The UN Principles Relating to Remote Sensing of the Earth from Space:
A Legislative History -- Interviews of Members of the United States Delegation

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The National Remote Sensing and Space Law Center
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The National Remote Sensing and Space Law Center at the University of Mississippi School of Law serves the remote sensing industry and the public good by objectively researching, addressing and conducting activities related to the legal and policy aspects of applying remote sensing and other geospatial technologies to human activities. Subjects the Center addresses include, among others, data policies, intellectual property, privacy, liability, international law, use of imagery as legal evidence, environmental issues, and licensing.

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The United Nations Principles
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This book is dedicated to the late

**Dr. Stephen Gorove**

whose work as a space law pioneer, the editor of the *Journal of Space Law* and as the first professor of space law at the University of Mississippi School of Law has enabled The National Remote Sensing and Space Law Center to build on his legacy.

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"The earth orbiting satellite has become the first tool of the human race that is not limited by the fuel it can carry, the boundaries of other nations, or by the Earth's atmosphere or its oceans. The fact that it can work for any nation over which it passes is a symbol of a great society of the world, and, perhaps more than any other tool before, a portent of a more universal society."

--James Webb, 30 Nov. 1969

"Those who can not remember the past are condemned to repeat it."

--George Santayana,
Life of Reason, Reason in Common Sense, 1905
Introduction

The United Nations Principles Relating to Remote Sensing of the Earth from Space:
A Legislative History — Interviews of Members of the United States Delegation

Adopted in 1986, The United Nations Principles Relating to Remote Sensing of the Earth from Outer Space (Principles) continue to be an important source of international remote sensing law and policy. They also continue to be controversial in terms of their interpretation.

The editor of this book has been attending meetings and conferences regarding remote sensing law and activities for nearly twenty years. In recent years, she has noted that part of the interpretation controversy lies in the fact that there are many new entrants into the remote sensing and Earth observation community. There is now a new generation of lawyers, negotiators, diplomats, professors, students, scientists, engineers and officials that began their careers after much of the first era of space law was established. Understandably, many of them are raising questions that were addressed years ago as if it were the first time they were being raised. And because remote sensing activities are not only continuing, but they are also growing and changing, the new, younger professionals are being joined by more experienced practitioners who are attracted to the dynamic field of geospatial information. Although experienced in related fields, they, too, are raising issues similar to those being raised by their younger colleagues. And, of course, in many cases, both of these groups are also identifying questions and issues that are new and previously unseen by more seasoned experts.

Therefore, the purpose of this book is to serve both the new and more experienced practitioners by documenting a part of the Principles' legislative history. It does so by interviewing two people who served as members of the United States Delegation to the U.N. Committee on the Peaceful Uses of Outer Space during the course of negotiations for the Principles. It is the hope of the National Remote Sensing and Space Law Center that similar interviews with prominent negotiators from other nations will be conducted in the future.

Prof. Joanne Irene Gabrynowicz, Director
National Remote Sensing and Space Law Center
University of Mississippi School of Law
April 2002
Acknowledgements

The United Nations Principles Relating to Remote Sensing of the Earth from Space: A Legislative History -- Interviews of Members of the United States Delegation was a public sector - private sector collaborative project between the National Remote Sensing and Space Law Center at the University of Mississippi School of Law (NRSSL) and the SIGNAL Corporation of Houston, Texas. SIGNAL works with the Johnson Space Center Oral History Project. The primary goal of the Johnson Space Center Oral History Project is to research and interview the individuals who contributed significantly to the early NASA space programs. The NRSSL worked directly with Ms. Rebecca Wright, Program Manager and Ms. Carol Butler, Staff Historian, who along with the NRSSL's Director, conducted the interviews.

As preparation for the interviews, attempts were made to locate primary documents used by the U.S. delegation in the course of their negotiations at the United Nations. After extensive research it was learned that most documents no longer existed because they were older than the statutory period for which documents are required to be kept. The NRSSL would like to acknowledge the assistance of the Office of the General Counsel at NASA Headquarters for its assistance in locating what remaining primary negotiating documents did exist. Particularly helpful was the work of Mr. Steven A. Mirmina who served as liaison for the NRSSL to the federal documents archive.

Most importantly, the NRSSL would like to thank both Mr. Hosenball and Mr. Hodgkins for taking the time to research and review documents pertaining to the negotiations in which they participated and for taking the time to be interviewed. Each gentleman took many hours from their busy schedules to accommodate the project. It is stating the obvious to say that without their cooperation, this book would not have been possible.
Biographies

Ken Hodgkins has been with the Department of State since 1987 and presently is the Deputy Director for the Office of Space and Advanced Technology of the Bureau of Oceans and International Environmental and Scientific Affairs. The office is responsible for bilateral and multilateral cooperation in civil and commercial space activities, including the International Space Station, collaboration in global navigation satellite systems, and space Shuttle Emergency Landing Sites, and represents the Department in national space policy review and development. Mr. Hodgkins serves as the U.S. Representative to the UN Committee on the Peaceful Uses of Outer Space and was the U.S. Coordinator for participation in Unispace III. He has been the State representative for major Presidential policy reviews on remote sensing, the Global Positioning Satellite system, orbital debris, and the use of space nuclear power sources. Before coming to the State Department, he was the Director for International Affairs at the National Environmental Satellite Data and Information Service of the Department of Commerce. He joined NOAA/NESDIS in 1980 and was the agency's representative on U.S. delegations to COPUOS and its subcommittees.

S. Neil Hosenball was NASA general counsel from 1975 to 1985. He served as deputy general counsel from 1967 to 1975. Prior to that, he was assistant general counsel for procurement matters and served for four years at NASA's Lewis Research Center as its chief counsel. Prior to joining NASA in 1961, he was in private practice. From 1970 to 1979, Mr. Hosenball was a member of the United States Delegation to the U.N. Committee on the Peaceful Uses of Outer Space and served as head of the U.S. Delegation at legal subcommittee and committee sessions. He was awarded the NASA Exceptional Service Medal in 1967, the NASA Distinguished Service Medal in 1973, and the National Civil Service League Career Service Award in 1980, and the Presidential Rank of Distinguished Executive in 1983.
BUTLER: Today is February 7th, 2002. This oral history with Neil Hosenball is being conducted for the Legislative History Project on the United Nations Principles of Remote Sensing¹ for the National Remote Sensing and Space Law Center at the University of Mississippi School of Law. The oral history is being conducted at Mr. Hosenball’s home in Port Aransas, Texas. Carol Butler and Joanne Gabrynowicz, Director of the National Remote Sensing and Space Law Center, are the interviewers.

Thank you very much for talking with us today and allowing us to come and visit with you.

HOSENBALL: Thank you. You’re more than welcome.

BUTLER: To begin with, if you could tell us about how you first became involved with the United Nations Principles on Remote Sensing. Was this when the working group was first formed in 1971 within COPOUS [United Nations Committee on the Peaceful Uses of Outer Space]?

Section I

LEGISLATIVE HISTORY PROJECT
ON THE UN PRINCIPLES OF REMOTE SENSING
NATIONAL REMOTE SENSING AND SPACE LAW CENTER
UNIVERSITY OF MISSISSIPPI SCHOOL OF LAW

S. NEIL HOSENBALL
INTERVIEWED BY
CAROL L. BUTLER AND JOANNE IRENE GABRYNOWICZ
PORT ARANSAS, TEXAS - 7 & 8 FEBRUARY 2002
HOSENBALL: My first visit to COPUOS was either in 1969 or 1970. I think it was '69, but I'm not sure. So I think the Argentine paper was submitted in '70. I'm not sure it became probably an agenda item at that time.

GABRYNOWICZ: Could you state the significance of the Argentine paper? What does that mean?

HOSENBALL: Nothing at that point. It was Professor [Aldo Armando] Cocca [who] threw lots of papers in all the time, and this was something he had submitted at the meeting, I think in '69 or '70, I'm not sure which. So it was a paper that was submitted, and that's about all. It did go on the agenda either '70 or '71, I'm not sure which year. That was [the] first information I received on remote sensing. Now, remote sensing was important to NASA [National Aeronautics and Space Administration], and that's why we had a representative on the Legal Subcommittee as well as the Scientific and Technical Subcommittee [of COPUOS].

GABRYNOWICZ: What was your title at this time?

HOSENBALL: At that time I was [NASA] Deputy General Counsel. What had happened was Paul Dembling, who was Deputy General Counsel, became [NASA] General Counsel, and I was moved up from Assistant General Counsel for Procurement, of all things, to Deputy General Counsel. Paul Dembling had attended [the] Legal Subcommittee and the full Committee [COPUOS] meetings and actually had spent a lot of time with Ambassador
[Arthur J.] Goldberg in the negotiation of the '67 treaty. When he became General Counsel and I moved up to deputy, it was agreed that I'd take his place and attend whatever U.N. [United Nations] meetings that we had a particular interest in.

Based on the agenda at that time, there were two items...that we did have an interest in...the Liability Convention\(^2\) and the Registration Convention.\(^3\) ...The Liability Convention was what we spent most time on for several years. The agenda was pretty heavy. You had the Liability Convention. You had the Registration Convention. You had "definition" or "delimitation," which was on, and then...was added remote sensing and broadcast satellites. So you had five agenda items that started just around '70, '71.

GABRYNOWICZ: Let's focus now on the *U.N. Principles on Remote Sensing*. How did you first get started? What did you first have to address?

HOSENBALL: Nothing really happened for several years. Actually, the effort was primarily in the Scientific and Technical Subcommittee. I think that was deliberately done because there was an education process. You had the Argentine paper, but what was "remote sensing"? So we had a representative to the Scientific and Technical Subcommittee, and he was extremely active...there trying to develop, with the help of...a technical expert, Professor Perek [of]...the Outer Space Division of the [U.N.] Secretariat. He would attend those meetings and also then attend ours. So...as to what was going on at the Scientific and Technical Committee, we got feedback at least.

In fact, while I didn't participate in [the Scientific and Technical Committee], the meetings were held in New York...Herb Reis, who was legal advisor at the U.N. mission in New York, attended the Scientific and Technical meetings as the lawyer for the United States.... So we didn't get really active until I think...the Scientific and Technical Subcommittee issued a report, and I don't remember when. I think that may have been in '73, to the best of my recollection. In that report there was a section or a chapter or something about legal implications of remote sensing. I think it was very general. I don't know whether you've seen that Scientific and Technical report or not, but that chapter would seem to be fairly general, based on my memory.

So nothing really happened in remote sensing. Our concentration initially was on the '72 Liability Convention, and after that was finished, the Registration Convention ran into '74. ...When papers came in, both on DBS [Direct Broadcast Satellites] and remote sensing, working papers, if you will. Based on my recollection again, I think on remote sensing there was a Soviet-French proposal, there was a Brazilian or less-developed countries' proposal, and we [the United States] had submitted not really a working paper it was really some thoughts. It wasn't paragraphs but basically it was [not] in the form that you would adopt for either a treaty or principles.

So really in '75 is when we got the two [the Liability and Registration Conventions] out of the way. There wasn't too much going [on] with definition or delimitation [of space]. That had been going on since for years and years. So you had a working group established...in the Legal Subcommittee for remote sensing, and you had a working group

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7 February 2002
established in the Legal Subcommittee on DBS as well, and that's really...when serious discussion started on remote sensing.

GABRYNOWICZ: What were the first serious discussions that you remember?

HOSENBALL: Well, the serious discussions basically boiled down to [prior] consent and sovereignty. Those were basic issues that came up very quickly.... The Soviets and French submit[ed] a paper which said basically that—I think you may even know better than I do, but if I remember right—no objection to sensing from space but you had to get prior consent from a sensed state before you can make it available to a third state, which...meant that the Soviets and the French would keep all the data. Whether they announced which states they had sensed, was a question. If they didn't announce which state had been sensed, nobody would know that fact and therefore they wouldn't give it to the sensed state. They wouldn't give it to any third state. So they got the benefit of being able to sense, but had no obligation, basically, to distribute any data. But [prior] consent was required...if they were going to make any material available to a third state, they had to get the consent of the sensed state.

Our argument against that...was, look...remote sensing [doesn't respect national] borders. How do you pull out just data about one state, especially when you have small states? The developing countries didn't want you to either sense or distribute the data to anyone. They didn't want you to sense without their prior consent. If you were going to sense them, you had to get their prior consent. They might give you the prior consent on sensing, but again, you would have to get their prior consent before you can make that data available to a third state.
The U.S. position was obviously free flow of information across national borders. That was a major issue even at that time. It was in direct broadcast, the direct broadcast issue. We had heard or at least been told that it was a very important principle, because there were some states that were even objecting sending data cross border on the ground. The French, for instance, objected to any credit...information going across border by telephone or telex or whatever means. So that was being raised in UNESCO [United Nations Educational, Scientific, and Cultural Organization] in Paris. So the whole basis of the U.S. position was free flow of information over national borders, and we were not going to give up on that without a real fight. If necessary, if it ever came down to that, would not have agreed to any principles, if that was the end result.

...So that was basically the three positions, U.S. free flow of information and prior consent [on acquisition or dissemination of data] going all the way [from] the LDCs [less-developed countries] [position,] with the Russians and French being a modification of that.

GABRYNOWICZ: Why don't we take this issue by issue. The one you've just raised is prior consent, and there's two kinds of prior consent. One is the prior consent to sense.

HOSENBALL: Right.

GABRYNOWICZ: The other was the prior consent to distribute.

HOSENBALL: Right.
GABRYNOWICZ: Let's just talk about the prior consent to sense, for a second. Within COPUOS were there groups of nations that took similar positions; in other words, were there factions that could be identified?

HOSENBALL: Oh, yes.

GABRYNOWICZ: What factions?

HOSENBALL: You had the Soviet Bloc. I forget who was on there, but there were four or five Soviet Bloc countries, and so they went with...the Russians. In fact, on occasions they'd make a statement that I'm sure Boris prepared, Boris Maiorsky prepared for them or somebody prepared for them.

Then you had the so called Group of 77, we didn't have 77 there...when I first started, there were only twenty-four members, so it was a relatively small group. I don't know what it is now. When I left there was 53. I assume they may have added China or somebody else to [the Legal Subcommittee]. They would caucus. ...At the end of a meeting, occasionally you would have either the Mexican or one of the other less-developed countries—

GABRYNOWICZ: Mexico was in the Group of 77?

HOSENBALL: Mexico was in the Group of 77, basically so-called LDCs, less-developed countries. But they considered themselves an LDC.
GABRYNOWICZ: So that's the Soviet Bloc and the Group of 77. What other factions?

HOSENBALL: ...The western [industrialized] group, which at least for remote sensing included Canada, as well as all of Europe, except for the French...didn't fully agree with us, and so they were somewhere in between. That basically was it. The French were pretty much again typically French, almost by themselves, because they were basically aligned with the Soviets on some things, but not on other things...that were being discussed in the Principles.

GABRYNOWICZ: Then let's take this group by group. What was the position of the Soviet Bloc regarding consent to sense?

HOSENBALL: They would rely on the Outer Space Treaty⁴ that they had the right to carry out activities in space [just] as we relied on the Outer Space Treaty and the fact that it had been going on since the Soviets first launched Sputnik in '57. All sorts of [sensing] activities had taken place by '75, certainly, and before then. So their position was pretty much our position as far as the right to sense from space was concerned.

GABRYNOWICZ: Okay. How about the Group of 77 or the lesser-developed countries, what was their position regarding the right to sense?

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HOSENBALL: Initially, "you cannot sense without our consent." They kept that position for quite a while. Basically I think it was more or less a bargaining chip for them, that if they couldn't get that, they can bargain that position for something where they would have some sort of priority in getting data or restricting the data to third parties without their consent. Basically they moved to that position, "don't distribute it to third parties without our consent." Ultimately I think they pushed, they moved to a priority kind of a thing, and I'd have to look at the current Principles to see where they finally ended up.

GABRYNOWICZ: To your recollection, did there come a time when the Group of 77 accepted the right to sense without prior permission?

HOSENBALL: Oh, yes, I think so. Yes. ...As I [said]...it was a bargaining chip more than anything else. Yes, I think they knew that the Soviets and the U.S. were doing it, would continue to do it and how could they stop them to begin with, stop us, stop that happening to begin with. Plus...the European Space Agency [ESA] was in existence, which was mostly Western Europe. There were all sorts of agreements even then. Landsat was launched, what, about '72, and there were...bilateral agreements with [multiple] countries, so the data was already pouring down. So even a less-developed country...fact, [had a] receiving station. I don't remember who offhand, but there were several. I think Brazil may have had one and Argentina may have had one. ...I don't think Mexico did, but some European countries certainly had it and some in Africa.... So I think that was a bargaining chip, their hard position to begin with.
GABRYNOWICZ: So we've covered then the Soviet Bloc, the Group of 77 and the Western Group. Let's move to the next issue, which is the consent to distribute data to a third party. What was the Soviet position on that?

HOSENBALL: The Soviet position was basically that—initially, at least—you would get the consent of the sensed state to distribute data to third parties. Our position was no prior consent on data distribution, free flow of information across national borders. Every time I'd use that, throw that at the Soviets, I'd get a laugh from the head of delegation, Ambassador Piradov, saying, "You know that's against our religion."

...But, yes, basically, our position, was pretty strong.

BUTLER: The French held that same [position], at least initially—

HOSENBALL: Yes, they held the same [position]. The problem, the U.S. delegation was fairly stable during this period, and the Soviet delegation was totally stable during that period, but there were changes in the other groups, in the Group of 77. Mexico was fairly quiet for a while, until they got someone there that had a position and was very vocal about it and very strong about it. The same thing would be true for other delegations. A lot of the delegations were single-[person] delegations, and particularly the Africans and Mideasterners used their local people in Geneva to attend the sessions. They didn't attend it regularly, but they'd show up occasionally. So their interest was there or not, depending on their personal feelings about it. If they thought it was interesting and there was something there important, they did attend and were vocal about it.
But basically you had the Western Europeans, again, attending regularly with little turnover, even though they may have had only one person. Usually it was a professor [or diplomat].... Belgium in particular had Professor Vrankin, whose name I still remember, who was extremely capable and acted as some sort of a compromiser in working group meetings. The Austrian was a young professor...who was very active. We had a young professor from Sweden, who was very active, and also a foreign service officer from England from Great Britain, who was very active, and, as I said, [the] French...had had a woman attending, who...may have spoken from prepared statements, but not very active until there was that change [I mentioned previously]. And he was very vocal.

[As a] matter of fact...in a working group, he'd always insist that [the session] be conducted in French, and there was no way I was going negotiate on anything in French. My French isn't very good to begin with, and while we had people in the delegation whose French was fairly good, everybody spoke English. But he would do it every time we'd meet. Finally, it was the Russians that finally stopped it, not me. I objected, of course, and we went on to English, but he kept doing it all the time. The Russians finally said, "Well, if you're going to have it in French," and he spoke excellent French, "we want a Russian interpreter." Then, of course, everybody else piped up, and the U.N. wasn't about to pay [for interpreters], particular since most of these working groups took place at night, and so that ended. It became funny, he [always] did it, and I'd always object, and we'd always end up in English.

But it did depend, a lot depended, on the individual that represented their particular country and how active they'd be and how they would push their positions. There were at times whe[n] someone [from a] developing country, in the Group of 77, took a position that we thought was hurtful and didn't make any sense and we would ask the State Department to
make a demarche through diplomatic channels and try and do something that way. That happened occasionally, not too often, but often enough that that avenue was available if somebody looked like they were going off into left field and it wasn't in their country’s best interest. We may have had a bilateral agreement, for example, that we knew about, and here you had somebody that was objecting to, say, either sensing…or [distribution], and so you'd do that. So a lot depended on individuals.

GABRYNOWICZ: Let me bring you back to the consent for third-party distribution. Originally the Soviet Bloc took the position that you would need consent to distribute to a third party. Did there come a time when they changed their position and, if so, what did they change it to?

HOSENBALL: Well, obviously there came a time where they did change their position, and they changed it basically to…[not] need[ing] consent of the sensed state to distribute data to third states.

GABRYNOWICZ: How about the Group of 77, did there come a time when they changed their position?

HOSENBALL: Ultimately they did. They had a legitimate concern. They really had a legitimate concern. Their concern was that the sensing states and third states would get information about their national resources and use it to their advantage and to the disadvantage of the sensed state, and that is, I consider[ed], a legitimate concern. So if you
look at the current *Principles* and even in the early drafts...[how] this language continuously repeated, sovereignty over natural resources and wealth, recognizing the interest of [LDC] countries. I was surprised how many times it was repeated in the *Principles* as they were [finally] enacted.

That was their concern, and the trade-off, what you ended up with, they gave up on the sensing issues when you gave them strong language that recognized their interests. That was basically the trade-off that ultimately had to be made. They would use the consent issue to basically force that kind of language.

You really logically couldn't raise a strong objection to some of that language. Everybody recognizes that you have sovereignty over your own natural resources. We do. So it's not something that you can really argue against. But that was the kind of trading, and so we may have held off and argued that it went too far—it wasn't necessary, it was generally recognized, all this sort of stuff. Why do you need sovereignty over natural resources? Everybody knows that you have sovereignty over your natural resources. Why do you have it in here? Why is it necessary? Why do you need this language, because it's in the *Principles Treaty*? Why do you need it repeated? But ultimately you ended up with that trade-off, the right to sense and right to distribute data with all this other language thrown in, plus some other provisions in the *Principles* that they wanted and were very strong about, [though] we probably would have been happier without them.

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GABRYNOWICZ: So regarding the two consent issues, the ultimate disposition of them would be what, according to you?

HOSENBALL: According to me?

GABRYNOWICZ: Yes.

HOSENBALL: The ultimate disposition was that we had the right to sense from space and we had a right to distribute the data without any prior consent, or priority for that matter, prior consent to distribute to third states or to distribute to any state, frankly.

GABRYNOWICZ: If it's okay with you, there's a couple of issues that I'd like to kind of address in a systematic way. Is that okay for you now, or would you rather do narrative style at this point?

HOSENBALL: Either way you want to go. It might be worthwhile to let me tell you about the Russian delegation before you get into it, because it may play a role.

GABRYNOWICZ: Okay.

HOSENBALL: The Russian delegation consisted of Ambassador Piradov, Yuri Kolosov, Boris Maiorski. Verashetin would show up every once in a while. I don't think there's anybody else that I've left off. ...No. I got the Kolosov and Verashetin and Boris. Now, Ambassador
Piradov was Gromyko's son-in-law, who was then [the USSR] foreign minister. There was a Madame Vasalavskya. That was the one that I didn't [include]—she was General Zukov's granddaughter. That gave the Russian delegation a direct entrée to the foreign minister. You could see it...demonstrated, that they used it. The DBS Principles were introduced to the General Assembly by Gromyko. Several of the papers on remote sensing, drafts, were introduced through the General Assembly or First Committee. [The Soviet Moon Treaty was also introduced in the General Assembly.] So [its] very important that they had more direct access [to high levels of the USSR] without going through channels; to get answers quickly; and to get their positions pressed in other forum, if need be. So it was a very strong delegation from the point of view of a negotiating position. That wasn't true for any other delegation there. We would have to go through channels, go through IO—

GABRYNOWICZ: IO being?

HOSENBALL:—[The] International Organizations [until in the U.S. State Department] to get anywhere [instructions were needed]. But having access to your foreign minister, to raise something in either the First Committee or the General Assembly was fairly powerful.

Now, why don't you proceed any way you like.

BUTLER: Actually, if we could, while we're on that topic, I might ask what—you said that the United States delegation didn't have this direct line that the Soviet delegation did. What direction and contact did the United States delegation have through the government? Did you get any direct instructions from them on how to proceed on matters?
HOSENBALL: The process was this: The representatives, the [U.S.] delegation consisted of a legal advisor from the Department of State; someone from NASA; when DBS was on the agenda someone from FCC; and, a member and a delegate from the Department of Defense [DOD]. Those were the four really interested agencies, as far as remote sensing was concerned, and you had the DBS separate because of FCC, even though, of course, DOD and [NASA] also had some interest.

We would meet prior to a meeting and prepare our own instructions. We'd develop a paper, which we would then circulate within our [respective] agencies. Now, in my case, in remote sensing, I would circulate it to our international affairs people who were involved with the Scientific and Technical Committee and also had an interest generally, and to the Office of Applications which was running Landsat and get input. That was where I circulated. I suspect that DOD circulated it to whatever agencies had an interest, and obviously there were some agencies in DOD that had an interest. Of course it was circulated within State, not only International Organizations, but probably Policy Plans and a whole group of others. They had an assistant secretary for Science, Oceans, and Environment, and so they would [receive] it.

After we [had] concurrences, [the instructions] were formally issued to us. They were sent over by secure line to wait for us in Geneva, or if we were in New York, they would go up to the Mission on a secure line, and that was the way [we received] our instructions—so we basically wrote our own instructions, and they were circulated to see if there were any changes. There were [changes made] occasion[ally]. People would raise
questions, and we'd have to answer the questions, and we'd do that. That's the way we received our instructions.

Now, if something came up that was contrary to our instructions, we had to go back, and we would send a cable back asking for [further or changed] instructions [if such an] issue came up. That cable would then be circulated the same way our original instructions were, and we would get word back on what the U.S. position should be. There were occasions, not necessarily on remote sensing, but on some of the other things while I was there. So that basically was the way it was worked. We reported back what was going on at the meetings. If there was something important, it would go back that night. We'd come back from a meeting, and it would go back to State with copies to the other agencies. If there wasn't anything important, we would do it every two, three days, but we kept reporting.

That's why I said there are documents galore, and we usually sent back the working papers, the working drafts that were submitted to working groups so people could look at them. If they wanted to change our instructions as a result, they would then cable to us. That was the system that was used, and I suspect it's the system that still [is used] today.

**GABRYNOWICZ:** I'm going to go back and address some specific issues. I propose that the way we address them is I'll raise the issue and then tell me whatever you want to tell me about it, and then we'll see how each one of those groups within COPOUS, what their position was. Was the question of the U.N. Principles applying to military satellites ever raised?

**HOSENBALL:** Never publicly.
GABRYNOWICZ: Do the Principles apply to military satellites?

HOSENBALL: No.

GABRYNOWICZ: What was the position of the U.S. on that?

HOSENBALL: [Though the question of military satellites was never publicly raised in the Legal Subcommittee by any country,] our position all the way through, that it was remote sensing of the Earth['s] environment, and its natural resources. That was the definition of remote sensing, and that's what those Principles [would] apply to.

Now, obviously there is remote sensing that isn't covered by these Principles. But it was important, both I suspect for the Russians as well as ourselves, to make sure that that's what these Principles apply to, and they do. ...They don't mention anything else, and, as I've indicated, nothing was ever mentioned. The fact that such activities, military activities, were being carried out at that time wasn't widely known. It wasn't until fairly recently that it [received] a lot of publicity, and it was fairly recently that even the fact that...a National Reconnaissance Office existed [was classified] until even after I left. ...Now it's unclassified. So there wasn't any discussion.

