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OBGI/GD/S
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STAFF STUDY

IMP OUTLOOK

INTRODUCTION

Since its inception in 1960, the joint CIA-DoD Intelligence Mapping Program has absorbed 199,400 man hours, considerably more time than any other Geography Division project. The 1971 [redacted] Report and the 1971-72 User Survey concluded that these hours were well spent in creating this multipurpose intelligence reference. The purpose of this staff study is to survey the present status of and outlook for the IMP. It will outline and evaluate current and projected plans, estimate costs and manpower requirements in the future, and recommend possible modifications. 25X1A9a

SUMMARY

The IMP has reached a crucial crossroad. With a great majority of the sheets already finished, about 200 sheets of intelligence significance remain to be done. A concentrated effort is under way to complete these important sheets and to begin an overdue revision program by the end of FY 1975.

A few working problems still exist, but their resolution will lead to greater efficiency during this critical phase. Most needed will be the clarification of IMP priorities in relation to other geographic projects, the overhauling of guidelines, and the improved control of research time expenditures. During this period work must be focused on the most strategic and active areas of the USSR and China, which will both contribute to analyst expertise and increase the opportunities for spinoffs of other useful intelligence publications. Finally, continued close cooperation with DMA will be needed to ensure that sheets are printed as soon as possible after completion of CIA research. Closer liaison with prime users should also be explored as a means of assuring the validity of sheet priorities and the maximal utilization of the IMP.

The revision of sheets in important areas that contain outdated intelligence should be the main goal beyond FY 1975. The completion of new important sheets not now covered is important, but an ongoing program of sheet revision is of equal importance for the usefulness

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and credibility of the entire program. Some sheets will require periodic revision and may be put together in a standardized revision cycle.

Further out, any speculation becomes quite fuzzy, but indicators point to the possible need of IMP-type work for other areas of the world. We may also see increased machine applications of IMP data pertinent to specific intelligence problems.

HISTORICAL NOTES

The IMP was started in 1960 to answer a critical need in the intelligence community for definitive maps of the USSR. It continues today for the same basic purpose, but has been modified slightly and has been extended to cover China, Poland, and Eastern Mongolia. DMATC has maintained responsibility for base details, geodetic controls, compilation, printing, and dissemination. Geography Division has continued to be responsible for providing all-source intelligence data contained on the maps. Besides OBGI files, basic information is obtained from CRS, NPIC, DoD, open literature, and special source material. IAS continues to provide photo interpretation support; OSR, OSI, and OER have occasionally assisted on specific problems.

The map has undergone several changes. First it was done as a codeword series. Later the need for wider distribution and utilization in the intelligence community led to the production of SECRET Special Intelligence Graphic (SIG), Series 1505, which originally used planimetric bases with terrain shaded representations of relief. At present, the intelligence for the SIG is overprinted on modified Joint Operations Graphics (JOG), which contain contours. In spite of these changes to the base, the scope and detail of intelligence inputs has remained relatively unchanged, and the IMP has steadily advanced toward its goal of providing the community with comprehensive maps of key communist areas.

PRESENT STATUS

As of 1 February 1973 Geography Division had completed the intelligence research on 1,843 maps in SIG Series 1505. (An additional 734 intelligence maps were produced in the codeword DESPA - 1 and 51 in the DESPA - 2 series, which preceded the 1505.)

This represented 86 percent of the 2,154 sheets originally planned for the program, including 24 sheets at 1:1,000,000 covering remote areas of Siberia and Tibet. Completed sheets considered important because of military installations, economic activity, main communication lines, or strategic position numbered 700, or 77 percent of the 908 sheets having these features. Much planning in the IMP is based on these 908 important sheets.

COST

During the past three years (CY 1970-1972 the IMP has accounted for a sizeable chunk of the project research time in Geography Division -- an average of 36 percent (see table below). Time expenditures have averaged well over 13,000 man-hours per year. The cost to OBGI alone represents about 4.5 percent of the total OBGI budget. Including collateral information support from CRS and photo interpretation support from IAS, the cost for the intelligence on each SIG averages [redacted] 25X1A1a

CY	Time spent (man-Hours)	Intelligence overlays produced	Percentage of GD research Project time	Direct Cost to OBGI	Direct Cost to CIA
1970	15,309	168	39.6	[redacted]	[redacted] 25X1A1a
1971	12,596	173	31.8		
1972	12,465	147	36.6		

DMA costs over a comparable time span have been considerably more. For example, during FY 1972 DMA used 13.2 man-years in the intelligence overlay compilation phase and their total cost including printing amounted to $397,000. This represented an average cost per sheet of $1,640 for compilation and approximately $2,000 more for printing. Combining DMA costs with CIA's gives a grand total of [redacted] for each SIG sheet. 25X1A1a

RELATIONS WITH DMA

Through the years DMA has steadfastly supported the IMP and fullfilled its responsibilities in the program. DMA's work schedule is basically controlled by the number and complexity of overlays that are sent to them, but within this framework they create their own priorities.

