The international trade in launch services : the effects of U.S. laws, policies and practices on its development

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CHAPTER 3

The U.S. bilateral launch trade relations and agreements

3.1 China

3.1.1 The Long March: China's entry into the launch market - prologue to the U.S. - China launch trade agreement

With the space shuttle not available for private commercial launches and a severe shortage of U.S. launchers as a result of both the late entry of the U.S. private launch industry into the launch market and a spate of U.S. private launch failures, Asia Satellite Telecommunications Co. Ltd (*AsiaSat*), in 1988, concluded a contract with China Great Wall Industry Corporation (CGWIC) for the launch of its U.S.-built communications satellite on a Long March launcher.[1] CGWIC quoted especially friendly introductory prices for its launch service in order to break into the lucrative international commercial launch market. This attractive pricing also induced the Australian *Aussat* Company to procure Long March launchers for its two Aussat B communications satellites, also made in the U.S.[2] Asiasat, in testimony to Congress, gave yet

1. In 1986, the four major U.S. launch vehicles (the Space Shuttle, Titan, Delta and Atlas) were grounded because of launch failures (the Atlas was grounded because of similarities with the Delta). Delta and Atlas resumed operations by the end of 1986 and a variant of the Titan was back in service by Februari 1987. Also in 1986, the Ariane failed, and did not resume service until September 1987. All these failures created a significant backlog in satellites awaiting launch, see Marcia S. Smith, *Space Commercialization in China and Japan*, CRS Report for Congress, July 28, 1988, reprinted in Space Committee Hearing 1988, *infra* note 6, at 414 (footnote 28).
   Asiasat Ltd. is a private consortium owned equally by Cable & Wireless PLC of the U.K., the Beijing based, state-run China International Trust and Investment Corp. and Hong Kong's Hutchison Whampoa Group.
2. An Aussat official, in a 1991 article, mentioned some - additional - factors influencing the Australian choice of the Long March launcher: the first contacts with the Chinese were already established in 1986, when, after both an Ariane launch failure and the Challenger accident, Aussat, looking for reliable and timely alternatives for the launch of the Aussat A-3 satellite, only found the Long March 3 fit, willing and able to do the job. The A-3 would nevertheless be flown on an Ariane launcher, but this first technical and commercial contact was further pursued in 1987 when, again, the search for a suitable launcher brought the

another reason to accept the Chinese launch offer, and not Arianespace's, namely the inability of the latter to pin down the schedule and the fact that with a shared (dual) launch - which is the preferred Arianespace practice as it keeps the price per satellite/customer down - Asiasat would be at the mercy of the schedule of the companion payload.[3]

Since these satellites, included as defense articles in the *United States Munitions List* (USML), could not be exported (to China) without specific authorization from the State Department's Office of Munitions Control (later renamed Office of Defense Trade Controls), both companies asked for the required export licenses with that Office.[4] Hughes Aircraft Corporation, the manufacturer of the satellites, actively supported the application through an intense lobbying campaign, but the U.S. launch companies, particularly Martin Marietta and General Dynamics, opposed the granting of licenses since this would permit China, a country with a non-market economy, to become a full-fledged low-priced competitor in the international commercial launch market.[5] The export license application, lodged by Hughes in July 1988 (but informally already broached in late 1987,[6] prompted a governmental review of prevailing U.S. space policy, which included such issues as the (necessity and effectiveness of) technology transfer controls, the - increasing - trade relations with China, the relations with Australia, the importance of the satellite industry for the U.S. economy as compared to that of the launch industry and the possibility of offering the license as a non-proliferation *quid pro quo* in the form of a Chinese commitment to refrain from selling *Silkworm* missiles to - at that time - Iran.
The trade relations in general and the satellite industry in particular won: on September 12, 1988, President Reagan notified Congress of his approval of the export licenses for the three satellites.[7] As a result, Hughes felt sufficiently

Australians in touch with a China that "had the ability to become a very competitive supplier of launch services." The contract for the two Aussat B satellites was awarded to Hughes Aircraft Company in June 1988. A thorough (on-site) review of the Chinese launch vehicle programme, including its manufacturing facilities, design capability and launch site support services further reinforced the favourable impressions gained earlier: it was this Chinese technical credibility coupled with the attractive introductory pricing which, later in 1988, made Aussat confirm its choice of the Long March 2E (LM-2E), see Gordon Pike, *Chinese launch services, a user's guide*, hereinafter referred to as Gordon Pike 1991, 7 (2) Space Policy 103-115 (1991) at 103, 104.

3. See testimony, 1988 China hearings, as quoted by Stephane Chenard, *The long march to launch regulation*, hereinafter referred to as Chenard launch regulation, 4 Space Markets 193-201 (1990) at 199.
4. On the U.S. export control regulations, see *supra* Chapter 2.3.
5. McDonnell Douglas was less prominent in its opposition, beause of its involvement in China as an aircraft manufacturer. See, for more background information, Chenard launch regulation, *supra* note 3, at 197-199.
6. See Gordon Pike 1991, supra note 2, at 114.
7. Section 36 (c) of the Arms Export Control Act requires the Administration to notify Congress before issuing a license for an item on the U.S. Munitions List that is sold under

confident to conclude a formal launch services agreement with CGWIC, on condition that Aussat would stick to its selection of the LM-2E and that CoCom would endorse the export license issued by the U.S. Government.[8]

But a price had to be paid to also satisfy the concerns of the U.S. launch industry. So the U.S. Trade Representative was asked to negotiate an agreement with the People's Republic on the conditions to be applied to the latter's first steps into the international commercial launch market and the way in which the Chinese were to behave whilst selling their launch services to international customers. Also, technology transfer and liability concerns created by the Chinese launching U.S. satellites from their national launchpads had to be addressed.[9]
In the mean time Congress, by virtue of the Arms Export Control Act, had 30 calendar days (ending October 12) during which time it could object to the intended licensing via joint resolution prohibiting the export. For that purpose House of Representatives hearings were held on September 23 and 27 (Committee on Science, Space and Technology) and on September 28 (Committee on Foreign Affairs).[10]

The Committee on Science, Space, and Technology examined the issue in two days of extensive hearings, involving government witnesses, the principal private parties directly involved in the decision, outside experts on China, and representatives of the American launch and satellite industries. The Committee on Foreign Affairs had a one day meeting to review the issue, and consulted largely the same parties and experts. A wealth of background material was made available to both Committees, and both oral and written statements and

contract for $50 million or more. The Aussat contract was valued at $260 million; the export value of the Asiasat was about $40 million, but "[i]n an effort to keep Congress fully informed of related developments, the Administration also informed Congress of its intent to approve the Asiasat license ...", see statement of Eugene McAllister, Assistant Secretary for Economic and business Affairs, Department of State, in *The Administration's decision to license the Chinese Long March launch vehicle,* Hearings before the Committee on Science, Space, and Technology, U.S. House of Representatives, 100th Cong., 2nd Sess. (Sep 23 and 27, 1988), hereinafter referred to as Space Committee Hearing 1988, at 24.

8. See Gordon Pike 1991, *supra* note 2, at 114.
9. For the text of the Dept of State statement of Sep 9, 1988, announcing the Administration's intended decision to issue the export licenses subject to the conclusion of agreements with the PRC on the above subjects, and subject to Congressional and CoCom approval, see Dept of State Bull. (Nov 1988) at 27-28; also in Space Committee Hearing 1988, *supra* note 7, at 174.
10. See Space Committee Hearing 1988, *supra* note 7, and *Proposed sale and launch of United States satellites on Chinese missiles,* Hearing before the Subcommittees on Arms Control, International Security and Science, on Asian and Pacific Affairs, and on International Economic Policy and Trade of the Committee on Foreign Affairs, House of Representatives, 100th Cong., 2nd Sess. (Sep 28, 1988), hereinafter referred to as Foreign Affairs Committee Hearing 1988.

(additional) questions & answers provided all information possibly required for a thorough evaluation and an informed Congressional view.

The Government, represented by the State Department and the Department of Defense made a strong case for the granting of the export license.
With respect to the *national security* angle, the government addressed two aspects: the viability of the U.S. expendable launch industry (to assure access to outer space for national defense purposes) and the protection of sensitive U.S. technologies with potential military applications.
With respect to the first aspect, the State Department made it clear that, with or without the approval of the U.S., the Chinese would enter the international market for launch services anyhow as a number of other nations could also produce and sell satellites and procure Chinese launches for their customers. The fact that Aussat and Asiasat had bought *U.S.* satellites gave the U.S. government, by virtue of its export control legislation, the unique opportunity and the leverage to negotiate a bilateral launch trade agreement with the Chinese which would stipulate appropriate Chinese behavior, when selling Long March launch services, with respect to the entire international satellite launch market and not only that portion relating to U.S.-made satellites. "Allowing limited competition now will strengthen our [ELV] industry before other nations enter the launch services market later in the 1990's".[11]

As for the protection of U.S. technology, the Department of Defense observed that, on the one hand, the U.S. had already significantly liberalized its policy with regard to technology transfer to China, a "friendly non-allied country", over the past five years. Moreover, as part of the U.S.'s developing military relationship with China, weapons and equipment had been transferred to China which embodied military technologies in some instances more advanced than those to be found in the satellites in question. Furthermore, many of the technologies embodied in the satellites had already been sold or released to China via commercial channels.
On the other hand, and this to some extent contradicted the above soothing remarks, both a government-to-government agreement on technology

11. See Space Committee Hearing 1988, *supra* note 7, at 30. The State Dept official gave the following example to illustrate his point: "If these were British satellites the U.S. would have the opportunity in a sense to veto the licenses in CoCom if we believed the technology was sensitive and could not be protected. However, we will not necessarily have the opportunity to establish as a pre-condition the negotiation of a U.S. -PRC agreement on launch practices. If the satellites were Brazilian, we would have not have the opportunity to veto the sale, nor would we have the opportunity to establish a fair trade agreement as a pre-condition.", *id.* at 19. Conversely, one might add, the denial of a license would have robbed the U.S. government of the opportunity, at *this* moment in time, to set the stage for this new field of international competition. The above example simplified the situation to the extent that it did not refer to the distinct possibility that a British or Brazilian satellite would almost invariably contain one or more U.S.-built components, enabling the U.S. authorities to use the export licensing system to require (fair trade) conditions.

safeguards was a condition precedent to the issuance of the export license and a detailed safeguard regime had to be actually in place. The regime as proposed by the applicants would include strict control over access of Chinese personnel and dedicated, secure payload handling facilities.
The Department concluded in its testimony "that China's entry into the foreign commercial space launch industry will provide no additional impetus to the development of China's military capabilities to include its capabilities in space."[12]

On the issue of technology safeguards, one of the Asiasat partners confirmed that its technology control plan would preclude any Chinese access to the satellite, except to those visual aspects that were already in the public domain. In fact, "the only involvement of Chinese personnel will be to operate the crane that will lift the satellite on top of the launch vehicle."(!)[13]
In its presentation to Congress, the State Department put considerable emphasis not so much on the dollar value of the satellite sale as such, but rather on the impact of the license decision on Chinese-American *economic and trade relations* in general.
Thus, impressive figures were quoted reflecting the expansion of two-way trade, of U.S. exports to China and U.S. investment in China, and including in particular the promising, ever-growing market for U.S. high technology products in China. And the Department also stressed that, for China, entry into the international satellite launch market represented an important national

12. See statement of Dr. Karl D. Jackson, Deputy Assistant Secretary of Defense (East Asia and Pacific Affairs), Department of Defense, in Space Committee Hearing 1988, *supra* note 7, at 36, 37.
13. See statement of Alan L. Cooper, General Manager, Satellite Policy and Planning, Cable & Wireless, plc., in Space Committee Hearing 1988, *supra* note 7, at 114. The statement further elaborated on the controls as follows: "To the extent that there is any activity surrounding the preparation of the spacecraft on-site, all such work and incidental exposure of constituent elements of the satellite will take place in a locked facility to which the Chinese will be denied access. Whenever the satellite is outside the preparation building, it will at all times be sealed, even while it is lifted on top of the launch vehicle and installed in its fairing.", *ibid.* The Ambassador of the PRC to the U.S. gave the following assurances: "The security of foreign satellites shipped to China for launches is guaranteed. To a foreign satellite manufacturing country, the entry of its satellite into China for launch is a matter of transit and not of export or transfer of technology. The satellites made by U.S. companies and those produced by other countries with U.S. patents and technical know-how will be exempted from customs inspection in China if they are to be launched on Long March launch vehicles. The satellite and its related equipment will remain under the control and supervision of its owner during the entire process of transportation, storage, testing and launch operation from its entry into Chinese territory. China has no intention to seek any classified technical know-how therefrom about the satellite and its related equipment." see letter to Hon. Stephen J. Solarz, Chairman of the Subcommittee on Asian and Pacific Affairs, H.R. Committee on Foreign Affairs, in Foreign Affairs Committee Hearing 1988, *supra* note 10, at 134.

initiative in high technology trade and an opportunity to earn much-needed foreign exchange.[14]

Finally, both State Department and Defense addressed the most thorny internal issue, *i.e.* the conflicting interests of the U.S. *satellite industry* on the one hand and the U.S. *launch industry* on the other hand.
With respect to the former industry, they submitted the following considerations.
The U.S. commercial satellite industry was an important asset: over the next five years more than $2.5 billion, representing more than 60 percent of all western-built communications satellites, would be earned in export revenue. But the U.S satellite manufacturers faced increasing competition from European firms. (For instance, the runner-up to Hughes in the Aussat competion was the European team British Aerospace/Matra). Permitting U.S. firms to use cost competitive launchers such as the Long March would allow them to remain competitive vis-à-vis both foreign satellite firms and terrestrial competitors such as fiber optics.
Denying the U.S. industry this possibility would in this particular case mean the probable loss of approximately $40 million in Asiasat export value (as the commercial viability of the Asiasat consortium depended on the Chinese partner's access to foreign exchange provided by the Long March contract). It would also put at risk the approximately $250 million to be spent in the U.S. by Hughes and its major subcontractors under the proposed Aussat contract, as Aussat would have to choose an alternate supplier of either the satellites or the launch services; and foreign firms would be most happy to oblige![15]

14. See statement of Eugene McAllister, in Space Committee Hearing 1988, *supra* note 7, at 28, 29: "Two-way trade increased from about $1 billion in 1977 to over $10 billion in 1987. Exports to China in 1987 exceeded $3,5 billion. The U.S. is the third largest investor in China, with about $2 billion in assets ... High technology trade has become particularly important in our economic relationship. Over the past five years, the U.S. has supplied anywhere from 30 percent to 47 percent of China's total high technology imports." As for the foreign exchange, Alan Cooper of Cable and Wireless, in his testimony on behalf of Asiasat, stated that the dollars earned with the launch would be needed to a.o. pay Hughes for the satellite: "In terms of the direct needs of the venture, the purchase of launch services from Long March will provide a hard currency in-flow that will justify outflows for the Chinese investment in Asiasat, through CITIC, and the payment of Asiasat of usage charges for capacity actually subscribed by domestic PRC users." See his statement, *supra* note 13, at 100, 108.
15. See statement of Eugene McAllister, Space Committee Hearing 1988, *supra* note 7, at 29, 30. Richard Johnson, Aussat's general manager, responding to a question by the chairman of the Hearing, confirmed that there was certainly no guarantee that the business, *i.e.* the satellite procurement, would stay with the U.S. and that a U.S. launch firm would be chosen in case of a Congressional veto of the Long March. In fact there were a number of options available to Aussat, which had received four tenders for its satellite system, three from U.S. suppliers (Hughes Aircraft Company, Ford Aerospace and GE Astrospace) and one from a European consortium (British Aerospace/Matra). As a result of Aussat's requirement that tenders should offer a package of satellite construction *and* launch arrangements, each

The interests of the U.S. *launch* industry were, as we saw earlier, in the view of the Administration officials better served by saying "yes" to the license request and being able to attach conditions thereto with respect to Chinese fair launch trade practices, than by saying "no" and postpone the discussion on Chinese launch behaviour and/or leave it to *e.g.* the Europeans to deal with the threats and opportunities of Chinese launch competition; in the latter case, the U.S. leverage would be far less than in the present situation.[16] Besides, there was no guarantee whatsoever that the U.S. launch industry in this particular case would benefit from a veto of the Long March launcher. Apparently, the European Ariane launcher, and not a U.S. company, was Hughes' and its customers' chosen alternative in case the Chinese were barred from launching the satellite.[17]

Predictably, the *U.S. launch industry*, represented primarily by General Dynamics (Atlas) and Martin Marietta (Titan), expressed rather strong views on the matter, along the following lines.
The U.S. ELV industry was still in its infancy, if not "embryonic", had not even had its first commercial launch yet and had been able to win a number of international launch contracts since mid-1987 only because the Ariane launch manifest had quickly filled through early 1991 (and contracts therefore more or less spilled over to the U.S. companies): in other words, this young U.S. industry was only now entering into a much more truly competitive phase involving launches for 1991 and beyond.
It was at this sensitive stage that they felt confronted with new and unexpected competition. For the companies concerned, strongly encouraged by policy intiatives and statements of both the President and Congress, had invested

tenderer had offered more than one launch vehicle, collectively including the U.S. Titan and Atlas Centaur rocket, the European Ariane and the Long March. All four had offered the Long March, which - through its low introductory price - meant a prospective cost reduction to Aussat of some $80 million or 20% of the system cost. Aussat's initial selection of Hughes to negotiate with resulted in a letter of intent in which Aussat directed Hughes "to enter into a Launch Services agreement for the provision of a Long March launch", see Johnson statement, *ibid*, at 91, 92. If this cost advantage could not be had with a U.S. satellite firm, the logical step for Aussat would be to turn to the European consortium which, apparently, not only had made a very competitive satellite offer but also had fewer qualms about using a Chinese launcher. (Arianespace Inc. USA President Heydon, in a letter of October 7, 1988 to the Chairman of the Committee hearing, denied this, stating that the European bidder British Aerospace had consistently supported the position that "it is not in Europe's long-term interest to use Long March as a weapon in their competitive battles with the major U.S. satellite builders.", see Space Committee Hearing 1988, *supra* note 7, at 426).

Of course, the other, more expensive, options -*i.e.* a U.S. satellite delivered in orbit by either U.S. or European launcher and a European satellite with the same launcher choice- were not completely off the table, but less likely to be choosen.

16. See *supra* (text to) note 11.
17. See Bill C. Lai, *National subsidies in the international commercial launch market*, 9 (1) Space Policy 17-34 (1993), herinafter referred to as Bill Lai, at 26.

significant amounts in launch pad and launch vehicle improvements, believing that the U.S. Government, interested in a healthy commercial U.S. space transportation industry, would not put that strategic asset at risk by voluntarily bringing in unfair competition.
In that connection, Chinese *pricing* practices were seen as most threatening. As the Martin Marietta representative put it,

"... American launch companies cannot compete against a foreign government program that is totally independent of free market pressures, and whose pricing decisions seem driven by foreign exchange needs and foreign policy considerations rather than private enterprise considerations of cost and return on investment."

Chinese entry into the market place would thus disrupt and undermine the viability of the U.S. companies; that is, unless this entry was made subject to a thoughtful, balanced and comprehensive trade policy, in which (guarantees with respect to) fair pricing behavior would have to play a central role.
Both U.S. companies expressed their concern about the contents of the conditions yet to be agreed upon with the Chinese in this regard, and strongly recommended to first have the fair trade / fair pricing agreement concluded (and considered by Congress), after which the licenses could be resubmitted by the State Department.[18]

McDonnell Douglas, the third U.S. company, though showing a more positive attitude towards granting an export license in view of its broader business involvement with China, made its support conditional on agreement having been reached on *inter alia* economic conditions, "most likely centered around establishing a specific and limited number of Long March commercial launches per year, and establishing fair cost-based pricing for those launch services."[19]

Arianespace echoed the concerns of the U.S. industry about the impact of non-market entrants' less than fair competition on the viability of the western commercial launch services companies (with Arianespace being even more vulnerable because it lacked the "healthy military production base" the U.S. companies could rely on[20], and demanded prior Chinese demonstration of

18. See Foreign Affairs Committee Hearing 1988, *supra* note 10, at 47, 53 (statement Martin Marietta) and 88 (statement General Dynamics).
19. See Space Committee Hearing 1988, *supra* note 7, at 168.
20. In its "fact sheets on the China launch issue" of Sep. 1988, the Department of State largely confirmed Arianespace's observation, stating that "[h]istorically, the major source of investment for development of ... (ELVs) in areas such as design launch facilities, and tooling has resulted from Department of Defense (DOD) and NASA contracts. The magnitude of that investment as indicated by the size of the total military contracts discussed below is significant ... - U.S. ELV Manufacturers have signed contracts for 48 military launch vehicles worth $4.8 billion.", see Space Committee Hearing 1988, *supra* note 7, at 392. There is no comparable (European) military production base available to Arianespace.

willingness and ability to abide by rules of fair and reasonable competition based on market-oriented principles before such entry could be permitted. The European launch company consequently called for a (prior) *multilateral* agreement on pricing and trade practices to ensure reasonable and fair competition.[21]

Although the above launch companies were asked to state their views on a number of other issues, such as the question of technology transfers and liability for Long March launches, their views were particularly sollicited on standards for "fair pricing for launch services". In the absence of a reasonably accurate insight in the true costs of the Long March, there was a general tendency to take the (historical) western launch prices as a yardstick: on the basis of an analysis of price/performance ratios, General Dynamics came to the conclusion that they all fell within a rather narrow band, and suggested that Chinese pricing in dollars per pound within the same band would not be unfair.[22] Martin Marietta, McDonnell Douglas and Arianespace expressed similar views.[23]

In this connection, the State Department, already sufficiently aware of the U.S. launch companies' views prior to the hearing, had identified the following items as "market disruption safeguards", which the Chinese would have to agree on to help establish a level playing field:
- price future launches at "international rates"
- participate in "rules of the road" talks regarding government involvement in, and support for, the commercial launch industry, and
- limit the number of future launches to an appropriate level.[24]

China Great Wall Industry Corporation, in its submission to the Foreign Affairs Committee Hearing, rejected the suggestion that it was "dumping" their launch services or received subsidies from the Chinese government. They attributed the comparatively lower price of their launch services to a combination of factors, such as "practical and reliable rocket design, fairly high successful launch record, entirely home-made materials and components, fairly low labour costs and the corporation's practice of seeking no high profit ...". The company also defended the promotional price for its Long March-2E, a new type of launch vehicle, as fully in accordance with international practice, and submitted that the introductory price for the new Ariane 4 launcher had been even lower than the one offered for its Long March. Finally, the Chinese company cited certain operational limitations which put its launch vehicle at

21. See Space Committee Hearing 1988, *supra* note 7, at 184, 185.
22. *Id.*, at 282, 284.
23. *Id.*, at 288, 290 (Martin Marietta), 295, 296 (McDonnell Douglas) and 301, 303. (Arianespace).
24. *Id.*, at 389.

a disadvantage compared to its western competitors and made price comparisons inappropriate.[25]
Expert testimony at the hearing supported the statements made by the Chinese with respect to the difference in price based on qualitative differences between their own launch vehicle and the western ELV's. In essence, the comparison boiled down to a sharp contrast between sophistication on the one (western) hand and the inexpensive and simple "big dumb booster" concept on the other (Chinese) hand.[26]
Of course, the above justifications for lower Chinese prices only addressed the contention of dumping or "unfair pricing", and, rather than reconciling the western launch industry with Chinese entry into the launch market, only heightened their concerns about the effects thereof.

As for a possible safeguard in the form of quantitative limitations, the U.S. launch industry itself recommended a numerical standard of one award of *one* launch per year; its European competitor, hardly more generous, came to one or two.[27] These were in reaction to indications received from China that the Chinese would be agreeable to a limitation to *four* launches per year, which represented the maximum number of launch vehicles China Great Wall Industry Corporation could spare each year for foreign customers taking into account its domestic launch needs.[28]
Whereas, in the view of the Department of State, this latter number of launches would not jeopardize the U.S. launch industry[29], the latter, seeing a "thin" world launch market for the 1991 and beyond period of some 16 or 17 annual launches (with Arianespace acquiring at least half of the contracts), felt "discouraged" at the prospect of loosing such a sizeable part (25%) of the market to the Chinese, and spoke in this connection of a "serious blow to the nascent U.S. commercial launch industry".[30]
At the time of the hearing, the Administration had not made up its mind on either the level (or even the principle) of a quantitative restriction[31] or on the definitive approach to be taken with respect to "fair pricing".

The Administration presented a number of other issues which had been the subject of inter-agency study and review prior to its decision: the role of CoCoM, the U.S. policy on Soviet launches of U.S. satellites, the liability condition, and its relations with the European Space Agency (ESA).

25. See Foreign Affairs Committee Hearing 1988, *supra* note 10, at 118, 119.
26. See statement David R. Scott, Foreign Affairs Committee Hearing 1988, *supra* note 10, at 112.
27. See Space Committee Hearing 1988, *supra* note 7, at 288 (Martin Marietta) and 302 (Arianespace).
28. See Foreign Affairs Committee Hearing 1988, *supra* note 10, at 120, 134.
29. *Id.*, at 36.
30. *Id.*, at 45 (Martin Marietta) and 44 (General Dynamics).
31. *Id.*, at 41.

CoCoM, whose - unanimous - approval was needed before the U.S. Government could issue the licenses, had already been approached in June 1988, *i.e.* prior to the official license applications, for an early consideration of the matter.
At that time, the U.S. had confirmed its support for case-by-case review of satellite export cases involving China with a presumption of approval (provided national security concerns could be met) as opposed to similar *Soviet* cases where a presumption of denial was maintained. This was consistent with both the CoCoM policy of differentiating between the PRC and the USSR, with the U.S. view of Soviet threat, and with U.S. export regulations.
Although CoCoM's export embargo proscribed export of satellites to Warsaw Pact nations, Korea and other communist countries, China had, through the years, been subjected to increasingly less rigorous controls.
CoCoM's initial consideration did not result in agreement on policy or procedure, and further discussion of the matter was scheduled for November 1988, *i.e.* after the 30 days Congressional review (and assuming export approval of the latter had been obtained).[32]

Soviet launches of U.S. satellites remained prohibited, affirmed the Department of State, and any pressure, domestic or foreign, to treat the Soviets in the same way as the Chinese would be strongly resisted: the P.R.C., a "friendly, non-allied" nation, did, in the consistent view of State, not pose the same threat to the United States space assets as did the Soviet Union. Moreover, Soviet and Chinese capabilities to exploit vulnerabilities in U.S. satellites were vastly different.[33]

Liability involved the applicability to the Chinese launches of the 1972 Space Liability Convention, to which the United States was, but China was *not*, a party. That Convention holds a "launching State" absolutely liable for damage caused by its space objects on the surface of the earth or to aircraft in flight. As the definition of "launching State" includes "a State which procures the launching of a space object", and it could be argued on the basis of the provisions of that Convention that the U.S. was "procuring" the launching of the satellites in question, the U.S. Government wanted to ensure that China would compensate the U.S. for any payments the latter would have to make pursuant to its liability under the Convention. A government-to-government agreement, covering this eventuality, was therefore considered a necessary pre-condition by the U.S.[34]

At the request of the *European Space Agency*, the U.S. Government and ESA had met on several occasions since July 1987 to develop "rules of the road"

32. See Space Committee Hearing 1988, *supra* note 7, at 384.
33. *Id.*, at 390.
34. *Id.*, at 388.

with respect to government involvement in, and support for, the commercial space launch industry. Although, at their most recent meeting in July 1988, the two sides had made considerable progress in identifying specific governmental practices which directly affect commercial operations and had concluded that further work on *indirect* supports was needed, the talks between the two parties had not yet progressed to negotiation.
ESA, confronted by the U.S. at the latter meeting with the export license applications, had expressed its concern about additional entrants into the "crowded" launch market. The two sides had subsequently discussed possible (joint) approaches to launches by such third parties, but, according to the State Department, had not come to a decision on how to proceed.
The U.S. Administration had in the mean time informed ESA about its decision with respect to the Chinese launch services and expected to have further discussions with that organization on the matter.[35]

In the two Committee Hearings brief discussions took place on the politically sensitive issue of Chinese (future) behavior in the area of *missile proliferation*, particularly in the Middle East, and on the possible linkage of this issue with the the export license decision. Basis for the discussion was the rather veiled reference to this "trade off" in the statements made by the representative of the Department of Defense before both Committees:

"Entry into the commercial space field will also foster efforts to direct China's missile and space activities into areas more compatible with our own non-proliferation concerns and objectives."[36]

While denying a direct linkage between the two issues, upon questioning on the part of Committee members the Defense official conceded that the Secretary of Defense, during his - recent - visit to China had raised U.S. Administration concerns about Chinese sales of *Silkworm* missiles to Middle East countries and that the Chinese were undoubtedly aware of the negative effect these sales had on their relationship with the U.S. And, as the spokesman added, "the discussions that Secretary Carlucci had in China were the most successful discussions we have had to date with the Chinese on this topic."[37] By finally drawing Congress members' attention to the fact that the President's decision on the export licenses had taken place at the end of the Secretary's successful mission to China, he appeared to put the trade off rather squarely on the table.[38]

35. *Id.*, at 391. (Some further discussions did indeed take place but dit not result in an agreement between the two parties, see Ch. 3.4.3 *infra*).
36. *Id.*, at 36; see also Foreign Affairs Committee Hearing 1988, *supra* note 10, at 33.
37. See Space Committee Hearing 1988, *supra* note 7, at 47.
38. *Id.*, at 33. Ten years later, this veiled linkage has become an express and openly proclaimed policy; in June 1998, a high State Dept official stated in testimony before the House: "One aspect of our efforts to persuade China to adopt a more responsible nonproliferation policy,

Although "healthy skepticism" was expressed both on the part of Committee-membership about what verbal commitments the U.S. Secretary of Defense had exactly extracted from the Chinese[39] and on the part of Defense itself about the Chinese "deeds" to be expected on that basis,[40] details given to Congress in private session apparently further justified the Administration's hope that "the problem of missile proliferation is now behind us."[41]

In his letter of October 14, 1988 to the Chairman of the Committee on Foreign Affairs, the Secretary of Defense noted a recent legislative initiative in the Senate to block the export of the satellites. The House of Representatives, through its opposition against this attempt, in the Secretary's view, not only "helped build our bipartisan effort to develop a constructive relationship with China. More importantly, however, it signaled strong support for our diplomatic efforts to stem missile proliferation in the Middle East".[42]
Expressing concern that other attempts might be made to block the export of the satellites or delay consideration of the licenses until the next Administration, Secretary Carlucci warned against the effect of the ensuing withdrawal of the Administration's notification (of intended approval) to Congress:

- it would undercut the U.S. negotiating position with the Chinese on the three conditions, *i.e.* the conclusion of agreements on market access, on technology safeguards and on liability, if the latter were to commit themselves to specific terms without knowing whether the Administration would then have the authority to provide the licenses;
- because of the time-sensitive character of the contracts, delay would jeopardize $300 million in U.S. exports (as well as related American jobs), and other exports would be at risk if China responded by switching to other countries for high technology equipment, such as commercial aircraft;
- it would mean trouble with "a staunch ally in the South Pacific", Australia, which had a strong interest in the success of the Aussat launch by China;

particularly regarding missile transfers, has been the basic policy of three administrations, *beginning in 1988*, to allow U.S.-made satellites and foreign satellites with significant U.S. components and technology to be launched on Chinese rockets. This policy has been used judiciously as a "carrot" to encourage China to enforce strengthened nonproliferation standards". (emph. add.), see Holum testimony 1998, *supra* Ch. 2 note 230.

39. See statement Hon. Solomon, Representative, ("I really think that our good friend, Secretary Carlucci, was hornswoggled."), Foreign Affairs Committee Hearing 1988, *supra* note 10, at 16. See also critical press coverage ("Mr. Carlucci apparently was unable to persuade his hosts to change their policy, because the statements at the end of his visit said nothing about China expressing willingness to stop being a merchant of death, only that China conducts and would continue to conduct its arms business "responsibly"), Chicago Sun-Times, Sep 10, 1988, reproduced in Space Committee Hearing 1988, *supra* note 7, at 223.
40. See Foreign Affairs Committee Hearing 1988, *supra* note 10, at 39.
41. *Ibid.* As we saw in the previous Chapter, this was a clear overstatement of the Administration's accomplishments: the problem is still there today.
42. See Foreign Affairs Committee Hearing 1988, *supra* note 10, at 122.

- finally,

"... it would most certainly imperil the important progress made in my talks with Chinese leaders in Beijing in August. These meetings touched on a number of bilateral issues, but most important were the successful discussions on China's arms sales policy. I said in Beijing that these talks on arms sales were "the best discussions that we have ever had" with the Chinese, and I am now hopeful that we can put the issue of missile proliferation behind us."[43]

And, as late as October 20, National Security Advisor Colin L. Powell, in a similar letter to the Committee on Foreign Affairs, warned against any last minute legislative efforts in Congress to prohibit or delay issuance of the export licenses, and confirmed the linkage between the two issues: "Finally, the extremely positive results achieved during Secretary Carlucci's recent visit to China in putting the issue of Chinese IRBM sales behind us could well be lost [if such legislation would be adopted]."[44]
As we saw earlier and will revert to later, Chinese (non-) proliferation behavior would dominate the export licensing and launch debate for many years to come.

In the Committee on Foreign Affairs, Chinese *human rights* behavior was also brought up as a matter of concern and linked with the satellite export licenses. As one member observed "... the manner in which a number of us will react to these negotiations will have a great deal to do with the manner in which the Chinese observe the human rights problems and correct the human rights abuses that are evident in Tibet."[45]
At the hearings, the matter was not further pursued. As an important Congressional concern, it would nevertheless join missile proliferation as a factor which would continue to considerably affect and complicate U.S.-Chinese launch trade relations.

Congress felt rushed with just 30 days to make up its mind, and in both Committees complaints were voiced that the members had to judge the issue without knowing the contents of the agreements yet to be negotiated by the U.S. Government with China. (And after those 30 days, Congress would, to the concern of some members, essentially loose jurisdiction over the matter).[46]

43. *Id.*, at 123. (And see note 41).
44. *Id.*, at 101.
45. *Id.*, at 40.
46. See Space Committee Hearing 1988, *supra* note 7, at 38, 39, and Foreign Affairs Committee Hearing 1988, *supra* note 10, at 4, 6, 92, 94.

