the Soviet handbook on the state budget for the 1976-1980 period makes it possible to work through the budget residual method again, particularly as we now know more about the intricacies of the republican-union divisions in the budget. Thus, it would be useful to check whether the ruble estimates of defense expenditures (adjusted roughly for post-1970 price changes) could fit under various unidentified residuals in the union part of the Soviet state budget.

However, the issue of the comprehensiveness of the Agency's coverage of Soviet defense costs must be raised in a wider frame of reference, particularly when the estimated defense expenditures are used to assess the economic burden of defense. The measurement of the defense burden currently performed by SOVA is defensible in its own terms. But even with a "broad"-definition defense numerator the burden definition is still narrow, as we noted in Section II E. The Soviet economic system differs from the U.S. and other market economies by a much higher integration of military and para-military activities with the civilian economy.

A number of economic activities directly related to the Soviet defense effort are excluded at present from SOVA's concept of the defense burden. Some of these activities are difficult to quantify, others could be incorporated with SOVA estimates. Students of Soviet defense-related activities have identified the following items (in descending order of "quantifiability")

-- Civil defense

--- Costs incurred by industrial enterprises not subordinated to the Ministry of Defense to maintain reserve facilities for expansion of defense output (including trucks and other means of transportation registered with military units which could be transferred to the military forces when required)

-- Other costs associated with the maintenance of the mobilization potential

-- Additional construction and capital maintenance dictated largely by military needs (use of highways as landing facilities for aircraft, radio and other communication networks, etc.) The BAM railway is believed to have an important strategic as well as civilian purpose.

-- Costs of additions to and maintenance of strategic reserves of non-military supplies (grain, POL).

-- Costs incurred by the KGB and GRU for covert procurement of defense-related Western technology.

As can be easily seen from this (by no means complete) list the economic costs associated with defense efforts not captured by SOVA estimates seem high and, if measured, might add several percentage points to the defense burden. On the other hand, some military expenditures now included in the CIA estimates provide partial benefits to the civil economy. For example: general education and health outlays on the armed forces improve the productivity of the demobilized recruits when they reenter the labor force; Soviet military personnel are regularly used to help bring in the harvest; Soviet construction troops have built Olympic stadiums or other objects of civilian use. These civil benefits should, in principle, be subtracted from the enlarged estimate of total military expenditure to obtain a more meaningful measure of burden.

While the Soviet economy is surely more highly militarized than that of the United States, the problems discussed have some parallels in this country. Examples of essentially military outlays not now counted in U.S. measures of military expenditure are civil defense and emergency mobilization planning. There are also activities of an apparently civilian character that have military components or potential military use. Thus, in a comparative context, the defense numerator of U.S. burden calculations would also have to be reexamined, for both additions of nominally civil costs that are in fact military and subtraction of identified military costs that produce civil benefits. Clearly, however, the most important question concerns the degree to which the Soviet burden is understated by current measurements.

It is not intuitively obvious where to draw the line between military and civil activity in either economy, but this should not preclude a serious examination of the issue. A logical first step is development of the concept to be followed by an attempt at estimation of the relevant magnitudes.

C. Robustness of the Estimates

As indicated in the introduction, the accuracy of estimates may be gauged by comparison with the external referent the estimates are supposed to replicate. In principle, neither the dollar nor the ruble value of Soviet defense in the SCAM model has such an empirical referent; except for the ruble value in 1970, both are purely intellectual constructs. The components of these aggregates may be evaluated by tests of plausibility or

even, in a few cases, accuracy as defined here. However, the overall aggregates themselves are not easily assessible in these terms.

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the Agency cited statements by several Soviet leaders and emigres relating to the total value of defense expenditures at particular times and concluded that these were broadly consistent with SOVA's estimates. As the paper notes, there is considerable uncertainty about the coverage and price basis of the Soviet statements. "The most meaningful information" is said to come from a former Soviet economist who claimed to have seen a summary statement of defense expenditures relating to 1969 and 1970 at the USSR Central Statistical Administration. These are years for which CIA estimates may expect to approximate closely Soviet figures in current prices.

Otherwise, the only major test of accuracy that can be applied is robustness--insensitivity to change through successive estimating efforts. Each year a new 30-year series is produced and we can look back to see how the totals and subtotals have changed with each succeeding estimate. The following material briefly summarizes the results of a test of robustness:

1. **The Ruble Estimates**

By this test the ruble estimate of Soviet defense failed dramatically and publicly in 1975-1976. For the ruble estimates of procurement, the series calculated after that date are essentially different from those presented before. Coincidentally, the RDT&E methodology changed at about the same time. However, while the RDT&E estimates composed since the mid-seventies appear almost perfectly robust, this is simply because of the stagnation of the estimating procedure for this category.

For the remaining categories, we did not have complete sets of data at our disposal but the missing years are sufficiently few in number that several judgments can be made confidently:

a. Consider the several annual estimates, made after the big revision, of the individual resource categories in the year 1970. The ratio of the maximum to the minimum values of these several estimates was 1.24 for investment, 1.13 for operating and 1.12 for total expenditures (including RDT&E). That is, successive revisions of the same datum in the major components of the total yielded a moderately narrow range, so that the range for total outlays seems acceptably small.

b. The range tends to increase in later years; e.g.,

the investment ratio is 1.29 for 1976 and 1.3 for 1982. In considerable part, this simply says that recently made estimates applying to recent years exhibit a naturally greater degree of changeability than estimates for an earlier year on which very considerable attention had been focused previously. In addition, however, the investment range is associated with the fact that estimates made in year t for the years t, t-1 and t-2 are colored to greater or lesser degree by inclusion of the leading edge of the costs of systems that have not yet been deployed--in short, what appear to be realized outlays are in part assumed costs of future systems.

c. Increase in the range of successive estimates is also observed for rates of growth. With respect to estimates for the years 1971-75, the average annual rate of growth of investment (to take an important category) varied among the different estimates by as much as 2 percentage points; for 1976-1980, the variance was as much as 4 percentage points. The explanation is, of course, exactly similar.

d. In general, there is a tendency for the absolute value of any resource category to increase with successive estimates. However, the post-1976 sample of estimates is too small (there are only four--made in 1977, 1978, 1979, and 1982) to assess the durability and significance of the apparent tendency, especially as the chief contribution to this effect so far has been the revision of ruble-dollar ratios carried out last year. This revision introduced a means of estimating uncertainty and minimizing bias resulting from uncertainty.

e. Among the resource category components of the total, construction was the most volatile; the 1970 entry quadrupled between the estimates made in the early 1970s and and those made in 1982. Last year, the methodology changed sharply, as explained earlier.

Consequently, on robustness grounds alone, the Agency's published self-evaluation seems supportable: the estimates are best for the early 1970s and particularly 1970; total outlays are more reliable than the components, which vary sharply in the confidence that can be reposed in them.

2. The Dollar Estimates

The sample available to us was different from the sample of ruble estimates for technical reasons. On the other hand, since there was no dollar revision to match the ruble "revolution" of 1976, we should be able to compare estimates made throughout the 1970s. The following tabulation helps sum up the results:

Dispersion in the Successive Annual Estimates of the Dollar Cost of Soviet Defense*

	Estimates Made During 1971-82 for		
	1970	1975	1980
Number of Estimates	12	7	4
Ratio of Maximum to Minimum Value			
Total Outlays	1.19	1.11	1.04
Investment	1.64	1.19	1.06
Operating	1.27	1.11	1.03
Ratio of Maximum to Minimum Value for Four Series Having 1980 Entry			
Total Outlays	1.06	1.05	1.04
Investment	1.19	1.16	1.06
Operating	1.03	1.04	1.03

*On a common price basis of 1979 dollars.

Here there appears to be greater scatter for 1970 than for 1975 or 1980. In part this is due to the larger number of series available for 1970, but the tendency appears to persist even when we use only those series that have a 1980 entry. The more important explanation, however, is that the estimates for the different years are not always comparable in the classification rules they used--e.g., with respect to the classification of spare parts alternatively as O&M or procurement. There appeared to be some confusion because of this in the first half of the 1970s. After consistency was imposed on the classification rules, the degree of scatter fell off sharply.

As with the ruble estimates, there is considerable difference in volatility among the resource categories; construction is again the outstanding example, with a sharp upward rise. However, successive estimates did not change the direction of movement over time. Surprisingly, there appears to be a downward pattern in the successive estimates for personnel costs in 1970.

On the whole, therefore, the dollar cost estimates have stood up well to successive reestimations, especially if account is taken of the changes in classification that occurred in the first half of the past decade.

D. Biases and the Critics

"Bias" is usually associated with systematic, as distinct from random, estimating error. In this section we examine the claims of a number of critics of the CIA estimates that the latter indeed err systematically in particular directions. Both the dollar and the ruble estimates have been charged with bias and in both directions. We have not attempted to assess all the criticism we know of, only those of some significance. One cannot assume that the critics cancel each other out and that the estimates must be "about right." Nevertheless, the panel's judgment is that the critics' charges, in the main, are not justified. Our comments are subdivided by the category of CIA estimate criticized:

1. The Dollar cost of Soviet Defense

Professor Franklyn Holzman has argued in print that the dollar costs are biased upward because of overvaluation of military wages and equipment prices. Both charges were based on insufficient information on CIA procedures. Professor Holzman thought military wages overstated because U.S. wage rates were too high for the less skilled, less educated Soviet military cohorts. However, the SOVA costing model does not attempt to replicate the capabilities or productivity of the Soviet force, but only its size and distribution by military function. Similary, Professor Holzman's belief that there was a systematic

upward bias in the valuation of Soviet equipment was based on some misleading statements by CIA officials in the mid-1970s but also on a mistaken implicit assumption that CIA costing aimed at performance comparisons.

Criticism of the dollar estimates because they apply U.S. military wage rates to Soviet conscript personnel is frequently heard in the United States. One of the most popular complaints alleges the absurdity of a situation in which a U.S. pay raise automatically increases Soviet "expenditure." Part of the problem is the failure to recognize that what is being measured is the cost in the United States at base year prices of raising and maintaining the Soviet force. Thus, if the dollar prices used in the estimate are those of the year in which the pay raise occured, it is entirely proper that the dollar costs of Soviet military programs should reflect the new U.S. pay rates. Moreover, these rates would apply to every annual entry in the series, thus leaving the growth rate of personnel cost largely unaffected. If the base year of the dollar cost series were an earlier year, the military pay rates used to aggregate military manpower would be those prevailing in that earlier year and not the later, higher rates. The critics are also unaware that the ratio of Soviet to American personnel costs in dollars is considerably lower than a comparison of military manpower quantities and average pay rates would indicate, because the CIA dollar calculation assigns U.S. ranks to the functions of Soviet personnel and the Soviet armed forces tend to use officers where the U.S. force would use noncoms.

A number of critics have argued that the dollar estimates are downwardly biased. Most prominent among them is Professor Steven Rosefielde. We have already referred to his main charges--failure to take account of intervintage technological change and improper adjustment of base year equipment prices for learning in production. We have satisfied ourselves that Professor Rosefielde was misinformed on the first issue (however, see immediately below). The second, we believe, is arguable but we find the CIA position a defensible interpretation of production index theory.

It may be useful to add a few words here on the question of intervintage change. The effect of failure to take account of such change in cost estimating models is not only to lower the level of a constant dollar series but also to understate its growth rate. Professor Rosefielde believes, on the basis of various calculations by other observers, that U.S. military technology improved at an annual average rate of about 6 percent in the 1970s. He asserts that the rate of technological improvement was even faster in the USSR, despite the fact that Soviet design philosophy aimed for incremental change rather than

state-of-the-art development. His calculations indicate that Soviet technological improvement cumulated to a 252 percent increase in the 20 years 1961-1980, against 121 percent for the United States. Professor Rosefielde also states that if the CIA estimates do in fact incorporate an allowance for qualitative change, the rate of Soviet technological improvement was even faster than the above numbers suggest.

Apart from some unpublished, vague and judgmental assessments by others, the basis for Professor Rosefielde's belief in the higher rate of Soviet qualitative change is the difference between the rate of growth of the CIA ruble procurement series and the rate of growth of the series calculated by William T. Lee several years ago, which was derived by calculating a presumed hardware residual in announced Soviet values of machinebuilding and metalworking output. The panel has not examined Mr. Lee's calculations in detail. However, it is impressed by the serious methodological objections to his estimates raised by several observers, inside and outside CIA.

The plausibility of Professor Rosefielde's estimates of Soviet technological change may be roughly gauged by calculating the change in implied ratios of Soviet to American quality levels. If one believes that the qualitative level of Soviet weaponry was, say, one-third below that of U.S. weapons circa 1960, using Professor Rosefielde's quality growth rates means that one must also believe that the average level of Soviet weapon quality is now higher than that of the U.S. On the other hand, if one believes that Soviet quality is now at least one-third below that of U.S. weapons, the implication of Professor Rosefielde's series is that the 1960 ratio must have been considerably less than half. The paradox is even sharper because, as indicated, Professor Rosefielde suggests that his estimate of the rate of change in Soviet technological improvemnt may be understated.

Finally, we should note that while Professor Rosefielde accused the CIA of using fixed vintage CERs in his published work, he has recently amended his charge: he now acknowledges that revisions are made, but he asserts that the revisions are insufficient to deal with the problem.

2. The Ruble Value of Soviet Defense

Professor Holzman has contended that the ruble estimates in 1970 prices understate the rate of growth primarily because the ruble-dollar ratios used to convert much of procurement from dollars to rubles are averages for highly aggregated elements and that these elements represent 1970 dollar values. "Subaggregation in 1970 dollars reduces the rate of growth of these subaggregates because it puts a relatively low price on the

fast-growing modern Soviet weaponry and a high price on the relatively constant-sized army." We referred to this problem as it applies to estimating U.S. defense costs in rubles (Section II F). As we noted there, however, Professor Holzman is largely mistaken: it is true that in the absence of ruble prices or ruble-dollar ratios for every item of procurement, the use of average ruble-dollar ratios automatically implies subaggregation in dollars at some level. However, (a) the subaggregation takes place at rather disaggregated levels; (b) it does not take place in 1970 dollar prices but in differing price levels depending on when the calculation is made; (c) an adjustment is made to the average ruble-dollar ratios to account for greater or lesser technical complexity in the items with unknown ruble prices or ruble-dollar ratios. These adjustments are somewhat speculative and may have considerable estimating error, but they tend to rule out the probability of systematic bias in the growth rate of the series.

A number of observers in and outside the government have contended that the level of the ruble estimates is biased downward. The substance of some of these arguments--particularly by Andrew Marshall, Director of Net Assessment of the Department of Defense, [redacted] of DIA, or Major General William Odom, Assistant Chief of Staff, U.S. Army--relating to the scope of activity coverage of the estimates, has been discussed in Section III B above. Other criticisms concern the adequacy of the CIA's ruble prices as measures of real opportunity cost. This issue was discussed in Section II E. We may note again that the panel found merit in some of these critiques and has made a number of suggestions to deal with them. 25X1

Professor Rosefielde is also one of the strongest critics of the ruble estimate: he charges that both the level and the rate of growth are downwardly biased. His criticism with respect to the Agency's estimates made after the 1976 revision are essentially reflections of his charges against the estimates in dollars. Since the panel has not reviewed the 1976 revision, it decided not to evaluate Professor Rosefielde's critique of the pre-revision estimates or the validity of the Agency's justifications for the revision.

3. Comparisons of U.S. and USSR Defense: The International Index Number Problem

As noted earlier, comparisons of value aggregates in one country at different times or in two countries at a single time present an "index number problem," in that use of different price weights inevitably yields different ratios of comparison. Thus, U.S. and USSR defense may be compared in rubles or in dollars; both are legimate yardsticks, but the answers will be

different. CIA performs both calculations, but Professor Holzman is sceptical that the spread between the USSR/U.S. ratio in dollars and the complementary ratio in rubles can be as small as CIA claims it to be. Apart from his criticism of the CIA dollar costs of Soviet defense, Professor Holzman belives that CIA's estimate of the ruble value of U.S. defense is biased downward, for two reasons:

(a) U.S. weapons that the Soviets are incapable of producing because of technological inferiority are costed by CIA in rubles as if the Soviets could have produced them and are valued by means of ruble-dollar ratios applying to much less advanced equipment. Professor Holzman has a point, in that products unique to one economy in a two-economy comparison pose difficult measurement problems. However, the conundrum is faced in all international and intertemporal calculations, and usually ad hoc adjustments are undertaken to resolve the problem. CIA does the same, adjusting the relevant, category-average ruble-dollar ratios to compensate,at least in part, for the U.S. technological superiority.

(b) The same problem ofsubaggregation in dollars before conversion to rubles that downwardly biases the rate of growth of the ruble value of Soviet defense also leads to systematic understatement of the level of the ruble cost of U.S. defense. The response to Professor Holzman on this charge is the same as that indicated with respect to the growth rate of Soviet defense in rubles.

Professor Holzman, however, is justified in complaining that ruble U.S.-USSR comparisons occupy a back seat to the dollar comparison, whereas both are in principle equally legitimate measures of relative size. He is also correct in observing that whereas the CIA U.S.-USSR GNP comparisons usually average the ruble-based and dollar-based Soviet-to-American ratios by the geometric mean, CIA almost never averages the counterpart defense ratios. However, these issues are primarily matters of the use of CIA estimates rather than of the methodology itself, thus outside the mandate of this panel.

4. The Burden of Soviet Defense: The Intertemporal Index Number Problem

In additon to his criticism of the ruble Soviet defense series, Professor Holzman has also charged that the burden calculation, dividing Soviet defense by Soviet GNP, both valued in 1970 factor costs, is upwardly biased. He is correct in asserting that the burden in any year ought to be calculated in the prices of that year, because that set of prices is the only one reflecting the opportunity costs of the particular defense

allocation. As Professor Holzman is aware, the difficulty of obtaining contemporary prices was the reason for maintaining the series in 1970 prices. Further, he is convinced that using 1970 rather than 1980 ruble prices to measure the burden in 1980 exaggerates the calculated ratio, because the costs of military procurement would have declined much more rapidly between the two dates than the prices of other components of GNP. The panel believes arguments can be adduced in either direction. Morever, Professor Holzman appears to identify rapid price decline with rapid modernization. This may not necessarily be true, but we shall have to wait until the CIA estimates are coverted to a new price basis to determine whether contemporary prices lower or raise the burden calculation relative to that in 1970 prices.