The position of both the Soviets and ourselves were you have the right to use space for peaceful purposes for whatever your objective might be. The U.N. Charter does provide for the right of self-defense and all those good things. So as far as we were concerned, you
could use space for remote sensing for any purpose that you wanted from space and that the
Principles themselves just applied to this area of the environment and natural resources.

GABRYNOWICZ: What, if any, position did the Group of 77 and developing nations have
regarding the applicability of the Principles to military satellites?

HOSENBALL: Never was raised.

GABRYNOWICZ: So then let me ask you this: So based on the negotiations and the intent at
the time, is the following sentence correct or incorrect: the U.N. Principles apply to domestic
military systems.

HOSENBALL: They do not apply to domestic military systems.

GABRYNOWICZ: Okay, thank you.

BUTLER: While still in military satellites, you mentioned that the definition of remote
sensing is one of the reasons why they did not apply to military systems, because it dealt with
the environment and natural resources. When was that definition established, and was it
formally established within the working group so that was the understanding?

HOSENBALL: Well, the way the Committee worked, the Subcommittee worked, is you had
what you call common elements. Where you had a common element in several proposals, it
meant that at least everybody agreed. You also had developed, from earlier negotiations, brackets around certain words or even around paragraphs. So you could have brackets around a paragraph for a long time, and basically the definition was left open. There were common elements, but it was pretty much left open [until] you finished the rest, then you [had] to come to an agreement what it covers. That's pretty much the way it went.

There were, early on, a lot of bracketed paragraphs, a lot of bracketed words. The way you'd work is you'd [discuss a] common element, can we agree on that, get rid of the brackets around this part? Then you'd concentrate on the brackets around individual words. Okay?

BUTLER: Okay. Thank you.

GABRYNOWICZ: Another issue that is important is the role of private remote sensing activities and the relationship of the U.N. Principles, if any relationship, to private activities. So I'd like to move into that, if that's okay.

HOSENBALL: Yes.

GABRYNOWICZ: Well, why don't you just start telling us what you remember about the positions and negotiations regarding private remote sensing activities.

HOSENBALL: Again, I think basically there were proposals that it applied to nongovernmental entities, and those words were bracketed for a long time. As far as I'm
concerned, they apply—because of the Outer Space Treaty...principle that states are responsible for [such] activities in the '67 treaty [and] was basically repeated in the Principles. I think the U.S., at least, accepted that anything that we agreed to ultimately would apply to private parties.

That was something that we had to watch out for. We had to be very careful that nothing came into these Principles that would affect intellectual property rights of private parties, that there were things that the government could [not] control. That we had a free enterprise system and that people had the right to sell things at the prices that they thought...would be [reasonable]. So if we're establishing "reasonable terms", you better be careful of the language you use if you're committing [them] to provide something. You've got to be careful that nothing...would be provided at cost. Ultimately, I expected that there would be private enterprise entering into [providing data]. That's why I was there. I was representing NASA and this technology, and I couldn't let anything that would stop the development of that technology, to make it better, nor could I let anything in there that would prevent private industry ultimately performing this function.

So, yes, we were aware of it. Certainly the LDCs were. As I said, one of their major concerns [was] somebody getting information about their natural resources and coming in to negotiate with them and having all this information which they [didn't] have. That's still possible today under the Principles. But it was a legitimate concern, and so you have this other language, which I've mentioned, which permeates, that you've got to do nothing to the detriment of a sensed state. So, yes, we were watching out for the private interests.

We also had a parochial thing from NASA's point of view that I wanted to make sure that we protected, and [there were] principal investigators who were going to use remote
sensing data and wanted to be the first to publish. Could we hold on to data or would we have to turn it over immediately if we were going to have open distribution? So that was another concern, and I don't think the Principles stopped the U.S. or anybody else from holding on to the data initially until somebody analyzes the information and then publishes a paper.... The same thing would be true for [a] private company, if they were going to analyze it and come up with information [it could sell]. The LDCs were pushing very hard for sovereignty over information as well as data. They pushed extremely hard for sovereignty over information. Not only sovereignty over natural resources and the environment, but sovereignty over any information about those natural resources. We objected to that, obviously, and would not go along with that.

So, yes, it does apply to private companies, but from my point of view, I'm not sure that it stops them from doing anything that they wanted to do in the U.S. or elsewhere. Now, you have the French, you've got the Russians doing it. I think you're going to have China doing it before too long. You don't have two space powers anymore.

GABRYNOWICZ: What was the Soviet Bloc position regarding private remote sensing activities?

HOSENBALL: That was our problem. That was a U.S. problem.

GABRYNOWICZ: Now, when in the United States we use the term "commercial," we refer to private activities. In Europe when they use the term "commercial," it can mean government activities. Was there any discussion about the meaning of "commercial"?
HOSENBALL: I don't remember any discussion, unless it came on after I left.

GABRYNOWICZ: But at the time you were there?

HOSENBALL: No, no discussion about the word "commercial." Usually it was nongovernmental entities as far as...a governmental entity, it didn't make any difference whether they carried out commercial activities or not. They were part of the government and therefore they were subject to the Principles. The things that they were worried about were nongovernmental entities where the government didn't have full control over the activity. So, no, I never heard "commercial" being discussed.

GABRYNOWICZ: That reminds me, what years were you involved with the Principles, from what year to what year? What would be the frame?

HOSENBALL: I think I was there...in '69. I became deputy...at the end of '67, and I think I was there in '69. So I'd say from 1969. The last time I went up, last time I participated was 1979 when I was drafted to go to New York [to] head the delegation to the full Committee. That was the year Skylab was coming down, if you remember.

GABRYNOWICZ: Yes, I do.
HOSENBALL: So I [was] drafted to go. They called the administrator and requested that I head the delegation that year, which I did. So that's the period.

Now, the other exposure I had was...on the delegation to UNISPACE [United Nations Conference on the Exploration and Peaceful Use of Outer Space]. There was a remote sensing working group.

GABRYNOWICZ: That was 1982.

HOSENBALL: 1982. That was United Nations Working Group on Remote Sensing. I sat with Tony [Anthony J.] Calio, who was going to be the scientific [member] and do all the talking, [and I was] to make sure he didn't get himself into trouble from a legal standpoint. There was nothing that was going to go into that report [of the Conference] that was inconsistent with the U.S. policy or with the work that [we] had done up to that [time]. That was the end of it.

Now, in '75 or maybe even earlier, I did have a second NASA member of the delegation, Helen Kupperman. I don't know whether her name shows up, but Helen was the assistant general counsel for...the International Affairs Office, provided legal advice. So she came with me. In '79 when I stopped going to the meetings, she attended all the meetings and would call me, if need be, and would brief me when she got back as to what was going on, which is not the same as participating, because I don't remember that much after '79 that went on. But she kept me fully informed until I left.
GABRYNOWICZ: What would you say the status of the U.N. Principles on Remote Sensing was in 1979 when you left the work?

HOSENBALL: The big effort, if my memory serves me, and I think I may have picked up some from the reading material you gave me, but my recollection is that in '77 we had come up with a set of Principles bracketed as such, but my recollection is seventeen principles at that time. That year was the biggest effort. There was a submission, and I don't remember by whom, but there was a submission by someone that laid out all the [elements] that had been discussed from '75 through '77. There were seventeen principles.

I think in '78 there was some progress made in removing some of the brackets around the paragraphs as well as the brackets around words. [In] '79 I don't think too much was done. There probably [were] discussions about it, but I don't think too much—there may have been some brackets removed, but there were seventeen principles.

Now, I notice that the Principles that you sent me only have fifteen. In fact, looking at those Principles, there are two Principles there that actually were one in the seventeen, as I remember. The one about sovereignty over natural resources and the one about—I don't know whether I made a note or not. Let's see. I may have. Here we go. Oh, the natural disasters one.

GABRYNOWICZ: Which Principle number?
HOSENBALL: That was XI and X. X and XI were one, basically. Harmful to the Earth's natural environment and notice of a natural disaster, they both really run together. My recollection is that it was one principle. Why they broke it out into two, I have no idea.

GABRYNOWICZ: Would you say that those two principles, the one that refers to the use of remote sensing for natural disasters and the other for harm to humans, would that constitute something new in remote sensing law? Was this the first time that emerged as a statement?

HOSENBALL: Well, it was the developing countries that [insisted on these provisions,] again, trade-offs. If we're going to get rid of prior consent across the board, [the LDC's] want[ed] some protection. [They] want[ed] something [in return]. So the natural disaster was the first one that came in, and you can't argue about that. As far as the U.S. was concerned, if we had learned something about a natural disaster, we would notify the country involved without question. Forget about what the Soviets might do, from the U.S. standpoint there was no problem.

The same thing with the environment, if we saw something that was done to the environment that endangered human life, we'd notify [countries] immediately. So those [provisions] came in from the developing countries.

GABRYNOWICZ: Do you remember any of the discussions at the time, what issues might have been raised and addressed regarding those two?
Hosenball: Not really. I think it may have come in that '77, '78 period when these seventeen principles [were set out as a working text]. They were discussed, and they were in working papers. The working papers [were] changed all the time, and where you found a common element, again, it went into a working paper.

The way the system worked, you didn't have any recordings of what went on in the working groups. Early on we had actual verbatim [reports in] the plenary session. They changed that into summary [reports]. But in working group, people would make notes. We did have a chairman. ...Frankly, I don't recall who it was. But somebody did take notes. It may have been one of Secretariat people sitting in. A [pointed] working paper would come out the next day.... They were very good. It would come out...and you'd pick it up at the U.N. in your box...and [it] would form the basis for discussions the next time the working group met.

The working group met fairly frequently on remote sensing. There was [also] one...on DBS. So occasionally, particularly where you had one delegate who was interested in both remote sensing and DBS, you'd only hold a session for either DBS or remote sensing. So you didn't do it every day. It depended on the wishes of [the delegates].

...Everybody was invited to the working group. It just wasn't people appointed to a working group. It was a working group of the whole, and whoever showed up, that was the working group. It was not by appointment or by agreement. Everybody had the right to attend working group meetings and to participate, and they did. Some would come [only] one time—which create[d] a problem, because they los[t] track. But the Soviets would always be there. We would always be there. Some Western Europe countries would usually be there. You usually ha[d] Brazil, Argentina, Mexico. You had India, who attended
most...sessions. The [countries] that you would normally think of being active...were interested in space. India certainly was. The Japanese would attend. So you'd get fairly good attendance.

GABRYNOWICZ: Let me ask you this: We've addressed some specific issues—military satellites, prior consent, two kinds of prior consent, to sense and to distribute data, private activities, and then we just addressed remote sensing for humanitarian purposes. Can you remember any other issues that were particularly visible that were important that were discussed?

HOSENBALL: Yes.

GABRYNOWICZ: What would they be?

HOSENBALL: Well, access to data. Big, big issue. When would you get it? When would you get the data? So you had the issues [of] equal access, timely access, and nondiscriminatory access. Anybody who wanted the data would be able to get the data. ..."Timely" is broad. What is "timely"? "Timely" is in the eye of the beholder. But that was an issue. ...[The LDC's in particular] wanted to make sure...when [data] would be available.

GABRYNOWICZ: Before we go away from access, so—

HOSENBALL: I'm not going away from access.
GABRYNOWICZ: Okay, go ahead.

HOSENBALL: Okay? One of the big issues was [the] priority [of] the sensed states, that they would get it first, if at all possible. …[It] was a big issue. …Certainly we didn't want to get into priority issues and what happens if you don't give them priority.

Let's see. We've already talked about this. Access again goes to your issue of a disaster and environmental harm. Also a discussion on…the availability of data that was in international areas, off the coast, oceans that sort of thing, and that was another issue. I don't think it ever got resolved. I don't recall if it's in the Principles or not. That's access. Those were the issues on access that I can recall.

GABRYNOWICZ: Regarding the access issues, how were they resolved, if at all, and which ones were not resolved?

HOSENBALL: Let's see if I remember. I don't think there's any priority [provision]. I think that never even got into a working paper, or if it did [get] into a working paper,…it disappeared.

GABRYNOWICZ: So would the following sentence be correct or incorrect: Priority access for a sensed state is not covered by the U.N. Principles.
HOSENBALL: I think that's right. I think it isn't covered. The hazards thing we mentioned [are] covered. You do have nondiscriminatory [access] I think, in the Principles. I'm not sure "timely" is in there. My recollection is that it may not, and I'm not sure "equal" [access] is.

BUTLER: What is the distinction between "equal" and "nondiscriminatory"?

HOSENBALL: I'm not sure.

BUTLER: Okay.

HOSENBALL: I think it was just a repeat of the same idea. ...I don't think there is any difference, but it's an emphasis, "equal" and "nondiscriminatory".

GABRYNOWICZ: If you had to summarize what, in your understanding, the U.N. Principles memorialize about access, how would you say that?

HOSENBALL: Well, I think the answer is the country that does the sensing under the Principles has agreed that all countries should have access to that data. Now, on what basis? ...We had language in the Principles on terms...mutually agreed upon. I think initially it was mutually agreed upon, and then I think that "mutually" dropped out, which we were just as happy to have it dropped out. So basically that's it. You can get the data on agreed terms, but you're not going to get it unless you get it on agreed terms.
That...puts a restriction on countries in getting the data if you can't reach agreement. What happens in the U.S. situation, the data [is] archived and...available. The EROS [Earth Resources Observation System] Center\(^6\) was developed, and [data] was available. I [don't] know what the Russians did. I suspect that the Russians were more interested on the agreed terms because that gave them the ability not to make [data] available, that they could keep it as they wished, but our position was we'll give you [data], we'll disseminate it. You may have to pay the cost of reproducing it or whatever, but we have no problem making it available to you. I suspect that the Soviets were [just as] more interested in getting that [restrictive] language in.

You had to have the language. We could not commit any agency or any private company, since it did apply to private [entities, to provide data if] you're not going to pay...for it. So you had to have that, but that's basically it. You had access. You want to pay for it, you get the data.

**GABRYNOWICZ:** In addition to access, are there other issues that you would say were important that were raised that were discussed?

**HOSENBALL:** Yes. Certainly there was a push, if I read it right [for a U.N. role], I think the Argentine proposal was very heavily oriented towards a U.N. role, having the U.N. develop the database, maintain the database. So there was [an issue of the] U.N. role, and I think in the *Principles* [there is] some slight role for the U.N. to play. At that time it['s role] was

\(^6\) EROS Data Center (EDC), Sioux Falls, South Dakota, USA. Part of the Department of Interior/ United States Geological Survey.
more important because there wasn't that much familiarity [with remote sensing and] you
didn't have that many bilateral agreements or regional agreements.

Our position was all along is if you want immediate access, get your Earth station. So
we had our arguments. We didn't get what we wanted by way of consent without coming up
with some decent arguments.... Do you want to get it right away? We'll be glad to [assist
you in getting an] Earth station and you can pick up the data right away. You want technical
assistance? We'll give you technical assistance. That was an issue which was easy for us. In
fact, it may have been in our submissions. Again, you're may have to pay something for it....

Let's see, sovereignty, as I mentioned, was a major issue, particularly sovereignty
over natural resources and sovereignty over information about natural resources. That again,
we weren't going to agree to that, but again the trade-offs, we had to do something.

I mentioned the organizational [issues]. We did push very hard for [countries] to
setup regional ones. That way you'd get the data with several states [participating],
particularly in South America where the Brazilians and the Argentines were very much
interested [in having an Earth station]. There was talk about setting up your own national
one, if that's what you want. So there [were] organizational considerations and the [role of
the] U.N. of course.... I talked extensively before about recognizing the interests [of sensed
states] and not doing anything detrimental as a result of remote sensing....particularly in the
distribution area....

We've already talked about private nongovernmental [organizations].

GABRYNOWICZ: Feel free to add anything as you go along.
HOSENBALL: Definition, the definition of "remote sensing"...and also the definition of "data", "primary data", the whole business of "analyzed information", what do we mean by "data". So there were a lot of discussions about data. We kept shoving [the definition of data] it to the Scientific and Technical Committee saying, "You tell us the kind of data."

GABRYNOWICZ: Can you remember some of the definitional issues?

HOSENBALL: Oh, yes. There were a lot. We got into a big fuss. The Soviets had introduced this business of fifty meter resolution. They would release everything above fifty meters but not below fifty meters.

GABRYNOWICZ: So they were tying access to the spatial resolution?

HOSENBALL: That's right. So we kept arguing. You had this argument on do you use a functional definition, which is what you ended up with, or you go into resolution. Then you get, what do you mean by "resolution"? There's all sorts of instruments on a remote sensing satellite. What are you talking about? Electromagnetic? Infrared? Photographic? Fifty meters didn't mean anything. Plus the fact is, I think, Landsat may have been down to forty by then or even lower, and we could see it going down a lot lower.

So that argument did take place, and you ended up basically with a functional definition, which made sense. But the Soviets pushed this fifty meter business. That one came through Gromyko. I think that was introduced into the either First Committee or the General Assembly.
GABRYNOWICZ: How were the definitional issues resolved? What became accepted as definitions?

HOSENBALL: Basically what you have in the Principles now.... It changed a little bit. I don't recall any reference to the Earth's surface in the definitions as we had [it] through '79. It was remote sensing...of the environment and the natural resources of the Earth basically. No reference to the "surface of the Earth". [When I first] looked at [it], I said, "Ye gods, what are they doing? What did they do?" But then if you read on, it says "for the purposes of." Now, remote sensing of the surfaces of the Earth for the purposes of the environment and natural resources. So I'm comfortable with that.

But we did not use the "Earth's surfaces". As I said, we pushed definition to Scientific and Technical, and, in fact, they came up with something that's in there that makes sense to me. It's in the current Principles.

The other big fight that went on was "should"/"shall."

GABRYNOWICZ: Tell us about that.

HOSENBALL: We wanted "should." The developing countries wanted "shall." The Soviets were on our side with the "should," and it stayed in brackets. When I left...you had "should" in brackets and "shall" in brackets everywhere. Everywhere in those seventeen. Wherever "shall" or "should" [had] appeared, it was in brackets in the Principle. In looking at the final Principles, they [are] all "shall."
GABRYNOWICZ: Can you tell us the significance of "should" and "shall"?

HOSENBALL: Sure. We thought "should"—precatory, it's something you should do, but it's within your control. Whether you do it or not, you decide. Right? "Shall" means you do it. You're directed to do it. So it's directory as opposed to the precatory. So we were on the "should" side. It really didn't bother me whether it went to "shall" or not. Ultimately I thought...when everything else was agreed to, or it was a key to getting agreement, it was going to end up as "shall" and what difference did it make as far as the U.S. was concerned. If it said "should," to us, we'd do it. ...We would do it anyway. So it didn't make any difference to us, but again a bargaining [chip], it was you give up something, you get something....

GABRYNOWICZ: What's the legal significance of the word "shall" having been used in the final version?

HOSENBALL: I think you made a commitment to carry out these Principles, not that you should carry it out, but that you made a commitment to live by these Principles.

GABRYNOWICZ: There were lawyers and nonlawyers involved in the delegation. You want to tell me a little bit about the dynamics between the lawyers and the nonlawyers when issues arose? Were their formal roles for each group?
HOSENBALL: No. There were interests. When I was there, the delegations got along extremely well. The [U.S.] delegation got along extremely well. We discussed things. Herb Reis, who had done this work for a long time was an excellent lawyer you could talk to. When there was a NASA interest or DOD interest, he recognized that interest, and we'd come to an agreement. There were very, very few disagreements.

The only incident I remember, and I frankly don't know why it happened or what caused it, but when I became deputy general counsel, I did have certain commitments. All the meetings used to be in Geneva [Switzerland], and so I was far away and nobody would call me to come back from Geneva unless it was a major, major [matter]. But then [the meetings] moved to New York every other year. So when I was in New York, I'd get calls from either my boss, the general counsel before I became general counsel, or when I was general counsel, I'd get a call from the administrator asking me to come back.

One time...I went back to Washington [D.C.]...for the day and came back around six or so and went to the mission, because I figured they would be busy reporting and whatever. But they were still over in the building across the street, the U.N. Headquarters in New York. So I went to where I knew where they were meeting and sat behind the two members of the delegation that were there and just listened.

They said something which...set me off. It was...something they should [not] have said. Again, I don't remember what it was. In any event...I wasn't going to insert myself...but I did. It was something that I wasn't about to agree to, and I told the working group, no, that is not the U.S. position...in a nice way, I didn't say it was not the U.S. position, in a nice way I disassociated myself and the U.S. from what they had said, at which
point everybody got madder than hell at me, not only the delegation, but everybody else.

...It just broke up the meeting.

That's the only incident that I can remember where somebody actually stepped in, and it was important. It was important apparently to NASA in some way. It may have been [the] private sector stuff. It was a little thing that they, not being [fully] familiar with [the technology, were about to agree to]. It was a [delegate] that was working on the DBS and...a junior attorney from the Legal Advisor's Office who had...been on the delegation maybe a year or two. It was just something that they were not familiar [with] that could have an impact [on NASA or other agencies], and I could not let it go through for one reason or another. [I think this incident caused me to add Helen Kupperman to the delegation.]

But that, yes, the "should"/"shall" stayed until very end, I'm sure. I don't know when it dropped, but probably at the very end.

GABRYNOWICZ: Well, then let me frame it—

HOSENBALL: There's one more...and that [is the] consultation.... Frankly, I don't like the [provision] that's in there, but.

GABRYNOWICZ: I tell you what, just one second. How are we doing on tape?

BUTLER: Actually, now is a very good time to stop and change it.

HOSENBALL: Okay. [Tape change]
GABRYNOWICZ: When we spoke before the tape change, you were about to address the issue of consultation. Please proceed.

HOSENBALL: Well...there...was a discussion on consultation and also disputes.

GABRYNOWICZ: For the record, why don't you define what "consultation" means.

HOSENBALL: "Consultation" to me meant that when asked or you can initiate it yourself, you would talk to one another.... If there was an issue, you'd ask the other party's position on that issue, and you would consult, and that's it, no resolution. That didn't oblige you to agree to anything, all it meant was that you would at least talk about it, that you would just talk about it.

We avoided and objected to a dispute resolution...procedure. That's why I say I saw the one here, and, if I remember right, it does use the word "dispute." Yes. The Principle XV uses the word "dispute," for peaceful settlement, but it's not a consulting provision. It's a dispute provision. It looks awfully broad to me as to what you can invoke. Any established procedure for the peaceful settlement of disputes, which can be commercial arbitration all the way to the International Court of Justice, I assume. So I'm a little surprised at State or somebody agreeing to this kind of a broad dispute resolution principle.

We basically had a consultation provision. You would agree any questions arising would result in consultation, not with going beyond that to a procedure to resolve a dispute arising out of those consultations. That, I was surprised when I saw it.
GABRYNOWICZ: Do you remember what group took what position regarding consultations?

HOSENBALL: I don't think it was that much of a dispute. It was a question of bringing in a dispute into the resolution of dispute. That's where the arguments took place and apparently, in order to reach a final agreement [the U.S. agreed to a dispute provision].

I sound critical, and I don't mean to be critical, because it was important to get these things resolved, and so you may have to give more than you're willing to give and hope that you don't end up some time along the way with a dispute. I can see that there might have been some sensitivity to get this thing done because of what happened with DBS.

GABRYNOWICZ: By that, you mean the vote rather than the consensus?

HOSENBALL: That's right.

GABRYNOWICZ: Do you want to say a little something about that so there's context?

HOSENBALL: As you know, the Committee, throughout the time I was there, worked on the principle of consensus. What that means basically is that you don't go forward with something to the next level until everybody has agreed to it, all the members of [the Legal Subcommittee]. It's not a veto kind of a thing like the Security Council, it's just that everybody works together to try and reach an agreement and accepts that as a basic principle, that you will work as long as you can until you...get a consensus, make concessions, [each]
party makes a concession...and you come together with either a treaty or a set of principles which will be generally accepted by all the members and that nobody would have reservations and...if it reached the General Assembly...nobody would vote against it, no member of the Committee, the full Committee, would vote against it. So you would have a unified presentation.

The danger of a consensus [procedure is]...it can go on and on and on until people get tired of it and say we're not getting anywhere. One of the members, I'm sure it was the Russians, took a set of principles forward to the General Assembly and there was what, 108 or whatever the number was, with some abstentions and the U.S. and some Western countries [voting no]. I think France voted for it.

GABRYNOWICZ: The DBS Principles?

HOSENBALL: Yes. So there's that pressure to reach a consensus, certainly on the [part of the] United States. So I don't want to be critical of what they did, because it may have ended up that this was one thing hanging out...like "shall"/"should" and one way of reaching a consensus was to agree to that. So I don't want to be critical of the ones that did it, whatever my personal view might be that it go[es] a little too far. Maybe it should have been [a] U.N. dispute resolution [procedure]....

I hate to see [a remote sensing dispute] go to commercial arbitration. You've got to remember, [arbitration] is binding on private parties, so it could very well end up [binding states or private entities.] I don't know who would represent who. That's a good question for you. If a dispute arises, would the government under the Principles represent its private
party or [are] the Principles...binding on [governments and] private parties...? [Or are resolutions adopting principles] not really binding on anyone. We haven't raised the issue of treaty versus [U.N. resolutions], but.

GABRYNOWICZ: Well, let's go there a little bit. First of all, what, if any, is the significance of the fact that the Principles were adopted by consensus?

HOSENBALL: That it ends up at least receiving broad support initially. Now, you know Principles can obviously develop into customary international law. If all countries comply with it for a long period of time, it ends up as customary international law, and it's as binding as a treaty.

If you can start off with fifty-three countries, all the members—I don't know how many there are now, but all the members of the full Committee agreeing to these Principles, you've got a pretty good head start on customary international law, particularly when these are the states that are carrying on the activity. It lends it greater weight. So consensus is important, if you can reach it, but you always have that pressure to reach a consensus under the U.N. system because somebody could raise it either in the First Committee, which I've been told is a political committee, and then go forward to the full assembly or directly into the assembly, if an ambassador introduces it.
GABRYNOWICZ: Now, regarding the status as binding and customary law, if a practicing remote sensing nation like the United States has adopted, as it has, parts of the U.N. Principles in its own domestic law twice,\(^7\) what, if any, significance would that have?

HOSENBALL: I think it gives it greater weight. I think it gives the Principles much greater weight, because here is one of the practicing governments using remote sensing, even though it's now through private parties, putting it into its own national law.

GABRYNOWICZ: The Japanese negotiator for the U.N. Principles, I'm sorry whose name I forget, you may remember him, but he wrote a paper in which he says that Japan uses the U.N. Principles as their own domestic law.\(^8\) What, if any, significance would you think that has?

HOSENBALL: It becomes national law. It adds to the customary international law argument. Someone would probably argue today that it's customary international law.

GABRYNOWICZ: How about you, do you have some things you'd like to do at this point?

BUTLER: Well, while we're talking about customary international law, you mentioned the Principles and the status of a treaty, if you could explain for the record the difference between principles and a treaty from a legal and political sense.

HOSENBALL: The difference isn't between the *Principles* and the treaty, the difference is between basically what is a U.N. resolution adopting the *Principles* versus a formal treaty which is signed by the states, parties to the treaty, and that's the distinction. Resolutions are not binding on any country. Resolutions adopted by the General Assembly, they adopt them all the time. Everyone presses that it has the status of international law, but it doesn't.