There was - at times heated and emotional - debate about the various dimensions of the issue as presented above. Already prior to the hearings, a number of Congressmen had appealed to the National Security Advisor to protect the U.S. ELV industry, on the brink of (re-)assuring U.S. access to space, against the detrimental effects of non-free market economy prices, mentioning the loss of (launch-) trade opportunities and American jobs and the dangers of technology transfers as added reasons for denying the license applications.[47] A joint resolution of dissapproval was introduced in both Senate and House of Representatives[48], and particularly in the Foreign Affairs Committee hearing, China's missile sales to Middle East countries were cited as the type of behavior that should not be "rewarded", nor abstention from that behavior be bought, by having them launch U.S. satellites.[49]

The determination of the Administration to improve (trade-) relations with China and the assurances its representatives gave that all interests would be scrupulously and evenhandedly served, both in the negotiatiations on the three agreements the Administration proposed to conclude with China and in the follow-up period thereafter, in the end prevailed.
On October 7, 1995, the Chairman of the House Space Committee wrote to Secretary of State Shultz:

"Following the committee"s careful scrutiny of this issue and vigorous discourse with affected parties on the implications of this licensing decision, I have concluded that the licensing decision outlined in the President's notification to Congress, including the specific conditions therein, is responsible, fair and prudent to the overall interests of the United States. Moreover, this license and the conditions to which it is subject present significant opportunities to this country that extend far into the future."[50]

On October 12, when the deadline for Congressional disapproval had passed, the Foreign Affairs Committee had also, albeit tacitly, accepted the Administration's decision. Nevertheless, some of its members remained sufficiently opposed to it to consider further legislative action, which prompted both the National Security Advisor and the Secretary of Defense to write urgent letters to the Committee Chairman requesting his assistance in forestalling these last minute actions.[51]

A reason for the Congressional opponents to bide their time may well have been their conviction that, where this battle appeared to be lost, the Administration had reaffirmed that it would decide each future export license

47. See Foreign Affairs Committee Hearing 1988, *supra* note 10, at 95-97.
48. *Id.*, at 6, 122.
49. *Id.*, at 6.
50. See Space Committee Hearing 1988, *supra* note 7, at 422, 423.
51. See Foreign Affairs Committee Hearing, *supra* note 10, at 100 and 122 respectively.

request on its own merits[52] and would have to submit its decisions to Congress, whose members would continue to closely monitor Chinese "behavior" and have every opportunity to link the issues. An opportunity they used soon thereafter.

On *January 26, 1989*, after two rounds of negotiations, the U.S. and China signed a *Memorandum of Agreement between the Government of the United States of America and the Government of the People's Republic of China regarding international trade in commercial launch services*. This Memorandum of Agreement (M.o.A.) was preceded by, and intimately linked with two other M.o.A.'s signed by the same parties on December 17, 1988, *i.e.* a *Memorandum of Agreement on satellite technology safeguards* and a *Memorandum of Agreement on liability for satellite launches* ; the latter lost most of its relevance when China, on December 20, 1988, acceded to the U. N. Space Liability Convention of 1972.[53]

The three agreements, which will be referred to hereafter as the (Launch) Trade Agreement, the Technology Safeguards Agreement and the Liability Agreement respectively, entered into force on *March 16, 1989*, the date on which the U.S. Government had notified its Chinese counterpart that U.S. licences for the export of the Asiasat and Aussat satellites to China for launch from Chinese territory had been approved.[54]

52. *Id.*, at 100.
53. The technology safeguards and liability M.o.A.'s were negotiated under State Dept chairmanship and initialled by the two parties in Beijing on Oct 21, 1988. The trade agreement was negotiated under USTR chairmanship, with participation from other agencies, and was initialled on Dec 17, 1988. At the latter occasion, the State Dept issued a statement in which it outlined the contents of the trade agreement and declared not yet to be "... in a position to issue the export licenses for the three ... satellites ... We must still review and formally approve the trade agreement. We also must await CoCoM approval of the satellite exports"., see American Foreign Policy (1988) at 539 (Doc. 321).
54. The agreements are reproduced in 28 I.L.M. 596 (1989). The guidelines for the implementation of the main M.o.A., approved by the Trade Policy Staff Committee and the U.S. Trade Representative (USTR) and issued by the Office of the USTR appear in 54 Fed. Reg. No. 19 (Jan. 31, 1989) at 4931-4933. To avoid issues of liability between China, the launching state, and the United Kingdom, the state of registration of the Asiasat satellite, the two parties exchanged notes on March 16, 1990, which provided that "China and the United Kingdom agree that, with regard to the compensation arising during the launch phase (from ignition of the launch vehicle to the separation of the satellite from the launch vehicle), China shall assume the liability as between them under the Liability Convention, the Outer Space Treaty and other principles of international law". See He Qizhi, *Legal issues of China's entry into international space market*, 40 (3) Zeitschrift fuer Luft- und Weltraumrecht 278-281 (1991) at 279. For a detailed analysis of the *Convention on international liability for damage caused by space objects* of March 29, 1972, e.i.f. September 1, 1972, 24 U.S.T 2389, T.I.A.S. 7762, see H. Peter van Fenema, *supra* Ch. 2, note 9.

3.1.2 The U.S.-China Agreements of 1989

a. The Launch Trade Agreement

Under the article II heading "trade issues and market entry", the agreement sought to regulate (future) Chinese behaviour in the international market place through adherence to both general principles and specific - launch capacity and price - limitations.

Thus, the Agreement had the U.S. and the PRC support the

"application of market principles to international competition among providers of commercial launch services, including the avoidance of below-cost pricing, government inducements, and unfair trade practices."

Government support
Included in the steps the PRC had to take to ensure that Chinese launch providers upon entry "do not materially impair the smooth and effective functioning of the international market for commercial launch services", was a commitment to ensure that any direct or indirect government support extended to its launch companies "is in accord with *practices prevailing in the international market*" (emph. add.); this latter term, according to the Annex on definitions which forms part of the agreement, refers to practices "by governments of market economies", and thus, for all practical purposes, to the behaviour of the U.S. government and of the governments of ESA and the ESA member states in this field. To what extent these entities do subsidize - either directly or indirectly - their launch companies is a matter which is at best not easily answered and thus unfit for specific guidance for the Chinese, at worst a total regulatory-financial mystery of nightmarish proportions. Consider a few elements, assembled for a study published in 1993.[55]
In the U.S., although various policies through the years have rejected direct government subsidies to private (space) companies, the U.S. launch industry has benefitted from its association with the government in a number of ways. One form is the economies of scale resulting from government, in particular Department of Defense, contracts. Examples include General Dynamics, which, in 1987, invested USD 400 million to produce 18 commercial Atlas I and II launch vehicles. At the same time it received a contract from the U.S. Air Force for another 11 Atlas II vehicles. By combining the two production orders GD created economies of scale resulting in lower cost per launcher and a lower, more competitive price in the international market.[56] Martin Marietta

55. See Bill Lai, *supra* note 17.
56. *Id.* Timothy A. Brooks, *Regulating international trade in launch services*, 6 High

(Titan) and McDonnell Douglas (Delta) could make similar arrangements with the Government. For all three launchers, according to the above study, Defense accounted for 29-93% of all launches, and with NASA included U.S. government usages accounted for as much as 57-93%. In fact, without the prospect of military contracts, these companies would probably not have decided to modernize their production facilities and enter the commercial launch market after the Challenger accident.
Another form of indirect government support is research and development (R&D) funding for military products and technologies, which can later be transferred to commercial applications without obligation to reimburse the government. Finally, the U.S. government's commitment to use as much as possible the domestic launch services may also be seen as a clear support for the U.S. industry (see chapter 3.4.4. *infra*).

In a more recent trade press report on the activities of Japan's aerospace firms, reference was made to NEC, Mitsubishi and Toshiba which spent 1997 "pushing toward commercialization of their products and technologies" and using work on satellite projects for the government agencies NASDA and ISAS "as springboards to making a commercial splash." The same report has Nissan, (co-) builder of the H2A launcher, looking forward to major revenues from NASDA purchases of this new rocket, while at the same time selling 30 of these launchers to Rocket System Corporation which is marketing the H2A for commercial launches.[57]

The various ways and means through which ESA and its member states (may) have supported the production and sale of the Ariane in the past, have been discussed in the framework of the TCI case in Chapter 2.2.2 (ii). This is not the place to further review all - possible - indirect-subsidization methods. The foregoing is simply to indicate that subsidization or other support may take many forms in Western countries; the respective provision in the Agreement therefore gives China a large measure of freedom in supporting CGWIC and its family of Long March launchers.[58]

Government inducements
A related provision, in article II d., had the U.S. state that

"The U.S. does not provide government inducements of any kind in connection with the provision of commercial launch services to international customers which would create discrimination against launch service providers of other nations ..."

Technology L.J. 59-107 (1991) at 75.

57. See 9 (28) Space News (Jul 1998) at 16 ("Commercialization drives Japan's big three").
58. On subsidies, see also Yanping Chen, *China's space commercialization effort - organization, policy and strategies*, 9 (1) Space Policy 45-53 (1993) at 52, 53.

China agreed to behave in the same way.
The agreed definitions in the Annex to the Agreement gave the following explanation to the term "government inducements":

"Government inducements' with respect to particular launch services transactions include, but are not limited to, unreasonable political pressure, the provision of any resources of commercial value unrelated to the launch service competition and offers of favorable treatment under or access to: defense and national security policies and programs, development assistance policies and programs, and general economic policies and programs. (*e.g.*, trade, investment, debt, and foreign exchange policies)".

In other words: no bribes, no threats, no trade-offs, no special "deals".

Pricing
In order to avoid unfair pricing, the agreement provided:

"The PRC shall require that its providers of commercial launch services offer and conclude any contracts to provide commercial launch services to international customers at prices, terms, and conditions which are on a par with those prices, terms, and conditions prevailing in the international market for comparable commercial launch services." (emph. add.)

The latter part of this provision as emphasised, according to the Annex "includes but is not limited to prices, financing terms and conditions and the schedule for progress payments offered to international customers by commercial launch service providers in market economies."
Further, insurance and/or reflight guarantees were subject to the same "on a par" condition as the launch prices. And the Chinese launch providers would be prevented from offering introductory or promotional prices except for the first or, in extraordinary cases, second successful commercial launch of a new launch vehicle.

Some remarks on the above pricing condition.
The idea was, as we saw earlier, to avoid a practice of dumping or below-cost pricing conducive to hurting or even destroying the (competitive position of the) U.S. launch companies.
By setting a (U.S./European) international market standard in pricing, the assumption was created that those prices were above-cost or at least that with those prices a break-even could be reached. That would imply that the international cost was to be considered the true cost, undistorted by direct or indirect government support or so distorted only to an extent regarded as acceptable by the above governments of market economies. However, already for quite some time, these governments and their - fiercely competitive - launch companies had been accusing one another of government subsidization

and/or preferential treatment distorting the free market mechanism.[59] In other words, although during the Congressional Hearings on the subject the western launch companies agreed on this "international standard" as being an acceptable one for providing guidance to their new competitor, in reality this standard would only produce the real price in a temporary - oligopoly driven - sellers market, and hardly play a role in a competitive "buyers market" environment.

On the other hand, it was noted before that in practice the cost of constructing and launching a vehicle in China was considered substantially lower than in western countries, and that, anyhow, cost calculation was not the first priority of the Chinese launch industry.[60]

The provisional conclusion of the above could be that the pricing provision would force the Chinese launch industry to raise its prices to an international level where the launch quality difference would induce the customer to choose an American launch provider. Alternatively, Great Wall Industry would still conclude the contract and make a substantial profit on it, because of the difference between the - artificially increased - launch price asked and the launch cost incurred. In both cases the launch customer would pay a higher bill than necessary.

Of course the Chinese launch price could also be set at a level which, in the eyes of the U.S. or European competitors, would be too low to pass the test of the Agreement, in which case the U.S. producer of the satellite (components) probably would not obtain an export license from the U.S. government, or only get one after lengthy investigations and negotiations (and possibly with the help of some political pressure on the part of the country most affected by the delaying process).

For, in case of violations of the provisions of the Agreement, the U.S., by virtue of article V of the Agreement, had the right to take any action permitted under U.S. laws and regulations. Moreover, the same article reaffirms the U.S. government's quasi-total freedom of action in this regard as follows:

"With regard to export licenses, any application for a U.S. export license will be reviewed on a case-by-case basis consistent with U.S. laws and regulations. Nothing in this Agreement shall be construed to mean that the U.S. is constrained from taking any appropriate action with respect to any U.S. export license, consistent with U.S. laws and regulations. Nevertheless, the U.S. will do its utmost to assure, consistent with U.S. laws and regulations, continuity of issued license(s) and the completion of the transactions covered in such license(s)."

59. See TCI case 1984, Chapter 2.2.2.2. *supra*, and see *supra* (text to) note 20.
60. See *supra* (text to) notes 25 and 26.

The above would indicate a distinct need of clarity on the question of - permissable, *i.e.* "market" - pricing on the part of Great Wall Industry, before responding to any launch tender. But, although the Agreement offered abundant consultation and information exchange possibilities for that purpose, it neither sought to produce any specific reference prices nor did it provide acceptable discount percentages which would assist the Chinese in establishing "on a par" launch prices taking into account the differences in cost and other launch-related aspects.

Here, the Agreement's above-quoted pricing provision created uncertainty for China but also a loophole, where it referred to prices for "comparable" launch services.
One aspect, already noted earlier, is the comparative level of sophistication of the launch vehicles used.[61] The lack of precision it offered and the more limited life expectancy resulting therefrom were quoted as additional handicaps.[62]

Another related aspect was its performance level in the sense of *range*.
As CGWIC stated at the Congressional hearing:

"Chinese Long March-2E, unlike many other western launchers, is a Low Earth Orbit mission launch vehicle which cannot directly deliver the communications satellites into Geosynchronous Transfer Orbit without an upper stage. Therefore, the price offer of Long March 2E should not be put on a par with the price offer of other countries launch vehicles that perform direct Geosynchronous Transfer Orbit (GTO) mission. ... In order to provide GTO capability, Long March-2E needs a third stage (upper stage), such as McDonnell Douglas Astronautics Company's PAM-D3 or PAM-D3 A or other American firms upper stages. When using a Long March-2E, the customer needs to purchase a U.S. made upper stage ..."[63] [64]

Yet another aspect was the geographical position of the Xichang launch *site*, used for the Long March launches. Kourou in French Guyana, used by the European Space Agency for the Ariane launches, is situated near the equator and the location of Cape Canaveral, the primary U.S. launch base, is also

61. See (text to) footnotes 24 and 25.
62. "Asiasat contends that the effective cost of its $27-28 million launch was in fact almost doubled by the loss of 6-9 months of use (equivalent to about $13 million in revenues), due to the lower orbital-injection accuracy of the Long March.", see Chenard, launch regulation, *supra* note 3, at 199.
63. See Foreign Affairs Committee Hearing, *supra* note 10, at 119.
64. And Gordon Pike 1991, *supra* note 2, observes with respect to Aussat (at 107): "... As currently planned [large spacecraft destined for GTO] will be delivered to a relatively low (typically 200 km) orbit ... An additional perigee kick motor (PKM) will then be used to boost the spacecraft into GTO. For the Aussat-B missions the PKM will be supplied by the spacecraft manufacturer [Hughes] ...".

closer to the equator than the Chinese base: because less fuel is thus needed to get the satellite into its final - geostationary - orbit, more of it remains available for the satellite's orbital life, which is thereby extended by reportedly up to two years.

Finally, as an Asiasat official observed after the launch of Asiasat I, the price advantage of the Long March launch was partially offset by poor facilities and limited assistance at the launch site, resulting in twice as many people of Hughes Company being necessary for twice as long to get the satellite prepared for launch.[65] This quality aspect would supposedly not be a permanent handicap to be used by the Chinese as a justification for a lower launch price. Annual consultations between the parties were foreseen by the Agreeement. An important purpose of these meetings was to review possible Chinese (and U.S.!) direct or indirect government support, but more in particular the pricing practices of both parties.

Capacity limitation

By way of introduction to and/or explanation of the Agreement's provisions on the number of satellites the Chinese would be allowed to launch, a Chinese statement was included in the text to the effect that China had a limited capability of manufacturing launch vehicles which (first) had to meet the domestic launch needs, thus leaving only a limited number of communications satellite launches each year for international customers. "Chinese launch services", the explanation concluded reassuringly, "therefore, are only a supplement to the world market, providing international customers with a new option."

The capacity limitation, which included some special measures aimed at reducing the commercial impact of (a concentration of) Chinese launch contracts, was formulated as follows:

"(i) PRC providers of commercial launch services shall not launch more than 9 communications satellites for international customers (including the two Aussat and one Asiasat satellites) during the period of this Agreement [*i.e.* until December 31, 1994], and (ii) The PRC shall require that any commitments to provide commercial launch services to international customers by PRC launch service providers are proportionately distributed over the period of the Agreement.
To this end, the PRC shall prevent a disproportionate concentration of such commitments during any two-year period of the Agreement.
The PRC may make commitments in any 3-year period of the Agreement consistent with subparagraph (i) above.

65. See AW/ST (Apr 16, 1990) at 25, 28.

The PRC shall also require that PRC launch service providers shall not commit at any time to launch in any calendar year covered by the Agreement more than twice the average annual number of launches permitted under subparagraph (1) above.
The PRC shall seek to ensure that PRC launches of communications satellites for international customers are performed as scheduled in the original launch commitment."

Given the period covered by the Agreement, it was difficult to foresee all eventualities and developments in the international launch market. In order to give an opening to the Chinese to enlarge their above entitlement, and also to safeguard the interests of the U.S. satellite manufacturers and users (the Challenger accident and other launch failures of both U.S. and European ELV's happened only three years before!), annual consultations were foreseen, which would address developments in the international launch market and also, if so requested by the Chinese, a reconsideration of the above quantitative restriction, with a U.S. decision on such a request to be be made within thirty (30) days after the completion of the annual consultations.

b. The Technology Safeguards Agreement

The Technology Safeguards Agreement is intended to preclude the transfer of sensitive U.S. technology, associated with the launch of the Asiasat and Aussat satellites, to China, and specifies the security procedures to be followed by the parties when undertaking a launch of a U.S.-manufactured satellite on a Chinese launch vehicle.

The Agreement controls access to U.S. spacecraft and related equipment, and requires that under no circumstances shall there be unmonitored or unescorted access to U.S. *spacecraft*, or to any *equipment* and *technical data* related to the launch.
In this connection, the following - extensive - interpretation is given to the emphasized words:
spacecraft covers the satellite and kickmotor;
equipment means support equipment, ancillary items, components and spare parts thereof;
technical data means, for the purposes of the Agreement:

"(a) Classified information relating to the equipment;
(b) information covered by an invention secrecy order;
(c) information which is directly related to the design, engineering, development, production, processing, manufacture, use, operation, overhaul, repair, maintenance, modification, or reconstruction of the equipment. This includes, for example, information

in the form of blueprints, drawings, photographs, plans, instructions, computer software, and documentation".[66]

These security procedures applied to all phases of the launch activities, starting already at the Hughes facilities in the U.S. and covering the transportation of the spacecraft from the U.S. to China and the activities in China. The procedures of the Agreement supplemented other provisos and restrictions detailed in the so-called 'technology (transfer) control plans' - which must identify the extent and level of hardware and technical data to be released - which the State Department license required to be included in the launch contracts signed by Hughes and CGWIC. (And in case of conflict between the provisions of the contract and the Agreement, the latter would apply).
A determination on the part of the U.S. government that any of these provisions had been violated could result in suspension or revocation of the export license of the satellites.

The Agreement made a distinction between "authorized technical data" and "unauthorized technical data and assistance". The former, which could be released, basically consisted only of specified interface information that described mechanical and electrical mating requirements for attaching the spacecraft to the launch vehicle. The latter covered all other technical data, whose disclosure was therefore prohibited. Moreover, The PRC was expressly forbidden to seek, and Hughes to provide, any assistance relating to the design, development, operation, maintenance, modification, or repair of the equipment and the launch vehicle.

Detailed "access controls" included:
- the right of the U.S. government to oversee and monitor implementation of the Hughes-CGWIC Plan,
- 24-hour controls by U.S. security personnel of access to all equipment and technical data, throughout launch preparations, satellite transportation, mating/demating, test and checkout, satellite launch and return of equipment to the U.S,
- the right of the U.S. government to inspect, without prior notice, the equipment and technical data provided by Hughes to the PRC, at the facilities of Hughes or in China,
- the right of the U.S. government to electronically inspect and monitor, including through a closed circuit television system and electronic devices, all areas where Hughes equipment and data are located, "including the spacecraft clean operation area after the mating of the spacecraft to the launch vehicle."
- the wearing of identification badges by all persons performing duties associated with the launch, and badge-dependant access to the facilities

66. See Technology Safeguards Agreement, para. I, footnote.

housing the equipment, the technical data, the spacecraft and/or the motors.[67]

The transportation of the satellites to China has to take place by U.S.-registered aircraft operated by a U.S. crew, though upon arrival at the Chinese point of entry, non-U.S. persons may join the crew to perform navigational duties from the point of entry to the launch site; they are not permitted to enter the cargo area of the aircraft during the flight.
The U.S. aircraft carrying the satellite, the equipment and technical data can pass through Chinese customs without inspection and will not be subject to inspections while in China.
(And the export license requires Hughes not to carry aboard the aircraft any contraband goods unrelated to the launch activities(!) and to make sure that the aircraft complies with Chinese customs regulations).
In the event of accident or crash of the aircraft transporting the satellite in the territory of China, the same procedures will apply as in the case of a launch failure after liftoff, *i.e.*:
- U.S. persons are permitted to assist in the recovery of all parts/debris resulting from the accident,
- a U.S. controlled "satellite debris recovery site" will be located near the launch facility,
- all satellite-related items recovered by Chinese nationals have to be returned to the U.S. without any examination (including photographs),
- U.S. search and recovery personnel has access to the accident site.[68]

At the launch site, non-U.S. persons may, under supervision of U.S. persons, unload the aircraft and deliver the sealed crates to the "satellite preparation area". While the satellite is being tested and/or prepared for integration, non-U.S. persons are not allowed into that area. U.S. persons assemble the spacecraft, add propellant to the spacecraft and place the spacecraft in the fairing.
Transportation of the sealed container to the launch pad takes place under supervision of U.S. personnel, though the driver of the vehicle may be Chinese.
U.S. persons will conduct the launch preparation and satellite testing at the launch pad and will monitor access to the spacecraft clean operation area once the spacecraft and the launch vehicle are integrated.[69]
In case of delays or cancellation of the launch, all steps reversing the above sequence of events, would again be controlled and supervised by U.S. personnel up to and including the loading of the satellite on a U.S. registered aircraft for return to the U.S.

67. See *id.*, para. IV ("access controls").
68. See *id.*, para.V.B ("transportation of the spacecraft") and VI (recovery terms).
69. See *id.*, paras V.C ("preparations at launch site") and D.("launch pad operations").

The same applies to "post-launch" return of all equipment and technical data associated with the launch (including exemption from Customs inspection).[70] Finally, the agreement prescribed the conduct of U.S persons while in the PRC, forbidding in particular activities "that will harm launch safety or would lead to the transfer of *Chinese* launch vehicle and launch operations technology." (emph. add.), and contained a dispute settlement clause providing for consultations through diplomatic channels in case of disputes regarding the application and interpretation of this M.o.A.[71]
On February 11, 1993, as a result of a renegotiation of the security procedures, the two parties signed a new agreement on satellite technology safeguards which superseded the above agreement. Notwithstanding the above far reaching safeguard provisions, transfer of sensitive U.S. technical data *may* have taken place after two Long March failures (in 1995 and 1996), in the form of the release of U.S. co-authored reports on these failures to the Chinese (see discussion in chapter 2.3.4. *supra* and chapter 4 *infra*).

c. The Liability Agreement

The Memorandum of Agreement on Liability for Satellite Launches sought to regulate questions of liability between the U.S. and China arising from the launch of the Asiasat and AUSSAT satellites. This agreement was found necessary because at the time of the negotiations on the Launch Trade Agreement, China had not yet become a party to the Space Liability Convention. This situation would have resulted in the U.S., a party to that Convention, becoming a - potential - liable State under the Convention in case of damage resulting from the launch of the satellites to third parties, whereas China, though having performed the launching, could not be held liable under the Convention.

Since the U.S. felt that, as one of the *quid-pro-quo*'s for allowing China's entry into the international commercial launch market, China should bear the burden of liability in case of damages, the above Agreement provided that China would assume, and compensate the U.S. government for all amounts for which the U.S. government may be liable under the Space Liability Convention, the Outer Space Treaty or any other applicable international law. Other provisions dealt with the practicalities of involving China in the (handling of the) claim for compensation brought against the U.S., as follows:
- the U.S. government notifies its Chinese counterpart as soon as practicable of a claim received,

70. See *id.*, paras VI ("launch failure, delay or cancellation") and VII ("post-launch procedures").
71. See *id.*, paras VIII ("conduct of U.S. persons while in the PRC") and IX ("settlement of dispute") respectively.

- the U.S. shall not make any settlement with any such claimant without full consultation with the Chinese government,
- if China doesnot agree with the terms of the proposed settlement, the U.S will submit the claim to a Claims Commission as provided for in the Space Liability Convention, or, in case the claim is not based on that Convention, to a claims commission with similar procedures,
- China will compensate the U.S. government for any settlement up to the amount recommended by the respective claims commission,
- China will provide the U.S. with all information and cooperation necessary for the U.S.'s defense against a claim.

When China, in December 1988, had become a party to the Space Liability Convention as well, a decision no doubt speeded up by the launch contract and the U.S.-Chinese talks on the matter, it became also a potential target for claims under that Convention. The agreement kept its relevance because the U.S. could still be sued or held liable as a "launching State" together with and separate from China, in relation to the launch of the three satellites.

As the Asiasat satellite was owned by the Hong Kong based and registered Asia Satellite Telecommunications Company Ltd., and this in itself was a sufficient link with the United Kingdom to make the latter country, as a "launching State" (i.e. as the State which procured the launching of the satellite) under the Space Liability Convention, potentially liable for damage caused by that satellite, the United Kingdom concluded an agreement with China which was virtually identical to the above agreement, both in substance (China assuming all liability) and in procedure.
The two differences were that, first, on the date of the entry into force of the agreement, which took the form of an exchange of diplomatic notes, both countries were parties to the Space Liability Convention and the Outer Space Treaty. Secondly, this arrangement was limited to the extent that China only assumed liability for damage arising during the launch phase of the satellite, that is from ignition of the launch vehicle to the separation of the satellite from the launch vehicle.[72]

d. Guidelines for the implementation of the Launch Trade Agreement

A few days after the signing of the Agreement, the USTR published a set of guidelines which the government would follow in implementing the agreement.[73] A paragraph on "remedies" or enforcement in these guidelines

72. See Exchange of Notes between the Government of the United Kingdom and the Government of the People's Republic of China concerning liability for damage arising during the launch phase of the Asiasat satellite, Peking, 26 March 1990 and 2 April 1990, e.i.f. on 2 April 1990).
73. USTR, *International trade in commercial launch services; Guidelines for implementation of*

reflected the USTR's view that the agreement should be seen and treated as a trade agreement for purposes of (the application of) Sec. 301(a)(1) of the Trade Act of 1974, which deals with investigations into alleged unfair or illegal trade practices or violations of trade agreements and provides for possible sanctions. (The TCI case was brought under the same provision, see Chapter 2.2.2.2. *supra*).

The responsibility for the overall implementation of the Agreement was given to a new *Subcommittee on commercial launch services*, chaired by the Office of the USTR, and reporting to the existing Trade Policy Staff Committee (TPSC) of the USTR. To assemble the information necessary for this Subcommittee to carry out its responsibilities, a Working Group on Information was established under the chairmanship of DOT, and including among its members the Departments of Commerce and State.
An important part of the functions of the Subcommittee was the collection of data for the effective monitoring of the PRC's compliance with the Agreement. Reflecting the obligations and prohibitions laid down in the Agreement, the Working Group had to collect information on such matters as:
- the number of launches committed and carried out by the PRC,
- the distribution of such launch commitments,
- promotional prices, and, in general,
- prices, terms and conditions in the PRC launch contracts,
- government supports and inducements,
- insurance,
- non-discrimination, and
- launch delays.[74]

The Working Group also had the task to assemble information for the Subcommittee which the U.S. had to provide to China, e.g. on the prices and conditions, including insurance arrangements, prevailing in the international commercial launch market, but also possible U.S. and other government (European, Japanese?) supports or inducements and the number of U.S. launch commitments.

Additionally, the annual consultations with China had to be prepared and, once held, would require (recommandations for) follow-up by the Subcommittee.[75]

the Memorandum of Agreement with the People's Republic of China, Fed. Reg. Vol 54, No. 19 (Jan 31, 1989), hereinafter referred to as (the) Guidelines. The Guidelines entered into force on the same day as the e.i.f. of the Agreement.

74. See Guidelines, para. III.1.

75. See *id.*, para. III.2. Where the Agreement, in art. IV.4, contained the somewhat obscure commitment of the parties "to work toward a common understanding of the application of market principles to prices, terms, and conditions of commercial launch services for international customers", para. III.3 provided vaguely that the Subcommittee "will consider ways to carry out" this provision. Additionally, the Subcommittee was asked to consider at

A provision on remedies dealt with the way USTR and its organs were to handle cases of (suspected) non-compliance with the Agreement by the Chinese. The following consecutive steps could be distinguished:
1.-the Subcommittee finds out or determines that PRC's launch providers have not complied with the Agreement,
-it will notify the TPSC and recommend consultations with China if appropriate,
-if consultations do not lead to a satisfactory resolution or consultations are deemed inappropriate, the Section 301 Committee of USTR may recommend that the latter initiate an investigation pursuant to its authority under section 310(a)(1) of the Trade Act.
2. The initiative may also come from a private party, *e.g.* - predictably - a representative of the U.S. launch industry: this will lead to the following steps:
-a petition may be filed with the section 301 Committee, alleging a denial of U.S rights under the Agreement or a violation of the Agreement,
-the section 301 Committee will seek the advice of the Sucommittee on Commercial Launch Services,
-if the Subcommittee finds that China did not comply with the Agreement, "it will make such recommandations to the section 301 Committee as it deems appropriate",
-if USTR determines that a violation of the Agreement has occurred it will take such action, subject to the specific direction of the President, if any, as is appropriate under section 301.[76]

The Executive Branch has a broad range of measures from which to choose under Section 301. For example, in taking retaliatory action pursuant to Section 301 (c), USTR may
(i) suspend, withdraw or prevent the application of trade agreement concessions,
(ii) impose duties or other import restrictions on the goods of the foreign country,
(iii) impose fees or restrictions on the services of the foreign country, or
(iv) enter into an agreement with the country that commits the latter to eliminate or phase out the offending practice or provide compensation.

least yearly whether discussions with other international parties could be beneficial; in the affirmative it could make a recommandation to the TPSC and the USTR to that effect, see para. III.4. The Guidelines, in para IV, also provided for consultations on the above issues with domestic interests, *i.e.* the US launch companies and launch vehicle manufacturers, satellite manufacturers,and, as appropriate, interested Congressional committees, the user community and other interested parties, including the relevant private sector advisory committees such as COMSTAC and possibly also the AIAA. Finally, the Guidelines also instruct DOT, as chairman of the Working Group, on how to deal with business confidential information, see para. IV.

76. See para. VII (1)-(3).

An additional provision allows USTR to restrict the issuance of service sector authorizations in certain circumstances. "Ultimately, the Trade Representative's authority under Section 301, subject to the direction of the President, encompasses any power of the President."[77]

3.1.3 Implementation of the Launch Trade Agreement and U.S. sanctions

Already in June 1989, the U.S. Government, sanctioning China in response to the June 4 Tiananmen Square incident, *inter alia* suspended indefinitely all export licenses, including the above Asiasat and Aussat permits.[78]
Congress went a step further and, limiting the Administration's freedom of action in this field, enacted a law prohibiting the approval of export license applications for the launch of U.S.-built satellites on Chinese - built launch vehicles.[79] The law, enacted in *November 1989,* thus effectively suspended

77. See Peter Allgeier, Assistant U.S. Trade Representative for Europe and the Mediterranean, statement at *Global trade in satellites and launch services*, hearing, House Committee on Science, Space and Technology, Subcommittee on space (Sep 29, 1994), hereinafter referred to as Launch trade hearing 1994 and Allgeier statement resp.

78. At a press conference on June 5, 1989, President Bush stated: "... mindful of these complexities [of the US-China relations], and yet of the necessity to strongly and clearly express our condemnation of the events of recent days, I am ordering the following actions: Suspension of all government to government sales and commercial exports of weapons, suspension of visits between U.S. and Chinese military leaders, sympathetic review of requests by Chinese students in the United States to extend their stay, and the offer of humanitarian and medical assistance through the Red Cross to those injured during the assault, and review of other aspects of our bilateral relationship as events in china continue to unfold.", see "This is not the time for an emotional response", Press Conference by President Bush (Jun 5, 1989), American Policy 1989, Doc. 312, at 517-519).

79. Departments of Commerce, Justice, and State, the Judiciary, and Related Agencies Appropriations Act, Fiscal Year 1990, Pub. L. No. 101-162, 610, 103 Stat. 988, 1038 (Nov. 21, 1989). Sec. 610 of the Act read as follows:
"(a) No moneys appropriated by this Act may be used to reinstate, or approve any export license applications for the launch of United States-built satellites on Soviet - or Chinese - built launch vehicles unless the President makes a report under subsection (b) or (c) of this section.
(b) The restriction on the approval of export licenses for United States-built satellites to the People's Republic of China for launch on Chinese-built launch vehicles is terminated if the President makes a report to Congress that: (i) the Government of the People's Republic of China has made progress on a program of political reform throughout the entire country which includes (A) lifting of martial law; (B) halting of executions and other reprisals against individuals for the non-violent expression of their political beliefs; (C) release of political prisoners; (D) increased respect for internationally recognized human rights, including freedoms of expression, the press, assembly, and association; and (E) permitting a freer flow of information, including an end to the jamming of the Voice of America, and greater access for foreign journalists; or
(c) *It is in the national interest of the United States". (emph. add.)*
The prohibition was reintroduced in 1990 through the Foreign Relations Authorization Act, Fiscal Years 1990 and 1991, Pub. L. No. 101-246, "902, 104 Stat. 15 (Feb. 16, 1990).

the implementation of the above agreements. However, already on December 19 (!) the Bush Administration, for "engagement" policy reasons, reversed its course and, using an express exception in the legislation adopted by Congress, invoked the "national interest of the United States" and re-approved the export licenses for the three satellites.[80]
This decision would set the pattern for the following years: Presidential licenses by exception to the Congressionally legislated restrictions (which remain in force until today).