Our working relations with Topographic Center and with DMA Headquarters have always been amicable and priority requests have been honored by both sides, whenever possible.

Because DMA managers have the responsibility for coordinating all mapping requirements of foreign areas, their attitudes toward the IMP and their insights into future programs are extremely significant. They have recently concluded that almost all medium scale requirements are satisfied by 1:250,000 unclassified Joint Operations Graphics (JOG) and secret SIG series 1505. The 1:200,000 Air Target Chart, a medium-scale intelligence map series produced by Aerospace Center, is currently required only by SAC, and will be supplanted even there by 1:250,000's in the future. It has clearly been an advantage to have the SIG tied to a main workhorse like the JOG.

It is worth noting here that at the present IAS and NPIC use Air Target Charts more than the SIGs. Their main reasons are that the ATC is "cleaner," with less information permitting photo interpreters to draw in search area requirements and installations, and that the ATC provides greater coverage in the important areas of Sino-Soviet Bloc. NPIC planners are currently studying the support needs of photo interpreters situated at detached locations where collateral storage space is minimal. Since the SIG with its complete intelligence picture better answers many of these needs, NPIC may increase their requirements for and use of the SIG in the future.

CURRENT GOALS

Beginning with the Program Call of January 1973 and extending through FY 1975 the IMP working priority is shifting from complete once-over coverage of the USSR and China to a concentrated effort to complete only those 200 sheets remaining that are judged to be key sheets for intelligence purposes. (Note the projected effect of this emphasis shift on Graph #1.) Focusing manpower solely on these sheets will hasten their availability to the intelligence community. These 200 sheets are considered important because they cover areas that contain priority targets, economic potential, main transportation facilities and other intelligence. In addition, numerous other important sheets already printed need revision

either because new and important installations have been added or because the base information and existing installations require change or updating. It is anticipated that revision will be completed on 50 of these sheets by the end of FY 1975.

The revision program means that complete coverage of remote areas with little or zero intelligence significance will be delayed or possibly disregarded entirely. These remote areas should be periodically scanned, of course, to assure that nothing important is going on. Decisions on whether to research these sheets will have to be considered during the next phase of the Program.

Assuming that the 200 new, important sheets are completed by FY1975, it would be reasonable to expect that they would be printed by FY 1976 if the lag time between research completion and printing continues at its present rate. It is likely that, given the same number of analysts, 100 important area sheets plus 50 revision sheets could be produced annually during the following few years. (See Graph #2.) A reduction of work force or deemphasis of the IMP would reduce the production correspondingly. Likewise an increase in staffing, even considering training time would increase the production rate and accelerate the completion schedule. The overall costs for the program are going to increase slightly because of rising wages and material costs; also, cost per sheet should increase noticeably due to the concentration on difficult sheets.

PROBLEMS AND EFFICIENCY

Since there is now a change from the concept of complete coverage to a concentration on important areas not mapped, an excellent opportunity exists (1) to establish new priorities, (2) to improve methodology, (3) to develop a system of research time limitations and (4) to initiate tangible spinoffs.

In the past only a priority in a general sense has existed for the IMP with a distant goal of complete once-over coverage. IMP priorities in relation to other projects and activities have become somewhat vague. The IMP has sometimes been relegated to secondary, but more often to tertiary, importance. But, now that essentially only 200 significant sheets remain, a tangible goal exists, and a definite, albeit secondary, priority could be firmly established. A statement from the Office or Division level clearly reiterating IMP values and goals would accomplish several things. First, for

the benefit on newer analysts it would clarify the relationship of the IMP to approved research projects and to all of the other time spent in Geography Division. Secondly, it would reaffirm the significance of IMP research for established analysts. And most importantly, an authoritative voice above the immediate branch level could provide this seemingly perpetual project with a new impetus. Instead of merely assuming the priorities, analysts could have a clear cut knowledge and understanding of higher management desires.

