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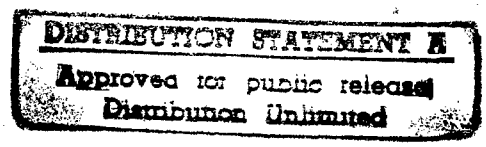
JPRS Report

Proliferation Issues



PROLIFERATION ISSUES

JPRS-TND-92-015 *20 May 1992*

CONTENTS

[This report contains foreign media information on issues related to worldwide proliferation and transfer activities in nuclear, chemical, and biological weapons, including delivery systems and the transfer of weapons-relevant technologies.]

INDIA

CIA Chief's Remarks on Nuclear Issue Rejected

BK1405150692 Delhi All India Radio Network in English 1430 GMT 14 May 92

[Text] India has denied the CIA chief, Mr. Robert Gates' statement that it is a model for countries with nuclear ambition and has recently tried to acquire chemical weapons. The External Affairs Ministry spokesman said in New Delhi today that the judgment is entirely Mr. Gates' perception and it does not necessarily imply that it is correct. Commenting on Mr. Gates' statement before the U.S. Congress, the spokesman said India's nuclear program has always been committed to peaceful purposes and its track record is absolutely impeccable. He said most recently, the prime minister, Mr. Narasimha Rao, made India's principled stand abundantly clear when he addressed the summit meeting of members of Security Council in New York.

Prime Minister Reiterates Rejection of NPT

Editorial Emphasizes Safety

92WP0212D New Delhi PATRIOT in English 16 Mar 92 p 4

[Editorial: "Seeking N-Safety"]

[Text] On his return from Mauritius, Prime Minister Narasimha Rao has once again declared that India would not sign the NPT [Non Proliferation Treaty]. His statement implies that India would also not participate in the proposed five-nation conference to work out a regional non-proliferation arrangement which would amount to back-handed acceptance of the NPT regime. One hopes that the statement which External Affairs Minister Madhavsinh Solanki has promised to make in Parliament on March 16 would confirm that, during his talks in Washington, Foreign Secretary J. N. Dixit did not in any way violate the spirit of the stand that his political masters have taken on the issue of non-proliferation. Some of Mr. Dixit's words in Washington have created confusion in India, causing a furore in the two houses of Parliament on March 13. After his first day meetings in Washington, Mr. Dixit told Indian media persons there that India would not sign the NPT or join the five-nation conference, adding the matter was "over and out." But the American journalists whom he met got the impression that the matter was neither over nor out, and that Mr. Dixit had proposed bilateral Indo-U.S. talks on the issue. Later, he admitted to Indian newspersons that within eight weeks or so India-U.S. dialogue would begin. But it was not clear whether the question of India's participation would be decided on the outcome of the dialogue or the question of participation would itself be the subject of the dialogue. On his way back, the Foreign Secretary in London said that the "ball is now in American court"—in the sense that the Americans now have to tell India what they would do about the presence of Chinese, Israeli and former Soviet nuclear weapons around South Asia, the area Americans want as a nuclear-free zone. If Mr. Dixit's mission was to broaden the scope of the proposed five-nation conference so much that it became meaningless, then he was being too clever by a half. Nobody is going to be taken in by the kind of moves he initiated in his talks, nor would such clever tricks reduce the pressures to which India is being subjected. The nuclear issue is not the only question on which the Americans want India to give in. There is also the Super 301, the intellectual property rights, the rice export to Cuba, and above all the responsibility which the Americans have taken on themselves after the collapse of the Soviet Union to ensure that no challenge to their hegemony emerges in the world. India is being subjected to U.S. pressure on all these issues, simultaneously, and all because India has not accepted a security relationship with the United States. On the nuclear issue, so far this country has been assured that its scientists have reached a certain level of achievement and that its government has kept its options open. But after conflicting reports from Washington about Mr. Dixit's talks, one cannot be sure of where this country stands, despite the Prime Minister's reassurance. There is merit in seeking nuclear-safety measures for our region and India. But how are these to be achieved is the question. With n-weapons lying about in the region, often in the hands of unstable or irresponsible regimes, and Pakistan and China having made India the target of their n-weapons, what safety measures can this country contemplate unless it has access to strategic weapons to counter the threat of nuclear proliferation?

Urges Global Approach

92WP0229A Madras THE HINDU in English 17 Apr 92 p 6

[Quotation marks as published]

[Text] Tirupati, April 16—The Congress(I) president and Prime Minister, Mr. P.V. Narasimha Rao, today called for the pursuit of a "global approach based on a new international consensus opinion—proliferation," in dealing with threats to international peace and security posed by the proliferation of nuclear weapons.

Delivering his presidential address at the opening session of the 79th Congress plenary here, Mr. Rao also attached primacy to increasing the effectiveness of the United Nations and making its Security Council more representative if only to "ensure its moral sanction and political effectiveness." This is likely to be interpreted as projecting India's claim for permanent membership in the Security Council.

In the area of international affairs, Mr. Rao's address was remarkable for its focus on the related issues of restructuring the international security system and regeneration of the role of the United Nations in the light of changed world circumstances, both reflecting acute

Indian concerns, particularly in the light of U.S. pressures on India to sign the nuclear non-proliferation treaty (NPT).

Ideological sentinel: Non-alignment continued to be described as an ideological sentinel" of the Congress(I), but was treated primarily at the level of generalities.

To be effective, the global nonproliferation regime would have to be "universal, comprehensive and non-discriminatory," Mr. Rao said. "There should be no reservation on this goal," he added.

The "real dimension of international security" was that of "the possible loss of control over nuclear arsenals" rather than the possible acquisition of such weapons by "threshold" States, Mr Rao said.

New dimension: The world, he said, was faced with the risk of an "uncontrolled spread of ready-made nuclear weapons," imbuing the proliferation issue with a "qualitatively and frighteningly new dimension."

India's Action Plan for Disarmament, put forward by Rajiv Gandhi in 1988, contained all key elements of a new international consensus on nuclear nonproliferation, the Prime Minister said.

The Plan calls for concluding an international convention on the prohibition of the use or threat of use of nuclear weapons, advocates a comprehensive test ban treaty, and calls upon threshold States to undertake the obligation not to cross the threshold with a corresponding obligation by nuclear weapon States to eliminate their nuclear arsenals by 2010 A.D. Mr. Rao has suggested advancing the time limit by 10 years.

In the past the effectiveness of the United Nations was inhibited by the cold war, Mr. Rao said. Today he noted, India welcomed the effective role of the Security Council in matters of peace and security. But, he said, the actions of the Security Council "must flow from collective will and not from the views or predilections of a few. A general consensus must always prevail.

Editorials on Faliero's Parliamentary Address

Rejects U.S. Denuclearization Bid

92WP0212B New Delhi INDIAN EXPRESS in English 18 Mar 92 p 8

[Editorial: "The Security Perspective"]

[Text] The plethora of the latest official statements on India's response to the stepped-up American bid to hasten the denuclearisation of South Asia has somewhat obscured the central issue involved. That is the vastly changed shape of the regional security in the wake of the end of the cold war era. The specific issues of Indian subscribing to the Nuclear Non-Proliferation Treaty and of its agreeing to attend the Pakistan-proposed and U.S.-blessed move for a five-power conference on non-proliferation cannot be separated from the wider need to review the previous regional security design which India had kept in mind for about four decades. It is this aspect which the Foreign Secretary, Mr. J. N. Dixit obviously sought to bring into sharp focus in his talks last week in Washington.

In his suo motu statement on these talks in Parliament on Monday, the Minister of State for External Affairs, Mr. Eduardo Faleiro, also tried to put contentious issues such as the NPT, the move for a five-power conference, the controversial Pentagon's paper on U.S. worldwide responsibilities and the proposed Indo-American naval joint exercises in this broad perspective. The brief discussion that followed in both Houses indicated, however, a lack of appreciation of the importance of adjusting India's security sights to the new situation created by the disappearance of Soviet power. This is why the opposition tends to look with misgivings at the slightest sign of an Indian shift from old positions dictated by the need to abide strictly by non-alignment. That this has become an archaic concept in international politics is not fully realised. A fuss is being made, for instance, about the forthcoming Indo-American naval exercises off the Indian coast even after the two countries have been involved in a high-level exchange of views on security matters on a professional basis for over a year. During the cold war, New Delhi was primarily concerned with keeping the Indian Ocean free from superpower confrontation and hence did not associate itself in any way with the naval activity of either the United States or the ex-Soviet Union. Now, the situation is wholly different and so there can be no valid objection to Indo-U.S. naval joint exercises. In fact it would be hard to disprove the case for such cooperation in India's own self-interest. That New Delhi ought to be extremely careful and not lose, in this process, any of its independence in devising a specific policy to meet a given situation is, of course, obvious.

As for the non-proliferation issue, the acceptance of its linkage with the wider security environment must be the starting point of any meaningful debate in India on its responses. This is why Mr. Dixit has done well to ask the United States to spell out in concrete terms the confidence-building measures it would promote in the region to realise the objective of non-proliferation. New Delhi has rightly stressed the need to envisage a step-by-step approach to this problem rather than to make it appear that a one-shot affair like signing the NPT or attending a conference with Russia, China, Pakistan and the United States will settle everything.

