

DCI/ICS 87-4450
2 December 1987

MEMORANDUM FOR: Commercial Space Policy Working Group

FROM: Member
Commercial Space Policy Working Group

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SUBJECT: Further Clarification of Proposal on LANDSAT Commercialization

1. The current structure of the LANDSAT program is clearly not what was envisioned when the administration decided in 1984 to transfer LANDSAT to the private sector. EOSAT won the competition for the transfer with the stipulation that the government would transfer LANDSATs 4 and 5, and that construction of LANDSATs 6 and 7 would be heavily subsidized by the US government. LANDSATs 4 and 5 have indeed been transferred but the government funding of LANDSATs 6 and 7 has not been implemented as originally scheduled. In November 1987, federal funding for the construction and launch of the LANDSAT 6 satellite was settled. The government's role in the next phase, LANDSAT 7, is yet to be determined. Before making a decision on LANDSAT 7, the US government should conduct a zero-based review of alternative approaches for maintaining continuity of the US civil remote sensing program. If possible, an approach that reduces (or eliminates) the government subsidy for satellite construction should be selected.

2. The selection of an approach must be based on the best available projection of the size of the market as a function of the price of the product. The market for LANDSAT products has not grown appreciably in the last few years. Furthermore, because most of the revenue is from US government agencies, there is a concern that the current tight budget environment and the emergence of new subsidized foreign competitors will constrain any future growth in this market.

3. One approach that should be reevaluated is the elimination of all procurement subsidies in favor of some kind of government minimum purchase level. For example, the government might accomplish this goal by announcing that it will take bids from private groups for the provision of its remote sensing demands. The lowest bidder offering to satisfy these requirements would receive the contract which might include minimum demand levels and a penalty clause if the government does not reach the minimum. The satellite company would compete with other sources to supply data to the private sector. If successful, this approach might assure the continuity of data as well as commercialize remote sensing.

4. We offer the following language for our proposal:

The government should conduct a zero-based review of approaches for maintaining continuity in the US civil land remote sensing program after LANDSAT 6. This review should first examine the market, foreign competition, available technology and costs, and the existing and projected user structure and their needs. The review should also examine a full-range of approaches for more fully engaging the private sector in this activity by means such as purchase guarantees.

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COMMENTS ON DRAFT COMMERCIAL SPACE INITIATIVE PAPER
(19 November 1987 Draft)

Section IV. Deregulation: Actions Necessary to Encourage a Vigorous Commercial Presence in Space

Proposal 8: The Administration will accelerate phase out of support for LANDSAT and make a clear commitment to purchase the bulk of its remote sensing data from the private sector.

General Comments

Adopting and implementing the present language of Proposal 8 would not contribute to the Section IV indicated objective of encouraging a vigorous commercial presence in space. Furthermore, it would impede rather than promote the national space policy objective of maintaining -- or more correctly -- attempting to regain US competitiveness in civil remote sensing programs from space.

In deciding upon the merits and feasibility of Proposal 8, a fuller range of factors pertinent to current civil remote sensing from space than is available in the current supporting discussion must be addressed. The following specific points must also be considered.

- o Since the 1985 transfer of the US civil Earth remote sensing program, including operation of existing LANDSATs 4 and 5, and construction of follow-on LANDSATs to EOSAT, the Government has not provided its originally scheduled level of subsidy to construction of LANDSAT 6. This failure has nearly caused the demise of the entire US civil Earth remote sensing program. Even at the present time, the future of the program is still uncertain. Therefore, the interest and entry of other remote sensing system operators would be welcome.
- o Without continuing support to EOSAT, current LANDSAT operations would soon cease. Curtailment of the subsidy to EOSAT to construct LANDSAT 6 would further extend the probable gap in the US civil remote sensing program when LANDSATs 4 and 5 come to the end of their operational life. Any cessation of LANDSAT operations, either now or relative to the construction of LANDSAT 6, will further divert the remote sensing market to foreign sources, thereby making US re-entry into the market more difficult.
- o Furthermore, it must be recognized that the criterion of achieving a financially self-sufficient US civil remote sensing system is not realistic -- with or without a federal purchasing commitment. The magnitude of any federal purchasing commitment is not likely to be a sufficient foundation upon which to base the private sector operation of a remote sensing collection system.