It becomes international law, as I said before, when it becomes customary international law because nations are acting consonant with the provisions of that resolution, which in this case happens to be principles, that are labeled *Principles*. Because you do have the Outer Space Treaty, which is principles, too, basically. So you've got to draw that distinction. You can't use the word "principles," you've got to use the words "General Assembly resolution" versus a treaty.

GABRYNOWICZ: Well, I tell you what, I see you have some of your notes there.

HOSENBALL: Well, I've covered it, basically, I think. We've talked about everything I had. I don't know whether I have some other stuff here.

GABRYNOWICZ: Then if we went on to talk to the *Principles* one at a time, would that be something you'd be prepared to do?

HOSENBALL: Well, you had some other questions...in the ones that you sent to me. I don't know whether you want to cover those before you go to the *Principles*. There are a couple
there that you might want to ask. You have one here did the oil crisis in '70 provide any impetus to the negotiations on Remote Sensing Principles, and the answer is no. That's simple.

GABRYNOWICZ: Let's make sure we capture that. The oil crisis had no impact on the negotiations?

HOSENBALL: No, it had no impact.

BUTLER: What about how much influence did the launching initially of what was the ERTS [Earth Resources Technology Satellite] system at that time have to promote these discussions?

HOSENBALL: Well, I think it promoted the discussions. Well, basically the way I understand it is that the General Assembly established a task force on remote sensing. They established it and gave it basically to the Scientific and Technical Subcommittee to [discuss], so there obviously was some strong interest in pursuing it within the Committee on the Peaceful Uses of Outer Space. Then the Scientific and Technical Committee set up a working group within [it], and there was one set up in the Legal Subcommittee. But as I said earlier, in the early years most of the activity was in Scientific and Technical. It was an educational process.

I did mention the way the U.N. is organized, you have the General Assembly, you have the Security Council, you have this first committee, and then you have the full Committee on the Peaceful Uses of Outer Space, [and] you also have a secretariat that's
called the Outer Space Division, and they provided the staff help to the chairman of both
[Sub]committees and to the full Committee. When I first got there, there was a delightful
lady, Chinese lady, by the name of Miss Chen, who was the head of that division.
Jasentuliyana was on—

GABRYNOWICZ: Nandasiri Jasentuliyana.

HOSENBALL: Yes. He was in that division as a lawyer. They had Mr. Perek as the expert and
Miss Chen as the head of the division, and [it] had a couple of others that were basically
people that would get the mechanical stuff done, reproduction and arrange for meetings and
that kind of thing.

The one thing I haven't talked about [is that] the full Committee had a chairman and
each of the Subcommittees had a chairman. The chairperson of the Legal Subcommittee
was...from Poland, Eugene Wisner, I think it is, who was one of the most delightful people
I've ever met and did a wonderful job, really, truly wonderful job of running the Legal
Subcommittee. He would get people together, and he would make a little speech about this
and a little speech about that and present both views and then move people towards a
consensus on a particular point. Just wonderful.

His country recognized his abilities. [I believe] he...became ambassador to the U.N.
and became foreign minister of Poland when Poland broke away from the Soviet influence. I
don't know whether he's retired or not, but if you want to get a lot of information, he is the
one, if you can ever get a hold of him to talk to.
Now, the full Committee chairman was—my goodness, who was the Austrian that I disliked so intensely? Do you remember his name?

GABRYNOWICZ: I don't know who it is you disliked, but knowing a little bit about the history of the Committee, Mr. Kurt Waldheim was then chair.

HOSENBALL: Yes. Kurt Waldheim was the chairman of the full Committee. What subsequently happened, of course, Waldheim became Secretary General and Yankovitz, Peter Yankovitz, became chairman of the full Committee. He, too, was an Austrian.... He was very helpful. Wisner was just super. He really was, just in general as a person as well as a chairman and could smooth things over very easily and very quickly. So again, to some extent in any delegation or any organization, you have personalities that you can't avoid.

Let me give you the names of the others that were in the U.S. delegation and where they were. I mentioned Herb Reis.

GABRYNOWICZ: Could you spell that, Reis?

HOSENBALL: R-e-i-s. Herb Reis.

GABRYNOWICZ: Do you remember what his title was?

HOSENBALL: He was the legal advisor to the U.S. mission in New York.
GABRYNOWICZ: Okay.

HOSENBALL: The U.S. U.N. mission in New York. Ron Stowe [from the State Department's legal advisor's office] followed him...and headed the delegation for quite a while.

GABRYNOWICZ: Could you spell his last name.

HOSENBALL: S-t-o-w-e. Ronald Stowe. From DOD we had Harry Almond, and that name may ring a bell.

GABRYNOWICZ: Oh, yes.

HOSENBALL: Now, he stayed there for a while, but was followed then by Ed Melanson.

GABRYNOWICZ: I'll ask you to spell that name as well.

HOSENBALL: M-e-l-a-n-s-o-n, I think. He was a commander and then ended up as a captain. He had attended a lot of sessions on disarmament...[at the U.N. and bilaterals with the USSR].

Connie Shafer was from the international office of the FCC. [He] was primarily there to watch us as far as DBS went. Dave Stewart was a young legal advisor that was on the delegation when I was heading the delegation.... Here's a name you should know, John
Rynlander on the ABM [Anti-Ballistic Missile] Treaty. He was there one year as head of delegation.... Then I mentioned Helen Kupperman who was in my office.

Now, there was another legal advisor that headed the delegation before...I started to, and I just don’t recall his name. There was...someone from the...International Organization [Office] of State Department that was with us most of the time, and he took care of anything we needed with the Chief of Mission and that sort of thing and also very helpful and also a very nice guy. So we had a good delegation, always had a decent delegation.

Ron Stowe, I think, is still around. ...He got very interested in DBS and ended up learning a hell of a lot about the ITU and going to the ITU, and ended up as a lobbyist for Pacific Telephone before they were taken over by your local regional Bell here. Connie Shafer was well known and had been a delegate to [the] ITU.... So it worked pretty well, and it was a lot of fun. I enjoyed it. It was always challenging.

I got tired of diplomatic lunches and dinners and diplomatic receptions and had my fill of those. We had a lot of bilaterals with the Russians. We would go to their mission in New York in downtown Manhattan. Not too far downtown, it was uptown, more uptown. I think it was seventy, seventy-something.

GABRYNOWICZ: It’s just above midtown.

HOSENBALL: Just above midtown somewhere. They had a whole building. We’d have lunch in this great big...[high] ceiling room...with a great big picture of [Vladimir Ilyich] Lenin in it, the only thing hanging on the wall, and all Russian help.... Unlike the U.S., they had all

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9 Treaty Between the United States of America and the Union of Soviet Socialist Republics on the Limitation of
Russian help everywhere. We met and we had a bilateral in London in their embassy right in Hyde Park.... They really used us also as a sounding board on other issues than space.

The one thing that sticks in my mind in the meeting in London was the professor asking me, "Why is your president no longer talking about détente?" They were very disturbed that all of a sudden things had gotten colder than the Cold War. Here was President [Gerald R.] Ford—really talking, cold war stuff....

I finally had said, "It's election time. He is a Republican, and the Republicans are strong on national security and defense, and so it's just natural that during an election he is going to be very strong on national security and defense, and whether we'd like it or not, who are we supposedly defending against and who are you defending against?"

Talking with the delegations individually, it was remarkable [to them] that my children could come over to Geneva. They [the Russians] couldn't leave. Either husband or wife had to stay home, literally. The only exception to that was Ambassador Piradov had his wife in Paris because she ran the French edition of Soviet Life.

GABRYNOWICZ: I remember that. I remember that magazine.

HOSENBALL: Yes. His English wasn't very good. One luncheon in Geneva we're talking, [but] when he wants to be real fluid—he understands it extremely well, but when he wants to be fluid, he goes into Russian, and Boris...acts as an interpreter.

Mrs. Piradov was at one luncheon, and she, after the professor finishes this long [dialogue] in Russian and it's been translated, she talks to him, and she is talking to him in
Russian. I know when a wife scolds, and she was scolding him, really scolding him. You can get the tone and all of it. So after the meeting I asked Boris, "She was scolding him about something, wasn't she?"

Boris starts laughing and says, "Yes. Yes, she was. She was telling him, 'It's about time you learned to speak English rather than—'" So [our] relationship was actually [very good], and as I said, we always had two or three luncheons during any of the sessions and it worked out...extremely well....

My philosophy in going into all the negotiations at the U.N., whether it was the Liability Convention, Registration Convention, or DBS, or Remote Sensing, or the Moon Treaty,\textsuperscript{10} which is another story, was don't do anything that will restrict technology and don't do anything from a political or private party point of view [that could restrict the advance of technology or space activities], because the world changes. It's true. All of a sudden the Soviets...break apart, and their people can now travel much more freely than they ever could, and now we've got this terrorism [threat], which changes things. That basically was the way I went in.

GABRYNOWICZ: Let me ask you a question along those lines, especially for people who, my students get younger every year.

HOSENBALL: Yes.

GABRYNOWICZ: They were infants, if they were alive, during the cold war, and they often ask questions about, "Well, the Soviet and the United States were deadly enemies. How did they create space law?" Do you want to say something, why did they create space law?

HOSENBALL: Well, first of all, they were space powers. ...They were as much interested in protecting their interests as we were in protecting our interests. Now, the interests may have been different, but they were just as interested in getting an outer space treaty as we were, the way it came out, because it gave them freedom to do things like it gave us freedom to do things. There are some funny stories when it comes to liability, the *Liability Convention*, because their system of law was so different from ours. There were real problems.

But when it came to space, that's why I say it was open, not only from the Legal Subcommittee point of view, but the relationships between [NASA's] International Affairs Office and the technical side of NASA with the Russians was excellent, was excellent.

We had *Apollo-Soyuz* [*Test Project (ASTP)*]. We had the remote sensing agreement. There was an interchange that always existed, even before the breakup of the Soviet Union. During *Apollo-Soyuz* we had people going over there to their facilities. You looked for the place on the Russian map, the name of the city on the Russian map, it wasn't on a Russian map. All their space facilities were not on their official maps. My deputy administrator went over. He went to Space City [Star City, Zvezdny Gorodok, U.S.S.R.]. They flew him there from Moscow. He said they traveled at night and over the railroad tracks. You couldn't see much of anything.
Their National Academy of Sciences, which was their civilian part of the space program and NASA had lots of interchanges and lots of bilateral discussions and visits back and forth.

**Butler:** Well, talking about the U.S. and Soviet relationship, as you said there was a lot of interaction going on and there was also a lot going on outside of the space sphere, but what impact, if any, did the 1978 *U.S.-Soviet Convention on the Transfer and Use of Data of the Remote Sensing of Earth from Outer Space* have on your negotiations?

**Hosenball:** None that I know of.

**Butler:** Were you at all involved in that convention?

**Hosenball:** Helen was, Helen Kupperman was, as an aide to the International Affairs Office. Matter of fact, I don't even know what it says.

**Gabrynowicz:** About the Russians, there's currently there's an agenda, I don't know if it's a proposed agenda item or it's made it on to the agenda, but it's a Russian idea that we revisit all the treaties and try to draft one big comprehensive space treaty.

**Hosenball:** Oh, jeez.

**Gabrynowicz:** What's your idea about that?
HOSENBALL: What are they going to do, put all of them into one, into one treaty? The Liability Convention, the Registration Convention?

One of the other issues, incidentally, that I didn't mention was notification of remote sensing launches, and we got rid of that by the Registration Convention. But you have...five treaties. The Moon Treaty hasn't been...sent to the Senate, as far as I know. I stopped it from going to the Senate when I was general counsel at NASA. The legal adviser himself called me, and I said, "Don't send it up there. Don't sign it even. Don't have it signed, because it's not going to go anywhere." It was all involved with the Law of the Sea Treaty and the rest of it, and I said, "It's not worth it. Just don't do it," and they didn't.

So you've got five treaties. You've got Principles on DBS, Principles on Remote Sensing. You're going to put all of that into one treaty? Is that what they're talking about?

GABRYNOWICZ: It hasn't evolved enough, but it is getting to the point where people are saying, well, maybe we should revisit all the treaties.

HOSENBALL: Mistake.

GABRYNOWICZ: Why?

HOSENBALL: They work pretty well. All it can do is cause problems. All it can do, all the issues that we resolved in these treaties will all rise again because you've got new people that don't have the history, the trade-offs that were made by various countries, and so you'll go
through the whole thing again on the issues. It's just the worst thing that you can do for any country. Yes, not only for us, but for the Russians, the French now, the Japanese, the Chinese, all the people that have space activities, about the worst thing in the world, because you will be going through all the issues again and you will have none of the history, and you'll end up with something that is totally different all the way through and that probably won't get signed by one or more countries because they don't like something that's in there.

GABRYNOWICZ: We're now in 2002 and space activities have taken a sharp focus on commercial and private sector activities as opposed to the civil space programs and the government activities during the cold war and immediately after the cold war. Do you think that evolution requires new treaties, new law, or do the old treaties, old law, also satisfy the new activities?

HOSENBALL: I think what we have pretty much satisfies our current activity. We've always had companies doing work for NASA. Communications satellites have been basically a private enterprise all these years. Remote sensing has been privatized. I just read the other day where the president wants to privatize the Shuttle.

I don't see any changes that have to be made, really. I think we've done the things that we had to do with private launches. We had the Commercial Space Launch Act\textsuperscript{11} [give] regulatory authority to DOT [Department of Transportation]. Nothing's gone wrong. It's worked pretty well, as far as I know.

\textsuperscript{11} 49 U.S.C. 701.

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So I really can't think of something that the private sector does that the government used to do or the private sector does that the government didn't do that would require a major revision or even a minor revision of what we have in the treaties we have today.

GABRYNOWICZ: How about property rights? One of the discussions is that the space law regime does not adequately define and/or protect property rights.

HOSENBALL: Oh, that business. National legislation can take care of it. One of the things I did was get national legislation to handle crimes aboard space vehicles. You had them aboard airplanes. So, yes, I thought we needed a law to extend [criminal jurisdiction to space vehicles]. The French don't have any problem, because if you're a French citizen, they can charge you with a crime no matter where you are under French law. It follows the person. We don't have that...[generally, though now we do have it for treason and other specific crimes.]

We had the customs problem. We were going to [retrieve and] bring back [two commercial] satellites. Yes, I had to get legislation to change that so that people didn't have the pay custom duty on a satellite return. It was just a little footnote to a tariffs that went on forever and ever. But you can do a lot of things through national law, if you're worried about it. Now, would that be recognized internationally? No. If you filed a patent in the U.S. as a result of having [made a] discover[y] on the Japanese laboratory? I don't know. I suppose you would.

GABRYNOWICZ: Well, there is a space station agreement. They do address that.
HOSENBALL: I think they do. ...I recall that, yes. I was there when that agreement started, yes. So we did address some things in the space station, but can you do it in a country that isn't a party to the space station agreements? China. I don't know. I'm not a patent lawyer. But it seems to me that the initial step, at least, if there's any question, you want to have national legislation or have a patent convention. ...You have a copyright [convention in existence].


HOSENBALL: Yes, IIPO. Yes.

GABRYNOWICZ: IIPO.

HOSENBALL: IIPO.

GABRYNOWICZ: Now I'm into an area that I don't know.

HOSENBALL: Yes, I'm out of my area, too. I think they have a copyright convention, but I'm not sure they have a patent convention. I think patent laws are national, basically national.... I also had the [NASA] Patent Office under me. Patent lawyers reported to me. I [became] somewhat knowledgeable about patents, and my deputy was a patent lawyer. So [while I was] somewhat knowledgeable, but I don't remember whether there's a patent convention.
GABRYNOWICZ: There's a Berne Convention on—I don't know if it's patents or intellectual property, but there are.

HOSENBALL: Maybe they do need one on property, on intellectual property, at least. Yes, there are probably problems out there, but other than the one that you've just mentioned, I don't know anything else. Do you?

GABRYNOWICZ: No. We don't have enough tape for that.

HOSENBALL: All right. You ready to quit? It's five-thirty.

BUTLER: One more quick question for you, if I could. You mentioned the receptions and dinners and bilateral meetings. How much discussion or actual progress or work was made in these types of informal settings versus in the working group?

HOSENBALL: Quite a bit. Quite a bit. Both with those that were not necessarily agreeing with the U.S. position as well as getting support for the U.S. position [from] some of these delegations. The bilaterals were important. Sometimes it was more than just two. For example, you'd invite Western Germany and probably the Canadians and the Belgians certainly. Sometimes you'd have three or four or five delegations that would meet for a dinner. But very useful.
Some of the delegations would invite developing countries. We would invite developing countries for bilaterals, usually invite two or three for a luncheon. As I said, we didn't have too much money. When I went, I at least talked my administrator into giving me $500 bucks.

GABRYNOWICZ: Under which administrators did you serve?


BUTLER: [James C.] Fletcher?

HOSENBALL: No.

BUTLER: Or [James M.] Beggs.

HOSENBALL: No. Frosch, Bob [Robert A.] Frosch. Fletcher, and Jim Beggs.

[End of Interview]
LEGISLATIVE HISTORY PROJECT 
ON THE UN PRINCIPLES OF REMOTE SENSING 
NATIONAL REMOTE SENSING AND SPACE LAW CENTER 
UNIVERSITY OF MISSISSIPPI SCHOOL OF LAW 

S. NEIL HOSENBALL 
INTERVIEWED BY CAROL L. BUTLER AND JOANNE IRENE GABRYNOWICZ 
PORT ARANSAS, TEXAS – 8 FEBRUARY 2002 

BUTLER: Today is February 8, 2002. This oral history with Neil Hosenball is being conducted for the Legislative History Project on the United Nations Principles of Remote Sensing for the National Remote Sensing and Space Law Center at the University of Mississippi School of Law. The oral history is being conducted at Mr. Hosenball's home in Port Aransas, Texas. Carol Butler and Joanne Gabrynowicz, director of the National Remote Sensing and Space Law Center, are the interviewers.

Thank you very much for talking with us again today.

GABRYNOWICZ: Mr. Hosenball, here's how I propose we proceed. Do you have a copy in front of you of the U.N. Principles?

HOSENBALL: Yes.

GABRYNOWICZ: I have a copy in front of me. For the record, we're going to be referring to the Principles Relating to Remote Sensing of the Earth from Space, Resolution 41/65, U.N. document No. A/RES/41/65, 95th Plenary Meeting, dated 3 December 1986.
What I'd like to do is go through them one *Principle* at a time and see what you can tell us about them, what the legal issues were, maybe what the competing positions were, and what the final version embodies. So why don't we just start with that, and let's take a look at *Principle I*. This is the *Principle* that refers to definitions.

HOSENBALL: Yes. The issue relating to definitions came up fairly regularly. Basically what's in... *Principle I* is a slightly changed version of what's pretty much stayed for a long period of time, which is purposes of protection of the environment in particular.

The purpose of improving natural resources management...is different. Originally the definition was "remote sensing" means "sensing for the purposes of the national environment and national resources," words to that effect. That is not as specific as this. But it's a good definition. It's one that I think does pretty much say what these *Principles* should apply to and do apply to.

The rest of it, the data issues were always—nobody in the Legal Subcommittee felt they were expert enough to come up with the kinds of data that would be coming from a remote sensing system—looked...to the Scientific and Technical Subcommittee...[which] was also working on the remote sensing to give us help. There were other attempts. This basically, as far as remote sensing is concerned, is a functional definition.

The Soviet Union did introduce the concept of trying to do it by way of [spatial] resolution. Fifty meters, I think, was what their proposal was, which was another way of doing it except nobody knew really what they meant when they said "fifty meters" and what it applied to, the kinds of instruments. Again, we referred it over to the Scientific
[Subcommittee], or [to] Perek [and] asked, "Is this a logical thing and would you check with the Scientific and Technical Subcommittee to see whether it makes any sense."

I think at that time, as I mentioned previously, I think Landsat was lower than fifty, and I'm pretty sure it was scheduled...to go much lower. So it would have been, if you accept[ed] the Soviet proposal, you could have kept an awful lot of remote sensing data...[not] subject to the Principles. Our feeling was we wanted all the remote sensing principles to apply without a resolution limitation, because again you can sort of get more information from better resolution and I knew that it was going to go much lower. Basically it went away fairly quickly.

The data [provision], it's not too much different from what I saw originally, some changes. The same true for remote sensing activities, not too much different, a little bit different than I remember it, but not significant.

GABRYNOWICZ: Was there any specific issues related to the distinctions between "primary data", "processed data", and "analyzed data"?

HOSENBALL: Oh, yes. Oh, yes. "Analyzed information".

GABRYNOWICZ: I'm sorry, "analyzed information".

HOSENBALL: Oh, yes. There was a lot of discussion on that. But from the point of view would there be access.... Because it becomes important in the Principles whether you're talking about "primary data" or you're talking about "processed data" or you're talking about...
"information", because you did have an argument...from developing countries that they had sovereign rights over "information" about their natural resources and...they wanted to impose [soverignty] on information and data coming from remote sensing. Nobody quarreled that they had sovereign rights over their natural resources. The argument was that remote sensing, either sensing, or acquiring data, or disseminating data, there was no sovereignty over information, a major issue all the way through. So the definitions were important from that standpoint.

From a scientific or technical standpoint, they're not very technical. But the mere fact that they're defined, the purpose of defining it, was made clear that this type of data could be distributed, could be accessed and distributed.

GABRYNOWICZ: Is there anything else you want to say about Principle I then?

HOSENBALL: No, not really.

GABRYNOWICZ: You want to move on to Principle II?

HOSENBALL: There are several provisions in here that deal with the concerns of the developing countries and the less developed countries, and this is one of them. I'm not sure whether this is partly taken from the '67 treaty.... I guess it's Principle III, but I think that benefit—no, I guess not. But basically this was one of the Principles they wanted to make sure that this new technology, this developing technology, would be to their benefit. They didn't have the scientific and technical capabilities within their own country. In the early
days, it was the U.S. and the Soviet Union, the space powers so called, that had the technology. Nobody else did at that point. They were concerned both about the Soviet Union and the U.S....which they didn't understand or know at this particular time would misuse this technology, and they wanted to make it clear in these Principles that their interests would be protected in some way and that these Principles would do it. I think it had some general language [about for the] benefit of all mankind or [the same] kind of language in the Principles Treaty,¹ but they wanted something much more specific. That's the same reason you have Principle III.

Gabrynowicz: Now, the reference to the U.N. Charter and the Outer Space Treaty and the relevant instruments of the ITU, by reference does that mean those documents are incorporated into the Principles?

Hosenball: I think so. ...I think the intent was to incorporate it. The ITU, of course, you had telemetry, and they have very detailed rules, so you had to live with that. So, no, I think definitely they were incorporated.

Gabrynowicz: So, if one were to attempt to make an interpretation of the remote sensing principles, would it be appropriate to resort to these as construction tools, look at the rules of those documents and apply them to interpreting the remote sensing principles?


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HOSENBALL: If there was any interpretation needed. If you really needed interpretation, yes, I think you'd go to those basic documents, since they are incorporated.

GABRYNOWICZ: "Conducted in accordance with international law," can you say what that means?

HOSENBALL: Whatever international law exists that might be applicable. ...There are some other things that might play a role.... I'm not aware of any. I don't think anybody really did a study of it to see what that term really meant. It was just accepted. Of course everybody acts in accordance with international law, so throw it in. Whatever that international law might be, we'll cover the waterfront.

Again, they were concerned that something would happen, and they wanted every protection...and if there was something in international law they could rely on that wasn't explicitly set forth in these Principles, that's what they were going to do.

GABRYNOWICZ: It was just incorporations.

HOSENBALL: Yes. It's an incorporation.

GABRYNOWICZ: Principle IV. Before we go there, anything else you want to say about Principle III?

HOSENBALL: No.
GABRYNOWICZ: *Principle IV* is pretty extensive.

HOSENBALL: Yes.

GABRYNOWICZ: So if you want to take a minute to look at it and then whatever you want to say about it.

HOSENBALL: Well, here again you [have] the developing countries who wanted, again, as much language as possible to ensure that these activities would respect their sovereignty to the extent that their sovereignty could be respected. But the key thing in it stipulates the principle of "freedom of exploration and use of outer space" [and this] is the balancing provision, a clear statement that you have freedom of exploration, freedom of use of outer space, which [are] the key words and pretty much overcomes any concept of prior consent to the right to sense. Having [stated] that, then you have the balancing language that the developing countries wanted, "full and permanent sovereignty of all States and peoples over their wealth and natural resources," but [we] added "with due regard to the rights and interests, in accordance with international law"—again, the term international law—"of other States and entities," so again, trying to balance not letting it go too far, [so] it's all one sided. You've given the right to sense. Now [the non-space countries] have all these other rights...and [so] it's again balance. It must have come along a lot later. I'm not sure when this exact language came into play.
GABRYNOWICZ: So is the following sentence correct or incorrect: Principle IV is a balance between the rights and obligations of the sensed and the sensing states.

HOSENBALL: Yes.

GABRYNOWICZ: You would say that's correct?

HOSENBALL: That is definitely correct.

GABRYNOWICZ: Anything else you want to say about Principle IV?

HOSENBALL: No. It just really emphasizes legitimate rights and no detriment. The no detriment came in very early in discussions. This looks like it's a Principle that brought several common elements together that may have been in several principles—when I was there…. Brought them together into a single extended paragraph to bring that balance into a clear understanding.

GABRYNOWICZ: Was there a particular conversation that occurred around the idea of no detriment?

HOSENBALL: Well, no. The Soviets even asked, if my recollection is [right.] "What did you mean by 'detriment'?" Definitional problem. We had part of the same problem, but once you start defining terms, you start getting into a real problem [about] defining everything in the
Principles. Like international law. You can end up going on and on trying to define individual words.... Some discussion, but nobody could come to a very good conclusion on how to resolve the problem on what "detriment" meant. In fact, "some harm" and that's it basically. Serious harm, little harm, left open.

Butler: Speaking of definitions, was there a similar type of conversation on defining what the natural resources actually entailed or was that pretty well stated by the definitions in the first Principle?

Hosenball: Pretty much stated by the definition. Again, you get into that kind of a problem. Again, a word that probably needs defining, but once you start defining, you're going to define everything, and...these are principles basically. If you went into a treaty, there may be some question as to [whether to] better define some...words because the treaty is going to be more binding, number one, and you really want to be a little more specific. So, yes, but these are principles. So you say natural resources. It's consistent with a...a principles approach.

Gabrynowicz: So anything else about Article IV?

Hosenball: No.

Gabrynowicz: Principle IV, rather. Then let's go on to Principle V, and this refers to international cooperation.
HOSENBALL: Yes. The U.S. was already carrying [out] that activity, international cooperation, bilateral agreements, multi-lateral agreements. Again, you see...that the big fight was developing countries basically saying, "We don't have any money. We can't afford this. We want it for free." You had that going all the way through, and you can understand that. The "have-nots" wanting the "haves" to provide resources for them. So you find the language in [the] last sentence participation in each case on "equitable and mutually acceptable terms".