Of equal importance is the need for a more precise set of guidelines or a consistent outlined approach to IMP research. Beginning with the highest priority targets and including all aspects of research, this guide would be of value to new researchers as well as experienced ones. What exists now are a set of general rules and topical or potential target explanations i.e. specifics on how to handle and write-up various references. Lacking is a systematic outline ranking particular levels of intelligence and clearly suggesting which require only cursory treatment because of marginal intelligence worth. Some of this outline would be superfluous to most analysts, who already command a well-organized set of criteria for the numerous evaluations which must be made. Yet even the most knowledgeable and productive analyst could profit by having his judgments reaffirmed. Much information exists to show where time expended produces only marginal returns. Also as OBGI begins the revision program, another set of guidelines could direct efforts to the most important additions or changes of intelligence value. Both guides would contribute to analytical efficiency during this critical period.

Never before has a system of deadlines or definite time limitations been applied to individual IMP sheets. Considering that data are available on how much time is required to complete sheets of similar density covering analogous areas, and recognizing the need for maximum efficiency in researching the remaining difficult sheets, the establishment of specific time limitations for each sheet should now be undertaken. Such guides would assist the analyst in allocating his time and would also improve planning schedules and forecasts. In addition, an accurate time limitation system can be an aid in seeing that sheets are neither under-researched nor over-researched.

There have been relatively few geographic research projects initiated as a direct result of the IMP. However, there have been a host of intelligence reports which have benefitted from IMP information and from the wealth of area and topical expertise obtained from IMP work. The best examples of inspired projects are the USSR forced labor camp studies, a study of Soviet storage facilities currently underway, and a possible study of "new cities" in China. Those projects based primarily on IMP data are the USSR railroad map, revision of Comirex search areas, a series of maps locating USSR and Chinese border installations, target area studies in China and Laos, and a report on military storage facilities in South China. Examples of other reports that benefited directly from the IMP or that could not have been done without the expertise gained from working on the IMP include the study of opium movement in the Thailand - Burma border area, briefs on selected Soviet and Chinese cities in preparation for the President's visits, and detailed terrain studies for ORD.

It is in the area of intangible expertise and routine output that more effort should be focused to derive real spinoffs. Much thought and discussion have occurred in the past concerning a publication of SIG notes or gems gleaned from IMP research. Formatted SIG outlines are now produced regularly after completion of research, but nothing has been done to extract, abstract, or combine the significant observations contained in them. Either the existing or a newly devised outline that highlights the uniqueness of an area could form the backbone of an IMP Newsletter or SIG Notes Report. This seems more feasible now that we are concentrating on areas of maximum activity and intelligence interest. Brief geographic appraisals of these areas will assist other offices to be aware of this IMP expertise that goes beyond itemized intelligence. The value of the expertise cannot be accurately judged until we can assess what applications there may be for it.

An informal monthly, bi-monthly, or periodic publication designed to inform working level analysts could be one way to exploit this IMP expertise. If it were supervised by one person with a flair for news and writing, the result would be a real product with a minimum amount of time expended. Since little additional expenditure of analyst's time is anticipated between the present outline and a modified paragraph write-up,

the only new expenditure would be the time of one person to jell, mold, and headline the inputs into one paper and carry out the editorial process.

MANAGEMENT

While the Headless Horseman might operate quite effectively throughtout eternity and the mythical Hydra actually profited by having a head lopped off, the IMP suffers in the long run without a central responsible figure. Split between two diverse branches, the IMP has endured more by the force of its original momentum than by any accelerating inputs. Immediate branch supervision has created as near frictionless environment as possible and higher management has paved the way by supplying personnel. But there are occasions now, and increasingly so in the future, when a single administrator is needed. Questions on the overall IMP posed by office or inter-office management can be fielded, in part, by no less than one division chief, two branch chiefs, three branch supervisors, and a host of senior analysts; but not, in total, by any one person. It seems safe to conclude that some saving in time would be effected by having only one person ultimately responsible for, and able to answer for, all areas and aspects of the IMP and, in addition, to serve as the central point of contact for DMA and Topographic Center. Besides functioning for management this coordinator could easily serve as a filter to relay IMP information and priorities to analysts, amalgamate and crystalize analyst's ideas and modifications to the IMP, and unify and clarify IMP procedures.

Much thought has been given concerning a separate IMP branch or a rotating, semi-permanent IMP assemblage. The main advantage is that time could be concentrated on the IMP with a few diversions from other duties. These very diversions, however, contribute heavily to the analyst's well-rounded expertise in IMP evaluations and would, therefore, be totally or partially lost in a permanent or semi-permanent assignment. However, an IMP administrator armed with overall priorities and working in close cooperation with branch chiefs and supervisors could establish temporary priorities for concentrated IMP work, thereby minimizing diversions and yet utilizing analytical expertise.