Remains 'Firm' on National Security

92WP0212C Madras THE HINDU in English 18 Mar 92 p 8

[Editorial: "Issues in India's 'Nuclear Diplomacy'"]

[Text] The plain-speak diplomacy—which the Government of India claims to have pursued during the Foreign Secretary, Mr. J. N. Dixit's latest parleys with the

ranking U.S. officials in Washington—is indeed commendable. But the United States will not be amused at Delhi's diplomatic defiance (as seen from Washington) in reaffirming India's uncompromising stand on nuclear non-proliferation in South Asia. The carefully worded statements, which the Minister of State for External Affairs, Mr. Eduardo Faleiro made in both Houses of Parliament on Monday, indicate that India has stood firm on sensitive issues of vital concern to its national security.

The Government should, however, know that its approach to the question of nuclear disarmament, which is founded on fundamental principles of fair play and justice in international relations, is not a substitute for a creative new policy to meet the harsh realities of real politic diplomacy. Delhi must, therefore, continue the search for a solution consistent with its political sovereignty and fundamental defence requirements. India should capitalise on the U.S.'s willingness to enter into a bilateral dialogue on nuclear non-proliferation in South Asia.

It is not improbable that the United States might, even after a patient hearing of India's views, seek to convene a multi-party conference on nuclear disarmament in South Asia. But New Delhi has certainly taken a bold stand that the proposed five-power conference would be a futile "exercise in acrimony." The five nations in question are the United States, Russia (as the Soviet Union's successor-State), China, India, and Pakistan. India's foreign policy compulsions do not favour a unilateral or hasty (even if negotiated) renunciation of its nuclear option. Delhi will have to reckon with formidable ground realities in South Asia—Pakistan's acquisition of capacity to make and deploy atomic weapons. China's high nuclear profile, and the proliferation of nuclear powers in the wake of the collapse of the Soviet Union.

As India sees it, and rightly so, China's decision to sign the Nuclear Non-Proliferation Treaty does not alter Beijing's military posture in Delhi's neighbourhood. Pakistan's attempt to justify its acquisition of nuclear clout—on the ground that India's (alleged) violation of human rights in Kashmir warrants such a course of action—is laughable. Even after taking these factors into account India did not, however, slam the door on the U.S.'s face while expressing grave misgivings over the American move for regional non-proliferation.

Now, in presenting a modified version of the Rajiv Gandhi plan for nuclear disarmament, the Narasimha Rao Government has not said a "total no" to the idea of a regional conference though it reasserted its unexceptionable refusal to sign a patently discriminatory NPT. All this would suggest that an Indo-U.S. dialogue could still be meaningful if both sides discuss non-proliferation with an open mind.

In the purely bilateral sphere, though, India and the United States seem to have moved away from a collision course. The 'Pentagon Papers,' which outline various pax Americana scenarios across the world, identified India among the potential target areas for a nuclear version of the old-fashioned gunboat diplomacy. But Washington has allayed Delhi's apprehensions. And the Indian Government is apparently willing to treat this as a closed chapter despite the latest signs that the United States might develop a friendly equation with a nuclear-armed Pakistan. India should, however, ascertain the U.S.'s real intentions towards the subcontinent in the post Cold War period. The proposed Indo-U.S. naval exercises might be a useful occasion for this purpose.

'Lacks a Coherent Policy'

92WP0212A Bombay THE TIMES OF INDIA in English 18 Mar 92 p 14

[Editorial: "Not Coherent Enough"]

[Text] Mr. Eduardo Faleiro's suo moto statement on various matters related to nuclear non-proliferation in both houses of Parliament on Monday is unlikely to dispel the impression that New Delhi lacks a coherent policy on the subject. The minister of state for external affairs did no more than reiterate India's all-too-familiar objections to signing the nuclear non-proliferation treaty and to its participation in the Pakistani-initiated and U.S.-sponsored five-nation conference to discuss non-proliferation in South Asia. What Mr. Faleiro did not say was how, taking into account these legitimate objections, New Delhi intends to address the international community's burgeoning concerns about the proliferation of horror weapons including in our part of the world. Since a decision has already been taken to conduct bilateral Indo-U.S. discussions on the issue it would have been in order for the minister to take Parliament into confidence about the possible avenues that the two countries are likely to explore. This was all the more necessary in view of the Prime Minister's reported statement to a periodical that India has foreclosed its nuclear option. The official ambivalence about the nature of the discussions with the United States on the one hand, and the surprising clarity of Mr. Narasimha Rao's reported remark on the other, explain, even if they do not justify, fears voiced here and there about intolerable American pressure being brought to bear on New Delhi to make it sign on the dotted line.

The blunt truth, which New Delhi would do well to emphasise again and again, is that India cannot afford to foreclose the nuclear option until and unless a nonproliferation regime proposed for its adherence takes into account three requirements: it should be nondiscriminatory, its methods of verification should be manifestly effective and it should address itself to India's threat perceptions. In view of the vast evidence now available, there is no need to labour any of these points. Leaving aside for the moment India's principled opposition to the NPT [Non Proliferation Treaty], the fact remains that the international community simply lacks foolproof mechanisms to halt the clandestine development of

nuclear weapons or indeed of their clandestine transfers as suggested by scary reports from former Soviet republics. On the third count—India's threat perceptions—the international community cannot possibly expect this country to make any headway on nuclear proliferation so long as Pakistan continues to foment terrorism and secessionism in Kashmir and Punjab. The best it can do under these circumstances is to think of further confidence-building measures on the lines of the one promising to refrain from attacks on each other's declared nuclear facilities.

UN Delegate Urges 'Nondiscriminatory' Approach

92WP0229B Madras INDIAN EXPRESS in English 23 Apr 92 p 6

[Text] United Nations—India has stressed that nations must come to a "new" understanding of what constitutes nuclear nonproliferation before trying to pursue it.

"It would no longer suffice to ignore reality," India's delegate Prakash Shah told the United Nations disarmament commission which opened in New York on Monday.

"What is required in the context of the present realities is a new international understanding and consensus on what constitutes nonproliferation so that the pursuit of a global approach to nonproliferation which is universal, comprehensive and nondiscriminatory, is seriously attempted," he said.

"There is an urgent need," he said, "to take into account today's reality in dealing with nonproliferation and to provide an acceptable balance of mutual responsibilities and obligations between nuclear and non-nuclear weapon states in order to eliminate the threat of nuclear weapons in a time bound framework."

"My delegation would once again urge all members to realise that the only realistic solution is to have a global and comprehensive approach to the problem," Mr Shah said.

He assailed the tendency to focus against horizontal proliferation which worried the world two decades ago "while ignoring the horrors which can take place because of other realities impinging on vertical proliferation."

He was alluding to "unresolved issues" such as who controls some of the nuclear arsenals of the former Soviet Union.

He said such dangers exist largely because all these years "the overwhelming focus of world efforts has been to prevent non-nuclear weapon states from acquiring nuclear weapons."

He said "while weapons proliferated in geometric proportions, and new generation of nuclear weapons were invented and deployed by the nuclear weapon states."

This also, "while nonnuclear weapon states such as India scrupulously adhered to a policy of nuclear nonproliferation despite having developed a nuclear technology capability and refrained from assisting any other state from developing nuclear weapons."

Mr Shah reminded delegates of India's proposal, spelled out at the third special disarmament session four years ago by then Prime Minister Rajiv Gandhi, which, he said, has "become even more relevant today."

The proposal was opposed because of East-West rivalry prevailing at the time.

Mr Shah pointed out that in the absence of such confrontation how now "nothing should prevent the serious consideration of this plan."

On advances in military technology, the Indian delegate said that such a trend "would be a major setback to efforts on disarmament."

He criticised attempts to create "discriminatory, closed door 'clubs', 'groups', 'groups' and 'regimes' to impose unilateral restrictions on trade with developing countries in dual-use technology, equipment and materials on a discriminatory basis.

Mr Shah said "there is legitimate apprehension that discriminatory export control regimes are meant mainly to preserve the monopoly of a few states over weapons of mass destruction, missile technology and export markets for advanced conventional weapons."

To justify it by hypothesising potential threats from developing countries is to introduce a dangerous North-South dimension to disarmament, which should be avoided.

He said India supported a move by Argentina and Brazil which took such concerns into account.

On regional approach to disarmament, Mr Shah said that it may be useful in some areas of the world, "but other regions may find that conditions are not ripe for a regional approach."

They may find "that enough trust and confidence has not been created, that many other prerequisites for a regional approach do not exist because of actions or omissions by one country or another."

Mr Shah stressed that "we must avoid creating an impression that what is good for one region is necessarily good for another."

Preempting Pakistan's frequent reference on making South Asia a nuclear weapons free zone, Ambassador Shah said, "my delegation is convinced that in the field of nuclear disarmament there is no substitute for a global approach."

Mr Shah once again stressed elements that India considers important in dealing with the question, such as a clear definition of what constitutes the region.