IV. MANAGEMENT

When the regional reorganization of DDI took place, one of the most prominent changes affecting the Soviet area was the dissolution of the Military-Economic Analysis Center (Division) and distribution of its functions among two divisions of the new Office of Soviet Analysis. Roughly coincidentally, a reduction in size took place. At the beginning of 1983 there were approximately 28 analysts counted as involved in the estimating process, although the full time equivalent number of analysts was probably 15-20. The counterpart number of analysts in 1981 was 35, almost all of whom were assigned full time to this activity (including 2-3 working on China). Also, many of the senior managers and analysts of the MEAC period were promoted or reassigned and thus were no longer involved in military economics.

The reasons for these changes are various and understandable. The reallocation of resources away from military economics no doubt paid off in the sense that researchers were made available for other tasks with high visibility and priority. But these changes did have a noticeable impact on the intensity and quality of the work on military economics, as suggested by the experience of the 1982 update of the military expenditure estimate. Under the best of circumstances (had MEAC or its equivalent been continued and at approximately the 1980-81 level of effort), the 1982 update would probably still have concentrated on some aspects of the task and coasted on others in which major modifications had recently been completed, as for example, the methodology of estimating construction. Given the nature of the organizational changes in 1981-82, this narrowing of focus and an inclination to live off past capital was accentuated.

We believe that the new arrangements disrupted the update and affected its quality in several important ways:

1. The 1982 update was distinctive because it was prolonged. Ordinarily, these annual exercises have taken about four months from start to finish. According to the formal schedule issued in November 1981, the 1982 update should have started in mid-December and been three-quarters complete by mid-April. In fact, it took the better part of 8 months, from February to August 1982, to produce the first version of the ruble paper.

2. It was characterized by a somewhat erratic progression of the normal stages of the update. The sequence usually follows the order: forces, costs, indexes, rubles, with relatively even distribution of time segments. In 1982, the formal phase of

force updating lasted more than three months, the cost phase some two to three weeks, the index phase a surprising six weeks, and the ruble phase a further two-plus months. This resulted in part from the fact that while the order of stages was formally preserved, it was frequently necessary at later stages to redo earlier parts of the estimates. Such a process is by no means unprecedented, but the extent to which it was required in 1982 was unusual.

3. This affected the quality control inherent in the normal process of orderly, staged updating. At each point of the update, the parameters of the next stage are kept constant, and this is an important way of maintaining a watch for anomalous patterns developing within each stage. Because the stages were to a considerable extent intertwined in the course of the update, that element of quality control was difficult to maintain.

4. An additional problem of quality control in 1982 was the decentralization of the process of estimation, resulting in the lack of a clear central focus and control point.

5. According to the memo by D/SOVA initiating the process, the 1982 review was to cover the forty-four year period, 1951-1994, "to give the force analysts an opportunity to review our historical base... [and] to reinforce the data for 1989 by capturing follow-on systems and costs which tend to unrealistically fall off at the end of the estimate." But this apparently depended on the forces review being conducted by the old NFAC projections working groups, which were supposed to begin their part of the update in the last half of December 1981. Unfortunately, the projections working groups were moribund this past year and did not contribute to the updating process.

6. The final long delay in the completion of the ruble part of the estimate was due to concern about the validity of the estimate rather than to organizational problems, and indeed demonstrates one of the advantages of the new arrangements. The questions raised by the slow growth of procurement revealed in the 1982 update could be addressed and resolved within SOVA against the background of all the Agency's work on Soviet economics.

The 1982 update clearly revealed the toll on military economics that had taken place in the course of the reorganization. The military economic effort, with its inherent complexity, sophistication, and requirements for understanding by those who operate the models taxed the reduced and relatively less experienced human resources available. There were now fewer analysts to work the system and many of them were new to the business; the models in the system were not well understood; and there were important competing demands, especially in the Defense

Industries Division. All this, plus the lack of experience in doing a decentralized update with reduced staff, resulted in the characteristics already noted.

Some of the difficulties revealed in 1982 can probably be repaired within the existing framework. The working groups can presumably be reconstituted and their efforts made more central to the whole process. The analysts who were new in 1982 have now accumulated considerable experience and fewer delays will ensue on this account. However, there remain two longer term problems whose resolution involves larger resource issues:

1. Whatever the size of the effort that will be undertaken this year and in the future, the panel believes that one of the clear losses from the reorganization is that of a central directing focus. The military-economic estimating process is too diverse and complex to be left to operate essentially on its own. Central direction is needed, in the first place, to maintain control over the speed and quality of the annual updates. It is also needed to provide a focus for evaluating new findings and to take responsibility for reconsidering conventional wisdom. The panel sees no alternative to providing more focused management. How that should take place is, of course, something that must be left to the office director. It seems to us that central direction will benefit the operation most if it is continuous rather than ad hoc or occasional.

2. The military economics effort inherited from MEAC was a large complex system that required substantial manning and vigilant control to maintain quality. Present resource constraints raise the question of options for future maintenance and development of the estimates. One option would be to attempt to recreate essentially the conditions that prevailed in 1980-81 regarding mode of operation and level of resources. Alternatively, it would be necessary to review the mode of operation to permit functioning within reduced resource limits. Several ways of cutting the costs of the annual updates have been suggested, including doing updates less frequently, cutting back the number of years being reviewed or staggering the scope of the annual update--e.g., covering the period before 1960 or 1965 every five years instead of each year. One might consider reducing the required degree of accuracy or introducing short-cuts in the modelling procedure. Such changes would probably reduce SOVA's ability to answer the range of questions currently directed at it by its various government clients, of the type, "what would it cost the Soviets to counter a U.S. program of such and such a size in the x mission"?

In this connection, the panel wonders whether the labor cost of the annual updates can be reduced by changes in the modelling

apparatus. SOVA is now in the process of developing a follow-on to SCAM II. It might be advisable to elaborate that follow-on, at some increase in the cost of the one-time transition, in order to reduce the operating costs of updating once the follow-on is in place. We should, however, note the opinion expressed by a senior SOVA analyst that model tinkering without moving to a higher level of aggregation would not yield significant savings in labor costs. Despite the weight of this opinion, it seems to us worth raising the issue for further consideration.

The problem of matching resources and estimating requirements provides another argument for reestablishing centralized direction of the military economics program. One of the important tasks of central control would be to encourage methodological innovation, especially of a cost-reducing type.

To sum up, it appears to us that there is an important management dilemma with respect to insuring the quality of the military-economic effort at SOVA. The sophisticated apparatus built up over the past decade or two requires sizable resources and ongoing centralized leadership to preserve the quality of the estimates and to serve the continuing needs of the policy community. The 1982 update foreshadowed the possibility of more difficulties in the future if no action is taken. The panel considers it unreasonable and impractical to cut back on quality and ability to respond to customer demands, and sees no way to avoid augmenting resources, especially if our recommendations for improvements in methodology and estimating procedures are implemented. Streamlining procedures could perhaps help limit the increase in cost. But either choice, we believe, should include setting up a focus of responsibility for the estimates, to insure maximum quality and responsiveness to policy requirements.

V. RECOMMENDATIONS

In this section we summarize our major conclusions with respect to the concepts, methodology, procedures and management of the Soviet military expenditure estimates, and offer our suggestions for actions that can be taken to improve them.

1. There is no doubt in our minds of the value of the estimating effort, both in terms of the need for and the usefulness of the product and in terms of the quality and analytical relevance of the estimates as now constituted. While we have been critical of various aspects of the system of estimates and recommend a number of changes, we have a high regard for its overall quality and for the talents of those who have been responsible for its development over time. Particularly large qualitative improvements were made in the last half of 1970s. We are also convinced that the estimates respond to a genuine requirement for measures of Soviet military economic activity. Defense policymaking is better served by the CIA's making these estimates than by dropping them and leaving clients to produce their own estimates. We recommend strongly that the effort be continued and supported appropriately.

2. The panel has noted the resource allocation burden of operating the estimating effort and of the logical choices available to SOVA management of cutting the coat to match the cloth or providing more cloth. Some savings may be possible, through reducing the frequency and scope of coverage of updates or perhaps through modelling refinements, but we believe that maintenance of quality has proved to be and will continue to be difficult at the current reduced staffing level. Moreover, the need for methodological improvements, discussed in this report and summarized below, suggests that in fact additional resources will be needed.

3. Whatever the decision on resource allocation, the panel believes it essential to provide centralized, ongoing direction of the estimating effort, for the reasons set out at length before.

4. The panel wishes to express its strong support for the ongoing effort to develop a follow-on to SCAM II. The deficiencies of SCAM II are fully appreciated by SOVA, and it is clear to us that a follow-on development is needed.

5. With respect to the estimates themselves, our recommendations are set forth here in rough descending order of priority. A major recommendation is that high priority be given to improving the estimates of RDT&E. The present estimates are conceptually and methodologically deficient. Alternative

approaches now being pursued at a slow pace should be accelerated to the extent possible. Until those approaches are ready for application:

- More effort should be put into the present approach and into making it more defensible by more thorough exploitation of relevant available data.

- The published analyses should skip lightly over the RDT&E numbers and exclude them from the totals displayed.

6. The Agency's ruble measure of Soviet burden are valid indicators of what they purport to measure. However:

- Greater care must be taken in published analyses to be explicit about the limitations of this measure.

- More effort should be put into attempting to identify how Soviet leaders might conceptualize and measure the Soviet burden.

- It is highly desirable to try to provide some rough indications of the magnitude of broader measures of burden, which would incorporate other sets of activities deriving from the greater militarization of the Soviet economy relative to that of the United States, and reflecting the full opportunity costs of that higher level of militarization.

7. The panel strongly supports SOVA's decision to shift from 1970 to 1982 prices as the constant price base of the ruble estimates. However:

- A new, detailed and comprehensive set of 1982 adjusted-factor cost GNP accounts must be developed to complete this shift, in order to make burden measurement possible in the new set of prices.

- While the changeover to 1982 prices will represent a major improvement in the measurement of burden compared to the previous methodology, even the new series will soon begin to diverge from measures at current prices. Therefore, we recommend that after the completion of the shift to 1982 price base SOVA attempt to maintain current as well as constant-price measures of defense expenditures and defense burden.

8. We have suggested a variety of studies of price setting

in Soviet defense industry and complementary studies of ruble-dollar price ratios drawing on foreign trade data and information of Soviet arms exports. We believe such studies would be useful for the calculation of procurement ruble-dollar ratios in a broad range of categories and serve as a check of their plausibility.

9. Defense industrial research is an area which CIA has worked for a long time, but it is probably fair to say that the effort has been primarily technical-engineering in orientation and that the economic-organizational research has been sporadic and pursued at a not very intensive pace. Again, competing demands or scarce resources are major explanations, but the fact remains that many questions on price policy, decisionmaking, relations with the civil sector and the like, can only be answered on the basis of research in depth in this area.

10. The panel believes more can and should be done to explore alternative methodologies of estimating Soviet military expenditures exploiting Soviet economic data. Previous investigations inside and outside the Agency of these methodologies have had various drawbacks and flaws, but SOVA should pursue the subject on a more regular basis. The purpose of this research is to search out possible signals of error in the building block approach, to enhance the credibility of the estimates and to help fit the estimates into the GNP accounts.

11. Expenditure is a measure of flows, some of which are increments to stocks, but military power is a function of the stocks themselves. Expenditure comparisons continue to be misinterpreted in a military capability vein, and so far CIA has not developed true inventory measures of military equipment stocks. Cumulated expenditures on procurement and construction over a prolonged period do yield a crude approximation to stocks, but these proxies are deficient because they do not take account of depreciation and obsolescence. There is a need for estimates of weapons stocks in all classes that will take account of these factors. Such estimates can then serve as the basis for further comparisons at a force or mission level.

12. An important dimension of Soviet military economics is mobilization capabilities. A preliminary study on this subject was done a few years ago but it was incomplete, hastily accomplished and has never been integrated with other parts of the military-economic structure and general economic studies. This is also the heading under which it would be useful to study the role and magnitude of Soviet strategic reserves.

13. Considerable public attention under the Reagan administration has been drawn to Soviet technology imports, clandestine and overt, and their presumed contribution to the

Soviet military buildup. But the apparent need for an assessment of these flows has not yet resulted in carefully drawn measures of size and impact.

14. The Agency has shied away from extending U.S.-Soviet comparisons to the level of NATO-Warsaw Pact. There are substantive reasons for the reluctance, but the pressure of demands for studies of Soviet defense as well as resource limitations have been sufficient to keep Warsaw Pact studies on a very distant back burner. The regional reorganization, by relegating Eastern Europe to EURA, has contributed somewhat to this result. Doing NATO-Warsaw Pact comparisons is not of the highest priority, but there is considerable external criticism of U.S. government use of Soviet expenditure estimates which points to the absence of alliance-wide comparisons. The problems of costing NSWP forces should be reexamined.

Appendix A
U.S. Government and Non-government Observers Consulted by the Methodology Panel

Paul J. Berenson, Special Assistant to the Under Secretary of Defense for Research and Engineering

Abram Bergson, George F. Baker Professor of Economics, Harvard University**

Igor Birman, President, Foundation for Soviet Studies

Daniel L. Bond, Director, Centrally Planned Economies Service, Wharton Econometric Forecasting Services

Donald F. Burton, Delphic Associates Inc.

Felix Fabian, Lt. Col. USAF, Office of the Assistant Chief of Staff, Intelligence, Hq, USAF

[redacted] Office of the Inspector General, CIA 25X1

Daniel Gallik, Bureau of Nuclear Weapons and Control, U.S. Arms Control and Disarmament Agency

Franklyn D. Hozman, Professor of Economics, Tufts University

Holland Hunter, Professor of Economics, Haverford College

Gene R. LaRocque, Rear Admiral USN (Ret.), Director, Center for Defense Information

[redacted] Directorate for Research, Defense Intelligence Agency 25X1

Herbert S. Levine, Professor of Economics, University of Pennsylvania

William Manthorpe, Assistant for Net Assessment, Office of Chief of Naval Operations

Andrew W. Marshall, Director of Net Assessment, Department of Defense

[redacted] Directorate for Research, Defense Intelligence Agency 25X1

William E. Odom, Major General, USA, Assistant Chief of Staff for Intelligence, U.S. Army**

Steven S. Rosefielde, Associate Professor of Economics,
University of North Carolina

[redacted] Chairman, National Intelligence Council, CIA 25X1

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* List of those who appeared before the methodology panel or submitted materials to it. In addition, a few persons were consulted informally and still others were invited to participate but were unable to do so.

**Submitted materials only.

Appendix B
List of Supporting Materials Submitted by Observers Consulted

Paul J. Berenson, Special Assistant to the Undersecretary of Defense for Research and Engineering

Letter to [redacted] Chief, Military Economic Analysis Center, OSR, CIA, 15 January 1979. 25X1

Memorandum for the Assistant Vice Director for Research, DIA, 8 December 1980, SECRET.

Memorandum for the Under Secretary of Defense for Research and Engineering, 14 December 1982, SECRET.

Abram Bergson, George F. Baker Professor of Economics, Harvard University.

Letter to the chairman of the methodology panel, 20 January 1983.

"On the Measurement of Soviet Real Defense Outlays," to be published in Padma Desai, editor, Marxism, Central Planning and the Soviet Economy: Economic Essays in Honor of Alexander Erlich, MIT Press.

Igor Birman President, The Foundation for Soviet Studies

Statement: Russian, 3 February 1983; second revision of English translation, 3 April 1983.

Holland Hunter, Professor of Economics, Haverford College

"Embedding Defense in the Soviet Economy," memorandum to the chairman of the methodology panel, 7 February 1983.

William E. Odom, Major General USA, Assistant Chief of Staff for Intelligence, U.S. Army

William Odom, "The Riddle of Soviet Military Spending," Russia, 1981, No. 2, pp. 53-58.

Steven S. Rosefielde Associate Professor of Economics, University of North Carolina.

"Status Report on Reconciling NAVSEA's and the CIA's Estimates of the Dollar Cost of Soviet Naval Procurement," 3 November 1980.

"Expanded Statement Prepared for the Subcommittee on

Estimates of the Ad Hoc Oversight Committee on Estimating Military Expenditures Convened by the Deputy Director for Intelligence of the CIA," 18 February 1983.

"CIA Ruble and Dollar Estimates of Soviet Procurement: Derivation, Economic Meaning and Verification," 22 February 1983.

"CIA Estimates of Soviet Defense Spending: Summary of Principal Issues in Dispute Raised at the Ad Hoc Oversight Committee on Estimating Soviet Military Expenditures, CIA Headquarters, February 18, 1983," 24 February 1983.

Jake W. Stewart, Captain, USN, Executive Director, CNO Executive Panel.

"Soviet and U.S. Defense Expenditures: The Naval Case"(U), author not indicated, indicated as dated January 1980, SECRET.

18 November 1983

MEMORANDUM FOR: Director of Soviet Analysis

FROM: [redacted] 25X1
Deputy Chief, Econometric Analysis Division

SUBJECT: MEAP Meeting, 4-5 November

1. A full day of briefings were held on 4 November (a copy of the agenda is attached). The morning was devoted to in-depth presentations on our physical estimates of production. Each of the speakers from the Forces Divisions were well prepared and made excellent presentations. The Panel showed considerable interest and the dialogue proved to be excellent preparation for the afternoon discussion on our projections.

2. The afternoon session was more of a potpourri. [redacted] presented 25X1
the briefing we have been giving to high-level consumers around town. (In doing so, he excluded the methodological remarks since the Panel was already familiar with them.) Joe indicated the purpose of the presentation was to refresh the Panel's memory of our estimates and in doing so to expose them to the product we were using in our response to the Panel's recommendation that we expand our contacts with consumers. The Panel's reaction to this briefing was positive.