As a result of this Presidential waiver, on April 7, 1990, Asiasat 1 was launched from the Xichang launch base in South-West China, in the presence of a dozen military and Hughes Aircraft Company guards who had watched the satellite around-the-clock to prevent any unwanted transfer or misuse of

Sec. 902, apart from suspending, or rather continuing the suspension of, the issuance of licenses under Sec. 38 of the Arms Export Control Act for the export to China of any defense article on the U.S. Munitions List, also specifically provided that "[e]xports of any satellite of United States origin that is intended for launch from a launch vehicle owned by the People's Republic of China shall remain suspended unless the President makes a report under subsection (b) (1) or (2) of this Section"; the envisaged report, on which a presidential waiver would be based would have to contain findings as detailed in Sec. 610 above.
And the prohibition was reintroduced again in 1991 through the Appropriations Act concerning the same departments, Fiscal Year 1992, Pub. L. 102-140, "608, 105 Stat. 824 (Oct. 28, 1991); Sec. 608 provided:
"(a) No funds provided by this Act may be used to reinstate or approve any export license applications for the launch of United States-built satellites on Chinese-built launch vehicles *unless the President waives such prohibition in the national interest* or under sub-section (b) of this section. The term export license applications also includes requests for approval of technical assistance agreements or services that would serve to facilitate launch of such satellites.
(b) The restriction on the approval of export licenses for United States-built satellites to the People's Republic of China for launch on Chinese-built launch vehicles contained in subsection (a) may be waived by the President on a case-by-case basis upon certification by the United States Trade Representative that the People's Republic of China is, with regard to the respective satellite, components, or technology related theretofor which the export license request is pending, in full compliance with the Memorandum of Agreement between the government of the United States of America and the People's Republic of China regarding international trade in commercial launch services". (emph. add.)

80. In December 19, 1989, the President reported in letters to the Speaker of the House of Representatives and President of the Senate the following: "Pursuant to the authority vested in me by section 610 of the Departments of Commerce, Justice, and State, the Judiciary, and Related Agencies Appropriations Act 1990, P.L. 101-162) ("the Act"), and as President of the United States, I hereby report that it is in the national interest of the United States to lift the prohibition on reinstatement and approval of export licenses for the three United States-built AUSSAT and AsiaSat satellites for launch on Chinese-built launch vehicles", see 25 (51) Weekly Comp. Pres. Docs. (Dec. 25, 1989) at 1972, as quoted in Foreign Relations Authorization Act, Fiscal Years 1990 and 1991, *supra* note 78, at footnote 77.
"Mr. Bush argued that the satellite would provide badly needed telecommunications services to friendly Asian nations and would support the U.S. aim of maintaining commercial relations with China even while imposing some sanctions against Beijing", IHT (April 9, 1990), at 3.

satellite technology. According to an Asiasat official the price advantage of the Chinese launch, which at about US$ 30 million was considered to be some US$ 15 million cheaper than the Ariane alternative at the time, was partially offset not only by the cost of the above guards but also by poor facilities and limited assistance at the launch site, resulting in twice as many people of Hughes being necessary for twice as long to get the satellite prepared for launch.[81]

The *Arabsat* case, which "erupted" in January 1990 brought the first test of the pricing provisions of the launch trade agreement. Arabsat I C was a communications satellite built in 1985 for the 22-nation Arab Satellite Communications Organization by the French firm Aerospatiale. In 1989 serious bidding for the launch contract started with Arianespace offering a launch for US$ 50 million and CGWIC responding with a US$ 35 million bid. McDonnell Douglas, in an early stage of the 'race' opted out. In October of that year Arabsat and the Chinese launch company concluded a contract on the latter price. In January 1990, Arianespace made a last-ditch effort by underbidding its Chinese competitor with a launch price of US$ 34 million, down 30% from its previous bid. China was pressed for a reaction by Arabsat and finally won the contract for US$ 25 million, half the original Arianespace price.
The latter company complained furiously to both the French and the U.S. governments, accusing Great Wall Industry of "unfair and predatory" pricing and of thus violating the U.S.-China Agreement of 1989. Belgium and West Germany took similar actions.[82]
In a *July 1990* meeting between USTR and the Chinese vice minister for the aerospace industry, the above complaints were discussed, but no definite result was reported afterwards; as a USTR representative put it: "The issue is not resolved ... The possibility of future meetings is open but no date has been set."[83]

The above course of events motivated the European Space Agency to meet separately with their Chinese counterparts in December 1990 for "exploratory talks regarding the international provision of launch services". The press release issued after that meeting stated *inter alia*:

81. See AW/ST (April 16, 1990) at 25, 28).
82. See Chenard launch regulation, *supra* note 3, at 199; also 1 (35) Space News (Sep 1990) at 1, 19.
83. Statement as quoted in Chenard launch regulation, *supra* note 3, at 199. According to Chinese officials, interviewed in September 1990, China had received no complaints from U.S. government officials "in recent negotiations regarding China's launch price policy", see 1 (35) Space News (Sep 1990) at 1. Around the same time, officials from China Aerospace and the Chinese government approached the American ambassador in China, pressing for Pres. Bush to waive the Tiananmen Square sanctions. According to the ambassador, "[t]hey hit me very hard ... [i]t was a prestige national program. It was putting China on the map as the big space country of the 21st century", see NYT (May 17, 1998) at 18.

"Arranging for the fair exportation of [launcher] technology on the international market is a difficult task that will have to be faced in the coming period."

It concluded vaguely that the talks had been informative. An ESA representative later in 1991 specified that the talks had centered around the question of creating a "level playing field" in the space transportation business, calling the matter highly sensitive and very complicated. The discussions were open-ended: they would, according to the same press release, be continued "in a framework to be defined."(!)[84]

The fact that the Arabsat 1 C satellite had been built by a French company but also contained communications equipment largely supplied by a U.S. manufacturer meant that export licenses had to be obtained from both governments. Although neither of the two countries' authorities had ever received such a request from the Arabsat consortium, the possibility that the French - to protect "their" Arianespace - and the Americans - for political reasons - would have refused to issue a license within a specific time frame, must certainly have influenced Arabsat's decision in *March 1991* to cancel the planned October 1991 launch on Long March and to switch the launch contract back to Arianespace. Another - though probably not in itself decisive - reason for (re-)consideration was the fact that, as the Asiasat launch had shown, the cost of extensive modifications and of logistics connected with a Long March launch would have eroded much of the cost savings on the low launch price.[85]

The launch trade agreement, in stead of creating a stable and predictable regulatory environment for the U.S. and Chinese industries concerned, became itself subject to the political uncertainties caused by the multifaceted U.S.-Chinese relationship, which involved human rights, trade and nonproliferation issues, a critical if not hostile Congress and an Administration determined to strengthen that relationship while at the same time trying to reconcile this aim with the views of Congress and the other U.S. industry players and with the unhelpful proliferation behaviour of the Chinese.
The following years thus show a series of export licenses granted, U.S. sanctions suspending those licenses, and Presidential decisions to lift those sanctions, followed by Chinese actions inviting new sanctions.
Though the launch trade agreement remained in force, so did the U.S. export regulations to the continued - overriding - applicability of which the agreement specifically referred, and the Congressional Tiananmen legislation of 1989

84. See ESA Press Release No. 56, Paris (Dec 17, 1990).
85. See 2 (11) Space News (Apr 1991) at 1, 20 ("Arab group opts out of Long March launch"). It has been suggested that the Iraqi invasion of Kuwait (both members of Arabsat), in August 1990, probably added yet another delaying and complicating element to the launch contract picture, see *ibid.*

forbidding export of satellites for launch to China unless an express Presidential waiver had been obtained.
Chinese sales of missiles and/or related technology to third countries, violating the U.S. MTCR-based regulations, would trigger specific sanctions affecting the sale of defense articles and/or dual use goods and services (depending on the kind and seriousness of the violations) to specific Chinese and third country companies or (semi-) governmental entities.
The following events, presented in chronological order, give an idea of the interplay of the various forces that dominated the launch trade relations of the two countries for many years to come.

On *April 30, 1991* President Bush barred the export of U. S. components for the Dong Fang Hong 3 ("The East is red"), a Chinese domestic communications satellite, because "certain activities of Chinese companies raise serious proliferation concerns." (Actually, the Department of State was believed to have reported that China was helping Algeria in building a nuclear reactor and was in the process of selling ballistic missiles and technology to Pakistan).[86]
At the same time, the export licenses for the two *Aussat* satellites were reconfirmed, mainly to prevent problems in the U.S. -Australian relationship. And for the same reason components for *Freja*, a small Swedish scientific satellite, were cleared for export as well, the latter thus becoming the fourth spacecraft authorized for launch on a Chinese rocket since the agreement was concluded.[87]

86. According to the trade press, Pres. Bush's denial of the license was to punish China for attempting to *obtain* classified missile-related technology, see 2 (16) Space News (May 6-12, 1991).
In the respective official press statement, reference was made to the well-known fact that U.S. satellites, their components and associated technologies, because of their inclusion in the U.S. Munitions List, require licenses for export to controlled destinations, including China. Moreover, under sanctions contained in the Foreign Relations Authorizations Act, FY 1990-91, licensing of these exports is prohibited unless the President determines it to be in the national interest. (For the text of this provision see *supra* note 79). "Given our proliferation concerns, it would not have been appropriate to waive the legislative prohibition for the Dong Fang Hong", see statement by Press Secretary Fitzwater on restrictions on U.S. satellite components exports to China, April 30, 1991, 27 (18) Weekly Comp. Pres. Docs. (May 3, 1991) at 531-532. (The Dong Fang Hong 3 (DFH-3) contained also important German components thanks to cooperation with German MBB, later absorbed by Deutsche Aerospace DASA, dating back to 1982 satellite development contracts. The DFH-3 contract was the first public tender by a foreign company for a Chinese satellite. On the basis thereof, DASA built the C-band antenna, solar generator and attitude controls of the DFH-3, see AW/ST (Oct 3, 1994) at 66. It is not clear whether, in view of this German interest in the satellite, there was any diplomatic pressure on the part of Germany to get a waiver for its Long March launch.
87. "... the President decided that it is in the national interest to waive legislative restrictions on exports for two other projects, AUSSAT and FREJA ... The President had previously waived legislative sanctions against launches from China for AUSSAT, but the project

When, in *May 1991*, President Bush extended China's Most-Favoured-Nation (MFN) trading status for another year,[88] he ordered at the same time that, as long as China continued to sell missile technology to countries such as Syria, Pakistan and Iran, U.S. satellite companies would not receive export licenses for Chinese launches. Though the connection between the granting of MFN and the imposition of the export restriction was officially disclaimed, it was generally felt - and privately confirmed - that the President, under pressure from Congress to punish China for its human rights record and for selling missiles to the Third World, had chosen the export restriction as the less damaging way to display displeasure with Chinese policies, particularly where also the U.S. launch industry was asking for measures to limit the ability of the Chinese to undercut American business with their "unreasonably low-priced" launch services.[89]

required additional export licenses. The President was concerned that we live up to our earlier commitment to allow Australia to to proceed with this project. The Swedish FREJA satellite ... will be used by civilian atmospheric researchers in the U.S., Sweden, Canada, Germany, and Finland"., see press statement, *supra* note 16, *ibid.* For full text, see "*Justification for waiving legislative prohibitions on approval of U.S. origin exports to China for the Aussat project*", and *id.* "... *for the Freja project*", as attached to letter from Pres. Bush to Speaker of the House (Apr 30, 1991), reprinted in Gorove US Space Law, *supra* Ch. 2 note 55, at I.A.4 (a-1).

88. MFN, notwithstanding its literal meaning, does not denote any special or preferential treatment in trade matters but allows "normal" non-discriminatory tariff treatment for Chinese exports to the US. The reciprocal granting of MFN treatment was the main pillar of the US-China Trade Agreement signed in 1979, which created the basis for normal commercial relations between the two countries. As a non-market-economy country, China needs an annual renewal of its MFN status through a US presidential waiver stipulating that China meets the freedom of emigration requirements set forth in the Jackson-Vanik amendment to the Trade Act of 1974. (This amendment, enacted as Sec. 402 of the Trade Act, not only linked the treatment of Soviet jews to trade concessions, but was originally directed at all communist countries, which, in the mid-seventies apart from the Soviet Union, included Cuba, China, Albania, Vietnam and North Korea. Sec. 402 allows a non-MFN nonmarket economy country to receive MFN status, incl. access to US financial facilities, only if the President determines that it permits free and unrestricted emigration of its citizens; the President is also authorized to waive the requirements for full compliance if he determines that such waiver will "substantially promote the objectives" of the freedom-of-emigration provisions and if he has received assurances that the emigration practices of the country will lead substantially to the achievement of those objectives.) China received the waiver routinely prior to 1989, but after Tiananmen, although the waiver continued, Congress began to exert strong pressure to oppose MFN renewal, and in 1991 (and 1992) voted to place conditions on this MFN renewal (subsequently vetoed by the Bush Administration), see Background notes: China, October 1997, Dept of State <http://www.state.gov/www/background _notes/china_1097_bgn.html".

89. See, for disclaimer by senior administration official of connection between MFN and export restriction, IHT May 28, 1991, at 2: "One is not being done to sell the other". But this restriction did form part of a series of three measures to limit the export of missile and satellite technology, including high-speed computers that can be used for flight testing of missiles, as outlined by Secretary of State Baker in a memo to president Bush that proposed a strategy for how to sell his decision on Chinese trade to a reluctant Congress. See text to note 19; see also 2 (20) Space News (Jun 1991) at 16. One of the arguments used by the

On *June 16, 1991,* the White House clarified both the measures taken and the factors and reasoning that led to these actions, detailing three separate measures under the following headings: "[e]xport of high performance computers", "[s]atellite launches on PRC missiles", and "[m]issile proliferation sanctions".

As to the first issue, the Administration expressed serious national security concerns regarding the export of high performance computers to China, based on such factors as the potential diversion to military use of computer technology and experience acquired and the resulting enhancement of the capabilities of high technology military systems such as missiles (as demonstrated in Operation Desert Storm!). These concerns were heightened by the risk that the PRC might transfer advanced weapons-related technology to other countries, "as in the case of ballistic missile transfers". Because of the threat to regional stability resulting from ballistic missile proliferation by China, the President had decided to license the export of computers exceeding a certain composite theoretical performance "only after extensive review to ensure that the proposed sale poses no threat to national security." (And by involving CoCom, whose unanimous approval was anyhow required for the export of this category of computers, the U.S. ensured a common front of the 17 members concerned vis-à-vis China).

While acknowledging his right under the prevailing Congressional legislation to waive the suspension of licenses to Chinese entities of U.S. satellites (technology) and components if this is in the U.S. national interest, the President had decided "that PRC actions related to the proliferation of missiles make it inappropriate for the United States to approve any *further* export licenses for commercial satellite launches at this time." (emph. add)
This decision thus did not affect the Aussat and Freja licenses already granted.

Finally, two Chinese entities were identified as the culprits that had transferred missile technology to Pakistan, namely the China Precision Machinery Import-Export Corporation and China Great Wall Industry Corporation, the launch company. Both would face sanctions as prescribed by MTCR-based legislation, laid down in the Arms Export Control Act and the Export Administration Act.[90]

U.S. President to defend his MFN decision was that he continued to need China's cooperation for other U.S. foreign policy objectives, such as "seeking peace in Cambodia, reducing tensions on the Korean peninsula, and *restricting transfers of nuclear, CBW [chemical and biological weapons] and missile equipment and technology"* (emph. add.), see *President's report on MFN status for China,* released by the White House, May 29, 1991, in US Dept of State Dispatch 430-432 (Jun 17, 1991) at 432.

90. Sec. 73(a) AECA and Sec. 11B(b)(1) of the EAA respectively, see Chapter 2.3. supra.
See *US trade with China,*White House Fact Sheet, Office of the White House Press Secretary, June 16, 1991, in US Dept of State Dispatch (Jun 24, 1991) at 456. The

On *October 30-31, 1991* the annual U.S.-China launch trade talks as prescribed by the 1989 agreement took place. "The United States was expected to call on the Chinese to adhere to the fair-pricing provisions [of the 1989 launch trade agreement], while the Chinese were expected to complain about White House sanctions, imposed in May, that prohibit the export of U.S. made satellites to China. In a nutshell, they wanted the export sanctions lifted and we said that wasn't a trade issue", said a member of the U.S. delegation.[91]

In *February 1992* the State Department voiced plans to lift the eight-month ban on U.S. satellite exports to China in exchange for China's MTCR adherence. Already during a November 1991 visit to Beijing, Baker, the U.S. Secretary of State, had received oral assurances from Chinese officials in this regard.[92] After having requested written promises from the Chinese, Secretary Baker, on February 1, 1992 received a letter from his Chinese counterpart which confirmed that China would abide by the MTCR guidelines and parameters. Consequently, the State Department, on February 21, 1992, announced that the Administration intended to lift the sanctions and, as a result, expected China to announce its adherence to the Regime.[93] On March 23, President Bush indeed lifted the above MTCR sanctions.
In *July 20-21, 1992* discussions took place in Washington at the request of the Chinese on the possibility of receiving export licenses for the Chinese launch

Administration had expressed urgent concern to the Chinese Government about exports of missile technology, a subject that the Under Secretary of State was to discuss in detail during his June 17-19 meetings in China; there is no report on the contents or outcome of his talks.

91. See 2 (36) Space News (Oct 1991) at 1, 21 and 2 (38) Space News (Nov 1991) at 2.

92. "... the Chinese have told us that they intend to observe the MTCR guidelines and parameters. To us, this means that they will apply them to any exports of missiles and related technology. We understand that this applies to the M-9 and M-11 missiles. The Chinese have told us that they will make this unconditional commitment to the MTCR guidelines if we will remove the proliferation sanctions imposed June 16 on two Chinese companies and on the licensing of high-speed computers and satellites for China". See Secretary Baker, opening statement at a news conference, Beijing, China, November 17, 1991 in US Department of State Dispatch (Nov 25, 1991) at 859.

93. See statement issued by the Office of the Assistant Secretary/Spokesman, Feb 21, 1992: "This in no way means we will slacken our efforts to monitor either missile transfers worldwide, or Chinese missile and missile technology export practices. Transfers of missile technology covered by the MTCR guidelines will continue to be subject to sanction in accordance with US law", US Department of State Dispatch (Mar 9, 1992) at 189. In a March 2, 1992 letter from Pres. Bush to the House, he returned, without his approval, the so-called United States-China Act of 1991, which placed conditions (improved human rights, cooperation in arms control, dropping barriers to trade) on the renewal of China's MFN trade status. Bush rejected this legislation as an ultimatum that would be counterproductive, and referred to the accomplishments of his Administration's policy of comprehensive engagement: "[r]ecent agreements by the Chines to protect US intellectual property rights, *to abide by the [MTCR] Guidelines*, to accede to the Nuclear Non-Proliferation Treaty by April, and to discuss our human rights concerns-after years of stonewalling ..." (emph. add.), See "China's MFN status", *ibid.*

of *Afristar*, a radio broadcasting satellite built by Defense Systems Inc. for Afrispace Inc. of Washington, and for a future Intelsat spacecraft. At the same time, U.S. negotiators would press China for concrete information to refute charges by U.S. and European commercial launch suppliers that CGWIC was quoting below-market prices for its launches.[94]

On *September 11, 1992*, the Bush Administration, as its last China launch-related decision before the Presidential elections, waived export restrictions based on the Tiananmen legislation on five satellites (Apstar 1, Asiasat 2, Intelsat 7A, Starsat, AfriStar, and parts for China's Dong Fang Hong 3.[95]
But already in *November 1992* U.S. intelligence reported another missile-related action on the part of the Chinese, the delivery of M11 missiles or components to Pakistan. China allegedly circumvented its above February 1992 commitment by selling components and technology rather than whole systems to a range of countries including Iran and Pakistan.[96]
The U.S. government, since February 1993 led by President Clinton, was forced to - again - show that it could not tolerate this MTCR violation and, on *August 25, 1993*, the Department of State after an unsuccessful mission to China in July by the under secretary of State for international security affairs, aimed at seeking clarification on the nature of the sales announced the sanctions imposed on the Ministry of Aerospace Industry of China and the Ministry of Defense of Pakistan and their divisions, subunits and any successor entities (which in the case of China involved 10 entities under the above ministry, including CGWIC):

94. At that occasion, the Director of DOT's Office of Commercial Space Transportation suggested that the US government consider enforcement measures, such as retaliatory trade sanctions because the Chinese had not met the letter of the agreement. USTR, leading these negotiations was however not prepared to consider changes to the accord to include enforcement measures, see 3 (26) Space News (Jul 1992) at 3, 20). And, one might add, the export regulations and, in particular, the Trade Act anyhow already provided adequate means for sanctioning violations of the agreement.

95. See CRS China Report 1998, *infra* note 104, at 17. In the mean time, on August 14, 1992 Optus B1, the former Aussat B1, built by Hughes and owned by Optus Communications of Sydney, had been launched on a Long March 2E rocket. It was the second Chinese launch of a US-built spacecraft. The first launch attempt of the satellite had been aborted on March 22, 1992, without damage to either launcher or satellite. Hughes was under contract with Aussat Pty Ltd, Australia's government-owned satellite operator to manage the two-satellite construction and launch program; it purchased launch services and insurance on behalf of Aussat and was to deliver the spacecraft to orbit before receiving final contract payments. Aussat was sold to private companies and in January 1992 became Australia's second telecommunications provider, named Optus Communications Pty. Ltd of Sydney, see 3 (12) Space News (Mar/Apr 1992) at 4, 29 and 3 (30) Space News (Aug 1992) at 2.
On December 21, 1992 Optus B2 (the former Aussat B2), was launched from Xichang launch facility on a Long March 2E rocket. The launch failed and, consequently, the satellite did not reach its planned orbit.

96. See FEER (Sep 9, 1993) at 10, 11.

-all licenses for exports of MTCR equipment or technology controlled pursuant to the the AECA and the EAA to these entities were to be denied for two years;
-no U.S. government contracts relating to MTCR equipment or technology and involving these entities would be entered into for two years.
The same sanctions applied to (export or contracts involving) all activities of the Chinese government relating to missile development or production, as well as all activities of that goverment affecting the development or production of electronics, space systems or equipment, and military aircraft.
These sanctions halted - for the prescribed 2 years - the export of some of the above satellites, insofar as they had not yet received a definitive export approval following Bush's decision of September 1992.[97]
(At the same time, all members of the Senate Foreign Relations Committee voted to increase weapons sales to Taiwan. This vote, which pleased the U.S. arms manufacturers but upset the White House, was seen as at least partly inspired by both the ease with which China's MFN status had been renewed for another year and by China's above weapons sales to Pakistan.[98]

Both China and Pakistan denied the U.S. allegations and criticized strongly the leveling of sanctions. The Chinese condemned the U.S. action as meddlesome and unjustified, and threatened that they would reconsider their commitment to the MTCR Guidelines.

97. See Dept of State, Bureau of Politico-Military Affairs, Public Notice 1857: "Imposition of missile proliferation sanctions against entities in China and Pakistan", Fed. Reg. Vol 58. No. 165 (Aug 27, 1993) The sale by Hughes of a satellite to APT (Apstar1), was apparently not affected, see FEER Sept 9, 1993, at 10, 11. Reason why this satellite and also a Space Systems/Loral-built Intelsat 7 satellite and Hughes components for a domestic Chinese communications satellite escaped the sanctions, was that licenses already granted were not revoked, only those under review were affected. Under review were licenses for export of the Optus B3, a replacement of one that had been destroyed in a launch failure ("the Australians are going to to be screaming, and scratching at our door", according to a State Dept official, referring to the probability that Australia would insist on a waiver of the restriction), and the Asiasat 2; also affected were the Starsat and Afristar communications satellites, *ibid.*

98. See FEER (Aug 5, 1993) at 15. When Clinton, on May 28, 1993, announced the extension of MFN for another year, he also referred to the Congressional attempts in 1991 and 1992 to attach (human rights and other) conditions to MFN and the ensuing Presidential vetoes as the "annual battles between Congress and the Executive [which] divided our foreign policy and weakened our approach to China". In the same statement, the president promised "to pursue resolutely all legislative and executive actions to ensure China abides by international [*i.a.* arms control] standards", and added: "The Administration is now examining reports that China has shipped M-11 ballistic missiles to Pakistan. If true, such action would violate China's commitment to observe the guidelines and parameters of the [MTCR] ... [and] my Administration will not hesitate to act", see Statement by the President on [MFN] for China, White House Press Release (May 28, 1993) The White House virtual library <http://library.whitehouse.gov/cgi>.

Though the sanctions were expected to have a negligible effect on Pakistani-U.S. trade, they affected reportedly about USD 500 million worth of sales (of satellite launch equipment, flight control systems, computers, etc.) by U.S. companies in China, although this figure was not supported by everybody.[99]

Two other aspects of the sanctions warrant additional attention.
One was the fact that, by limiting the accusation to the sale of missile components, in stead of complete missiles or missile systems, the U.S. Administration could also limit the scope and extent of the sanctions, thus minimizing the impact on both China and the U.S. exporters. And even that decision was reported to have been taken with extreme reluctance, reflecting the importance the U.S. attached to restoring relations with a regional power whose support they needed for a variety of issues.[100]
Another aspect was the fact that while the U.S. had repeatedly urged China to respect the missile regime (and China had promised to do so) it had been reluctant to let China into the club of MTCR signatories, reportedly because China would then have to be provided with new technical information about developments in the missile technology field. Although this interpretation of MTCR is not necessarily correct (see Chapter 2), it cannot be denied that the U.S. considered China not yet ready to join. At the same time China was not prepared to formally join the Regime until it had been able to extract a maximum of trade and other concessions from the U.S., including of course the lifting of sanctions and other restrictions on the export to China of 'high tech' goods and technology.

Although the U.S. *launch* companies, notwithstanding crowded launch manifests, saw the sanctions as providing them with welcome opportunities to attract the disappointed Long March clients (though in competition with Arianespace and the Russians), the aerospace manufacturers, represented by the Washington-based Aerospace Industries Association of America (AIAA), voiced sharp criticism, particularly because the U.S. had not insisted that other (MTCR) countries also deny China the components that Hughes and other U.S. companies were now forbidden to sell to companies in that country.[101]

99. See Facts on File, *U.S. imposes trade sanctions on China and Pakistan* [about $500 million in the case of China] (Sep 2, 1993) "Somewhere between $400 and $500 million a year of commercial activity will be affected by the sanctions that are now imposed", see 4 (34) Space News (Aug/Sep 1993) at 21. A regional magazine, having interviewed companies like Hughes Aircraft and Motorola, rejected this figure as probably too high, paticularly because licenses already given would not be affected, see FEER (Sep 9, 1993), at 10, 11 ("Red rockets glare - China's sale of missiles to Pakistan and alleged shipment of chemical weapons to Iran further worsen an already strained relationship with US").
100. See FEER *id*, at 11.
101. As the AIAA asked, "[w]hat is the point of [the U.S. restrictions] if the Chinese can buy from our [Japanese and European] competitors?" And the Hughes Space and Communications president Armstrong stated: "Two of the most serious issues facing the U.S. satellite industry today are the government's current China trade restrictions and the

As we saw in Chapter 2.3.4, although intense lobbying took place on the part of the aerospace industry, focused both on the damaging effects on the U.S. industry's competitive position of the sanctions and on the predominantly "national security and foreign policy"-oriented role played by the State Department in controlling the export of satellites, it did not bring immediate legislative relief. However, in an industry-inspired letter meant for Secretary of State Christopher, several House members from (the "aerospace State" of) California argued that the sanctions should not prevent launches of U.S.-built communications satellites from China and that a continued prohibition would cost thousands of high technology jobs in California and could damage the U.S. satellite industry for years to come.[102]

And, after the Administration in November 1993 had relayed to China its willingness in principle to ease the satellite licensing procedures and had received encouraging reactions concerning possible nonproliferation commitments on the part of China, President Clinton, after an extensive interagency review, "months of bureaucratic wrangling and intense industry lobbying"[103] on *January 6, 1994* announced a new policy exempting commercial communications satellites from the sanctions for missile proliferation imposed in August 1993.[104] This cleared the way for a Commerce export license for the two Martin Marietta satellites, the *Asiasat 2* and *Echostar*. Clinton's decision was seen as a clear victory for Commerce Secretary Brown who had maintained that purely commercial satellites did not fall under the sanctions, whereas the Secretary of State had argued that all satellites should fall under the ban.[105] Although the issue as such is an

need for less expensive reliable launch vehicles. The US government's handling of export licensing and technology transfer in satellite deals involving the Chinese is hampering the industry's competitiveness." His Martin Marietta Astro Space colleague added that "a continued U.S. policy to prevent American satellite builders from using the Chinese Long March rocket would hurt the industry, because many customers want to use that launch vehicle because of its cheaper price tag"., see 5 (4) Space News (Jan 1994) at 10. Armstrong had previously accused the government of playing politics with export licenses and warned that other countries like Germany would benefit by winning future Chinese business. He noted at that occasion that China's National Space Administration said it would sign an $80-100 million contract with Deutsche Aerospace of Munich for a joint venture to build two communications satellites for the People's Bank of China, a contract which Hughes had expect to win, see Space News (Jan 10, 1994) at 3.

102. See 4 (42) Space News (Oct 1993) at 4. The same article mentions the following satellite exports as being affected by the ban: Hughes' Optus B3, the second Apstar (Apstar 1 had already an export license and would be launched by the Chinese in July 1994) and a Chinasat communications satellite for the Chinese government, and Martin Marietta's Echostar direct broadcasting television satellite and AsiaSat 2 (AsiaSat 1, built by Hughes, was the first US satellite launched by the Chinese in 1990 under the launch trade agreement.
103. See Space News (Jan 10, 1994) at 3 ("Clinton approves two satellite exports to China").
104. See Shirley A. Kan, *China: Possible missile technology transfers from U.S. satellite export policy-background and chronology*, CRS Report for Congress, 98-485 F (Aug 13, 1998), hereinafter referred to as CRS China report 1998, at 19.
105. A memo of Nov 16, 1993 from the National Security Advisor to President Clinton proposed

interesting one from a legal point of view, fact is that the Clinton decision was motivated by other than legal considerations, *i.e.* the U.S.-China relations in general and progress in the missile proliferation dispute with China more in particular. That is why a full clearance for export was only to be expected after the Chinese would have provided assurances that they would strictly, or at least in an agreed way *c.q.* on the basis of a common interpretation of the MTCR Guidelines, abide by the Regime. To that end the two parties would meet later that month to sort out their differences which had arisen in relation to China's 1992 commitments.[106]

A third Commerce-controlled commercial communications satellite, Hughes' Apstar 2, was now also exempted from the 1993 sanctions, and could thus expect an export license. There was an interesting though temporary complication: Apstar's owner, APT Satellite Co. of Hong Kong, was partly controlled by the Chinese Ministry of Aerospace Industry, one of the entities specifically implicated by the State Department in its August 1993 sanction notice. A second issue of concern to Hughes was the fact that, although Commerce had cleared the satellite for export, liquid propellants and the perigee kick motor (PKM) rocket attached to the satellite were, as defense articles, covered by the State Department sanctions; so the ban had to be graciously lifted, or, to avoid further departmental delay, Hughes had to remove the U.S.-made PKM and look elsewhere for a non-U.S. supplier of this essential component: the kickmotor enables the satellite to reach its correct orbital position after being put into space. But that would also have caused unwanted delays.[107] In the end, neither of the two issues were important enough to stand in the way of Clinton's strategic gesture vis-a-vis China, and on February 1, 1994, Hughes received the required license for the satellite, including the PKM and propellants, from the Commerce Department.[108]

Finally, a fourth satellite to benefit from the new Clinton policy (or rather: interpretation) was the *Optus B3*, another Hughes-built advanced communications satellite, planned for launch in 1994 to replace the failed

to follow the National Security Council and Commerce's interpretation of the MTCR Sanctions imposed in Aug 1993 to allow the export of two satellites controlled by the Commerce Dept, but not the five controlled by the State Dept. (State had argued that *all* satellite export licenses were suspended under the Sanctions, but Commerce had taken the position that the sanction did not cover the Commerce licences. The President approved the NSC recommendations, see *ibid.*

106. See IHT (Jan 8-9, 1994) at 5 ("U.S. optimistic on reining in China missile sales"). In return, the U.S. had agreed to open talks with China on the US sales of F-16 jets to Taiwan, announced in 1992 by the Bush administration, see *ibid.*
107. See IHT (Jan 15-16, 1994) at 4 ("Satellite exports: battle lines drawn after U.S. signal to China") and Space News (Jan 17, 1994) at 15 ("Curb missiles, not satellites").
108. On January 27, 1995 Apstar2 was launched, but the launch failed. In the meantime, the China Aerospace Corporation had reduced its vulnerability by completing the development of its own PKM which would be marketed for the launch of foreign satellites on the Long March -2E and -3 series launchers, see AW & ST (Sep 26, 1994) at 88.

Australian Optus B2. The satellite originally did not fall under Commerce authorization, because it contained a so-called "encryption device", which protects the satellite communications from being interfered with by unauthorized outsiders. This is a defense article listed on the U.S. Munitions List, which thus brought the satellite under State Department jurisdiction.[109] The manufacturer, in stead of going through the lengthier State Department licensing process, opted for a redesign of the satellite which resulted in the removal of the device and the transfer of the concomitant jurisdiction to the Commerce Department. The latter department issued the export license and on August 28, 1994, the satellite was launched on a Long March launch vehicle.