"The definition of a region has to encompass the full range of security concerns of the countries involved," he said citing efforts by India and China at building confidence through transparency and dialogue.

China, a nuclear power, is excluded from Pakistan's proposal to keep South Asia free of nuclear weapons.

Defense Minister on Developing Missile Systems

1995 Deadline Noted

BK0805093892 Delhi All India Radio Network in English 0830 GMT 8 May 92

[Text] The Lok Sabha was informed today that four sophisticated missile systems are being developed by the Defense Research and Design Organization. The defense minister, Mr. Sharad Pawar, said that these include Prithvi, Trishul, Akash, and Nag. Trishul and Prithvi missiles are in an advanced stage of development and Akash and Nag missiles are expected to be produced in 1995.

Peaceful Use Underlined

BK1105034392 Delhi All India Radio Network in English 0245 GMT 11 May 92

[Text] The defense minister, Mr. Sharad Pawar, has said that the country will use its rocket technology for only constructive purpose, like telecommunication and monitoring the climate, and not for army and other destructive purposes. Addressing a news conference in Thane in Mahashtra yesterday, he said the world need not be disturbed by the usage of rocket technology by India. Mr. Pawar said India's intention about the usage of the technology is very clear, which the country had repeatedly expressed.

Pakistan Proposal To Freeze N-Arms Rejected

92WP0215A New Delhi INDIAN EXPRESS in English 17 Mar 92 p 2

[Article: "Freezing N-Arms Will Hurt India"]

[Text] New Delhi—Freezing nuclear weapon capabilities at present levels in southern Asia would hurt Indian security concerns and therefore should not be accepted, according to defence analysts here.

A Nuclear Weapon Free Zone (NWFZ) for South Asia proposed by the Pakistan Prime Minister, Mr. Nawaz Sharif, fails to take into account India's security needs and concerns and seeks to keep India permanently disarmed in a nuclear environment, they said.

Mr. Sharif's June 6, 1991 proposal for a five-nation dialogue to negotiate a NWFZ for South Asia could have been considered if Pakistan had shown the slightest sensitivity to Indian security needs and concerns, according to the director of the Institute for Defence Studies and Analyses (IDSA), Air Commodore (Retd) Jasjit Singh.

"Though India carried out a peaceful nuclear explosion in May 1974 and did not sign the NPT, its commitment to nonproliferation has been greater than either the nuclear weapon states or those who have signed the NPT but host nuclear weapons or are linked to the infrastructure for nuclear warfighting," Air Commodore Singh said.

Air Commodore Singh said India had proposed a comprehensive action plan for nuclear disarmament and nonproliferation at the third United Nations special session on disarmament in June 1988.

The international community had dismissed it as too idealistic. However, he said many of the steps visualised in the plan have already been initiated, though bilaterally by the superpowers.

This action plan needs to be seriously considered as the basis of a credible and effective nonproliferation regime, he said.—PTI

Missile Project To Reduce Foreign Dependence

BK1505061292 Delhi All India Radio Network in English 0435 GMT 15 May 92

[Text] The public sector Bharat Heavy Plates and Vessels Limited, Hyderabad, has developed Titanium alloy air bottles used in guided missile projects. The project [as heard] imported till recently will save considerable foreign exchange and reduce dependence on foreign supplies.

Reports on Polar Satellite Launch Vehicle

New Station Planned

92WP0217A Bombay THE TIMES OF INDIA in English 3 Mar 92 p 3

[Article: "ISRO Plans Launch Station"]

[Text] Bombay, March 2. A second satellite launch station primarily for launching the Indian Space Research Organisation's (ISRO) Polar Satellite Launch Vehicle (PSLV) has been planned at Balasore in Orissa close to the missile range.

The station is presently located at Sriharikota and the first PSLV flight from there with an 1000 kilogram Indian remote sensing satellite in a 900 km sun-synchronous orbit has been scheduled for later this year.

In the budget announced on Saturday a token amount of Rupees 1 lakh has been earmarked for the development of ISRO's Balasore satellite launch station. The figure is the same as last year.

The overall sanction for the department of space, however, has gone up from Rupees 482.61 crores to Rupees 510 crores this year.

Among all the projects, the highest priority has been given to the Geo-Synchronous Launch Vehicle (GSLV) programme and the amount sanctioned for this project has increased from Rupees 94 crores to Rupees 149 crores in the current budget.

According to ISRO officials, one of the major objectives of India's space programme has been to achieve self-reliance in satellite applications, payloads and launch capability.

The GSLV programme aims to place a 1,500 to 2,500 kg communication satellite in the geosynchronous transfer orbit. A sanction for Rupees 756 crores was sanctioned in November 1990 for implementing the GSLV project. The first flight of the GSLV was sometime towards the end of the '90s.

For the Augmented Satellite Launch Vehicle (ASLV) the budget has been increased from Rupees 1.86 crores to Rupees 3 crores.

Successfully Tested

BK1305125892 Delhi All India Radio Network in English 1230 GMT 13 May 92

[Text] The third-stage motor of the Polar Satellite Launch Vehicle [PSLV] was successfully tested at Sriharikota yesterday. UNI quoting an Indian Space Research Organization release said this was the seventh test for the motor. Considered to be an important milestone in the PSLV project, the motor was ignited under simulated high-altitude conditions.

Heavy Water Production Short of Target

92WP0214A Bombay THE TIMES OF INDIA in English 25 Mar 92 p 7

[Article by Clarence Fernandez: "Heavy Going for Heavy Water Board"]

[Text] Bombay, March 24. The production figures at the end of the financial year flowing into the heavy water board offices at Trombay reveal that with only 273 tonnes of heavy water produced during the last year, the Department of Atomic Energy (DAE) is over two-thirds short of its target.

Coded confidential dispatches to the board from each of the eight heavy water plants scattered around the country also show that, at crores of rupees per tonne of heavy water produced, the DAE must be running one of the world's most expensive heavy water programmes.

For example, when the Manuguru heavy water plant at Andhra Pradesh was commissioned in December last year, over Rupees 650 crores had been spent on it, and it was already nearly four years behind schedule. Beginning last April, when it generated about 100 kg of heavy water, the Manuguru plant has, until February this year, produced only around 35 tonnes of its full capacity of 185 tonnes per year. Each tonne thus costs about Rupees 19 crores.

Yet, speaking to this newspaper yesterday, the secretary of the DAE, and the chairman of the Atomic Energy Commission (AEC), Dr. P. K. Iyengar, stated that during the last two weeks, "The plant has been functioning up to 85 per cent of its capacity. Of course, this varies depending upon the pressure."

More shocking than Manuguru is the state of the Talcher plant. Ever since it was commissioned in 1984, it has not generated more than about 10 tonnes of heavy water. Its scheduled capacity is stated to be 62 tonnes per year, and even that is derated from the original 67; thus the Talcher plant has generated, till February this year, only about 3 per cent of the amount of heavy water it should have produced by now.

Not far better is the condition of any other of the heavy water board's plants. The most efficient is Tuticorin, operating at about 84 per cent. During the year from April 1991 to February 1992, this plant generated about 41 tonnes of the precious fluid, as against its capacity of 49 tonnes.

Also among the star performers, with an efficiency factor of 75 per cent, thanks principally to the fact of having been derated over time from a capacity of 14 tonnes annually to one of about eight tonnes today, is Nangal in Punjab, the country's oldest plant, put up in 1962.

"The country's first drop of heavy water was manufactured there," according to broad officials, and making use of the supposedly most expensive "water-hydrogen sulphide" technique, Nangal has produced during the last year, from April to February, just under six tonnes of heavy water.

Next in the league table with an efficiency factor of 67 per cent is Kota, which during the year, generated about 57 tonnes, as against 85. Hazira follows, with a 60 per cent efficiency. Next comes Baroda (44 per cent) followed by Thal (43 per cent), with Manuguru next and Talchar last.

Work on Manuguru began in 1982, and was scheduled for completion in five years. Had it been commissioned on schedule, it would by now have produced 740 tonnes of heavy water. Instead it has managed just five per cent of that amount.

At a recent seminar at Trombay, the heavy water board's chief executive, Mr. G. M. Sundaram, bent over to touch Dr. P. K. Iyengar's feet, under the astonished gaze of scores of heavy water board engineers and scientists.

During the last year, the former general manager of the Manuguru plant, Mr. Mohinder Singh, pointed out a number of financial irregularities in the functioning of the plant, and recommended an enquiry into them.

However, he was simply shifted to the board's office in Bombay, and nothing further was done.

Speaking to this newspaper, Dr. P. K. Iyengar said that he was unaware of the specific details of the alleged irregularities. Subsequently he stated that he had asked the board chief executive, Mr. Sundaram, to look into them, and was satisfied that they were baseless.

Specifically, Mr. Singh has inferred, in a July 1991 letter to Dr. Iyengar, that the executive director in charge of Manuguru, Mr. S. Sharma, had taken a decision to order 16 different kinds of tests on the transformer oil being used at Manuguru in the face of advice from juniors that all but a quarter of these tests were of no practical value, and essentially academic.