3. The next presentation was given by [redacted] of DIA. It was an 25X1
overview of recent DIA analysis of the resource implications of Soviet defense activities in both dollar and ruble terms. This presentation did not go smoothly and the Panel expressed reservations about several elements of the briefing. DIA, unfortunately, presented work which was at best tentative and preliminary. Because some of the analysis was new to SOVA, it caused the Panel to question whether communications between the Agencies were as effective as they should be. I believe we were able to assure the Panel these problems were more apparent than real in our discussion the following day.

4. The final presentation on Friday was an overview of this year's estimates. This was followed by a lively discussion about how to improve our force projections in general and how to make better use of our military-economic data in particular in this effort. The discussions involved the entire Panel, the forces speakers from the morning session, as well as the EA participants. I believe it gave the Panel a clear picture of the problems involved in developing the projections and some ideas were discussed which we can put to good use.

SECRET

SUBJECT: MEAP Meeting, 4-5 November

5. The Saturday session [redacted] focused primarily on EA's (and to a lesser extent DI's) reaction to the Panel recommendations. (Attached is a list of Panel recommendations put together by [redacted] which was used as a point of departure for the discussion.) [redacted] gathered the recommendations into three groups: things we are already doing, things we are not doing but will undertake, and things we don't think are feasible. Most of the time was devoted to the first two groups and how we would use FY-84 resources to meet them. Joe indicated that we question the utility of the "methodology annex" recommended by the Panel and that we are not now intending to produce it given competing demands. Several Panel members are trying to keep it alive although their perception of its form and content seems to be changing. Paul Cheek then spoke briefly about his perceptions of the R&D problem and how he intended to use his additional FY-84 resources to treat it and other areas of analysis within his division. Finally, [redacted] described the PFIAB recommendations and our reactions to them. 25X1 25X1 25X1 25X1

6. At the close of the meeting, [redacted] noted that he would be in touch with SOVA regarding some ideas he had for increasing communication with the Panel between meetings to see to it that "the DDI is getting his money's worth from the Panel." He spoke to [redacted] about this in generalities and said he would be providing his ideas later in a memo. Finally, as we were leaving [redacted] told Doug and I individually that he thought this was the best Panel meeting in a long time. I agree and believe it was because we focused the Panel's attention more narrowly than has been the case recently. 25X1 25X1 25X1

Recommendations

7. For your consideration, I would like to propose the following:

-- At succeding meetings we play an activist role in setting the Agenda as we did for this meeting. In particular, it is clear that the more focus it has, the better it is for both the Panel and ourselves.

-- If DIA is to make a presentation, we require a pre-brief by them as we do of our own folks so we aren't surprised by new material and unusual comments.

-- We restrict DIA attendance somewhat; they had seven people here for the meeting, some of whom were straphangers. SOVA analysts who could have benefited from the meeting were unable to attend because of space limitations. (We may wish to limit the Air Force in the future also. I believe they had four people in attendance.)

SUBJECT: MEAP Meeting, 4-5 November

-- We give thought to drawing up a list of people from which to select additions/replacements to the panel. Such list should include:

Academics — [redacted] (University of Washington) 25X1

People with policy making experience — [redacted] (Stanford) (MIT) 25X1

People from defense industry — (I don't have any names but would like to see someone with the experience that [redacted] brought to the Panel.) 25X1

[redacted] 25X1

[redacted]lds

Attachments:
As stated

2 November 1983

Military-Economic Advisory Panel Meeting

04 & 05 November 1983

AGENDA

04 Nov 83 (SOVA Conference Room)

0900-1200 Weapons Production Inputs to Estimates of Soviet Defense Spending 25X1

Overview of Weapons Production -

Land Armaments - 25X1

Aircraft - 25X1

Ships - 25X1

Missiles - 25X1

Analysis of Aggregate Production -

25X1

1200-1300 Lunch

1300-1430 Defense Spending and Weapons Procurement -

25X1

1445-1530 DIA Estimates of Soviet Defense Spending -

25X1

Preview of 1983 Estimate -

1530-1600

1600-1700 Discussion Regarding Panel's Reaction to Slowdown - Panel Members

Dinner down country

1800

05 Nov 83

0900 SOVA Response to PFIAB and MEAP reports -

chairs Panel comprised of

25X1

25X1

MEAP RECOMMENDATIONS

Objectives and Management of the Program

1. A single SOVA-wide coordinator of the military economic data base needs to be appointed.

2. SOVA should affix mandatory qualifications when the dollar and ruble estimates are distributed to the intelligence community.

3. The results of the costing work--particularly for the historical period--should be published on an unclassified basis.

4. The RDT&E estimates are so uncertain that they should be excluded from the totals until they can be substantially improved.

User Relations

5. The basis for both the ruble and dollar estimates should be aggressively explained and briefed with the limitations emphasized.

6. SOVA should prepare an annex documenting the current methodology.

7. SOVA should organize an annual users group meeting to confer on the current state of the update.

thodology

8. The RDT&E estimates should be redone, making fuller use of accessible information.

9. The 1970 ruble price base should be replaced by a 1982 price base. The methodology subpanel further recommended that SOVA produce a current price estimate--i.e., the price base would change every year.

10. The methodology for making GNP estimates should be reviewed and high priority should be given to making a Soviet GNP estimate in a 1982 price base.

11. Efforts should be made to expand the ruble price sample--for instance, by using foreign trade prices.

12. Special studies should be done while the ruble price base is being changed to assess the likely rise in real resource costs due to productivity declines.

13. In performing Soviet burden calculations, the effect of including other categories in the definition of defense should be considered.

14. Alternative methodologies to the building-block approach should be regularly reviewed.

15. Non-US NATO and NSWP should be included in the comparisons.

16. The SCAM II Model (the set of computer programs we use to calculate the estimates) should be replaced by a new system if a requirements study shows that this would lead to a more efficient use of analysts' time.

Additional Recommendations by the Methodology Subpanel

17. Defense industrial research, particularly of an economic-organizational nature, should be pursued much more intensively.

18. The CIA should develop measures of the capital stock of Soviet weapons in addition to the present procurement flow estimates.

19. An assessment should be made of the economic value of Soviet technology imports--both clandestine and overt.

Joint Economic Committee

PRESS RELEASE

Contact:

Bill Maddox
(202) 226-3230

1983 -- 95

EMBARGOED FOR RELEASE TO
6:00 P.M., SATURDAY, NOVEMBER 19, 1983

PROXMIRE RELEASES CIA REPORT ON SOVIET ECONOMY

Washington, D.C. -- Senator William Proxmire (D-Wis.) released today a new CIA study of economic trends and policy developments in the Soviet Union. The study, prepared by the Office of Soviet Analysis, CIA, was submitted by Robert Gates, Deputy Director for Intelligence, together with testimony presented to the Subcommittee on International Trade, Finance, and Security Economics of the Joint Economic Committee. Proxmire is Vice Chairman of the Subcommittee.

Proxmire said in a statement from his Washington office:

"The study presents the results of the CIA's latest study of the Soviet oil industry and Soviet energy prospects into the 1990's, reviews the recent performance of the economy, and provides new revised estimates of Soviet defense spending.

"According to the CIA, Soviet economic activity has picked up somewhat in the present year and the CIA now forecasts a growth rate of 3.5 to 4 percent for 1983. However, the CIA has not changed its estimate that Soviet GNP will average only about 2 percent growth annually for the next several years.

"The improvement is due in part to improved weather during the past year, in part due to Andropov's campaign for greater discipline.

"In contrast with earlier estimates, energy is no longer considered to be a serious constraint on economic growth during the 1980's.

"The CIA now believes the Soviet Union has avoided the downturn in oil production that was once predicted. Oil production is expected to continue growing, level off by the middle of the decade, and then decline slowly until 1990.

"The revised defense estimates show that the total costs of defense since 1976 has risen by only 2 percent a year, compared to the 4-5 percent annual growth rate previously estimated. The slowdown in the growth rate is due to the leveling off of military procurement since 1976.

"The slowdown," Proxmire said, "of Soviet defense growth rates has profound significance that has not yet penetrated policy circles.

"In one sense, the CIA's new estimates demonstrate that the Soviet defense program is very large and still growing, although at a slower rate than before.

-more-

Joint Economic Committee
SD-G01 Dirksen
Washington, D.C. 20510
(202) 224-5171

"But Moscow has not been expanding its effort at the rapid rate that was once believed. It slowed its defense expansion beginning about seven years ago, a fact that the Soviets neglected to communicate and that the West failed to detect."

Proxmire continued, "My own view of the Soviet economy is that we in the West tend to magnify its weaknesses and to overlook its strengths.

"The Soviet Union won't collapse or even stagnate for very long just because they have an economic system we do not like.

"It is as important that we accurately assess Soviet economic capabilities as it is that we accurately assess Soviet military capabilities."

Copies of the CIA report, USSR: Economic Trends and Policy Developments, may be obtained from the Joint Economic Committee, Publications Department, G-01 Dirksen Senate Office Building, Washington, D.C., 20510, or by calling (202) 224-5321.

UNITED PRESS INTERNATIONAL
18 November 1983

SOVIET DEFENSE
WASHINGTON

A NEW CIA REPORT ON THE SOVIET ECONOMY INDICATES DEFENSE COSTS HAVE RISEN AT A SLOWER RATE THAN PREVIOUSLY THOUGHT, ALTHOUGH THE SOVIET'S COMMITMENT TO THE MILITARY STILL FAR OUTSTRIPS U.S. OUTLAYS.

"NEW INFORMATION INDICATES THAT THE SOVIETS DID NOT FIELD WEAPONS AS RAPIDLY AFTER 1976 AS BEFORE," SAID THE REPORT RELEASED FRIDAY BY THE CONGRESSIONAL JOINT ECONOMIC COMMITTEE.

SEN. WILLIAM PROXMIRE, D-WIS., SUBCOMMITTEE VICE CHAIRMAN, SAID THE SLOWDOWN OF SOVIET DEFENSE GROWTH RATES "HAS PROFOUND SIGNIFICANCE THAT HAS NOT YET PENETRATED POLICY CIRCLES."

"IN ONE SENSE, THE CIA'S NEW ESTIMATES DEMONSTRATE THAT THE SOVIET DEFENSE PROGRAM IS VERY LARGE AND STILL GROWING, ALTHOUGH AT A SLOWER RATE THAN BEFORE," PROXMIRE SAID.

"BUT MOSCOW HAS NOT BEEN EXPANDING ITS EFFORT AT THE RAPID RATE THAT WAS ONCE BELIEVED. IT SLOWED ITS DEFENSE EXPANSION BEGINNING ABOUT SEVEN YEARS AGO, A FACT THE SOVIETS NEGLECTED TO COMMUNICATE AND THAT THE WEST FAILED TO DETECT."

THE STUDY WAS PREPARED BY CIA'S OFFICE OF SOVIET ANALYSIS AND WAS PRESENTED TO PROXMIRE'S SUBCOMMITTEE BY ROBERT GATES, DEPUTY DIRECTOR FOR INTELLIGENCE, DURING CLOSED HEARINGS IN SEPTEMBER.

THE REPORT SAID SOVIET DEFENSE SPENDING IN CONSTANT 1970 RUBLE PRICES CONTINUES TO INCREASE. "HOWEVER, THE NEW EVIDENCE INCORPORATED IN OUR PRESENT ESTIMATE INDICATES THAT IN AT LEAST ONE MAJOR AREA, THE PROCUREMENT OF MILITARY HARDWARE, SOVIET EXPENDITURES HAVE LEVELED OFF SINCE 1976."

PRACTICALLY ALL MAJOR CATEGORIES OF SOVIET WEAPONS WERE AFFECTED -- MISSILES, AIRCRAFT, AND SHIPS, THE CIA SAID, ADDING THAT THE TREND WAS ONLY PARTIALLY OFFSET BY THE TENDENCY OF NEWER, MORE SOPHISTICATED WEAPONS TO COST MORE.

THE CIA REPORT STRESSED THAT TRENDS IN SOVIET MILITARY SPENDING "ARE NOT A SUFFICIENT BASIS TO FORM JUDGMENTS ABOUT SOVIET MILITARY CAPABILITIES, WHICH ARE A COMPLEX FUNCTION OF WEAPONS STOCKS, DOCTRINE, TRAINING, GENERALSHIP, AND OTHER FACTORS.

IN 1981 THE DOLLAR COST OF SOVIET DEFENSE ACTIVITIES WAS 45 PERCENT HIGHER THAN U.S. OUTLAYS, AND PROCUREMENT COSTS ALONE ALSO WERE 45 PERCENT HIGHER, THE REPORT SAID.

ARTICLE APPEARED
ON PAGE A-19

WASHINGTON POST
18 November 1983

Stephen S. Rosenfeld

Knockdown of a Soviet 'Buildup'

The most important political number in the world is the size of the Soviet defense budget. More than any other single statistic or fact, or any combination, it governs our judgments of Soviet power and our responses to it. So it is of prime importance that the Reagan administration has had the defense number wrong for three years. The administration has been on the high side by a factor of at least two.

Says who? Says the Reagan CIA. Its latest review produced startlingly lower estimates of Soviet defense spending. These have been duly relayed to the Joint Economic Committee of Congress, which is about to make them public.

The Soviet Union is not disarming—not by a long shot. But while the CIA had previously estimated that Moscow was continuing to increase military spending in 1976-81 at the very strong if not alarming rate of 4-5 percent a year, the figure is now put at a modest 2 percent. The share of the economy devoted to defense—the military burden—was found to hold at 13-14 percent.

The CIA suggests that most of the slowdown took place in procurement of new hardware, the driving force of past Soviet defense growth. It attributes that slowdown to familiar economic and systemic shortcomings. Yuri Andropov's defense position, a CIA briefing paper notes, is "unclear. . . . The little evidence that is available indicates Andropov has not accelerated Soviet military spending."

The Pentagon's own Defense Intelligence Agency does not accept the new CIA figures. The DIA believes that there was no slowdown in total Soviet defense spending in the crucial ruble account in the 1970s, that procurement growth slowed from 9-11 percent to 6-9 percent through the decade, and that the military burden increased from 13-14 percent to 14-16 percent.

How does one sort out the CIA-DIA difference? Suggests one analyst, the JEC's Richard F. Kaufman, in a staff study: "The DIA's estimates for Soviet defense and GNP have limited utility for policymakers because they are not adjusted for inflation, are based on a definition of Soviet defense that is different from the definition of U.S. defense, and contain wide margins of error. The DIA considers its methodology classified, making it difficult for outsiders to evaluate its measures."

A citizen must note that the DIA works in a Pentagon whose constantly reiterated political objective is to strengthen the basis for higher American defense spending. That the DIA, unlike the CIA, is unwilling to unveil its methodology and subject it to outside scrutiny does not build confidence in DIA's product.

The CIA's new estimates bear directly on critical policy questions.

The estimates call into doubt the central political and emotional premise of the Reagan rearmament program, the contention—the conviction—that the Soviet Union was and still is embarked on an arms-building program of unprecedented dimensions. It turns out that the Kremlin has a powerful military force, which is growing but at a rate that is not what you would call especially menacing: 2 percent.

The estimates undercut the common conservative belief that the Soviets exploited the period of detente in the 1970s, while we Americans were diminishing our defense effort, and wickedly forged ahead on their own. Our vigorous catch-up, launched by Jimmy Carter and intensified by Ronald Reagan, has coincided with a steady Soviet performance at a relatively low level. Rather than using detente to gain on us, the Soviets appear to have used it to give themselves something of a breather.

Finally, Soviet defense growth of 2 percent, for years in which overall Soviet economic growth is also now put at 2 percent, fits poorly with another fashionable idea—that the Soviet economy is weak and laboring, desperately in need of reform and meanwhile a sure loser in an arms race with the United States. Two percent economic growth in a bad year is not so bad. The CIA expects 3-4 percent in 1983. We are not sure how the Soviets set their defense spending level, but it would be foolish to think that economic or systemic distress will keep them from doing what they feel they have to do.

LOS ANGELES TIMES
19 November 1983

CIA Estimate of Soviet Military Budget Cut

By DAVID WOOD, *Times Staff Writer*

WASHINGTON—The Central Intelligence Agency has issued a reassessment of Soviet defense spending that indicates that, during the late 1970s, it grew at only half the rate previously estimated by the Defense Department and that Soviet production of military hardware hardly increased at all.

The CIA, in a report released Friday by the Congressional Joint Economic Committee, said that on the basis of "new information" it had revised its previous estimate that Soviet defense spending had risen about 4% a year between 1976 and 1981. The new estimate, the CIA said, indicates a 2% annual increase.

Furthermore, preliminary estimates for 1982 indicate that Soviet military spending is still growing at the slower rate even when measured in constant 1970 prices, the report added.

Nevertheless, according to the CIA analysis and the Pentagon's own Soviet specialists, the level of Soviet defense spending has been so high for so long that, even with a slowdown, it is well above that of the United States. They estimate that in 1981, for example, the Soviet Union spent 45% more than the United States on both new weapons systems and on all defense activities.

According to the CIA analysis, the Soviets also spend a much greater percentage of their gross national product on defense—between 13% and 14%, compared to the United States' 6.5% of its GNP.

Although the CIA analysts did not detail the reasons for their revised estimate, they said the Soviet Union did not field as many major new weapons—including missiles, aircraft and ships—in the latter part of the 1970s as at the beginning of the decade. They said the "continued slow growth" of Soviet military power appeared to be caused by a combination of manufacturing bottlenecks, technological problems and unexplained "policy decisions."

Since 1975, according to Pentagon figures, the Soviet Union has outbuilt the United States 2,000 to 350 in ballistic missiles, 54,000 to 11,000 in tanks and other armored vehicles, 6,000 to 3,000 in tactical combat aircraft, 85 to 72 in surface warships and 61 to 27 in attack submarines.

However, the CIA's new estimate differed sharply with the Pentagon's view of the Soviet military buildup, which Defense Department officials have characterized as continuing to grow at a high rate. Defense Secretary Caspar W. Weinberger repeatedly has sought to justify increases in the defense budget on the basis of similar increases in Soviet spending.

Weinberger, appearing before the Senate Armed Services Committee last February to fend off proposed cuts in the budget, declared that the United States "simply cannot wait to restore our military strength—we must do it now, this year, in this budget. . . ."