Ultimately this was very important to [the U.S.] because sooner or later [remote sensing] was going to be privatized, and if you didn't have this kind of language, would the government be picking up all the money...private enterprise was spending to participate in international cooperation? So again, there was a real reason for having that language. At the same time you wanted to encourage international cooperation and so you have again the balance. There will be international cooperation, but it would be on mutually acceptable terms.

Here it's mutually acceptable. Later on I think there's language that doesn't use the term mutually accepted terms.

GABRYNOWICZ: Let me ask you the about the term "equitable". When that was used, were they talking about the concept of equity as opposed to law? Was that formal jurisprudence?

HOSENBALL: No. No jurisprudence involved. It was basically meaning fair, not as we understood "equity" in the jurisprudential sense, even though it does have a concept of
fairness even in the judicial sense. But we didn't get into a legal type equity versus common law or statutory law, it was basically fairness. If that's in jurisprudence, fine, but [we] didn't get into it. Everybody knew what it meant. It meant fair terms.

GABRYNOWICZ: Anything else about Principle V?

HOSENBALL: Let's see. Yes. [The] same concept encouraging cooperation,...agreements or other arrangements,...directed at the operation of centers.

GABRYNOWICZ: So now we're talking about Principle VI then? Have you gone on to VI?

HOSENBALL: Oh, I've gone to VI.

GABRYNOWICZ: So what would you like to say about Principle VI then?

HOSENBALL: It was something that the U.S. was already doing, and I think the Soviets had some sort of arrangements with their Eastern European Soviet Bloc countries, and so they made lots of speeches, too, about all the cooperation.

In plenary session...what was largely done at the start of the session, the start of at least the initial session, was everybody gave long speeches about what they were doing relating to space, U.S. included. We had a long speech saying all the good things that we were doing in space and, of course, in particular in the remote sensing area. We'd be furnished with all the bilateral agreements and whatever else had been done internationally.
The Soviets would do the same thing. Argentina and Brazil [being] a little more advanced, would also speak of what they were doing in remote sensing. Other countries would make speeches about the Principles themselves, what they liked or didn't like. But the U.S. primarily would really make this speech on...international cooperation in the remote sensing area, as well as other areas, and so would the Soviets. So you'd get that kind of building up to this kind of a principle, which basically says you ought to help wherever it's feasible to develop some systems where it would be easier for developing countries to get the benefits of this technology.

GABRYNOWICZ: There's also a reference to regional agreements.

HOSENBALL: Yes. As I said, there were discussions about how do you organize...remote sensing activity, the role the U.N. should play, regional, national, a centralized data bank somewhere, a lot of discussion about organization. I think [most] states didn't expect to participate in the sensing activity. It was in the data area that they really expected to participate. Nobody, I don't think anybody raised the question. To the extent that they might ask for coverage of a particular region, yes, that, too, would be a participating, but in the technical operations of the sensing activity, except for the point I just made of maybe indicating an area that they might want to go over, it was data. How do you get a hold of the data, and what kind of data do you get, and when do you get it, that kind of argument.

GABRYNOWICZ: Do you think those questions were resolved by the Principles, what kind of data do you get, how to you get it, and when do you get it?
Hosenball: I think so. I think they've done a pretty good job of at least stating the data that you do get and how you get it and under what arrangements you get it. At least there have to be arrangements in order to get it. No, I think the Principles did a pretty good job of that. They may not make everybody happy, because there were issues about access to data.

Gabrynowicz: Well, we'll get to those when we get to that Principle. So does that conclude Principle VI for you?

Hosenball: Yes.

Gabrynowicz: Principle VII refers to remote sensing activities and technical assistance.

Hosenball: Yes.

Gabrynowicz: Mutually agreed terms.

Hosenball: That same thing. [The non-space countries] want help. The issue was do they get free help or do they get help on mutually acceptable, mutually agreed terms? That's interesting, the difference in the language. We have in V "mutually acceptable," and here we have "mutually agreed." I'm not sure there's a difference, but it's surprising that they used different terms. I'm not sure there's any difference. I assume that if you agree, that they're acceptable.
...Why—I have no idea why the words are different. You'd think you'd be consistent and not raise the issue. I just raise the difference between the two.

GABRYNOWICZ: Then Principle VIII refers to the United Nations, its agencies, and its role. What was the discussion there?

HOSENBALL: The U.S. typically was not about to fund [a] U.N. operation in remote sensing. At that time it was still paying the largest share [of the U.N. budget, and the U.S. was] always concerned about empire building. The U.N....at least the Outer Space Division people, would have loved to have had a U.N. remote sensing center. I suspect [there was] talk was on a bilateral [basis] or sidebar discussions with developing countries, trying to have them promote that idea. But neither the Soviets or U.S. were interested, and so you ended up with basically this language, to the extent that the [U.N.] agencies had the expertise in remote sensing. Some of them did.

The Food and Agriculture [Organization], what is it, FAO, had always expressed interest in remote sensing and logically so. There is an environmental agency, a U.N. environmental agency, and [it] had obviously expressed interest in use and did have expertise. Those two agencies did, and they had a much closer working relationship with developing countries than the U.N. in general or even that the U.S. had in many cases.

So the principle is a good principle and one obviously that you can't really object to. The key thing was not to have anything in here urging the U.N. to set up a remote sensing operation, either from a point of view of sensing or data distribution. This doesn't, that's for sure. So it's a good Principle.
GABRYNOWICZ: Then let's move on to Principle IX, which refers to previous space treaties including the Registration Treaty, the Outer Space Treaty itself, and also refers to the obligation to inform the Secretary General regarding remote sensing activities. Would you like to say something about Article IX, I mean Principle IX.

HOSENBALL: We ran into this problem in the Registration Convention. Everybody wanted prior notification and complete explanation of what the mission was. In fact, we were reporting military missions, military launches under the informal arrangements even before the Registration Convention came along. So it was fighting the same battle all over again. They wanted prior notice of launches of remote sensing [satellites]. They wanted to know the information about the activity, where you were going to sense and everything possible. This...is almost the same language that's in the Registration Convention, except for, again, the last...couple of—

GABRYNOWICZ: Phrases?

HOSENBALL: Yes, phrases, particularly any developing country that is affected by the programs at its request. But it's all modified again by the same language that was in the Registration Convention, "feasible" and "practical". So as I say, it's just rearguing...[the Registration Convention issues]. We'd point to the Registration Convention and say that's more specific as to what the procedures ought to be and it's been agreed to and let's move on.
So you ended up with this. They particularly wanted [the] last few phrases in there, again, developing countries' concern about this technology that they didn't know a lot about.

GABRYNOWICZ: Anything else about Principle IX?

HOSENBALL: No.

GABRYNOWICZ: Then let's move on to Principle X. This is the Principle that refers to protection of the Earth's natural environment.

HOSENBALL: Yes. That came in fairly early, as I think I mentioned, X and XI were, I think, in basically one Principle and one thought at least. If you're going to protect the Earth's natural environment, you also wanted to provide information [on] anything that might affect the Earth's environment detrimentally, it naturally follows that if there's a natural disaster you'd want to do the same thing.

So [the Subcommittee] basically put a requirement on states that if they have data or information, analyzed information, that may be useful to states either affected by natural disasters or that could be used to avert any phenomena harmful to the Earth [you] shall disclose such information to [the] states concerned. So they're basically...the same, just dealing with different events.

GABRYNOWICZ: So then let’s take them together, X and XI. XI is the protection of mankind from natural disasters. Anything about that?

HOSENBALL: No. Early on agreed to. Very little discussion. Very early common element. It really was. Nobody questioned that.

GABRYNOWICZ: Let’s digress for a second. Which Principles do you believe were accepted early on?

HOSENBALL: That one was accepted early on without brackets. The protection of the natural environment was accepted early on. The concept of the registration idea, prior notice, a big argument but ultimately because there was a Registration Convention, that was accepted early on.

GABRYNOWICZ: So that was Principle IX?

HOSENBALL: Yes. The concept of technical assistance being provided was accepted early on. The only question was how was it…to be paid for? So was a formulation for Principle VI, again, encouraged [states] to enter into agreements. So was V. The international cooperation ones were accepted fairly early on. They may have had some words bracketed. Like mutually agreeable terms may have been bracketed, because developing countries didn’t want that. They wanted it made available to them without having to negotiate terms and conditions on making it available. So you had that.
The difficult ones were on the access to data, the definitions of remote sensing to some extent, the definitions of data to some extent.

Let's see what the other Principles were. Again, the early-on ones were the ones that dealt with international cooperation. You have that. As I say, there may have been brackets on some words, but there were all these common elements that would be merged together from various working papers that were submitted. They may contain different words, but they had the same concept, and so you'd pick and choose which one you'd use or you combined them or did other work on them to try and get agreement and get rid of those brackets. So that's the way the process worked.

You've got to remember, a lot of progress was made in '78, '77 and '78, so that's where the work was done, based on my recollection. Work was done in '75, and then there was a lull because the Soviets threw in the Moon Treaty, and they were very anxious to do the Moon Treaty. We had been finished with Registration and Liability. They proposed the Moon Treaty, and they were more interested in getting the Moon Treaty, so there was that lull. You've got to remember that in '79 the Moon Treaty [obtained] consensus, and so it picked up after that again, and I assume that's how it ended up in these Principles.

GABRYNOWICZ: Then let's go back and pick up with the principle we left off, and that next one was going to be Principle XII.

HOSENBALL: XII.

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GABRYNOWICZ: This seems to be an extensive *Principle*.

HOSENBALL: Yes.

GABRYNOWICZ: This is a *Principle* that refers to nondiscriminatory access, access to different categories of data and information.

HOSENBALL: ...Here it breaks out the distinction between "primary data" and "processed data" and "analyzed information", and they treat [them] differently and we clearly know why. But again on "reasonable cost terms". They're not going to get it for free. There's availability earlier for "processed data" and "primary data". There's no priority, but basically as soon as it becomes available, a sensed state [w]ould have access to it.

GABRYNOWICZ: Do you remember any discussion about as soon as it becomes available, what that was intended to mean?

HOSENBALL: You mean on—No.

GABRYNOWICZ: [*Referring to document.*] Well, that's not in this particular *Principle*.

HOSENBALL: Yes. That's what I was looking for.

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GABRYNOWICZ: But that term anyway.

HOSENBALL: I don't think it's anywhere.

BUTLER: "As soon as...[they're] produced." It doesn't say as soon as available.

GABRYNOWICZ: On Principle XII, "As soon as primary data and the processed data concerning the territory...are produced."

HOSENBALL: "Are produced," right. "Are produced," which makes it available in an earlier time frame than the language that you end up [on] analyzed information. There is a distinction drawn. There is a distinction drawn, and an important difference. Basically the difference is you shall also have access to the "available analyzed information." Now, "available" meant a lot of other things. Not produced. A decision by someone that it's available. From our point of view, that meant that you could have your principal investigators using remote sensing data, doing the analyzing, and then publishing their paper, and then analyzed information would become available then. You could have private parties, private corporation doing the analyzed analysis and available then when they're ready to make it available.

So the analyzed information part was much more important from a point of view of the U.S. than the basic data, because that's the added value that everybody talks about. When
it comes to remote sensing, the ability to analyze the information and come up with some sort of end conclusion about something, whatever it is, whether there's too much water in the ground or not enough water in the ground, or this area might be an interesting place or important place to do some prospecting for natural resources...[was] so very important from our point of view.

The Soviets liked it too because it gave them the ability not to make their information available across the board. I mean, NASA was making an awful lot of analyzed information available. ["Available"] gave the Soviets the ability to retain their analyzed information. Again, they were just as interested as we were that if they had it and somebody wanted it, they would have to enter into an agreement of some sort with them...they wanted [this] as equally as we did. So [that] distinction, that, to me, is probably the most important Principle from the point of view of the total Principles that we've been looking at. It's a key one for me.

GABRYNOWICZ: Principle XII is a key principle?

HOSENBALL: Yes.

GABRYNOWICZ: Then let's take a minute to look the it a little more closely. What is your understanding of the term "nondiscriminatory basis"?

HOSENBALL: It means that you couldn't say, "I'm going to give data to this state and I'm not going to give it to that state. I'll give it to State A and I won't give it to State B for whatever
reason." It had to be available on an nondiscriminatory basis. If I gave it to State A and State B came along and wanted it, I couldn't say, "You can't have it." Basically that. You couldn't discriminate among [states] asking for the data.

GABRYNOWICZ: Okay. And what is your understanding of "reasonable cost terms"?

HOSENBALL: You'd have to come up with a justification basically on the charges you were making. In other words, it just couldn't be totally arbitrary in saying we're going to charge you ten times as much as it costs us. There had to be a basis in the cost of preparing the data or [acquiring] the data. You'd come up with a unit cost of some sort that was based on reason, rather than just being arbitrary. Reasonable cost is fairly common in government.

GABRYNOWICZ: What is your understanding of this: "The sensed State shall also have access to available analyzed information concerning the territory under its jurisdiction in the possession of any State participating"—oh, that's such a long sentence.

HOSENBALL: It's a confusing sentence. Basically it says if you give the basic data to State B, not a state operating the sensing process. In other words, the sensing state always has all the data. It also may have analyzed information. The sensed state says when you give that information to a third state and that state has information, analyzed information, about the territory of the sensed state, then it wanted to get access to that information as well. See what I mean?
GABRYNOWICZ: Yes.

HOSENBALL: Again, they're worried about the neighbor having information about, say, water resources along a border and having that information, the analyzed information. They have data, and they don't have the capability to analyze the data. They want that state to make that information available, again, on terms...[to the neighboring] country....

That's a new thought. I don't remember. The issue was there, but not as explicit as this. They were worried about other countries who got the data, not necessarily the U.S. or the Soviets, who got the data and had it and didn't have any obligation to make it available since they weren't a sensing state. So this came in to the picture that, yes, if somebody else has it, State B has it and State A doesn't have it and State A is the sensed state, B had an obligation equal to a sensing state to make that analyzed information available about its territory.... Interesting section.

GABRYNOWICZ: Principle XII, in the past I've heard you refer to this as the "dissemination statute." Would you still characterize it that way?

HOSENBALL: X and XI dealt specifically with disseminating...data and information about natural disasters and threats to the environment, so they, to some extent, are access Principles as well, but Principle XII is the general one. It really says you get access to primary data and processed data and analyzed information under these conditions. There's no priority in there, which was one of the issues. There's no prior consent in there, which was, again, a major issue. It deals generally saying that these are the terms and these are the conditions under
which you will have access to any data or information that is in the possession of the sensed state or in the possession of a third state, particularly in the information area, the analyzed information area. I think I probably agree that this [is] the basic Principle dealing with access to data.

GABRYNOWICZ: Then let's move on to XIII, another Principle referring to international cooperation and consultations.

HOSENBALL: Well, it's in another form. It urges consultations, and it says a sensed state can request—if you're ignoring them, they want to participate and you're ignoring them, you're not responding, you can make a request and enter into consultations in order to make opportunities available to participate.... It's, again, international cooperation. You get that through so many of these Principles. That was the push.

GABRYNOWICZ: Anything else about Principle XIII?

HOSENBALL: That's about all I have to say.

GABRYNOWICZ: Then Principle XIV is the principle that refers to governmental and nongovernmental entities.

HOSENBALL: Yes.
GABRYNOWICZ: Would you like to say something about that?

HOSENBALL: ...What this principle does is it flows down the '67 treaty [Outer Space Treaty] to remote sensing and applies it, [where] applicable to either governmental or nongovernmental agencies. Nongovernmental agencies would include nongovernment charitable organizations or scientific organizations but also private organizations, corporations organized in the states and elsewhere who might conduct [remote sensing activities]. By the times these Principles were finished, I think we had the Landsat Act, what, in –

GABRYNOWICZ: '84.

HOSENBALL: —'84 and the U.S. had already started to transfer handling the data and distributing the data...to private parties. So it doesn't surprise me that obviously you'd want to—even if you thought it was going to happen, you'd want to make sure [the Principles applied to nongovernmental entities]. To me it's no big deal, because I think it would have been true under the '67 treaty anyway.

Now, what is that responsibility? I'm not sure. The responsibility to conform to these Principles, I assume, and responsibility to conform under other provisions [of]...international law, which is again mentioned here for the second time. I don't remember this being in the Principles when I...[was deeply involved]. So it was something that was added. I'm not sure. I'm not sure exactly what it means, [the] last sentence.
GABRYNOWICZ: Then anything else about Principle XIV?

HOSENBALL: No.

GABRYNOWICZ: Then the last principle is Principle XV, and this relates to dispute resolution. We touched on this a little bit in our previous conversation.

HOSENBALL: Yes. The only thing I remember is we had a dispute provision which led to consultations, my recollection before I stopped attending sessions. This one is much broader. It basically commits both governmental and nongovernmental agencies to submit to established procedures, and there's a whole range of procedures for the peaceful settlement of disputes. I mean, it's a very, very broad provision.

I don't know the logic behind agreeing to this, unless, again, as I said earlier, it was something that was holding up final consensus and the trade-offs all took place, and we said, "We'll agree to this if you'll agree to that," and it was important to the developing countries that they wanted to have some entity that they can bring their disputes to and that they would have a choice....

GABRYNOWICZ: Well, then I only have a couple more wrap-up questions about the Principles in general, and then I'm going to hand it over to Carol.

Do you think there was anything that the United States wanted to have put in the Principles that wasn't put in the Principles?

HOSENBALL: No. I can't think of anything. It wasn't at our initiative, U.S. initiative to have remote sensing on agenda to begin with, so we were happy with things going along as they were. So, no, I don't think so. I think on the whole there were some things that I may not be too happy about, that may have gone too far, but they are things the U.S. can live with. There's nothing here that impacts on the ability to carry out the technology, to commercialize it, and do the things you want to do with it. So I think it works out well.

GABRYNOWICZ: Could you summarize your understanding of the responsibility of a sensed state under the Principles.

HOSENBALL: Of a sensed state?

GABRYNOWICZ: Of a sensed state, the state that is being sensed.

HOSENBALL: Their responsibilities?

GABRYNOWICZ: Yes.

HOSENBALL: Well, they do have some responsibilities if they get some data. You can't cut off borders, obviously. If you're going to get the data down, you're going to get it from the
area surrounding your own state, depending again on the resolution. If you get data and you analyze the data and you find that your neighbor...there's something happening in his territory, under Principle XII, you have an obligation to do something there, too. But other than that, there are no real obligations on a sensed state.

Gabrynowicz: How about the rights of a sensed state, summarize the rights of a sensed state under the Principles.

Hosenball: They list a whole bunch of rights, the right to wealth, right to natural resources, right to have no detriment. There are more Principles dealing with their rights and interests than certainly...the rights and interests of sensing states. All the sensing states get is recognition to carry out their sensing activities in space and on the ground.... That's what they get. They don't get anything more.

The sensed states and third parties states, for that matter, get access to data, under terms, but they get access to data. They get access to analyzed information as available.... So they get a heck of a lot more than the sensing states. The sensing states have more obligations.

Butler: Could you summarize those obligations?

Hosenball: Well, they have to make data available. There may be a cost, but you'll never recover the full cost. They have to enter into consultations. They are subject to a dispute provision. There's a whole area. Most of it deals with benefits to sensed states and provides
obligations on the sensing states, with the only benefit, as I said, basically the right to carry on the activity as it was ongoing at that time. People were complying with the basic principles before these Principles came along. It codified to a large extent the activities that were going on and then put obligations on the sensing states vis-à-vis sensed states and in particular repeated over and over again the [rights of] less developed countries.

GABRYNOWICZ: How would you summarize the status of—I want to use the language—developing countries, each one of those phrases, developing countries could be a subset of sensed states? Is there anything over and above the sensed state's rights and obligations that may exist for those sensed states which also happen to be developing nations?

HOSENBALL: Well, what's the definition of a developing country? Mexico considered itself and still does, to be a developing country. Now, you compare them with some of the countries in Africa and Asia. So you've got degrees of development.

I think everybody understood industrialized countries. You don't have to call Western Europe industrialized countries that had the technical capability to take this information and use it, to take remote sensing data and information and use it if they wanted to. That didn't mean they had to do it, but at least they had the capability and so don't worry about them. They can take care of themselves. It's us poor nations and slowly developing nations, this so called Group of 77, which also included India, that felt that they did not have the capability to do it.
Now, India did have capability to do remote sensing, if they wanted to put their resources there. In fact, there probably was an agreement with India that I don't recall. The industrialized states, technically developed states could take care of themselves. What we ought to do is recognize the rights. That's why you single out in a lot of places developing countries and developing states, because they were the ones that said, "Western Europe can take care of itself. United States can take care of itself. Canada can take care of itself. Sweden can take care itself. We've got to worry about people who don't have the resources, both technical and financial to make use of this very good technology." They like the technology. There isn't any question about it.

The question was how would they get a hold of it? How could they use it? Who was going to help them use it? Who was going to give them money to use it? Is it an aid program, foreign aid program? Are there U.N. agencies that could provide this technical assistance? In fact, I think the U.N. did run meetings that were purely technical in nature for the developing countries to show them, one, what this was all about in effect, plus how they could participate and what it could be used for. So even at that time, that activity was going on. So that's why you reference the U.N. and other agencies.

GABRYNOWICZ: Do you think those multiple references to the special considerations for developing nations in the Principles, do those references give rise to any additional rights that sensed states have under the—[Principles]

HOSENBALL: No, I don't think so. It's again, the emphasis. They wanted to emphasize the particular situation developing countries were in. They really didn't have the technical know-
how or the money or the people or whatever to really participate unless they got some help. They were also afraid, not knowing as much about the technology, that they might be harmed by it in some way. They wanted to be helped by it, and they didn't want to be harmed by it. When the sovereignty argument came up, sovereignty over information about [their] country, I said, "Hey, if you're worried about that, you control your borders. Nothing in these Principles allows somebody to enter on to your territory without your consent. Nothing's changed. Yes, people do have information, always may have information about your country that you may not know about today, forget about this technology. So it's not a new problem. That's not a new problem. But you control your territory so that you can exclude people, if that's what you want to do." Sovereignty over information is a different problem. It's a mistake to go in that direction.

GABRYNOWICZ: One final regarding the entities addressed in the Principles, could you summarize your understanding of the rights and responsibilities of private entities under the Principles.

HOSENBALL: As far as I'm concerned, they're the same as governmental entities. I don't see a distinction being drawn. Matter of fact, nongovernmental entities are only mentioned in one Principle. I don't see any special questions arising.

GABRYNOWICZ: One statement, what, if any, value do the Principles have—and I'll leave it at that—in your mind?
HOSENBALL: The biggest value that it has is it pressures for international cooperation in remote sensing throughout, in various Principles. There is a push for international cooperation. It calls attention to states that this technology exists. There is someplace you can look to see what your rights are, if you will, what your access is, if you will, as well as other provisions like dispute [and consultation] provisions.... So I think it does contribute significantly, if you wish, to space law or space principles or whatever you want to call it.

GABRYNOWICZ: Now, in the year 2002, what would your opinion be, what is the legal status of these Principles?

HOSENBALL: Well, I don't know whether they have been around long enough to say it's customary international law, but as far as I know, the sens[ing] states have been in compliance with these Principles, and it's now more than just the U.S. and the Soviet Union. You've got the French. There are others, I'm sure, coming down the line, if not in the sensing operation but at least in analyzing data on the ground. So it's pretty widespread and working pretty well. So I think it served a purpose. I suspect it's going to grow. It's growing more important. It's surprising how important it's becoming in this country, between the remote sensing data and global positioning. Farming has changed, and a lot of other operations have changed.

GABRYNOWICZ: I think I'll hand you over to Carol.
BUTLER: I just have a few kind of follow-up questions. In talking about the concerns that existed from the developing nations, particularly about national sovereignty, how much influence, if any, do you think the active work from the U.S. Landsat program and the access they had to data from that program during this negotiation process, how much influence do you think that had on resolving their concerns and actually achieving passing the Principles?

HOSENBALL: I think it had a great deal of influence. As I mentioned earlier, we gave these speeches at the beginning of the session and with emphasis on what Landsat was doing and how it was being used by not only developed countries, but were being used in less developed countries. Yes, I think it was significant, really significant.

It made it easy to make arguments to get rid of the sovereignty question. Nobody has been hurt. It's [being] used now. ...You're talking [19]80s, mid-80s, [so] give us an example of a detriment. How have you been taken advantage of? How has your sovereignty been affected? It's now wider spread, Landsat 1 and 2, I think 3 or maybe even 4 by then, for all I remember. So, yes, it had significant influence.

BUTLER: Do you think that the Principles have adequately addressed those concerns in the actual statements?

HOSENBALL: I think so. I think it's balanced. I think they got more than probably the sensing states got. They could have ignored the Principles and continued on.

I think the fact that the Principles were finally reached is showing a recognition that [the LDC's] e were concerned and we ought to not just shove them aside. We ought to do
something to give them some assurance that in the future that we would use this technology for the benefit not only of our own country but for developing countries, for developed countries, for the countries of the world. I think [the Principles] served that purpose.

**Butler:** You talked about the status of the Principles in relation to today's events and activities, but—I just completely lost my train of thought. Oh, during my research I ran across some discussion that certain nations wanted to still consider pursuing a treaty based on the Principles. What are your thoughts on that?

**Hosenball:** I don't know what else would be added. You might end up with arguing more about definitions. You'd probably start with the Principles as a basis and start arguing about definitions and how do you define it and get more specific. Maybe set up a separate dispute procedure and that sort of thing. I'm not sure what it would add, if you were to go ahead with a treaty.

I think it would be a mistake to reopen all the old issues and reargue them, because they're going to end up basically the same way. The U.S. and Soviets probably won't change their position, and those countries that haven't developed enough won't change their position, so you'd be rearguing the same things. If you did get a treaty, you probably won't have a balanced treaty the way these Principles are, I think, reasonably balanced, even though I think to some extent they're more favorable to developing countries.

The U.S. and the Soviet Union and France now, the French and others, who have been carrying on these activities are not going to change. I don't know what they're going to
gain. I really don't know what would be gained by reopening and starting negotiating a treaty on remote sensing.

**Butler:** One final question from me is actually very general, when we were talking about the very beginnings of you becoming involved with the remote sensing discussions, negotiations, you mentioned that the U.S. had drafted a statement not exactly proposal. We talked about the Argentine proposal and the French and Soviet. Who came up with the United States' paper position within the delegation, do you recall, and were you involved with that?

**Hosenball:** Yes, I was involved with that. They were fairly general, and so I suspect it largely came from Herb Reis and State, with coordination. NASA more than likely contributed to that draft. But they were very general things and basically in the international cooperation area. We may have had a definition in there of the type that I mentioned, but I would guess it was initiated by State, as it usually is. We wouldn't take that kind of initiative or [be] interested in taking that kind of initiative. NASA wasn't that interested in that kind [of] initiative.

...My recollection is that it was the same time that the Brazilian, Argentine Mexico, that group, and then the...Soviet-French proposal were put in as working papers, and we couldn't just stand by and do nothing. We submitted this very generalized...working paper to see if there were any common elements to get that concept moving along.