In June 1994, President Clinton, with substantial bipartisan Congressional and - understandably - U.S. industry support decided to decouple the annual MFN process from China's human rights record, and renewed China's MFN status.[110]

On October 4, 1994 the Clinton Administration lifted the 1993 sanctions against China in return for China's renewed and expanded commitment to adhere to MTCR. Under the agreement reached China accepted the internationally recognised definition of what constitutes a violation of the MTCR. As a result, China promised not to export ground-to-ground missiles "inherently capable" of reaching a range of at least 300 kilometers with a payload of at least 500 kilograms. The expression used aimed at solving the M11 missile dispute: where China officially had never admitted delivering these missiles to Pakistan, it had privately insisted that the missiles had been specifically designed to conform to MTCR guidelines which contain the above range and payload limits. In the U.S view, if missiles carrying a higher weight than 500 kilogrammes cannot reach a distance of 300 kilometers, they may still be inherently capable of exceeding the MTCR parameters. The above words therefore were seen as covering the M11 and thus satisfied the U.S. concerns. (though it would require further meetings between the parties to fully clarify the matter and prevent any future disagreements on the scope of the restriction. The Chinese went a step further than MTCR requires: where MTCR speaks

109. See 5 (2) Space News (Jan 1994) at 3.

110. As Republican Senator Dole, leading the charge for unconditional renewal, said: "tying trade to human rights does not work. The policy has failed, the president should admit it", see USA Today (May 19, 1994) at 10A. Where one year earlier Clinton had issued an executive order saying MFN would be renewed only if China made "significant progress" in seven human rights areas, according to the State Dept, China's "overall human rights record in 1993 fell far short of internationally accepted norms". And where American jobs, investments (in Hong Kong) and consumer prices, according to the business community, would be severely hit by a trade war and China's aerospace market alone was estimated at $40 billion over the next two decades, pressure on President Clinton not to invite Chinese retaliation was considerable, see ibid.

in general of "control", and in the case of possible export of complete missiles and major subsystems (Cat. I items, "items of greatest sensitivity"), "there will be a strong presumption to deny such transfers", they agreed not to export any MTCR class ground-to-ground (surface-to-surface) missiles anywhere in the world, in other words an absolute global ban.[111]
On November 11, 1994, the Administration's waiver of the August 1993 sanctions took effect.

The above Chinese-U.S. understanding had been preceded by a House Space Subcommittee hearing entitled "Global Trade in Satellite and Launch Services". The focus of the hearing, held on September 29, 1994, was the status of the negotiations between the U.S. and China on the possible extension of the 1989 launch trade agreement, whose 5-year term would expire on December 31. At the same time, the status of a similar agreement concluded with Russia on September 2, 1993, was discussed. And the hearing also served as a forum for senior members of the government and industry to talk with the Subcommittee about U.S. launch policy, U.S. export control laws and policy, and the competitiveness of the U.S. satellite and launch services industries in the global marketplace.[112]

Among the issues raised by the government participants in connection with China were the *capacity* and *price* conditions central to the agreement.
Of the nine launches of satellites for international customers permitted by the agreement in the period 1989-1994 China would, based on current launch schedules, only perform four.
The USTR representative concluded from this figure that

"the Agreement would seem to have served its goal of permitting China the opportunity to demonstrate that it can deliver launch services meeting the exact standards of the international marketplace while recognizing the problems created by a transitional economy. *Having given China the opportunity to compete, it was left to China to demonstrate its capabilities to the international community*". (emph. add.).[113]

111. See China and non-proliferation, Fact sheet, Dept of State (Jun 3, 1997) <http://www.state.gov/www/regions/eap/fs-china_nonprolif_970603.html>. See also FEER (Oct 20, 1994) at 20 ("Goodwill proliferates - U.S. and China sign missile, nuclear accords"), and AW/ST (Oct 10, 1994) at 24 ("U.S., China settle missile dispute"). In the context of this agreement, the US intended to promote eventual Chinese participation in the MTCR, see *ibid.*
112. See Launch trade hearing 1994, *supra* note 77. See also Dennis Burnett, *Global trade in satellite and launch services*, report (Oct 13, 1994) hereinafter referred to as Burnett report, and, by the same author and Francesca Schroeder, *Developments in U.S. bilateral launch service agreements*, 19 (6) AIR & Space L. 326-331 (1994) hereinafter referred to as Burnett development.
113. Statement by Donald Philips, Assistant USTR for Industry, Launch trade hearing 1994, *supra* note 77

It is remarkable to say the least that the total number of Chinese launches performed was presented, as per the emphasised line, as if China had been able to freely compete in an open market context on quality and price alone with its American and European counterparts. It would have been a more honest approach to the question of GWIC's sales successes if the effects of the (possible and actual) delays and refusals of export licenses for the satellites of their (potential) foreign clients would have been taken into account or at least have been mentioned as a factor influencing the competitive position of the Chinese.

On the question of pricing the government was less satisfied. Although the extent of China's participation in the space launch market had been less than permitted by the agreement, the above government representative noted

"... we have been concerned about China's implementation of the "par pricing" standard throughout the six years of the agreement. The "par pricing" assessment is a difficult one. Each launch and each launch package offered in a competition may involve unique characteristics that require adjustments before a fair comparison can be made. However, China's compliance with the par pricing provisions remains a matter of ongoing concern to the U.S. commercial launch industry."[114]

In view of that assessment, the government promised that this would be an area of attention in their discussions regarding a possible renewal of the agreement. An initial round of negotiations had already taken place a week earlier, in which these concerns had been raised, and follow-up discussions on these and other agreement-related matters would take place one month later. On the whole, however, USTR was reasonably happy with the way the Agreement had worked:

"In 1989 when we first confronted this situation with China, there was no model upon which to draw in fashioning an agreement to balance these interests [*i.e.*a strong U.S. launch industry working in an international market place governed by agreements that address the complications caused by transitional economies, the integration of (Russia and) China into the world economy *i.a.* through access to world markets for their competitive goods and services, and access for the U.S. satellite industry to competitively priced launch services]. We believe that a review of the experience with the China Agreement demonstrates that it has worked reasonably well and is a proper basis from which to proceed to the negotiation of an extension of that Agreement".[115]

The opportunity offered to the industry to vent their worries and frustrations about the government's laws and policies was not left unused. We will limit our review to some comments which are (also) of specific relevance to (the

114. *Id.*.
115. See Allgeier statement, Launch trade hearing 1994, *supra* note 77.

relations with) China and are believed to have contributed to set the stage for changes in the government's policies and practices.
The sharpest criticism came from Hughes Electronics' Telecommunications and Space Sector, whose president spoke out strongly against the elements of protectionism found both in the launch trade agreements and in the current export controls:

"Increasingly, our international customers have access to a number of high quality, very price competitive non-U.S. manufacturers and suppliers who dearly love to cature additional market share. Increasingly [those customers] object to current U.S. export controls as being irrational and unpredictable - and in some cases, they view U.S. export controls as discriminatory.
We fear that our national export controls are having an adverse effect on our ability to compete in the international marketplace. In the case of China, for example, commercial communications satellite sales have been lost or foregone because of the uncertainty and delay in the U.S. licensing process and customer concern about future export license approvals".

The Hughes official, mentioning the *unilateral* character of the August 1993 sanctions imposed on China, the primary effect of which was to punish only the U.S. satellite industry, and the secondary effect was to place Hughes and other U.S. satellite manufacturers at a competitive disadvantage in the international market place.[116]
One of the solutions suggested was to move all commercial communications satellites, including encryption devices, perigee kick motors (and fuel) from the State Department's USML to Commerce's CCL.
Hughes made another important point, of a more general character: over half the cost of a communications satellite in orbit was the cost of launching, and that percentage had been increasing over time because, where technology and productivity improvements had led at Hughes to a five fold increase in cost effectiveness, the cost of launch services had been relatively constant, partly because of the lack of launch vehicle competition if only Western launchers were made available for launch of the various types of satellites.
So the manufacturers needed greater access to foreign launches at competitive prices. And also the customers, for cost, reliability and geo-political reasons, did not wish to be limited in their choice of the launch vehicle. In this environment, Hughes concluded, the Chinese and Russian launch agreements were damaging to the communications satellite industry (almost 10 times larger than the U.S. launch industry!):

116. According to the official, German DASA filled the void created by the sanctions and concluded an agreement with the Chinese for the purchase and coproduction of commercial communications satellites, worth hundreds of millions of dollars, see *Id.*

"The agreements stifle competition because they place a floor on the prices that Chinese and Russian launch service companies can charge to customers. They limit launch vehicle supply by placing artificial quotas on Chinese or Russian launches at the very time that demand exceeds supply. They distort the marketplace by controlling geostationary satellite launches, but not low earth orbit satellite launches. Consequently, the agreements reduce the incentives for U.S. launch services to invest and restructure in response to changed markets and rapidly changing technologies. The agreements work to the advantage of the U.S. and European launch services industry, and to the disadvantage of the communications satellite industry".

Hughes concluded that both quotas and pricing constraints should be abolished. These views were largely supported by other manufacturers, such as Space Systems/Loral and Motorola. On the other hand, the U.S. launch providers like McDonnell Douglas and Martin Marietta (the latter also a satellite manufacturer), saw the agreements as necessary for an orderly entry of non-market economy launch companies into the market, and asked for more effective enforcement mechanisms.[117] One method, suggested prior to the hearing, took the form of a case-by-case USTR certification of Russia's and China's compliance with all aspects of the bilateral agreements before licenses could be issued for the export of satellites to either country for launch.
Although there had been considerable debate on the latter proposal in Congress, the Administration was not prepared to add another regulatory barrier to the -already strongly criticized-export control process and on top of the enforcement measures available to USTR, because of the trade character of the agreements, under the Trade Act of 1974.

Though the October 4 understanding and the lifting of U.S. MTCR sanctions, coupled with China's renewed MFN status should have cleared the air between the two countries, two developments created new (potential) tensions.
First, the Republican victory in the mid-term elections of November 1994 resulted in the most anti-Beijing, or more specifically "most pro-democracy, pro-Taiwan, pro-Tibet, anti-Chinese Communist Party and anti-People's Liberation Army Congress" in years.[118] Consequently, according to sources in Washington, the Clinton administration would have to deal with pressure from Congress to *inter alia* penalise Beijing for its arms-sale and human-rights policies.

117. In his testimony, Peter B. Teets, President, Space Group of Martin Marietta, expressed his concern about enforcement: "There is little evidence of the Executive Branch's enforcement of these agreements despite the fact that in several instances the prices offered by non-market economies were much lower than permitted in the agreements". He did not give examples. Lockheed, both a satellite builder and a launch company through its joint venture with the Russian company producing the Proton rocket (which was subject to the quota of the US-Russian launch trade agreement), saw the agreement as a handicap to *i.a.* Lockheed and a protection of the European launch competitor, Arianespace, see *Id.*
118. See FEER (Dec 1, 1994) at 14-15.

Secondly, and in probable violation of the above understanding, a continuing stream of intelligence showed the supply of missiles or missile components, training activities and visits of Chinese missile scientists and engineers to the Pakistani military base where the components had been delivered.
Particularly if the supplies involved complete (MTCR Category 1) missiles, this would oblige the administration to impose heavy penalties on China.
That possibility, which would undoubtedly create serious tensions between the two countries, was sufficient reason for the administration to refrain from hasty conclusions or actions as to the intelligence reports.[119]

As a consequence of both this U.S. government attitude and some restraint on the Chinese side, no more missile export related sanctions have been imposed on the Chinese since then. Nevertheless, China still has not joined MTCR, and it remains a matter of debate whether its interpretation of the MTCR limitations particularly in respect of Cat II technology and components fully corresponds with the views of the MTCR members, and more in particular of the U.S. In April 1998, a senior State Department official, returning from talks with the Chinese on proliferation matters, stated:

"... [the Chinese] relationships in missile components and technology with Iran and Pakistan, in particular, lead us to be concerned about whether they have the same understanding we have about the specific scope of those undertakings ... the difficulty we have is in the detail. What we're trying to reconcile is our approach and their approach to actually controlling technology and components, which would generally fall under Category II."[120]

After the September 1994 hearing the satellite manufacturers would further increase their efforts to get a fundamental change in the regulatory regime applicable to the export of their products. In April 1995, following a visit from Hughes Electronics' CEO and newly appointed head of Clinton's Export Council to Secretary of State Christopher, the latter started an indepth interagency review of the export control role of the State Department with respect to satellites.

3.1.4 The revised Agreement of 1995

It took altogether 5 negotiating rounds to conclude a new seven-year bilateral agreeement extending disciplines governing continued Chinese participation

119. See *ibid.* A nuclear arms control expert wrote in a commentary: "We haven't really been tough on the Chinese", one senior official told us. "They pay lip service to the rules, but they still violate them - sometimes blatantly. The reason we are looking the other way is market potential", see IHT (Apr 25, 1995) at 8 ("From China to Iran as America watches").
120. See Holum briefing, *supra* Ch. 2, note 189, at 7.

in the international commercial launch market. On March 13, 1995, the two parties signed a Memorandum of Agreement regarding international trade in commercial launch services,[121] which would govern the respective Chinese launches with effect from January 1, 1995.

As its predecessor, it sought to carefully balance the interests and needs of the U.S. space launch, satellite and telecommunications industries. At the same time its (continued) aim was to "provide effective safeguards against disruption of the market for commercial space launch services while allowing for disciplined Chinese participation in the market."[122]
To further that aim and provide market stability, the resulting agreement again places quantitative limits and a price discipline on Chinese launch contracts. Where the previous agreement had provided for up to nine Chinese launches for international customers to geosynchronous earth orbit (GEO) over a period of six years, the new agreement allows the Chinese *eleven* such launches through December 31, 2001, *i.e.* a period of seven years. Additionally, the 1995 agreement includes provisions which allow for increases in this quantitative limit to address shortages in the supply of launch services for U.S. satellite manufacturers and users.
The new agreement continues to require that Chinese launch prices must be "on a par" with prices offered by Western launch service providers for comparable launches, but specifies in more detail, along the lines of a provision already included in the U.S.-Russia launch trade agreement of 1993, when such pricing is presumed *not* to meet that requirement.

Special attention is given to the new market for satellite launches into low earth orbit (LEO), one which did not exist in 1989, but already held great promises in 1995. However, the agreement does not place a specific limit on the number of commercial LEO launches. The Agreement also addressed the question of "leasing on orbit", which had arisen in connection with the application of the U.S.-Russia Agreement.

In the following, we will briefly review the relevant provisions of the new agreement, insofar as they changed (the extent of) the rights and obligations of the parties.

Scope
The new Agreement made a distinction between on the one hand the geosynchronous earth orbit (GEO) and geosynchronous transfer orbit (GTO)

121. The doc is available through USTR, <http://www.ustr.gov/>.
122. See *U.S. and China conclude new commercial space launch agreement*, Press release 95-07, Office of the USTR, Executive Office of the President (Jan 30, 1995).

and, on the other hand, the low-earth orbit (LEO), the latter a "separately identifiable commercial market with its own particular characteristics".

Both the specific pricing and quantity provisions of the Agreement were, for the time being, exclusively applicable to GEO/GTO launches.[123]

Quantity

Market participation of Chinese launch providers is, for the period of the contract, *i.e.* seven years, limited to eleven principal payloads to GEO or GTO for international customers.[124]

Four satellites, for which launch contracts had been signed prior to the entry into force of the new agreement, were considered to be covered by the 1989 Agreement and therefore did not count for the purpose of the new Agreement.[125]

On the other hand, a new category of launches was included, namely any satellite launched by PRC providers that is *entirely* or "depending on the circumstances and facts of a particular case", *primarily* leased on orbit to international customers. The provision was first introduced in the U.S.-Russia Agreement of 1993, and sought to prevent a possible circumventing of the restrictions through the - unrestricted - launch of indigenous satellites for the benefit of foreign users (see Chapter 3.2.2 *infra*).

123. Annex I, which contains the agreed definitions, gives the following meaning to the GEO: "... an orbit approximately 19,400 nautical miles (35,900 kilometers) above the surface of the earth at the equator in which a payload completes one earth orbit in a 24-hour period, holding a fixed position above the earth." GTO is defined as "... a temporary orbit used to reposition a spacecraft or satellite into a geosynchronous earth orbit." LEO "means, for purposes of this agreement, any orbit below [GEO].", see paras. 8, 9 and 10 respectively.

124. See art. II (B)(ii). Para. 11 of the Annex defines principal payload as "a telecommunications satellite, or, in the absence of a telecommunications satellite, any other spacecraft or combination of spacecraft." International customer refers, according to para. 3 of the Annex, to "(a) any person, or any kind of corporation, company, association, venture, partnership, or other entity, whether or not organized for pecuniary gain, or privately or governmentally owned or controlled other than those institutions or entities which are owned or controlled by PRC nationals and provide telecommunications services primarily to the Chinese market; or (b) any governmental body, excluding the Government of the [U.S.] and the Government of the [PRC]; or (c) any international organization or quasi-governmental consortium, including but not limited to Intelsat, Inmarsat, or their respective legal successors; *which is the ultimate owner or operator* of a spacecraft or satellite or which will deliver a spacecraft or satellite to orbit for use by such ultimate owner or operator."
The emphasized parts of the definition aim at including Chinese satellites launched by China for the (quasi-)exclusive use by international customers, see main text.

125. Apstar II, licensed on Feb 1, 1994 and launched on Jan 26, 1995 (failed); Asiasat II, licensed on Jan 6, 1994 and launched on Nov 28, 1995; Intelsat 708, launched on Feb 15, 1996 (failed) ; and Echostar I, licensed on Jan 6, 1994 and launched on Dec 28, 1995.

This quantitative restriction was based on a market (growth) estimate of 12 to 13 GEO satellites per year over the seven year period, i.e. 84-91 satellite launches; the Agreement thus gave China the opportunity to acquire 12 to 13% of the launch market.
As both parties realized the imperfection of this estimate, and a rigid limitation could seriously affect the fortunes of the satellite manufacturers and users, whether U.S. or others, a number of provisions were introduced seeking to provide for the necessary flexibility for the parties concerned, with respect to both the number of launches permitted and the proportional distribution of the launches over the contract period, the so-called "(anti-)bunching provision"[126] during any two-year period of the Agreement. The PRC may make commitments in any three-year period of the Agreement consistent with subparagraph II (B)(ii) [dealing with the overall restriction for the full period]. The PRC shall seek to ensure that PRC launches of principal payloads for international customers are performed as scheduled in the original launch commitment".
For that purpose, annual, semi-annual and special consultations all provided an opportunity to review the development and demands of the satellite launch market and the possibilities for the launch industry to meet those demands.
The PRC and the U.S. consult annually with respect to the obligations in the Agreement, and, in particular, on the implementation of *inter alia* the quantity provision. Though this in itself could lead to the conclusion that the restrictions should be adjusted, the special semi-annual meeting foreseen for this particular issue would be the more appropriate occasion. Article IV.3 provides:

"Semiannually, the limitation on the total number of satellites for international customers that may be launched by PRC providers of commercial launch services will be reviewed by both parties and, if appropriate, adjusted to reflect changes in the demand for launch services (including changes arising from a projected absence of Western launch availability over an extended period) upon request of the PRC in light of developments in the commercial launch services market".

Two such developments are mentioned as justifying a raising of the quantity restriction or a reaxing of the "bunching provision" to satisfy the resulting change in demand:
-(a) a development of the GEO launch market "significantly greater" than the estimated average over the life of the agreement of 12-13 launches per year (on which the quantity restriction is based); or

126. Art.II (B)(vi) provides in part that the PRC "shall make its best efforts to prevent a disproportionate concentration of such commitments [i.e. to provide commercial launch services to international customers, during any two-year period of the Agreement. The PRC may make commitments in any three-year period of the Agreement consistent with subparagraph II(B)(ii) [dealing with the overall restriction for the full period]. The PRC shall seek to ensure that PRC launches of principal payloads for international customers are performed as scheduled in the original launch commitment".

-(b) "the development of a commercially viable project for satellite services that fundamentally changes demand for launch services".
Any party may, by virtue of article IV.2, ask for *special* consultations to discuss matters of particular concern. Such consultations "will be held" (presumably because a U.S. manufacturer or U.S. or international user alerts the U.S. government to the situation) if there is a proven absence of Western launch availability during the required launch period and the PRC has reached its quantitative limit or the "bunching provision" would prevent the Chinese from performing a launch. In such a case the U.S. may increase the quantity restriction or relax the bunching provision to permit the satellite to be placed on the PRC launch vehicle manifest for launch.

By virtue of article IV.5, the U.S. may also independently, i.e. without consultations or agreement with the Chinese, come to the conclusion that any of the above conditions have been met and that consequently a raising of the quantity restriction or a relaxing of the bunching provision is warranted. Unless China objects, for which it has thirty days, the U.S. may take such action unilaterally.

On top of the above provisions on the adjustment of the restrictions in certain situations, there is a semi-automatic adaptation foreseen in the Agreement which is purely based on the - forecasted - number of launches, i.e. the overall size of the launch market over a certain period of time:
- if during the first 3 years of the agreement the average annual number of commercial launches is or, in the opinion of the two governments, is expected to be 20 or more (in stead of the estimated average 12 to 13 per year over the full period), the PRC's quantitative limit "shall be increased" from 11 to 13;
- if this trend continues for a fourth year, in other words if an average of 20 launches or more per year is (expected to be) attained during the first 4 years, China's allotment will go up to 16 launches over the whole period of the agreement.

With the above adjustable quantity provisions, an impressive flexibility, of particular importance to the U.S. and other launch *clients,* has been introduced, while at the same time reserving a fair share of the (growing) market for the U.S. (and European!) launch industry. Absent any other impediments or artificial restrictions, the Agreement gives the Chinese the opportunity to compete on quality and price with the other launch providers, both Western and non-Western, for a substantial part of the international GEO launch market. However, China's pricing of its launch services remains the subject of specific conditions and limitations.

Pricing
The 1989 provision on pricing required the Chinese launch providers to sell their services "at prices, terms and conditions which are on a par with those prices, terms and conditions prevailing in the international market for *comparable* commercial launch services". (emph. add.)

The new agreement has a similar provision, but, in order to give a clear (-er) meaning to the two emphasized expressions, identifies and explains in detail the factors which have to be considered to compare the Chinese launch services with those offered by commercial launch service providers from market economy countries, including the U.S.
The provisions of the respective article II.B (iv) cover two situations:
1. the differential between a bid, offer or contract by a PRC launch service provider for a GEO launch and one by a commercial launch provider from a market economy country is less than 15%: in such a case it is assumed, unless information is provided to the contrary, that such a Chinese bid is indeed "on a par" with those of its aforementioned Western competitors, and no special consultations are needed;
2. When this differential is *greater than 15%* "and [,] after taking into consideration the *comparability factors* described in Annex II, the U.S. believes that China's launch service prices are not consistent with subparagraph (iv) [i.e. are not on a par with Western prices], the parties shall have special consultations ["within thirty days of a request by the U.S., to discuss the matter]". (emph. add.)

Annex II lists six such factors for comparing or evaluating launch services in the international market. Such factors can often explain legitimate distinctions in the price offered by the Chinese for the launch of a particular payload relative to market economy launch companies. Each such factor mentioned may have a certain impact on the price the customer will have to pay to the Chinese; this impact is expressed in a cost range expressed in dollar amounts or percentages. In the end these "add-on's"will help to explain and justify a certain - low - Chinese launch price.
The following pricing comparability factors are mentioned:
- *intended orbit:* if the customer opts for launch into GEO, the Chinese launch company will have to additionally purchase a Perigee Kick Motor of $6-7 million; conversely, a launch into GTO may lead to a discount;
- *risk management:* addresses differences in insurance prices for the customer, based on the type and success rate of the vehicle used and also on whether or not, additionally, political risks are insured; basically, insurance rates for PRC vehicles can be 1-4% higher than the rates for Western vehicles;
- *additional cost:* integration and launch support cost (including e.g. transportation to and security personnel in China), estimated to range between $4 and 6 million;

- *vehicle lift capability:* ensures comparison of vehicle classes providing similar performance: there may be differences in vehicle prices from one class of performance to the next;
- *payment conditions and terms:* the issue centers on the economics of the customer's financial condition, which will have an influence on whether or not favorable credit terms or flexible payment schedules may have to be offered;
- *lifetime:* the use of some PRC launch vehicles can result in satellite lifetimes that are 1 to 2,5 years less than launches on market economy vehicles. Evaluation of this factor is complex (in some cases there is no impact on lifetime) and must be done on a cas-by-case basis.

Consideration of the above factors may lead to the conclusion that the Long March price for a specific launch, which at first appeared not to be on a par with Western prices, after adjustment resulting from the application of the above criteria, can be considered as falling within the permitted price differential of 15%.[127]
Where the agreement with Russia still contained a 7.5% level for consultation, this set of quantified factors gave sufficient guidance to the U.S. and China for comparing the launch prices to enable the former to relax the level to 15%.

One other pricing provision addressed a complaint voiced by U.S. and European launch companies about Chinese pricing behavior under the previous agreement, to wit the more than exceptional use of the "introductory price" argument for quoting a low launch price to its international customers. The Agreement now requires consultations and agreement between the two parties for the PRC to be able to offer an introductory price on only the first test flight of a *new type of launch vehicle*, and describes in detail, in the Annex, the criteria a launch vehicle has to meet to be considered a new type. Central to the definition in paragraph 13 is the criterion that a launch vehicle "must have significantly higher risk for the first launch than other launch vehicles already in production in order to qualify for a "test flight" price." And significantly higher risks, in the view of the parties, only result from major changes to high risk systems such as the propulsion or avionics systems.

The LEO launch market received special attention, because of the advent of ambitious and (launch trade) promising satellite systems like *Iridium* and *Globalstar* on the one hand, and the absence of sufficient experience with the demands of that market and the effects on competition between the launch service providers on the other hand. Hence a set of principles to guide China and the U.S. government in stead of specific conditions with respect to quantity or pricing.

127. A May 1997 USTR report cites violation of the pricing provisions of "a bilateral agreement on the Mabuhay launch", see CRS China report 1998, *supra* note 104, at 12 and 23.

As for the latter, for the purpose of enabling the parties to compare prices as in the case of GEO launches, they agreed to undertake a detailed examination on a per payload basis, of the factors affecting the comparability of bids, offers or contracts for such services.
In view of current predictions on growth in, and the structure of, the LEO market[128] the U.S. recognized the possibility of a substantial role for the Chinese launchers in that market segment provided 'they behaved'. The PRC promised not only that its participation in the LEO market would be consistent with the provisions of the agreement and with significant U.S. participation in the development of that market but also agreed to take steps (as yet unidentified) "to ensure that such participation will be proportionate and non-disruptive."[129]

The Agreement foresees consultations in case one of the parties (presumably the PRC) does not behave in accordance with the above, to ascertain the facts and take appropriate corrective action. The U.S. will judge the (potential) effect of the Chinese participation in the LEO market on the basis of *inter alia* the extent and growth of overall PRC and U.S. participation in the LEO market and, with respect to proposals to deploy LEO communications satellite constellations, the extent of participation by U.S., PRC, and third country launch service providers, in particular whether the non-market launchers collectively and per satellite constellation put more satellites into orbit than their market economy (*i.e.* U.S. and European) counterparts. Some more factors should also be taken into account. They are listed here not because they represent essential knowledge for understanding the U.S.-Chinese launch trade relationship, but because they encompass, in the absence of stricter rules for LEO launches, a broad set of generally worded, multi-interpretable facts and

128. The Office of Commercial Space Transportation, in a May 1995 update of its 1994 LEO market assessment, saw as many as five LEO mobile communications satellite systems to be deployed in the 1995-2005 timeframe under its projected "high end" scenario. OCST made a distinction between "Big" LEO systems (for voice communications/hand-held phones) and "Little" LEO systems (for data transmission, paging or other services), and envisioned a deployment of a minimum of two big LEO systems and one little LEO system and a maximum of three big and two little LEO systems.In the deployment phase this would lead to as many as 5 to 10 medium to large commercial launches per year, whereas in the maintenance phase of these projects, and additionally for launches of remote sensing, microgravity and other (scientific) payloads, 8 to 14 small vehicle launches could occur annually, see *OCST sees growing market for low earth orbit satellites*, DOT News release (May 18, 1995) <http://www.dot.gov/affairs/1995/orbit.htm".

129. See art. II.B (iii)(b) Although prior to the China-US talks of 1994/1995 on the revision of the 1989 Agreement,CGWIC, an investor in Iridium Inc., had concluded contracts, both for the initial launch of 12 satellites through 6 Long March launches and for additional "maintenance" launches of a total of 10 satellites between 1998 and 2003, the revised agreement of 1995 did not mention the Iridium launches as agreed and covered by the agreement's LEO provisions. See, on the USD 3.37 billion Iridium system and the launch contracts, 5 (16) Space News (Apr 1994) at 4, 21 ("Iridium acquires launch providers for network").

conditions which give the U.S. ample room for intervening in the competitive interaction between the Chinese and non-Chinese launch service providers, for the benefit of its launch companies, its satellite builders or its telecommunications firms:

"- the extent of PRC and U.S. participation in the deployment;
- launch scheduling requirements and the need to optimize launch vehicle selection to meet deployment or operational requirements;
- the availability of competitively-priced market economy launches to meet these requirements;
- opportunities made available to the parties for participation in the replacement market;
- reasonable considerations by the proposed system operator regarding commercial risk sharing;
- customers' requirements."[130]

Obviously, the above factors, to be properly addressed and used, would require a substantial amount of additional investigative work for the USTR/DOT Working Group, and 'LEO-focused' discussions between the parties.

Consequently, at the first yearly consultation meeting as foreseen in the agreement, in July 1996, the U.S had three issues on its agenda: to reconcile the parties projections of the size of the global markets for GEO and LEO payloads, to review China's participation in competitive bidding for launch contracts, and to examine specific pricing issues for the burgeoning LEO market.[131]

As mentioned before, in order to give some teeth to the agreement, the U.S. attached great importance to the exchange of data, in particular on pricing and number of launch contracts. In practice, however, information on Chinese launches has not always been forthcoming. According to a U.S. Congressman in 1996, in the seven years since the 1989 Agreement, China only forwarded eight papers to the USTR's office. (But Russia, since its 1993 Agreement with the U.S., had not sent any information document at all).[132] Obviously, the U.S.' counterparts saw the information exchange as a rather one-sided obligation which they were prepared to meet in case of own need and certainly not without having the opportunity, during a meeting, to orally present and discuss the data.

130. See art. II.B (iii)(c).
131. See Dennis J. Burnett and David Lihani, *U.S. national space policy and bilateral launch service agreements*, Proceed. Coll. L. Outer Space 263-270 (1996) at 266.
132. See Christina Gair, *The global launch industry: new players enter the scene*, Via Satellite 44-55 (Oct 1996) hereinafter referred to as Christina Gair, at 50.

Enforcement of the agreement is dealt with under the friendly heading "[c]larification of rights and obligations" in its article V, and deals only with Chinese violations of the provisions. The reference to U.S. laws and regulations must be interpreted in the view of USTR as one to the Trade Act of 1974, which has been discussed before.

Separate attention, under the same heading, is paid to the fact that this agreement does not in any way affect the right of the U.S., when faced with a license application for the export of a satellite to China, to take any action by virtue of the U.S. export laws and regulations which it deems necessary. This provision continues to subject the rights and obligations as agreed between China and the U.S. to the national security and foreign policy 'tests' of the Administration and Congress, and thus puts the importance of this instrument as a bilateral "regulator" of the trade in launch services, in perspective.

The U.S. private parties concerned were happy with the results: both launch provider McDonnell Douglas and satellite manufacturers Martin Marietta and Hughes expressed their appreciation to USTR for striking a balance among the various competing interests.[133]

The right of the Chinese to launch U.S. and other Western payloads as laid down in the Agreement of 1995 have, until recently, not been interfered with through the imposition of any special (MTCR or other) sanction.
This may be a result of restraint on the Chinese side with respect to missile sales or other behaviour deemed unacceptable by the U.S. Administration or Congress or of restraint on the U.S. side in its reactions to unwelcome Chinese actions or inactions, or of a combination of the two.
Fact is that, with the Tiananmen sanctions legislation still in place, waivers of the export restrictions have been - routinely - requested and - routinely - granted, until February 1998: according to an August 1998 report of the

133. See MDD News release (Jan 31, 1995): *MDD congratulates USTR Mickey Kantor on the new agreement*. "The [USTR] struck a positive balance among the various competing interests in this emerging international market. The agreement provides for effective "rules of the road", thus ensuring the non-disruptive entry of China into the global satellite launch market; the MM news release of the same date: "Martin Marietta applauds USTR agreement with [PRC] on space launch services: Ambassador Kantor and his staff have successfully negotiated an agreement that balances not only our nation's long-term economic and security priorities, but also the interests of US manufacturers of commercial satellites and launch vehicles ... An attractive feature is the flexibility of the agreement, which addresses potential changes in the international commercial space market place". Hughes, finally, released the following Jan 30 response to media inquiry: "Hughes is pleased with the positive changes that were agreed to last week by the [US] and China ... We expect that the next decade will be one of unprecedented growth for the commercial communications satellite industry. Access by the satellite industry to an increased supply of launch services is an important ingredient of its growth. Thus, the recent USTR action is a step in the right direction, *though additional increases may be necessary*". (emph. add.)

Congressional Research Service, since 1989, Presidents Bush and Clinton have issued 13 waivers for 20 satellite projects, based on 'national interest', on a case by case basis, to allow the export of satellites, increasingly for satellites used by China, not just launched from China (by virtue of the 1995 Agreement).[134]
The latest Presidential waiver was granted on February 18, 1998. It concerned the export of Loral-built Chinasat-8 satellite for China's own use, and has become part of the Congressional 'transfer of high tech (expertise) to China'-investigation, referred to in Chapter 2.3.4 and further discussed in Chapter 4.

3.2 Russia

3.2.1 Introduction

Between October 1957 and April 1996, Russia and its predecessor until December 1991, the Soviet Union, performed almost 2,700 launches, an unsurpassed record number with an unequalled success rate of 92.87%.[135]
The technological eminence of the country in this field was, for many years, feared by the U.S. military and envied by the U.S. space establishment.
The U.S. perception of the Soviet Union as, to use President Reagan's words, the "evil empire" or at least as the most heavily armed hostile country to be contained by the U.S., not only blocked the export of defense articles and services and dual-use goods and services to that country, it also prevented, until the early nineties, all major space cooperation which could possibly involve the transfer of high technology to the Soviet Union, thereby also blocking such transfers to the U.S. (with the exception of the Apollo-Soyuz link-up in 1975).
On the other hand the ambitious and costly space exploration and exploitation plans of Presidents Reagan and Bush,[136] coupled with such factors as growing scepticism of Congress and a diminishing interest in "footing the bill", made the idea of mobilizing Soviet space technology an increasingly attractive proposition, particularly in view of its high quality/ low cost image.[137]

134. See CRS China report 1998, *supra* note 104, at 10.
135. See AW/ST (Apr 15, 1996) at 22.
136. At the 20th anniversary of the Apollo moon landing, on Jul 20, 1989, President Bush announced his Space Exploration Initiative (SEI), which involved the completion of the Space Station, a return to the moon and a mission to Mars, and directed the National Space Council, chaired by the vice president, to determine the nature of this program, its cost and schedule and the possibilities for international cooperation, see Remarks by the President at 20th anniversary of Apollo moonlanding (Jul 20, 1989), The White House, Off.of the Press Secretary.
137. See on this subject Bzhilianskaya, *supra* Ch. 1, note 22.