It further emerged that the company which had been contracted to do the job at nearly Rupees 9 lakhs, Esquire Engineers and Consultants of Madras, had no facilities to do it, and was simply farming oil samples out to government-run laboratories for testing. All this inspite of the fact that test facilities existing at Manuguru itself.

"We can save time and money by collecting the samples and sending them to either Bangalore or Hyderabad for test results. Under the circumstances, it is considered that giving oil samples to Esquire is not at all economical," Mr. Mohinder Singh says, in his letter to Mr. Sundaram, a copy of which was sent to Dr. Iyengar.

Totally, 11 different kinds of corrupt practices are detailed, and an inquiry recommended into them. Among these is a case of overpayment to a Calcutta firm to the extent of Rupees 4 lakhs, which is described as "being not an isolated case;" and cases where selections committees appointing employees have demanded and received bribes from successful candidates.

"It's all a case of self-aggrandisement," Dr. Iyengar said. "Everybody suspects everybody else. I have no specific details of the kind you are alleging. I have asked the heavy water board chairman to inquire into the allegations, and he has assured me there is no such irregularity."

Another interesting reason for Manuguru's failure to operate properly must be the DAE's failure to decide on an appropriate method of transferring the 3,000 tonnes of coal daily required by the plant from the mineface of the Singareni colliery to the actual site of use, nine kilometres away.

Under the advice of Tata Consulting Engineers, it was originally decided that the coal for the captive power plant at Manuguru should be transported by a ropeway, which at that time was estimated to cost around Rs. 11 crores.

Placed in the hands of the Calcutta-based Damodar Ropeway and Construction company, the price of the turnkey project was subsequently enhanced by the DAE to Rupees 11 crores. The ropeway is still not up, though Mr. Sundaram claimed recently that it is 50 per cent operative.

It is reliably learnt, however, that all 3,000 tonnes of coal is daily being trucked to the plant, thus negating the very idea of the ropeway in the first place.

"We had to give the money to buy the ropes," Dr. Iyengar said. "Apparently they are to be imported since they cannot be made in the country. It has to be completed, after all."

Dr. Iyengar estimated that it takes about 250 tonnes of heavy water to run each nuclear reactor. But during the last year, the whole complex heavy water manufacturing structure has generated only enough to run just one nuclear reactor.

Reports Highlight Various Reactor Developments

Radiography Reactor Planned

92WP0213A Madras THE HINDU in English 26 Mar 92 p 11

[Article: "Mini-Pool Reactor Getting Ready at Kalpakkam"]

[Text] Bombay, March 25. A mini-pool reactor with U-233 is at an advanced stage of completion at Kalpakkam, Madras. The reactor will facilitate neutron radiography applications, particularly of the burnt fuel of the fast breeder test reactor.

This was today stated by the Bhabha Atomic Research Centre (BARC) director, Dr. R. Chidambaram, while delivering a keynote address at a conference on "Nuclear energy programme—achievement and prospects in medicine, industry and agriculture."

The two-day conference, organised by the Indian Nuclear Society was inaugurated by the Atomic Energy Commission (AEC) Chairman, Dr. P. K. Iyengar.

Dr. Chidambaram said BARC had played a pivotal role in promoting the use of isotopic gamma sources for nuclear medicine, in diagnosis and therapy (NDT) in industry.

He said 380 organisations and industrial plants now use about 1,000 industrial gamma radiography equipment out of which 140 organisations offer commercial service, while others have in-house applications. Nearly 3,500 people had so far been trained.

Regarding other nuclear technique in NDT, he said expertise in neutron radiography had been developed in the physics group of BARC and also in the Indira Gandhi Centre for Atomic Research, at Kalpakkam.

Dr. Iyengar said varied applications of radioisotopes can bring in a great revolution in agricultural production. The main use of radioisotopes was in inducing genetic

variability to crop plants to develop improved varieties, improving fertilizer use efficiency, biological nitrogen fixation and monitoring the fate and persistence of pesticides in soil, he said.

Using radiation technique, Dr. Iyengar said, BARC had produced several improved mutants of the new foodgrains and pulses.—UNI

Research Reactor Designed for Export

92WP0224A Madras THE HINDU in English 9 Apr 92 p 6

[Excerpt] New Delhi, April 8. India has designed a general purpose research reactor which could be used by the developing countries for isotope production and other applications of nuclear technology for peaceful purposes, the Minister of State for Personnel and Public Grievances, Mrs. Margaret Alva told Mr. Prataprao B. Bhonsle in the Lok Sabha.

The reactor has special design features which led to the generation of high neutron flux at relatively low power. It also has several research and development facilities which makes it an attractive proposition for the developing countries. These reactors when supplied would be strictly under IAEA safeguards and some countries have shown interest in them. [passage omitted]

Indigenous Products 'Berated'

92WP0223A Madras INDIAN EXPRESS in English 9 Apr 92 p 9

[Article by Naresh Minocha: "After 17 Years of Trying to Upscale Capacity; DAE Berates Indigenous A-reactors"]

[Text] New Delhi—The Department of Atomic Energy (DAE) has failed miserably even after 17 years of determined efforts to scale up the capacity of its copied versions of a Canadian atomic power reactor model.

As a result, 210 megawatt of power capacity, costing over Rs 420 crore at the prevailing price, is "missing" from the existing and upcoming atomic power stations.

The copied reactors, which constitute the first step in DAE's multi-stage plan for atomic power and have a designed and installed capacity of 235 MW, failed to attain the rated capacity due to an inherent snag.

The department has, therefore, quietly scaled down the capacity of the indigenised reactors to 220 MW each, the same as what the Canadians provided in the then unproven designs of their reactor named Candu.

The Atomic Energy of Canada Limited (AECL) had supplied the designs for the country's first pressurised heavy water reactor (PHWR), which uses natural uranium as its fuel, in the sixties.

This 220-MW reactor was installed as Unit I of the Rajasthan Atomic Power Project (RAPP) at Kota under an Indo-Canadian joint venture and was commissioned in 1973.

When the second PHWR of the same capacity was being set up at RAPP, India shocked the West with an atomic explosion at Pokharan in Rajasthan in May 1974. The Canadians quickly cut off the aid and withdrew from RAPP.

Later, DAE not only took up the responsibility for completing the second unit of RAPP but also came out with a proposal to improve and scale up the capacity of Candu-type reactors required for new projects.

The first two sets of indigenised 235-MW units were installed at the Madras Atomic Power Project (MAPP) in the mid-eighties. Another two such sets were installed at the Narora Atomic Power Project (NAPP) in the late eighties.

Apart from these four units of 235-MW rating, 10 such units are either under installation or are proposed to be installed at different projects in the country.

The total capacity of indigenised 235-MW reactors will be, thus, 3290 MW.

Considering the problems in attaining the capacity of 235 MW at MAPP and NAPP, the department has knocked off a capacity of 15 MW each from the existing and proposed 235-MW units.

The capacity missing from the total capacity of 3290 MW, thus, amounts to 210 MW.

The problem lies in transformation of thermal energy generated by an atomic reactor at its full capacity into a corresponding amount of steam required for operating conventional turbo-generators.

In a PHWR, the heat released by the atomic reaction is first absorbed by heavy water, a special grade of water. The energy is later transferred from heavy water to ordinary water, which gets transformed into steam. The steam operates the turbine, to which is coupled an electricity generator.

The fault lies in the sequences of steps up to the generation of steam. The Department, unable to find a solution even after several years of studying the problem, has now resorted to across-the-board derating.

The vital parts of the reactor are manufactured by DAE's nuclear fuel complex and Larsen and Toubro, whereas the steam turbine and electric generators are manufactured by Bharat Heavy Electricals Limited (BHEL).

Before derating the capacity of indigenised 235-MW units, the Department had downgraded the capacity of the two existing atomic projects built with foreign assistance.

The capacity of the Tarapur light water reactor, set up as turnkey project by the Americans in the sixties, was whittled down by 100 MW to 320 MW, keeping in view its old age.

Similarly, the capacity of the first unit of RAPP has been slashed by 120 MW to 100 MW due to a technical sang, whereas the capacity of RAPP-II has been reduced by 20 MW to 200 MW due to equipment failures.

The first unit of RAPP was declared a prototype unit at the time of formation of the Nuclear Power Corporation (NPC) in 1987. NPC took over all operating atomic power projects from the erstwhile Nuclear Power Board except this unit. It is owned by DAE but operated by NPC on an agency basis.

The failure to achieve a paltry scale-up of 15 MW in the 220-MW PHWRs has put a big question mark about DAE's ongoing project to design and develop a 500-MW rector using the technologies of the jinxed 235-MW reactors.

It has proposed to erect four 500-MW units during the Eighth and Ninth Plans. Can the department succeed in crossing the gulf when it fell flat on its face while jumping over a ditch?

PAKISTAN

Kanju Notes 'Peaceful Purpose' of Nuclear Program

92WP0221D Islamabad THE MUSLIM in English 17 Apr 92 p 12

[Excerpt] Islamabad, March 16: Minister of State for Foreign Affairs Siddique Khan Kanju on Monday evening said Pakistan had acquired certain technical nuclear capability. However, he made it clear that these are totally for peaceful purpose.

