PROCEDURE FOR THE CONDUCT OF THE NASA EARTH RESOURCES SURVEY PROGRAM

1. Objectives

The general objective of the NASA Earth Resources Survey Program (NERSP) is to exploit the potential for economic, scientific, and political benefits through the use of remote sensing devices installed in earth-orbiting spacecraft. NASA believes that, by means of a suitably controlled and properly paced program utilizing such techniques, it would be technically possible and manageable from the standpoint of political impact to provide world-wide, repetitive surveys of such natural and ~~cultivated~~ cultural resources and other phenomena as fresh water, mineral deposits, forestation, soil types, crops, ocean ice, glaciers, plankton, ocean temperatures, depths, currents, and turbidity, beach erosion, blight areas, air polutions, etc. NASA further believes that such surveys would be of great value, particularly to the less highly developed countries, in solving problems associated with food shortages, the populations explosion, the available supply of natural resources, and weather forecasting.

As ancillary benefits, NASA considers that operations of this nature could be used for political trade-offs in furtherance of U. S. foreign policy, and might well prove to be the key to the reduction of armaments by providing an acceptable method of international inspection. Furthermore, the step-by-step development of such a program would be likely to advance the universal acceptance of the freedom of space, as exposed by United Nations Assembly Resolution Number 1721 (XVI).

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2. Scope

The NASA program may be divided into two phases:

a. Research, Development, and Feasibility Phase Conducted by NASA

(1) Determine ~~for the benefit of mankind~~, those natural and cultural resource data and changing conditions on earth and in the surrounding atmosphere which can best be acquired or observed from spacecraft.

(2) Test and develop the best combination of observational procedures, instruments, subsyetems, and interpretative techniques for the acquisition or observation and study of terrestrial natural and cultural resource data and conditions from spacecraft, both for practical applications on earth and in preparation for similar surveys on the moon and the nearer planets.

(3) Determine how the increased frequency and synoptic coverage uniquely afforded by spacecraft observations can aid the study of time variant and relatively unchanging phenomena on the surface of the earth and in the surrounding atmosphere.

(4) Develop improved methods of displaying and disseminating space-acquired natural and cultural resource data on a global basis suitable for utilization by scientific and technical activities, both government and non-government.

(5) Determine which natural and cultural resource data can be most effectively and economically obtained and changing earth conditions observed by manned spacecraft, unmanned satellites, interrogation of surface sensors, or the means currently being used.

(6) Discover by virtue of trained scientists in spacecraft what unforeseen natural and cultural resources or geo-scientific phenomena may be observable from the overview available at orbital altitudes.

b. Operational Phase Conducted by the User Activities.

Gather natural and cultural resource data and observe changing earth conditions with spaceborne instruments in an operational repetitive manner for use by scientific and technical activities, both government and non-government.

3. Control Measures.

NASA recognizes the necessity of conducting this program in such a manner as to continue to avoid open challenges to satellite observation activity; specifically, to avoid placing the U. S. space reconnaissance program in jeopardy. To this end, NASA proposes that the program go forward under a special NASA-DOD coordinating and monitoring mechanism, governed by a set of guidelines and ground rules acceptable to the Secretary of State, the Secretary of Defense, and the Director of Central Intelligence, the Director of the Office of Science and Technology, and the Administrator of NASA.

Any procedural matters which could not be resolved between the DOD (as the Executive Agency for the NRP) and NASA would be referred to the NSAM 156 Ad Hoc Committee for resolution, or reference to higher authority as appropriate.

4. NASA-DOD coordinating organization.

Matters of common interest and the interactions between NASA and the DOD (as executive agency for the NRP) in connection with the NASA Earth Resources Survey Program (NERSP) will be dealt with on three levels:

(1) The joint NASA-DOD Manned Space Flight Policy Committee (MSFPC), now in existence:

(2) A joint NASA-DOD project level committee, with three members from each Agency, to be established and to be designated the Survey Applications Coordinating Committee (SACC); this Committee will be co-chaired by designated NASA and DOD members; an Executive Secretary will be furnished by NASA;

(3) Normal bi-lateral staff contacts between properly cleared individuals of NASA and the NRO (including individual members of SACC).

5. Functions of the MSFPC related to NERSP.

a. Monitor the program to insure that it is conducted within the agreed guidelines and ground rules, and is in accord with the intent of NSC Action 2454 of July 10, 1962.

b. Review all plans and work statements for security considerations, overloading of available industrial capacity in the area of advanced state-of-the-art in remote sensors, avoidance of unnecessary duplication in hardware development and production and data acquisition, and responsiveness to the requirements and interests of user agencies and activities of the Government.

c. Where indicated in order to satisfy the requirements of the user agencies and activities, progressively lower the sensitive sensor performance threshold used in NERSP (see para. 7b. below) as the known state-of-the-art advances and sensors of improved performances become operational in the NRP.

d. Identify and, if necessary, refer to higher authority for guidance any proposed space observation activities by NASA which would be politically sensitive or otherwise cause problems involving the NRP.

e. Resolve any differences which cannot be resolved at a lower level.

6. Functions of the SACC.

a. Monitor the program on the project and technical level to insure observance of the guidelines and ground rules.

b. Effect coordination in the preparation and execution of studies, experiment plans, work statements, project contracts, etc.

c. Formulate detailed procedures for the utilization of data made available from DOD programs and for the processing and use of such data in NERSP.

d. Keep the Deputy Administrator, NASA, and the Director, NRP, informed of reconnaissance-related activities of NASA that fall within the currently established threshold of sensitive sensor performance.