The Defense Intelligence Agency, which produces its own estimates of Soviet defense spending for the Pentagon, reportedly disagrees with the new CIA estimate. However, a Defense Intelligence spokesman said Friday that the agency would not be ready to respond to the CIA report until next week.

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ON PAGE 6

NEW YORK TIMES
19 November 1983

Soviet Arms Spending Said to Slow

By HEDRICK SMITH
Special to The New York Times

WASHINGTON, Nov. 18 — The Central Intelligence Agency said today that Soviet military spending, especially for procurement of new weapons systems, had grown more slowly in the last seven years than previously thought.

"New information indicates that the Soviets did not field weapons as rapidly after 1976 as before," said the report released by the Joint Economic Committee of Congress. "Practically all major categories of Soviet weapons were affected — missiles, aircraft and ships."

President Reagan has repeatedly said the Soviet Union is engaged in an unprecedented military buildup, but the C.I.A. study said that for the last seven years the annual growth in Soviet military spending was only half what it was in the 1966-76 period. From 1966 to 1976, it said, Moscow increased military outlays by 4 to 5 percent a year.

'About 2% a Year' on Military

"Our new estimate, however, shows that like overall economic growth, the rise in the cost of defense since 1976 has been slower — about 2 percent a year," the C.I.A. report said.

But the agency also estimated that in Yuri V. Andropov's first year as the Soviet leader, the Soviet economy rebounded from sluggish performances in 1981 and 1982, when the growth rate was 2 percent. This year, the report forecast growth of 3.5 to 4 percent.

The Soviet economic rebound, the agency said, leaves open the question of whether the Kremlin leadership will now feel it can push Soviet military spending at faster rates.

In energy production, the C.I.A. said, Moscow's "prospects for the future are considerably better than we once thought." In 1977, the agency predicted that Soviet energy production would significantly taper off and that the Soviet Union would be an energy importer by 1985.

No More Currency Squeeze

The report issued today said Soviet natural gas, coal and oil output were all advancing. It also said Moscow had significantly recovered from a hard-currency squeeze in 1981 by holding down imports and strongly pushing petroleum exports.

In spite of the slowdown in Soviet military spending, the study said, Moscow's military budget still outstrips the Pentagon budget by at least 25 percent.

Nonetheless, with Congress having approved a 5 percent increase in the 1984 Pentagon budget, Senator William Proxmire, Democrat of Wisconsin, deputy chairman of the Joint Economic Committee, said the "slowdown of Soviet defense growth rates has profound significance that has not yet penetrated policy circles."

"In one sense, the C.I.A.'s new estimates demonstrate that the Soviet defense program is very large and still growing, although at a slower rate than before," Mr. Proxmire said. "But Moscow has not been expanding its effort at the rapid rate that was once believed. It slowed its defense expansion beginning about seven years ago, a fact that the Soviets neglected to communicate and that the West failed to detect."

Dispute Over Estimates

Last spring Pentagon and C.I.A. specialists were reported to be arguing over levels of Soviet military spending. The Pentagon estimate was that Moscow was proceeding as ambitiously as before, but C.I.A. officials said those estimates were overstated.

Today's report indicated the agency was sticking to the more cautious view of Soviet spending. "The rate of growth of overall defense costs is lower because procurement of military hardware, the largest category of defense spending, was almost flat in 1976-to-81," the agency study said. Preliminary estimates for 1982, it added, show the same lower trend is continuing.

The study attributed the slowdown in military procurement since the late 1970's to technological problems, industrial bottlenecks and policy decisions. It also speculated that some money previously allocated to buying new weapons might have been diverted to research and development.

Nonetheless, the agency report indicated that such momentum was generated in the late 1960's and early 1970's that Moscow continued to accumulate large stocks of new weapons. Moscow also allocated roughly 13 to 14 percent of the total Soviet budget to military spending, roughly double the American figure.

The agency said present Soviet levels of spending were so high that since 1975, despite "the procurement plateau," Soviet forces have received about 2,000 land- and sea-based intercontinental missiles, more than 5,000 tactical combat and interceptor aircraft, 15,000 tanks and substantial numbers of naval surface vessels and submarines.

Lower Growth Rate Predicted

Assessing Mr. Andropov's first year, the agency study said his economic policies had not brought much innovation. "Continuity has been far more pronounced than change," it said. In spite of the jump in economic growth this year, it projected a lower annual growth rate of around 2 percent in the next few years.

More broadly, the study said the new slower trend in military procurement along with continuing domestic economic problems and the political succession of Mr. Andropov "raise important questions about the future of the Soviet defense effort."

It suggested that the current leadership "may well be under pressure to speed up defense spending" but that any major effort to do so "could make it even more difficult to solve the fundamental economic problems facing the Soviets" by forcing cutbacks in investment in the civilian sector and in consumer goods.

In the long run, it said, such a strategy could "erode the economic base of the military-industrial complex itself."

Despite these competing economic pressures and priorities, the study said the Soviet economy had shown enough strength to conclude that it "is not on the verge of collapse."

BALTIMORE SUN
19 November 1983

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ON PAGE A1

CIA finds Soviet moderating arms spending

Washington (Reuter) — The CIA said yesterday the rate of increase in Soviet defense spending has slowed, apparently contradicting President Reagan's frequent warnings that Moscow was embarked on an unprecedented arms buildup.

In a new analysis of the Soviet economy, presented to the Congressional Joint Economic Committee September 20 and released yesterdday by Senator William Proxmire (D, Wis.), the CIA cut its previous estimate of Soviet defense growth by more than half.

Moscow continued to increase military outlays until 1976 by a strong 4 to 5 percent annually, according to the CIA testimony.

"Our new estimate, however, shows that like overall economic growth, the rise in the cost of defense since 1976 has been slower — about 2 percent a year," CIA analysts said.

The CIA found that a slowdown in producing military hardware, the largest category of Soviet defense spending, accounted for most of the drop. It gave no explanation for the policy change.

The Central Intelligence Agency reported that its preliminary data for 1982 indicated the slowing trend was continuing but added that, despite lagging growth, Soviet defense activities exceeded those of the United States "by a large margin."

The Pentagon's Defense Intelligence Agency disputes the new CIA figures, reporting that there has been no slowdown in total Soviet defense spending in the 1970s, according to published reports.

Mr. Proxmire said the CIA analysis had a profound significance that had not yet penetrated policy circles.

Noting that Soviet defense spending remained large and growing, he said, "Moscow has not been expanding its effort at the rapid rate that was once believed, a fact the Soviets neglected to communicate and that the West failed to detect."

Mr. Reagan, in seeking congressional and public support for his $1.8 trillion arms program over five years, often has invoked the threat of what he called the continuing massive Soviet military buildup.

The CIA analysis also covered the state of the Soviet economy which, it said, was not on the verge of collapse.

After two years of low growth in 1981 and 1982 the Soviet economy seemed poised for a rebound, the CIA said.

"Despite its problems, the U.S.S.R. is not on the verge of economic collapse. The Soviet economy is the second largest in the world with a large and literate population, a huge industrial plant and an enormous endowment of natural resources," it said.

The CIA predicted 1983 economic growth based on statistics from the first seven months at 3.5 to 4.0 percent of gross national product, compared with 2.0 percent in 1981 and 1982.

But growth then would slow to an annual rate of 2.0 percent, it added.

The CIA also revised Soviet oil prospects, saying they were not as bleak as it estimated in 1977, when some analysts forecast the Soviet Union would become a net importer of oil by 1985.

Although production was leveling off, the prospects now were considerably better than once thought, according to the CIA testimony.

Assessing new leader Yuri V. Andropov's performance in office, the CIA said basic Soviet policies had not altered since the death of Leonid Brezhnev.

"Continuity has been far more pronounced than change," the agency's analysts said.

ARTICLE APPEARED ON PAGE A-14

WASHINGTON POST
20 November 1983

Soviets Seen Slowing Pace of Arming

United Press International

A new CIA report on the Soviet economy indicates that defense costs have risen at a slower rate than previously thought, although the Soviet's commitment to the military still far outstrips U.S. outlays.

"New information indicates that the Soviets did not field weapons as rapidly after 1976 as before," said the report released Friday by the congressional Joint Economic Committee.

Sen. William Proxmire (D-Wis.), subcommittee vice chairman, said the slowdown of Soviet defense growth rates "has profound significance that has not yet penetrated policy circles."

"In one sense, the CIA's new estimates demonstrate that the Soviet defense program is very large and still growing, although at a slower rate than before," Proxmire said.

"But Moscow has not been expanding its effort at the rapid rate that was once believed. It slowed its defense expansion beginning about seven years ago, a fact the Soviets neglected to communicate and that the West failed to detect."

The study was prepared by CIA's Office of Soviet Analysis and was presented to Proxmire's subcommittee by Robert Gates, deputy director for intelligence, during closed hearings in September.

"In one sense, the CIA's new estimates demonstrate that the Soviet defense program is very large and still growing," Sen. William Proxmire, above, said.

The report said Soviet defense spending in constant 1970 ruble prices continues to increase.

"However, the new evidence incorporated in our present estimate indicates that in at least one major area, the procurement of military hardware, Soviet expenditures have leveled off since 1976."

"Our new estimate . . . shows that like overall economic growth the rise in the total cost of defense since 1976 has been slower—about 2 percent a year," a lower rate than before largely because the growth rate for procurement "was almost flat in 1976-81."

Practically all major categories of Soviet weapons were affected—missiles, aircraft and ships, the CIA said, adding that the trend was only partially offset by the tendency of newer, more sophisticated weapons to cost more.

The CIA report stressed that trends in Soviet military spending "are not a sufficient basis to form judgments about Soviet military capabilities, which are a complex function of weapons stocks, doctrine, training, generalship and other factors.

"Moreover, the spending estimates do not give an appreciation of the large stocks of strategic and conventional weapon systems already deployed," it said.

NEW YORK TIMES
20 November 1983

ARTICLE APPEARED
ON PAGE E-1

GLOBE

By HEDRICK SMITH

WASHINGTON

LOOKING back 50 years to when President Franklin D. Roosevelt opened diplomatic relations with Stalin's Russia, George F. Kennan recalled last week that the two nations "rubbed each other painfully in many ways." Their ideological competition then was "far more intense than today," he said, and political tensions were "no smaller." But he added the sweeping verdict that the problems half a century ago were modest beside today's nuclear anxieties. "What we did not anticipate was anything resembling military conflict between our two countries," the renowned scholar and diplomat said. "It is weapons we now talk about, weapons we read about, weapons we negotiate about. Behind this endless debate about weaponry the real political issues between the two countries fade into obscurity." Trapped in the nuclear competition, he said, the superpowers "are simply writhing helplessly at immense danger to themselves and to the world around them."

Whether or not this assessment overstates the dangers, it captures the chronic worry in the West about the dangerous drift and icy distrust in superpower relations. Imbedded in the public mood is a strain of dark pessimism and dismay that the logic of events may be dragging the world toward unspeakable disaster.

The immediate targets of concern last week were the American nuclear-tipped cruise missiles in Britain. They were greeted by howls of protest in the House of Commons and by angry demonstrators outside the air base at Greenham Common where they were unloaded. The drama may be re-enacted in Italy when the cruise arrives there and in West Germany when deployment of Pershing 2 missiles is to begin next month. For all the furor, Britain's Conservative Government had won Parliamentary approval of the deployment this month; the Italian Chamber of Deputies followed suit last week. The climactic test comes tomorrow in the Bundestag in Bonn, where Chancellor Helmut Kohl is determined to proceed despite mounting opposition from the Social Democrats.

'Campaign of Fear'

The Pershings have generated the sharpest controversy. Moscow contends their nine-minute flight time to Soviet soil will shorten the fuse of nuclear war and may force a counterstrategy of launching Russian missiles on warning of attack. But some American experts believe the cruise, once let loose, may be an even more dangerous genie. It is small, highly mobile, easily hidden and thus virtually immune to arms control. Proliferation of cruise missiles could spur a new arms spiral like the one touched off by multiple-warhead intercontinental missiles in the 1970's, a decade ridden by controversy over which side led in the arms race. (The Central Intelligence Agency last week scaled down its estimate of Soviet military spending in the late 70's. It said the Russian defense budget had risen by 2 percent a year since 1976 — half the growth rate of the previous decade, although still outstripping comparable Pentagon budgets.)

In what the Reagan Administration called a "campaign of fear" aimed at getting the West to postpone deployment, the Russians have threatened to walk out of the intermediate-range arms talks when the American missiles are in place. Last week, Soviet Defense Minister Dmitri F. Ustinov tightened that screw with a strident attack on the West, warning that Washington would feel the consequences of deployment. Both sides floated new proposals at Geneva aimed more at looking flexible, it seemed, than at striking a deal. The Reagan Administration proposed a ceiling of 420 missile warheads, down from the planned American level of 572. Moscow hinted at a cut in its triple-headed SS-20 missiles aimed at Europe from 243 to 120 (with 117 more for Asia), but leaving the United States at zero. The White House dismissed this as unfair.

A breakdown in the arms talks seemed all but inevitable. And elsewhere, the two nuclear giants were jabbing at each other through proxies in Central America and Lebanon. The Kremlin, which has long favored acceptance of spheres of influence in a superpower's home region, has kept its forces away from El Salvador and Nicaragua. But in volatile Lebanon, each side has troops at the fringes of a power vacuum reminiscent of the Balkan tinderbox that produced World War I. Some 7,000 Soviet advisers manning missile sites in Syria are only about 60 miles from 1,800 American marines in Beirut.

At another level of unpleasantness, Congress last week extended Presidential powers to restrict exports for security reasons to Feb. 29. The United States also revised its list of places Russian diplomats and journalists may not visit — about 20 percent of the country — reciprocating for Soviet travel restrictions.

A troubling new factor is the uncertainty caused by the three-month absence of Yuri V. Andropov, the Soviet leader. American experts believe he is seriously ill and thus politically handicapped. The Reagan Administration anticipates a Soviet standpat hard line because, as a high American official said, "There's nobody at home over there to make a deal with." As Kremlin maneuvering for succession begins, others add, candidates are likely to bid for favor by holding to a tough line.

Adding to the White House menu of worries is the political shock expected tonight from ABC's television movie "The Day After," exploring the thermonuclear nightmare. Richard B. Wirthlin, President Reagan's polltaker, predicted "a very strong impact."

American Wariness

The escalation of tensions and public anxiety were predictable, however. The struggle over missile deployment was set into motion by NATO's decision four years ago to match Moscow's buildup of SS-20 missiles with American missiles unless the Russians accepted parity of nuclear missile forces in Europe. But the current chill acquired its ominous edge from the cold distance and reciprocal mistrust between Moscow and Washington in the Reagan-Andropov era. After fencing for two years, the two sides began a diplomatic effort last summer to bridge the gulf. That effort crashed along with the South Korean airliner shot down by Soviet fighters in August. The incident left behind a residue of new American apprehension about Soviet intentions and Russian doubts about the prospects of striking any agreements with a President who sees Moscow as "the focus of evil in the modern world."

The dangers, however, should not be overstated. They do not compare with the nuclear showdown over Cuba in 1962 or earlier confrontations over Berlin. For all of today's tensions, the new Soviet-American five-year grain agreement stands. Washington has lifted some sanctions against Poland and has allowed a few commercial deals. Each capital carefully avoids challenging the other militarily. "We're not close to war," said Richard Burt, the Assistant Secretary of State for European Affairs. "Even if the Soviets walk out of the arms talks, they'll be back after awhile." Perhaps. The implication is that each side has an interest in not letting current tensions get out of control, for the risk of miscalculation is high at a time when the margin of restraint is extremely thin.

CHICAGO TRIBUNE
20 November 1983

Soviet build-up slowing, CIA says

By James Coates
Chicago Tribune

WASHINGTON—The CIA has lowered its estimate of Soviet defense spending and brightened its 1983 forecast for the Russian economy after analysts noted that Kremlin leaders are spending less for weaponry than had been thought.

The CIA, in a report for the Congressional Joint Economic Committees, said that while it had predicted that Soviet weapons procurement would increase by 4 percent to 5 percent per year in the 1980s, it actually has "flattened out" at only 2 percent a year.

"The revised defense estimates show that the total cost of defense since 1976 has risen by only 2 percent a year," said Sen. William Proxmire [D., Wis.], who released the report by the CIA's Office of Soviet Analysis. "The slowdown in the growth rate is due to the leveling off of military procurement since 1976."

The report attributed improvements in Soviet economic conditions to better weather conditions than had been anticipated, the discovery of energy resources and a quiet shift downward in the massive defense spending that had severely drained the economy during much of the last decade.

The report also credited major crackdowns by Soviet President Yuri Andropov, formerly head of the KGB police agency, for increasing efficiency among farm, factory and government workers.

THE ASSUMPTIONS in the report appeared to question the Reagan administration's rationale for a drastic increase in defense spending over the next decade: that the Soviets are rapidly building up their forces and that the U.S. must match the Soviet pace.

President Reagan repeatedly has described Soviet military expansion as massive. His administration has called for a five-year defense buildup that would cost $1.9 trillion, an average 10 percent increase, adjusted for inflation.

Reagan's critics have urged that he scale back his defense-spending demands to help avoid the massive budget deficits predicted for the next several years. Reagan, however, steadfastly

White House spokesman Larry Speakes said the administration would have no comment on the report until after it is released officially this week.

The CIA analysts who wrote the report alluded to possible questions about whether the U.S. had overstated the Soviet threat but emphasized that the Soviet build-up is nevertheless substantial.

"Our latest comparisons of U.S. and Soviet defense programs show that despite somewhat slower growth in recent years, the cost of Soviet defense activities still exceed those of the United States by a large margin," the report said.

Despite the "flattening out," the CIA said, the Soviets continue to build their massive arsenal. "Indeed, current levels of spending are so high that despite the procurement plateau noted, the Soviet forces have received since 1975 about 2,000 ICBMs and SLBMs [Submarine Launched Ballistic Missiles], over 5,000 tactical combat and interceptor aircraft, 15,000 tanks and substantial numbers of major surface combatants, SSBNs [missile submarines] and attack submarines."