He was talking to newsmen at an Iftar party hosted in honor of the ambassadors of the Islamic countries by Senator Qazi Hussain Ahmad, Amir Jamaat-i-Islami, at a local hotel.

Mr Kanju said "Pakistan has repeatedly announced that it has no aggressive designs against any country so no question arises to use this capability for other purpose".

When his attention was drawn towards the statement of Federal Defence Minister Syed Ghous Ali Shah he said I fully endorsed his statement regarding nuclear capability saying that he himself categorically stated at the floor of the House that Pakistan's nuclear programme is only for peaceful purpose. Pakistan, he said, had always extended sincere proposals for declaring South Asian region a nuclear free zone. He said we are repeating our demand in this connection. [passage omitted]

Reports of Yielding to U.S. Pressure 'Baseless'

92WP0221C Islamabad THE MUSLIM in English 16 Apr 92 p 11

[Quotation marks as published]

[Text] Islamabad, April 15: Pakistan in no case would roll back its nuclear programme, which was of a purely peaceful nature.

This was said by a foreign office spokesman while referring to press reports suggesting a possible roll back of the nuclear programme under American pressure.

Commenting on these reports the spokesman termed them as baseless and without any foundation.

Replying to newsmen questions the spokesman referred to his earlier statement of February 9 in which it was clearly stated that Pakistan was firmly committed to the observance of nuclear nonproliferation and was willing to accept any nondiscriminatory regional regime for keeping South Asia free of nuclear weapons.

The spokesman also referred to the recent statement by Prime Minister Nawaz Sharif at Attock on the occasion of the ceremony of the Artillery Center Reunion.

The Prime Minister has categorically ruled out any compromise on Pakistan's national interest.

The spokesman said that Pakistan would continue to pursue its peaceful nuclear programme, which was not weapons-oriented.

The spokesman also mentioned the June 6 proposal of the Prime Minister through which he suggested a five-nation conference to ensure nonproliferation in the region. There has been no change in Pakistan stand and that it would in no case roll back its nuclear programme the spokesman concluded.

Installation of PRC Nuclear Reactor Started

BK1005155992 Islamabad Radio Pakistan Network in Urdu 1500 GMT 10 May 92

[Excerpt] [Passage omitted] In reply to a question by Javed Iqbal Abbasi, the parliamentary affairs minister said work on the installation of a 300-megawatt nuclear power plant has started. The plant which will be supplied by China is expected to start operation by the end of 1998. [passage omitted]

U.S. Sanctions Follow Rocket Deal With India

Agencies Blacklisted for Violations

BK1205044892 Delhi All India Radio Network in English 0245 GMT 12 May 92

[Text] The United States has blacklisted Russia's Space Agency, Glavkosmos and the Indian Space Research Organization for two years for entering into an agreement on transfer of space technology. Agency reports say that a U.S. State Department spokesman, Mr. Richard Boucher, said in Washington yesterday that the decision of the two space agencies violates the guidelines of the treaty signed by several nations on transfer of advanced missile technology. He said that for the next two years the United States will not export or import any technology or equipment to these organizations.

India had made it clear earlier that the Russian missile technology is needed for its space research, especially launching of weather and international communication satellites.

U.S. Allegations Rejected

LD0805163392 Moscow ITAR-TASS World Service in Russian 1319 GMT 8 May 92

[By ITAR-TASS correspondent Rena Kuznetsova]

[Text] Moscow, 8 May—Glavkosmos has not violated missile technology monitoring principles, Glavkosmos Chairman Aleksandr Dunayev told a news conference on Indo-Russian cooperation in this area.

The news conference focused on the agreement between Glavkosmos and the Indian space research organization on developing a cryogenic stage for the Indian rocket booster that will put an Indian communications satellite into geostationary orbit. However, work on this agreement is threatened by the U.S. Administration's claim that the missile technology monitoring regime is being violated and its demand that it be stopped.

News conference participants reminded correspondents that the agreement contains pledges by India to use the obtained technology exclusively for peaceful purposes and not to pass it to third countries. Russia is not a party to the agreement on monitoring missile technology, so formal complaints cannot be lodged with Glavkosmos.

Russian and Indian specialists are alarmed by the fact that halting work on this project may threaten the beneficial cooperation the two countries have had for many years on the peaceful exploration of space and that the Russian space industry will lose orders for 4 billion Indian rupees and possibly for tens of millions of dollars from other countries.

Glavkosmos experts feel that the U.S. Administration aims to eliminate Russia's space industry since today it still presents a danger of being more competitive on the world market, particulary in relation to rocket boosters.

Economic Motivations Underlined

924P0133A Moscow ROSSIYSKIYE VESTI in Russian No 8, 8 May 92 p 3

[Article by Sergey Glazev, Russian first deputy minister of Foreign Economic Relations: "Why Are the Americans Angry?"]

[Text] **Russian First Deputy Minister of Foreign Economic Relations Sergey Glazev tells the story of the "scandalous" deal made by Glavkosmos [Main Space Administration].**

One of the main objectives of our ministry is to stimulate and assist effective integration of Russia into the system of international division of labor. All of the possibilities for this exist. We can offer serious competition to the West in science-intensive production in shipbuilding, atomic industry, fiber-optics, aerospace industry and other sectors. We are not as poor as it may seem. But it should be kept in mind that a merciless competitive struggle is being waged today for the market of highly sophisticated goods. One of the most difficult markets in this sense is space technology and services, which are monopolized for all practical purposes by U.S. corporations.

Our industry is able to offer many forms of similar equipment and services at prices much below the American analogues. And this is very troubling to our competitors. This is why they are actively attempting to crowd us out of those markets in which we have already gained a firm position, and to keep us out of new ones. There are many examples in which the USA has essentially put pressure on third world countries by administrative methods, and citing American legislation and existing bilateral treaties, kept them from using our products and services.

The story of the Glavkosmos is one such example. Russia traditionally occupies a strong position in the space technology market in India. India needs its own space program to solve, for example, the problems of the population's illiteracy. The country does not have a single nationwide language. Consequently the same information often has to be broadcast in almost 20 languages. This requires a developed satellite communication system. Not that long ago the Glavkosmos signed a contract with India transferring procedures for manufacture of cryogenic engines to it. Equipping spacecraft with them will improve their maneuverability and upgrade the quality of telecommunication systems. Moreover our organization obtained this contract by winning negotiations in which foreign companies also participated, including General Dynamics (USA).

The attempt to block this contract can be explained by the economic interests of U.S. corporations in the Indian market, corporations that are able to exert strong pressure upon the government. In this case, citing the Russian leadership's announcement of its intention to join

the regime for control of proliferation of rocket technology (RKRT), the Americans demanded dissolution of the contract. A detailed analysis by our experts showed that there is no violation of the regime, and from our side we proposed conducting an international expert examination that would allow us to establish the truth. The Americans did not respond to this initiative for a long time. But ultimately they sent their representatives over for consultation. However, the people that came were not experts who could discuss all of the technical details of this contract, but diplomats who kept telling us that we needed to adhere to international obligations. We on the other hand offered evidence that the contract under discussion was not a violation of the regime. As a result, each side remained in its own position. The Americans decided to impose sanctions against Glavkosmos, which refused to tear up the contract, while we saw no grounds for rescinding it.

But the main thing that this story revealed is that the USA is the dominant figure in the regime of control of proliferation of rocket technology, and that it has appropriated for itself the right to interpret its provisions broadly. In any case during the consultations the USA offered contradictory interpretations of some terms and concepts of the RKRT depending on the course of the discussion. It may be concluded from this that the issue of joining the regime in its existing form must be approached very cautiously. We cannot allow our interests to be infringed upon in such important multilateral agreements, in which some particular side actually enjoys an advantage.

From my point of view, our joining the RKRT must be accompanied as a minimum by removal of the sanctions and barriers against Russian exporters of science-intensive products. Discrimination against our high-technology products by foreign consumers and exporters must be halted. In my opinion we cannot allow ourselves to recognize the multilateral regime as long as another regime that operates against us continues to be harbored within it. I am referring to the COCOM. In this case we find ourselves under dual control, and we will be forced to ask permission from the Americans every time we export space technology. Knowing their long-term intentions, I think that they will refuse us in 9 out of 10 cases. This is extremely unjust, and it is contrary to our economic interests. Moreover in joining the regime, we also need to think about our traditional partners in trade and productive cooperation—both in the CIS and beyond its borders.

Our position is finding understanding in the leadership of the country, and among industrialists. We do not feel that the contract violates the RKRT, and we see no basis for its dissolution. In the meantime the Americans are imposing sanctions against the Glavkosmos. But it will suffer little from them, since the USA does not allow American companies to use its products and services anyway. However, by their decision to impose sanctions the Americans are causing us moral damage, ignoring the assessments of our experts and raising doubts about the government's intentions. Therefore we insist that this project be subjected to international expert examination to determine if it is consistent with the requirements of the RKRT. This would concurrently be a test of the validity of the decision making procedures and mechanism of work of the RKRT.