That's all I remember about it. I don't think there was really anything significant, except for the areas of international cooperation.
BUTLER: I think in both discussions, yesterday and today, we've discovered most of the topics I had.

HOSENBALL: All right.

BUTLER: Joanne?

GABRYNOWICZ: I may have one or two more tweaks. Let me ask you if the following statement is correct or not: The nondiscriminatory access policy was the U.S. answer to both the prior consent issue and the issue of third party distribution.

HOSENBALL: I think that's true.

GABRYNOWICZ: That's a correct statement? Okay. Then I think you answered these others.

In addition to the commercial questions and preparation [for] commercialization, I'd like to ask you about the value of the *Principles* regarding foreign policy at the level of nation-to-nation. What, if anything, do the *Principles* address specifically regarding nation-to-nation relationships and are they relevant to that?

HOSENBALL: Well, I think that many of the *Principles* are nation-to-nation. Technical assistance, access to data, participating in the program, that's all nation-to-nation. It was, and I think probably still, can be an important foreign policy tool, especially vis-à-vis developing
countries or countries that don't have the capability to take advantage of it. The problem is that usually costs money and somebody has to budget for it.

There are a lot of other people in the foreign policy area that think that what they want are more important than this and that those should be funded. I don't know how you do it. Where would you put that activity today to try and expand that connection nation-to-nation, U.S. versus developing countries using remote sensing to assist in the development of their country? Where would you put it? Is it an aid program? If it is, it's gone. The country itself is going to want to use aid money for something other than remote sensing.

Can you make it part of the Peace Corps and send some technical people over there as part of the Peace Corps, have them tie up with the local university and spend some time and see if they can't get some foundations in this country to provide the funds to get whatever equipment is available, nongovernment money. Because I don't think you're going to get much government money. I think it's important.

Now, maybe it's already being done in the Peace Corps. I don't know. They do send specialists out. I doubt it. But it can be an important part, reaching out to the people that you really want to reach out to. You're reaching out to those that are interested in science and technology and the developing countries, the future leaders of that country as it [begins] to develop.

Right now most of our activities are directed at the developing countries by giving them assistance with farming, which is important, but it's not to the intellectual community, not to people that are interested in technology and bringing technology into their country. We don't, as far as I know, seem to be funding that kind of activity across the board.
Yes, we try and offer scholarships, bring people over here to our universities from those countries, but not that many come, and unfortunately when they're here, they don't necessarily go back to their own country. [Technical know-how] has to be taken to their country [in] some way, [but] I don't know the way. As I say, maybe you get a combination of Peace Corps and foundation funds to get the equipment and with the technology being taught by someone that does know remote sensing technology.

GABRYNOWICZ: Well, I think I have exhausted my questions. Is there anything else you would like to say for the record or expand on?

HOSENBALL: No. You two have pretty much drained me.

BUTLER: We just want to say thank you for talking with us today and sharing with us your thoughts on the remote sensing principles.

HOSENBALL: My pleasure.

GABRYNOWICZ: Yes. Thank you from me too, as the next generation space lawyers, a member of that generation, thank you very much.

HOSENBALL: Right.

[End of Interview]

8 February 2002
Section II

LEGISLATIVE HISTORY PROJECT
ON THE UN PRINCIPLES OF REMOTE SENSING
NATIONAL REMOTE SENSING AND SPACE LAW CENTER
UNIVERSITY OF MISSISSIPPI SCHOOL OF LAW

ORAL HISTORY WITH KENNETH D. HODGKINS
INTERVIEWED BY
CAROL L. BUTLER AND JOANNE IRENE GABRYNOWICZ
WASHINGTON, D.C. - 10 JANUARY 2002
Legislative History Project
On the UN Principles of Remote Sensing
National Remote Sensing and Space Law Center
University of Mississippi School of Law

Oral History with Kenneth D. Hodgkins
Interviewed by Carol L. Butler and Joanne Irene Gabrynowicz
Washington, D.C. – 10 January 2002

Butler: Today is January 10th, 2002. This oral history is with Ken Hodgkins. It is being conducted for the National Remote Sensing and Space Law Center at the University of Mississippi School of Law for its legislative history project on the United Nations Principles on Remote Sensing.¹ The interview is being conducted in Mr. Hodgkins’ office at the State Department in Washington, D.C. Carol Butler is the interviewer, assisted by Joanne Gabrynowicz from the University of Mississippi, and Rebecca Wright.

Thank you very much for talking with us today.

Hodgkins: Thank you.

Butler: To begin with, if you could give us a brief introduction on how you became involved with the United Nations Principles on Remote Sensing and what the status was of those Principles at the time you became involved.

Hodgkins: Well, I was working for the National Environmental Satellite Data Information Service at NOAA [National Oceanic and Atmospheric Administration] in the Department of
Commerce in the International Relations Office, and I joined that office in 1980. In 1981 as part of my portfolio, I was given the responsibility of back-stopping the U.S. delegations to the U.N. Outer Space Committee [U.N. Committee on the Peaceful Uses of Outer Space (COPUOS)].

GABRYNOWICZ: Can you explain what "back-stopping" means?

HODGKINS: Well, I would serve on the delegations or provide guidance to the delegations on remote sensing issues. So you had a NOAA rep, you had a NASA [National Aeronautics and Space Administration] rep, DOD [Department of Defense], Department of Energy [DOE], with [Department of] State leading the preparations. So in that role, I became involved in the remote sensing, the negotiations of the remote sensing principles in about 1981.

BUTLER: When you did become involved in 1981, the Principles, the negotiations, had been going on for several years before that. At what state were they in when you became involved? How many of the Principles had the wording had been worked out? What were the main issues being discussed in the negotiations when you became involved?

HODGKINS: Well, the Principles were still being debated on almost every point, as near as I can remember. If you go back and look at the reports from the Subcommittee meetings up until 1985, you had a text that was fairly well bracketed, and bracketed meaning there was language...where we had major differences in the substance or major differences in form. At

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10 January 2002
that point, my impression was that the fundamental positions were fairly well established among the regional groups for the most part, which is how a lot of this evolved. The negotiations really weren’t going anywhere fast.

GABRYNOWICZ: Can you identify who the regional groups were? What do you mean by that?

HODGKINS: Well, within the U.N., we’re organized loosely in the regional groups. Within the Outer Space Committee, since it’s a limited membership committee, it doesn’t have quite the same groups. It was loosely organized around the Eastern Europeans and the Soviet Union, the Eastern Bloc, which is basically the geographic group that is applicable throughout the U.N. Then you had the Latin American group that was fairly well organized, and again that’s one that is common within the U.N. Then you have when we call the "like-minded," which is unique to the Outer Space Committee. Again, since it’s a limited membership U.N. body, the like-minded was basically the ESA [European Space Agency] member states, the U.S., Japan, and Australia.

In the broader context of the U.N., you have what you call the WEOG, the Western European and Others Group, which doesn’t include Australia or Japan since they’re part of the Asian group. So we had this thing called the "like-minded," the like-minded included NATO [North Atlantic Treaty Organization] members and neutrals at that time, Austria and Sweden.

GABRYNOWICZ: Was Canada in the like-minded?

HODGKINS: Yes. Yes. Canada was in the like-minded group, and they’re also a member of NATO.

Then you had the African and Asian groups, but they weren’t quite as organized as groups because there weren’t as many countries in the Committee. So we kind of bundled the Latin group, the Asian group, and the African group into the Group of 77, the G-77. So for the most part, the negotiations would come down to kind of three blocks, the Eastern Europeans, the Soviet Union, the like-minded or Western group, and then the G-77. Within the G-77, the Latins were probably the more influential in these negotiations.

GABRYNOWICZ: You said at that point the main points had been agreed to or the fundamental. I don’t want to put words in your mouth, but.

HODGKINS: No. The fundamental differences had been established.

GABRYNOWICZ: Oh, okay.

HODGKINS: In my view, there really wasn’t any room for one of the three groups to kind of peel off and say, "Okay, I understand now what the Americans are trying to get at and it makes sense." ...We would discuss the Principles one principle at a time. Delegations would pretty much reiterate the positions that they had previously. So around '81, '82 when I
became involved, it was pretty much that. You knew pretty much where everybody was situated.

**Butler:** How often did you meet in COPUOS to discuss the *Principles* or actually within the working group to discuss the *Principles?*

**Hodgkins:** The *Principles* were discussed in the Legal Subcommittee. The Legal Subcommittee convened once a year for three weeks. So the *Principles* were discussed over a four- or five-day period in a working group.

**Butler:** As you entered into this, and you mentioned that essentially there were the three key points and they had been unchanging for a certain amount of time, what direction was the United States delegation that you were a part of given from the United States government to try and help move these processes along, and how did you follow that direction?

**Hodgkins:** Well, I mean, we would develop negotiation guidance prior to each meeting, and it was usually on some very, very general lines. We didn’t have specific line-in, line-out language that we were seeking. It was more kind of a general approach, because again, we understood at the time what the problems were and...what we had to watch out for.

But generally we were guided by a number...of general objectives. One was things had changed just before I arrived, but it had changed in a significant way when we declassified the fact that we had national technical means of verification [(satellites)], and that happened during the [President James Earl] Carter administration. So what that basically
did is we said we have these national technical means. They’re vital for global stability. Everyone just has to understand they’re there, and nothing that we do in this Committee is going be applicable to that. That’s for us to decide, and, if anything, it’s between us and the Soviet Union.

So it was very clear that whatever was agreed to on these Principles, they were going to be applicable to civilian remote sensing. No one contended that. There might have been some carping, but the fact is if there was going to be any kind of progress, that had to be one of the things everybody had to accept.

GABRYNOWICZ: Carol, I’m going to take it. So the U.N. Principles applied only to civil remote sensing?

HODGKINS: Well, they apply to what the definition is, and that definition deals with collecting electromagnetic waves for the purposes of environmental monitoring, land use, resource management, whatever the definition was. It was never intended that this would be kind of a catchall to cover systems that didn’t do that, work for those purposes basically.

GABRYNOWICZ: One of the debates in the community is whether or not the U.N. Principles apply to military systems.

HODGKINS: No, not at all.
GABRYNOWICZ: So let me just reach that point for a second. Based on your memory of the negotiation, was it ever agreed to or was it excluded.... Was it the intention of the negotiators or was it more the negotiators directed to allow the Principles to apply to military systems?

HODGKINS: No. No. Because of the definition in Principle 1. The definition is very clear that the term "remote sensing" means sensing of the Earth’s surface, blah, blah, blah, for the purpose of improving natural resources management, land use, and the protection of the environment. That was it. If there were other remote sensing applications that didn’t kind of fall within that area, which is primarily, again, our ability to verify arms control agreements and those sorts of things, then it would not be applicable.

To be honest with you, there may have been countries that might have carped about that, but it was more for kind of transient political points that they wanted to make, but they understood that this was a nonstarter and, in fact, it doesn’t do anything for these countries, because at that time and even today most of the developing countries were more concerned about the practical applications of this technology and how they could benefit from it. I mean, they realized it was almost ludicrous on its face to suggest we also feel as though we need intelligence-gathering data from a U.S. satellite because it would do nothing for them.

GABRYNOWICZ: So based on the negotiations and the intent at the time, is the following sentence correct or incorrect: The U.N. Principles apply to domestic military systems.

HODGKINS: No, it’s incorrect.
GABRYNOWICZ: Okay, thank you.

BUTLER: This was understood, as you said, essentially by all three groups, while there may have been some debate, but most groups understood, as you stated.

HODGKINS: Well, no. Let me just say you won’t find anything in any document that says that "X" country agreed with this view or "Y" country agreed with this view. This was the basis on which the negotiations proceeded, which is, we have this definition of what remote sensing is for the purposes of these Principles.

Now, clearly another country could argue, well, these need to be applicable to everything, but that is not necessarily sustained nor refuted in the negotiating record, if you see what I mean. It just really was never debated. Now, it might have been before I arrived in the seventies. I really didn’t look at the text.

GABRYNOWICZ: We just want your experience.

HODGKINS: Yes. There was never any serious push when I arrived to somehow pull this in. The other thing is that we worked very hard in the Committee to keep the Committee focused on international cooperation in space exploration and keeping it out of arms control discussions, space arms control, those things, because that’s not the correct forum. We had other fora where those issues would be discussed, and the Committee would be almost useless if we did get into those issues because they’re intractable. I mean, there was no way
we would ever reach any agreements, and the good things the Committee [c]ould do would be overwhelmed by fractious political debate.

GABRYNOWICZ: Let me ask you this. The three groups, let's see if I have them characterized correctly, the Western, quote, like-minded group, the Latin/African group.

HODGKINS: No, it would be the G-77.

GABRYNOWICZ: The G-77.

HODGKINS: Within the G-77 you would have the Africans and the Latin Americans and the Asians. The Latins were the best organized as a subset.

GABRYNOWICZ: Then there was the Eastern Bloc.

HODGKINS: Then the Eastern Bloc.

GABRYNOWICZ: Was the Soviet Union included in the Eastern Bloc?

HODGKINS: Yes.

GABRYNOWICZ: Is it possible to identify the priorities that each of these groups had in the negotiations at the time you participated?
HODGKINS: Well, yes, I guess in a general way.

GABRYNOWICZ: Tell me how it would be best to proceed. Should I ask you about one group at a time or do you just want to free-flow?

HODGKINS: No, I mean, I can give you kind of the general approaches for the groups, but there was kind of more to it, and then later on in your questions we can get to the more specifics.

In the Western group, well, let me just say about what we were trying to do. I mean, I got off on a little tangent when we talked about the national technical means. That was one aspect.

The other aspect that kind of drove our approach in this is *Landsat* and the need that we perceived for the rest of the world to buy into the general principles that we were operating *Landsat* on, primarily nondiscriminatory availability of data and a number of other things. Again, we can get into more of that at a later stage.

Then the third thing was the decision that we made to privatize the *Landsat* program. We believed that not only would this be a good thing for the U.S., it was going to be a good thing for our friends and allies internationally, and we wanted to create a conducive climate internationally for that. It was going to happen, but we had an obligation to make sure that if we did operationalize the program and eventually commercialize it, that internationally this would be accepted in one form or another.
So we needed to look very carefully at what the Principles would and would not do in that regard, and we really wanted to essentially codify in the Principles our basic operating principles for Landsat and eventually for commercial remote sensing, which I'll say jumping way to the end, we were successful in that. There's just no question about it when you look at the Principles.

So within the Western group, pretty much the other countries agreed with that. I mean, the French obviously had a huge stake in this because SPOT [Système Probatoire d'Observation de la Terre] was coming on-line. The Europeans were...cooperating very closely with us on Landsat. They were going to have their own programs. The same with the Canadians. So those, the nondiscriminatory availability, the ability to sense states without prior consent was very important, and then protecting our ability to disseminate data after it was made available was very important for the Western group.

For the G-77, it really was a mix because there were some countries that were very, very hard over on keeping this technology as controlled as possible, keeping us from being able to sense their states, from disseminating data of their territory, insisting on tech transfer outside of the normal kind of commercial cooperative arrangements.

But then there were others in the G-77 that had a more relaxed approach. They didn't like the idea that they could be sensed and this data is just kind of made available to everyone, but they could live with it because they realized there was probably not much they could do about it. What they wanted was assurances that somehow they would not be put at a disadvantage. So they wanted to see at least some indication that the countries with the technological capability were prepared to share in one form or another the benefits of this, to provide training, to cooperate, to provide them with the ability of getting a ground station
even though they might have to pay for it themselves. They just didn’t want this to be kind of an exclusive technology that only a handful of countries and multinational corporations would possess.

The Eastern Bloc, their position was dictated totally by the Soviet Union with the exception of Romania. Romania at the time wanted a Landsat ground station. It was a big debate about whether we would give them one. They kind of parted ways with the Eastern Bloc on the question of nondiscriminatory availability and prior consent. They were all for whatever it was that NASA was doing because they wanted a ground station.

But the Soviet Union, their objective was to put as many constraints on what we were trying to do from a civilian and commercial standpoint. They were very uncomfortable with the dissemination of the data. They didn’t have any problem with the sensing because they were sensing us, we were sensing them, it was kind of a transparency issue. What they didn’t like was the notion that the data could be made available to anybody who wanted it at any time for any price. So they really kind of focused on not so much the prior consent for sensing, but prior consent regime for disseminating the data. They wanted some kind of internationally agreed ground rules on how this data would be disseminated.

They also wanted to extend this concept of state responsibility under the outer space treaties to include ground-based activities and the activities that nationals conduct in ground-based operations; that is, in the responsibility realm they wanted a link between what individual companies might do with the data that might harm the interests of other countries. That, from our standpoint, was unacceptable. You can’t take the Outer Space Treaty\(^2\) that

dealt with state responsibility for activities in space and then say we're going to apply it to somebody with a computer-compatible tape doing something that another country decides is detrimental to their interests.

So the Soviets were, again, particularly interested in extending that state responsibility. Because, you see, at the time, all of their space activities were controlled by the government. This whole commercial thing was completely alien to them, and they wanted as much state control over what was going on as possible.

Gabrynowicz: So that's the three groups then?

Hodgkins: Yes.

Gabrynowicz: Could you say something about the United States-Soviet relationship within the dynamics regarding the Principles while you were there?

Hodgkins: Well, there wasn't a lot of interaction on a bilateral basis concerning the Principles because there really wasn't anything there that we shared in common. We might have had some discussions about what is it you're trying to do, but there wasn't any kind of common ground from which we could work.

At this time, you also have to remember, in '81, '82, '83, the propaganda machine in the Soviet Union was all cranked up on portraying the U.S. space program as just an extension of the military. It started even before 1983 when the President [Ronald W. Reagan] announced the plans for SDI [the Strategic Defense Initiative]. So within the Outer
Space Committee, a lot of the debate was more political and was really not designed to move anything forward at that stage. The Soviets were using this at another forum for trying to portray the Reagan administration as being militaristic and destabilizing, and space was just another area.

So, I mean, while you see in the records of the meetings, discussion, technical discussions, legal discussions, a lot of the maneuvering was designed not to kind of bridge differences but to sharpen the differences. So what you saw was the Soviet Union and Eastern Bloc working very closely with certain members of the G-77 that were sympathetic to their ideas on trying to isolate the U.S. or isolate the West on particular points.

So we didn’t have an ongoing dialogue on the remote sensing principles where we said, hey, you have a capability, we have a capability, why don’t we work together? Because, again, there weren’t really any kind of fundamental interests that were shared at that stage on this particular technology.

GABRYNOWICZ: When you joined the negotiations, at that point in time what would you identify as the most prominent unresolved issues that eventually did get resolved, if any?

HODGKINS: Well, the biggest one was the prior consent regime. This had the potential of being a huge problem for the United States and for the Western allies in terms of our—

GABRYNOWICZ: Just for the record, "prior consent" means?
HODGKINS: Prior consent is the idea that before a state can be sensed by another state, you would need the sensed state’s permission.

GABRYNOWICZ: Okay.

HODGKINS: Now, this had all kinds of problems with it because, first of all, it was impractical, and we just explained this in great detail. When you look at the Earth, there were no lines, so you don’t know where one country’s territory ends and the other begins. So that’s almost impossible to implement.

The second thing is systems like Landsat and SPOT and all these others are designed—sure, there’s some commercial activities in mind, but they’re designed primarily to deal with phenomena that occur on a regional basis. So if we were looking at Africa and desertification that transcends boundaries there, and so the work that we could do on a regional basis would help everyone. But if we were denied the ability to sense in the middle of that region, then from a scientific standpoint it would be almost pointless. So we were trying to say that this whole idea of prior consent, while it might make you feel good politically, it’s going to stifle the technology because it’s just impractical to implement. It would create additional burdens on the satellite operator that would make it impractical.

We argued that if that were to go into effect, what we essentially would have is a system in the case of Landsat that would end up being almost exclusive because we would just work with those countries that shared with us certain interests and certain values and these other countries that wanted to restrict the sensing of their territory would be left out.
GABRYNOWICZ: So that could be characterized as the Western, like-minded position?

HODGKINS: Right.

GABRYNOWICZ: What would have been the—

HODGKINS: But that was a major issue, I mean, the prior consent. The prior consent regime for sensing was primarily a developing country view.

BUTLER: What was their reasoning for having prior consent, given all of these issues that you talked about of how it wouldn’t work? What was their reasoning for why they wanted it?

HODGKINS: Well, there are a couple of things. One was a sovereignty issue, which is why should you be allowed to take pictures of our country from space when if you were in a plane flying over our territory, you would have had to get our clearance, basically because you’re in our air space. So they’re seeing this kind of controlling what people are doing over their territory.

The second thing is they said why should we be in favor of, in this case, NASA taking pictures of our territory and having information about our natural resources, our environment, our mineral resources, that we don’t have? Why should we allow that? You would have this information. You would give it to a mining or oil company. We wouldn’t have that. It puts us at a tremendous disadvantage in terms of our dealings not only with the
U.S. government, but with multinational corporations. So they wanted to be able to control what people knew about their territory at any given time.

Now, what we explained is, okay, we understand what you’re saying and here’s how we’ll solve it. We’ll solve it by putting a regime in that tells people you’ll make the data available on a public nondiscriminatory basis under reasonable cost terms. So at least for the United States, we offer you the possibility of building and paying for, on your own, a Landsat ground station, get all the data you want. We offer you the possibility of buying data of your own territory, either directly from the United States through the EROS [Earth Resources Observation System] Data Center, or through a ground station that might have your country in its footpath, footprint, and so everybody knows what everybody else has. You’re at least guaranteed not to be at a disadvantage, because that data will be available to anybody who would want it. So with the prior consent regime, our solution was let’s just make everything available on a nondiscriminatory basis.

GABRYNOWICZ: What was the thoughts or position of the Eastern Bloc on the prior consent question?

HODGKINS: I’m trying to think. I mean, they would pay lip service in terms of supporting it for the purposes of kind of solidarity with the G-77 and isolating us. I mean, they desperately wanted to portray the Eastern Bloc as being more in step with the G-77 from, again, a tactical standpoint. I don’t think they, the Soviets really cared about that. I mean, they would have liked it, because then they could deny the United States the ability to sense, but I didn’t get a strong feeling that this was something that they objected to as much as we
did, because their program was totally controlled by the military so they weren’t going to make anything available anyway. They weren’t going to share any information about their system, so it really didn’t matter to them, whereas we needed an international climate that supported what we wanted to do from a civilian and commercial standpoint. They didn’t have that problem. For them, they could do anything. They could accept any regime because it would not be applicable to what they were doing at that time.

GABRYNOWICZ: Let me capture that. Would the Soviet position that you just described regarding the prior consent regime be additional information regarding the point we addressed earlier that the U.N. *Principles* don’t apply to military systems?

HODGKINS: Yes. I mean, I think you could reasonably conclude that. As I said, to the best of my recollection, they were not hung on up on prior consent. They saw this as a tactical issue where they could pay lip service to it, by not objecting or by saying some positive things to support the members of the G-77, but knowing in end it would have no practical effect on what they were doing.

GABRYNOWICZ: So that’s prior consent. Let’s loop back. I had asked you to identify the major points.

HODGKINS: The major issues, yes.

GABRYNOWICZ: Does that conclude everything you have to say about prior consent?
HODGKINS: Yes.

GABRYNOWICZ: What would be the next major issue you would identify?

HODGKINS: Well, the next one would have been how private firms would operate under the Principles. This goes to, where I mentioned earlier, the issue of state responsibility. So many countries in the G-77 and in the Eastern Bloc wanted to extend the concept of state responsibility to actions on the ground, primarily how remote sensing data or analyzed information might be used by private individuals. In addition to that, they also wanted some controls over the analyzed information, the value-added product, if you will.

On both counts we said, all right, the state responsibility issue, that's not going to go anywhere because the treaties are quite clear. This deals with activities of governments and nationals in space. We aren't going to agree to anything in these Principles that goes beyond what the international legal regime stipulates. There is no kind of international regime dealing with how you use products derived from space, and we don't think that that is going to be practical at all.

Further, when companies use remote sensing data, they create commercial products that we don't have any control over. The U.S. government and most Western governments, even probably most governments in the developing world can't regulate what somebody does with a particular piece of data or the resulting product. They might seek to deny private individual access to that, but here in the U.S. a company like EarthSat [Earth Satellite Corporation] develops a product, the government can't dictate to them what they do or do not
do with that product. We might say for whatever purpose you aren’t going to get access to data from a government system, but once they have access to it, we can’t regulate that.

So to have provisions in the *Principles* that require governments to force private companies and individuals to sell or give away analyzed information was not practical, and we couldn’t do it anyway. The U.S. government was in no position to do that from a legal standpoint. So that was the second big issue, was how the private companies would or would not be regulated from an international standpoint, whether it’s in terms of doing things that were detrimental to the interests of other countries or forcing them to make available the products of their work.

**Gabrynowicz:** That was private activities. That was the Western position, what you just described?

**Hodgkins:** Yes.

**Gabrynowicz:** Did the G-77 have a formal position that was different?

**Hodgkins:** Well, no. Yes, they wanted to extend the concept, they and the Soviet Bloc wanted to extend the concept of state responsibility to non-space activities. So under the *Outer Space Treaty*, the states-parties are obligated to authorize and supervise the activities of their nationals in space. So that’s why we have the *Remote Sensing Act*, the *Commercial

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Space Launch Act, the FCC [Federal Communications Commission], all of these things, so there is at least some recognition that government is going to make sure that whatever of their private entities are doing in space is consistent with the treaties.

What they wanted to seek is the government under the remote sensing principles further supervises kind of nonspace activities, which in this case was companies using data to create products. So that was the G-77 and the Eastern Bloc view generally, that they wanted to—

GABRYNOWICZ: So moving ahead, by the time things were concluded, by the time the Principles were concluded, what would you say is the correct assessment of how the Principles apply or not to private activities?

HODGKINS: Well, the Principles, I mean, private activities are not excluded from the Principles. What we did in the U.S. is we incorporated—or I shouldn’t say that. The Remote Sensing Act incorporates or has in it elements that are reflected in the Principles. So that’s the extent to which the Principles apply to private activities. But we never asserted that there were activities conducted in civil remote sensing that were excluded, other than this notion that you can’t force private companies to hand over the results of their analysis of the data. So that’s why we have definitions of primary data, processed data, and analyzed information.

Then we can talk a little bit more, but you’ll see later in the Principles it’s very specific at what point processed data is available and how analyzed information might be available.

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GABRYNOWICZ: I want to just loop back before I hand it over to Carol again, in your own opinion, major points. We identified prior consent. We identified private activities. Anything else?

HODGKINS: Well, there was also the issue of assistance in using the data, in kind of training people in how to use it. It’s reflected in various places in the Principles and kind of generally about consulting to cooperate, setting up regional programs. I mean, the idea was—and, again, this comes primarily from the developing countries. The Eastern Bloc again didn’t really care too much other than to support whatever the G-77 was saying. But the developing countries, and particularly countries like Brazil, India, that had emerging space programs, they wanted to see in the Principles some commitment or some agreement that the people operating these systems would be in a position to provide technical assistance, teach them how to use the data that is made available to them. They didn’t want the technological capability of exploiting the data to, again, be possessed by just a handful of countries.