Proxmire, one of the Senate's representatives to the joint economic committee, said the Russian leadership began decreasing defense expansion rates in 1976 but kept the policy secret. "The slowdown of Soviet defense growth rates has profound significance that has not yet penetrated policy circles," he said.

The report's biggest surprise is that the Soviets tapered off military spending apparently to boost civilian morale and improve the overall economy.

Drawing on information from sources as diverse as regional newspaper stories published in Siberia and CIA-paid spies in the Soviet bureaucracy, the report provides a rare glimpse of what the U.S. intelligence community has concluded about the short reign of Andropov, who now appears to be seriously ill.

Andropov replaced the late Leonid Brezhnev slightly more than a year ago, on Nov. 12, 1982.

"THIS YEAR some of the economic pressures on the Andropov leadership should ease slightly," the report said. "After two years of low growth in 1981 and 1982, the economy seems poised for a rebound. Based on months of 1983, we estimate that GNP [gross national product, the output of a nation's goods and services] will rise by 3½ to 4 percent, well above the approximately 2 percent growth achieved in both 1981 and 1982. . . ."

The CIA disclosed that Andropov moved dramatically to implement reforms, divert economic activity away from defense and into the civilian economy and to arrest high-level officials and blue-collar workers for corruption and malingering.

"THE NEW REGIME has shown concern for the welfare of the population in a variety of ways," the report noted. "First, a flurry of decrees has been published this year calling for improvements in the level of daily services and in the supply of consumer goods provided the population."

The report said, for example: "A joint Central Committee-Council of Ministers resolution was published in March calling for an expansion of the number of repair and cleaning shops; more personal services such as hairdressing, film developing and the rental of consumer durables; and the establishment of more convenient working hours in the service sector."

This "resolution" was followed, the CIA said, by "unusually blunt warnings to consumer ministries to shape up."

WITH POLICE fanning out in the country to knock on the doors of those who miss work and with the military getting fewer tanks, planes and guided missiles than the CIA had forecast, nature also helped the economic upturn.

Better weather followed a ruinous drought in 1980-81 and new oil fields and coal deposits were discovered in Siberia, forcing the CIA to reverse its prediction that the Soviet economy would stagnate as energy supplies tapered off in the mid-1980s.

The CIA observed: "The Soviet economy is the second largest in the world, with a large and literate population, a huge industrial plant and an enormous endowment of natural resources."

"My own view of the Soviet economy," Proxmire said, "is that we in the West tend to magnify its weaknesses and to overlook its strengths."

BOSTON SUNDAY GLOBE
20 November 1983

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Dip reported in Soviet rate of spending

Los Angeles Times

WASHINGTON – Contrary to Pentagon assertions, the growth rate in Soviet defense spending declined in the late 1970s and Soviet production of military hardware barely grew at all, according to an assessment by the Central Intelligence Agency.

The CIA, in a report released Friday by the Congressional Joint Economic Committee, said that on the basis of "new information," it had revised its previous estimate that Soviet defense spending rose about 4 percent a year between 1976 and 1981. The new estimate, the CIA said, indicates a 2 percent annual increase.

Furthermore, preliminary estimates for 1982 indicate that Soviet military spending is still growing at the slower rate even when measured in constant 1970 prices, the report added.

Although the CIA analysts did not detail the reasons for their revised estimate, they said that the Soviet Union did not field as many major new weapons, including missiles, aircraft and ships, in the latter part of the 1970s as during the beginning of the decade.

They said that the "continued slow growth" of Soviet military power appeared to be caused by a combination of manufacturing bottlenecks, technological problems and unexplained "policy decisions."

Nevertheless, according to the CIA analysis and the Pentagon's own Soviet specialists, the level of Soviet defense spending has been so high for so long that even with a slowdown, it is well above that of the United States.

In 1981, for example, the dollar cost of all Soviet defense activities was 45 percent greater than US outlays, and the Soviets spent 45 percent more on producing new weapons systems than did the Americans.

REUTERS
21 November 1983

WASHINGTON
WEAPONS
BY CAROL GIACOMO

The Pentagon agreed with the Central Intelligence Agency today that the rate at which the Soviet Union is adding new weapons to its military arsenal has virtually flattened out since 1976.

Senior intelligence officials from the Defense Department and the CIA cited a number of possible causes for this trend, including a Soviet decision to adhere to numerical limits imposed by the unratified SALT-2 arms control treaty.

"In the aggregate what we find, using the dollar index, is that the rate of procurement has fallen to a point where it is fairly flat," said a CIA official.

His Defense Department counterpart added: "Production on many models has declined. Quantities are going down on aircraft frames and tanks." The two briefed reporters on condition they not be identified.

The two agencies emphasized their consensus on the state of Soviet weapons procurement, the largest chunk of the defense budget, and downplayed differences on total Soviet defense spending, attributing them to accounting variables.

The CIA computed overall annual growth in Soviet defense spending from 1976 to 1981 at 2 per cent, while the Pentagon pegged it at 6 to 7 per cent.

The CIA official said his agency calculated growth in rubles, not dollars, and suggested that when this difference is factored in, the variation between the two agencies amounted to only about 1 or 2 per cent.

The growth rate of the Soviet defense budget, calculated by U.S. intelligence officials by amassing and extrapolating wide-ranging data, has political implications in the United States.

President Reagan has justified his massive arms program by arguing that Moscow is engaged in an unprecedented buildup and is committing far more to defense than the United States.

One intelligence official advised against drawing too broad a conclusion from their briefing comments, which expanded on a CIA report prepared for Congress and made public last week.

The data "tells you something about how fast (Soviet) resources are flowing into the (military) inventory" but does not in itself measure the quality of Soviet defense, which also depends on training, troop morale and other factors, he said.

The official noted that the rate of Soviet weapons procurement flattened out once before, in the late 1950s-early 1960s, and rebounded with great vigor in the mid-1960s.

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He added: "There is every reason to believe that when they can, (the Soviets) will attempt to return to the dynamism in their military program they exhibited in the 1970s."

All signs suggest the Soviets have more weapons systems now in the research and development stage than they did in either of the past two decades, this official said.

The officials admitted they did not know which causes behind the Soviet procurement slowdown were most significant.

"There is clearly an array of pressures that caused this, in addition to some choices," one said.

He declined to discuss Soviet adherence to the SALT-2 treaty at any length, saying only that "there were some high-priced weapons systems which got a numerical cap out of the arms control agreement."

Within those limits, however, the Soviets have modernized some systems considerably, he said.

Other reasons cited were Soviet concern over the cost of new weapons, technical delays, and transportation problems.

CHRISTIAN SCIENCE MONITOR
21 November 1983

Soviet two-step on arms control hints at Kremlin disarray

By Gary Thatcher
Staff writer of The Christian Science Monitor

Moscow


SOVFOTO

Ustinov: denies Geneva change

The curious case of the latest Soviet arms control offer — made informally in Geneva, then denied loudly in Moscow — suggests the Kremlin may itself be in some disarray over how to respond to NATO's new missile deployments.

Many Western analysts had expected a last-minute move by the Soviets to try to prevent the NATO deployment. They had suggested Moscow might come up with some apparent concessions at the arms talks in Geneva.

But, when it came, the Soviet two-step — one forward, one backward — caused more perplexity than clarity and cast further doubts on who is calling the shots in the Kremlin.

With Soviet leader Yuri Andropov absent, apparently ill, Western diplomats are wondering whether others are directing Moscow's moves at the negotiations in his stead. Some analysts argue that while some Kremlin civilian officials might want to be flexible at Geneva, others — notably Soviet military hard-liners — are resisting such moves.

Some observers say the world is probably seeing the outward signs of an internal struggle between would-be successors to Andropov, who has not been seen by Westerners for three months.

First word of the new Soviet arms control offer in Geneva came from West German Chancellor Helmut Kohl. Late last week he said the Soviet chief negotiator at the Euromissile talks in Geneva had hinted that Moscow might drop its demand that British and French nuclear deterrents be included in the negotiations.

This appeared at first sight to be a Soviet concession, even though it was part of a proposal that called for zero NATO deployment in return for a halving rather than elimination of Moscow's SS-20 missiles targeted on West Europe.

Since negotiations over intermediate-range nuclear missiles in Europe began in Geneva two years ago, the Soviets have insisted that the nuclear forces of Britain and France should be included in the total of NATO missiles in Europe. American negotiators have refused, arguing the British and French arsenals are independent and not subject to NATO's control. This has been a major sticking point in the negotiations.

In Washington, White House spokesman Larry Speakes confirmed the Soviet offer but termed it "unfair."

The reason? It would still, according to the White House, be conditional on the US deploying no new missiles in Europe. That, according to the Reagan administration, would preserve the USSR's monopoly on medium-range missiles on the continent. The Soviets currently have 243 triple-warhead SS-20 missiles aimed at Europe and 117 in the Soviet Far East.

But late Friday, the Kremlin denied any change in its negotiating stance. The Soviet news agency Tass distributed a preview of a statement by Defense Minister Dmitri Ustinov in Saturday's Communist Party daily, Pravda. In it, he repeated demands that French and British missiles be taken into account.

The official Soviet news agency Tass denied the Soviets had given any "signals" of flexibility in Geneva. There were "no such signals," Tass said, and there "are not to be."

Some Western analysts read this as the Kremlin disowning the stance taken by its Geneva negotiator, Yuli Kvitsinsky. That reminded them of the 1982 "walk in the woods." During that walk, US and Soviet chief negotiators apparently worked out a potential compromise on missile deployments, involving reductions by both sides. The offer was quickly disavowed by Moscow, then in effect by Washington.

CONTINUED

The apparently conflicting signals from the Kremlin are mirrored, in some measure, in the East bloc as a whole. The Soviets have vowed to retaliate for the new missiles by new Soviet deployments in East Germany and Czechoslovakia.

Czechoslovak Prime Minister Lubomir Strougal warned West Germany of "unforeseeable consequences" arising from the deployment. Romanian President Nicolae Ceausescu, an East-bloc maverick, says both superpowers are "defying mankind" with new deployments and counterdeployments.

Last week, a Soviet official, asked to respond to Ceausescu, replied tersely, "No comment."

A Soviet official says the USSR is reviewing its own nuclear weapons policy. The debate is much quieter and largely held behind-the-scenes, he says. Some indicator of how it is going may come this week, since the Soviets have threatened to walk out of the negotiations in Geneva once they become "pointless."

That has widely been interpreted to mean when the West German Bundestag this week reaffirms, as expected, the government's decision to deploy the missiles.

Still, there are some hints that the Soviets may stay on even longer in Geneva, until the NATO missiles are actually operational — sometime in December.

And both Western diplomats and Soviet sources indicate that a walkout will probably not be permanent.

The Soviets could return at some later date, or could offer to include the European-range missiles in the strategic arms reduction talks (START), which are also under way in Geneva.

In Washington, meanwhile, Congress has passed a record $249.8 billion defense bill, clearing the way for continued buildup of both US conventional and nuclear military power.

At the same time, the US Central Intelligence Agency, in something of an about-face, lowered its estimate of the annual growth of Soviet military spending growth.

Since 1976, the CIA reports, Soviet military spending has grown by only about 2 percent a year — half the rate of earlier CIA estimates. Still, the CIA study warns, the Soviets spend more for defense than the US "by a large margin."

WALL STREET JOURNAL
21 November 1983

CIA Cuts Soviet Defense-Budget Estimate, Cites 'Leveling Off' in Weapons Building

By GERALD F. SEIB
Staff Reporter of THE WALL STREET JOURNAL

WASHINGTON—The Central Intelligence Agency reduced its estimates of the rate of Soviet weapons construction, a change that will bolster those who say President Reagan's defense budget is too large.

According to the agency's latest analysis of the Soviet economy, Soviet expenditures on procurement of military hardware have "leveled off" since 1976. The report says the annual increase in overall defense spending has been about 2% a year since 1976, down from an annual rate of 4% to 5% in the preceding decade.

Previously, U.S. officials estimated that Soviet defense spending continued to increase at roughly 4% to 5% annually.

"The rate of growth of overall defense costs is lower because procurement of military hardware—the largest category of defense spending—was almost flat in 1978-81," the report summarizes. "New information indicates that the Soviets didn't field weapons as rapidly after 1976 as before."

The estimates on defense spending are in a CIA report to Congress's Joint Economic Committee. The report, which the committee released over the weekend, paints a rosier picture of prospects for the Soviet economy, particularly its energy sector, than some earlier reports.

In part, the report says, Soviet weapons procurement has leveled off because the newer, more sophisticated weapons are more expensive. In addition, it says, areas such as operations and maintenance have taken up more of the defense budget.

Agency analysts stress in the report, though, that Soviet defense spending continues to increase and still exceeds U.S. outlays. In 1981, the cost of Soviet defense activities was at least 25% higher than defense expenditures in the U.S. that year, the report asserts. Congress has appropriated $249 billion for defense for fiscal 1984.

Sen. William Proxmire (D., Wis.), who released the report, said the revised estimate of Soviet defense spending "has profound significance that hasn't yet penetrated policy circles" in the U.S.

In general, the report notes that the Soviet economy was "sluggish" in 1981 and 1982, when its average annual growth rate was less than 2.5%. But the report goes on to note that the Soviets cut markedly into their hard-currency trade deficit in 1982 by pushing oil exports and holding down imports.

In 1983, the report says, the Soviet economy "seems poised for a rebound." The CIA's analysts estimate that Soviet gross national product will grow 3.5% to 4% this year and that farming, in particular, probably will rebound strongly.

The CIA also said Soviet energy prospects "are considerably better than we once thought." The Soviets have avoided the downturn in oil production once predicted by the CIA. The agency's new report estimates that oil production will hold roughly steady through the mid-1980s, then fall in the 1990s.

ABC WORLD NEWS TONIGHT
21 November 1983

USSR/WEAPONS

JENNINGS: The U.S. intelligence community has come to some new conclusions about the pace at which the Soviet Union is modernizing its military. As ABC's John McWethy reports from Washington, the latest assessments are something of a surprise.

MCWETHY: According to the U.S. intelligence community, the production of Soviet weapons turns out to be slower than previously advertised, particularly in production of new strategic nuclear weapons, things like missiles and missile-firing submarines. In a report to Congress, the CIA claims that since 1976, the growth rate of expenditures on new weapons has been zero. In other words, since the mid-1970s the number of tanks, ships, missiles, and aircraft rolling off the assembly lines has been the same year after year not steadily increasing as often claimed by the Reagan adminstration. Intelligence officials cite three possible reasons for why the purpose and production of weapons has slowed. One, the troubled Soviet economy cannot meet the military's demands for raw materials and weapons components; two, the Russians are buying more and more sophisticated weapons and are finding, just as the U.S. has, that these cost more, take longer to produce, and can only be afforded in smaller numbers; three, there may have been decisions in the Kremlin to slow the growth rate of new weapons, but no one knows why. Despite the new analysis, Reagan administration officials say the Soviets still far outspend the U.S. on weapons, and there should be no change in the president's five-year, $2 trillion plan to modernize America's military. John McWethy, ABC News, the Pentagon.

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WASHINGTON POST
22 November 1983

Soviets Reported Slowing Rate of Military Buying

By Fred Hiatt
Washington Post Staff Writer

Since 1976, the Soviet Union has slowed the rate at which it procures tanks, airplanes and other military equipment rather than accelerating defense spending as the Reagan administration has suggested, senior intelligence officials said yesterday.

The officials, who spoke on condition that they not be identified, said the CIA believes that Soviet defense budgets stayed even or increased only slightly from 1976 through 1982, the last year for which reliable information is available.

Fewer planes and tanks were purchased, as the Soviets joined the United States in discovering that increasingly complex military technology strains budgets, the officials said.

The Reagan administration has sought to justify large U.S. defense spending increases by claiming that the Soviets have engaged in an unprecedented military buildup.

The CIA estimate differs marginally from the assessment of Pentagon intelligence officers, who agree on the trend in equipment produced but say they believe that Soviet expenditures have grown.

The senior intelligence officials said their analysis does not contradict President Reagan's position because, even without growth, the Soviet defense budget remains 25 to 45 percent higher than U.S. spending.

They also stressed that military spending does not measure "combat effectiveness," which depends on many factors.

"This has no implication for the U.S. defense budget, as far as I'm concerned," one analyst said.

The officials said that not since the early 1960s had Soviet defense spending slowed as noticeably as since 1976. The officials said they do not believe that the trend reflected several years of U.S.-Soviet detente preceding the current plateau or a deliberate decision to restrain spending.

Instead, they attributed the slowdown to weapons-testing problems and delays, a "policy decision" to adhere to weapons limits set in the SALT I and II arms-control talks and general economic problems involving transportation and basic-material production.

While insisting that world events had no impact on the slowdown, the officials said a Soviet view of increasing world tension may prompt increased military spending.

They said the Soviets are developing more weapons systems than ever and have "expanded the bases of production."

A decision to increase defense spending would force the Soviets to abandon plans for decreasing their citizens' cost of living, they said.

The Reagan administration increased the defense budget during its first year by about 12 percent in "real," after-inflation growth. That budget grew by about 7 percent last year and less than 4 percent this year, and the Pentagon has drafted a preliminary request for 17 percent real growth next year.

U.S. officials say real growth in Soviet defense spending averaged between zero and 3 percent from 1976-82. The range reflects departmental disagreements on how to calculate Soviet inflation and money exchange rates.

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WASHINGTON TIMES
22 November 1983

Soviet arms spending: Read the fine print

• Oh, dear. Defense slashers will love this: A CIA analysis of the Soviet economy estimates Kremlin expenditures for new military hardware have "leveled off" since 1976, and overall defense spending has slipped roughly 2 percent a year over the same period. If accurate, that would represent a 4-to-5 percent reduction from the prior decade.

Before anyone starts beating the drums for a reversal in U.S. defense spending, we suggest reading the coda to the intelligence agency's report. CIA analysts stress that Soviet defense spending continues to rise as a percentage of GNP and to exceed U.S. outlays in real dollars — 25 percent higher than ours in '81, or at least $220 billion compared to Washington's $183.7 billion.