Dunayev: 'Real Trade War Is On'

OW0805164792 Moscow INTERFAX in English 1619 GMT 8 May 92

[Report by Mikail Mayorov and Igor Porshnev from "Diplomatic Panorama"; transmitted via KYODO]

[Text] "A real trade war is on. They want to drive Russia out of India where it has pretty solid space program ties." These words were used by Aleksandr Dunayev, Chairman of the Russian Glavkosmos, to describe the United States' accusation that Russia and India were in violation of the Missile Technology Control Regime (MTCR).

At a May 8th press conference in Moscow, Mr. Dunayev dwelt in some detail on the background of the contract between Russian and India which was signed on January 18, 1991.

In 1989, India decided to create a new rocket, the GSLV, for putting communications satellites into geostationary orbit. The bidding that was announced did not, however, have the status of an official tender. Bidders included Arian Space (France) and General Dynamics (USA).

According to Mr. Dunayev, Glavkosmos won the competition only because of the moderate payment it requested. Glavkosmos concluded the contract because it knew that at that time India already had SLV, ASLV, and PSLV solid-fuel rockets. These rockets had been developed in conjuction with French and German firms without assistance from the former Soviet Union.

Mr. Dunayev remarked that India was already testing cryogenic rocket engines similar to the ones that Glavkosmos agreed to supply and said that "It was only a matter of time" before India could have built them itself. On the other hand, Indian specialists working alone would not have been able to put geostationary communications satellites into orbit for another 2 or 3 years.

Mr. Dunayev said that the cryogenic rocket engines which Russia pledged to deliver to India had been developed in the 1960's and were intended for an unimplemented program to put Soviet cosmonauts on the moon. The rocket is capable of putting into geostationary orbit a satellite weighing up to 2.5 tons. Mr. Dunayev said that use of the rocket for military purposes was out of the question.

This question was dealt with at greater length by Lev Kiselev, Chief Designer for the Saliut Design Office. He particularly emphasized that from the beginning MTCR did not affect Glavkosmos's contract with India. According to Mr. Kiselev, roughly three months are

needed to prepare a GSLV-type cryogenic rocket for launching while for a military rocket seconds or minutes count. "Only a madman or a technically-illiterate person would arm such a rocket with a nuclear warhead," the designer said.

Mr. Kiselev particularly stressed that the agreement anyway stipulated that neither the cryogenic motor nor the rocket itself was to be used as part of a military missile. The agreement especially stressed that the Indian side would not reveal the rocket's specifications or design. Finally, Glavkosmos reserved the right to suspend the program at any time if it doubted its peaceful purposes. Some of the special materials for the rocket are produced in Russia and their shipment could be halted any time.

Mr. Dunayev said that the sanctions with which the United States was threatening Russia and India had already been in place a long time. By these sanctions he was referring to the 1986 prohibition on exporting high-technology equipment into the former Soviet Union. "So we can only smile," said Mr. Dunayev, "when we hear talk about sanctions."

Nevertheless, the situation is not simple. In Mr. Dunayev's words, "If this contract is stopped, Glavcosmos will not only lose 700 mn rupees, but will be forced to lay off tens of thousands of the 65,000 employees working on it."

He stressed that the Russian and Indian sides were willing to undergo international inspection to determine if the contract and the project are in keeping with the terms of the MTCR. The Glavkosmos chief is certain that the United States, which is concluding a similar contract with China, is disturbed not so much by possible violations of the MTRC, but by India joining those countries that are able to put communications satellites in geostationary orbit. It was this conclusion that led Mr. Dunayev to call this a "trade war." He added "They would like to force us out of India and then from other countries."

"Glavkosmos," said Mr. Dunayev, "intends to convince the world community, the Russian government, and also the State Department of the United States that the connact with India does not violate the terms of the Rocket Technology Control Regime."

Burbulis Urges Neutral Assessment

PM1405133792 Moscow IZVESTIYA in Russian 13 May 92 Morning Edition p 5

[Nikolay Paklin report under the general heading: "Washington's Sanctions Against Russia"]

[Text] Delhi—The U.S. Administration's decision came as no surprise to either India or Russia. Both in India and in our country, the U.S. warnings were perceived as pressure.

Indian parliamentarians have proposed adopting a resolution condemning U.S. interference in India's internal affairs. A statement by G. Burbulis at a news conference in Delhi during his recent visit sounded ambiguous. He declared, on the one hand, that the deal should be passed for consideration to a neutral international commission, while, on the other, he confirmed that Russia intends to fulfill the contract. Oil was poured on the flames by his condemnation of some state "which tries to establish usages on a world scale, disregarding the interests of partners. Russia ignores the U.S. threat"—this was how THE HINDUSTAN TIMES, an influential Indian newspaper, commented on that statement by G. Burbulis.

Of course, Russia can implement the rocket deal with India, and the United States is powerless to prevent this. However, in that case contacts will be broken off between our Glavkosmos [Main Administration for the Development and Use of Space Technology for the National Economy and Scientific Research] and U.S. companies. A bitter aftertaste will appear in Russian-U.S. relations. If we abandon the deal, we will lose an order worth at least $250 million, of which, Glavkosmos is in dire need. And, naturally, we will displease Delhi. In short, Moscow has ended up between the devil and the deep blue sea.

There is just one reason: No one bothered to check in advance on an international level the commensurability of the parameters of the deal with the terms of the arrangements for control over the nonproliferation of rocket technology, which we have finally decided to support.

Commentary on Political Repercussions

LD0705085492 Moscow Radio Moscow World Service in English 1110 GMT 6 May 92

[Commentary by Yuriy Solton]

[Text] Washington is studying the possibility of economic sanctions against Russia and India should the contract on supplies of Russia's rocket engines to India's space research agency be put into effect. The problem is analyzed by Yuriy Solton.

This concerns the contract worth about $250 million signed even before the breakup of the former USSR. Washington believes the contract contravenes the missile technology control regime. The accord was concluded by Western countries to limit rocketry shipments, especially to the developing countries, on the ground that such hardware could be used for military purposes. Neither the former Soviet Union nor Russia have signed the agreement, but Moscow has officially declared it will abide by its principles and now Washington believes that Moscow is violating its commitment.

Last month's bilateral talks at expert level on the issue were unproductive and Washington threatened Moscow and Delhi with economic sanctions. Russia and India

could be barred from American technology and intergovernmental contracts. Serious troubles may befall the bill being debated in the American Congress to earmark by the United States $4.5 billion through the International Monetary Fund to back up Russia's economic reforms.

Delhi has flatly dismissed the United States threat as inadmissible meddling in Russian-Indian affairs. And now Moscow has reacted, and here are three statements:

A spokesman for the national space exploration agency Glavkosmos, in an interview with the daily IZVESTIYA, declared that the facility Russia intends to sell to India could not be used for military purposes and consequently is not covered by the missile technology control regime. In his words, the project is totally peaceful and the United States cares for this matter to safeguard its space industry against competition rather than to ensure international security. A Foreign Ministry expert, in an interview with IZVESTIYA, has called for a new bilateral conference to be held at specialist level to see how far the terms of the contract meet the regime's control. Russia's Secretary of State Gennadiy Burbulis has spoken in tougher terms, as he declared at a news conference in Delhi that Russia's stand remains implacable. Russia intends to reaffirm its contract commitments, relying on international neutral expertise which would allow to lift all questions where they come from [as heard].

It should be stressed that the frictions in tripartite relations over the Russian-Indian rocket contract go beyond a purely commercial deal and amount above all to a trust issue that should be settled at top political level without prejudice and haste.

Conceptual Differences Noted

LD1505084892 Moscow Radio Moscow World Service in English 1810 GMT 14 May 92

[Commentary by Boris Belitskiy]

[Excerpts] The United States has imposed sanctions against the Russian space organization Glavkosmos and the Indian Space Research Organization, ISRO. A comment from Boris Belitskiy on the arguments of both sides to this dispute: [passage omitted] On a philosophical note, some legal experts in Moscow take the view that the controversy over this deal actually reflects a difference of approaches to the problem of the non-proliferation of arms. The Western approach is more pragmatic—it aims at maintaining international order and hence, the survival of civilization by a balance of strength at a regional, as well as global level. At times this requires the use of force unauthorized by the United Nations. Russia's approach, inherited from the Soviet Union, has been somewhat utopian rather than pragmatic. It is based on the doctrine that disarmament automatically leads to peace and that all countries can and should be persuaded not to use force in international relations.

The approach to arms non-proliferation should, in the view of these legal experts in Moscow, be adjusted accordingly. Non-proliferation measures cannot be eternal and change with the situation [as heard]. Russia's diplomats, they believe, should have raised the question of a mutual review of the observance of certain other agreements such as the 1972 Soviet-American Anti Ballistic Missile Treaty. This would have, so to speak, evened the score and laid the groundwork for reassessing the situation in South Asia. In this context, it should have been pointed out how the loss of military orders could adversely affect the building of a democratic society in Russia.