An updated National Space Policy of November 2, 1989, embraced international cooperation in general, though with some caution as far as the Soviet Union's activities were concerned:

"... The United States will foster increased international cooperation in civil space activities by seeking mutually beneficial international cooperation in civil space and space-related programs. The National Space Council shall be responsible for oversight of civil space cooperation with the Soviet Union. No such cooperative activity shall be initiated until an appropriate interagency review has been completed."[138]

That interagency review was made the more necessary when, less than half a year later, a private Australian company, the Cape York Space Agency (CYSA), aware of a worldwide shortage of launch services, proposed to build a launch site at Cape York, in Northern Australia, and to use upgraded Soviet *Zenit* launch vehicles for launches of satellites into GEO. CYSA needed technical assistance for this complicated project and found a division of United Technologies, U.S. Space Boosters, Inc. (USBI), prepared to contribute its know how to the venture. For that purpose, a Technical Assistance Agreement was concluded between the two companies, but in order to be able to thus "export" its knowledge, a "defense service", USBI needed a State Department license, which caused the matter to become a subject of interagency debate.[139]

Obviously, this approach, which would not involve export of satellites to Soviet territory, but to the terrritory of a trusted ally, had a strong appeal to most parties concerned.
For the Soviets, who, though proudly owning and operating an impressive selection of reliable launch vehicles for both big and small loads, destined for either GEO or LEO, sofar had no access to the international launch market, this could be the first opportunity to sell their services for hard currency to the Western world.[140]

138. See Policy guidelines and implementing actions, National Space Policy (Nov 2, 1989), Fact sheet, the White House, Off. of the Press Secretary (Nov 16, 1989).
139. Complicating the situation was the fact that the Congressional Tiananmen legislation of 1989 sough to prevent the approval of license applications for launches of US-built satellites on *Soviet-* (and Chinese-) built launch vehicles, unless the President would report to Congress that such an approval would be in the national interest of the US (see Chapter 3.1, note 79); and Congress had additionally legislated that Technical Assistance Agreements would also be covered by this prohibition, see Marcia S. Smith, *Space commercialization activities in the Soviet Union*, CRS Report for Congress, 90-372 SPR (Aug 3, 1990) at 10.
140. In 1982 the Soviet Union had concluded its first commercial launch contract, with India, for the launch of the latter's indigenously built IRS-1 remote sensing satellite; and another such agreement was signed between the same parties in 1988. No US components, so no US export controls, were involved. Although the Soviet Union had retained a US company to help in marketing its launch services in the US, US policy forbade the export of satellites for launch to their country, and not even exemptions from customs inspections and other

The Australian company saw an interesting launch market, which could be served from a launch site close enough to the Equator to have roughly the same advantages as Arianespace had with respect to GEO launches from its Kourou, French Guyana launch base. And both parties saw the U.S. company as a partner who, as a project manager, could help them, not only with technical/operational expertise but also by convincing the U.S. administration that the risk of unwanted transfer of U.S. technology to the Soviet Union would be minimal given Australian and U.S. controls at the launch site.

The Cape York project prompted an administrative review of U.S. defense, trade and export control policy as it applied to the Soviet Union. At the same time, the Administration looked at the long term interests of the U.S. launch industry, and came, as in the case of China in 1988, to the conclusion that this export license request for the benefit of the Soviet launch industry gave the U.S. a perfect starting point for dealing now with future Soviet launch competition.
As a result, on August 22, 1990, the President authorized the Secretary of State to approve USBI's license application, provided certain agreements were concluded which were deemed necessary to ensure primarily national security interests. Specifically, the U.S. sought agreements to ensure that:

"(1) [t]he U.S.S.R. will provide launch services (boosters, equipment, technology, or training) only from Cape York or any other single location [outside its territory!];
(2) [t]he U.S.S.R. and Australia will observe the [MTCR], and
(3) U.S. regulations on technology transfer to the Soviet Union will be observed.
...
To permit continued U.S. participation, the United States in the coming months will also be seeking agreements to ensure free and fair trade in the international commercial launch market."[141]

(In his Commercial Space Launch Policy of September 5, 1990, President Bush - rather prophetically in retrospect - emphasized that concluding such (launch) trade agreements and enforcing those agreements to limit unfair competition was only a short term action (which, in his view, just as continuing to use only U.S. manufactured launch vehicles for U.S. government satellites would affect competitiveness over approximately the next ten years). For the long-term goal of a free and fair market in which U.S. industry would be able to compete, "the [U.S.] should take actions to encourage technical improvements to reduce the cost and increase the reliability of U.S. space launch vehicles").[142]

safeguards offered by the Soviets could change that position in the late eighties.

141. See Statement by the Press Secretary on the US Commercial space launch policy (Aug 22, 1990), Weekly Comp Pres. Docs (Aug 24, 1990) at 1287.

142. See Policy findings, Commercial Space Launch Policy, NSPD-2 (Sep 5, 1990) <http://www.hq.nasa.gov/office/codez/nspd2.html>. See further Chapter 3.5 *infra*.

CYSA subsequently went bankrupt and another Australian company attempted to proceed with the idea, though without success either. Similar plans involving Australia and a Russian/Ukrainian launcher have later emerged from time to time, but did not materialize, usually for financial reasons.

Important for the purpose of this study is not so much the fate of this one project, but rather the observation that can be made already at this stage, that the project set a trend through which Russia would distinguish itself from China, *i.e.* that of using international cooperation in the launch field, almost exclusively with U.S. companies, to foster and/or help the latter to bring about changes in U.S. launch trade policies.
At least three important factors contributed to this difference in approach:

1. the recognized excellence of Russian launch products and the interest of U.S. aerospace (and in particular launch-) companies in using or marketing these products;
2. the dissolution of the Soviet Union and its economy (with ensuing financially-driven interest on Russian side to sell/make use of its space assets); and
3. the concerns on the part of the U.S. administration that Soviet space, and in particular launch/missile, technology, if left unused or unassisted, would end up in the wrong hands.

In 1991/1992 the Russians made a second attempt to enter the international launch market. As a founding member of the International Maritime Satellite Organization *Inmarsat*, it requested that its well-proven Proton launcher be used for the launch into geostationary orbit of the Inmarsat-3 communications satellite. The U.S. had sofar blocked such launches on the basis of its long-standing policy not to grant export licenses for U.S. satellites and components to Russia (which would, as a result of the December 1991 break-up of the Soviet Union, now mean a launch from a Russian-run launch base in a third country, Kazakhstan)

The above factors played an important role in changing the U.S. views. Additionally, the Bush administration remained interested in an agreement with this (other) "non-market economy" launch provider, to guide its entry into the launch market in a way that would not hurt the U.S. launch companies. Consequently, at the June 1992 Summit of President Bush and Russian President Yeltsin, the U.S. announced that it would grant a one-time exception to its export policy vis-a-vis Russia and allow the Inmarsat-3 launch. At the same time, the U.S. stated that, while no further exceptions would be granted, it was willing to start negotiations on the conditions for Russia's entry into the launch market. These discussions took place amongst considerable uproar about Russian sales of missiles and technology to India (see Chapter 2.3 *supra*). At the same time, heated discussions took place, both within the scientific and technical community and in the Adminstration and Congress, concerning the financial feasibility of the Space Station, with program costs through permanent

occupancy (then scheduled for 1999) ranging from USD 30 to 40 billion, and additional operating expenses, estimated by the time Clinton took office, of USD 2 billion per year for its full 30 years life time.[143]
While various and repeated redesigns, aimed at finding a cheaper version, continued to upset America's partners Europe, Canada and Japan, the possible Russian participation in the plan and the extent thereof became an increasingly important part of the U.S. Administration's national security and foreign policy based 'engagement' strategy vis-à-vis Russia.
On September 2, 1993, vice-president Gore and the Russian prime minister Chernomyrdin agreed on a package-deal consisting of the following elements:
- a 'merger' of the U.S. and Russian space station plans,
- Russian adherence to MTCR and an amendment of its contract with India to prevent the transfer of missile *technology*,
- U.S.-Russian space cooperation for an amount of - at least - USD 400 million, the amount Russia would lose by reneging on its contract with India,
- a launch trade agreement permitting Russian entry into the international commercial space launch market.[144]

3.2.2 The U.S.-Russia Launch Trade Agreement of 1993

The Agreement in many ways resembles both the China Agreement of 1989 and its revised version of 1995.
Inter alia because of that similarity we will not give an article by article, or subject by subject description of its provisions, but limit the discussion to a number of issues which, for various reasons, deserve some special attention.

Quantity provisions: GEO/GTO launches
Russian launch companies were allowed to contract launch services with international customers for a total of *eight* satellites, in addition to the Inmarsat -3 satellite already contracted for. While Russia's freedom of (sales) action was limited by an 'anti-bunching' provision, the above quota could be increased by launching two principal payloads in one launch: a maximum of 4 such dual launches could raise the original allotment of 8 to a maximum of 12 satellites. Additionally, a more favorable development of the international launch market could also result in an agreement to (further) increase the quotas.

143. See, on the space station, Smith, CRS Report 1957-1993, *supra* Ch. 2, note 293 at 34 ("The U.S./International Space Station Program").
144. See, for the texts of the resp. Joint statements and fact sheets, Gorove US Space Law, *supra* Ch. 2 note 55, at I.A.4 (a-2); also 4 (35) Space News (Sep 1993) at 1, 20.

The above quantity provision soon created some problems. One was caused by the Russian plan to launch an indigenous communications satellite and lease the total capacity to a foreign customer. U.S. launch providers saw this as a way to circumvent the capacity restrictions of the agreement, whereas the Russians considered leasing of satellites or satellite transponders a different market not governed by the agreement. To settle the matter, USTR published guidelines in early 1994, which confirmed the official U.S. interpretation that

"[l]easing a satellite on orbit or satellite transponders does not remove a transaction from the terms of the Agreement. As a general rule, the Agreement applies to a contract calling for the leasing of a satellite on-orbit as to one requiring the launch of a satellite purchased by the customer. The definition of "international customer" as defined in the Agreement makes no distinction based upon the financing arrangement selected for the satellite. There will be no special consideration given to leased satellites launched solely for use by an international customer".[145]

Though the Russian delegates at an April 6, 1994 meeting of the two parties found the guidelines too strict and unfair, USTR upheld its interpretation, though exempting the case which started the discussion from the application of the "new" provision.[146]

The Russian complaint about the strictness of the guidelines was also triggered by another USTR interpretation affecting the launch quota, *i.e.* that of 'contract': according to article IV, Russian launch providers may *contract* with international customers to provide launch services for the launch of up to eight principal payloads to GEO/GTO. Article I of the Agreement gives the following meaning to 'contract':

"(i) to agree or commit to the provision of commercial space launch services such that a launch is effectively removed from competition in the international market, or (ii) any such agreement or commitment".

145. See *Guidelines for U.S. implementation of the Agreement between the US and Russian Federation government regarding international trade in commercial space launch services*, USTR, Fed.Reg. Vol. 59. No.47 (Mar 10, 1994). The guidelines cover roughly the same issues as the 1989 guidelines pertaining to the US-China Agreement of 1989, such as the organization and tasks of the Subcommittee on (Russian) space launch services, the monitoring and data collection activities of the Working Group on Information, consultations, collection of information and enforcement.

146. Russian officials contended that leasing Russian satellites launched by Russian launchers did not count as the launch of an international payload and thus should not be counted against the quota. US trade officials strongly disagreed, insisting that such launch opportunities should count against the quota on grounds that these launches should be open to international competition, see *The national space transportation policy: issues for Congress*, Office of Technology Assessment, US Congress, OTA-ISS-620 (May 1995) at 68.

The guidelines considered an *option agreement* or *reservation* for Russian launch services "entered into on or before September 2, 1993", to be equally covered by the above definition. This USTR interpretation affected Russia's contractual relationships with a U.S. and a European client: the deal with Space Systems/Loral of California consisted of one firm order and four options, the arrangement with Société Européenne des Satellites of Luxembourg covered one firm order and an undisclosed number of options.[147] In the Russian view, only the two firm contracts should count; the U.S. interpretation on the other hand would have resulted in the Russian launch quota being exceeded right from the start. Information on the settlement of this question could not be obtained.

LEO launches

Prior to the Agreement, Khrunichev Enterprise, a Russian investor in Iridium Inc. of Washington, had concluded a contract for the launch of 21 satellites for Iridium (out of a total of 73) through three *Proton* launches. These three LEO launches were specifically and separately permitted by the Agreement. The draftsmen could foresee possible further contracts for "maintenance" and replacement launches for the 66 satellite-Iridium system, and for other planned satellite constellations to provide global mobile phone or other telecommunications services. Consequently, provision was made for a case-by-case consideration of Russian proposals for additional non-GEO launches, "where there are competing comparable commercial space launch services".[148]

Pricing

Under the Agreement Russia was not supposed to charge more than 7,5% less than its "market economy" competitors. This provision did *not* apply to non-GEO/GTO (e.g. LEO) launches. There, the general, vague, pricing criteria of the Agreement applied, *i.e.* that

"[t]he contractual terms and conditions, including the price, of commercial space launch services offered or provided by Russian space launch service providers to international customers *shall be comparable* to the terms and conditions, including prices, for comparable

147. See Space News (March 21, 1994) at 3 ("Proton venture nears sellout on agreement").

148. The definitions article of the Agreement gives the following meaning to the latter term: "Comparable commercial space launch services" means commercial space launch services offered to launch a spacecraft of the weight class that is the subject of a launch competition, taking into consideration specific factors that may be considered when evaluating the price, terms and conditions of such services, including, but not limited to, intended orbit, risk management, financing, satellite lifetime on orbit and integration costs", see art. I, para.5.

commercial space launch services offered by commercial space launch services providers from market economy countries, including the United States".[149] (emph. add.)

In early 1995, serious concerns were voiced by Arianespace officials about the fact that Russian Proton launches were being offered to international customers for as much as 30 percent less than U.S. and European launch fees.[150] The Russian Space Agency, in its reaction to these claims, insisted that various hidden costs should be added to the figures used, to arrive at the "real price" and that, besides, the internal pricing in Russia was going up every month. But more important for the (outcome of the) discussion was the fact that Lockheed Missiles and Space Corporation participated in the debate on the side of the Russians: since mid-1993, this major aerospace and defense company had a joint venture agreement with Khrunichev and Energia, two Russian companies involved in the manufacture of the Proton launcher.[151]

The resulting U.S.-based marketing company, *Lockheed Khrunichev Energia International* (LKEI), had taken over the sale of Proton launchers to international customers.
LKEI offered substantial advantages to both sides: Lockheed, so far inactive in this field, had, with one stroke, entered the international launch market with a highly reliable launch vehicle. The two Russian companies had not only enlisted the sales skills and implied quality guarantees of a reputable U.S. aerospace firm, but had also acquired a powerful ally in their dealings with the U.S. government on such matters as launch quota, pricing, export licenses and all other aspects of the launch trade relations between Russia and the U.S. Together they formed a formidable new competitor to the incumbent U.S. launch providers and, more in particular, to Europe's Arianespace. (A contract and a launch reservation signed by LKEI after the entry into force of the Agreement, with PanAmSat and with Société Européenne des Satellites respectively, marked in each case the first time after a number of European launches that the company concerned decided *not* to use Arianespace's services).[152]

149. See art. V, para. 1.
150. See 6 (1) Space News (Jan 1995) at 1, 20.
151. The initial framework for the cooperation was agreed upon on October 30, 1992 and finalized on January 23, 1993. It started as Lockheed Khrunichev International in 1992; Khrunichev State Space Scientific & Production Centre, the manufacturer of Proton was joined in 1993 by Rocket & Space Corporation Energiya, which built the Russian Buran space shuttle, see Bzhilianskaya, *supra* note 137, at 326.
152. In a written response to questions from the House Subcommittee on Space in May 1993, a high Lockheed official not only criticized the nascent launch trade Agreement ("... [which] will enable LKEI to compete marginally in this commercial space market, constrained in sales and growth by the launch restriction ... LKEI is fully prepared to compete on quality and responsiveness, rather than rely on artificial pricing and/or quota restrictions.") but also defended LKEI and a free launch market as "the most effective and quickest way for the U.S. to undercut Ariane's market share", see *International competition in launch services*,

Lockheed's defense of the launch price had a familiar ring to those who had discussed Chinese Long March pricing. A Lockheed official stated:

"You cannot simply look at the launch price ... You have to look at what is called the adjusted cost. This includes the risk of political upheaval, the costs of adapting the spacecraft to Proton and the added costs of launching from the Baikonur Cosmodrome [in Kazakhstan]. When all is said and done, *our* prices come much closer to the 7.5 percent figure".[153]

That 'special costs' had to be taken into account in the case of Russian launches was already recognized before the Launch Trade Agreement was concluded: in a Congressional hearing on "international competition in launch services" of May 1993, an official of COMSAT Corporation provided the following data as evidence of a highly competitive launch market place:

"[Of the four Inmarsat-3 satellites] the first two ... will be launched on Atlas at a cost of $124.4 million and the third will be launched on Ariane 4 at a cost of $61.6 million. The fourth satellite will be launched ... on a Proton rocket ... [for] $36 million ... Additional costs will be incurred to pay for needed modifications to the satellite, political risk insurance, as well as a policy to insure against launch failure. The final cost of the launch is expected to reach $46 million".[154]

After the 'mega'-merger of Lockheed with the satellite manufacturer and launch vehicle builder Martin Marietta, in June 1995, LKEI became part of a bigger international launch provider created by the new Lockheed Martin company, *International Launch Services* (ILS), which would henceforth sell both the Proton and the Atlas launch vehicle to U.S. and (other) international customers and provide a very strong - international satellite and launch vehicle competition-driven - support for an increasingly liberalized launch market, at least as far as the U.S.-Russia launch trade agreement, and thus the international sale of Protons was concerned.

Hearing before the Subcommittee on Space, House Committee on Science, Space, and Technology, 103d Cong., 1st Sess. (May 19, 1993), hereinafter referred to as 1993 Launch hearing at 159; "... the niche Proton fills (4,000-6,000 lbs to GEO), is not a direct competitor to existing or currently proposed U.S. launchers." *id.*, at 160. McDonnell Douglas was nevertheless far from happy with the advent of low-priced Protons in the launch market, *id.*, at 153.

153. See *ibid.* A European insurance broker agreed with the Russians and Lockheed that a Proton launch involved many special costs: "... insuring yourself against possible political instability in Russia will add substantially to the cost of your coverage ... Also, the costs increase the further away the launch is, because the market's judgment is that political instability in Russia is more likely as you go further out into the future." In this connection, one should also include the costs involved in the security arrangements to prevent transfer of satellite-related technology to the Russians.

154. See statement Warren Y. Zeger, Vice President, COMSAT Corporation, hereinafter referred to as Comsat statement, *id.*, at 126-127.

3.2.3 The 1996 Amendment

Pressure on the part of the partners as of well as of other U.S. satellite manufacturers after the conclusion of the expanded agreement with China in March 1995,[155] and a December 14, 1995 Launch Trade Agreement concluded in the mean time with the Ukraine and benefitting a U.S.-Ukrainian launch joint venture (see Chapter 3.3, *infra*), created the momentum and justification for an amendment to the U.S.-Russia Agreement, eventually signed by U.S. Vice President Al Gore and Russian Prime Minister Chernomyrdin on January 30, 1996, which increased Russia's launch allotment from nine GEO satellites to a maximum of *twenty* for the period through 2000.[156]

At this stage of the 'game', protests against this increase of launch competition came only from McDonnell Douglas, the only U.S. manufacturer of large launch vehicles without a transnational joint venture involving one of the above countries, and from interests defending the State of Florida's Cape Canaveral launch base, the U.S.' only launch site for the satellites covered by the agreements.[157]

Russian companies concluded a number of agreements with other U.S. and European companies (see Chapter 1, *supra*), which served the double purpose

155. In fact already in December 1994 the Russian Prime Minister Chernomyrdin during one of his regular meetings with vice president Gore, as joint heads of a U.S.-Russian commission on cooperation in space, science and energy, broached the topic of a relaxation of the capacity restrictions in view of an Ariane failure on Dec 1, the second in 1994: given Proton's own order book and the full use of Atlas' services in 1995 (and possible 1996) Russia - happily - foresaw a shortage of launch capacity for international customers, see 5(48) Space News (Dec 1994) at 1, 21.

156. See 7 (4) Space News (Jan/Feb 1996) at 8: "Russian [Space Agency] officials say their launch industry deserves at least the same treatment as that accorded to China".; also 7 (5) Space News (Feb 1996) at 3 ("New launch accord clouds Delta 3 future").

157. According to a Director of the Florida Space Business Round table, "U.S. policy-makers struggling to provide economic aid and arms reduction incentives to countries like Russia, Ukraine and China have found another valuable spinoff from the space industry. Through a series of recent bilateral agreements, they have turned the space industry into a tool for achieving U.S. foreign policy goals by providing these non-market economy countries with access to more than $1.5 billion in U.S.-commercial satellite launch business. By offering their impressive collection of rockets and other Cold War space technologies at artificially low prices, these nations are now positioned to capture half of the world's commercial space lauunch business, and perhaps all of Florida's ... The allocation of U.S. market share to foreign competitors, especially in such a strategically important industry, is consistent with our self-destructive history in other long-gone industries ...", see 7 (5) Space News (Feb 1996) at 19 ("Launch agreement locks out U.S."). The author proposed, as a partial remedy, to require these countries to launch their rockets from Cape Canaveral to preserve U.S. jobs and put the spaceport infrastructure to its intended use. But an editorial commentary praised the U.S. government's decision as an important and long-overdue victory for the satellite industry, as it would provide more launch options and should keep a lid on launch costs, see *id.*, at 18 ("Good news for Russia, industry").

of bringing in foreign sales and marketing expertise (and additional revenues) and of foreign lobbying efforts aimed at discouraging U.S. and European governments from restricting the use of Russian-built launch vehicles (or better still, to see these vehicles as part-Western assets to be employed unreservedly). Thus Russians participate in the U.S.-Ukrainian Sea Launch project, have joined forces with Arianespace in Starsem to promote their Soyuz, cooperate with DASA in Eurockot to sell modified SS-19 missiles and have joint ventures with both an American and a German company to market the two-stages Cosmos launch vehicle.

Although in the exchange of data as prescribed by the Agreement, Russia so far was even less forthcoming than the Chinese (see Chapter 3.1 *supra*), Russian pricing practices have not given rise to disputes or complaints, a feat that can be largely attributed to the above alliance-relations with Western counterparts in general and with the U.S. companies in particular.

3.2.4 The Satellite Technology Safeguards Agreement between Kazakhstan, Russia and the U.S. of 1999

Prior to January 1999, each Russian launch from the Baikonur Cosmodrome in Kazakhstan involving U.S. satellites, equipment and data required the negotiation of a separate, trilateral technology safeguard agreement to prevent transfer of sensitive technology.
A review of the experience gained with these agreements and new concerns and ideas, *inter alia* stemming from the 'China affair', led to trilateral discussions in Moscow which, on January 25, 1999, produced a new umbrella agreement to govern all future launches involving the three parties.

The new agreement thus permitted the resumption of launches of U.S. satellites from Baikonur, among which in particular the launch of four Globalstar satellites on a Russian Soyuz, sold by the Russian-French *Starsem* company. The latter launch, which took place in February 1999, had been delayed for three months because of the above export control concerns and the ensuing discussions.

Under the agreement, the U.S., Russia and Kazakhstan commit to take steps necessary to preclude the unauthorized access to and transfer of protected technologies associated with the launching of U.S. satellites (and other satellites with U.S. components) by Russia from the Baikonur Cosmodrome. The agreement establishes controlled access to U.S. satellites and specifies procedures to ensure that U.S. DOD personnel can monitor U.S. technology in Russia and Kazakhstan also in the event of a launch failure of a space launch vehicle carrying U.S. satellites, equipment and data.

Although the agreement only addressed the technology safeguards aspect of the parties' relations, current U.S. non-proliferation worries and Russian trade interests had also formed part of the discussions, witness the following U.S. statement:

"This agreement reflects the U.S. commitment to continued space cooperation with Russia and Kazakhstan because it is in our mutual interests. But our national security interests also require that we not go beyond the current quota for high-orbit launches until the problem of missile cooperation between Russian enterprises and the Iranian missile program is resolved.
If Russia halts all sensitive technology transfers to the Iranian missile program, this agreement will pave the way to even greater space launch cooperation in the future."[157a]

The U.S. thus continues to link trade (concessions) and national security interests.

3.3 Ukraine

During the Soviet years, Ukraine's space industry played a key role in the Soviet space programs, right from the latter's origins in the 1950s, with particular emphasis on the design and manufacture of launchers, satellites and spacecraft guidance and control systems. The disintegration of the Soviet Union in 1991 brought about one third of its space industry under Ukrainian control, including the NVO Pivdenne or, in Russian, NPO Yuzhnoye design and production association in Eastern Ukraine. The latter space facility was the Soviet Union's largest manufacturer of space launch vehicles and missiles. According to one author, during the Soviet period, the establishment designed and manufactured twelve of the twenty types of Soviet ICBMs, several types of conventional launchers, among which the *Tsyklon* and the *Zenit*, rocket engines and a large number of remote sensing, scientific and other satellites.[158] Though the demise of the Soviet Union has resulted in fewer orders and a shrunken workforce, the facility still designs and produces launchers and satellites.

The traditional high degree of interdependence between Ukrainian and Russian space industries can still be observed today in, for example, the manufacture of the Zenit launcher, the first stage of which has a Russian engine, made by NPO Energomash of Moscow. (And, as Ukraine has no launch base of its

157.a See U.S. State Dept Fact Sheet, *Satellite Technology Safeguards Agreement: Kazakhstan-Russia-United States*, Off. of the Spokesman, Moscow (Jan 25, 1999) <http://secretary.state.gov/www/travels/1999/>.

158. See Roman Krawec, *Ukranian space policy - contributing to national economic development*, 11 (2) Space Policy 105-114 (1995) hereinafter referred to as Roman Krawec, at 106.

own, launches take place from the Russian-run Baikonur Cosmodrome in Kazakhstan) There appears to be little inclination on the the part of Ukraine to pursue a - costly and time consuming - independent course. On the other hand, export of space products and expertise and cooperation with Western companies are high priorities in Ukraine's space policy,[159] and the *Zenit*, a two-stage liquid-fuelled launcher capable of placing a payload of about 13.7 tons into low earth orbit (LEO) is an important part of those plans.
Though efforts are being made, with so far modest success, to commercialize the Zenit in its present form, the launcher is best known for its three-stage version, the Zenit-3SL, which is part of the innovative Boeing-led *Sea Launch* project.

As briefly described in Chapter 1, Sea Launch will use a mobile floating launch platform, made from a converted offshore oil rig, that will operate in the east-central equatorial Pacific Ocean. The idea came from Boeing Commercial Space Company, part of the U.S. aircraft manufacturer, and Russian RSC Energia. Other partners are NPO-Yuzhnoye which produces the first two stages of the three-stage Zenit that will be launched from the platform, and Kvaerner Maritime of Norway, which modified the launch platform in Stavanger and built the assembly and command ship in Glasgow.[160] Energia manufactures the third, upper stage of the Zenit, which will, *inter alia*, enable Sea Launch to put communications satellites into geostationary orbit. But with a Long Beach, California, homeport and the Pacific Ocean as the - flexible - launch area (the command ship will tow the platform to any location needed for a specific launch), Sea Launch does not have the same limitations with respect to payload options which land-based launch facilities have. Apart from the reliability of the well-proven Zenit and its comparatively low cost, this flexibility is one of its best sales arguments. According to a Sea Launch representative, "[t]he fact we can launch in any orbit, polar or equatorial, off the same launch platform affords the company the ability to stay with a single launcher".[161]

Scepticism existed from the start, not so much about the technical feasibility of the project, but more about its political and financial viability. Both concerns could be largely put to rest in December 1995, when Hughes Space and Communications ordered 10 firm launches over five years and an unspecified number of options from Sea Launch for its communications satellites. The value of the base contract plus the options was reported to be around USD 1 billion; Hughes, as a wealthy "anchor tenant" thus gave Sea Launch the desired financial support and credibility.[162]

159. See *id.*, at 107, 108.
160. Boeing owns 40% of the shares, Kvaerner 20%; the venture is organized under the laws of the Cayman Islands, BWI.
161. See Christina Gair, *supra* note 132, at 50.
162. See 6 (48) Space News (Dec 1995) at 1, 20 ("Sea Launch lands Hughes contract - ten-

As for political support, on December 14, 1995 the U.S. and Ukraine initialled a *launch trade agreement* which allowed Ukraine entry into the international commercial launch market. The agreement, concluded in Vienna, gives Ukraine the right to launch five satellites to geostationary orbit through 2001, with an option for one additional launch if growth of the launch market over the next three to four years "beyond current expectations" justifies this addition.

This rather modest basic allowance for the "Ukrainian space launch services providers", was expanded considerably for another beneficiary of the agreement, the "integrated space launch services provider". The latter was described as a U.S.-Ukrainian joint venture meeting certain criteria with respect to ownership, control and services. More specifically, to qualify as such a joint venture:

- the U.S. partner must maintain control in fact;
- the U.S. must be the source of a significant share of the goods and services employed in any launch;
- a majority of the goods and services, including financing and insurance, must originate in market-economy countries;
- the joint venture must receive a launch license from the DOT.[163]

In a Protocol to the Agreement, the U.S. and Ukraine agreed that the Sea Launch venture met the above criteria!
This brought within the reach of Boeing and its partners *eleven* additional launches exclusively reserved for such qualified joint ventures, and, in case of a launch market development significantly exceeding current expectations, on top of that allowance an additional *three* launches. Sea Launch had thus received the U.S.' political approval for its venture and the go ahead for its launch activities for Hughes.

As the U.S. Administration's initial hesitations to conclude this agreement had been in the field of transfer of U.S. satellite technology to Ukraine and of

launch deal makes Boeing instant player in a crowded market").

163. See Fact sheet: *commercial space launch agreement with Ukraine*, Press release 95-91, Office of the USTR (Dec 14, 1995) <http://www.ustr.gov/releases/1995/12/95-91.html>, hereinafter referred to as USTR press release 95-91. As we saw in Chapter 2.2.2, the Commercial Space Launch Act of 1984 as amended authorizes the Secretary of Transportation to issue licenses authorizing commercial launches and the operation of commercial launch sites. The Secretary's authority is implemented through the FAA Associate Administrator for Commercial Space Transportation (AST, formerly OCST). By virtue of the Act and the Commercial Space Transportation Licensing Regulations, the FAA is authorized to license the launch of a launch vehicle when conducted in the US and launches operated by US citizens abroad. According to an April 1998 AST report, which gives a detailed description of the project and provides for an environmental assessment of the activities concerned, Sea Launch will initially apply for a launch-specific license, and later plans to apply for a launch operator license, see Sea Launch - environmental assessment (draft), [DOT, FAA, AST] (Apr 1998) <http://ast.faa.gov/reports/>.

Ukrainian missile (technology) sales to third countries, both matters were addressed (and linked to the agreement).[164]

First, though Ukraine had signed a joint memorandum with the U.S. in May 1994 committing itself to abide by the MTCR guidelines and had stated its intention to join MTCR, the latter had not materialized. As we saw above, it has been the consistent policy of the U.S. to refrain from giving any assistance or support to the development of foreign launch capabilities, particularly where non-MTCR members are concerned, and, on the other hand, to seek MTCR membership of all countries which possess missile/launch technology. Additionally, the U.S. was, also in the case of Ukraine, concerned about the fate of the latter's space and defense industries if not used and/or assisted by the U.S. By giving NPO Yuzhnoye an outlet for its products, the U.S. hoped to prevent the sale of these products and particularly its military technology to 'rogue' countries in the Middle East and other regions of proliferation concern.

At the same time, Ukraine was known to have a nuclear cooperation agreement with Iran, inherited from the Soviet Union, which included delivery of turbines for the Iranian nuclear program. The U.S. Administration, repeating the approach used vis-à-vis Russia, combined the above issues and interests and, in March 1998, after extensive discussions on these matters in relation to political, economic and trade issues, concluded an agreement on the peaceful use of nuclear energy (which compensated Ukraine financially and in kind for the loss of their Iranian contract) and a Satellite Technology Safeguards Agreement which, in the words of the Ukranian foreign minister "pave[d] the way for Ukraine's participation in international commercial space projects including such large ones as the 'Sea Launch' and the 'Global Star'. At the same occasion, U.S. Secretary of State Albright confirmed that the U.S. supported Ukraine's immediate admission to MTCR, stating that "Ukraine's responsible missile non-proliferation policies will allow us to expand cooperation between our space agencies".[165]

164. The fact sheet appeared to mix the two issues: under the heading 'technology controls and export licenses', it stated: "-The U.S. and Ukraine will negotiate a Technology Safeguard Agreement to facilitate the control on transfer of missile technology; -The U.S.and Ukraine recognize that a relationship exists between this agreement and Ukraine's fulfillment of its obligations regarding the transfer of missile equipment and technology ..." (a provision which mandated case-by-case reviews of US export licenses concluded the statement), see *ibid.* It was noted earlier that "[t]he main apparent stumbling block has been a US fear that assisting Ukraine in the development of launcher technology could lead to Ukraine selling missile technology abroad", see Roman Krawec, *supra* note 158, at 113. Note that the National Space Transportation Policy of Aug 1994 in its para. V ("Trade in commercial space launch services") contained the following principle/obligation: "(b) International space launch trade agreements in which the U.S. is a party must be in conformity with U.S. obligations under arms control agreements, U.S. nonproliferation policies, U.S. technology transfer policies, and U.S. policies regarding observance of the Guidelines and the Annex of the Missile Technology Control Regime (MTCR).