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- o The worldwide market for sales of remote sensing data is limited and is not likely to increase rapidly. The previous market on which LANDSAT had a monopoly for years is now being divided with foreign remote sensing operators, notably the French SPOT and the Soviet Soyuzkarta efforts. In addition, there are a number of other foreign-operated remote sensing systems either operational or planned for the near future. The French SPOT system, the principal competitor of the US LANDSAT program, is reportedly finding its sales are considerably below its market projections. All of these systems are government subsidized, usually for collateral benefits of intelligence and military applications, economic advantages relative to the value-added arena, or national prestige. Thus, the share of the worldwide market that could be captured by a US private sector operator would probably decrease rather than increase in the future.

SPECIFIC COMMENT 1

The discussion supporting Proposal 8 advocates action to end the present federal subsidy to EOSAT to permit opening the US civil remote sensing field to other commercial sector operators.

- o There may be merit to have an operator other than EOSAT for a future US system. In fact, current Government actions have already provided for such an action. EOSAT originally wanted, and Congress initially insisted upon, construction of two additional LANDSATs, namely LANDSATs 6 and 7. At the present time the proposed subsidy to EOSAT provides for the construction of only one more LANDSAT satellite (LANDSAT 6), which is urgently required to close the projected gap in the continuity of the US civil remote sensing program -- since the two LANDSAT satellites currently in orbit are both past their design lives. A decision on designating the specific builder/operator of LANDSAT 7, or a follow-on advanced technology satellite, still needs to be made. A \$2 million study has been authorized to determine what its capabilities should be to be competitive on a worldwide basis, with the actual design and construction of the satellite apparently open to all potential bidders.

SPECIFIC COMMENT 2

The present form of Proposal 8 calls for a Government commitment to purchase its remote sensing data from the private sector. This commitment would then constitute the foundation for private sector development of a privately funded remote sensing system. The discussion accompanying the Proposal alludes to three consortia of firms expressing interest in such an arrangement.

- o While there may be some growth in the US Government and US market demand for remote sensing data, there is little evidence to characterize the market as "large" and "increasing." In fact, the magnitude of future Government purchases of LANDSAT-type data may well decrease, rather than increase, because of the large number of different sources of civil remote sensing data that are planned for the 1990's.



- o Neither the Department of Commerce, nor any other Government organization, has been able to identify sufficiently firm requirements that would have justified committing their organization to a firm level of future purchases -- given the data prices required to sustain remote sensing collection operations. OMB explored this approach when there was only one satellite source of civil remote sensing data. OMB re-examined this approach as recently as early 1986, again with no success. Obtaining purchase commitments from federal organizations is now less likely than before, since the volume of purchases will be dependent upon the specific remote sensing capabilities that will be provided in the future (which to a large degree are still uncertain), and by the available funding, which is unlikely to increase dramatically in a budget-deficit situation.
- o Finally, any commitment by Federal agencies to purchase data (e.g., "guaranteed purchase") is currently specifically precluded by the existing Land Remote-Sensing Commercialization Act of 1984. Adoption of the Proposal 8 approach would require an amendment to the Act.
- o While we do not have any direct knowledge of the three consortia referred to in the Proposal 8 discussion, comment from a knowledgeable Commerce Department individual indicates that the three possible consortia appear to lack sufficient financial resources and proven management expertise to carry out any such venture -- with only a minimum or no federal purchasing commitment.

The present Proposal 8 discussion contains the statement that "The commercial sector is also concerned about the potential for the Government to become a competitor in this area." Such a concern would have some merit if EOSAT does not accept the present Government position for subsidizing current LANDSAT operations and for constructing LANDSAT 6, and decides to drop out of LANDSAT operations. One possible scenario in such a situation would be for the Government to assume responsibility for current LANDSAT operations and whatever future LANDSAT activities are decided upon, if any.