Further, by "leveling off" the CIA means Defense Minister Dimitri Ustinov's share of the Soviet GNP remains unchanged at 13-14 percent. Look at it this way: In '81, our defense share of GNP was 5.4 percent. Under Mr. Carter, it barely averaged 5 percent. Even Mr. Reagan's accelerated effort has nudged it up to only 6.5 percent.

In any case, it's easier to get Mr. Andropov to attend midnight mass than to get precise numbers on Soviet military spending. The figures are hidden under innocuous categories and sprinkled throughout the huge Soviet bureaucracy. Funds for the Kremlin's ambitious long-range missile program, for example, are allocated under the budget for the Ministry of Heavy Industry.

So the CIA report is at best an estimate. But you can bet simple and wrongheaded interpretations of it will abound. No matter. It'd be foolish verging on suicidal to rearrange U.S. defense priorities on the basis of — with all due respect to the agency — what amounts to an educated guess.

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WASHINGTON POST
23 November 1983

Weinberger Notes Gains in Strength

By Fred Hiatt
Washington Post Staff Writer

Defense Secretary Caspar W. Weinberger said yesterday that the Reagan administration has made "substantial improvements" in U.S. military strength, but he criticized Congress for dragging its feet on funding the president's full buildup.

Before leaving town last week, Congress approved a record $250 billion defense budget, about $11 billion short of the administration's request.

The Pentagon said the budget represents only 3 percent "real" annual growth—after inflation—compared with the 7 percent sought by President Reagan, and Weinberger said congressional refusal to fund the administration's full request will end up costing more.

"We have a situation in which what we need, what's been authorized, what we will have to have, will cost us more and will take us a little longer to acquire," Weinberger told a Pentagon news conference.

The Defense Department budget has more than doubled from fiscal 1979, when it totaled $121 billion, to the fiscal 1984 budget of slightly less than $250 billion.

Neither total includes the military construction bill, which this year appropriated more than $7 billion, or the Energy Department appropriation for nuclear weapons production, more than $5 billion this year.

"It's not an arms race," Weinberger said. "What we're engaging in is an attempt to regain deterrent strength."

The administration last summer projected a defense budget of $321.5 billion for fiscal 1985. Weinberger yesterday declined to discuss his hopes for the coming fiscal year, but he left some room for retreat from that total when he noted that inflation rates have been lower than projected.

Navy Secretary John F. Lehman Jr. also held a news conference yesterday to claim cost savings in contracts and spare-parts purchases.

Lehman said the Navy recently awarded $5.9 billion in contracts, spending money appropriated by Congress just last week, and saved $480 million compared with earlier Navy budget estimates.

Lehman, who jawboned McDonnell Douglas last year to lower the cost of F/A18 fighter jets, attributed the lower costs to the Pentagon's increased emphasis on competition in procurement.

But he said spare and repair parts continue to be purchased mostly on a "sole-source" basis and to cost more than they should.

To illustrate that point, and demonstrate the Navy's commitment to solve the problem, Lehman displayed for the cameras a screwdriver for which General Electric has been charging the Navy $780, and a hood for a bombardier's scope on an A6 attack plane—"this little piece of plastic," Lehman said—for which Grumman was charging $1,800. The somewhat unusual screwdriver is down to $45, he said, and the "piece of cardboard" to $60.

Questioned about recent CIA estimates that Soviet defense spending held steady between 1976 and 1982, Weinberger said the United States nonetheless cannot relax its efforts to increase its military strength.

"The fact that there is an enormously large amount of money being spent by the Soviets for their military machine each year is not disputed and . . . the fact that it's a great deal more than we're investing is not disputed," he said. "We don't think we are in a situation where we can in any sense slow down the regaining of our military strength."

Weinberger noted with satisfaction that Congress has funded every weapons system requested by Reagan except nerve gas.

But he said stretching out the procurement time and, in particular, refusing to approve multiyear contracts will increase the ultimate cost of the buildup by hundreds of millions of dollars.

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NEW YORK TIMES
23 November 1983

WEINBERGER LINKS SYRIA TO BOMBING

He Says Damascus Sponsored Iranians in Beirut Attack

By RICHARD HALLORAN
Special to The New York Times

WASHINGTON, Nov. 22 — Secretary of Defense Caspar W. Weinberger said today that it was Iranians who exploded the truck bomb in the Marine compound at the Beirut airport a month ago, with the "sponsorship and knowledge and authority of the Syrian Government."

Mr. Weinberger, who spoke in a news conference, did not disclose the source of his information but pointed a finger directly at the Syrian Government in what appeared to be the strongest public accusation by the Administration on who was responsible for the attack in which 239 Americans died on Oct. 23. But Mr. Weinberger declined, in response to a question, to call it an act of war.

The Defense Secretary said the evidence of the Iranian and Syrian connection "is an accumulation of a number of reports in which we have considerable confidence."

He brushed off questions of reprisals, saying President Reagan had not made "any promise of retaliation."

On Oct. 24, the day after the bombing, Mr. Reagan said, "This despicable act will not go unpunished." In a televised speech three days later, he said, "Those who directed this atrocity must be dealt justice, and they will be."

The Deputy Secretary of State, Kenneth W. Dam, said on Oct. 30 that "retaliation comes in many shapes and sizes, and we are looking at all of the options." More recently, however, Secretary of State George P. Shultz said public talk of retaliation should cease.

Won't Discount Nicaragua Attack

On other matters today, the Defense Secretary left open the possibility that the United States would use military force against the leftist Government of Nicaragua. But he insisted that American combat troops would not be sent to El Salvador despite a deterioration in the military situation there.

He said relations with the Soviet Union "are not good" for many reasons.

"I don't think they're irretrievable," he said, "but I think that it will require a substantial alteration in Soviet behavior."

Mr. Weinberger appeared to soften his insistence that the Reagan Administration submit to Congress a 1985 military budget that would be 20 percent higher than the present budget. The new budget is due to go to Congress in January.

Mr. Weinberger further asserted that lower rates of Soviet military investment reported by the Central Intelligence and Defense Intelligence Agencies should not slow down United States efforts to expand military forces.

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WASHINGTON POST
23 November 1983

LETTERS TO THE EDITOR

'Knockdown of a Soviet Buildup'

Usually when CIA analysis is reported inaccurately, we must suffer in silence. However, in the case of Stephen S. Rosenfeld's Nov. 18 column, "Knockdown of a Soviet Buildup," because we prepared an unclassified version of our work on trends in Soviet defense spending for the Joint Economic Committee of the Congress, I am able to put in proper perspective Mr. Rosenfeld's account of our analysis.

He suggests that our analysis of the Soviet defense effort portrays "a steady Soviet performance at a relatively low level" and that the Soviets used détente "to give themselves something of a breather." A balanced examination of our testimony conveys no such message.

We stated explicitly to the committee that "our latest comparisons of U.S. and Soviet defense programs show that despite somewhat slower growth in recent years the costs of Soviet defense activities still exceed those of the United States by a large margin. In 1981 the dollar costs of Soviet defense activities were 45 percent greater than U.S. outlays; procurement costs alone were also 45 percent larger." Moreover, the committee was reminded that the Soviet defense effort still is running between 13 and 14 percent of GNP—that is, over twice the percentage of GNP devoted to defense spending in the United States.

We also stressed to the committee that "trends in Soviet military spending are not a sufficient basis to form judgments about Soviet military capabilities, which are a complex function of weapons stocks, doctrine, training, generalship and other factors important in a potential conflict. The cost estimates are best used to identify shifts in priorities and trends in resource commitments to military programs over an extended period of time. Moreover, the spending estimates do not give an appreciation of the large stocks of strategic and conventional weapon systems already deployed. Indeed, current levels of spending are so high that despite the procurement plateau noted, the Soviet forces have received since 1975 about 2,000 ICBMs and SLBMs, over 5,000 tactical combat and interceptor aircraft, 15,000 tanks and substantial numbers of major surface combatants, SSBNs, and attack submarines."

Finally, it is worth pointing out that Soviet efforts to develop advanced weapon systems continue in the '80s at least at the rapid pace of the previous two decades. Among these are fighter and airborne control aircraft, ballistic and cruise missiles, space systems and submarines. The new systems cover the full range of technologically advanced weaponry the Soviets will need to modernize all major forces.

In sum, Mr. Rosenfeld's description of our analysis does not provide a balanced account of our testimony to the JEC. Our costing of the Soviet defense effort is very complex and susceptible to misrepresentation and misuse. Those who oversimplify or cite out of context our work in this important area do not contribute to needed public understanding of these issues. They also do an injustice to the professional, independent analysts in all of the agencies of the intelligence community working to broaden our knowledge and understanding of the Soviet defense effort.

GEORGE V. LAUDER
Director, Public Affairs Office
Central Intelligence Agency

Washington

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CHRISTIAN SCIENCE MONITOR
23 November 1983

NEWS IN BRIEF

Pentagon backs CIA view on ease-up in Soviet arms

Washington

The Pentagon agreed with the Central Intelligence Agency Monday that the rate at which the Soviet Union is adding new weapons to its military arsenal has flattened out since 1976.

Senior intelligence officials cited a number of possible causes for this trend, including a Soviet decision to adhere to limits imposed by the unratified SALT II arms control treaty.

The agencies emphasized their consensus on the state of Soviet weapons procurement, the largest chunk of the defense budget, and played down differences on total Soviet defense spending, attributing them to accounting variables. The CIA computed annual growth in Soviet defense spending from 1976 to 1981 at 2 percent, while the Pentagon pegged it at 6 to 7 percent.

President Reagan has justified his massive arms program by arguing that Moscow is engaged in an unprecedented buildup. All signs suggest the Soviets have more weapons systems in the research-and-development stage than they did in either of the past two decades, an official said.

CHRISTIAN SCIENCE MONITOR
25 November 1983

Trying to decipher slowdown in Soviet military buildup

US intelligence analysts say Russians running into delays, cost overruns

By Brad Knickerbocker
Staff writer of The Christian Science Monitor

Washington

You're an analyst at Central Intelligence Agency headquarters or the Pentagon and have the following assignment: The Soviet Union has many more fighter aircraft than the United States, but US pilots fly more sophisticated planes and get 50 percent more flying time to hone their combat skills. Which country will prevail in time of war? How should these facts affect US defense spending?

These are the kinds of questions that endlessly frustrate US intelligence experts. They are highly subjective and inevitably political. Yet they are crucial to decisions in Washington that will certainly affect the country's resources and could determine its survival.

According to recently declassified intelligence estimates, the Soviet Union over the past few years has significantly flattened its rate of increase in defense spending. In the procurement of new weapons, the growth rate has dropped to about zero. Pentagon critics have seized on this to prove their point that administration plans to "rearm America" are too grand. Proponents of a stronger defense emphasize the half-full part of the intelligence glass: that the Soviet Union, despite an apparent slowdown, still produces a lot more weaponry than the US. And, as usual, the experts who gather and analyze such data are caught in the middle.

"This stuff gets all twisted around in some of these budget debates," grumbles one frustrated senior intelligence official. "We habitually get wrapped around the axle trying to explain these things."

In recent conversation with reporters specializing in defense matters, intelligence agency officials explained the recent reports on Soviet military spending and offered fascinating insight into how such things are determined, why the internal debate among CIA and DIA (Defense Intelligence Agency) analysts here is almost theological, and what significance it has for US defense planning.

According to these experts, this change in Soviet defense spending, which began in the mid-1970s, has several causes: The Soviets are moving into more technologically sophisticated systems that present design and development problems, cost overruns, and higher per-unit costs (sound familiar?); they are holding to SALT and other agreements that limit production of missiles, submarines, and ballistic missile defenses; and they have had economic problems that disrupted the delivery of some supplies to weapons builders.

The bottom line for the CIA is that the rate of increase is now around 2 percent a year, measured in rubles. The DIA, on the other hand, says the figure should be 6 to 7 percent. The difference is in whether to count inflation in the Soviet Union. The CIA puts it at about 3 percent. Pentagon intelligence officials say it's "very hard to say what inflation is in an economy that is basically a barter economy," and therefore discount it.

What they both agree on is that "nobody sat back and said, 'Let's beat our swords into ploughshares'," as one senior intelligence official put it. Measured in rubles, they say, the Soviet Union still spends 25 percent more on military procurement than the US. Measured in dollars, the figure jumps to 45 percent.

"When you spend a quarter to almost half again what the United States spends, you can put a lot of new stuff in the field without having any growth in your rate of spending," said one intelligence expert. "This is a country with 50,000 tanks and they're still producing 2,500 a year." The US builds 700 to 800 new tanks a year.

Officials say they first noticed the flattening of Soviet defense increases several years ago, but assumed it would shortly reverse as is usually the case. When it kept happening, they realized they had a longer trend. Why did it take so long to figure this out?

"This is the kind of question that hurts," said one senior intelligence official. "We think we're right out there on the frontier of getting a glimpse into this closed society. But it takes a long time for us to accumulate the evidence to make these judgments, and the judgments do trail by several years. . . . Don't quote me, but we're no better at predicting their technical problems than we are at predicting our own."

Thus, officials hesitate to say what will follow.

"To give you a forecast, I've got to get the chicken bones out and look at the rhetoric and everything," said one. "The most important thing is going to be some of the economic choices they make."

Most recent US intelligence analyses note that Soviet President Yuri Andropov "has not accelerated Soviet military spending."

CONTINUED

But, warns a senior intelligence official: "All of the signs we're looking at suggest that the Soviets have more systems in research and development today than they've had in the last decade or any decade before that, that they have expanded the basis for modern systems production, that they see the world situation as one which is more serious than they saw it in the mid-1970s, and that there is every reason to believe that when when can, they will attempt to return to the kind of dynamism in their military programs that they exhibited during the early 1970s." Which sounds very much like what the United States is doing.

SOVIET DEFENSE

Spending Reaches High Plateau As U.S. Continues Huge Increases

The Central Intelligence Agency, in a major reassessment of its data and analysis on Soviet weapons production, has concluded that the USSR reached a prolonged plateau in military hardware spending as long ago as 1976. The weapons budget apparently has hardly increased since that year, according to testimony to the Joint Economic Committee which was released last week.

"Unlike our past estimates," the CIA report says, "the new evidence incorporated in our present estimate indicates that in at least one area, procurement of military hardware, Soviet expenditures have leveled off since 1976.... The Soviets did not field weapons as rapidly after 1976 as before. Practically all major categories of Soviet weapons were affected—missiles, aircraft and ships."

Total Soviet defense costs, measured in constant 1970 rubles, grew at an average annual rate of four to five percent during the decade from 1966 to 1976, the CIA believes. The new estimate, though, shows that the growth in the economy and in the defense sector slowed since 1976. "The rate of growth of overall defense costs is lower because procurement of military hardware—the largest category of defense spending—was almost flat in 1976 to 1981," the CIA said.

The Defense Intelligence Agency, which has its own view of Soviet military spending, apparently continues to believe that Russian spending is on the rise, however. Defense Secretary Caspar Weinberger last week said that there is "a difference between the agencies as to the rate of increase." He said it was "a small technical dispute." And Weinberger, who time and again has used the growth in Soviet military spending as justification for his own department's rapidly increasing procurement budget, said there is no question that the Soviet Union spends more on defense than the U.S.

It takes a long time for the CIA to gather data about Soviet defense spending and to prepare analyses like this one, which set off a new round of debate in Washington over what some view as the need for mammoth increases in America's defense budgets. The intelligence agency remains about two years behind the pace of Soviet decisions, and thus has had little time to analyze changes in Soviet military spending that may have come with the rise to power of Communist Party Secretary Yuri Andropov. The latest CIA estimates were prepared before it became clear early last month that the new Soviet leader himself is seriously ill.

"We have only very preliminary estimates available for 1982," said the CIA. "They indicate, however, that the trends in both total defense expenditures and procurement costs that we have observed since 1976 are continuing. The growth in total expenditures still appears to be considerably below the long-term average, and procurement spending remains roughly unchanged although at a high level, when measured in constant 1970 prices."

Although the new report was seized upon in some quarters as proof that the Pentagon has been exaggerating the Soviet threat all along, the CIA itself emphasized that its statistics are prone to error, and that spending is not the sole measure of military might.

"It should be stressed that trends in Soviet military spending are not a sufficient basis to form judgments about Soviet military capabilities, which are a complex function of weapons stocks, doctrine, training, and other factors important in a potential conflict.

"The cost estimates are best used to identify shifts in priorities and trends in resource commitments to military programs over an extended period of time," the report said. "Moreover, the spending estimates do not give an appreciation of the large stocks of strategic and conventional weapon systems already deployed. Indeed, current levels of spending are so high that despite the procurement plateau noted, the Soviet forces have received since 1975 about 2,000 intercontinental ballistic missiles (ICBMs) and submarine launched ballistic missiles (SLBMs), over 5,000 tactical combat and interceptor aircraft, 15,000 tanks and substantial numbers of major surface combatants, nuclear-powered missile submarines, and attack submarines."

By the CIA's estimate, Soviet defense costs exceeded those of the United States by 45 percent in 1981, as did weapon purchase costs, despite the larger size of the supporting U.S. economy. Indeed, it is the inevitable strain of military spending on the economy which may have caused the plateau in weapons buying. In the Soviet Union, the CIA estimates, weapons cost about 25 percent more to buy than in the United States.

"The slowdown in the growth of military procurement cannot be explained by any single factor," said the CIA report. "Initially, at least, the absence of growth in military procurement might have been attributed to natural lulls in production as older weapons programs were phased out before new ones began. The extended nature of the slowdown, however, goes far beyond normal dips in procurement cycles. The continued slow growth since the late 1970s seems related to a combination of complex factors including technological problems, industrial bottlenecks and policy decisions."

The CIA asserts that Soviet spending on defense takes up about 13 to 14 percent of gross national product, or roughly double the American share of GNP spent by the Pentagon. But contrary to previous expectations, the Soviets have not been increasing this crucial ratio.

Nor is the CIA persuaded that Andropov will make any substantial changes in the course set by Leonid Brezhnev during his heyday. "Andropov's position on the share of resources that should go to the military is unclear," the new assess-

ment said. "The little evidence that is available indicates Andropov has not accelerated Soviet military spending."