165. See Albright remarks at signing ceremony, Kiev, Ukraine (Mar 6, 1998) <http://secretary.

USTR, aware of severe criticism on the part of both McDonnell Douglas and the Florida space establishment, including its Congressional representatives, on this "sell out" of U.S. space launch interests (see Chapter 3.2.3 *supra*), emphasized in its press release the significant benefits of the agreement for the U.S. economy:

"A project such as the Boeing Sea Launch project alone could generate several hundred jobs and could contribute to the conversion of idled domestic military facilities to productive commercial use ... In addition, ... the agreement would further diversify the supply of launch services available to the $4 billion U.S. satellite industry, and would allow that industry to maintain its world leadership position".[166]

Although the Agreement also contained the usual provisions forbidding unfair pricing (with the well-known 15% threshold for GEO/GTO launches), distorting subsidies and government inducements to customers, in order to guarantee a "non-disruptive" entry of Ukraine into the launch market, there is little doubt that the U.S. government weighing the above national security and foreign policy (and satellite manufacturers') interests against the needs and concerns of McDonnell Douglas and the Cape Canaveral supporters, had clearly chosen for the former. And it may be assumed that the U.S. government was not ill-disposed to the establishment of an additional U.S.-led heavy-lift competitor for particularly Arianespace, in late-1995 still the market leader with a share of approximately 60 percent of all international commercial launches.

A more cynical view, not supported by statements of any of the parties concerned, could be that, even if MDD would not survive this additional competition, the Department of Defense's military-strategic need for "assured access to space" would still be met through its "own" Titan IV, the space shuttle and the Atlas sold by Lockheed Martin's ILS.

(And even the use of foreign launch vehicles through either Sea Launch or ILS, though against current U.S. policy, could still be considered on the basis of an exemption by the President in case of overriding national security needs).[167]

In December 1996, Boeing bought McDonnell Douglas, thus adding one of the most successful families of launchers, the Delta, to its "stable" and establishing itself as a mayor player in the domestic and international launch market.

state.gov/www/statements/1998/980306a.html>. The ceremony included an exchange of diplomatic notes calling for the conclusion of an agreement on the protection of Ukranian technology which will be used in space cooperation.

166. See USTR Press release 95-91, *supra* note 163.

167. The 1994 National Space Transportation Policy provides in its para. VI: "(1) For the foreseeable future, United States Government payloads will be launched on space launch vehicles manufactured in the United States, unless exempted by the President or his designated representative", see on this 'fly U.S.' policy, Chapter 3.4.4 *infra*.

Rockwell International Space Systems, the prime contractor and co-operator of the space shuttle, also had an agreement with NPO Yuzhnoye, to sell the *Tsyklon* launcher to Western customers for the launch of small to medium size satellites into LEO. At the end of 1996, Rockwell was bought by Boeing, an acquisition which gave the latter the possibility to - internationally - market the second Ukrainian launcher as well. Ukraine thus made a fast and - thanks to its alliance - smooth entry into the launch market.

3.4 Europe

3.4.1 ESRO, ELDO, ESA and the development of the 'Ariane' launch vehicle

In December 1960, three years after both the Soviet Union and the United States had demonstrated their launch capabilities with the successful launches of Sputnik-1 and Explorer-1 respectively, a group of European scientists and officials from twelve European countries, met to discuss both the impact of this new technology on science as well as the threat of a 'brain drain' towards the United States as a result of the explosive - and attractive - development of science and technology in the latter country. Eleven states subsequently agreed to form a preparatory Commission with the task of setting up an organization for the promotion of space research through cooperation amongst European scientists. It took a number of difficult discussions, negotiations and meetings to arrive at the signing, on June 14, 1962, of the *Convention for the Establishment of a European Space Research Organization*. The Convention entered into force and the Organization, better known under the acronym *ESRO*, came officially off the ground on March 20, 1964 with the following member states: United Kingdom, France, the Netherlands, Switzerland, Germany, Belgium, Sweden, Denmark and Spain[168] With the ratification by Italy total membership came to - and remained - ten Western European states.

The stated purpose of ESRO was "to provide for, and to promote, collaboration among European States in space research and technology, exclusively for peaceful purposes".[169] To that end, the Organization was to carry out a programme of scientific research and related technological activities. Apart from support of research and development as required for its programme and coordination of national research efforts, this also included the task to, among others,

168. See A. Dattner, *Reflections on Europe in Space - the first two decades and beyond*, ESA publ. BR-10, Mar 1982, hereinafter referred to as ESA BR-10, at 5; also Nicolas M. Matte, *Aerospace Law*, Canada (1969), hereinafter referred to as Matte 1969, at 139. Text of ESRO Convention reprinted in Matte 1969, at 382-390.
169. Art. 2 of the Convention.

(a) design and construct sounding rocket payloads, satellites and space probes, carrying instruments provided by Member States or by the Organisation itself; (b) *procure launching vehicles and arrange for their launching;* ... (h) make contractual arrangements for the use of launching ranges for rockets and satellites and other facilities available in Member or other States".[170] (emph. add.)

Additionally, a separate provision on launchings stated:

"1. The programme of the Organisation shall provide for the launching of:
(a) sounding rockets;
(b) small satellites in near earth orbits and small space probes;
(c) large satellites and large space probes.
2. The number of launchings shall be decided by the Council with a view to providing reasonable opportunities for scientifically valuable experiments, devised by Member States or by the Organisation itself, to be carried out."[171]

It should be clear from the above that this scientific research organization was not meant to be involved in (the development of) launchers, except as a customer, for its satellites, and with the exception of its autonomous sounding rocket programme. Thus, where with for example ESRANGE in Northern Sweden ESRO had its own launching facilities for sounding rockets, it relied for the launch of its first scientific satellites on American Scout and Thor-Delta rockets launched by NASA under agreements concluded by the parties in 1964 and 1966 respectively.
The *ESRO-NASA Memorandum of Understanding* (MoU) of 1964 covered the launch of the ESRO I ("polar ionosphere") and II ("solar astronomy and cosmic ray") satellites under a cooperative arrangement between the parties, with each of them bearing the cost of its respective responsibilities and both of them exchanging all scientific information resulting from the program. In other words, under this arrangement, ESRO was not a launch customer but a partner in a cooperative program of space research, responsible for providing the experiment instrumentation, for delivering to the launch site two flight-qualified spacecraft for each mission and analyzing the scientific data, whereas NASA, on the other hand, provided the Scout launch vehicles and conducted the launch operations free of charge[172]

170. Art. 5 of the Convention.
171. Art. 7 of the Convention.
172. See *Memorandum of Understanding between the European Space Research Organization and the United States National Aeronautics and Space Administration* (Jul 8, 1964) in: NASA news release no 67-110 of May 10, 1967 (includes description of the ESRO II spacecraft and subsystems and of the experiments envisaged, and also of the four-stage Scout launch vehicle which at that time had successfully completed 22 of its last 23 flights). The first launch under this program, that of the ESRO-II A on May 29, 1967, was unsuccessful due to failure of the third stage of the Scout rocket, but the remaining three Scout launches did not fail: ESRO-II B, also known as Iris, was successfully put in orbit on May 17, 1968, as

On the other hand, the arrangement of 1966, also in the form of an M.o.U., was the first under which a foreign country or space organization would obtain launchings for its satellites from U.S. launch ranges on a reimbursable basis, in other words the first *sale* of U.S. launch services to a foreign customer. To implement the M.o.U. for each specific launch, separate contracts would be needed setting forth detailed arrangements covering the resposibilities of the agencies involved and - of course - the cost per individual launching.[173]
The first such contract was signed on March 8, 1967 and involved the purchase by ESRO of a Delta launch later that year for the HEOS-A1 "Highly Eccentric Orbit Satellite" at a cost of around US$ 4 million.[174]

In the same half-decennium in which ESRO reached operational status, another European organization was born and developed its first teething problems, to wit the *European Organisation for the Development and Construction of Space Vehicle Launchers*, also known as *ELDO*.
The history of this organization goes back to 1960, the year in which the British government, following a reappraisal of its strategic thinking, decided to terminate the development for military purposes of its 'Blue Streak' missile, and invited a number of European countries to consider the joint construction of heavy satellite launchers for peaceful space exploration, using 'Blue Streak' as a first stage. France, already at that time very much aware of the need for France and other European countries to have autonomous access to space, reacted with the offer of its 'Véronique' rocket, at that time close to completion and capable of launching light satellites, for the second stage of the proposed launcher. In early 1961, at a Conference in Strasbourg, a number of principles were agreed upon with respect to the organization's aims and purposes: thus, the first programme of the Organization would be the

the first European satellite in that lofty position, followed by ESRO-I A ("Aurorae") on Oct 3, 1968 and ESRO-I B ("Boreas") on Oct 1, 1969, see *Twenty years of cooperation in space '64-'84*, an ESA Report, Netherlands (1984), hereinafter referred to as ESA report 64-84, at 3-5.

173. See *Memorandum of Understanding between the European Space Research Organization and the National Aeronautics and Space Administration concerning the furnishing of satellite launching and associated services* (Dec 30, 1966) in: Yearbook of Air and Space Law 1967, Ed. in chief Rene H. Mankiewicz, McGill Institute of Air and Space Law, Canada (1970), at 346-348; NASA news release no 66-332 (Jan 4, 1967) ("ESRO plans purchase of launch services from Space Agency").

174. See NASA news release no 67-48 of Mar 8, 1967. On the politico-legal basis of the 1966 M.o.U. the following launches of ESRO satellites took place:
-December 5, 1968, successful launch of HEOS-1 by Delta rocket;
-January 21, 1972, successful launch of HEOS-A2 by Delta-rocket;
-March 12, 1972, successful launch of TD-1A by Delta rocket;
-November 22, 1972, successful launch of ESRO-4 by Scout rocket. In fact, in the absence of a European launcher, US Delta rockets would be used by ESRO and its successor ESA up to and including Jul 1978, and, because of the failure of the first operational flight of the all-European Ariane rocket in Sep 1982, a last Delta launch would be required in May 1983, to orbit the European Exosat satellite, see ESA report 64-84, supra note 112 *ibid.*

development of a three-stage launcher and an initial series of satellite test vehicles; the British and French governments would build the first and second stage respectively, and would offer the organization free of charge the know-how already acquired by them in this field; test firings of the rocket, dubbed "Europa 1", would take place at Woomera in Australia; the rocket would be used for peaceful purposes only;[175] all technical information, generated by the Organization's work would be freely available to all members; and close cooperation would be sought with the European Space Research Organization *in statu nascendi*.[176]

The ELDO Convention itself was signed one year later, in London on March 29, 1962 and entered into force on February 29, 1964.[177] The stated aim of ELDO was the development and construction of space vehicle launchers and their equipment suitable for practical, and explicitly only peaceful, applications and for supply to eventual users.[178]

The parties to the Convention, the United Kingdom, France, Germany, Italy, The Netherlands, Belgium and Australia committed themselves to participation in the so-called "initial programme", *i.e.*, according to art. 16 of the Convention, the "design, development and construction of a space vehicle launcher using as its first stage the [British] rocket "Blue Streak" and with a French rocket as its second stage".

The Organization, once officially established, was to continue the study of future possibilities and the need for launchers and ranges and to report on its studies to the ELDO Council after two years.

The preamble to the Convention conveyed both lofty principles and - in view of American and Soviet successes in the field - a sense of urgency with respect to the (coordination of the) activities as envisaged:

"The States parties to this Convention;

175. The notion of 'peaceful purposes', used in connection with outer space activities, had been introduced in United Nations parliance as early as November 14, 1957, when the General Assembly, inspired - and scared? - by the Sputnik launch one month earlier, adopted its Resolution 1148 (XII) on disarmament, which urged the States concerned to reach a disarmament agreement which, *inter alia*, would provide for the joint study of an inspection system "designed to ensure that the sending of objects through outer space shall be exclusively for peaceful and scientific purposes ...". The establishment of the U.N. Committee on the Peaceful Uses of Outer Space in 1959 and all resolutions and space-related treaties emanating from that body in the following years further confirmed and integrated the concept of 'peaceful uses of outer space' in international politico-legal thinking; see for an early discussion of (the interpretation of) 'peaceful purposes' Matte 1969, supra note 168, at 261-285; for the texts of the various U.N. resolutions adopted in the late fifties and early sixties on the subject, *see id.*, at 363-381.
176. See ESA report 64-84, *supra* note 172, at 114-115.
177. Text reprinted in Matte 1969, *supra* note 168, at 391-405.
178. Art. 2, ELDO Convention, *supra* note 177.

- conscious of the role which space activities are destined to play in the progress of science and technology;
- convinced that a common effort undertaken without delay holds the best promise of achievements in keeping with the creative capabilities of their countries;
- desiring to harmonise their policies in space matters with a view to common action for peaceful purposes;
- having decided to co-operate in the development of space vehicle launchers and to study their scientific and commercial application; (emph. add.) have agreed ..." etc.

Apart from a provision which granted the members the right to procure the launchers from the Organization for their own peaceful use at reasonable cost, the Convention, in its articles 10 and 11, paid some further attention to the commercial aspects of the venture:

"Member States which propose to exploit commercially, either alone or in conjunction with non-Member States, a space vehicle launcher jointly developed under a programme of the Organisation shall give to all Member States which have contributed to the cost of that programme an opportunity to participate in such exploitation on reasonable terms". (art. 10)

"The conditions for delivery to States which are not Members of the Organisation, or to international organisations, of launchers and equipment developed by the Organisation shall be decided by the Council in accordance with the provisions of Article 14 of this Convention" (art. 11)

Article 14 required a unanimous vote in the Council for a decision on the delivery of launchers and equipment to third parties, no doubt because of the military-strategic importance of these 'dual use' goods.

"Europa 1" was to be a truly international venture. Thus, where the Convention specified that for the execution of the 'initial programme' a British first stage and French second stage rocket would be used and the development firings of the first stage and of the complete launcher would be conducted at Woomera, Australia, a Protocol annexed to the Convention entrusted responsibility for the design, development and construction of the third stage of the launcher to Germany, the first series of satellite test vehicles, including the electronic equipment contained therein, to Italy, the down range ground guidance stations to Belgium, and the long-range telemetry links, including associated ground equipment to the Netherlands.[179]
The performance aims of the launch system to be developed, as proposed by the French and the British in 1961 and accepted for the Initial Programme, ranged from putting a large satellite of mass between 500 and 1000 kg into near-earth orbit, with the primary purpose of making astronomical observations

179. See ESA report 64-84, *supra* note 172, at 24.

above the earth's atmosphere, to launching a satellite of the order of 50kg mass, in a high eccentric orbit reaching out to about 170.000 km, to carry instruments for the study of the sun's atmosphere.[180] Although, as we saw earlier, close cooperation with ESRO was supposed to be one of its guiding principles, there is no indication that ELDO, for the purpose of meeting customer needs with the right launcher, at that early stage actually consulted - in any structural way - with the ESRO scientific community to ascertain what the latter's priorities were. (It is open for debate to what extent this lack of contact between the European launch provider-to-be and its potential European customer had its roots in the different backgrounds and frames of reference of the initiators, to wit military (ELDO) and scientific (ESRO)).

The Initial Programme aimed at launching a first satellite into orbit in 1968, but technical, organizational and financial difficulties caused delays right from the start, resulting in revisions of (parts of) the programme and of its execution schedule. Nevertheless, a number of successful firings of the 'Blue Streak' first stage took place in 1964 and 1965, followed by two equally successful launches of the complete three-stage launcher in 1966. In that same year, the first Conference of ELDO Ministers decided to redirect the programme towards the construction of a more powerful launcher, the "Europa II", capable of placing in geostationary orbit satellites of approximately 200 kg mass, which seemed better suited to future European requirements, particularly in telecommunications.[181]

It should be noted here that this shift from pure science programme oriented performance aims to ojectives related to application satellites was to a large extent influenced by the progress made in the United States in the field of communications satellites, and by Europe's involvement in the internationalization of the US system. Thus, when the United States, in 1962, proposed to create an international space telecommunications organization, Intelsat, their European counterparts felt the need to draw up a common European policy for the impending negotiations with the U.S. The ensuing European Conference on Satellite Communications (CETS), which held several meetings in 1963 and 1964 to coordinate the negotiating positions of the individual European countries, did indeed create a single European voice in the negotiations. These culminated, in August 1964, in the signing of the Washington Agreement, creating the Intelsat Consortium or Interim Intelsat which later, in 1971, became the definitive International Telecommunications Satellite Organization, after lengthy negotiations (in which CETS again tried, but with much less success, to play a coordinating and unifying role.[182]

180. *Id.*, at 115.
181. *Id.*, at 25.
182. See Michel Bourely, *l'Agence Spatiale Europeenne,* 1 Annals Air & Space L. 183-196 (1976), hereinafter referred to as Bourely, at 188.

After the conclusion of the Intelsat Interim Agreement, the European side realized that, given the technological monopoly of the United States and its understandably dominant position in the interim Intelsat Organization through its domestic company Comsat Corporation, the adoption of a European communications satellite *programme* would bring about European solidarity in this field and a stronger European position vis-à-vis its Intelsat partners. Thus, in 1966, CETS mandated ESRO to conduct a detailed technical study of the project and to collaborate with ELDO as far as the resulting launcher requirements were concerned. Various committees of CETS at the same time studied the institutional, technical and economic implications of the project.

As a consequence of the Europa II decision, the initial cost estimate (of Europa I) of US$ 210 million at 1962 rates, was raised to US$626 million.The Europa II mission - launching satellites into geostationary orbit - required a new launch base close to the Equator. For that purpose ELDO concluded an agreement with France to build such facilities in French Guyana.

The - only partially successful - test launchings in the following three years - 1967-1969 - brought ELDO further cost escalations and delays. The fact that each national government was responsible for its own contribution to the launcher and that the Secretariat of the Organization did not have clear overall managerial responsibility for the whole programme, undoubtedly contributed to the malaise.[183]

Still, in the face of growing European interest in an autonomous communications satellite programme, the ELDO Ministerial Conference decided in 1969 to undertake the definition phase of a new European launcher, capable of placing 750 kg into geostationary orbit, "Europa III". However the consecutive failures of the eighth test launch of Europa 1 in July 1969 and of the ninth one year later (the last launch from the Woomera base), and the failure of the first and only test launch of the Europa II rocket from the new launch base in Kourou, French Guyana, on November 5, 1971, gave further food to already existing doubts among a number of ELDO members about the wisdom of building launchers specifically for European use, particularly where

183. Much later, in 1988, ESA's Director of Space Transportation Systems put it this way: "The decision to build a three stage launcher using existing nationally developed rockets for the first two stages turned out, in retrospect, to be a flawed concept ... and from the demise of that concept, it was clear that the essential problem lay in the lack of an integrated approach to the development of a launcher rather than the lack of technical competence, within Europe", see Reaching for the skies, *supra* Ch. 2 note 142 at 1. In fact, already in 1966, the UK, under a sceptical labour government, made it clear that, for European launch needs, it favoured reliance on the U.S. 'Europe I', in the British view at the time, would be obsolescent and uncompetitive in cost and performance with launchers produced by the U.S. by the end of the decade, see ESA HSR-18, *supra* Ch. 2 note 7, at 12.

- in comparison - decently prized alternatives were apparently available across the Atlantic.
The United Kingdom in particular, in - as early as - 1968, appeared to have lost its interest in the progressive development of this venture beyond the first phase because of the level of (additional) expenditure required and the uncertainty of a reasonable economic return on its investment.[184]

With three European institutions, ESRO, ELDO and CETS, involved in - partially overlapping and financially competing - space activities, an understandable need for a form of coordination of both policies and programmes was felt and at first voiced at the 1966 Conference of ELDO Ministers.[185]

Two meetings of European ministers responsible for space matters, the *European Space Conference,* followed, and the latter one, attended by all members of the three institutions, in Rome, July 1967, passed two important resolutions concerning the future of the European space effort:
a) the European Space Conference (ESC) would become a permanent body and meet at least once a year at ministerial level to work out and ensure the implementation of a coordinated European space policy;[186]
b) a programme committee was established to draw up an inventory of European space programmes, resources and facilities and to draft proposals for the establishment of a coordinated European space policy.

However, in the four years that followed, it proved impossible for the ESC committees and ministers to agree on an overall European space programme;

184. See Matte 1969 *supra* note 168, at 146. The same author, observing that cooperation between the member states was not achieved without difficulty, also refers in this connection to the U.K.'s problems with the level of its - financial - participation in the Organization, *i.e.* 38.7 % at the outset, which was later reduced to 27%; as of June 10, 1966 the following shares - in percentages - were allotted to each of the participants: Germany 27, U.K. 27, France 25, Italy 12, Belgium and the Netherlands together 9, *ibid.*
185. An insider put this need for coordination substantially stronger, referring to "a total absence of institutionalized coordination between them" and asking the rhetorical questions "What's the use of making satellites without making sure that one has the means to launch them". What's the use of developing launchers without being concerned with finding payloads for them? And what's the use of trying to establish a European stand on world telecommunications as long as Europe hasnot demonstrated that she can make something herself in this field?" It was an illusion, according to the same author, to expect effective harmonization of the activities of the three institutions concerned with neither the same goals nor the same membership, unless the problem would be addressed on a political level, leading to a complete and coherent European space policy, see Bourely, *supra* note 182, at 189 (free translation from French).
186. See - for French text of the respective resolution - Tractatenblad van het Koninkrijk der Nederlanden (Netherlands Treaty Series), hereinafter referred to as NL Trb (1969), 51; participants in the ESC were: Australia, Belgium, Denmark, Germany, France, Italy, Netherlands, Norway, Spain, Vatican State, United Kingdom and Switzerland.

this was mainly due to disagreement on launchers, application satellites, and the extent to which Europe should accept an offer from the USA to participate in the so-called 'post-Apollo' programme.[187] The above coincided with the difficulties experienced *within* the three separate institutions on programmes, organizational matters and, particularly, financial issues, which all combined in making progress slow.

A particularly thorny question within ESRO turned out to be the wish of some member states to adapt the pure science orientation of the Organization to these countries' fresh interest in meteorological and communications satellites, both fields of space applications in which the USA had a clear headstart. The Convention's clear focus on science and science alone would in that case require a drastic revision of its provisions, particularly as, contrary to the existing framework, member states would then have the opportunity to participate only in such application programmes as they considered of interest to themselves.

On December 20, 1971, the ESRO Council adopted a resolution calling for an amendment of the Convention to reflect this reorientation (from Organization-wide, obligatory and purely scientific activities to the development of application satellites in the framework of 'special projects' or optional programmes), and in November 1972 the Council approved the revised Convention.

In the mean time, the European Space Conference, at its third meeting in 1968, concerned about the effect of the various CETS activities in the field of European communications satellites on the other European institutions, had decided to take this matter out of CETS' hands and refer it to ESRO and ELDO for concerted action. CETS consequently ceased all activity in 1970.[188]

The 1971 decisions of the ESRO Council on the Organization's reorientation removed one of the major stumbling blocks for ESC agreement on a European space programme and on 20 December 1972, the European Space Conference decided that a new organization should be formed by amalgamating ESRO and ELDO.

The need to integrate national space programmes into a *European* space programme and to strengthen European co-operation in space research and technology and their space applications and the high cost involved in any space activity of substance made the establishment of this single European space organization a logical step.

As for the European space programme, the following projects were selected:

187. See ESA report 64-84, *supra* note 172, at 28.
188. *Id.*, at 26-27.

- Spacelab, the European contribution to the U.S. post-Apollo programme
- a maritime navigation satellite project, later called Marots, and
- *a new European heavy-lift launcher project*, as proposed by the French government,[189] called *Ariane*,[190] to replace the Europa III project of ELDO.

These projects came on top of the programmes which ESRO in its new set-up had committed itself to, with a strong - though not exclusive - emphasis on application satellites, namely Aerosat (aeronautical navigation), Meteosat (meteorological services) and OTS (telecommunications). 'On top of', because, for many years to come the new European Space Agency (ESA) would *de iure* not come into existence, which left 'revised' ESRO, on which the ESA constitution was modelled, as the formal entity charged with executing all European space programmes decided upon by the European Space Conference.

Both from the political and the industrial/economic point of view the Ariane decision was a sensible one: if Europe was to ensure its independence from those nations that had a launch capability and take its share of the international applications satellite and launch services market, it needed to possess its own competitive launcher. As we saw above, in Chapter 2.1.1.2, the U.S attitude vis-à-vis Europe, and more in particular the conditions it continued to attach to the provision of American launch services (as the French and Germans experienced with their Symphonie project and the application of the U.S. launch assurance policy of 1972), had made it abundantly clear that, for 'assured access to space', Europe had to 'go-it-alone'.

The December 1972 decision of the ESC to approve the carrying out and management, within the - temporary - framework of ESRO, of the Ariane development project meant not only the end of the Europa III programme, but also of Europa II, which now - in isolation - didnot make much sense anymore; without these two programmes, ELDO thus lost it 'raison d'etre' and, for all practical purposes, ceased functioning, though the Organization formally continued to exist until the entry into force of the ESA Convention in 1980.

189. At the ESC meeting, the French minister responsible for space affairs had declared his Government's interest in a European launcher programme, proposing that France should provide the main part of the funding for, and assume the risks inherent in, the development of a launcher of the same capacity as the Europa III. France also suggested that the other partners in the ESC should fund at least 40% of the launcher development, see ESA BR-10, *supra* note 168, at 27.

190. Ariane derives its name form Ariadne, Ariane in French, who, in Greek mythology, was the daughter of King Minos of Crete. She feel in love with Theseus and provided him with the thread which he used to find his way out of the Minoan labyrinth after slaying the monstrous Minotaur. "The modern Ariane takes satellites beyond the clutches of Earth's gravity, and Europe out of the labyrinth of dependency on others for launches", as ESA's Director of Space Transportation Systems put it poetically in 1988. See Reaching for the skies, *supra* note 142, at 1.

A further ESC meeting in July 1973 cleared the way for the conclusion, on September 21, 1973, of the "*Arrangement between certain European Governments and the European Space Research Organisation concerning the execution of the Ariane Launcher Programme*".[191]

The Ariane 1973 Arrangement distinguished two phases in the execution of the programme, a *development* phase and a *production* phase, the latter to be decided upon at a later date.
The first phase, according to article 1 of the Arrangement, involved the development, including qualification, of launcher Ariane, "intended to place payloads of the order of 1500 kg in a transfer orbit and, with the assistance of a suitable apogee motor, to place satellites of the order of 750 kg in geostationary orbit".
The development phase was to be executed within the framework of ESA, but pending the official establishment of that Agency this phase would be undertaken within the framework of ESRO, and ESRO rules and procedures would apply to all activities concerned.
Through the medium of ESRO, the participants entrusted the French Space Agency, the Centre National d'Etudes Spatiales (*CNES*)[192] with the execution of the development phase, and ESRO with the control of this execution.

191. Hereinafter referred to as the (Ariane 1973) Arrangement, NL Trb (1974) Nr. 192. The Arrangement was, by virtue of its art. 16, open for signature by the Member States of the European Space Conference from Oct 15, 1973 to Nov 30, 1973. At the end of November the following governments had signed the Arrangement: Germany, Belgium, Denmark, France, Italy, Netherlands, Sweden, Switzerland and the Director-General of ESRO. By virtue of art. 16, the Arrangement entered into force on December 28, 1973 for Germany, France and ESRO, the former two participants representing more than 75% of the total weight of the votes based on the amount of - financial - participation in the programme (France 62.5, Germany 20.12%); Spain (participation 2%) acceded to the Arrangement om May 28, 1974, and ratifications by the following signatories formalized their participation: Sweden (1.10%) Jun 4, 1974, Switzerland (1.20%) Apr 29, 1975, Italy (1.74%) Oct 27, 1975, Netherlands (2.00%) Feb 6, 1979, followed by Belgium (5.00%) and Denmark (0.50%), see NL Trb (1974), Nr. 192, NL Trb (1979) Nr. 23 and NL Trb (1980) Nr. 4.
The exact date of the above ESC meeting, July 31, 1973 is considered - by ESA - the birthdate of Ariane, see (9) Reaching for the skies (1993), ESA's qua[r]terly publication on space transportation systems, hereinafter referred to as ESA transportation quarterly, editorial by the Director of space transportation systems, at 1: "On 30 July [1993], the 'Ariane Family' celebrated the 20th anniversary of the decision to embark on the Ariane programmes. This decision was made on 31 July 1973 in Brussels after a major struggle between the European ministers responsible for space".

192. A public scientific and technical establishment, CNES started its activities in 1962, and has since been responsible for implementing French space policy. CNES operates the Toulouse Space Centre (its main technical centre) and the Guyana Space Centre in Kourou. CNES has management responsibility for the major French space programmes in the industrial sector, acting as prime contractor for research and development projects and directing the operational systems, see *Ariane, the European launcher*, brochure Arianespace, 5th edition (1990).

The Arrangement created a Programme Board, composed of representatives of the participants, with overall responsibility for the programme.
The tasks of the Programme Board were to:
a) control the implementation of the programme,
b) monitor overall performance of the launcher,
c) be kept informed of the distribution of the work among participants, and act as an appeal body for unhappy participants in this connection,
d) approve the CNES launcher flight qualification report,
e) lay down terms/conditions for participation by non-member states, and
f) ensure that the Organisation establishes efficient coordination with the potential users of the launcher and defines the launcher and the payloads interface specifications.

As for the *production phase* of the programme, it was also the task of the Programme Board to establish the elements necessary for the decision by the participants to eventually proceed to that phase. The participants in *that* phase would have to conclude a new arrangement concerning content, financial aspects and work distribution.[193]

The nine participants, willing to contribute their (financial) resources to - at least the first phase of - the execution of the Ariane launcher programme, i.e. France (by far the main contributor), Germany, Belgium, Spain, Netherlands, Italy, Swizerland, Sweden, and Denmark, committed themselves to two main objectives:

1. "...to give Europe a capability on its own at the beginning of the 1980's for placing in orbit geostationary satellites [of the order of 750kg], developed within the framework of [ESRO] or of the European States".

With the Ariane launcher, the participants aimed at a potential market of 35 to 50 satellites that European studies at that time foresaw for the decade - to - come, consisting of purely European satellites, European satellites forming part of a world-wide system (the Intelsat Organization had ambitious goals for the attainment of which an extensive series of satellite launchings were a prerequisite!), and satellites for third-party requirements.

2. "... to define the launcher and organise its production in such a way as to achieve an economically competitive production cost".

These cost were estimated on the basis of (an assumption of) two launches per year and "reasonable grouping of orders"; to this cost had to be added the cost

193. See artt. 4 (Programme Board) and 5 (production phase) of the Arrangement. The new Arrangement took the form of a Declaration and was concluded in 1980, see *infra* (text to) note 199.

of transport to the Guyana launch base of propellants and of the launch team, whereas the portion of the maintenance costs of the Guyana Space Centre chargeable to the launch cost of a launcher would be the subject of a separate arrangement.[194]

The use of the Guyana Space Centre came under article 12 paragraph 2 of the Arrangement which provided:

"Participants that own facilities that could be used for the purposes of the Ariane programme undertake to make them available for the said programme, on financial conditions limited to marginal cost reimbursement".

To that effect France and ESA signed an agreement on May 5, 1976, which detailed the rules for the utilization of the said space centre and its launch pad.[195]

The planners saw a half year definition stage, beginning on July 1, 1973, followed by seven years for the actual development of the launcher, culminating in two development firings and two qualification firings.
Thus, in the period 1979 to 1981 four test flights were carried out, the last one in December 1981 successfully orbiting a maritime satellite; whereupon the Ariane Programme Board declared the launcher, Ariane 1, to be operational.[196] It was calculated that Arianespace would, provided it would have sufficient capital and maintain a reasonable pricing policy, make a profit if an average of 4 launches per year over a 7 year period ($\pm$ 30 launches from 1983-1990) could be attained.

Even before the first test flight had taken place, the Agency,[197] in April 1978, had decided to manufacture and launch a first series of operational launchers, known as the 'Promotion Series', this in order to avoid a hiatus between the end of the development phase and the operational launches.[198]

194. See Annex A to the Arrangement, *supra* note 191.
195. See ESA Council doc ESA/C (76) 39; this agreement, also known as the CSG Agreement,which also included provisions on the role CNES would play with respect to the management of the space centre, was to last until end 1980. Since then several protocols signed roughly every 2 years have extended the agreement to cover further periods.
196. The following test launches took place:
Dec 24, 1979, launch of the L 01 with the CAT Ariane technological capsule; May 23, 1980, launch (failure) of the L 02 with CAT, Oscar 9 and German Firewheel satellite; Jun 19, 1981, launch of the L 03 with CAT, Meteosat 2 and Indian Apple satellite; Dec 20, 1981, launch of L 04 with CAT and Marecs A satellite, see ESA report 64-84, *supra* note 172.
197. As from May 31, 1975, ESRO had adopted the new name of European Space Agency.
198. See ESA report 64-84, *supra* note 172, at 121. The manufacture of a 'complete' Ariane was a 3 year process, so to have launchers produced in time for the market in the early 1980's, a decision at the end of the 1970's was necessary. In fact, the talks started already in 1976,

Moreover, since it was felt that ESA's (development-)role did not make the Organization a suitable candidate for the actual manufacture, marketing and launch of the Arianes, the ESA Council also decided to entrust these activities, for operational launches *after* the Promotion Series, to a private company set up specifically for that purpose: *Arianespace.*

To implement the above decisions and clarify the envisaged relations between the Parties in the Ariane 1973 Arrangement (and other interested Governments), ESA and Arianespace in this 'production phase', the national Governments concerned, "the Participants", signed a *Declaration relating to the Ariane Launcher Production Phase in 1980,* detailing the commitments of the Participants vis-à-vis Arianespace, the mission they entrusted to ESA, and the obligations they expected Arianespace to accept in connection with its challenging role as a private company selling launch services on their behalf.[199]

The Convention for the establishment of the European Space Agency had in the mean time been opened for signature on May 30, 1975, and signed on that same date by Belgium, Germany, Denmark, France, Italy, Netherlands, Spain, United Kingdom, Sweden and Switzerland.
The Convention entered into force with the tenth ratification by France on October 30, 1980,[200] thereby *formally* establishing ESA, but this did not prevent the members of ESRO and ELDO during those five years to use ESA as the *de facto* single space organization of Europe and adhere, to the greatest extent practically possible, to the provisions of the ESA Convention. In fact, immediately after the above 1975 Conference, the ESRO Council decided to change the name of ESRO and to execute, as from May 31, 1975, its activities under the name 'European Space Agency'[201] and the Acting Director General

but proved very difficult for 2,5 years, mainly because several member states were not prepared to pre-pay for the production of the launch vehicles when there was no certainty that, some years later, there would be any outside customers.