CONCLUSIONS

- o The following unclassified Section IV of the current draft of National Space Policy already incorporates the valid aspects of Proposal 8.

"IV. COMMERCIAL SPACE POLICY

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United States government shall facilitate the continuing development of a separate, non-governmental Commercial Space Sector. Expanding private sector investment in space by the market-driven Commercial Sector generates economic benefits for the Nation and supports governmental Space Sectors with an increasing range of space goods and services. Governmental Space Sectors shall purchase commercially available space goods and services to the fullest extent feasible. Governmental Space Sectors shall not conduct activities with potential commercial applications so as to preclude or deter Commercial Sector space activities except for national security or public safety reasons. Commercial Sector space activities shall be supervised or regulated only to the extent required by law, national security, international obligations, and public safety.

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- o Proposal 8 should be dropped or its present language modified to be consistent with the realities of encouraging development of a viable private sector remote sensing program.

Proposal 9: The Administration will eliminate the perception of regulations inhibiting the US remote sensing industry by stating that there are no specific limitations on spatial resolution, spectral ranges, geographic coverage, nor timeliness of data delivery.

Comments

A blanket statement that there are absolutely no limitations would run counter to existing national security concerns during times of tension, crisis, and hostilities. To the degree that is feasible, the encouragement required to counter the erroneous perception of inhibiting regulations on US private sector remote sensing collection systems has already been developed in the following provisions of unclassified paragraph d(1) of Inter-Sector Policies Section VII of the current draft of the National Space Policy.

"(1) The United States Government will: (a) encourage the development of commercial Earth-imaging systems from space competitive with or superior to foreign-operated civil or commercial systems; (b) continue to encourage commercial Earth remote sensing and the continuity of data;

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ATTACHMENT

Proposal 9

PROPOSAL: The Administration will eliminate the ~~perception of~~ ^{misperception relating to} regulations ^{of} inhibiting the US remote sensing industry by stating that there are no ~~specific~~ ^{predetermined} limitations on spatial resolution, spectral ranges, geographic coverage, nor timeliness of data delivery

There is a strong and widely held belief within the US Remote Sensing community, including industry, ~~academia, the~~ ^{predetermined} news media and civil agencies, that there is a US Government limitation on the spatial resolution, spectral bands, geographic coverage and timeliness allowed of US remote sensing data producers and users. This perception is felt to apply only to US companies, and therefore such a limitation would put them at a ~~serious~~ disadvantage in competition with data sources from foreign countries, such as France, Germany and Japan. There has in fact never been any limitation placed on any US civil remote sensing data producer or user, but many believe such restrictions will arise from the licensing provisions of PL 98-365, The Land Remote Sensing Commercialization Act of 1984. This belief, however unfounded, ^{may be contributing to} is ~~resulting in~~ considerable industry and investor reluctance to participate in private sector remote sensing ventures. Any reluctance is counterproductive to Administration and Congressional initiatives to develop, promote and expand the US remote sensing industry, and thereby to maintain our diminishing technical leadership in this area.

Therefore, in order to ^{predetermined} eliminate this perception, this Administration must make a strong public statement to the effect that no such specific limitations exist, and that US industry is free to pursue ~~advances in this area without~~ ^{the development of} ~~restrictions.~~ ^{Earth-imaging systems} Such a statement will be consistent with PL 98-365, and the Department of Commerce regulations implementing that law. The statement should reiterate that the Defense and State reviews contained in PL 98-365 will be performed on the ^{from space} merits of each license request, without any ~~predetermined~~ ^{competitive} ~~restrictions.~~ ^{with or} ^{superior to} ^{foreign-operated} ^{civil or commercial} ^{systems.}

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**EXECUTIVE OFFICE OF THE PRESIDENT
COUNCIL OF ECONOMIC ADVISERS
WASHINGTON, D.C. 20500**

November 24, 1987

MEMORANDUM FOR THE COMMERCIAL SPACE POLICY WORKING GROUP

FROM: THOMAS G. MOORE, MEMBER *Thomas G. Moore*

SUBJECT: Clarification of Proposal on LANDSAT
Commercialization

The current structure of the LANDSAT program is an obstacle to private commercial entry into the remote sensing field. Federal funding for the construction and launch of the LANDSAT 6 satellite has been settled. The government's role in the next phase, LANDSAT 7, is yet to be determined. A large and growing market for remote sensing data exists to support a private venture in this area. We believe that the government should not purchase the next satellite or subsidize a firm to operate it.