This may be because of the economic pressures to invest in Russia's ailing civilian sector. Military buyers must compete with civilian consumers and industrial factory managers for scarce resources. The CIA expects this competition to become "increasingly fierce." The leveling off of weapons procurement in recent years coincided with an increase in the share of machinery alloted to civilian uses, the report said.

"While we cannot be sure what Andropov's policy is, or will be, Soviet military capabilities will still increase substantially over the next several years even if the rate of growth of procurement of military hardware does not increase," concluded the report ominously. "The USSR is already investing so much in military hardware that merely continuing procurement at the existing level would provide very large annual increments in holdings of military equipment."

And the report suggested that the military, which helped bring the former KGB chief to power a year ago, may be pressing Andropov to speed up defense spending regardless of the economic consequences.

"In the first three years of this decade we believe the Soviets have already had as many systems under development as in each of the previous two decades. Steady expansion of production floorspace has occurred since the mid-1970s providing the Soviets with the potential to translate the new systems into deployments in the field, the paper said. "Any major effort to sharply accelerate the level of military procurement, however, could make it even more difficult to solve the fundamental economic problems facing the Soviets."

NEWSWEEK
28 November 1983

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The Day After Deployment

Moscow may scuttle the arms talks, but Washington still hopes for a deal next year.

On a quiet Sunday in Geneva, Soviet arms negotiator Yuli Kvitsinsky telephoned his American counterpart, Paul Nitze, with an "urgent" request for a meeting. The two men had exchanged ideas informally many times during nearly two years of negotiations on intermediate-range nuclear weapons in Europe. In July 1982, their celebrated "walk in the woods" outside Geneva yielded a compromise formula that seemed to hold promise—until both Washington and Moscow vetoed it. Now Kvitsinsky wanted to try again. That afternoon, he and Nitze met at a park in Geneva to search for an 11th-hour understanding that might head off the deployment of new U.S. missiles. But the "walk in the park" led nowhere. The next day, the first shipment of cruise missiles arrived in Britain, and deployment finally began.

For a while, there will be hell to pay. Antimissile protests will continue all over Western Europe, with demonstrators accusing Ronald Reagan of turning their homes into targets. In the United States, meanwhile, fact and fiction may combine to produce agonizing second thoughts about the wisdom of nuclear deterrence. ABC's horrific "The Day After" (NEWSWEEK, Nov. 21) posed such an emotional challenge to Reagan's hard-line policies that Secretary of State George Shultz was ordered before the television cameras on Sunday night to pledge allegiance to arms control and stand up for a strong defense. Moscow will try to play on the anxieties about nuclear war. It may retaliate for deployment by fielding new missiles of its own, and it is likely to make good on its threat to walk out of the Geneva talks at the end of this week's session.

Bluff: Now that deployment has begun, however, Moscow is on the defensive even more than Reagan. The Kremlin gambled and lost. In 1979, the NATO allies agreed to start deploying a new generation of missiles at the end of this year unless agreement was reached on withdrawing some of Moscow's powerful SS-20 missiles from the European theater. The Soviets hoped they could bluff NATO into backing down, without giving up anything in return. Reagan and his allies called their bluff, despite the mass protests in Western Europe this fall. Italy's Parliament formally endorsed deployment last week. West Germany is expected to follow suit this week, and the first Pershing II missiles may arrive on German soil almost immediately afterward.

Political tensions are by no means over in West Germany; last week the opposition Social Democratic Party came out against deployment, shattering a consensus on defense policy that had kept the country on a steady course for nearly 25 years. But if NATO can keep its collective nerve—and there's no sign that it won't—the arms talks just might get back on track in time for an election-year breakthrough.

As the deadline for deployment approached, both sides made halfhearted attempts at compromise. Reagan put on a show of flexibility by proposing a "global" limit of 420 intermediate-range warheads for each superpower. That would mean a cut in NATO's deployment plan, under which 572 Pershing and cruise missiles, each with a single warhead, are to be installed in West Germany, Britain, Italy, Holland and Belgium during the next five years. Reagan wanted a corresponding reduction from the Soviets, who currently have 243 triple-warhead SS-20s aimed at Western Europe and another 117 deployed in Asia. Moscow refused to accept any U.S. deployment and quickly rejected Reagan's proposal.

According to U.S. officials, Kvitsinsky hinted at another proposal that represented a slight softening in the Soviet position. He said that if Washington offered to cancel its entire deployment, the Soviet Union would reduce its own European arsenal of SS-20s to about 120 missiles. Moscow also would surrender an important bargaining chip, its insistence that 162 British and French missiles be included in any superpower agreement on theater weapons. Instead, the British and French missiles would be dealt with in another forum, possibly the parallel negotiations on strategic-arms reduction.

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Kvitsinsky's démarche fell so flat that by the end of the week the Soviets were claiming it was all Nitze's idea. "Every proposition the Soviets have made to us would leave the United States with zero and the Soviet Union with several hundred warheads," said Assistant Secretary of Defense Richard Perle. "Their basic objective is to kill our deployment while preserving the monopoly they now enjoy." Reagan didn't go for the ploy, and neither did his European allies.

Surprise: Despite all the anticipation, the actual arrival of cruise missiles in Britain came as something of a surprise to the anti-missile movement, and apparently to the British government as well. Most of the protesters camped outside the air base at Greenham Common were still asleep when an American transport plane landed in the early morning and began to unload the missiles in their long, canvas-covered containers. Defense Secretary Michael Heseltine, who was visiting another military base at the time, had to rush back to London to inform Parliament that the eagle had landed—apparently a day early, in order to forestall demonstrations.

The protesters revved themselves up anyway. About 300 of them were arrested outside Parliament. In Manchester, a picketer squirted red paint onto the unfortunate Heseltine as other demonstrators chanted: "Better red than dead, Michael!" At Greenham Common, 140 protesters were arrested for blocking roadways; they warned that bigger confrontations would occur when the mobile missiles were driven out of the base for operational testing. And in the House of Commons, Prime Minister Margaret Thatcher had to endure a scathing attack from opposition leader Neil Kinnock, who called her "a lackey to the Americans." "You are talking absolute rubbish," the Iron Lady replied.

The Italian government had an easier time of it as Parliament voted, 351 to 219, to accept deployment of cruise missiles at a base in southeastern Sicily. In West Germany, the only country scheduled to receive the more lethal Pershing IIs, the government expected a similar outcome when the Bundestag votes this week. "The Soviet Union played a daring poker game and for a long time did not believe, or did not seem to believe, that we would . . . deploy," Chancellor Helmut Kohl said during a television interview. With a 60-seat edge in the Bundestag behind him, Kohl believed that the game was over.

The Social Democrats thought it was just beginning. In 1979, their own chancellor, Helmut Schmidt, was a prime mover behind the "two-track" NATO policy that called for deployment this year unless Moscow cut its nuclear forces in Europe. Now, under chairman Willy Brandt, another former chancellor, the party is moving back toward the neutralist doctrines it advocated in the 1940s and '50s. After the SPD's government fell in 1982, Brandt convinced his colleagues that the party could regain power only by appealing to peace-movement members who had taken to voting for the counterculture Green Party. He also argued that West Germany's future economic health depends on its trade with the Soviet bloc, which could be interrupted by a new cold war.

Brandt pressed the attack at last week's party convention. "The two superpowers are stronger than is healthy for the rest of the world," he said. "In this situation, it would be advisable for Europe to increase its weight politically and in defense." Brandt was careful not to call for West German withdrawal from NATO, but he said the alliance needed a "shift in influence." Looking tired and old, Schmidt made a forlorn effort to stem the tide. Conceding that Washington was partly to blame for the failure of the Geneva talks, he insisted that "so long as there are Russian missiles in Eastern Europe, the United States must remain engaged in Western Europe." When the speeches were done, the delegates voted overwhelmingly to oppose deployment.

Deployment was under way nonetheless, and it was likely to provoke a belligerent reaction from Moscow. In Geneva, the Soviets warned that they would walk out this week if the Bundestag voted to accept Pershing IIs. The current round of talks was due to end soon anyway, but the Soviets may well choose to cut if off with a flourish. In addition, Soviet Defense Minister Dmitry Ustinov said the Kremlin would respond with new SS-20 deployments in the European theater and the introduction of new tactical nuclear weapons into Eastern Europe. He also warned of measures aimed directly at U.S. territory, so that "the Americans will be bound to feel the difference between the situation before the deployment of their missiles in Western Europe and after it." Ustinov didn't specify what steps would be taken. But Pentagon officials thought the Soviets might station SS-20s in Siberia, within range of the West Coast, or deploy SSN-X-21 cruise missiles aboard submarines operating off either American coast.

The actual depth and intensity of Mos-

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cow's reaction to deployment will be difficult to predict as long as it remains unclear just who is in charge at the Kremlin. President Yuri Andropov was still in mysterious seclusion last week. In his absence, rumors flourished; one London newspaper even recycled the tired old story that Andropov had been shot by a disgruntled member of the Soviet establishment. Western diplomats in Moscow were inclined to believe that Andropov was suffering from a kidney ailment. His next obligatory public appearance is a meeting of the Supreme Soviet, which has been scheduled for late next month, apparently to give him as much recovery time as possible. Meanwhile, the tough Ustinov seemed to be Moscow's point man on the deployment issue.

Reading Soviet intentions and capabilities has never been Washington's strongest suit. Reagan maintains, for example, that the Soviet economy is crippled, but that the Kremlin is pushing its military buildup, come hell or high water. Last week a new CIA study suggested that the president was off target on both points. It said the Soviet economy was on the mend, predicting a relatively healthy growth rate this year of 3.5 to 4 percent. It also found that the growth of Soviet military spending began to taper off as long ago as 1977. Since then, military spending has increased by about 2 percent a year, less than half the rate that prevailed from 1966 to 1976. The CIA reported that "procurement of military hardware—the largest category of defense spending—was almost flat in 1976-81." The bottom line seemed to be that the Soviets are more formidable economically, and less single-minded militarily, than Reagan believes.

Despite the clouds in its crystal ball, the administration believes that the start of deployment will not keep the Soviets away from the bargaining table for long. Some high-ranking U.S. officials believe the Geneva talks may resume as early as mid-January. That forecast could prove to be overly hopeful. But the Soviets may be realistic enough to recognize that they failed to stop deployment by political means and that the time has come for serious negotiation. The United States is in no hurry to deploy all 572 of its new missiles. If the Soviets decide that a small deployment is preferable to a large one, there will be plenty of time left in which to find a reasonable compromise. Whatever qualms Americans may feel on the morning after "The Day After," there is still reason to believe that arms control can play its part in averting a nuclear catastrophe.

RUSSELL WATSON with KIM WILLENSON and JOHN J. LINDSAY in Washington, RONALD HENKOFF in Geneva, ROBERT B. CULLEN in Moscow, THEODORE STANGER in Bonn and bureau reports

ARTICLE APPEARED
ON PAGE 23

VILLAGE VOICE
29 November 1983

PRESS CLIPS

By Alexander Cockburn

Arms Race Over

I suppose Reagan will be calling the whole arms race off, now that it turns out that increases in the Soviet defense budget, long hailed as even bigger than the sum total of the annual salaries of Dan Rather and Bill Moyers, have been modest in the extreme since 1976. The *New York Times* reported this interesting bit of information in a story on page 6 of its Saturday edition.

The CIA now says that the rate of growth of Soviet military spending from 1976 to the present is half what it was in the preceding decade, from 1966 to 1975. Whereas in the earlier period Soviet military outlays were supposedly increasing by 4 to 5 per cent a year, they are now growing, says the CIA, at about 2 per cent a year.

The 1984 Pentgon budget represents a 5 per cent real increase, discounting inflation, over the '83 levels. Cap Weinberger, irked at this paltry surge, is hoping to get a 17 per cent hike next year.

In short, the Russians are a bunch of pacifists, barely sustaining real growth in their military spending. Are they men or mice? In the primaries for the General Secretaryship, Andropov's would-be successors will no doubt be charging "a decade of neglect" and "a window of vulnerability."

Of course all CIA estimates of Soviet military performance are extremely suspect, in that they are calculated on the basis of US military costs. In Ernie Fitzgerald's immortal words, "Every time there's a cost overrun on the B-1 bomber, the Soviet defense budget goes up." In this case the lowered estimate is based on the fact that the Soviet Union is producing fewer weapons. Thus there's probably some truth in what the CIA says.

Given Reagan's perpetual exaggerations it's an important story. The *NYT* and other papers gave it serious space. Puzzling all the same why they waited till November 19 to break the news. The Joint Economic Committee, which released the CIA statement, has tried to publicise these conclusions four time already this year.

WALL STREET JOURNAL
6 December 1983

Why the CIA Undershoots Soviet Arms Spending

By Lev Navrozov

Every year the Central Intelligence Agency makes public two estimates crucial for Western policies: "Soviet defense spending" and its rate of growth. The agency's latest numbers are being used to play down the need for a U.S. rearmament policy. Some background is in order.

Before 1976, the CIA's estimate of Soviet defense spending hovered around 6% of the Soviet gross national product—roughly matching the American percentage. The "Soviet defense burden," the CIA stated in 1973, "is no greater than that of the United States," and the "Soviet share of gross national product spent on defense has been falling." This good news nurtured detente and sapped the stronger defense policy. In 1976, the CIA announced that every year it had been making a 100% error: Soviet defense spending had been closer to 12%, not 6%, of GNP, and had been growing since 1966 at 4% to 5%. It was time for detente to wane and for defense to wax.

According to the CIA's testimony this year before Congress's Joint Economic Committee, released to the press last [illegible] as a 66-page report, Soviet defense [illegible]ing has been growing not at 4% to [illegible]out at "about 2% a year . . . because procurement of military hardware—the largest category of defense spending—was almost flat in 1976-81." And, according to "preliminary estimates available for 1982," the "trends . . . are continuing." Now it is time for opponents of Mr. Reagan's defense policy to rejoice.

That the CIA's estimates of the Soviet GNP share spent on defense are absurd is obvious at a glance. About 300,000 engineers and 400,000 "junior engineers" are graduated in the U.S.S.R. annually, and half of these 700,000 go into the military sector; in the U.S., 60,000 engineers are graduated, and only one-fifth of them go into the defense industry. The expenditure ratio in this area is thus almost 60 to 1, considering the fact that the pay of Soviet military engineers is on the average twice as high as that of civilian engineers. How can the Soviet economy pay for such ratios if Soviet defense spending as a share of GNP roughly matched its American counterpart according to the pre-1976 CIA, and is only about twice as high according to the post-1976 CIA?

The key to the CIA calculus is the Soviet GNP. Yet the CIA can't now calculate [illegible] GNP for the U.S.S.R., if only because [illegible] Soviet goods and services are priced [illegible]t; and few of them can be sampled [illegible] evaluated, since they are foisted on Soviet consumers far from foreign eyes.

Predictably, the Soviet Central Statistical Office inflates the value of the overall Soviet output in order to make its military sector look small. Thus, this office claims that the Soviet national income in dollars was, as of 1976, 67% of its American counterpart. The CIA's latest Soviet-American *GNP* ratio in dollars for the same year is 73.7%—*more* favorable to the Soviet economy than the national income ratio. Actually, the GNP ratio must be far less favorable to the Soviet economy than the national income ratio, since the latter disregards services and plant depreciation, and it is precisely in those two areas that the Soviet economy lags further behind the U.S. than it does in goods.

The CIA reports give no sources for data. An American unfamiliar with the Soviet press is likely to infer that those are secret intelligence sources. Actually, they are "open" Soviet books and pamphlets—i.e., Soviet propaganda—since the CIA has never been able to obtain "closed" Soviet statistics.

In its American-Soviet GNP comparisons, the CIA uses a methodology appropriate for comparing the GNPs of the U.S. and, say, Western Europe. Thus the CIA ignores, in terms of both cost and value, the Soviet lack of Western diversification, innovation and sophistication of consumer goods and services, as well as of trade itself, whereby the right goods and services reach the right customers at the right time. Using the CIA's methodology, it can be proved that even Soviet labor-camp inmates consume, in terms of dollars or rubles, not so much less than median-income Americans.

Having inflated the Soviet GNP more than Soviet propaganda does, the CIA gets, if only for that reason, "Soviet defense spending" as an absurdly low percentage of GNP.

There are other reasons. As is clear even from the reports, the CIA has no human agents at the top of the Soviet infrastructure. Thus, it can perceive and evaluate the weapons tested, built or deployed under optically or electronically observable conditions, but not the weapons developed, produced, stored or deployed on optically and electronically closed premises. It can't know to what extent each "civilian" institution works as a military one. With the greater importance paid nowadays to high-technology surveillance, as opposed to the former belief in the necessity of agents in place, the discrepancy between what is observed by the CIA and what actually occurs has only widened. Nor does the agency allow for the fact that civilian production mainly receives those human and other resources rejected by the military.

While the CIA's "Soviet defense spending" is an imaginary "shaggy dog" that the CIA can reshape at will, the rate of that spending's growth is an imaginary flea on that imaginary dog: If the CIA announced in 1976 that its "Soviet defense spending" had been wrong by 100%, how can the CIA presume that it increases at "about 2%" and not 4% to 5%?

"The slowdown in Soviet military growth" is the only new fact in the CIA's testimony this year. Just like its predecessors, it is a digest of the Soviet press. Thus we learn that in 1982 the Soviet economy produced 147 million tons of steel, compared with 66 million tons produced in the U.S. But what does the regime do with all that steel, considering how little goes into cars, housing and highways, and considering how much rolled steel ($5.3 billion a year) the regime imports? The answer is missing in this year's CIA report, just as it was missing 10 years ago.

The CIA report abounds in slogans lifted unthinkingly from the Soviet press. "Production of fruits and vegetables reached record levels. . . . " "Meat output . . . reached a record level. . . . " "Railroad performance has also improved markedly. . . . " Andropov's regime "has shown concern for the welfare of the population. . . . " The latter is a Soviet cliche in use since 1918.

In 1977, the CIA made the groundless and indeed preposterous prediction that the Soviet economy faced an oil crisis; this year, the CIA explains that the Soviet economy "has thus far averted the downturn in oil production . . . by virtue of an enormous brute-force development effort . . .," as though there is a Soviet national development effort that can't be credited to brute force.