We agreed with that in the sense that we were prepared through various mechanisms, whether it’s through direct assistance by NASA or by NOAA or providing assistance through the U.N. to train people to use it because you had to expand the market base for remote sensing data and the products. So from our standpoint, this really was not a huge problem. It’s how it would be reflected, whether it’s going to be obligatory, whether we were going to buy into something that says, well, you have to do this for free. Again, we kept saying maybe we can work on a government-to-government basis to provide assistance in how to
use the data, but we can't force a private company or individual to go at its own expense to someplace else in the world to teach you how to do this. It's going to be in their own self-interest to do it, the private company. I mean, they'll be out there wanting to help you, but you're going to probably have to pay a price.

GABRYNOWICZ: Next question. Was distribution of data toward a third nation a separate issue from prior consent?

HODGKINS: Yes. Because you had —

GABRYNOWICZ: Third-party distribution.

HODGKINS:—third-party distribution. That's where the Eastern Bloc probably had the strongest feelings, was in addition to the state responsibility, they didn't like the concept that you would have the data and then you could distribute it to third parties without their knowledge, and a lot of countries in the G-77 felt the same way.

Again, our answer was, well, if you have to get another country's permission every time somebody wants to use data that might have a part of your territory in it, it's going to be impractical from a scientific standpoint and from a research standpoint. The Landsat system was our best and only example at the time. We said, we want to use this to solve major environmental problems and to do the research on those. It means our researchers have to have the freedom to use the data, and it has to be unfettered to work with your experts and your scientists. But if you have to get into a regime where you're asking permission to
disseminate it to third parties, it’s not going to be practical. So our answer is let’s just make it all available on a nondiscriminatory basis under reasonable terms.

GABRYNOWICZ: So is the following statement correct? The nondiscriminatory access policy was the U.S. answer to both the prior consent issue and third-party distribution.

HODGKINS: Right.

GABRYNOWICZ: I’m sorry, I told you –

BUTLER: That’s all right.

GABRYNOWICZ: Could you discuss, again related to the time you were involved in the Principles, the concept of access and cost and what, if any, relationship they had?

HODGKINS: Access to?

GABRYNOWICZ: Data.

HODGKINS: To data. Well, there was some debate about using price as a means of denying access to the data. This was particularly of concern to the developing countries. They wanted assurances that the U.S. or a subsequent multinational corporation operating a Landsat program would not use price as a way of limiting access to data.
So we agreed in the principle dealing with nondiscriminatory access, that it would be on reasonable cost terms. We said this is probably the best that can be done, because, again, all of this would be market driven. Sure, it’s going to be expensive, but the only way you’re going to have access to the data is if someone can afford to fly the satellite, and the only way they can afford to fly the satellite is if they get a return on what they’re doing. The market will eventually determine that price, because if it’s outrageous, no one is going to buy the data and if it’s too low, they’re going to go out of business. So there will be some equilibrium there.

At that point a Landsat ground station agreement stipulated that the operator would pay $200,000 a year, and that was when NASA was operating it. When I came to NOAA and we were transferring the system from NASA to NOAA, OMB [Office of Management and Budget] said, well, you’re going to recover all your costs. Well, in order to do that, we had to hike the prices up considerably. So the access fee for a ground station went from $200,000 in 1981 to $600,000 in 1982 and 1983. So those countries were concerned.

The same thing with the price of the computer-compatible tape that we made available through EROS Data Center. We had to increase the prices because OMB was telling us you’ve to recoup the cost from Landsat. Now, the ground stations set their own prices for the products that they provided.

So that was on everybody’s mind, and they saw the U.S. trying to take steps to commercialize Landsat, and they were concerned that the price would go even higher. So they just wanted some assurance that they would not be gouged out of the market and that somehow cost or the price of products would be used to limit their access to the data.
GABRYNOWICZ: But it wasn’t intended that the data would be free; there would always be some cost?

HODGKINS: It was up to the operator. I mean, Landsat data, in my view, was almost free in any case. This is unrelated to the Principles, but just so you get a sense, when we were putting together the pricing policy for the Landsat program, Landsat 4 was going to be the first of the satellites to carry the Thematic Mapper [TM]. We did a survey among kind of some of the leading user companies out there, and, again, this is back in ’82 and ’83, but some of the companies, particularly the mineral and oil exploration companies, said if the thematic mapper does what you say it will do, we would pay up to $10,000 per computer-compatible tape. Well, it was huge, the amount of money for just one tape. That never happened. When we started pricing this out for people, particularly for other U.S. government agencies, they all objected to it.

So my only point there is that the price concern and the overpricing really, in our view, shouldn’t have been a concern, because in the end that was not going to be used as some kind of tool to limit access by developing countries.

GABRYNOWICZ: The issues we just discussed—prior consent, private activities, assistance in using the data, third-party distribution, and access related to cost—anything else that you have to say about anything of those?

HODGKINS: No, I don’t think so. No, I think that, yes, those are the primary issues.
GABRYNOWICZ: Then I want to direct your attention to a couple of specific Principles.... Specifically Principle X and Principle XI. Principle X refers to "remote sensing shall promote the protection of the Earth’s natural environment. To this end, States participating in remote sensing activities have identified...information in their position that can be used to avert any phenomenon harmful to the Earth’s natural environment shall disclose such information to States concerned."

Can you tell us about what was behind that Principle, if you were involved or remember?

HODGKINS: Well, Principle X and XI, I mean, that all comes out of what we were telling the world about Landsat and about SPOT, is that these were civil remote sensing systems. They were not designed exclusively for mining companies or oil companies in order to make it easier for them to make a profit, that these systems were consistent with kind of our general mandate under the Outer Space Treaty, which is to use space for the benefit and in the interests of all mankind and to share the benefits.

Early on people were very suspicious about Landsat, because they saw this as using space for a very, very narrow purpose that didn’t serve everyone’s interest because only the U.S. had the system. They would control the data and so forth. We were trying to explain, no, no, no. This would be done like we’ve done everything else, which is to benefit our understanding of the Earth and the environment. We gave very specific examples about how it could be used for monitoring large-scale phenomenon like desertification—at this time that was a very, very big issue—and how it could be used to monitor natural disasters that occur much quicker than, say, desertification, like floods and those sorts of things.
So it only made sense that in the *Principles* there would be this recognition that remote sensing should promote these things. Plus, if you go back to the definition, the definition is very clear about what remote sensing means, which is primarily around the applications dealing with the Earth and the environment.

**Gabrynowicz:** Consistent with what we've been talking about so far, the three groups—the Western-like-minded, *G-77*, and the Eastern Bloc—on *Principle X*, can you identify positions each one of the groups might have taken regarding the substance of *Principle X*?

**Butler:** Actually, before you answer that, if we could pause and change out our tape.

**Hodgkins:** Oh, yes.

**Butler:** So if you could keep that thought in mind. [Tape Change]

**Hodgkins:**—group, the Eastern European group, the Asian-Pacific group, the Africa group, and then you have this thing called the WEOG, the West European and Others Group, and the others are the U.S., Australia, and New Zealand. Japan is part of the Asian group.

But when you get into COPUOS, it's a small membership, and the interests kind of dictate how these groups are organized. So Japan is part what we call the like-minded, and Australia. They had nothing in common. *G-77* was just primarily all of the—

**Gabrynowicz:** [unclear].
HODGKINS: Well, no, the G-77, the group of 77, were all the developing countries. I mean, they’re basically the nonaligned, supposedly the nonaligned that weren’t part of the Soviet Bloc, weren’t part of NATO or the Western group, but within the G-77 you had Mexico, Cuba, quite radical during that period of time. Yugoslavia, I think, was part of the group. Okay.

GABRYNOWICZ: Okay. So back to Principle X. In terms of three groups, can you remember what, if any, positions that they took as it relates to the substance of Principle X?

HODGKINS: I really don’t recall any kind of distinctive positions that the groups or any individual delegation took on these two Principles. It really came down to whether countries or states were going to be obligated to screen data and analyze the information on a regular basis to fulfill the—what’s the word I’m trying to use—not obligation, but the—

GABRYNOWICZ: Responsibility?

HODGKINS:—responsibility under those two Principles. We wanted to make it very clear that in the case of natural disasters, in the case of the environment, we are not going to be in a position where we’re screening everything or forcing companies to hand things over. What we’ll do is when we identify something that’s occurring and identify the fact that we, the U.S. government, have something that might be useful, of course we’re going to share that. I mean, that’s just kind of the American way. We aren’t going to sit back and watch countries

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become devastated by a hurricane or mudslides and offer no assistance. That’s just not for us.

GABRYNOWICZ: So again, you’re making a distinction between private sector activities and government activity?

HODGKINS: Right. That’s right. That’s right. Again, that didn’t preclude us from going to say EarthSat, which that company is the one that sticks out in my mind as being one of the early private companies that used a lot of data, but that wouldn’t preclude us from going to EarthSat and saying we have a major flood or hurricane or whatever it is in Honduras, and we’d like you to help us in using Landsat data to provide them assistance. We certainly could do that. But we didn’t want to be in the position where we led people to believe that somehow we were regularly sitting there sorting through this, because again, it’s not a practical thing.

GABRYNOWICZ: Would Principles X and XI represent something new in the remote sensing debate at the time? There had been a lot of discussion on public, private, and civil systems, and now we move into what could be called humanitarian. Would this have been something new or different at the time?

HODGKINS: I don’t think so. I think again, I’d have to go back and look at the series of reports, but I think these two Principles pretty much stayed the same as time went on. I mean, there would be bracketed language concerning whether this is "shall" or "should" or I
mean, there were just kind of minor points that couldn’t really be resolved until we resolved the other issues in the other parts of the Principles.

But again, for these two, I mean, the most important thing, and this is one thing that we explained at the time we adopted the Principles, is where we have no problems sharing what we have in the event of a natural disaster or adverse environment phenomena, but what we can’t do is make a commitment that we are sitting there regularly screening everything that we have, and we don’t want to be held responsible in the other event that we missed something and it didn’t get it to you in the timely way. We’ll do our best as we always have.

GABRYNOWICZ: Let’s go to Principle IV.

BUTLER: Actually, if I could ask one question. On Principles X and XI—

HODGKINS: Right.

BUTLER: As we’ve been discussing them here, we’re discussing them both together because they are so interrelated. Do you recall what the reasoning was for specifically breaking those two points out into separate Principles?

HODGKINS: I don’t, and when you read it, there are different elements in there, and I’m not entirely clear why Principle X and XI didn’t simply—either were combined or why Principle XI in the second paragraph was simply a rehash of the second paragraph of Principle X.
I suppose when you look at Principle XI, the natural disasters was more acute in terms of the timeliness, so I think when you look at this we said that "States participating in remote sensing activities that have identified processed data and analyzed information in their possession that may be useful to States affected by natural disasters...shall transmit..." them "as promptly as possible." The idea there is you're having flash floods, you're having—

GABRYNOWICZ: Volcanoes.

HODGKINS:—volcanoes, things like that, the timeliness makes a difference, and more than likely the analyzed information will be more useful than just the satellite data itself. More than likely, the analyzed information that is there has been produced by the government, not by private company. Because the government, in terms of the natural disasters and all that, we have FEMA [Federal Emergency Management Agency], we have the Office of Foreign Disaster Assistance. The disaster monitoring relief is pretty much a government function. You don't have a company sitting there doing it. So making the analyzed information available, we felt at the time probably would not be problematic from the idea of forcing private individuals or companies to give it up because more than likely we would have that in our possession in any case, that is, the government.

In the case of Principle X dealing with the natural environment, that's not as time sensitive. You have companies doing a lot of analytical work that they're going to want to be paid for, so the analyzed information in this case was not included because even though the government probably would have analyzed information, more than likely the applications
that might be applicable under Principle X were primarily driven by private companies. So I think that’s kind of where the distinctions come down on X and XI. But I don’t have any specific piece of paper that would explain that.

**Butler:** Okay, thank you.

**Gabrynowicz:** I’d like to go to Principle IV.

**Hodgkins:** Yes.

**Gabrynowicz:** Let’s see if I can find it on my own sheets. Here it is. This is the longest of the Principles, about—well, maybe XIV, it’s close. I don’t want to put words in your mouth, so why don’t you tell me about what you know about how this principle came to be and maybe what the positions were, especially regarding the last sentence: "Such activities shall not be conducted in a manner detrimental to the legitimate rights and interests of the sensed State."

**Hodgkins:** Well, this, again, the differences among the regional groups, as far as I can tell, are not as distinct as they were for the other issues. I can’t really recall other than the fact that I think the Eastern group and the G-77 would have liked to have used Principle IV to expand the concept of state responsibility and to kind of expand the protections that they wanted to see in terms of their own kind of sovereign rights, but by using Article I of the Outer Space Treaty. We insisted that the Principles were not going to create obligations
beyond the treaties or reinterpret what the treaties are applicable to. So that’s a position that we maintained, and again we prevailed in the end.

Let me just check one thing here. At the end of the negotiations, the Soviet Union had approached us with some changes they wanted to make. I’m referring now to a demarche that they provided in mid-1986, just before the General Assembly was to adopt the Principles. They wanted to add to Principle IV a provision that said states carrying out remote sensing activities shall bear responsibility for any detriment it may cause to the legitimate rights and interests of sensed states.

We considered that to be very broad and not something that we would want to—

We saw some pitfalls in that. I mean, when you look at that language and then you look at the final sentence, which says: "Such activities shall not be conducted in a manner detrimental to the legitimate rights and interests of the sensed State," so it’s a little different because that sentence is saying, okay, you shouldn’t do this. You shouldn’t do things that are detrimental, as opposed to bearing responsibility, which is completely different.

We saw that as again, extending this concept of not doing anything detrimental, extending it from the space sphere to ground-based activities. We weren’t suggesting that we were necessarily going to do something detrimental, but that’s in the eyes of the beholder, and we weren’t prepared to take on as a government additional responsibility for what again EarthSat might do with a particular product that they have produced.

Plus, I mean, the legitimate rights and interests of sensed states, I don’t have a specific definition of what that really means. On the other hand, who can argue for a provision that says we will do things that are detrimental to the legitimate rights of states?
GABRYNOWICZ: Anything else about that principle that you want to say or remember?

HODGKINS: No. I mean, again, well, the other thing is that the sentence dealing with these activities shall be conducted on the basis of respect for the principle of full and permanent sovereignty of all states and peoples over their wealth and natural resources, so on and so forth, in accordance with international law. We didn’t have any problem with that. Of course, we assert the same thing. There were proposals that we viewed as extending that particular provision to information over a country’s wealth and natural resources.

See, we accept the principle of sovereignty of all states and peoples over their wealth and natural resources. That’s fine. We aren’t going to go in and try to take it away. But many countries, and I think primarily the G-77, wanted that concept to extend to information about their natural resources. That goes back to the prior consent for dissemination of the data and to the sensing.

They said, we have the Amazon. That’s our natural resource. We own that. We control it. You can’t come into our border and do things without our permission. But we also want to control information about that, which would include satellite-derived information. So again, in the end we were able to limit that concept, the sovereignty over wealth and natural resources, to just that, wealth and natural resources, not extend that concept that would involve information about the resources, which would in this case be the satellite data.

GABRYNOWICZ: Then I’m going to move you over to Principle XII.
HODGKINS: Yes.

GABRYNOWICZ: Ask you to take a look at that. There’s a couple of things about this. This is generally referred to as the data access principle or the principle that most relates to access.

HODGKINS: Is that? Oh, okay.

GABRYNOWICZ: Where the sensed state shall have access to data on a nondiscriminatory basis on reasonable cost terms. And the sensed state shall also have access to available analyzed information.

HODGKINS: Yes.

GABRYNOWICZ: What do you remember about this Principle that might –

HODGKINS: Oh, I'm sorry. I was looking at the wrong thing. I was looking at Principle VII and I thought, oh, jeez, I got the wrong group.

Well, all right. Yes, Principle XII in our view reflects what was the basic policy for Landsat and what was eventually included in the Land Remote Sensing Act. We considered this to be fully consistent with what we were doing from the civil government standpoint and what we were going to require private companies to do when they were licensed under the Commercial Remote Sensing Act.
Now, there were some nuances here that we had considered important, and maybe to somebody that hadn’t been involved in the negotiations, they’re kind of lost. When you read this, you say, okay, all the data, all the information is to be made available in a public nondiscriminatory base and on reasonable cost terms. There are a couple of things here that were negotiated in to give us some leeway in terms of what you could do from an operational standpoint.

For example, if you have a Landsat system and you do a lot of sensing, collect a lot of data, we didn’t want to be in the position where we were obligated to process all that data, because sometimes maybe we don’t want to do it. From a technical standpoint we might not be able to do it or even from a cost standpoint.

So this doesn’t say that everything that you collect is available on a nondiscriminatory basis. It says that the primary data and processed data, as soon as it’s produced—let me see. So if we didn’t produce primary data or the processed data, then it didn’t need to be made available. That was primarily again from kind of an operational point. We didn’t want to leave people with the impression that everything we were collecting, whether it’s NASA, NOAA, or a private company, had to then be processed and had to then be distributed. Because some of that data may not be useful at all. It may be cloud covered. It may have one part free and clear and the rest of it cloud covered and it would make no sense to carry it through to the final process, even though there may be a section of a particular country that had been sensed in that data.

So we wanted it clear that the primary and processed data, as soon as it was produced, then the sensed state would have access to that data on a nondiscriminatory basis and on reasonable cost terms. So we said, all right, if you’ve been sensed, you know that the EROS
Data Center has data. You can go and ask them for it. We’re not going to have a discriminatory regime that says, well, we’re not going to give it to you because we just don’t want to or because we like your neighbor better and so we’ve given your neighbor the data, but we will provide it to you on cost terms that are reasonable.

Now, when we said reasonable cost terms, we said it has to be reasonable from the operator’s standpoint as well as from the purchaser’s standpoint. That goes back to a much earlier point I was making concerning the concerns that developing countries are having that cost would be used as a barrier to access. We said, look, we’ll make it available to you. We’re not going to discriminate, but you’re going to get charged, and the charge is going to have to be a reasonable. Okay.

GABRYNOWICZ: The last part of that principle is a term that you see very often in documents coming out of COPUOS.

HODGKINS: Yes.

GABRYNOWICZ: "Particular regard being given to the needs and interests of the developing countries." Can you tell us something about that particular idea when you were in the negotiations?

HODGKINS: Well, this phrase, taking particularly into account the needs and interests of the developing countries, meaning, as you say, this is kind of a stock phrase that’s used throughout the U.N. From our standpoint, when we conduct our space activities, in this case
the remote sensing, we would take into account the needs of the developing countries because the developing countries range from the basket cases of the world to countries like Brazil, who considers themselves still a developing country, and for political reasons within the U.N. system, that’s basically what they are and how they treat issues.

So in order for us to cooperate with those countries, sure, we have to take into account what their needs might be, whether it’s training or data availability or more sophisticated cooperation like a *Landsat* ground station. In general, we felt that we take their needs and interests into account by sharing the benefits of our space program across the board through broad international cooperation, providing assistance under mutually-agreed terms, in this case, providing data on a nondiscriminatory basis on reasonable cost terms. So that might not be sufficient for some countries where they would have something more in mind, but in our view that’s kind of how we’ve taken their interests into account.

**GABRYNOWICZ:** What, if any, obligation or responsibility resides in that language?

**HODGKINS:** I don’t think there’s anything above and beyond what we were doing at the time or we do today. Because we explain nondiscriminatory availability in this whole idea, that means we try to treat everybody the same. So we weren’t going to necessarily give developing countries special rights that we weren’t prepared to give to others. We were prepared to take into account their interests, try to craft programs that would help them because, again, it was in our enlightened self-interest. We wanted people to know how to use *Landsat*. We knew *SPOT* was coming on-line. We knew we wanted to create a commercial market based on *Landsat* and then subsequent to that Eosat [Earth Observing Satellite
Corporation], so it would only make sense that at some point we would try to tap into these various markets which are in the development. Plus, again, NASA had a lot of interests in working with a variety of countries to demonstrate the utility of Landsat to do interesting environmental and scientific work.

Now, the other aspect of XII is "The sensed state shall also have access to the available analyzed information concerning the territory under its jurisdiction in the possession of any State participating in remote sensing activities on the same basis and terms." So first of all, same basis and terms would be on reasonable cost terms, whatever we would agree to. This applies to analyzed information in the possession of the state, not of individuals or companies. Then thirdly, it applies to available analyzed information.

What we explained is there may be information, analyzed information, that the government has produced for its own purposes, and we are not going to, again, sign on to a regime that forces us to release that because we have certain interests. There may be interests that we have with other countries that need to be protected. We’re not suggesting there is something nefarious going on, but you have to understand this is not different from anything else that the government might be doing. We might have analyzed information derived from other sources that we wouldn’t make available.

So what we said is if we have analyzed information in our possession that we want to make available, then you would be able to have nondiscriminatory access to that. So this does not force us to provide analyzed information based on the data that we collected from the remote sensing systems.

**Butler:** So the primary and processed data are almost at a higher accessibility level?
HODGKINS: Right. Right.

BUTLER: Was there any discussion on this principle of what, as you mentioned as you were reading that section of the principle, about territory under its jurisdiction? That seems like very particular wording. Do you recall discussion on that?

HODGKINS: No. I think that phrase is from the space treaties, territory under its jurisdiction. I think there is a fine legal point, but I'm not quite sure what that is in general in terms of the territory of the state or versus the territory under its jurisdiction. I think—I think it might have gotten to those territories that are trust territories or I'm not sure. That's probably something we could look at the *Outer Space Treaty* in particular or the *Liability Convention*.

GABRYNOWICZ: Which raises a collateral question. Are you an attorney?

HODGKINS: No.

GABRYNOWICZ: What role, if any—were there attorneys in the delegation working with you?

HODGKINS: Oh, yes.

GABRYNOWICZ: Tell me about the dynamics there.

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HODGKINS: Well, I would go to the Scientific and Technical Subcommittee and the full Committee meetings. We had a lawyer from NOAA that was on the delegation to the Legal Subcommittee, and I would kind of be there as well for the continuity sake but formally we had a representative from the NOAA General Counsel’s Office, NASA General Counsel, and then the head of the Legal Subcommittee delegation would be a lawyer from the U.N. Legal Affairs Office here in the State Department. That was the case then. It continues to be the case today.

The thing about the Committee and about these negotiations, even with the treaties, when you look at them, there’s international law involved, but a lot of this and most of it really came down to political decisions, not final points of treaty or international law. But still, all the other delegations were represented by legal experts, and that certainly is the way it should be. But that’s the interesting thing from my standpoint about the space legal regime and the Principles is that there’s a heavy, heavy political diplomatic content to these, and it’s not just straight case law or things where you can go and look at precedents in the International Court of Justice or whatever else.

BUTLER: One last thing on Principle XII, you mentioned the reasonable terms and that it was understood that that would be on both the part of the consumer that was purchasing the data and of the operator, but was there discussion about incorporating that understanding of what that meant into the Principles?

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HODGKINS: No. No. I mean, there might have been formulations, if you look in the earlier texts that were bracketed on dealing with costs, but at this point the French in particular were very, very driven to getting the Principles nailed down because they had the SPOT program coming on-line. I can’t recall now when SPOT I was launched.

And they have and still have a very, very elaborate data dissemination scheme, which they really wanted to kind of get an international agreement to. So for them, reasonable cost terms were very important as well because I mean basically their prices would end up being a little bit higher than Landsat’s, or maybe a lot higher and I’m not recalling, but they were copyrighting the data. They were charging a fee for reproduction. They had a lot of very complicated arrangements in their ground station agreements and still do to this day. So I mean, for them I think they saw this as serving their interests, but we never got into exactly what specifically that might mean.

GABRYNOWICZ: Let me follow-through, because that’s something I want to follow, in the United States you talk about public activities and private activities. In Europe that often merges. In the United States if the word "commercial" is used, that’s understood to be a private activity, whereas in Europe "commercial" can be a government activity like SPOT.

HODGKINS: Right.

GABRYNOWICZ: Was that part of negotiations, the fact that what was understood to be "commercial" in U.S. terms was different than "commercial" in European terms?

HODGKINS: Well, I can't point to anything specific in the negotiating record or in the verbatim transcripts that were recorded during the Legal Subcommittee, but in the end game on the Principles, the French had tabled their own text and we –

GABRYNOWICZ: Does "tabling" mean the same thing it does in...[Parliamentary Procedure]? If you table it, it's basically dead?

HODGKINS: Oh, I'm sorry, no, proposed it. They've put it on the table as an alternate text. There was a bracketed text in '84. The French produced their own text that they felt would have some chance of reaching consensus.

When we read the text, a lot of it tracked with what the bracketed text said. I mean, there were some differences, but we did not fully embrace the French approach for the reason that you suggested, which is we understood that the SPOT program, while they call it private, was going to be operated and funded by the government, that they would operate much differently than we would under a commercial regime. So they could agree to language dealing with the dissemination of data and even with analyzed information. They could agree to provisions that went beyond what we could because of this very, very close relationship between what is commercial and what is government in France.

So that caused considerable amount of concern for us because we obviously didn't want to be in the position where we were openly arguing with the French over their text, but on the other hand some of the French text was appealing to the G-77 because they felt they were getting more than what the U.S. was prepared to provide. It really came down to how
the SPOT program was going to be operated and in their own minds, the construct within which that would be operated.

Quite honestly I think that if there was kind of a full-scale analysis, detailed analysis of what the French proposals actually meant in practice, which would have taken several years to kind of nail down, I think it would have probably been less attractive in the final analysis to the G-77. Because the French, while they could commit to certain things on the paper in terms of how they interpret that, I think it was going to end up being a little different than how the—particularly developing countries were going to interpret it.

For example, if you look at the French text, you would get the impression that the availability of analyzed information would be a lot more liberal than what Principle XII actually says today. In our discussions with them, we concluded that was not the case at all, that because they were organized much differently, they weren’t going to be compelled to produce anything more than what they really wanted to produce, even though the text led people to believe. Whereas for us, if we had agreed to that language, it would have been more difficult because we would then have had to say, well, all right, we’re going to make value-added companies make data available. Whereas on the French side, the whole value-added operation was being operated by SPOT and by the government. So they were flexible in what they might be able to provide.

GABRYNOWICZ: What was the eventual outcome or status of French proposal? Parts were accepted, parts were rejected? Again, I don’t want to put words in your mouth here.
HODGKINS: Well, their proposal was very useful because up until '84, the negotiations eventually stalled. I mean, they weren't negotiations. They were just a reiteration of government positions. So their paper served to add new impetus to the negotiations and to try to wrap this up, because we had an interest in wrapping this up, again, from the standpoint that we wanted an international agreement on how civil and commercial remote sensing should be conducted in order to promote what we were doing commercially. The French had a strong interest for basically the same reasons.

So the dynamics were such that the French text was discussed. There was a considerable amount of work done and informal consultations among a small group of countries. The Eastern Bloc did not participate actively in '85 in those consultations. I think they had concluded that we would never come up with something that was acceptable to the G-77.