REVISION PHASE

Following FY 1975 when all new important sheets will have been completed, IMP work will focus on a major revision program. This is an essential part of the IMP and must be thought of as an ongoing

program. Outdated maps of important areas must be replaced periodically to keep the program current and reliable. Without some kind of revision or maintenance cycle the IMP would quickly lose its value. The main problem is to determine which sheets are to be revised and in what time span. At the present there are 237 important sheets, which require major changes and updating. In addition, as sheets become older and as significant developments occur more of the 908 important sheets will require revision each year. It is estimated that at least one-half of the important sheets, approximately 454, will need to be revised by FY 1976 when this program begins in earnest.

The first important aspect of the revision phase is to examine goals of the future IMP and to develop a working methodology. The manpower available, estimated cost, and the degree of change and accuracy desired will all have to be weighed carefully. The 1972 User Survey will provide some background on requirements and the needs of various offices and will be the basis for finalizing working procedures for the revision program. The time span covered by this phase will vary greatly depending on priorities, type of approach, time available, and actual number of sheets requiring revision. Until some realistic time estimates can be obtained through experimentation, schedules during this phase must be highly theoretical. However, certain aspects of the program can be examined briefly and some projections can be estimated.

The first and most familiar way to do revisions is to give all of the intelligence a new look and a complete reevaluation. Reworking sheets completely using present methods has the advantage of being the most thorough process where older intelligence can be weighed against new and current evaluations can be made. The main disadvantage of this method lies in the time required for an entirely new look. Given that the most important and densest sheets are on the revision schedule, a complete reevaluation will undoubtedly take the most time and be the costliest. It is estimated that 180-200 man-hours would be required for this type of approach. This would mean that with the present manpower and projected time allocation, (14,000 man-hours, see Graph #2) about 74 revisions could be completed each year; to revise the 454 important sheets that will need revising at the offset of the program would then take 6 years. This forecast, of course, excludes other sheets that will also require updating during that time span. Counting all of the 908 important sheets, a revision cycle at this rate would require 12 years.

A second approach to the revision program is to limit work outlays to new annotations and selected updatings. This method has the distinct advantage of being the quickest. New intelligence, corrections of easily apparent mistakes, and updating of significant old intelligence will still be undertaken, but most of the intelligence will stand from original evaluations. The disadvantage or this method is that a partial revision leaves a greater possibility for errors and incompleteness and reduces the reliability of the IMP. Under this method it is estimated that revisions could be accomplished in about 80 hours. With the present manpower, about 175 sheets could be revised each year and the 454 important sheets originally requiring revision could be finished in 2.7 years. The 908 important sheets could be revised at this rate on a 5.2 year cycle.

Another approach to the revision program is to strike a compromise between time spent and thoroughness of analysis. By using slightly more time and by concentrating on a complete analysis of only the important intelligence, an acceptable product could be produced within a reasonable time span. This method would retain the present high quality standard of the IMP while also significantly improving its currency. At the rate of 100-120 hours per sheet about 125 revisions per year could then be produced under present manpower and time allocations. The original 454 sheets requiring revision could be finished in 3.7 years and if all 908 important sheets were considered, each sheet would be revised every 7.5 years.

REVISION PLANNING AND COST

DMA is willing and able to begin a revision program, and they recognize its importance. They request in certain instances a lead time of 1 1/2-2 years to rework the JOG base. Since the first group of sheets that need revision has already been determined, DMA can be alerted and begin their preparation now. In many cases where a planimetric SIG is to be revised, a recent JOG exists and no reworking by DMA is necessary. This is the case for many of our first priority revisions. Inasmuch as JOG bases are under constant revision by DMA, a revision schedule from us will be a welcome input to their planning. As usual, DMA will require as much advance notice as possible for all revisions and re-revisions. Accurate OBGI planning and determination of user needs will be especially critical during this period. Close relations with prime users (OSR, OSI, NPIC, DoD) will have to be maintained so that priorities can be ascertained and DMA can be kept as well informed as possible.