7. Specific guidelines, criteria, and ground rules for the conduct of NERSP.

a. Activities of interest to NRO.

An activity is defined as the expenditure of NASA research and development money with a university or industry, or the transfer of money to another organization to be used in this way. The activities to be brought to the attention of the NRO are those involving the study, design, development, fabrication, or test of reconnaissance-like sensors (as defined below), or significant components thereof, for use in orbital systems ~~or~~ and studies of the use of such sensors in orbital systems.

b. Reconnaissance-like sensors.

A reconnaissance-like sensor is currently defined to be an image forming sensor having an angular resolution of .1 milliradian or finer, or an optical or infrared image forming system with a physical aperture greater than 30 cm. and an optical figure controlled to better than 1/4 wave length. Until revised downward by NASA-NRO agreement, these criteria will define the sensitive sensor performance threshold.

c. Related activities of interest to NRO.

(1) RFP's, requests for program recommendations, and plans for symposia or conferences where the subject matter is or could evolve into an activity of interest as defined in 7.a. and 7b. above, will be coordinated with the NRO prior to finalization and issuance. However, in the case of working meetings or conferences for on-going program coordination, it will be sufficient to inform NRO prior to the event.

(2) Any plans for missions involving reconnaissance-like sensors in polar or near polar orbits will be coordinated with the NRO early in the conceptual phase. It is understood that in the early stages of NERSP, NASA will be flying low inclination orbits to observe test sites in the United States, but later will require polar orbits.

(3) Regardless of application, the NRO will be kept informed (including the furnishing of copies of Work Statements, 1122's, when appropriate) concerning any NASA activities involving the development or test of pointing, tracking, and stabilizing techniques or systems in which the pointing accuracy is better than 20 microradians or the unstabilized rate is less than 20 microradians per second. NRO will also be kept informed regarding the development or test of recording media for use with reconnaissance-like sensors.

d. Any development and/or procurement of reconnaissance-like sensors by NASA will be carried out through the NRO, as provided in the DOD/CIA-NASA Agreement on NASA Reconnaissance Programs, dated August 28, 1963.

e. The initiation of new NASA programs which essentially duplicate equipment capabilities or operations of the NRO, or vice versa, will not be allowed to occur unless, after a thorough consideration of each specific program by the NRO and NASA, it is determined that some over-riding consideration in the national interest warrants such duplication. To this end, proposed NASA programs involving reconnaissance-like sensors will be coordinated with the NRO to determine whether:

(1) They involve development of systems, sensors, techniques, or related equipment closely duplicating those already developed or being developed by the NRO;

(2) They involve development of systems, sensors, techniques, or related equipment to collect data which can be collected by NRO systems already operational or in development, and made available to NASA in a form useable in the NERSP;

(3) They involve development of systems, sensors, techniques, or related equipment to collect data (such as mapping and charting data) which have already been collected, in whole or part, by the NRO and which can be made available to NASA in a form useable in the NERSP.

f. Properly cleared NASA and NRO personnel will jointly examine the releasability of NRP data for the following purposes:

(1) Analysis by cleared NASA personnel as a guide in NERSP planning;

(2) Declassified use by NERSP experimentors.

g. The SACC shall be responsible for bringing to the attention of the NSFPC, prior to initiation, all programs which are either specifically activities of interest (as defined in a. above) or are potentially activities of interest because of the latitude which will be allowed to contractors or other government agencies. Programs which are of potential interest to NRO for any of the reasons enumerated under c. above will also be brought before the NSFPC.

h. The DOD members of the SACC, with the assistance of the NRO Staff, will be responsible for keeping the NASA SACC members informed, by means of formal briefings, informal discussions, and pertinent reports and documents, of NRP activities related to satellite reconnaissance which are pertinent to the SACC and MSFPC functions.

i. When a NASA activity involving reconnaissance-like sensors or related equipment is brought before the SACC, an attempt will be made to determine whether the objectives of the proposed program can be met by a limitation to sensors which fall outside the definition of reconnaissance-like sensors. If it is determined that such sensors can be substituted, NASA will undertake to modify its program accordingly. However, in all cases the SACC will review the program for the factors listed in 7c. above and report any significant findings to the MSFPC.

j. If an activity of interest has been reviewed as in 7i. above, and it has been determined that the objectives of the program cannot be met except with reconnaissance-like sensors, the program will be submitted via the DOD members of the SACC to the NRO to determine: (1) whether an existing system, sensor, or related equipment will meet the needs of the program or whether a new development is needed, and (2) the security limitations which must be imposed upon the use of the sensor in the program. These determinations will be reported to the SACC for appropriate action or for reference to the MSFPC together with the recommendations of the SACC.

k. Where a new development of a reconnaissance-like sensor is needed, and if NASA accepts the security requirements as feasible, a detailed agreement between NASA and the NRO will be drawn up to be signed by the Deputy Administrator, NASA, and the Director, NRO, covering studies, analysis, development, and/or acquisition of the sensor in accordance with the DOD/CIA-NASA Agreement of August 28, 1963.

l. In the event that NASA considers the security levels recommended by the NRO under 7i. above to be such as would seriously inhibit its ability to conduct a useful program and, further, that NASA considers it is in the national interest to conduct the program, the SACC will prepare and forward a brief of the pertinent facts for consideration by the MSFPC.

m. In the event that a proposal by NASA does not require the use of reconnaissance-like sensors but is of possible concern to the NRO because of any of the factors listed under 7c. above, the SACC will review and analyze the program, and report its findings and recommendations to the MSFPC.