As a result of those consultations, the chairman of the working group, the remote sensing working group, the chairman from Austria tabled his own text in '85 based on the consultations that had taken place among a small group of countries on the basis of the French text.

GABRYNOWICZ: Was it the Austrian text that eventually became the Principles?

HODGKINS: Yes. Yes. In '85, we said that on the basis of these negotiations and the text that had been produced at the Legal Subcommittee, the twenty-fifth session of the Legal Subcommittee in '86, that we could accept this text as it was written. That was in '85. It went through another round of discussion, but no changes in '86.
GABRYNOWICZ: Let me go back to the point about what "commercial" means in the European view and in the American view. What, if anything, do the Principles say about those two different views? Is there anything you can point to?

HODGKINS: No, there’s nothing. I mean, we weren’t driven by kind of a definition of what government and what commercial is. We were driven by a distinction that we had made as a matter of policy in the U.S., which was the government is going to operate Landsat on the following basis, which is we’ll operate the satellite, we’ll sign agreements with foreign ground station owners, we will process Landsat data at the EROS data center, and we’ll sell film and computer-compatible tapes, but we will not be in the business of value-added products because that will compete with private companies. So we’ll use Landsat data for our own purposes, USGS [United States Geological Survey], USDA [United States Department of Agriculture], but we will not be in the position where we’re providing products that will compete with one or more companies out there. So that’s kind of what was driving the distinctions that we were making on analyzed information.

It was not so much that there was this readily available definition that says commercial means this in the U.S. versus what it means in Europe. We made a policy decision that we were not going to compete with the value-added industries here in the U.S. in the area of remote sensing. Whereas in Europe, the industry wasn’t as advanced, and the SPOT program was organized in such a way that they controlled almost everything because they had copyright on the data that they sold to companies. So they had more control from the start of process to the eventual end, which is value-added services.
GABRYNOWICZ: ...Do you have anything that you wanted to add? I have some other things, but I think I want to do them in a little bit.

BUTLER: Okay. Well, you mentioned that the French proposal was an impetus to get things moving again after they had been stalled, and this was a key thing for their SPOT program, and at the same time frame as when the U.S. was coming up with the Land Remote Sensing Act, that '84 time frame, how much of an influence did the fact that Landsat had been operating for so many years up to that point and that all these nations were having that kind of nondiscriminatory access, how much impact did that have on the countries that had had some issues with some of these things, now that they felt more comfortable? Was that also a moving factor?

HODGKINS: Yes. I think in the end it probably was. It would be hard to again, put your finger on a stage where all of a sudden lights went on in people’s heads. But I think that the countries, generally it was kind of a confidence-building process. It started in the seventies when Landsat 1 was launched in, what, '75. The fact that more and more countries were using the data, that there were clearly identifiable benefits to this program, that the Landsat ground station network was expanding, I mean, people could see that at least on the U.S. side the Landsat program was doing what we said it would do and that we were operating under the construct that we were advocating within the U.N.

Now, the thing you have to understand though about the U.N. is in this Committee in particular, is that many times there’s a big difference between what a country will do on a
bilateral basis and what they will have to say in the U.N. So, for example, you have Brazil, who was one of the first countries to get a Landsat ground stations or one of the world leaders in the applications of Landsat data, sold the data regularly to anybody who wanted it, had an agreement with us, so on and so forth. When they come to the U.N. in the Legal Subcommittee, they took positions that were completely opposite of what the agreements were that they’d signed with us about nondiscriminatory availability and all that. Many of these countries see a difference. They see that the U.N. is a forum where they deal with issues at a very political level or ideological level, and then outside of that in the bilateral relations, they deal on a practical level because they have to get things done.

This is something that you see a lot, particularly with countries like Brazil or Chile or Argentina where even though they might agree with us on a technical level or a practical level, they still have kind of political or legal points that they feel need to be maintained and need to be asserted in this context. So even though these countries may have participated actively in the Landsat program, even though their space agencies and even though their foreign ministries understood the value of what we were saying, they didn’t want to concede the points in a political document like these Principles. So I mean, they had been operating and buying the data for years and years and years, but for these purposes they maintain certain positions that were kind of the opposite of what was happening in reality.

But I do think that once the French had tabled this proposal, people had pretty much concluded that this was the best that they were going to get. There was no way these things like prior consent were going to be accepted by the U.S., so they had the choice of do we have Principles or don’t we? Okay, we might not like it, but we’re comfortable with sort of the way the program has evolved and so on.
The only thing that I think lingered in the backs of their minds was the commercial issues. That’s where there was an intersection between what the space agencies were doing and what was being said politically, because all of these ground stations were extremely concerned that the investments that they had made in the station and the expertise would simply go down the drain if when Eosat took over and jacked up the annual access fee to something astronomical. So they were very concerned about that, and they expressed that to us on a bilateral basis, and they made the points within the context of the negotiation of Principles.

Gabrynowicz: Was there anything that the United States wanted to have in the Principles that they couldn’t get or didn’t get?

Hodgkins: Not that I’m aware of.

Butler: You voiced a couple interesting points in your last statement here, that the Principles were a political document and that when the French tabled their proposal, that it was, okay, do we have Principles or don’t we?

Hodgkins: Right.

Butler: Two questions kind of come from that. First is why were having the Principles important, and then the second is if the Principles aren’t a legal document, what is the weight of them on the countries that are involved?
HODGKINS: Well, obviously if there were no Principles, the world would not have come to an end. The question really was, we had started, we had bought into a process back in the seventies which was we had a program, we wanted international acceptance, countries raised this issue of remote sensing, we discussed it from a technical standpoint, and then people say, okay, this is kind of a new technology. We need at least some kind of international norms on how this is going to be conducted, because right now it’s only the U.S. and so on. So we understood that there was certain aspect of enlightened self-interest here. All right, we’ll go ahead. We’ll discuss these, and maybe we can come up with Principles that will underscore, reinforce what our general approaches are.

Now, from my standpoint, it was very important to have the Principles. I think generally at that time when we adopted them, everyone agreed because we had the Landsat Act. We had the Eosat. We expected more commercial activity in space. So we would want to be able to say, look, here are some guidelines that are generally accepted. Everything that we do is consistent with these. So there should be no problem.

You have to also understand that a lot of countries feel comfortable when there are things like this that they can point to. They can go back to their own governments. They can say this technology makes sense. We ought to be involved in it. We have some kind of internationally-agreed guidelines or principles on how this should be conducted. We’ve gotten a record where we can point to that shows that our interests were taken into account and that our interests have been protected.

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So to that extent, I think there's great value in that. Again, when you look at the *Landsat Act* and the *Commercial Remote Sensing Act*, the *Principles* are explicitly included and cited there. So from my standpoint, that was a very good thing, and it didn't really work contrary to any of our interests. Obviously in the course of negotiations there were ideas raised that we couldn't live with, but that's part of multilateral diplomacy. You've about got to deal with it, and we did.

Now, in terms of the effect of the *Principles*, well, no, we made very clear in the General Assembly and everyone agrees these are recommendatory in nature. They're nonbinding. They are a political statement. They're a resolution of the General Assembly. They were adopted by consensus. There is an expectation that people will operate in good faith and not do anything contrary to these because if you did want or if you anticipated you were going to do something contrary to these, then you should never have agreed to them. You should have tried to change them. But that doesn't mean then that you're forced into an interpretation of the *Principles* that you might not agree to simply because you joined consensus.

So from a legal standpoint, they don't have the force of a treaty. We have four treaties that we signed and ratified. That's the international legal framework. We have *Principles*, NPS—*Nuclear Power Sources Principles* and *Remote Sensing Principles*, *Principles on Sharing the Benefits of Space*. They contribute to kind of the international norms of space activities, but they aren't binding. They are open to some interpretation based on what we understood them to mean at the time they were adopted.

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But there are no enforcement mechanisms in here. There are no sanctions under these *Principles*. So from my standpoint, the legal impact, it's not even a relevant discussion because the General Assembly is not a legal body. These things were never intended to be elevated to the level of treaties. There are dozens and dozens of U.N. General Assembly resolutions adopted during each General Assembly and some of them we join consensus on, some of them we vote against, but they don't have the effect of being legally binding simply because they are adopted by the General Assembly.

GABRYNOWICZ: Just for the record, there are people who are involved with the *Principles* at different times who refer to them as customary law. So, I mean, that's a whole legal discussion.

HODGKINS: That's a whole legal discussion, which is probably fine. Customary law, then you can look at how people have operated, but it's not based on some interpretation that says analyzed means this and you, United States, violated this principle. You could argue that, sure, you could make a point that, yes, these are part of customary law, but the problem is that space law is completely different from any other international law in the sense that it was developed within a short period of time, relatively speaking. There's no case law. Like I said, there are no sanctions. There are no mechanisms of enforcement. Everything is based on good faith, resolving differences peacefully, resolving differences through diplomatic channels. So it's kind of a hybrid of diplomacy and some international law. But it not like

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maritime law or international commercial law, where you have adjudicatory bodies that sit there and pass judgment and create precedents in case law.

**Butler:** Why *Principles* rather than a treaty for something as specific as remote sensing, especially dealing with the private aspect versus government aspect?

**Hodgkins:** Well, we believed that the body of the treaty law or treaty space law that existed was adequate for whatever we wanted to do, so that it wasn’t necessary to create another treaty instrument in order to accomplish what we were trying to accomplish. Now, some countries suggested, yes, we ought to have a treaty, take the *Principles* and turn them into a treaty, but that gained no traction whatsoever.

It comes down to kind of a practical aspect as well. We could conduct our remote sensing program without any of the *Principles*. We’re fully compliant with the outer space treaties, and the other countries understood that. So they have to conclude in their own minds or go through the calculation, if I push for a treaty, then I can’t talk to the United States at all. If I talk about *Principles* that leaves them the flexibility, then at least I can get their attention and engage in the issue. So essentially the countries couldn’t bite off more than they could chew, because in the end we would just say this is crazy. We’re not going to sit here and negotiate a treaty on remote sensing, so let’s just take this off the agenda altogether. But if we want to talk about some general principles that give us flexibility, then, sure, we’re prepared to talk about that.

I mean, these countries aren’t stupid. They may say things that we don’t agree with, but they understand that from a legal standpoint we were not obligated to do anything in the
Committee concerning remote sensing. We wanted to educate people about it and share the information that we had and all of that, but we were perfectly within our rights under the treaties to proceed with the program.

BUTLER: In your opinion, do the Principles adequately address the issues, the key issues that were part of the debate, the negotiation process, and do they adequately address the issues in today’s space environment?

HODGKINS: Yes, I think so. I think so. I mean, I’m not suggesting that we were all geniuses at the time and we anticipated everything that would happen, but I do think that generally if you look at commercial remote sensing, it’s evolved pretty much the way that people thought it might. I mean, it hasn’t blossomed into the commercial ventures that everyone had hoped for, clearly, but in terms of how the programs are managed and how the companies operate internationally and all that, I don’t think there’s anything radically different than what we had anticipated at that time.

Clearly we anticipated a much larger market, people making a lot, a lot of money, things like that. But aside from that part of the commercial issue, I think generally people have been quite satisfied with the commitment to make data available on a nondiscriminatory basis. I mean, it only make sense from a commercial standpoint.

GABRYNOWICZ: What about from a foreign policy standpoint?
HODGKINS: Well, we always believed that it made sense. If we wanted to operate internationally and if we wanted countries to buy into the program and not raise national barriers, then it made sense to us that the program had to be as transparent and as accessible as possible.

Because if we didn’t have that, then you would have countries potentially erecting national barriers to how these companies could operate. So if Eosat decided at that time they wanted to operate in Latin America and wanted to sign an agreement with Brazil and the Brazilians were entirely unhappy with the way that the program was being conducted, who knows what onerous kinds of stipulations could be put in there. We wanted to smooth the way in some fashion for these companies to operate internationally. What we didn’t want happening is countries being left to decide on their own whether they would have some kind of prior consent regime.

Now, a country could have announced that as a matter of national policy, remote sensing programs need to get our consent before you can sense us. Okay, fine, that’s your view, but you can’t stop us. There’s nothing international that says we can’t do it, so we just go over and sense them and sense them and then all of a sudden we discover, well, that particular country is somebody we’d really like to work with, and a U.S. company goes down and the country says, well, sure, you might want to but, you haven’t played by the rules that we had set out and we may or may not want to work with you or if we do, here are the guidelines.

So on some of those fundamental issues, we were able to lay all that to rest. Because even though the Principles aren’t legally binding, they represent an international consensus that’s hard to kind of argue against.
GABRYNOWICZ: Let me ask you this. In addition to commercial questions and the preparation for commercialization, how about foreign policy at the level of nation to nation? What, if anything, do the Principles address specifically regarding that, and is there any relevance of the Principles to nation to nation?

HODGKINS: Well, I mean, I don’t want to over appear to be overblown on this, but I really do believe that the Principles and the nondiscriminatory availability of data and the kind of general notion of cooperation did a lot in terms of confidence building and transparency among nations. I mean, you have to remember in the seventies and eighties, for example, in Latin America, it was not a foregone conclusion that that continent was headed in the right direction. There were major concerns of what was going on. There were concerns among neighbors. So when Brazil puts in a Landsat ground station that covers a good part of the southern part of Latin America, her neighbors weren’t particularly excited about that, because it gave them a capability that they didn’t otherwise have.

Now, if we’d had a regime that restricted the availability of data and allowed Brazil not to sell it or to be discriminatory, that would have just further inflamed tensions in general. Again, I don’t want to over-blow that, but I do think that is a very important point.

In addition, even though Landsat is not a military program or intelligence program, it allowed countries to get data of their region, and it just added to everybody’s knowledge about what was going on from an environmental standpoint or from a scientific standpoint. So it forced countries in many cases to kind of cooperate on regional environmental problems that they might not have otherwise have done because they wouldn’t have an appreciation of
the scope and magnitude of what they were dealing with, but now with the satellite data they do, and because all of a sudden this one country in their region, their neighbor, has a capability that they don’t have, but that neighbor’s quite willing to share it with them.

So from a foreign policy standpoint, it kind of made a small contribution to expanding cooperation in regions where the cooperation might not have been readily identifiable. Plus it helped us, again I use desertification as an example, that was a major, major problem in the eighties. I’m assuming it still is, but at least at that time it was a big problem, and it allowed us to work with countries at a technical level and countries to work among themselves at a technical level that they might not have otherwise have done for a variety of political reasons.

**GABRYNowicz:** Let me ask you a question then. Are the Principles equally important, less important, or more important to foreign policy as they are for commercial issues?

**HODgkins:** Oh, I don’t know. I mean, from the foreign policy standpoint, the Principles were there. We had to manage what was happening in the Committee. So we did not want the Principles to become a major source of friction or a rallying point to isolate us on a range of other issues in the Committee. But again, that’s not a big deal. That happens all the time. But in terms of what we were trying to do here in the Department, the Principles were important to the extent that we could articulate U.S. views and get other people to buy into them, which we always like to do from a foreign policy standpoint. So I guess you could say, yes, sure, they were important in that respect.
But again, they were also important to try to get countries to kind of buy into these general principles and make it easier for NASA, for NOAA, and then the private companies to operate internationally and not make this a technology that people were suspicious of or would try to inhibit because they either didn’t understand it or they were excluded from using it.

GABRYNOWICZ: Let’s fast forward to were you involved at the time consensus was actually reached?

HODGKINS: Yes.

GABRYNOWICZ: Can you tell us about that? Was it like a one moment or a day? Was everybody in the room, or how did that come to be?

HODGKINS: Well, the dynamics of what happened are interesting, but they really had nothing to do with the substance of the *Principles*. Essentially, they say, the debate was for moribund up until '84 when the French tabled their proposal. The French were very energetic. They had made an internal decision that now is the time to bring these to a close. Let’s get this wrapped up. We have *SPOT* coming along. We want to expand our market. We want to be in Latin America. We want to be in Asia. We want to be in Africa. So we want to come up with a set of principles that we can kind of take credit for and demonstrate to these other countries that we’re sympathetic with their interests and so that in turn they would be more sympathetic with signing agreements with *SPOT*. So they put a lot of effort into this.

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In '85, well, from '84 through '85, there were a lot of informal consultations. We pointed out the concerns that we had. Other delegations did. The French kind of made their rounds. But we still were not entirely comfortable with the text that they had produced. We really felt that there were some terms, some kind—of how would you say that—language constructs that might seem straightforward, but when you kind of compare the English versus the French text, the French text was a little bit different than the English text, and we concluded that probably this needed some more work in order for it to be fully acceptable to us. So we engaged the French in '84 and into early '85.

Now, as I said earlier, the way most of the work in the Committee is done is through conversations in the hallways, small groups of interested delegations getting together to hammer out compromises that then they have to go back and sell to their regional groups, whatever.

We had determined that probably the best thing to do would be to work in a smaller group, and the Austrians kind of organized this. It involved the French, us, Austria, I don’t know, a few of the Latin American countries.

The Eastern Bloc didn’t participate. My view is that they had entered into this kind of calculation that there was probably very little that we could produce that would be acceptable to the G-77, because none of those countries had conceded on issues of prior consent, expanded state responsibility, prior consent for data dissemination. So I think the Eastern Bloc view is the French text is too much like the existing text that’s bracketed. It doesn’t serve any purposes in terms of meeting some of the concerns of the G-77, therefore it’s just going to go down in flames and why waste our time. So they really didn’t participate actively in the informal consultations.
What happened is that the consultations that we had served to convince the G-77 members, primarily, again, the Latin Americans, that this was their last and best chance of getting a set of Principles, and even though it didn’t contain things like prior consent and all that, they understood that those things were not going to fly, that it’s just not practical in any case. You have not only the U.S., but now you have a French system that is organized much like the U.S. There’s just too much at stake for us to buy into these sorts of concepts. So they determined that they would negotiate the best deal that at the could get.

You have to understand also that in the final analysis this didn’t do anything to any of their interests. They were just looking to get things, but in the end they were giving nothing up. All they wanted was a set of Principles that they could point to that said "this protects our interests." They didn’t have remote sensing programs. It wouldn’t require them to do anything differently than they were doing at that point. So in the end they could decide, all right, if this is the best we can get, this is fine. It’s sellable back in our capitals and we can live with it.

So on the basis of those consultations, the Austrians produced what they call a compromise text in '85, and they basically said, this is it. Either delegations take this or leave it. There’s no room for change. It caught the Eastern Bloc completely by surprise, and all of a sudden they were in the position where they didn’t know quite what to do. There was a lot of machinations behind the scenes going on. We were unable to reach consensus in '85 primarily because Vietnam, Mexico, a few other countries raised concerns that they hadn’t enough time to consider the text. That’s kind of a transparent objection.

So we went in to 1986 with the next round of discussions, and again this is the text. Either people are going to take it or leave it. We made it very clear. We said, we’re not
entirely happy with this. There’s some concerns we have, but we think it’s time to bring this to a close. We can live with it. However, if there’s anybody that wants to make changes if it’s reopened, then we’re going to have to start all over again, because we’re not prepared to take somebody else’s changes but no one will take ours.

So the dynamic then was who’s going to step up and withhold consensus? In the end games, the Soviet Union had approached us with some specific changes that they wanted to make, again, concerning state responsibility. They were still very uncomfortable with the kind of loose treatment of private activities, but we said, look, we’re satisfied with the text. If you want to propose the changes, that’s fine, but we can’t.

So in COPUOS in ’86, in June of ’86, it was put on the table. Anybody object to these? No one objected, so that was it.

GABRYNOWICZ: That’s basically how consensus functions, no objections.

HODGKINS: No objection. Then it went to the General Assembly. Countries made statements clarifying what we saw these things to mean, which is all perfectly reasonable, and that was it.

...Well, I mean, in the U.N. you have something called explanation of vote, which is you vote for something or you vote against it, and at the end, then you say I want to exercise my right for an explanation of vote, and then you just read off what you have.

In this case, our statement, yes, actually we did. We presented what we call our explanation of vote. I gave you a copy of that.
GABRYNOWICZ: Is that the statement when it was accepted by the U.N. Assembly?

HODGKINS: Yes. Yes. I think the Soviet Union made some statement as well, but I don’t recall with exactly what was in that.

GABRYNOWICZ: That would be in the record, though?

HODGKINS: It would be, yes. I’m not sure how you go about retrieving that, but someplace in the verbatim [record] of the [U.N. General Assembly.] But there weren’t any reservations, I don’t think. Again, I can’t recall whether the Soviets had anything to say.

BUTLER: Well, if we could pause again for a moment and change out the tape one last time.

HODGKINS: Sure. [Tape change]

If you recall, the Landsat transition—

GABRYNOWICZ: Carter did that.

HODGKINS: Yes. That decision was made in the Carter administration, so the only major change would have dealt with the commercial aspect, and it really was never fully developed until I think the [President Ronald W.] Reagan administration. Because the Landsat transition plan and all of that was developed in ’79, ’80.
GABRYNOWICZ: But then it was changed, because that had anticipated a ten-year transition period, which never happened.

HODGKINS: Right. Right. It never happened. It was accelerated. But in terms of what we had to say about commercial activities, I think it was fairly consistent. Yes.

BUTLER: Following up on the talk about reaching consensus on the Principles, the French had came up with their proposal. There were the informal discussions that you talked about. Then Austria came up with the compromise proposal.

HODGKINS: Right.

BUTLER: How was it decided or was there a specific decision made that Austria would be the one to do that, and did the fact that they did not have remote sensing capabilities at that time have any influence on the acceptance of the Principles?

HODGKINS: Well, the Austrians have played a unique role in the Committee, because an Austrian had been chairman of the Committee almost since its inception. Kurt Waldheim, in fact, was chairman of the Committee during the seventies or late sixties, early seventies, I guess, during the negotiations of all the treaties. In fact, his role on the Committee was one of the major factors in kind of elevating him as a prime candidate to become Secretary General. So the Austrians always had a very strong interest in making sure the Committee worked and getting things done.
In the case of remote sensing, Austria chaired the working group, the remote sensing working group. So if there was going to be kind of a compromise text, then they would be the logical choice.

Now, I can’t tell you whether the French were happy about it or not. I strongly suspect that they were not happy about it because they had invested a lot of political capital in this, and in the end you would always like to take credit for a successful outcome. But again, I have no idea whether they were happy or unhappy, but the fact is that Austria did table this compromise text. It made sense that they would.

Now, the other thing is, I mean, it’s not so much that they didn’t have a remote sensing program. It has more to do with the fact that again, they were the chairman of the Committee and they always had tried to place themselves as mediating among the three groups. Even though they participated in the like-minded group and, in fact, chaired it for many, many years, they always tried to come up with solutions that would solve the differences among the three groups, and they had played that role on numerous occasions.

So again, when it came down to this point, that was probably the best thing. Because as you point out, they didn’t have a vested interest in the Principles, other than let’s just get this concluded, as opposed to if the French would have been perceived as having a vested interest. So the Austrian text emerged for a variety of reasons.

**Butler:** Going back throughout the discussion, you’ve mentioned a couple times the bracketed language.

**Hodgkins:** Right.
BUTLER: You brought up one example of should it be "shall" or should it be "should," and that was something that proliferated throughout the bracketed text.

HODGKINS: Right.

BUTLER: Can you explain what the differences between what those two particular words meant for the Principles in general? I know, not going through every specific instance.

HODGKINS: Well, I mean, we argued that "shall," there's more of an obligation than "should." Should is kind of—

GABRYNOWICZ: Permissive.

HODGKINS:—permissive. So in keeping with the general character of the Principles being nonbinding recommendatory, that the term "should" should be used.

Now, but when you go through the Principles, I think should and shall are used—or perhaps they aren't. I think it's only "shall." I think in the final analysis, we decided that the difference, while we would have preferred "should," using "shall" probably wouldn't make any difference in any case because of the nature of the Principles themselves.

But we went through this debate a few years later with the [Principles on] Nuclear Power Sources, and I'm trying to recall now. That was huge debate internally, and I think we ended up insisting on the formulation "should."
But then you run into the curious situation where you have the treaties, and if you take the language right out of treaties, the treaties use the word "shall." So we couldn’t be in a position where we’re quoting from Article I and we change all the "shallss" to "should," because people would argue, well, now you’re taking a treaty obligation and you’re fudging it in the subsequent document and how do we know that you aren’t going to use the Principles as a way of wiggling out of something we consider to be obligatory under the treaties?

So that’s where the should and shall debate comes in as well. You don’t want to downgrade an obligation you already have. You don’t want to upgrade an obligation that you don’t already have. But I think in terms of these Principles, the distinction between should and shall is almost minor, though at the time we fought for years and years over that. But I think it was a point that we conceded is part of the compromise text.

**Butler:** We talked through several of the different Principles, and I wanted to go back to, it’s kind of a grouping, Principles V through VIII. They talk about establishment of data centers and storage facilities —

**Hodgkins:** Right.

**Butler:**—and the role that the United Nations should play in the realm of remote sensing. If I recall, there had been some debate about the United Nations possibly taking a more active role in facilitating that. If you could share with us briefly just some of what you remember about that part of the negotiation process and how it came to this conclusion.
HODGKINS: Well, I guess there are a couple of things. The U.N. had the space applications program, and at the time they were trying to organize regional remote sensing centers. I think there was one in Egypt, one in Nairobi, one in, I guess, China.

GABRYNOWICZ: I think there was [one] in Thailand. I’m not sure.

HODGKINS: In Thailand, yes. But today there are regional space science centers, but at this time there was a big push on regional remote sensing centers, because many countries wanted to establish Landsat ground stations but they didn’t have the money to do it on their own, so there was this idea that maybe we could organize some kind of regional grouping and they share in the costs and all of that. The U.N. had tried to at least establish centers not necessarily to receive data, but to interpret, analyze data, train people in how to use it. So we envisaged that there would be a role for the U.N. to play in that regard, particularly under Principle VIII.

In Principle VI, that doesn’t talk about the U.N., but again there were plans for either for the U.N. or in this case France had plans to create regional cooperative arrangements for SPOT data, and we just saw this as making sense. Plus it didn’t fall solely to the state engaged in the remote sensing activities.

So the formulations, when you read V through VIII, it sort of spreads the responsibility for implementing these among a wide range of countries and organizations, whereas when you look at some of the other Principles it’s very specific to states conducting remote sensing activities. So we just saw V through VIII as being kind of an opportunity for
states or the U.N. to conduct training to work together on using data, collecting it, analyzing it, which again, would expand the technical capabilities of experts as well as create potential markets in the future.

**Butler:** Looking back over—I’m sorry.

**Hodgkins:** No, that’s okay.

**Butler:** Looking back over the *Principles* as a whole, throughout the *Principles* is mentioned several of the previous treaties on space law, specifically but also going in compliance with the United Nations Charter, and you’ve talked about these points as we’ve gone along, but I was wondering if you could maybe reemphasize the importance of having that emphasis in the *Principles*, why that was important and what that means for the actual acceptability of the *Principles*.