Costs and manpower for a revision program are expected to increase slightly each year. If Geography Division produces about 125 revisions per year, the work load for DMA will be about the same as the present. To meet this production the current level of manpower will be required in Geography Division, but because of salary increases and other factors the annual cost, which now is approaching [redacted] can be expected 25X1A1a
to trend upward in the future. DMA costs, which include manpower as well as significant material costs for printing, are also expected to rise slightly to nearly [redacted] during the mid and late 1970's.
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FUTURE DIRECTIONS

The future of the IMP is open to many possible directions and applications. Much depends on the Programs' ability to meet the needs of the intelligence community. If schedules outlined above are met, revisions accomplished in a reasonable time span, and coverage is mostly complete, the SIG will increase its usefulness and esteem. Since the User Survey showed that NSA, NPIC, IAS, FBIS and ORD have a continuing need for complete once-over coverage of the USSR and China; the need for sheets never done plus the supplementary 1:1,000,000 sheets will have to be reassessed sometime after the revision program has been operating effectively. The diversion of manpower from the revision program will have to be carefully weighed against the requirements for once-over coverage. Map coverage may also have to be extended to Eastern and Western Europe, to North Korea, and to Western Mongolia; isolated coverage may be required in the Middle East, in areas of border disputes, and in regions outside the Eurasian land mass. Large-scale maps may be a requirement for spot areas everywhere.

It is reasonable to assume that a source of basic evaluated all-source information will always be required. It is just as reasonable to assume that the packaging may vary. Instead of hard copy intelligence maps, an evaluated computer data base may be preferred. Experimentation is already being undertaken in OBGI to computerize the intelligence information on the SIG. The chief applications appear to be in the machine's ability to plot this information at various scales and for various areas and to select out intelligence data pertinent to user needs. More on this subject will be found in the report currently under development by Delmar Anderson.

RECOMMENDATIONS

Most aspects of the IMP require no change; others require slight

modifications to focus our efforts, to improve speed and efficiency, and to rationalize working procedures. As in any long-term project, conditions change and problems gradually evolve, so there may eventually be a need for clarification of goals and review of procedures.

RECOMMENDATION 1: GD should proceed to complete 200 important and 50 revisions by end of FY 1975.
Advantage : Sheets most valuable to intelligence community will be speeded up.
Disadvantage : Complete coverage of USSR and China will be delayed.
Estimated cost : No additional costs.

RECOMMENDATION 2: Chief GD should give the IMP an official priority.
Advantage : Analyst's understanding and effectiveness in work will be renewed.
Disadvantage : Less time will be spent on GD's general research maintenance and research support.
Estimated cost : None.

RECOMMENDATION 3: GD should prepare new overall guide outline; establish standard time limitations for each sheet in research.
Advantage : Analysis will be facilitated and production efficiency will be increased.
Disadvantage : Slight degradation in analyst creativity will occur and research time will be limited.
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Estimated cost : [redacted] (1/4 man-year), initially will be offset by improved analyst efficiency.

RECOMMENDATION 4: GD should begin a SIG periodical or newsletter.
Advantage : Analyst expertise will be better utilized and OBGI research will be advertised; also new writing outlet will be provided for analysts.
Disadvantage : Additional duty for analyst-editor.
Estimated cost : [redacted] (1/4 man-year), printing cost not included.

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RECOMMENDATION 5: Chief GD should appoint IMP administrator.
Advantage : Coordination and responsibility will be centralized.
Disadvantage : One analyst will be removed from production force.
Estimated cost : None.

RECOMMENDATION 6: GD should increase its IMP relations with prime users (OSR, OSI, NPIC, IAS, DIA)
Advantage : IMP will be better known and utilized; more accurate sheet priorities will be obtained.
Disadvantage : None.
Estimated cost : None.

RECOMMENDATION 7: GD should concentrate on revision but also should reassess the need for and manpower available to complete once-over coverage of USSR and China during FY 1976 and beyond.
Advantage : IMP will be kept current and coverage required by many offices will be extended.
Disadvantage : Some time will be spent to produce negligible intelligence.
Estimated cost : [redacted] per year for CIA, [redacted] for DMA.

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RECOMMENDATION 8: GD should devise new methodology for revision program which streamlines evaluations.
Advantage : Revision of important areas will be speeded up; important changes and new intelligence data will be highlighted.
Disadvantage : Minor intelligence data will not be fully researched; new approach will take time for analysts to master.
Estimated cost : [redacted] (1/4 man-year)

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RECOMMENDATION 9: GD should encourage ideas and investigate alternative applications of future IMP, especially computer systems interconnecting to IMP and from IMP; assign one analyst 1/2-time duty.
Advantage : IMP will be assured of keeping pace with other offices' developments and needs.
Disadvantage : None.
Estimated cost : [redacted] (1/2 man-year)

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