The CIA is a closed, noncompetitive bureaucracy that is practically unopposed, since most of the major news media agree with its intelligence. All attempts to expose its scholastics have failed. Thus, in 1978 I submitted to the CIA a 150-page analysis of its reports and then distilled my paper into an article for Commentary that Ronald Reagan and his associates hailed enthusiastically. But that applied to Jimmy Carter's CIA. When the CIA became Mr. Reagan's, the enthusiasm evaporated.

Recently, former Soviet economist Igor Birman made a painstaking study showing that the CIA doesn't know the Soviet economy as it exists, but as it seems on the basis of purely American experience and "open" Soviet statistics. The CIA has never budged, and possibly never will.

Mr. Navrozov, a Russian emigre, writes frequently on Soviet affairs and intelligence matters.

Christian Science Monitor, January 24, 1984 p. 7

Slower rise for Soviet military

By David Fouquet
Special to The Christian Science Monitor

Brussels

The momentum of Soviet military spending in the last several years has slowed to about half the rate sustained in the early 1970s, according to the outlines of a study by NATO experts.

The report is a short update of a more complete study by NATO and national experts last year. That report had already hinted at a possible slowdown in the Soviet Union's military buildup because of emerging economic and production difficulties. It estimated increases in Soviet arms spending of about 4 to 5 percent in the 1970-76 period and about half that rate from 1976 to 1982.

The new findings go against some official American and other pronouncements that still paint a portrait of a relentless Soviet arms drive. Nevertheless, they underline that Soviet military outlays between 1976 and 1982 "continued at a very high level" and that the Soviets could be on the verge of introducing a large number of new weapons programs.

Between 1976 and 1982, large quantities of equipment — including 75 major surface combat ships, about 2,500 intercontinental nuclear missiles and submarine-launched missiles, 6,000 tactical combat and interceptor aircraft, and about 15,000 tanks — have been delivered to the armed forces.

"There is evidence of large numbers of new programs at the research and development stage," the recent summary notes. It specifies that about as many systems are in the development stage at the beginning of this decade as there were at the beginning of the 1960s and '70s.

"It is projected that more systems will reach initial operational capability in the 1980s," it adds, "than in either the 1960s or 1970s."

BANDPHOTO

Soviet surface-to-air missiles

'More Soviet systems will reach initial operational capability in the 1980s than in the 1960s or 1970s.'

Among the new Soviet weapons systems said to be approaching such a level of readiness are fighter, airborne warning, and control aircraft, ballistic and cruise missiles, space systems, and submarines.

The NATO report adds that defense production facilities have been expanded, which could imply a resumption of the rate of Soviet defense growth of the early 1970s.

The slowdown in recent years could have resulted from a general Soviet economic slump, supply bottlenecks, or difficulties in introducing advanced technologies, rather than a formal policy decision from the leadership.

The report also concludes that "any major effort to accelerate sharply the level of military procurement could exacerbate Soviet economic problems and would pose particularly difficult choices of resource allocation."

Defense Spending: On the Use of Soviet Yardsticks

To the Editor:

Gordon Adams's Jan. 10 Op-Ed article ("Moscow's Military 'Costs' ") is riddled with contradictions and unfounded assertions which deny validity to his principal thesis — that defense spending under President Reagan has been unnecessarily high.

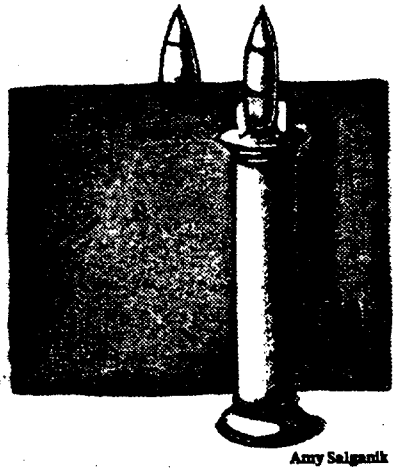
Mr. Adams begins by saying the Administration's defense budget is based on estimates of Soviet military spending. He maintains these estimates "vastly overstate" actual Soviet arms spending because of the methodology used.

Then, shifting ground, he implies the Administration rejects the spending estimate (i.e., input) approach, focusing instead on "production and large stockpiles" of Soviet weapons (output measures). This latter approach fails to justify our buildup, according to Mr. Adams, because the strategic and conventional military balance is approximately even.

Mr. Adams's statements about the military balance are not supported by argument, and his vague reference to "data amassed" by various authorities is no substitute for analysis of this critical issue.

More interesting is his contention that the C.I.A. overstates Soviet military spending by estimating what it would cost the U.S. to match the Soviet level of military output.

"Our wage and material costs," says Mr. Adams, "are higher than Moscow's." In the strictest sense, they are. A Soviet worker in the civilian economy is far less productive than his U.S. counterpart. It follows that the opportunity cost of employing him in the military is less. Yet it does not follow that the C.I.A. has been overstating Soviet arms spending or that our defense budget is too high. Consider:



Amy Salganik

- The only valid criterion on which to base the U.S. defense effort is Soviet military output — both in quantity and in quality. We must be able to match Soviet military capabilities to the extent necessary for deterrence.
- Soviet military spending is relevant as an indicator of the priority assigned to the military sector, and the burden this sector places on the economy. As such, spending should be expressed as a percentage of society's total productive capacity.
- The only conceivable reason for coming up with a dollar expression of Soviet arms spending is to give us a rough idea of absolute levels of resource commitments to the Soviet military sector. Since most Americans are unfamiliar with the Soviet economy, it is hard to visualize X percent of Soviet G.N.P. But we know that Y billion dollars represents so many man-years of trained personnel, so many vehicles, ships, etc., in our own economy. For this purpose, the C.I.A. methodology, so derided by Mr. Adams, is entirely appropriate.

Mr. Adams seems to think that the dollar figure for Soviet arms spending should be based not on American resource costs but on Soviet ones. Such a figure would be meaningless. For example, the Soviets "pay" their conscripts 5 rubles a month — $8 at the official exchange rate. That compares with several hundred dollars a month spent by the Pentagon to hire a volunteer away from the private sector.

Using Mr. Adams's approach, we would conclude the Soviets are spending far less on soldiers than we are. Yet a Soviet infantryman wielding a Kalishnikov rifle is every bit as much a fighter as a U.S. private with an M-16. It would be absurd for us to base our manpower spending on the $8 figure or, for that matter, on any other version of Soviet manpower costs. Output is what counts. The same applies to other areas of the military.

After criticizing the C.I.A.'s estimates for the past seven years, Mr. Adams is only too happy to embrace their latest downward revisions of Soviet arms spending. Indeed, the C.I.A.'s track record in forecasting key internal variables for that country has been dismal (in 1977 it predicted a Soviet "oil crisis" that never materialized).

But the evidence, specially from former Soviet economists and other experts with firsthand experience in the U.S.S.R., suggests the C.I.A. has consistently underestimated Soviet arms spending and continues to do so.

In 1976, for instance, the C.I.A. announced it had been off by 100 percent in its assessment of the Soviet defense burden. The figure was revised from 6 percent to 12 percent of G.N.P. As Lev Navrozov pointed out in a recent article, even these higher figures do not account for the fact that the Soviet military employs 13 times as many engineers as the U.S. military, or that the U.S.S.R. produces twice as much steel as the U.S. but uses less in the civilian economy (where does the rest go?).

The C.I.A. is a closed, noncompetitive bureaucracy with few reliable sources within the U.S.S.R. It relies heavily on official Soviet statistics for its estimates. There is little ground for Mr. Adams's new-found faith in them.

DAVID A. MORO
New York, Jan. 15, 1984

The writer is a financial analyst at

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plans for the pending deployment of new cruise missiles on submarines stationed near the US coasts. This announcement followed Moscow's walkout at the Intermediate-range Nuclear Forces (INF) reduction talks in Geneva. The Soviets have portrayed this action as retaliation for US deployment of Pershing II and ground-launched cruise missiles in Europe.

Ambassador Adelman dismissed the latter Soviet contention as a case of "putting a new label on old wine." Portraying these actions as "counter-deployments" simply won't wash, he suggested, because evidence built up over "years and years" shows clearly that the Soviets planned to do so all along.

Soviet infractions of arms accords are not confined to ballistic missiles *(see "The Soviets Are Violating Arms-Control Accords," October '83 issue).* Among the latest evidence that suggests noncompliance are reports by Defense Department officials that the Soviets are building between thirty-six and forty Backfire bombers per year. On June 16, 1979, President Leonid Brezhnev informed the US SALT II negotiators—headed by President Jimmy Carter—that the production rate of the Soviet Tu-22M aircraft, known in the US as the Backfire bomber, would not exceed thirty aircraft per year. The US accepted this pledge with the proviso that "the United States enters into the SALT II Agreement on the basis of the commitments contained in the Soviet statement [concerning Backfire] and that it considers the carrying out of these commitments to be essential to the obligations assumed under the Treaty." A production rate in excess of thirty aircraft a year obviously violates this stipulation.

In another recent development that raises questions about Soviet compliance, US intelligence found that two squadrons of Backfire bombers have been assigned to a Long-Range Aviation (the equivalent of SAC's bomber element) base in the upper part of the Kola peninsula north of the Arctic Circle. Brezhnev's written statement on Backfire appended to SALT II asserts that the Soviets "will not increase the radius of action of this airplane in such a way as to enable it to strike targets on the territory of the USA." Forward-basing a number of these aircraft in the Kola peninsula does exactly that, however.

Soviet Defense Spending Grows Substantially

A number of US news media reports saw fit to interpret a recent report by

IN FOCUS...

the Central Intelligence Agency's Office of Soviet Analysis as suggesting that Soviet defense spending was declining. The CIA report, released by the Subcommittee on International Trade, Finance, and Security Economics of the Congressional Joint Economic Committee, does not support such a conclusion. Instead, there is the straightforward assertion that "Soviet military capabilities will still increase substantially over the next several years, even if the rate of growth of procurement of military hardware does not increase. The USSR is already investing so much in military hardware that merely continuing procurement at the existing level would provide very large annual increments in holdings of military equipment."

The CIA analysis finds that the new regime headed by President Yuri Andropov, who "apparently came to power with the support of the military, may well be under pressure to speed up defense spending. For example, in the first three years of this decade we believe the Soviets have already had as many systems under development as in each of the previous two decades."

Pointing out that the steady expansion of Soviet production facilities provides an increasing potential for fielding an ever-increasing volume of weapon systems, the CIA study then juxtaposes the fact that "any major effort to sharply accelerate the level of military procurement, however, could make it even more difficult to solve the fundamental economic problems facing the Soviets." The consequence of drastic procurement boosts, the CIA argued, would be lower civilian investment and slower growth or even a falling per capita consumption rate and "could, over the long run, erode the economic base of the military-industrial complex itself."

The CIA reports that the Soviet Union's economy is lagging behind the goals set for it in the current Five-Year Plan (1981–85), with the slowdown evident "in practically every industrial branch" and industrial productivity "down dramatically." In the important area of machine building, which affects both military hardware as well as the civilian sector in a pace-setting fashion, growth has fallen off to about half the planned level, the "lowest since World War II," the intelligence report disclosed.

Per capita consumption was on a roller coaster, increasing by about one percent in 1981 and decreasing by the same rate in 1982. The availability of quality foods, the CIA analysis finds, has generally declined, with per capita meat consumption in 1982 down from the peak level in 1979.

Some signs of unrest—such as "short-lived work stoppages"—occurred in 1981 and 1982, according to the CIA, but "expressions of discontent generally were contained or averted. Faced with long lines at state outlets, consumers dealt with the shortages in ways that did not threaten the regime—by buying higher-priced foods in the officially sanctioned free markets, for example, and through barter and black-market activity."

In the defense sector, the CIA analysis finds that while spending measured in constant 1970 ruble prices continues to increase, the procurement of military hardware has leveled off since 1976. Overall defense spending, in step with overall economic growth, has slowed since then to an annual growth of two percent because of the lower procurement trends, according to the report. This relatively flat growth level of the procurement account is in contrast with annual increases in military operations and maintenance costs in the three to four percent range and boosts in military personnel costs by slightly less than two percent a year.

Stressing that trends in Soviet military spending are not a sufficient basis to form judgments about Soviet military capabilities, the CIA analysis warns that these derive from a combination of weapons stocks, doctrine, training, leadership, and other factors. Moreover, spending estimates don't allow for the "large stocks of strategic and conventional weapon systems already deployed. Indeed, current levels of spending are so high that, despite the procurement plateau noted, the Soviet forces have received since 1975 about 2,000 ICBMs and SLBMs, more than 5,000 tactical combat and interceptor aircraft, 15,000 tanks, and substantial numbers of major surface combatants, SSBNs, and attack submarines," the CIA reported.

Despite the somewhat slower growth in Soviet defense spending, the USSR continues to outspend the US "by a large margin. In 1981 the dollar costs of Soviet defense activities were forty-five percent greater than US outlays; procurement costs alone were also forty-five percent

larger." The current plateau in procurement spending appears to be related to a combination of complex factors, including technological problems, industrial bottlenecks, and policy decisions. Some funds originally budgeted for procurement, the Agency suggests, may have been directed instead to research, development, test, and evaluation (RDT&E) "because of the increasing complexity of weapon systems being researched."

Defense Against Ballistic Missiles

On April 18, 1983, the White House directed relevant elements of the executive branch to undertake two complementary studies of the feasibility of a comprehensive defense against ballistic missiles. The findings of these studies—one dealing with the technological and the other with the strategic doctrinal aspects of such an undertaking—were turned over to the President, and at this writing he is reportedly close to making a decision on a DABM (Defense Against Ballistic Missile) program.

The Subcommittees on Investigations and Research and Development of the House Committee on Armed Services recently held intensive hearings on DABM approaches, with the Defense Department's Under Secretary for Research and Engineering, Dr. Richard DeLauer, acting as the principal government witness. Asserting that an effective multiple-layered defense may become feasible by about the year 2000, he warned, however, that the "most fragile part" of such a concept is its ability to survive "counteractions that might be taken against it."

Dr. DeLauer predicted that a comprehensive defense against ballistic missiles will have to cover four distinct phases of a ballistic missile's trajectory—the boost, post-boost, mid-course, and terminal regimes—because defense in one phase alone probably would miss too many "leakers." Interception in the boost phase is both the most effective and difficult element of DABM, he told the panel, because detection, discrimination, targeting, and interception would have to be accomplished almost instantaneously. Further, the attacker might try to confuse the defender with large numbers of decoys.

In the post-boost phase, the defense still has a chance to destroy several warheads at once, before they have been directed against individual targets. Pointing and tracking as well as discrimination of decoys as opposed to legitimate targets during this phase are probably easier to accomplish than at other times, he suggested.

Mid-course defense, Dr. DeLauer predicted, will turn out to be more difficult because it becomes necessary to discriminate between debris, decoys, and the individual reentry vehicles, which by now have separated from the boost-post vehicle, or "bus."

In the terminal phase, discrimination is somewhat easier because the atmosphere sorts out lightweight decoys from the heavy, shielded reentering warheads, but there is only a short period during which interception can be accomplished.

The Defense Department's ranking technologist dismissed as "loose talk" the notion that the US could attain an effective DABM capability with a level of effort comparable to the World War II Manhattan Project that produced the A-bomb or to NASA's Apollo program that landed man on the moon. The difficulties associated with fielding a workable DABM, he told the congressional panel, are equal to or exceed those of the Manhattan Project in each of such individual component areas as battle management, pointing and tracking, and interception and destruction.

Singling out battle management as the "most awesome" task associated with DABM, he said some of the associated functions "we can't do yet." He added that neither the computers nor the hardening against countermeasures needed to perform this kind of battle management exist.

Kill mechanisms that are candidates for various phases of DABM include pulsed and continuous-wave laser designs. He singled out pulsed shortwave lasers of either the X-ray or excimer (rare gases) type because of their potential capability to deliver a high impulse or shock to a missile to break or blow a hole in it and cause structural collapse of the booster.

Free-electron, excimer, and hydrogen fluoride/deuterium fluoride lasers emitting energy in a continuous wave could be used to dwell on a target until a hole is burned through it. Continuous beams of neutral particles, Dr. DeLauer said, are potentially capable of destroying internal components of reentry vehicles and, therefore, will be worked on further under the DABM program.

Kinetic energy rail guns and miniature homing vehicles will similarly be explored because of their "hit-to-kill" potential.

The cost of an operational DABM system, according to Dr. DeLauer, would be "staggering," with the R&D phase over the next five years alone ranging between $18 billion and $27 billion.

IN FOCUS...

Washington Observations

★ Dr. William Perry, former Under Secretary of Defense for Research and Engineering, recently predicted at a symposium sponsored by the MITRE Corp. that the "cost performance" of computers will go up a thousandfold over the next ten years. The payoff in the defense sector from such a staggering advance might well be the capability to deter conventional warfare with conventional, nonnuclear weapons. Embedded computers, he suggested, might be imbued cost-effectively with a level of artificial intelligence that approaches human intelligence.

★ Air Force Chief of Staff Gen. Charles Gabriel recently told an AFA meeting that some 800 Air Force people were involved in the Grenadian rescue operation. MAC, TAC, SAC, and Communications Command provided the bulk of the personnel. Between 300 and 500 USAF personnel "were on the ground" at one time or another, mainly to perform security tasks, he said. SAC's role was intelligence collection and aerial refueling. TAC provided F-15 and E-3A AWACS aircraft, he said, adding that some of the command's A-10s "were deployed but not used." Some of MAC's C-130s had "some holes in them but made it, [and] the AC-130s were most useful" in shutting down hostile gun positions.

(For more on the Grenada operation, see "Blue Christmas Coming Up," p. 78.)

★ With a Unified Space Command apparently slated to come into being in 1985, concern is mounting about inadequate physical security at the Space Command's Headquarters located in downtown Colorado Springs, Colo., in a commercial building rented by the General Services Administration. Heavy civilian truck traffic in the neighborhood of the building and the known existence of a Marxist cell in Colorado Springs create a security nightmare for what is, in effect, America's first line of strategic warning. Plans for a new building have been slipped to FY '87 because of budgetary pressures. ■