The government can accomplish its goal by announcing that it will take bids from private groups for the provision of its remote sensing demands. The lowest bidder offering to satisfy these requirements will receive the contract which might include minimum demand levels and a penalty clause if the government does not reach the minima. The satellite company would compete with other sources to supply data to the private sector. This approach would assure the continuity of data as well as commercialize remote sensing.

We offer the following language for our proposal:

The government should make a clear commitment to purchase its remote sensing data, subject to any national security constraints, from the private sector. The government should also make clear that it will not purchase the next LANDSAT satellite or in any way act as a competitor to a private remote sensing system.

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DOT -- INSERT FOR PROPOSALS 1 AND 2 (PAGES 3-4)

Space Launch Insurance Requirements And Liability Standards For Initial Phase of U.S. Private Commercial Launch Operations

THIRD PARTY LIABILITY

Proposal 1a: The Administration will propose a statutory cap on liability for damages to third parties at the level of "probable maximum loss" (PML) and will require launch licensees to obtain insurance in this amount naming the Government as an insured. Total damages that could be awarded to all plaintiffs in connection with a single launch accident could not exceed this amount. The cap could vary according to launch vehicle and payload class and the site from which a vehicle is to be launched. DOT would make these determinations in consultation with other appropriate agencies.

A cap on liability would be established through statutory limitation on the ability of Federal and State courts to award damages in excess of a specified amount. It would compel consolidation of claims in a single judicial forum to ensure damages to all parties did not exceed the established limit. Precedent for this approach exists in Admiralty (maritime) law, which utilizes fixed statutory limitations on damages.

A necessary corollary to a cap on "domestic" liability is a similar limitation on the amount of damages that could be awarded under international or foreign law as a result of launch-related accidents. (While the primary concern of the U.S. launch and satellite industries is to limit the "openendedness" of damage awards in U.S. courts, the absence of a similar cap internationally would effectively place U.S. citizens bringing suit in U.S. courts at a disadvantage vis-a-vis foreign nationals presenting claims in international or foreign forums.)

Despite the clarity and certainty afforded by this approach, it should be noted that Administration tort reform policy generally has not sought limitations on recovery for economic injury (i.e. actual damages). The preferred approach is to seek limitations on awards for "non-economic" injury (i.e. punitive damages or damages for pain and suffering), as set for in the following proposal.

Proposal lb: The Administration will propose a statutory cap on the amount of damages that may be awarded to third party plaintiffs, either punitively or for pain and suffering, with no cap on claims for actual damages.

This approach would ensure sufficient compensation for injury or economic damage actually sustained by third parties while limiting the uncontrollable aspects of court awarded damages that are the primary sources of concern over unlimited liability. (Limitations on non-economic damages are in the range of \$100,000 to \$300,000 for each plaintiff). As there would be no cap on the total amount of actual damages courts could award, however, DOT would not set variable liability limits (based on vehicle type, etc.) as in Proposal la.

The problem with proposals to cap liability is that the general approach, while favored by the Administration, has little Congressional support. Indications are that it is unlikely to be given serious consideration. On the other hand, Congress is aware of Administration opposition to indemnification for unlimited liability. One approach under consideration by Congressional staff attempts to fuse the two proposals into a compromise solution that, conceivably, could be presented to the Administration in the near future. This approach is set forth in the following proposal.

Proposal lc: The Administration will propose a statutory arrangement whereby the Government would indemnify for third party claims that exceed the amount of insurance required (set at the level of PML) up to a limit of \$ _____ million. Above this "second layer" of coverage, damages would be capped as in Proposal lb (or la).