199. The *Declaration by Certain European Governments relating to the Ariane launcher production phase*, hereinafter referred to as the Ariane Production Declaration of 1980, ESA Council doc. ESA/C (80) 8, was opened for signature on Jan 14, 1980; it was subsequently subscribed to by the following nine States: France Mar 19, 1980, Belgium Apr 9, 1980, Sweden Apr 10, 1980, Germany Apr 14, 1980, United Kingdom Apr 14, 1980, Italy May 9, 1980, Spain May 31, 1980, Denmark Mar 3, 1981, Netherlands Nov 17, 1982; by virtue of its art. 4.3 (a) it entered into force on Oct 30, 1980, the date on which the ESA Convention entered into force. See - also for French/Dutch text, incl Annexes on initial Ariane launch prices as per art. 1.5 (b) and on fees to be paid by Arianespace per launch for the use of the CSG as per art. 3.5 of the Declaration - NL Trb (1982), Nr. 1; see also for French/English text without Annexes, 6 Annals Air & Space L. 723-737 (1981).

200. The ratification process was slow as the following dates show: Sweden Apr 1976, Switzerland Nov 19, 1976, Germany Jul 26, 1977, Denmark Sep 15, 1977, Italy Feb 20, 1978, United Kingdom Mar 28, 1978, Belgium Oct 3, 1978, Netherlands Feb 6, 1979, Spain Feb 7, 1979, France Oct 30, 1980, see NL Trb (1980) Nr. 198.

201. For - French - text of this Council Decision of Apr 16, 1975, see NL Trb (1976) Nr. 33.

of ESRO was designated as the first Director General of ESA. Again, the ESRO Convention remained the legal basis for the *de facto* functioning of the new Agency until October 30, 1980.

On that date, by virtue of articles 19 and 21 of the ESA Convention, the Agency took over all rights and obligations of both ESRO and ELDO, which latter Organizations at the same time ceased to exist through the termination of the respective Conventions.

The 10 founding members of ESA were joined by Ireland and finally, in 1987, also by Austria and Norway. Finland, after many years of associate membership, became the Agency's 14 th member on March 22, 1994.

As for the purpose of ESA, we may quote article 2 of the Convention in full:

"The purpose of the Agency shall be to provide for and to promote, for exclusively peaceful purposes, co-operation among European States in space research and technology and their space applications, with a view to their being used for scientific purposes and for operational space applications systems:

(a) by elaborating and implementing a long-term European space policy, by recommending space objectives to the Member States, and by concerting the policies of the Member States with respect to other national and international organizations and institutions;

(b) by elaborating and implementing activities and programmes in the space field;

(c) by coordinating the European space programme and national programmes, and by integrating the latter progressively and as completely as possible into the European space programme, in particular as regards the development of applications satellites;

(d) by elaborating and implementing the industrial policy appropriate to its programme and by recommending a coherent industrial policy to the Member States".

3.4.2 ESA's European launcher policy

By virtue of the above provision, ESA is responsible for research and development activities associated with space systems, including the development of launchers.
With respect to the latter, article VIII of the Convention defines the obligations of the Agency, within the framework of its programmes, and of the States participating in those programmes, with respect to the use of the European launchers or space transportation systems:

"1. When defining its missions, the Agency shall take into account the launchers or other space transport systems developed within the framework of its programmes, or by a

Member State, or with a significant Agency contribution, and *shall grant preference* to their utilisation for appropriate payloads if this does not present an unreasonable disadvantage compared with other launchers or space transport means available at the envisaged time, in respect of cost, reliability and mission suitability.

2. If activities or programmes under Article V include the use of launchers or other space transport systems, the participating State shall, when the programme in question is submitted for approval or acceptance, inform the Council of the launcher of space transport system envisaged. If during the execution of a programme the participating States wish to a launcher or space transport system other than the one originally adopted, the Council shall make a decision on this change in accordance with the same rules as those applied in respect of the initial approval or acceptance of the programme". (emph. add.)

This 'Ariane preference provision' continues, up to the present day, to be the backbone of European 'internal' launcher policy, aimed at safeguarding the means of Europe's autonomous access to space. Further, the States participating in Ariane, in an effort to ensure that Europeans buy - and influence others to use - European launchers, made the following commitment in the Ariane Production Declaration of 1980 on *preferential use*:

"[1.4.] (a) The participants declare that the Ariane launcher will be used for the Agency's activities in conformity with the provisions of article VIII.1 of the ESA Convention.

(b) The participants agree to take the Ariane launcher into account when defining and executing their national programmes and to grant preference to its utilisation except where such use compared to the use of other launchers or space transport facilities available at the envisaged time is unreasonably disadvantageous with regard to cost, reliability or mission compatibility.

(c) The participants will endeavour to support the use of the Ariane launcher within the framework of the international programmes in which they participate and shall consult together to that end".

On the assumption that the Participants' unilateral declaration under (a) above, though not directly committing *ESA* to act in conformity with article VIII.1 of the Convention as quoted, does oblige the *Participants* in their capacity of ESA members to make the Agency act accordingly, and given the relative inescapability of the use of Ariane launchers for national space programmes, taken together with the participants' commitment under suparagraph (c) with respect to other - potential - international Ariane users (such as Intelsat, Inmarsat, (Interim) Eutelsat and - later - Eumetsat), this provision opened in principle a world-wide client base to the - preferred - product of Arianespace.

In principle, because this 'buy European' clause does not *guarantee* that, where Europeans are involved, only Arianes will be used for 'their' national and international (including ESA) launches.

First, some Participants made reservations (re-)introducing an element of competition or at least taking away the suggestion of automatism in the granting - by or through Europeans - of launch contracts to Arianespace. The Unted Kingdom, for example, declared upon signature of the Declaration

"... that in the view of the United Kingdom in relation to paragraph 1.4 (a) of the Declaration there should be no commitment by the European Space Agency with regard to its programmes and activities to use Ariane where its price is more than 125% of the cheapest alternative launcher, and that before a launcher is chosen there will be a thorough assessment of the advantages and disadvantages of using Ariane compared with other launcher systems".[202]

It is believed that this latter approach, for a number of - early - years, was the tacitly agreed one within ESA.

And as for their commitments with respect to national programmes, both Germany and Spain made clear that these could only apply to *governmental* programmes, leaving in principle private national entities free to contract with Ariane's competitors. Germany said:

"... the Government ... confirms that with regard to the procurement of Ariane launchers by German users the preference for Ariane launchers will be exercised in the spirit that the [German] Government will do its best, subject to its legal possibilities".

And Spain declared:

"... The undertaking assumed in accordance with paragraph 1-4-b will be applicable only to those programmes under the responsibility of the Spanish Government".[203]

The above German reservation, and particularly the notion of the government's 'legal possibilities', was put to the test in 1991, when Germany's state-owned telecommunications agency *Telekom*, after a bidding contest which pitted Arianespace against McDonnell Douglas, finally choose the latter company for the launch of its DFS 3 Kopernikus communications satellite. Telekom, with - one must assume - the support of the German government, maintained that, though having a semi-governmental status, it could take the above decision as a privately run company and without government interference; the Delta launcher was chosen on the basis of its - apparently substantially - lower price. Arianespace's view was that Telekom's links to the Deutsche Bundespost, the official government communications entity, made the contract a governmental matter outside the scope of the private commercial satellite (launch) market, creating the expectation that the Ariane rocket would be chosen, particularly

202. See NL Trb (1982) Nr. 1, at 10.
203. *Id.*, at 10-11.

as two earlier DFS launches, in 1989 and 1990, had been Ariane launches. A Telekom spokesman at the time conceded that, as a general principle, with all things equal they would have chosen Ariane.[204]
The United Kingdom reportedly maintained the - even stricter - position that neither the provisions of the Convention nor the Ariane Production Declaration of 1980, could oblige its Ministry of Defense to chose Ariane for its own missions. Consequently, for the various launches of its Skynet military communications satellites, that Ministry felt free to choose between Ariane or its U.S. competitors on the basis of normal market criteria such as price, time and quality; both Ariane and U.S. launchers have been selected as a result. (For example, in 1990, a U.S. commercial Titan was used for the launch of a Skynet satellite). The fact that Skynet itself was part of the much larger U.S.-U.K military (technology) cooperation may have played a role in taking this approach.[205]

Secondly, the Participants' efforts to have other international space applications organizations in which they participate adopt the Ariane launchers for those organizations' launch requirements could be outvoted by other members and/or 'neutralized' by the procurement provisions or policies of the organizations concerned. Thus, in global organizations, such as Intelsat and Inmarsat, in which the U.S. have a sizeable interest and concomitant voting power, the commercial and political interests of that country may often prevail: in Congressional testimony in 1993, an official of Comsat Corporation, the U.S. representative in both organizations, stated: "... historically, Comsat has worked hard to deliver launch and satellite contracts to U.S. manufacturers ... For example, 71% of all Intelsat and Inmarsat contracts have gone to U.S. companies, along with 58% of the launches ...".[206]

These and the other space organizations have laws and by-laws which contain competition-oriented procurement provisions.

The Eutelsat Convention of 1982, for instance, provides in this respect:

"... the procurement policy of EUTELSAT shall be such as to encourage, in its interests and those of the Parties and Signatories, the widest possible competition in the supply of goods and services ...;

204. See 2 (34) Space News (Oct 1991) at 1, 20 and 2 (36) Space News (Oct 1991) at 4, 21; also 3 (21) Space News (Jun 1992) at 8.
205. And on Aug 27, 1989, the first U.S. commercially licensed orbital launch took place when a McDonnell Douglas Delta launched the British Marcopolo 1 broadcasting satellite, see *Commercial Space Launch Services: the U.S. competitive position*, Report prepared by the Congressional Research Service, Library of Congress to the Committee on Science, Space, and Technology, U.S. House of Representatives, 102nd Cong., 1st Sess. (Nov 1991), at XIII.
206. See Comsat statement, *supra* note 154, at 125.

... procurement of goods and services for EUTELSAT shall be effected by the awards of contracts, based on responses to open international invitations to tender ...;
Contracts shall be awarded in the best interest of EUTELSAT, to bidders offering the best combination of quality, price, delivery time and other important criteria of relevance to EUTELSAT, it being understood that, if there are bids offering a comparable combination of the above-mentioned criteria, contracts shall be awarded with due consideration to the general and industrial interests of the Parties".[207]

Obviously, in the light of the above provisions, Arianespace will have to offer competitive launch contracts to be considered for the job, the more so as the national representatives in the above organizations will receive their - among others *budgetary* - instructions and guidelines from ministries and departments which are not (necessarily) involved in ESA/Arianespace matters.

One may nevertheless assume, on the other hand, that neither Arianespace nor the French government will fail to prevail upon the European organizations involved and their European members to first and foremost chose European when it comes to selecting a launcher, this moral obligation only to be set aside if circumstances leave no other choice whatsoever. Seen in that light, any action considered by Eutelsat or Eumetsat which may be interpreted as a claim for 'free launcher choice' will be viewed (and acted upon) with grave concern on the part of Arianespace and its backers. But, again, circumstances may leave the parties little choice.
Thus, when Eutelsat, in early 1994, had to chose a launch vehicle for the launch in mid-1996 of its - yet to be built - "Hot Bird Plus" direct broadcast television satellite, it professed a strong Ariane preference, but was faced with a full 1996 Arianespace launch manifest; and although Arianespace did its utmost to accomodate Eutelsat, among others by increasing the monthly launch frequency, it was not able to offer Eutelsat a launch on the requested date, and the contract consequently went to General Dynamics; the cited reasons for this choice of the competing Atlas 2A rocket included "the schedule pressures of the Ariane manifest which cause delays and the highly competitive launch service contract offered by General Dynamics".[208]

207. See art. XIV, paras a, b and c, *Convention establishing the European Telecommunications Satellite Organization "EUTELSAT"*, NL Trb (1983) Nr. 96; art XII b ii of the same Convention gives the 'Board of Signatories' the task to adopt procurement procedures, regulations and contract terms and conditions, as well as to approve procurement contracts, whereas art.17 of the so-called 'Operating Agreement' further specifies the rights and obligations of the above Board, including *e.g.* an exception to the rule of open international tendering if "procurement is required urgently in an emergency affecting the operational viability of any activities of EUTELSAT".
208. See 5 (14) Space News (1994) at 3: "Eutelsat people are gnashing their teeth over the fact that if they cannot get an Ariane slot, they will have to use either Atlas, which is of course American, or Proton - for which they would have to sign with an American company, said a European Government official. "It bothers them that they should have to go to California [to LKE International] to buy a Russian rocket", see above Space News. See on Eutelsat's

Reportedly, Eumetsat showed unease over this 'buy European' pressure and, maintaining that it was in its own interest and that of its members to have free competition amongst launch service providers, visited China to talk about possible Long March launches of its meteorological satellites. In the beginning of 1994, they nevertheless committed themselves to have Meteosat 2 preferably launched with an Ariane.

And also ESA itself will not always choose an Ariane for its missions. Thus, in 1993, the Agency selected a Russian Proton for the launch of its Integral (astronomical) science satellite in 2002, as the budget for this science mission did not allow for an Ariane launch: where the Russians offered to launch Integral free of charge in return for Russian astronomers joining the Integral Science team and thus access to the mission's results, the decision was not difficult (although it reportedly drew sharp criticism from the French government).[209]

"Exclusively peaceful purposes"

As we saw earlier, by virtue of article 2 of the ESA Convention the Agency is required to limit itself in the pursuit of all its activities to "exclusively peaceful purposes".

The Ariane Production Declaration of 1980, in its article 1.2, specifies, under the heading "commitments of the Participants", the objective of the production phase, *i.e.*

"to meet the launch requirements of the world market subject only to: (a) the proviso that it is carried out for peaceful purposes in conformity with the obligations under the Convention and with the articles of the [Space Treaty of 1967] (b) ..."

choice also 5 (16) Space News (1994) at 2, and AW/ST (May 2, 1994) at 22.

209. See 5 (18) Space News (May 94) at 20, also for ESA science mission proposal involving use of a Taurus launcher in 2004. The agreement for the Integral launch was finally signed by the Russian Space Agency on Nov 18, 1997, see ESA bulletin No. 92 (Feb 1998). The Exosat launch with a Delta in 1983 could be listed as an other example, although ESA, at the time, had little choice as, due to an Ariane launch failure, a European launcher was simply not available on the planned launch date.
Further, the Cluster 2 mission, consisting of 4 satellites, will be launched in pairs by 2 Russian Soyuz launchers procured through the European-Russian STARSEM consortium. And an ESA-NASA agreement of March 7, 1997 provides for the launch of the Columbus Orbital Facility on the US space shuttle in exchange for ESA hardware and services for NASDA, for the international space station. Finally, by virtue of an ESA-NASA M.o.U. of April 18, 1997, NASDA will launch ESA's Artemis telecommunications satellite, which ESA pays for by providing NASDA with data relay capacity through Artemis, see ESA bulletin No. 90, (May 1997).

A Committee was set up to determine whether, in the case of sales to a non-member State or to a customer that does not come under the authority of an ESA Member State, any such projected sale would constitute use that runs counter to the above provision. A meeting of this Committee on a specific case could result in a prohibition of the sale which would be binding on Arianespace, with France, as the country which under the Space Treaty is responsible for assuring that national activities are carried out in conformity with the provisions of that treaty, being required to undertake the necessary steps to ensure the proper implementation of the prohibition decision taken by the Committee. (see art 1. 6 (a) of the Declaration).

Arianespace, the private company, was also requested to abide by this "peaceful purposes" objective, a commitment which was laid down in a separate Arianespace-ESA Convention of May 15, 1981:

"Arianespace undertakes to conduct this production phase for peaceful purposes in conformity with the obligations of the [ESA Convention] and in conformity with the articles of the [Space Treaty]".[210]

The renewed Declaration of 1990 contains identical provisions, and so does the new ESA/Arianespace Convention of September 24, 1992.

The application of the above provisions could limit Arianespace's acquisition efforts amongst non-ESA member customers to the extent the interpretation of "peaceful" dictates. If, for instance, peaceful would be interpreted as non-military, contracts for the launch by Arianespace of military communications, navigation and remote sensing (spy) satellites would not be allowed. In practice no such problems have arisen and the Committee never convened, because ESA follows the U.S. in interpreting peaceful as "*non-aggressive*", which allows for the launch of NATO and UK Skynet military communications satellites and *e.g.* the French Helios military observation satellite.

The ESA Council, in the course of the years, when discussing or deciding on (the future of) the "European space transportation capability", paid increasing attention to Arianespace's competitive position and - consequently - to both the 'preferential use' provisions on the one hand and the relations with its competitors on the other hand.

An example is the ESA Council of Ministers meeting at The Hague in November 1987, which adopted a resolution on the "European Long-Term Space Plan and Programmes".[211] The prime object of the plan, covering the

210. See art. 3. 1 of the Declaration and art 2 of the Arianespace-ESA Convention, doc ESA/C (81) 11 of 4 Feb 1981.

211. Another part of the resolution dealt with European participation in the U.S. Space Station

period 1987-2000, was for Europe to be able to send human beings into space. This so-called "manned space-capability" was to be built, according to the resolution, on an upgraded version of the Ariane rocket, on the Hermes re-usable space vehicle and on participation in the U.S. Space Station.

As for Europe's competitive position in the launch field, the Council reaffirmed, among others, the objective agreed at its previous (Rome 1985) meeting

"to strengthen the European space transportation capability, meeting foreseeable future user requirements both inside and outside Europe *and remaining competitive with space transportation systems that exist or are planned elsewhere; ...*" (emph. add.)

The Council at the same time expressed its agreement in principle with the undertaking of the Ariane 5 development programme and approved the execution within the Agency of this programme, starting on 1 January 1988.

(The renewed Declaration of 1990, which entered into force May 1992, contains only one amendment to the 'preferential use' provision, *i.e.* the phrase "[t]he participant *will* endeavour to support the use of the Ariane launcher ..." was amended to read" ... *shall* endeavour", which is a correction in wording but not in meaning; the French and Dutch equivalents did not change, "s'efforcent" and "streven ernaar" respectively. In fact the draftsmen did not dare touch this provision because of its sensitivity: the French may have wanted to make the text stronger and more effective, but knew that others, *e.g.* the U.K. and Germany, would strongly resist such efforts.

The ESA Council meeting at Ministerial level in Munich in 1991, whilst - again - reaffirming the above 'space transportation capability' objective, and noting the success of the Ariane-4 operational launches and the progress made on Ariane-5 development, also paid attention to

"the need for a European launcher system, for continuing support to the corresponding production programmes and for *preferential use of this system by European user programmes, ...*" (emph. add.)

Concern over the launch-procurement policies of Eutelsat and Eumetsat, which, as we saw, do not automatically favour Ariane when it comes to choosing launchers for their satellites, but particularly *deep worries over the impending entry of Russia into the international launch market* made the ESA Council in July 1992 establish a "Working Group on Launch Services", which was to

Programme: Council Resolution 10 November 1987, reprinted in *European Space - on course for the 21st century*, ESA publ BR-39, France (1987), hereinafter referred to as ESA BR-39, at 9-13; also in (1) Space Policy 86-89 (1988).

recommend measures to deal with this threat and strengthen Arianespace's position in Europe.
When the Inmarsat Board, in early 1992, discussed the procurement of launchers for its satellites, the U.S. representative proposed to award a number of the launch contracts to Russia. Background for this proposal was - apart from the attractive price of the Russian Proton - the U.S. concern over a 'brain drain' of space technology in general and launch technology in particular from 'cash hungry' Russia to countries whose (thus) increased command of the technologies concerned would pose a security threat to the U.S. and its allies. The European representatives, unpleasantly surprised by this proposal - particularly as the remainder of the launches were to be performed by U.S. launch companies(!) - were able, with the assistance of a number of non-European 'votes', to get a compromise adopted which gave one launch to the Russians, one to a U.S. company and one to Arianespace. This, however, did not in any significant way allay the fears of the ESA countries for the impact Russian entry into the launch market would have on the position of Arianespace.

(It should be noted in this connection that with the advent of the Russians a second 'non-market economy' had entered the launch market: already in 1989 the Chinese had received U.S. blessing to launch a limited number of western communications satellites, and this to the dismay of the Europeans. Additionally already for some time Europe and the U.S. had been engaged in discussions on the establishment of so-called 'rules of the road' which, as far as ESA was concerned should (but didnot!) result in the opening up of the U.S. Government market sofar reserved for U.S. operators only. It was the much smaller, international commercial market in which Arianespace would face additional international competition; a market in which the latter company had to earn the major portion of its living and had obtained a more than 60% share; a market finally, in which the advent of a virtual limitless number of well-proven, powerful, reliable and - most of all - cheap Russian launchers would have a disastrous effect on the preparedness of both parties' international launch customers, the international organizations and individual countries such as Thailand or Saudi-Arabia, to stick to their usual U.S. or European launch providers).

The U.S. and its European counterparts therefore jointly agreed that this Russian entry had to be controlled in such a way that all parties concerned would have time to adjust to the new situation. The U.S took the lead and - as agreed by Yeltsin and Bush - started discussions with the Russians, while the ESA Working Group, with a sense of urgency, developed its findings and recommandations.

The above should be seen in the context of ESA's attitude vis-à-vis Russia in general: in 1991, at its Munich meeting, the Council had already taken account of the "changes that have taken place in the overall political environment in

Europe" and in "the world political context" and the "new financial constraints within the Member States" and had come to the conclusion that "a widened international cooperation with other space powers, in the first instance in Europe" would help ESA to achieve "the best possible relationship between cost and effectiveness requirements"; in other words, in a time of reduced ESA budgets, Russia was seen as a welcome, high-level, low-cost provider of space technology and hardware. And in early 1992, ESA had started discussions with the Russian Space Agency on the latter's participation in a number of joint programs, such as crewed spaceflight. It was logical that ESA's experience with the above Inmarsat/Proton example of Russian market entry brought the launch policy issue into these space cooperation talks.

The Working Group thus had to deal with, what one could call, both the 'internal' and 'external' launch policy. There is nog public report available on the results of its activities.

On October 23, 1992, the Council adopted a *Resolution on European space policy on launch services*.[212] Through this resolution the Council,

"*reaffirming* its conviction that an essential condition of an autonomous, reliable and economical access of Europe to Space is the full access of the European launcher to an international commercial market on which conditions of fair competition prevail, ...
considering that the appearance of factors likely to destabilise the world market for launch services, and in particular the advent of new governmental operators on conditions that do not meet the normal economic criteria of private sector operators, represent further difficulties that could seriously jeopardise the future of the Ariane launchers and their production,
reaffirmed a set of basic principles "which embody Europe's desire to have the means of autonomous access to space", on which European space policy on launch services is based, and
invited the member states to reaffirm these principles "by following a concerted policy and by jointly defining corresponding measures for putting them into effect".

These principles, in essence, boiled down to the following:
- the Ariane launchers constitute a strategic element for Europe's autonomous access to space;
- their availability at the lowest possible cost to ESA and its member states is best served by the widest possible marketing of Ariane around the world; in other words, the more launchers Arianespace sells at acceptable prices the cheaper they become for Europe;
- it is therefore important to ensure "the continued existence of a sufficiently large market" and Ariane's access to that market "on terms that do not penalise it in advance";

212. ESA/C/CIII/Res. 2 (Oct 23, 1992 (Final)).

- in that connection [Ariane 'participants'] grant preference to its utilisation for their national programmes, and
- try (jointly) to get Ariane used in international programmes in which they participate; and
- contribute to the funding of the Guyana Space Centre.

On November 10, 1992, the ESA Council meeting at Ministerial Level in Granada, adopted a *Resolution on the implementation of the European Long-Term Space Plan and Programmes*, which in its Chapter V, entitled "European Launcher Policy", repeated Ariane's status as a "strategic asset providing Europe with autonomous access to space", to be preserved as a "vital component of Europea space policy and of the Long-Term Space Plan", reaffirmed the above space launcher policy principles, invited the Member States to give preferential treatment to Ariane for their own missions and those of European and international bodies in which they participate, in accordance with the Ariane Declaration of May 21, 1992, and to encourage telecommunications satellite operators to do likewise.

The Council finally invited the Director General to contribute to the conclusion of an agreement with the governments of other space-faring nations to ensure fair conditions in the launcher market.

The result was not (yet) an agreement on 'rules of the road' with the U.S., but an EU-Russian launch trade agreement concluded in June 1993.[213]

Further action by the Council to reconfirm/ legally underpin the preferential use concept, in ESA parliance referred to as "European launcher policy", came in early 1994, when, at the SPC meeting of February 22, 1994, "the ESA Executive was asked to provide a brief summary of the Agency's launcher policy".
The issue remains a sensitive one, witness the conspicuous absence of any useful written or oral information on the subject since that year.

3.4.3 U.S.-European 'rules of the road'

Efforts by both parties to arrive at a common understanding on (non-)permissible government involvement in commercial launch activities go back to the TCI case of 1984 in which USTR investigated allegations that Arianespace, through various kinds of subsidization by the European (ESA)

213. See *Commission Proposal for a Council Decision concerning the conclusion of an Agreement between the [EEC] and the Russian Federation on space launch services*, COM(93) 355 final (Jul 22, 1993); on this agreement see Chapter 3.4.3 *infra*.

governments, had been able to 'dump' its launch services on the U.S. market to the detriment of the infant U.S. launch industry.

After that case had come to rest following the U.S. President's 1985 determination that the ESA members' treatment of Arianespace did not differ sufficiently from U.S. treatment of U.S. launchers (primarily the shuttle) to warrant action against the Europeans, both parties retained an interest in discussing each other's practices in order to determine whether these could form the subject of an arrangement curtailing excesses of the other side.[214] Attention focused at first primarily on the matter of subsidization, and, more in particular, on the areas in which and the extent to which such subsidization by the other party could be established, such as, for example, in R & D, launch bases and facilities, and insurance.

The main target on the part of ESA, in the first five years active in this field without asking for or being the beneficiary of European Commission intervention or interest, was the U.S. *civil and military government market* which, through its sheer size and its being off-limits to foreign launchers, in ESA's view was a perfect example of an indirect subsidy. The U.S., in return, continued to be more interested in establishing a pattern of unfair subsidization of Arianespace and, additionally, sought to obtain fair trade commitments from the ESA governments similar to the ones they would impose on China and Russia. (The important difference of course was that it was neither legally nor politically feasible for the U.S. to even try to use its export controls to force the ESA-countries to behave in accordance with U.S.-preferred standards.)

On-and-off contacts of an informational character (each party probably trying to find a weak spot in the defense of the other) did not yield much result, and were in the late eighties overtaken by a number of developments involving the threat of new non-market competitors. In chronological order, the following positions and initiatives were taken.

The Assembly of the Western European Union (WEU) reported in 1987:

"[The Europeans] reproach the U.S. that government launch facilities are put at marginal cost at the disposal of U.S. companies for commercial launches. ... The U.S. in turn have accused Europe of subsidizing launching costs. ESA retorts that in the case of Arianespace the cost of launches is proportionally shared between governments and commercial customers, including the cost of launching facilities. Already in 1985, Europe asked the

214. As USTR's Allgeier noted in testimony at the Congressional launch hearing of 1993, "[n]evertheless, the determination did not endorse European practices and did take note of the lack of international standards for government conduct in the launch services market and the problems which that absence caused", see Allgeier testimony, 1993 Launch hearing, *supra* note 152, at 16.

U.S. to start negotiations for defining new rules for commercial launch competition. No official answer has yet been given but the U.S. is now willing to start negotiations."[215]

And indeed, in June 1987 the USTR called for the opening of discussions to ascertain whether there was a basis for subsequent negotiation of an agreement on rules of the road with respect to launch services.
Europe responded positively, and, at the end of July, an initial consultative meeting was held in Washington and a second one in Paris in October of the same year. The WEU Assembly supported ESA with a recommandation to the WEU Council proposing that the Council:

"[f]acilitate as far as possible operations by the European Ariane launcher to ensure that it has at least a half share of the market for commercial launches, inter alia by:
- concluding without delay an agreement with the United States Government defining principles according to which the cost of commercial launches should take account of the costs borne by the governments, particularly those relating to launch sites;
- making arrangements to avoid having western satellites placed in orbit by Soviet launchers proposed on the world market if such offers continue to be made without reciprocity and at a cost which does not respect commercial principles";[215]

The talks were of a clearly exploratory nature. As an ESA official would later report:

"The talks which began with representatives of the U.S. Administration in 1987 (with the USTR in particular) on commercializing launch services have made it possible to become more familiar with the practices used on either side and to identify the bases for opening negotiations on a common code of conduct ...".[216]

In 1988, the U.S. informed ESA about its dealings with China and informally submitted its draft agreement on trade in launch services to the Europeans. Some discussion took place, not so much on the principle of a controlled entry of China into the international launch market, as on the effectiveness of the provisions embodying that control: for instance, ESA was not very happy with the high number of launches the U.S. was prepared to grant the Chinese and felt uneasy about the vagueness of the pricing provision ('on a par') and the ensuing difficulty to enforce it. Also the clauses on 'behaviour' in the market did not create much enthousiasm on the European side, where such provisions were considered as more appropriate between countries with the same basic market philosophies. ESA would have preferred a simple, low quota.
The Chinese agreement confronted ESA for the first time with the phenomenon of U.S. political expediency vis-à-vis a third country resulting in increased

215. See WEU Assembly Report 1987, at 80.
216. See G. Lafferanderie, *European Space Agency in 1988*, 14 Annals Air & Space L. 491-499 (1989), at 497.

competition for Arianespace in the market place. Its worst fears came true in this respect when, in 1990, Great Wall Industry of China had severely undercut its bids for the Arabsat launch contract and thus - in its view - violated the pricing provision of the U.S.-China Agreement. European protests lodged with USTR did not bring the swift and effective enforcement action on the part of the U.S. authorities which ESA and its members had hoped for. It also made them aware of the relative low place on the U.S. list of political priorities which the protection of the U.S. launch interests in the international commercial launch market occupied. And that put in perspective the reliability of the U.S. as a 'protector' of *common* commercial launch interests. It also made Europe aware of the necessity of having regular discussions with the U.S. Administration to arrive at a common stand in these matters.

Talks in 1990 and 1991 did bring more exchange of information, but no agreement on rules of the road between the U.S. and Europe. To a large extent, this was caused by the wide divergence of views on the purpose of such an agreement. But the waking up of the European Community authorities and their professional interest in trade in services, given its general mandate and the ongoing discussions on the subject in the GATT Uruguay round of negotiations, certainly played a role as well.

It took the European Commission and ESA some time to come to a workable understanding about their respective tasks and responsibilities. USTR noted:

"A major effort to reach agreement on standards for government involvement in the commercial space launch market, begun in the summer and fall of 1990, faltered at the end of 1991 when the [ESA] and the European Community Commission were unable to resolve internal European differences over the responsibilities of these organizations for policies on commercial space launch".[217]

And ESA reported:

"Throughout the year the [ESA Washington] office was also involved in the ongoing consultations with the USA aimed at establishing 'rules of the road' governing the type and level of support governments should provide to the fledgling commercial launch industry in Europe and the USA. These consultations would continue into 1992".[218]

Similar U.S. launch trade initiatives vis-à-vis the Russians in 1992 to some extent forced the issue, and, because of Arianespace's and ESA's concerns about the 'newcomers', changed the focus of the U.S.-European talks. As Arianespace observed,

217. See Allgeier testimony, *supra* note 214, at 17.
218. See ESA Annual Report 1991, at 191

"International trade concerns in space transportation, initially focused on the so-called 'rules of the road' discussions between the U.S. and Europe (represented by ESA ...), have necessarily been broadened to address the issues raised by the entry of the PRC and Russia into the space transportation market place. The question that must be faced today is whether the Western launch service providers are prepared, and properly supported by their respective governments, to meet this challenge".[219]

When the U.S. invited 'Europe' to join the talks and work on a *tri-partite* arrangement, the interest of the European Commission in joining the negotiations was regarded as a welcome increase of the political level and clout of the European team.
The down-side was twofold: the relationship between ESA and the EU, and the latter's mandate to represent these ESA (including non-EU members') interests needed urgent clarification; and the ESA launch interests would become part of the overall - bilateral and multilateral - trade interests of the EU and thereby subject to compromises, trade-offs and - in general - to the possibility of changing priorities.

The ESA Council at its 1992 Council meeting in Granada, reaffirmed Ariane's status as "a strategic asset providing Europe with autonomous access to space", to be preserved as a "vital component of European space policy", thus making clear that it would strongly resist and resent any threat to its continuity. As referred to earlier, the Council therefore invited the Director General

"to contribute in close cooperation with both the Member States and the competent bodies of [the] European Communities, to the conclusion of an agreement, ot other form of terms and conditions, with the governments of other space-faring nations to ensure fair conditions in the launcher market".[220]

And, also in 1992, the European Commission had made it clear again that it wished to play a role and take its political responsibilities in Europe's international (trade) relations, though it was intentionally vague on the way in which it would handle this task given ESA's traditional position as Europe's space policy spokesman.[221]

In the perception of the Americans, this joining of European forces did not really improve the latter's effectiveness in their bilateral talks and prevented

219. See Heydon, President, Arianespace Inc., USA, *European trade perspective*, at 4th Annual Symposium on the law & outer space, Georgetown University, Washington (Oct 16-17, 1992).
220. See Resolution on the implementation of the European long-term space plan and programmes, Chapter V ("European launcher policy"), ESA Council meeting at Ministerial level, Granada (Nov 10, 1992),
221. See *The European Community and space, challenges and opportunities*, COM (92) 360 final (Sep 23, 1992), and see *infra* on the Commission's role.

the trilateral discussions from getting off the ground. The USTR participant gave the following report to Congress, quoted here in full because of the clear presentation of the issues and divergencies involved, as perceived by the U.S.:

"Shortly after we [=the US] began our discussions with the Russians [*i.e.* around September 1992], our European counterparts in the EC and ESA reconciled their internal differences and expressed an interest in joining our talks with the Russians. We were hopeful that we had an opportunity to resume our efforts to achieve our goal of a multilateral agreement. We scheduled a preliminary round of discussions with the Europeans just before our December [1992] meetings with the Russians.
Unfortunately, those contacts with the Europeans revealed insufficient interest on their part in reaching an agreement that would address our central goal of establishing standards for government support during the various phases of launch activity-development, production and operations. The Europeans also linked agreement on "rules of the road" to access to government launch procurements in the U.S. ...
Our December [1992] discussions with the Europeans as well as consultations with them just prior to our most recent discussions with the Russians suggest that any interest Europe may have in a multilateral agreement is focused on strictly limiting Russian access to the market.
With regard to the general market principles of importance to us in any agreement with the EC and ESA, the Europeans urged us to eliminate those elements of our proposal to the Russians addressing the limitation of subsidies and adoption of other market - oriented disciplines as unacceptable to them. I regret to say that there does not appear to be any near-term prospect for a significant shift in this European position".[222]

A few words on the role of the European Commission in these bilateral talks.