**Hodgkins:** The references to the treaties?

**Butler:** Yes.

**Hodgkins:** Well, I think there were a couple of things there. The first one was when delegations would make specific proposals that kind of selectively took out concepts from the treaties and recast them, then we would say, look, we don’t like this for a variety of reasons, but if you think we need something along these lines, then let’s just go back and
look at what the treaties have to say and let’s use it. If you want to reinforce the political value or the legal value of these Principles by citing specific provisions of the treaties, it’s okay with us. What we don’t want to do is do kind of a creative restating that would confuse what the treaties actually mean or would create in people’s minds additional obligations beyond the treaties.

The second thing is that by reiterating specifically certain provisions of the treaties in the Principles, we’ve just reinforced our view that the existing legal regime is adequate and that is this just underscoring that fact, that Article I of the Outer Space Treaty dealing with sharing the benefits and all this is still valid in its present form, because it’s kind of been—what would be the term?

GABRYNOWICZ: Reaffirmed?

HODGKINS: Reaffirmed by being reflected in these remote sensing principles. So it doesn’t leave you with the impression that the Principles or that remote sensing is something completely different than what was contemplated under the treaties.

BUTLER: I think that covers most of the points I had. Joanne, did you—

GABRYNOWICZ: I think that’s it.

BUTLER: Is there anything further that you can think of that you’d like to point out?
HODGKINS: No, I don't think so. I mean, I'll go back and look at some of the other documents, but I think I've covered pretty much everything. But if there's anything else, I'll let you know.

GABRYNOWICZ: When you get the transcript, you'll look at it again, you may think of something.

HODGKINS: Sure.

BUTLER: ...Absolutely. Well, we certainly appreciate you talking with us and sharing with us your experiences and knowledge of the Principles on Remote Sensing.

HODGKINS: Great. Well, thank you very much.

GABRYNOWICZ: Thank you.

HODGKINS: Appreciate having a captive audience.

GABRYNOWICZ: Who is capturing whom?

BUTLER: I was going to say, I think we captured you.

[End of Interview]
APPENDIX

RELATED DOCUMENTS
Statement by William J. Lowell, United States Representative to the Special Political Committee, in Explanation of Vote under Item 72, Principles relating to Remote Sensing of the Earth from Space, November 28, 1986

Mr. Chairman, the Principles relating to Remote Sensing of the Earth from Space represent the culmination of many years of work in the Legal Subcommittee of the Committee on the Peaceful Uses of Outer Space (COPUOS). That work, although fraught with considerable difficulty, was in the final analysis marked by cooperation, compromise and consensus, the only sure basis for genuine progress. In this respect, the resulting set of Principles stands as a reaffirmation of the traditional methods by which the COPUOS and its two subcommittees have carried out their work.

Mr. Chairman, in the view of my delegation the recommendations embodied in these Principles reflect conditions that are essential to the growth and development of civil remote sensing activities to the benefit of all countries. Thus, for the purpose of these Principles the term "remote sensing" is defined as the "sensing of the Earth's surface from space . . . for the purpose of improving natural resources management, land use and the protection of the environment," in other words, those operational applications in which the international community has the greatest interest and stands to derive the greatest benefit from remote sensing.

Similarly, Mr. Chairman, we are gratified that the COPUOS and its Legal Subcommittee chose to reject, after due consideration, numerous proposals made over the years that, if put into practice, would have hindered the international community's opportunities to share in the benefits of remote sensing. Those included proposals calling for a prior consent regime for data dissemination, for the extension of the concept of permanent sovereignty over natural resources to cover information concerning those resources, for restrictions on use and disposition of analyzed information, and for expansion of the scope of the law of state responsibility. Those and other unduly restrictive proposals have wisely been rejected in favor of a consensus which emphasizes international cooperation and openness.
Thus, Principle XII recognizes that the interests of both sensed and sensing states are best advanced through an operational data dissemination policy that calls for primary and processed data to be made available on a non-discriminatory basis and on reasonable terms — a policy which, we are pleased to note, has long been followed by the United States and which is embodied in our national legislation governing private sector activities in the area. Principle XII also reflects the essential distinction between dissemination of primary or processed data on the one hand, and that of analyzed information on the other — a distinction that is of fundamental importance to the full realization of remote sensing’s beneficial possibilities.

The Principles likewise enhance the prospects for civil remote sensing by expressly recognizing, in Principle XIV, that states bear international responsibility for remote sensing activities carried out by themselves or their nationals only to the extent that such responsibility may already be provided for under the 1967 Outer Space Treaty and international law generally. In this and other respects, the Principles usefully and correctly acknowledge that the existing regime of outer space law, which has done so much to foster the free use and exploration of outer space in the interest of all countries, applies as well to remote sensing of the Earth from space.

These Principles take into account practical considerations as well. For example, Principles X and XI, relating to protection of the environment and protection from natural disasters, do not contemplate that states will screen all data for those purposes, but rather that states will alert other states when they have identified information that would assist those states in preventing or dealing with emergencies.

Mr. Chairman, as all delegations are aware and as was emphasized throughout their negotiation, under the Charter of the United Nations, these Principles can be only recommendatory in character; they cannot, in and of themselves, possess legal force. Nor, in our view, would the embodiment of these Principles in a new legal instrument be necessary or desirable. Nevertheless, these Principles constitute a significant statement of the views of the international community on a matter of importance to the future of the peaceful use and exploration of outer space. They are entirely compatible with relevant United States laws and policies, and we look forward to other states being guided by them in formulating and carrying out their own programs in this area, whether directly or through persons or entities subject to their jurisdiction.

Finally, Mr. Chairman, my delegation would like to express its compliments to the Austrian delegation, whose tireless efforts were indispensable to the achievement of a consensus text.

* * * * *
LAND REMOTE-SENSING COMMERCIALIZATION ACT OF 1984

APRIL 3, 1984.—Committed to the Committee of the Whole House on the State of the Union and ordered to be printed

Mr. Fuqua, from the Committee on Science and Technology, submitted the following

REPORT

together with

ADDITIONAL VIEWS

[To accompany H.R. 5155]

[Including cost estimate of the Congressional Budget Office]

The Committee on Science and Technology, to which was referred the bill (H.R. 5155) to establish a system to promote the use of land remote-sensing satellite data, and for other purposes, having considered the same, report favorably thereon without amendment and recommend that the bill do pass.

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ISSUES ADDRESSED BY THE LEGISLATION

This section of the Report addresses a variety of issues raised by the legislation and explains the Committee's intent in adopting the specific provisions of the bill that deal with these issues. The section is organized into two parts: topics in the first group are major policy issues and are addressed in the order that they arise in the legislation. Some of these issues, such as "Non-Discriminatory Data Access" permeate the bill. Topics in the second group are more technical or narrow in nature and are addressed under the heading 'Other Issues'.

NON-DISCRIMINATORY DATA ACCESS

The bill in Section 601 (and other Sections) provides that data "shall be made available to users on a non-discriminatory basis..." The term "on a non-discriminatory basis" is defined in section 104(3). The following paragraphs enlarge on the Committee's intent and the reasoning behind that intent.

First, what does "on a non-discriminatory basis" mean with respect to data sales? Very simply, it means that a system operator must make data available to everyone on the same public terms. He cannot choose his customers or favor one over another.

Before expanding on this definition, it is appropriate to address why the Committee has written this non-discriminatory policy into the legislation. Several reasons are listed and discussed below.

It maintains many of the "public good" aspects of remote sensing.—Many have argued that a space remote sensing should not be commercialized because it represents a public good. Indeed, this was part of the reason that commercialization of weather satellites was prohibited. Having the system operator make data available on a non-discriminatory basis will strike a balance here. In other words, a system operator would act in a manner somewhat analogous to a common carrier in transportation. This also conforms remote sensing to the basic policy in the National Aeronautics and Space Act of 1958 which says that activities in space should be devoted to peaceful purposes for the benefit of all mankind.

It promotes the broadest use of the data.—Many have been concerned that the system operator would be able to auction the data to the highest bidder, which of course would amount to very discriminatory selling. If the operator is not allowed to do so, he would be encouraged both to sell very broadly and to structure its marketing efforts to reach as many customers as possible. That is to say, in order to maximize his profits, he would have to generate new markets, new applications, and new customers.

It puts the United States in a favorable position vis-a-vis the many countries who argue that no remote sensing should take place without the "prior consent" of the sensed country.—At the Unispace 82 Conference in Vienna, the United States was one of a very small number of countries who wished to maintain the "open skies" policy which would allow a satellite to sense any nation. A corollary of the open skies policy which has been followed by the United States is that the data taken by such a satellite would be made available to everyone on a non-discriminatory basis. Of course, the many countries arguing in favor of prior consent do not have space
programs and cannot prevent the United States from taking data from space; but they do have considerable power in some fora of the United Nations and other international organizations which are run on a one-country-one-vote basis. It seems clear that the United States should not agree to a prior consent regime and therefore, it would seem prudent to maintain the non-discriminatory access aspect of the open skies policy as a balancing consideration. Indeed, the United States made a particular point at the Unispaces conference of the broad availability of Landsat data—the fact that these data are "accessible to every country". Briefing papers prepared for the United States delegation stated, "the United States requires that all Landsat data at the United States EROS data center and at foreign ground stations be available on a public non-discriminatory basis. Open availability of such data has led to beneficial applications of land remote-sensing worldwide ...." This same point was echoed in the 1982 report entitled, Science, Technology and American Diplomacy, the third annual report submitted to the Congress by the President pursuant to Section 503(b) of Title V of Public Law 95-426. On Page 26, the following appears: "In remote sensing, the readily available products of United States meteorological and land satellites are used routinely by the world community. The result has been a large measure of goodwill and support of our positions in the U.N. and other international fora."

It is in conformity with the international obligations of the United States.—For example, Article 1 of the Outer Space Treaty states, "the use of outer space ... shall be carried out for the benefit and in the interests of all countries irrespective of their degree of economic or scientific development and shall be the province of all mankind." Similarly, at the conclusion of the 1983 Williamsburg economic summit, the United States as a member of this summit agreed to a statement which said that "economic summit members support the need to assure timely public non-discriminatory data dissemination and to seek continued availability of satellite data".

It does not foreclose significant commercial opportunities.—Only one potential land remote-sensing bidder has testified that there is a commercial need for exclusive data rights. All other interested parties have testified that they could operate successfully under a policy of non-discriminatory access. Indeed, were the United States to adopt a policy of discriminatory access, a possible negative foreign reaction might close off a great many foreign markets, not only for data sales but for other space-related activities.

It protects value-added firms, the real developers of the market, from unfair practices by the system operator.—The data generated from satellites becomes truly valuable when it is operated on by trained analysts using advanced computers and thereby becomes economically valuable information. This is the kind of activity carried out in the "value-added" industry, whose products are, of course, highly proprietary. These are also the industries which will best be able to develop markets. They will seek potential users of the data and tailor information products to their use. Clearly, if this space technology is to be a commercial success, such firms must be protected and encouraged, and a non-discriminatory data access policy would guarantee that the value-added companies have
a ready supply of data. A particular danger could arise if a system operator set up his own value-added activity and attempted to discriminate against the other independent firms.

It is likely to facilitate foreign sales of both data and value-added services provided by the United States.—As alluded to above, if a foreign user can be confident that he is not being discriminated against, he is likely to be much more sympathetic to United States marketing efforts, not only in sale of information products derived from remote-sensing data, but also in negotiation of mineral exploration, development rights and other concessions that might be based in part on remote-sensing data.

It thus seems clear that the United States should continue its policy of non-discriminatory data access when space remote-sensing activities are commercialized. The Committee has drafted the legislation to reemphasize this policy forcibly, and to give it for the first time a statutory basis. Further, H.R. 5155 has been drafted to provide clear guidance to the Secretary of Commerce and to any system operator with respect to the commercial implications of a policy of non-discriminatory data access. Sections 104(3), 204(b), 402(b), and 601 of the bill comprise that policy.

It is the Committee's intent, while preventing discriminatory treatment of any potential data purchaser, to provide any system operator with certain flexibilities commonly available to commercial entities. Thus, a system operator would be permitted to offer volume discounts on data sales. Such discounts, however, may be "no greater than the demonstrable reductions in the costs of such sales" in order that small-scale users of remote-sensing data would not subsidize the larger customers for such data. The bill would also permit other flexibilities in the pricing structure, such as periodic "sales" from part or all of the data base, but again only to the extent that such pricing arrangements would be equally available to all potential customers.

It is also the Committee's intent to permit the system operator to vary the price of data in approximately inverse relation to the time of data delivery. Thus, it would be acceptable for a system operator perhaps to double the price of data delivered in one-half of the standard time so long as this early-delivery service and the later or standard delivery service were available to all potential customers.

The Committee would expect most system operators to retain the original data and to sell copies thereof. In this way, multiple copies of the same data could be sold if necessary to implement the non-discriminatory policy. A system operator is not prohibited from selling his original data (i.e., his only copy of a scene), but if such a policy were adopted, it would have to be implemented very carefully in order to make the data available on a non-discriminatory basis. For example, the system operator would have to decide what to do if two customers, before the data were taken, placed an order for the same scene. A simple first-come, first-served policy would discriminate in favor of more wealthy buyers, who could simply order every scene of an area and preclude others from obtaining the data.

The bill provides in section 601 that any system operator make "publicly available" the terms and conditions, including prices, under which he will sell data; section 104 provides that any offer
to sell or deliver data be "published in advance". It is the intent of the Committee in adopting these provisions to prevent any data purchaser from acquiring proprietary or de facto proprietary control over remote-sensing data. Since de facto proprietary control would result if only one potential data purchaser were aware of a particular service, the Committee intends that all sales policies or any change which a system operator may make with respect to sales policy should be generally advertised in the user community and also communicated promptly to any potential customer who asks to be informed of such changes.

In conjunction with existing law, the bill provides sufficient authority to agencies to the Federal government to enforce the provisions pertaining to non-discriminatory data availability. Section 402 stipulates that non-discriminatory data availability is necessary for compliance with the licensing conditions established by the Secretary. The Secretary is authorized to revoke the license of, and to impose a civil penalty on, any system operator who fails to provide non-discriminatory data availability. With respect to international data sales, section 606(b)(3) authorizes the Secretary of State to report any instances outside the United States of non-discriminatory data access. The Committee intends that this reporting by the Secretary of State would enable the Secretary of Commerce to detect and correct foreign violations of the non-discriminatory policy.

During hearings which preceded the introduction and reporting of H.R. 5155, testimony was received from a number of witnesses representing the "value-added" land remote-sensing industry regarding the anti-competitive situation that could result from a systems operator competing, either directly or through a subsidiary, in the value-added market. The Committee shares this concern, particularly in light of the important role which the value-added industry plays in expanding and promoting the use of land remote-sensing data. In adopting section 402(b)(6), the Committee chose not to restrict commercial interest in land remote-sensing ventures by precluding a system operator from competing in the value-added market. That section does provide, however, that an operator can compete only after demonstrating to the Secretary that his commercial operation would not in any way violate non-discriminatory data availability. It is not the intent of the Committee to provide the Secretary with any new or additional authority with respect to regulation of potentially anti-competitive commercial activities. Rather, the Committee expects that the Secretary would monitor the business plans submitted to him under section 402(b)(7) and their subsequent implementation and would transmit these plans, and any suspected violation of non-discriminatory policy as he may detect, to the Department of Justice or to the Federal Trade Commission.

MARKETING OPPORTUNITIES WITH THE CURRENT LANDSAT SYSTEM
(TITLE II)

A two-part consensus existed among many of the witnesses who testified before the Committee on the issue of how commercialization of land remote sensing should proceed:
NATIONAL LANDSAT POLICY ACT OF 1992

MAY 28, 1992.—Committed to the Committee of the Whole House on the State of the Union and ordered to be printed

Mr. BROWN, from the Committee on Science, Space, and Technology, submitted the following

REPORT

[To accompany H.R. 3614]

[Including cost estimate of the Congressional Budget Office]

The Committee on Science, Space, and Technology, to whom was referred the bill (H.R. 3614) amending the Land Remote-Sensing Commercialization Act of 1984 to secure United States leadership in land remote-sensing by providing data continuity for the Landsat program and by establishing a new national land remote-sensing policy, and for other purposes, having considered the same, reports favorably thereon with amendments and recommends that the bill as amended do pass.

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Nondiscriminatory Data Access

In its legislative report accompanying the 1984 Landsat Act, the Committee provided a detailed explanation and defense of the bill's requirement that data "shall be made available to users on a nondiscriminatory basis." The Committee explained that "nondiscriminatory access" meant that data should be made available to everyone on the same terms. It justified this requirement on several grounds, including: 1) promoting the broadest use of the data; 2) putting the U.S. in a strong position to counter nations who were arguing that no remote sensing should take place without "prior consent" of the sensed country; 3) providing the U.S. with leverage to insist that remote-sensing systems operated by other nations provide data on a nondiscriminatory basis to U.S. users; 4) conforming with the international obligation of the United States to use space "for the benefit and in the interests of all countries irrespective of their degree of economic or scientific development" (1967 Outer Space Treaty); and 5) increasing foreign sales of both data and value-added services.

In reviewing these arguments, the Committee finds the justification for nondiscriminatory access as compelling today as it did then, with two provisos. First, the Committee believes that the imperatives of global change and environmental research, the importance of remote-sensing instructional activities, and the requirement of the United States Government to use Landsat data for advancing the public interest, justify the provision of Landsat data to the "United States and its affiliated users," as defined in the bill, and to educational institutions for instructional purposes, at the cost of fulfilling user requests. In this sense, the Committee believes that these data users, should get preferential treatment in terms of cost only, in the event that a two-tier pricing structure were instituted. The Committee would not support preferential treatment for such users on any other grounds, such as timeliness of delivery or quality of data, except in relation to an extreme national security condition.

Second, the Committee believes that the nondiscriminatory access requirement, as it pertains to private land remote-sensing systems, deserves careful review.

The Committee has received mixed testimony on whether the nondiscriminatory access provision represents a significant barrier to the emergence of private land remote-sensing systems. By some accounts, interested private sector entities have refrained from investing in land remote-sensing systems because the nondiscriminatory access provision of existing law precludes such entities from establishing preferential or exclusive data pricing. If such pricing practices were permitted, it is argued, then start-up remote-sensing firms could offer attractive data contracts that would help them obtain necessary financing.

One company which submitted comments for the record put it
Such restrictions add greatly to the risk and disincentive for the large investments required to initiate a commercial endeavor. It has been pointed out that the cost of entry into the remote-sensing business is decreasing, through advances in the area of small satellites, and that this development—along with a proliferation of international systems in recent years—obviates the need for protective measures against a monopoly data provider. It is argued that, within a context of multiple remote-sensing systems, those that have been paid for entirely by private capital should be permitted to determine who they sell data to and at what prices.

By other accounts, private sector data users believe that a change in the nondiscriminatory access requirement for private remote-sensing systems would, on balance, be far more negative than positive for the United States. As one witness representing U.S. oil and gas companies said:

Changes in the nondiscriminatory access provision would have major, long-term, world-wide effects more negative than they would be worth in increasing Landes's commerciality.... Equal international data access is vital to assuring that national systems are not limited through discriminatory access for the purposes of building proprietary systems exclusively for their national economic intelligence on global resources... We urge that these policies not be changed without seriously considering and debating these international negative impacts on U.S. interests.

In light of such sharply conflicting views, and because the Committee has not completed its review of this issue, the Committee has refrained from making any changes in the nondiscriminatory access provision as it applies to private systems. Specifically, the Committee is reluctant to take any action which: 1) could interfere with U.S. treaty obligations; 2) might revive debate in the United Nations about the legitimacy of remote-sensing without prior consent by the sensed nation; and 3) sets a precedent which might lead other nations to impose increased restrictions on access to data from their government-operated remote-sensing systems.

It is important to note here that nondiscriminatory access has been the cornerstone of the U.S. open skies policy for the past 30 years. The U.S. adopted nondiscriminatory access as a means of blunting international opposition to remote-sensing. In 1986, after 12 years of negotiations, including several years of deadlocked positions, the United Nations Committee on the Peaceful Uses of Space reached agreement on a set of principles relating to remote-sensing of the Earth from space. The U.S. prevailed in these negotiations in getting the 169-member General Assembly to adopt the U.S. view on nondiscriminatory access.

63 April 3, 1992, letter submitted by Don Tang, President, Space Systems Division, Lockheed Missiles & Space Division, for the April 7, 1992, hearing record, Environment Subcommittee, op. cit.
The Committee recognizes that the Administration is interested in modifying the nondiscriminatory access requirement for private systems, and is prepared to work with the Administration toward agreement on language that would increase the commercial viability of private remote-sensing systems while also protecting U.S. foreign policy interests.

On the general issue of pricing flexibility for private system operators, the Committee notes that its intention since passage of the 1984 Landsat Act has always been to provide remote-sensing system operators with flexibility to price data based on the timeliness of its receipt. For example, the Committee's legislative report on the 1984 Landsat Act states:

It is...the Committee's intent to permit the system operator to vary the price of data in approximately inverse relation to the time of data delivery. Thus, it would be acceptable for a system operator perhaps to double the price of data delivered in one-half of the standard time so long as this early-delivery service and the later or standard delivery service were available to all potential customers.

In its review of the nondiscriminatory access requirement, the Committee has found least disconcerting those proposals that represented only minor modifications to the existing, universal, nondiscriminatory access regime. One such proposal would be to permit private system operators to sell data to certain classes of customers on a “temporarily exclusive basis.” Such a provision might permit a private system operator to charge a news organization a premium price for data, on the condition that such data would not be sold to any other entity for a certain short period of time, e.g. 48 or 72 hours. A provision such as this would not seem to raise fundamental concerns about breach of the nondiscriminatory access regime. In addition, the Committee believes that if changes are made in the nondiscriminatory access requirement, such changes should be targeted solely toward systems in which the private sector has paid all development, fabrication, launch, and operations costs—without assistance from the U.S. Government. However, even with these proposals, the Committee believes that the burden of proof rests with those who are proposing such changes to demonstrate that they have thoroughly assessed the potential implications of such changes. To date, the Committee has not been persuaded that such assessments have been made.

COMMERCIALIZATION

The bill substantially amends the commercialization plan in the 1984 Landsat Act, while preserving and promoting the long-term goal of commercializing land remote-sensing. Finding (13) of the bill explains that “although funding by the United States Government for the procurement and operation of Landsat 7 will be necessary for the continuation of the Landsat program, commercializ-

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85 "Commerce Seeks to Drop Image Sales Rules," Space News, May 19, p. 3.
Draft Principles Relating to Remote Sensing of the Earth from Space

Austria: Proposal

Principle I

For the purposes of these principles with respect to remote sensing activities:

(a) The term "remote sensing" means the sensing of the Earth's surface from space by making use of the properties of electromagnetic waves emitted, reflected or diffracted by the sensed objects, for the purpose of improving natural resources management, land use and protection of the environment;

(b) The term "primary data" means those raw data which are acquired by remote sensors borne by a space object and which are transmitted or delivered to the ground from space by telemetry in the form of electromagnetic signals, by photographic film, magnetic tape or any other means;

(c) The term "processed data" means the products resulting from the processing of the primary data, needed in order to make such data usable;

(d) The term "analyzed information" means the information resulting from the interpretation of processed data, inputs of data and knowledge from other sources;

(e) The term "remote sensing activities" means the operation of remote sensing space systems, primary data collection and storage stations, and activities in processing, interpreting and disseminating the processed data.
**Principle II**

Remote sensing activities shall be carried out for the benefit and in the interests of all countries, irrespective of their degree of economic, social or scientific and technological development, and taking into particular consideration the needs of the developing countries.

**Principle III**

Remote sensing activities shall be conducted in accordance with international law, including the Charter of the United Nations, the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, and the relevant instruments of the International Telecommunication Union.

**Principle IV**

Remote sensing activities shall be conducted in accordance with the principles contained in article I of the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, which, in particular, provides that the exploration and use of outer space shall be carried out for the benefit and in the interests of all countries, irrespective of their degree of economic or scientific development, and stipulates the principle of freedom of exploration and use of outer space on a basis of equality. These activities shall be conducted on the basis of respect for the principle of full and permanent sovereignty of all States and peoples over their own wealth and natural resources, with due regard to the rights and interests in accordance with international law, of other States and entities under their jurisdiction. Such activities shall not be conducted in a manner detrimental to the legitimate rights and interests of the sensed State.

**Principle V**

States carrying out remote sensing activities shall promote international co-operation in these activities. To this end, they shall make available to other States opportunities for participation therein. Such participation shall be based in each case on equitable and mutually acceptable terms.

**Principle VI**

In order to maximize the availability of benefits from remote sensing activities, States are encouraged through agreements or other arrangements to provide for the establishment and operation of data collecting and storage stations and processing and interpretation facilities, in particular within the framework of regional agreements or arrangements wherever feasible.
Principle VII

States participating in remote sensing activities shall make available technical assistance to other interested States on mutually agreed terms.

Principle VIII

The United Nations and the relevant agencies within the United Nations system shall promote international co-operation, including technical assistance and co-ordination in the area of remote sensing.

Principle IX

In accordance with article IV of the Convention on Registration of Objects Launched into Outer Space and article XI of the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, a State carrying out a programme of remote sensing shall inform the Secretary-General of the United Nations. It shall, moreover, make available any other relevant information to the greatest extent feasible and practicable to any other State, particularly any developing country which is affected by the programme, at its request.

Principle X

Remote sensing shall promote the protection of the Earth’s natural environment.

To this end, States participating in remote sensing activities which have identified information in their possession which is capable of averting any phenomenon harmful to the Earth’s natural environment shall disclose such information to States concerned.

Principle XI

Remote sensing shall promote the protection of mankind from natural disasters.

To this end, States participating in remote sensing activities which have identified processed data and analysed information in their possession that may be useful to States affected by natural disasters, or likely to be affected by impending natural disasters, shall transmit such data and information to States concerned as promptly as possible.
Principle XII

As soon as the primary data and the processed data concerning the territory under its jurisdiction are produced, the sensed State shall have access to them on a non-discriminatory basis and on reasonable cost terms. The sensed State shall also have access to the available analysed information concerning the territory under its jurisdiction in the possession of any State participating in remote sensing activities on the same basis and terms, taking particularly into account the needs and interests of the developing countries.

Principle XIII

To promote and intensify international co-operation, especially with regard to the needs of developing countries, a State carrying out remote sensing of the Earth from outer space shall, upon request, enter into consultations with a State whose territory is sensed in order to make available opportunities for participation and enhance the mutual benefits to be derived therefrom.

Principle XIV

In compliance with article VI of the Treaty on Principles Governing the Activities of States in the Exploration and Use of Outer Space, including the Moon and Other Celestial Bodies, States operating remote sensing satellites shall bear international responsibility for their activities and assure that such activities are conducted in accordance with these principles and the norms of international law, irrespective of whether such activities are carried out by governmental or non-governmental entities or through international organizations to which such States are parties. This principle is without prejudice to the applicability of the norms of international law on state responsibility for remote sensing activities.

Principle XV

Any dispute resulting from the application of these principles shall be resolved through the established procedures for the peaceful settlement of disputes.