In general, these experts urge a more circumspect adherence to non-proliferation and disarmament agreements, taking into account economic conditions and the practices of other countries. In short, the dispute over the rocket engine deal is seen by some experts in Moscow as providing plenty of food for thought.

India Cites U.S. Technology Ban

BK1205095492 Delhi All India Radio Network in English 0830 GMT 12 May 92

[Text] The government today assured the Lok Sabha of all measures to meet the two-year ban imposed by the United States on transfer of technology to ISRO [Indian Space Research Organization]. The minister of state for personnel, Mrs. Margaret Alva, told the agitated members that India's technology is capable of meeting the challenge. Mrs. Alva said New Delhi is determined to protect the freedom of choice. She joined the house in expressing concern over the U.S. action. The minister said the agreement reached by ISRO and Glavkosmos of Russia does not violate the Missile Technlogy Control Regime, MTCR, treaty which seeks to restrict proliferation of advanced technology. India's missile program is meant for peaceful purpose and, therefore, it does not violate the treaty in any way.

Earlier, members from all parties unanimously condemned the U.S. action and urged the government not to yield to the American pressure. Raising the matter, Mr. George Fernandes, Janata Dal, said that the Bush regime now lays all kinds of pressures to impose its wishes on other nations. Other members demanded immediate cancellation of the proposed joint naval exercises and adoption of a resolution by the house to condemn the U.S. action. The speaker also agreed to a suggestion made by the minister of state for parliamentary affairs, Mr. P.R. Kumaramangalam, to convene a meeting of leaders of all political parties to discuss the issue.

Members from both sides in the Rajya Sabha also strongly condemned the U.S. action and asked the government to take diplomatic and bilateral initiative to mobilize the Third World to face the U.S. pressures. The left parties' members demanded that the proposed joint naval exercises with the United States should be called off to register India's protest. The BJP [Bharatiya Janata Dal] and the Janata Party members expressed the view

that India can avoid such arm twisting by acquiring nuclear capability. Mr. Yashwant Singh, JD-S [Janata Dal-S], and others who raised the issue through a special mention wanted the house to adopt a resolution urging the government to stand up to any U.S. pressure.

India Calls Blacklisting 'Ridiculous'

BK1305103492 Delhi All India Radio Network in English 0830 GMT 13 May 92

[Text] The chairman of the Indian Space Research Organization [ISRO], Professor U.R. Rao, says the U.S. decision to blacklist ISRO will not have a lasting effect on the country's space program. Addressing a press conference in Bangalore today, he described the U.S. decision as unilateral and ridiculous. Professor Rao said that the Missile Technology Control Regime does not cover cryogenic engines, and as such, the decision to blacklist does not stand technically.

Professor Rao said that the U.S. Government was aware of our contract with Glavcosmos of Russia for supply of cryogenic engines signed about 17 months ago. And we did it purely for financial considerations. He said that the Russian engine would cost about 235 crore rupees, as against about 600 to 800 crore rupees in the case of U.S. engine. Professor Rao, however, expressed the hope that the United States would not continue the ban for two years and withdraw it earlier, as it did in the case of China. Professor Rao said that India has a technical know-know to go ahead with the space program despite the U.S. ban. But we may have to be open to additional time and expenditure.

Actions Termed 'Malicious'

BK1105125392 Delhi All India Radio General Overseas Service in English 1010 GMT 11 May 92

[Commentary by H.S. Saraswat, special correspondent of DAINIK BHASKAR: "Politics of Rocket Technology"]

[Text] American charge that a $200-million rocket deal signed between the former Soviet Union and India violates international law is not only false but also malicious. Like a self-styled policeman, America is making both India and Soviet republics feel like criminals as both are the subject for sanctions proclaimed by the U.S. administration. It is an unnatural pressure in a context where normal market rules and civilized discussions ought to be able to resolve the differences. The United States has threatened to cancel all high-technology trade with Russia and has already blocked a Russian request to launch a South Korean communication satellite because it claims Russia has violated Missile Technology Control Regime, MTCR, in selling rocket technology to India. The MTCR, which the then Soviet Union or now the Soviet Russia never signed, is intended to prevent the proliferation of ballistic missile technology that could be used for delivering nuclear warhead. Still, Russia has on its own assured adherence to the principles of the regime which essentially covers know-how and not a know-why management. [sentence as heard] In fact, in 1989, when India had announced the project, both the French Ariane consortium and the American General Dynamics Corporation among others had placed bid to provide the engine. The Soviet tender won due to its low price—$200 million compared with General Dynamics bid of $800 million for similar technology.

The Russian engines are based on a cryogenic design developed for the Soviet moon-landing program in the 1960's. They are liquid hydrogen fuel with liquid oxygen as an oxidant and require extremely low temperature for operation. A rocket of this kind cannot carry nuclear warheads, nor it has any other military application. There is not a single example anywhere in the world where a military missile has been made by using liquid hydrogen as fuel. A military missile has to be ready for a launch within minutes, if not seconds, whereas the preparation time required for a communication satellite is around three months. Where is the military value in that?

The main reason behind the American objection is that it does not want the element of competition in this field. It is one thing for America to tell India and other developing countries to allow its products in their markets on competitive basis and it is another to allow competition for its technology. The USA also does not want India to join the exclusive club of nations that have the capacity to place satellites in geostationary orbit.

The Russian secretary of state, Gennadiy Burbulis, who was in India early last week, has repeatedly been asked in the USA since December 1990 to have nuts-and-bolts technical discussions to work out terms that would satisfy the requirement of law. But the Americans have been putting political and diplomatic level pressures to avoid technical discussion knowing fully well that on technical grounds America has no case. Moreover, the space industry in the United States is facing hard days with its launching capabilities, challenged by cheaper ones of China, Russia, and France in that order. So far, India has used U.S., French, and Soviet launch vehicles for its satellite launching. With the proposed development of Geosynchronous Launch Vehicle, GSLV, and the existing launch center at Sriharikota, close to the equator on the east coast, India was (?stabilized) as a major space-capability nation along with others having similar capabilities. GSLV would cost 7,560 million rupees and the flight is expected in 1995. About 1,490 million rupees will be spent this year alone on GSLV.

China Reports

OW1105213292 Beijing XINHUA in English 1855 GMT 11 May 92

[Text] Washington, May 11 (XINHUA)—The U.S. Administration has imposed trade sanctions against Russian and Indian companies on a rocket engine deal, the U.S. State Department announced today.

Richard Boucher, deputy spokesman of the State Department, said, "The sanctions would be narrowly focused against the agencies involved in the deal—Russia's Glavkosmos and the Indian Space Research Organization."

The sanctions included a two-year ban on all U.S. licensed exports to these two entities and all imports to the United States from these entities, and a two-year ban on U.S. Government contracts with these entities, Boucher said.

Boucher had no information on how much business might be lost as a result of the sanctions. But he speculated that exports to these entities that require U.S. licenses might be the most important of the three sanction measures.

However, Moscow and New Delhi have said the 250-million-dollar deal for giant rockets to launch satellite into space is entirely for peaceful purposes.

During his visit to India last week, Russian First Deputy Prime Minister Gennadiy Burbulis reiterated his nation's commitment to fulfill the deal. He said, "Our position remains firm."

Indian officials said that the Russian offer was accepted because it was the lowest of the three bids, including one from General Dynamics of the United States, and Russia offered the transfer of technology.

Glavkosmos Chairman Aleksandr Dunayev accused the U.S. Administration on Friday of trying to block the sale to pave the way for a U.S. firm to pick up the deal.

Boucher said the Russian-Indian deal was "inconsistent" with the Missile Technology Control Regime guideline.

The U.S. sanctions was taken after the U.S. Administration officials had serious discussions with Russian and Indian governments on the matter, he said.

Boucher also said the U.S. Administration would continue to pursue discussion of the issue with both governments. "We have explained to both governments the termination of the Glavkosmos deal could permit us to consider a waiver of these sanctions," he said.

Dispute Continues Over Nuclear Sales to Iran

British Paper on Warhead Transfer

MK0805114592 Moscow KURANTY in Russian 7 May 92 p 3

[Commentary by Mikhail Shchipanov: "'Bombshell' About a Bomb"]

[Text] The reputable British newspaper THE EUROPEAN has exploded a bombshell that the whole world was waiting for so impatiently that it had even gotten rather tired of waiting. Referring to a certain confidential report that fell into journalists' hands, which came from the Russian special services, and was apparently prepared for their colleagues from the CIA, the newsapaper warned that Alma-Ata had handed over to Iran two nuclear warheads that had disappeared from the Semipalatinsk test site following its closure. They were handed over either in exchange for petroleum supplies or for "hard" cash.