From more than one side it had been suggested to get the European Commission, with its considerable political standing and experience in 'external' trade matters, involved in space matters in general and in launch trade matters more in particular.[223] In a 1991 report of a former ESA official

222. See Allgeier testimony, *supra* note 214, at 22-23. At a May 4, 1994 meeting in Washington, Richard Scott, DOT's Associate Director for Commercial Space Policy and International Affairs was quoted saying:
"[l]aunch trade talks with the Europeans are on hold ... pending a determination by the Europeans as to who should be the US counterpart in the talks, the European Union or the [ESA]", see 22 (1&2) J. Space L. (1994) at 35.

223. On Jun 18, 1987, the European parliament had adopted a Resolution on European space policy which called on the Commission "to initiate the process [of working out a coherent policy on space activities]" and supported ESA in its efforts to achieve autonomous space capabilities on behalf of Europe and concluded that "without autonomy in space operations Europe will be unable to derive full economic benefit from the scientific discoveries and technological innovations which it makes in this sector". See Resolution in 4(1) Space Policy 89-90. In response to this invitation, the Commission, on Jul 26, 1988, issued its first Communication on the subject, entitled "*The Community and Space: a coherent approach*", Commission Report, COM (88) 417 final (Jul 26, 1988).

it was stated that "[t]he sale of launch services is an area in which the EC must help to achieve fair international market conditions for European industry, in the current situation principally Arianespace".[224]

The European Commission's September 1992 (second) Communication to the Council on the matter showed a qualified willingness to play a more active role in space political matters, while at the same time being careful about ESA sensitivities with respect to its independence and traditional spokesmanship on all European space matters.
Particularly the French space establishment, which saw Arianespace very much as a French 'weapon' against U.S. space launch hegemony, and was - understandably - deeply worried about the U.S. introducing foreign low-cost competition into the market, pleaded for European Community assistance in launch trade matters. One of the French concerns was based on the experience ESA and Arianespace had with the 'relaxed' way in which the U.S. had reacted to Chinese violations of the pricing terms of the launch trade agreement. That failure to enforce conditions, which for Arianespace were important safeguards against unfair competition, was a not very reassuring indication of the way the U.S. would deal with the Russians. Hence, the French demand, taken over by the other ESA members, to ask the European Commission to negotiate a launch trade agreement with the Russians, imposing pricing and quantity restrictions, which would thus bind the Russians independent from (the validity of) any agreement concluded with the U.S. The Commission did not have the authority to use defense-related export

That Communication identified a number of weakness of Europe's space efforts up to 1988, one of which was dependence on the US in some areas: for example "we have not yet begun to develop very heavy or recoverable launch vehicles, a factor which may limit our future autonomy in the exploitation of space", said (then) vice-president of the Commission, Karl-Heinz Narjes in an article, *Space and the European Community*, 5 (1) Space Policy 59-64 (1989) at 59. The most important weakness the European Commission identified was "the lack of a cogent and comprehensive European space policy ..." (*id.* at 60). The Commission saw there an important role for itself to enhance the "political credibility" of Europe's space effort and "to ensure that the activities of those involved in the space industry remain consistent with Community law with regard to competition policy, *trade policy* ... and other areas of Community competence" (*ibid.*) (emph. add.).
As a consequence the Commission set up a coordination mechanism with ESA, in the form of joint working groups on, *inter alia*, telecommunications, industrial competitiveness and international relations (in which international launch services policies were reviewed and coordinated), see Madders & Thiebaut, *Two Europes in one space: the evolution of relations between the [ESA] and the [EC] in space affairs*, 20(2) J., Space L. 117-132 (1992) at 128.

224. See Gibson Report, Sep 1991, at 11. The author further argues that "... European would-be [space industry] exporters should ... be able to rely on some political support coordinated through the EC ... EC attention needs to be continuous and should cover the whole range of space activities, rather than being of the "fire brigade" variety, whenever there is a particularly inflamed international trade issue involving space ... The panel has been encouraged by the Commission to look for ways and means for the EC to complement the efforts of ESA and others in the space field", *id.*, at 26, 28.

regulations, such as MTCR controls, as a 'big stick' vis-à-vis the Russians, but where both ESA and the EC were engaged in important cooperation talks with Russia, there were sufficient 'incentives' for the latter to conclude an agreement with Europe with roughly similar provisions as the U.S. had demanded (and would formalize in September 1993).

In July 1993, Commissioner Leon Brittan of DG I, after negotiations with the Russians and consultations with the U.S. on the contents, submitted the resulting agreement to the Council of Ministers.[225] The Council, however, was, *inter alia* on the instigation of the French (!), for both political and legal reasons, unwilling to take action on the Commission's proposal, and the agreement was therefore never formalized.[226]

The European Commission continued to intensify its involvement in the strategic and economic aspects of space, though always treading carefully so as not to upset ESA. As it noted in its more recent (third) Communication to the Council and the European Parliament of December 1996:

"As space contributes both to the industrial competitiveness of Europe and to the improvement in the quality of life of its citizens, the European Union cannot be indifferent about space developments. This does not mean that the [EU] should substitute for relevant bodies, notably [ESA], in formulating the European space policy but the [EU] should contribute to the full development of the space policy and take into account the space dimension in the formulation and implementation of the policies mentioned in the Treaty [of Rome]".[227]

The Commission saw as one of its primary tasks to "work towards an open and competitive environment as the basis for a strong European industry ... [and] to use its competence to ensure a level playing field within Europe *and beyond*".[228] (emph. add.)

With respect to space launch services, the Commission noted the need to maintain Europe's leadership position in the commercial space launch market against increasing competition coming from both advanced U.S. launchers and

225. *Commission Proposal for a Council Decision concerning the conclusion of an Agreement between the [EEC] and the Russian Federation on space launch services*, COM (93) 355 final (Jul 22, 1993).
226. The legal argument was based on doubts as to the so-called "exclusive competence" of the Commission to conclude agreements concerning trade in services. In Dec 1994 the ECJ determined that this competence was not exclusive, but one shared with the member states, see Opinion 1/94 re the Uruguay Round Treaties (1995), 1 CMLR 205.
227. See Communication from the Commission to the Council and the European Parliament - *The European Union and space: Fostering applications, markets and industrial competitiveness*, COM (96) 617 final (Dec 4, 1996) hereinafter referred to as EC communication 1996, at 2.
228. See *id.*, at 10.

from (the entry into the market of) launch vehicles from Russia, Ukraine and China. Both this considerable increase in supply and the sometimes extremely low prices quoted threatened in the Commission's view to destabilize the market.

Of importance to our discussion in general and to the issues raised in this Chapter in particular, is the observation of the Commission, through which this body clearly submits its candidacy for leading further talks on rules of the road with both the U.S. and the other launch providing countries, and the two issues the Commission identifies as crucial to the European launch industry:

"A fundamental condition for the maintenance and further development of European space launch services is a degree of market access similar to that offered in the EU and the existence of fair trading conditions".[229]

As for the latter, the Commission expressed its conviction, shared by the European launch industry, that it should be in Europe's interest to start exploring the possibility to discuss and establish basic rules, 'rules of the road', for the conduct of open and fair competition among the most important launch providers. In the Commission's view this discussion (and the resulting rules) should include the issues of public support to this industry as well as balanced access to each country's *domestic* market.
The Commission clarified what it saw as one of its main targets when discussing the issue of 'public support':

"Such negotiations should include the US, whose industry benefits at an extraordinary and unequalled level of governmental support and military programmes, as well as emerging suppliers like Russia, Ukraine and China".[230]

(The Commission could safely assume that U.S. governmental support and military programmes far exceeded the level Arianespace was accustomed to or could hope for in Europe.)[231]
One of the problems the Commission still faced was to arrive at a common long term strategy with the EU member states and, in particular, "to reach a practical solution for the conduct of international negotiations". The Commission, obviously, had not yet come to terms with the member states on a workable negotiating mandate, and, for the sake of ensuring fair competition

229. *Id.*, at 24.
230. See *ibid.*
231. As the Communication elaborated, "[l]aunch systems and propulsion also benefit from important spill overs between the military and civilian sectors. The US industry has long benefited from such spillovers in the commercial markets, thanks to a military space budget which is over forty times Europe's", *id.*, at 25.

with third countries, therefore insisted that "an institutional compromise [be found] for the conduct of [such] international negotiations".[232]
That situation, until today, has remained unchanged.

As for the issue of market access, the Communication formulated the following more specific objective:

"... not only to ensure that there are no restrictions for space launch services provided for civilian uses, but also that there are no nationality conditions attached to space launch services provided to governmental entities. The latter are frequent in countries such as China and the USA, whereas the EU has an open market. This should be addressed primarily in WTO, where the GATT covers space launch services".

The question of 'nationality conditions' or the reservation of the government market to national launch companies, which prevents foreign comapnies from selling their services in that part of the market, partly already discussed in paragraph 3.4.2 above, deserved and will receive some further attention in the following paragraph. The question of the (possible) application of GATT, or rather GATS, to space launch services will be addressed in Chapter 4.

3.4.4 'Fly U.S.' versus 'fly Europe'

The U.S. President's national space policy of February 1988 already directed the government agencies involved in space to purchase commercially available space goods and services to the fullest extent feasible. That the policy meant "U.S." goods and services followed from a provision in the same document dealing with the goals of the U.S. space transportation policy, one of which was "to encourage to the maximum extent feasible, the development and use of United States private sector space transportation capabilities ..." More specifically, the policy stated:

"Civil government agencies will encourage, to the maximum extent feasible, a domestic commercial launch industry by contracting for necessary ELV launch services directly from the private sector or with DOD."

Apart from the addition of the last three words which to some extent undermined the principle in the first part of this provision ("to some extent", because the private sector *built* the ELV's for DOD), it expressed the

232. See *id.*, at 28. In a "preliminary draft Council resolution" attached to the Communication. the Commission repeated its proposal on the two main issues: "The Council calls on the Commission to pinpoint and propose, in cooperation with the Member States and the partners concerned, activities to obtain the opening of the markets of the main third countries and to help establish a set of international rules to guarantee conditions for balanced competition in the market for spacecraft launching services", *id.*, draft res., operative para. 9.

assumption that, with a domestic launch service commercially available and meeting the mission requirements in a cost-effective manner, a government agency would have to choose that domestic service. (One may also assume that any deviation from that policy in practice would be quickly noted and assailed by the U.S. launch industry). But it should be realized that the policy primarily aimed at promoting the services of the domestic *commercial* launch industry (to replace government launches) rather than promoting *domestic* (as opposed to foreign) launch services; the resulting text, however, served both purposes.

An updated version of the national space policy was issued in November 1989; it repeated - often verbatim - the above guidelines.

But President Bush's commercial space launch policy of September 1990 went one step further. As one of the actions needed for dealing with international competition, and, more specifically, affecting the competitiveness of the U.S. launch industry "over approximately the next ten years", the policy identified (apart from launch trade agreements)

"the continued use of U.S. manufactured launch vehicles for launching U.S. Government satellites",

and the policy therefore ordered, as one of the implementing actions:

"U.S. government satellites will be launched on U.S.-manufactured launch vehicles unless specifically exempted by the President".[233]

The U.S. commercial space policy guidelines approved by President Bush on February 12, 1991, again affirmed the general policy of encouraging U.S. government agencies to purchase commercial space products and services to the fullest extent feasible, and reconfirmed the applicability of the 1989 National Space Policy and the 1990 Commercial Space Launch Policy (which contained the specific 'fly U.S.' clause).
In the meantime, in 1990, Congress had taken the initiative to adopt legislation to formalize the Administration's above commitment with respect to the use of U.S. commercial launch services. The Launch Services Purchase Act of 1990, after having praised the benefit for the U.S. commercial launch industry

233. The Policy was drafted at the time of the Cape York project, which involved Russian Protons launched from Northern-Australia's Cape York, with as U.S. firm's assistance. The Policy stated on this point that it (the policy) "is completely consistent with, and provided the policy framework for, the President's August 22, 1990, decision regarding participation by a U.S. firm in Australia's Cape York space launch project". The wording of the implementing action was chosen, one must assume, to allay any defense or national security driven fears that in the framework of the Cape York project 'sensitive' payloads would be launched with a Russian launch vehicle.

of Federal purchasing of U.S. private sector goods and services, including launch services, provided:

"Except as otherwise provided int his section, the [NASA] shall purchase launch services for its primary payloads from commercial providers whenever such services are required in the course of its activities".

NASA could get out of this requirement, on a case by case basis, if its Administrator determined that:

"(1) the payload requires the unique capabilities of the space shuttle;
(2) cost effective commercial launch services to meet specific mission requirements are not reasonably available and would not be available when required;
(3) the use of commercial launch services poses an unacceptable risk of loss of a unique scientific opportunity, or
(4) the payload serves national security or foreign policy purposes".[234]

Where the same Act also reiterated the ban on space shuttle launches of commercial payloads, it served the dual purpose of NASA henceforth using *commercial* launch services instead of its 'own' vehicle (the space shuttle) or DOD launchers, and using *domestic* instead of foreign services.

Obviously, the U.S. launch companies saw this policy as vital to their survival, and any exception to the rule was seen as (potentially) setting a threatening trend. The discussion that took place on the issue during the 1993 Congressional hearing on "international competition in launch services"[235], provided an illustration of that point.

A good example is the statement of the Martin Marietta Space Group President, which, apart from its demagogic aspects, reflected current thinking among the launch providers about the need of having a guaranteed business base:

"In order to assure our country's access to space for critical missions, we should continue the current policy which requires that U.S. government payloads, whether military or civil, be launched aboard U.S. launch vehicles. In this way, a sufficient and predictable business base will ensure the viability of our domestic launch industry. If we permit the erosion of that base, we risk a repetition of the Challenger aftermath, when our ability to launch key payloads was jeopardized by an unforeseen event. Can we assure our citizens and our

234. See Sec. 201-205, Pub. L. 101-611 (NASA Authorization Act 1991) (Nov 16, 1990), at Sec. 204(a)-(b).
235. See 1993 Launch hearing, *supra* note 152, at 34. See also the TCI claim of 1984 with USTR against the ESA-members' subsidization of Arianespace which inclued the issue of the latter's protected home market, in Chapter 2.2.2 *supra*.

military men and women overseas that we will always be able to use space, as we did in Operation Desert Storm, to multiply the effectiveness of our forces and save lives in the bargain? If we permit our access to space to become hostage to the goodwill of a foreign country, the answer to that question will not be affirmative."[236]

The Subcommittee on space, which organized the hearing, submitted written questions to all participants. Three related questions were: "Should the U.S. continue to uphold the policy that U.S. government payloads must fly on U.S. launch vehicles? Isn't this policy a form of entitlement program for the U.S. launch vehicle business? If not, why not? Should an exemption be granted to allow scientific research spacecraft to fly on foreign launch vehicles?" (one example of the latter mentioned involved an American scientific instrument launched on a Russian Tsyclon in the framework of U.S.-Russian scientific cooperation).

In the answers of the U.S. launch companies, frequently reference was made to the foreign practice (European, Russian, Chinese, Japanese) of reserving government loads to national launchers. No distinction was made between the European policy and practice on the one hand, and the policies of its competitors on the other hand. Nor was any reference made to the substantial difference *in size* of the respective government markets concerned. As McDonnell Douglas (MDD) stated in response to the above questions:

"There is no question that this is the only practical policy to assure a reasonable chance of survival against the highly subsized international competition. It is imperative that the U.S. not relax on this policy ... This is the standard by all international launch system players in the world. We cannot force the Europeans to require U.S. access to European government missions. The same applies to Japan, PRC, and the Russians ... The Europeans have a policy of flying government satellites only on Ariane. The Russians and Chinese don't make exceptions - they donot buy U.S. launch services for their government science missions ... [launching U.S. scientific research spacecraft on foreign launchers] should be done only on a fair basis and ... US launchers [should] continue to have the opportunity to place foreign science payloads into orbit."[237]

Lockheed, though also not afraid of a bit of demagoguery, gave a more nuanced view, which reflected its recent teaming up with the Russians in LKEI and, therefore, the need to make the market, available to 'its' foreign launcher Proton as large as possible. Apart from agreeing to exemptions for scientific payloads, Lockheed stated:

236. See *id.*, at 34.
237. See *id.*, at 157.

"Serious consideration should be given to payloads of national security import. All others should enjoy an unconstrained market economy, for the consequences of not doing so will force nations like Russia to sell their missile technology to "unfriendly" countries."[238]

General Dynamics, producer of the Atlas family of launchers, and very succesful in the government launch market, was as adamant as MDD, giving an 'absolutely' to the first question asked by the Sucommittee:

"Every other country in the world with launch capability restricts their government payloads to their launch vehicles whose development they have previously funded. The Arianespace Board of Trustees has requested recently that the European countries be required to use Ariane for all European satellites--both government and commercial".[239]

Fact is, as we saw earlier, that the ESA Council, in November 1992, had adopted a resolution *inviting* the member states to give preferential treatment to Ariane for their own missions and those of European and international bodies in which they participated. On the other hand, indeed, ESA, by virtue of the Convention that created the organization, was to give *preference*, when defining its missions, to using "launchers or other space transport systems developed within the framework of its programmes", though with an important escape clause: "... if this does not present an unreasonable disadvantage compared with other launchers or space transportation means available at the envisaged time, in respect of cost, reliability and mission suitability."[240]

Articles in the trade press at the same time, though literally correct, created a strong impression that it was at least practically unavoidable for the various European parties to use the Ariane:

"... ESA member states are *expected* to favour the European launcher for government-funded payloads ... Moreover, *pressure* is placed on European PTT's and international organizations such as Eumetsat and Eutelsat to use Ariane." (emph. add.).[241]

In this connection, it is interesting to see what happened in practice in this period. As Middleton notes in his knowledgeable article on the subject:

"... but in reality seventeen contracts [of the 20 payloads launched by Arianespace in 1992 and 1993] were won by Arianespace in international competition, a rather better record than the U.S. over this period [i.e. 28 of the 36 spacecraft launched in 1992 and 1993 were reserved for launch by American companies]."[242]

238. *Id.*, at 161.
239. *Id.*, at 173.
240. See art. VII (1) ESA Convention, and discussion in Chapter 3.4.2.
241. See 4 (25) Space News (Jul 1993) at 5, 10.
242. See Bruce Middleton, *The US commercial space launch industry: policies for survival*, 20th national space symposium, session competitive launch capabilities (April 1994), hereinafter

And, as the same trade press rightly noted two years later, though ESA used Ariane exclusively for its launches except for occasional science satellites developed bilaterally with the U.S. or Russian governments, the individual European governments and also the European telecom agencies were quite another matter: both simply looked for the best deal:

"European government authorities have no set of rules that *require* that they use Europe's Ariane rocket. By contrast, both NASA and [DOD] are *required* by law to use American vehicles." (emph. add.)[242a]

So, despite the 'invitation' of the Granada Council, countries like Norway and the U.K. followed the precedent set earlier (in 1992) by German Telekom, by contracting with MDD for the Delta launch of their government satellites.[243]

And, as we saw earlier, ESA itself, when confronted with financial or scheduling problems has, from time to time, chosen foreign launchers for its missions.[244]
It should be noted further in this connection that, where the U.S. government has more launch options with both the government vehicles, shuttle and DOD launch vehicles, and the private launch companies (as long as they use U.S.-built launchers, it is somewhat easier to maintain the principle of "fly U.S." The real test would be in a case of financial or scheduling handicaps as ESA has experienced and would appear to be more vulnerable to anyhow.

Clinton's 1994 National Space Transportation Policy's guidelines on the matter were both a confirmation of the prevailing policy and a reflection of the views expressed in the 1993 Congressional hearing. The two 'pillars' of the 'fly U.S.' policy were maintained.

"U.S. Government agencies shall purchase commercially available U.S. space transportation products and services to the fullest extent feasible that meet mission requirements and shall not conduct activities with commercial applications that preclude or deter commercial space activities, except for national security or public safety reasons.
...
For the foreseeable future, United States Government payloads will be launched on space launch vehicles manufactured in the United States, unless exempted by the President or his designated representative".[245]

referred to as Middleton, at 11, 12. And see Ch. 1.1 for some additional relevant figures.

242a See *infra*, note 243, *ibid.*

243. The UK Defense ministry's Skynet and Norwegian Telecom's Thor 2A direct broadcasting satellite, see 6 (44) Space News (Nov 1995) at 1. ("Ariane agrees to cut ESA's launch fares").

244. For examples, see (text to) note 209.

245. See paras IV ("Commercial space transportation guidelines") and VI ("Use of foreign launch vehicles, components and technologies") respectively, 1994 Space transportation policy,

The 'scientific cooperation' exemption already implicitly included in the above Launch Services Purchase Act of 1990 was further expanded:

"This policy does not apply to use of foreign launch vehicles on a no-exchange-of-funds basis to support the following: flight of scientific instruments on foreign spacecraft, international scientific programs, or other cooperative government-to-government programs. Such use will be subject to interagency coordination procedures."

President Clinton's 1996 National Space Policy still contains the provision that U.S. government agencies "shall purchase commercially available goods and services to the fullest extent feasible ...", but a specific 'fly U.S.' article is missing. This does not indicate a shift in policy (yet): a request on the part of Israel in 1997 to get an exemption from the 'fly U.S.' policy for its Shavit launcher was turned down,[246] and there is no indication that other requests would be honoured.

A more challenging proposition would be a similar request on the part of ILS or Sea Launch with respect to the use, for a government satellite launch, of the Proton or Zenit respectively. In so far as the policy is meant to protect the U.S. launch companies, a request form these same companies, Lockheed Martin or Boeing, as sellers, through the above joint ventures, of the respective foreign-built launchers, should not create insurmountable problems. Where the policy's purposes include the safeguarding of national security, these could form an obstacle depending on the character of the satellite and on the launch vehicle or launch facility used (with Sea Launch, operating from a platform on the high seas, being in a better position than ILS whose Protons are launched from Kazakh territory).

The chance of Arianespace getting an exemption from the policy in the near future would, in the light of the above, appear to be remote.

The Commercial Space Act of 1998, which was signed by President Clinton on October 28, 1998, also addresses the issue of federal acquisition of space transportation services.[247] Though it basically covers the same ground as the Launch Services Purchase Act of 1990, three elements in the most recent piece of legislation should be highlighted:

supra Ch. 2, note 307.

246. See AST Special Report 1997, *infra* Ch. 4, note 11, at 2; see also *supra* Ch. 1 (text to) note 23.

247. See Commercial Space Act of 1998, P.L. 105-303 (H.R. 1702, 105th Cong., 2nd Sess., House passed Oct 6, 1998, Senate passed Oct 9, 1998), Title 11 - Federal acquisition of space transportation services, Sec. 201-206.

1. the requirement that NASA purchase launch services from commercial providers is now extended to the Federal government as a whole, thereby also including DOD/USAF which - by pleading national security reasons - was so far allowed to use its own launch vehicles: it may continue to do so, but only on a case-by-case basis, if the Secretary of the Air Force determines that the use of U.S. commercial services "is inconsistent with national security objectives", in other words, as an exception to the rule;
2. NASA's concern that the legislation would limit its possibilities to freely cooperate in international scientific programs (which may involve one party building the scientific satellite and the other launching the spacecraft on a no-exchange-of-funds basis) was met by the adoption of language which is very much in line with (the exception to) Clinton's 1994 'fly U.S.' policy;
3. The Federal government has to acquire the necessary launch services from "United States commercial providers", which are defined as:

"A commercial provider, organized under the laws of the United States or of a State, which is (A) more than 50 percent owned by United States nationals; or (B) a subsidiary of a foreign company ..."

with category (B) subject to a number of specific stringent criteria.'[248]

Where the Act does not address the question of the country of *manufacture* of the launch vehicle, it does not infringe upon Clinton's 'fly U.S.' policy, which includes the President's freedom to exempt U.S. companies from the 'manufactured-in-the-U.S.' requirement. The U.S. President "or his designated representative" therefore retains the option to allow a U. S. company which offers services using foreign launch vehicles to contract for the launch of a U.S. government payload. The above definition's strictness makes it doubtful, however, whether Boeing-led Sea Launch or Lockheed Martin-led ILS would qualify.

248. Sec. 201 (a) reads: "In general. - Except as otherwise provided in this section, the Federal Government shall acquire space transportation services from United States commercial providers whenever such services are required in the course of its activities. To the maximum extent practicable, the Federal Government shall plan missions to accommodate the space transportation services capabilities of United States commercial providers." Sec.201 (b) lists a number of specific exceptions, and it is up to the NASA Administrator or the Secretary of the Air Force to determine that a specific case does indeed fall under any of those exceptions and allows for the use of another launch provider.
Sec. 2 (8) (B) subjects a subsidiary of a foreign company to the test that the Secretary of Transportation finds that such subsidiary has in the past evidenced a substantial commitment to the U.S. market through investments in the U.S. in, *inter alia*, R & D and through significant contributions to employment in the U.S., and that the country of incorporation of such a foreign company affords reciprocal treatment to the U.S. commercial providers, as evidenced by a number of criteria.

One may conclude that there remains a clear difference between the 'nationality conditions' prescribed, and applied in practice, by ESA and the Arianespace participants on the one hand, and those adhered to by the U.S. on the other hand.

'Fly U.S.' has, *de iure* and *de facto*, reserved a very substantial part of the total market, as described in Chapter 1, for U.S. launch providers, whereas 'fly Europe', lacking a comparable legal and political 'power' and government market, has had (and continues to have) a rather limited positive effect on the competitive position of Arianespace.

3.5 Liberalization of U.S. bilateral launch trade controls

Bush's Commercial Space Launch Policy of September 5, 1990 formulated the Administration's long-term goals with respect to the international trade in launch services in a way which showed both the U.S. government's traditional commitment to free trade principles, while on the other hand recognizing that neither the U.S. launch companies nor the trade environment in which they operated were ready yet for that freedom:

"The long-term goal of the United States is a *free and fair market in which U.S. industry can compete.*
To achieve this, a set of coordinated actions is needed for dealing with international competition in launch goods and services in a manner that is consistent with our nonproliferation and technology transfer objectives.
These actions must address both the short-term actions (which will affect competitiveness over approximately the next ten years) and those which will have their principal effect in the longer term (i.e. after approximately the year 2000).

In the *near term*, this includes trade agreements and enforcement of those agreements to limit unfair competition. It also includes the continued use of U.S.-manufactured launch vehicles for launching U.S. Government satellites.

For the *longer term*, the United States should take actions to encourage technical improvements to reduce the cost and increase the reliability of U.S. space launch vehicles." (emph. add.)

The above policy statements were made in a year in which:
- the U.S. had 3 main ELV-providers, General Dynamics, Martin Marietta, and McDonnell Douglas, which were not very successful yet in the international commercial launch market;
- Arianespace was the dominant foreign competitor, apparently acting in a way which the US considered not sufficiently in accordance with "principles of free and fair trade" (because, as the Policy announced as one of the implementing actions, the U.S. government "will enter into negotiations to

achieve agreement with the European Space Agency (ESA), ESA member states, and others as appropriate, which defines principles of free and fair trade." (As we saw earlier, the primary US complaint about ESA was the perceived subsidization of Arianespace);
- CGWIC, a so-called non-market launch provider had entered the market in 1989 through a bilateral launch trade agreement (a "special case because of the absence of market oriented pricing and cost structures" which needed "a transition period during which special conditions may be required");
- the USSR, Australia and USBI launched the Cape York project, also requiring a special agreement, though primarily to deal with security aspects.

In these circumstances it can be considered both farsighted of the Bush Administration and in keeping with U.S. traditional macro-economic principles to aim at the long-term goal of free and fair trade and to see the selected protective measures as only *temporary*.
The only real long-term solution in that free market thinking (if one wants the indigenous industry to survive) is, according to the Policy, cheaper and more reliable US launchers which can compete in a free and fair market. As direct subsidization did not belong to the government's 'tools', the Policy limited itself to requiring the government agencies to "actively consider commercial space launch needs and factor them into their decisions on improvements in launch infrastructure and launch vehicles aimed at reducing cost, and increasing responsiveness and reliability of space launch vehicles.", a form of support which in European eyes came in practice rather close to subsidization.
But the main message appeared to be: the U.S. government will liberalize, 'free' the launch market as soon as the U.S. launch companies are strong enough.

Clinton repeated the "long-term goal of the [US] to achieve free and fair trade" in his 1994 National Space Transportation Policy, and also appeared to make a distinction between non-market launch industries and 'other' (market) launch industries:

"A long term goal of the [US] is to achieve free and fair trade. In pursuit of this goal, the U.S. Government will seek to negotiate and implement agreements with other nations *that define principles of free and fair trade ..., limit certain government supports and unfair practices in the international market*, and establish criteria regarding participation by space launch industries in countries in transition from a non-market to a market economy." (emph. add.)[249]

249. See 1994 Space transportation policy, *supra* Ch. 2, note 307, para. V ("Trade in commercial space launch services").

The emphasized part of the quoted provision appeared to refer primarily to the market economy launch industries, *i.e.* Arianespace, which, in 1994, was both very successful, having captured about 60 percent of the international commercial launch trade market and (therefore?) suspected of being able to undercut U.S. launcher pricing because of the subsidies it had received from ESA.

Nevertheless, the U.S. launch companies had become considerably stronger since 1990 and further consolidation of the aerospace industry was underway.

At the same time, also the qualification of Russia and China had undergone a subtle change: both had been promoted from non-market economies/ launch providers to "countries in transition from a non-market to a market economy", which reflected the enormous changes in attitudes and/or economic performance in the two countries and higher, and therefore less threatening pricing of their launch companies.

When President Clinton, in September 1996, issued his new national space policy, U.S. launch companies had further strengthened their position, both by domestic mergers and acquisitions and by alliances with Russian companies. "Booming" business in both the GEO and the new and very promising LEO launch market combined with the right range of vehicles to cater for the resulting demands, coming on top of a still guaranteed and sizeable military and civil government launch market, created the expectation that the U.S. launch industry's share of the commercial market would increase at the expense of Arianespace. Moreover, the alliances concluded with the Russian and Ukrainian launch industries had turned the bilateral restrictions, though already considerably liberalized, into impediments for both the U.S. satellite manufacturing and the launch industry. (And the latter's main competitor continued to be Arianespace anyhow!)

In this environment, the Administration could conclude that the U.S. launch industry was strong enough or approaching that state fast enough to announce steps to move away from international launch quotas altogether. Thus, the national space policy stated:

"Free and fair trade in commercial space launch services is a goal of the United States. In support of this goal, the United States will implement, at the expiration of current space launch agreements, a strategy for transitioning from negotiated trade in launch services towards a trade environment characterized by the free and open interaction of market economies. The U.S. Trade Representative, in coordination with the Office of Science and Technology Policy and the National Economic Council, will develop a strategy to guide this implementation."[250]

250. See Clinton space policy, *supra* Ch. 2, note 352, at Commercial space guidelines, para (5).

Before we conclude on the basis of the above that, at the end of the year 2001, there will be free competition between the launch industries of the parties to the agreements, and including Europe and Japan, a closer look at the above text is warranted. It reveals a number of express or implicit *caveats* and conditions which have to be fulfilled:

- two *strategies* will have to be ready by 2001:
  the administration needs a strategy for *transition* to implement, and USTR has to develop a strategy to guide this implementation;
- the period for transition and the conditions applicable during the transition have - understandably - been left open;
- the goal is free and open interaction of *market economies*: if one of the countries concerned does not deserve that qualification, it may not deserve the promised free trade;
- if one of the countries concerned is found or suspected not to practice fair trade principles itself, it may not deserve the promised free trade either;
- as the U.S. government has repeatedly expressed its preference for multilateral rules of the road, it may insist on having these in place before the launch trade agreements are permitted to lapse;
- where the parties to the launch trade agreements are already subject to and accustomed to the rules of the road embodied in those agreements, and would probably accept the same general rules (though obviously without specific pricing or quantity restraints) in a new, multilateral form, Europe has never showed any inclination to subject themselves to similar behavioral guidelines (And Europe's attitude would undoubtedly influence Japan's position);
- Europe's acceptance of any rules of the road would probably be linked to two conditions, first, that the present practices of - indirect or direct - support to Arianespace are accepted as a matter of fact, and secondly, that the U.S. government market is opened to Arianespace, in other words the withdrawal or substantial relaxation of the 'fly U.S.' policy;
- it is highly unlikely that the U.S. would open this large and lucrative market to its most important competitor in return for the kind of fair trade commitments now found in the launch trade agreements, a *quid-pro-quo* that not only the U.S. launch industry but also Congress would probably brandish as an unprecedented and one-sided sell-out of U.S. interests (and which the security community would insist on limiting to non-national security related government payloads);
- this U.S. attitude would hardly be influenced by the prospect of full access for U.S. launchers to the government markets of Europe: the difference in size and importance is simply too large to make such a 'swap' an acceptable proposition;
- an additional impediment would be that, in a multilateral 'rules of the road' arrangement the same opening awarded to Europe would have to be given to - and would anyhow be claimed by - the other countries' launch companies.

It would appear that any steps/measures in the coming years in the direction of the policy's goal will continue to depend on the uninterrupted good performance of the U.S. launch companies, which in turn depends on a combination of continued U.S. government preferential treatment, a growing satellite (LEO and GEO) launch market, reliable and competitively priced U.S. launchers and 'good behaviour' on the part of the competitors.

The commitment is there and the Administration has already been working on a post-launch trade agreements regulatory regime,[251] but the road to liberalization of the launch market through the complete removal of the above bilateral constraints is still a long - and, as a result of the 'China affair', twisted - one and may not take the international launch industry home until way after 2001.

This brings us to a broader question, to be addressed in the next Chapter, *i.e.* once the launch trade agreements have been terminated, may the international launch providers, to the presumed benefit of their clients (the satellite manufacturers and the satellite owners/users) expect to operate in a "trade environment characterized by the free and open interaction of market economies", in other words, will there be "free and fair trade in commercial space launch services"? That is both a matter of definition, of perception and of the realities of remaining laws, policies and practices affecting the freedom of the trade in launch services of present and prospective launch providers.

251. See 9 (29) Space News (Jul 1998) at 2. The Administration's response to the May 1998 'China affair' in Congress has kept the offices concerned too busy to produce a first draft of this new regime in 1998 or in the first half of 1999.