This arrangement is similar to the original Price Anderson scheme for nuclear accident liability. In essence, the Government would insure for unanticipated liability (catastrophic loss) up to a fixed amount, above which all damages would be capped (as in Proposal la). The level of PML would vary according to vehicle type, payload class and launch site, but the \$ _____ million indemnity would apply in all cases.

This approach represents a blending of both liability caps and indemnification. It places reasonable limits on the amount of liability of commercial launch vehicle and payload owners while ensuring that funds are available to compensate third parties in the event of a catastrophic loss. At the same time, the Government would not be assuming a private firm's unlimited liability; rather, third party liability above the amount of the indemnity would be capped.

Proposal 1d: The Administration will require that NASA discontinue its practice of indemnifying customers it launches on Shuttle.

This is an alternative to a cap that would ensure a more level playing field for domestic space launch services.

DAMAGE TO GOVERNMENT PROPERTY AND PERSONNEL (DIRECT LIABILITY)

Proposal 2a: The Administration will adopt a "shared risk" approach to limiting liability for damage to government property: Users of government ranges will be required to obtain property insurance ("all risk" coverage) covering probable maximum loss (PML); the Government will waive its right to sue for damages that exceed this amount.

This approach could be instituted through a DOT rule (coordinated with Air Force, NASA and Justice) that sets a variable limitation (according to estimated PML) on a range user's liability for damage to Government property resulting from launch activities. The user would have to insure only property that is used to support a launch activity or that is exposed to foreseeable damage resulting from that activity (e.g., within a predefined geographic zone).

The proposal represents a departure from the approach the Administration generally favors in the context of commercial liability issues. Where there is no statutory cap on liability, the Administration favors adoption of a negligence standard wherein each side bears full responsibility (and is thus induced or required to insure) for damages it causes to another party. A major problem with applying this approach to commercial launch operations, however, is that it necessitates in every case an adjudication of causation before insurance proceeds would be available to repair or rebuild government launch facilities. The potential impact on civil and military programs could be significant.

Another problem is that the space launch, payload, and insurance industries are accustomed to a no-fault liability standard for commercial launches. Arianespace and Shuttle launch agreements require every commercial party (and even NASA) to waive its right to sue any other party involved in the launch for damage to its property. Typically, each payload owner will itself insure against damage to its satellite. In fashioning an immediate solution to space liability problems, reliance on familiar approaches (to the extent possible) may have some utility.

The valuation standard to be used in determining actual property loss to the government is an important element of this approach. The rule would propose a standard of "actual cash value" rather than replacement cost, in recognition of the fact that the

Government is unlikely to replicate an existing facility and the User should not be required to insure for upgrades. In addition, the cost and available capacity of this new insurance line is as yet unknown and, therefore, insurance requirements must be realistic.

The Government would self-insure above the level of PML; that is, it would waive its right to recover damages in excess of insurance coverage.

Proposal 2b: The Administration would propose establishment of a revolving fund to satisfy any unanticipated shortfall between the level of required property insurance coverage and the amount of catastrophic damage to range property, so that the Air Force or any other Government range operator will not have to bear sole responsibility for funding such a shortfall from its own appropriations.

This approach is similar in concept to the contract termination fund maintained to satisfy liquidated damage claims for government contract termination. Liability for uninsured (and unforeseeable) property loss should not have to be borne exclusively by the government agency operating the range. Creation and maintenance of such a fund ensures that this damage would be a loss to the Government as whole. Although any immediate loss would be compensated, the fund would have to be replenished as part of the Administration's budget. Private contributory mechanisms for such a fund can also be explored.

Proposal 2c: Adoption of Proposals 2a and 2b would be on a provisional basis subject to renewal following the initial period of U.S. private commercial space launch operations (e.g., 1992), and any legislative enactments in support of a "no fault" standard for determining liability for damage to Government property or personnel would contain sunset provisions. DOJ and DOT would be directed to consider the long-term desirability of this approach.

The objectives of U.S. space policy over the long term (particularly when private commercial ranges are licensed) may be better served by moving the commercial launch industry to a negligence based liability standard. The implications of such a move need a great deal more consideration, and Justice and DOT should be directed to begin that effort now.