It must be said that, several months ago, reports on the sale of nuclear weapons by Kazakhstan to Iran appeared in the Arabic press. However, this time the reports on nuclear contraband appeared on the pages of a respected newspaper that cherishes its reputation. Admittedly this time too the "report" turned out to be something from the realms of fantasy. However, the question of the transfer of nuclear warheads from the arsenal of the former Union really does worry the Russian special services. A few days ago, in a conversation with the Swedish premier, Ye. Primakov, head of the Foreign Intelligence Service, raised the issue of cooperation in preventing the proliferation of nuclear weapons from the territory of the CIS. On the other hand, even the intensified infiltration of Iranian emissaries into the military-industrial complex of Central Asia and Kazakhstan is not a secret. It was evidently not in vain that the Iranians spent so much money on lavish banquets laid on for specialists of a specific type in the best restaurants of the "Soviet East."

However, there is something else that is important. The nuclear maneuvers of Kazakhstan and Ukraine can no longer solely be the internal concern of the CIS. Even if on this occasion the warheads did not cross Iran's borders, who can guarantee that the deadly container will not be dispatched to Tehran tomorrow?

I think that Washington, Paris, and London will reap the bitter fruits of their haste in their diplomatic recognition of the nuclear republics. It was clear even then that it was necessary first of all to force Alma-Ata and Kiev to officially adhere to the Treaty on the Nonproliferation of Nuclear Weapons, and then to look for contenders for ambassadorships. But they wanted to "drive the stake" into the back of the "empire of evil" as quickly as possible. Now the new members of the world community do not have to hurry particularly with their own nuclear-free status. After all, formally speaking nothing is being violated other than gentlemen's agreements. It would have been another matter if a recently well-tuned mechanism for collective international sanctions had been brought into operation....

Iranian Embassy Issues Denial

BK0805110992 Islamabad THE NEWS in English 8 May 92 p 10

[Text] Islamabad—The embassy of the Islamic Republic of Iran has contradicted a news item published on May 3, 1992, under the caption "Iran has acquired two nuclear weapons from one of the Republics of former USSR."

A press release issued by the Iranian embassy said that Iran has not acquired any sort of nuclear weapons from any country.

Russia Seeks To Increase Uranium Export Quota

PM1205134592 Moscow IZVESTIYA in Russian 9 May 92 Moscow Edition p 4

[Report by Sergey Guk: "Quotas for Enriched Uranium Sales No Longer Suit Moscow. It Intends To Seek a Threefold Increase"]

[Text] Western news agencies have given a most detailed account of the news conference by Mikhail Maley, the Russian president's adviser on questions of conversion. This refrain was to be heard, not without a degree of alarm: Russia is preparing for an "intervention" on the international market for enriched nuclear raw materials. The quota inherited from the USSR—7 percent of the volume of the world trade—no longer suits it.

Mikhail Maley explained in conversation with IZVESTIYA that 7 percent brings the state $500 million a year. This quota was set for the USSR by the producers of enriched nuclear raw materials (in fact by the United States) back in the "cold war" years. The West did not want to whet the appetite of the Soviet military-industrial complex. Although times have changed, Washington is in no hurry to sanction an increase in our quota: The interests of the U.S. nuclear industry are far closer to it than those of the Russian. However, Moscow thinks differently and will continue to seek an increase in Russia's share to 25 percent. Taking into account the fall in prices which would follow an increase in exports, this would bring the state budget $1.5 billion. The agreed limit must not be exceeded arbitrarily, the adviser added: The United States would at once appeal to the International Court, whose decision could cause unacceptable financial harm to the Russian budget.

In connection with the reports which have appeared, that Central Asian states wish to sell nuclear raw materials abroad (which can also be used for other than peaceful purposes), IZVESTIYA inquired whether Russia intends to coordinate uranium exports with other CIS countries or whether the spontaneous policy of elbowing competitors aside will continue. The president's adviser declared that not a single state of the former USSR produces reactor uranium, and all enterprises of this kind are on Russian territory. It can be a question only of trade in low-grade, unenriched uranium.

The competitors, Mikhail Maley continued, are primarily the United States. As is customary in world commerce, it frequently does not bother with the rules of good form. It groundlessly accuses Russia of an uncontrolled leak of radioactive raw materials, dumping prices, and overproduction of enriched uranium. That is, it helps its own by operating according to the principle: What is good for Boeing is good for America too.

International Experts on Controlling Arms Exports

LD0805200592 Moscow ITAR-TASS in English 1933 GMT 8 May 92

[By ITAR-TASS]

[Text] Moscow May 8 TASS—Consultations between a group of high-ranking governmental experts from Australia, Great Britain, Italy, Canada, the United States, France, Germany and Japan and a delegation of Russian experts were held between May 7 and 8 at the Russian Foreign Ministry to discuss control over exports of armaments and military technologies.

The meeting was held within the framework of visits of an international expert group to CIS states and Georgia.

The consultations revealed a broad similarity of views of all participants as regards the role of international and national systems of exports control in curbing the proliferation of mass destruction weapons, holding responsible policy in exports of conventional arms and lowering of tension in various world regions.

The meeting stressed the need for further harmonization of relations of the national exports control systems and their upgrading, including that in the light of formation of the Commonwealth of Independent States and Commonwealth members' intention to develop the market economy.

The sides agreed to continue joint efforts to raise the efficiency and provide for a universal character of existing international regimes of control over exports of armaments and military technologies.

Reports Deny Nuclear Arms on Black Sea Fleet

Kravchuk Statement Rejected

LD0905123192 Moscow ITAR-TASS in English 1211 GMT 9 May 92

[By ITAR-TASS correspondent Roman Zadunaiskiy]

[Text] Moscow May 9 TASS—"There are neither tactical nuclear weapons nor nuclear charges on ships or submarines of the Black Sea fleet despite Ukrainian President Leonid Kravchuk's statements in Washington," Commonwealth Joint Armed Forces Command said on Saturday [9 May], quoting the Black Sea fleet officials.

Source Confirms Report

LD1105165292 Moscow Mayak Radio Network in Russian 1530 GMT 11 May 92

[Text] Nikolay Medvedev, chief of the press center of the united CIS Armed Forces, in a conversation with an ITAR-TASS correspondent, has denied the statement by Ukraine's President Leonid Kravchuk that several units of tactical nuclear weapons remain on the Black Sea

Fleet. Kravchuk made this statement on 7 May during his visit to the United States.

The press center of the CIS's United Armed Forces, said Nikolay Medvedev, has at its disposal trustworthy information officially confirmed by the chief command's office of the CIS's United Armed Forces and the command of the Black Sea Fleet that there is no nuclear ammunition on the ships and submarines of the Black Sea Fleet.

Republics' Nuclear 'Trend' Worries NATO

PM1405093192 Moscow PRAVDA in Russian 13 May 92 p 3

[Report by correspondent Vladimir Peresada under the "Correspondent Comments" rubric: "NATO Demands of CIS That There Be a Single Nuclear Successor"]

[Text] Brussels—A briefing for journalists has been held at NATO Headquarters in Brussels. Serious concern was expressed over the future of the nuclear potential on CIS territory.

Answering a question from me about the reasons for this concern, a high-ranking NATO representative said: "There are sufficient grounds for thinking that a trend toward the emergence of several nuclear states in place of the former USSR has started. Such a course of events would be completely at variance with the Treaty on the Nonproliferation of Nuclear Weapons."

The statements made by Presidents Kravchuk and Nazarbayev not so long ago have given rise to suspicions in NATO that Ukraine and Kazakhstan do nevertheless intend to consider the nuclear weapons on their territory as theirs. In this regard the organizers of the briefing recalled that the North Atlantic Alliance recently issued a statement which read as follows: "NATO member countries expect Russia to play the same role as the former Soviet Union."

Neither the presence of nuclear weapons on the territory of former Soviet republics nor the fact that activity connected with their testing (meaning Kazakhstan—V.P.) was carried out there can serve as the basis for considering them the possessors of nuclear weapons under treaty articles, it continues.

If you ask why, one of the arguments being employed by NATO is based on the generally recognized concept of "the status of a nuclear power." It assumes such a power possesses a complete nuclear complex, which, in addition to the raw material, that is, fissile material, includes production capacities, scientific research institutes connected with the servicing and storage of warheads, and a number of other military and civil structures. Russia alone has a complete nuclear complex.

When Western recognition of the CIS states and, in particular, their admission to the North Atlantic Cooperation Council (NACC) was recently discussed, their accession to the Treaty on the Nonproliferation of Nuclear Weapons was the key issue. And appropriate commitments were assumed by them. They were enshrined in a joint statement by the foreign ministers of NACC countries on 10 March and a joint statement by the defense ministers of those countries on 1 April.

It is clear from all that I have heard here that the West will be persistently seeking to ensure that the membership of the "nuclear club"—the United States, Britain, France, China, and now Russia, instead of the USSR—is not expanded in any circumstances.

Removal of Tactical N-Arms From Ukraine Complete

Deputy Minister Confirms Report

LD0805194492 Moscow ITAR-TASS in English 1727 GMT 8 May 92

[By UKRINFORM correspondent Aleksey Petrunya for TASS]

[Text] Kiev May 8 TASS—Ukrainian Deputy Defence Minister Ivan Bizhan [name as received] told a briefing at the Foreign Ministry's press centre here today that "not a single tactical nuclear weapon remains on Ukrainian territory".

According to Bizhan, the only nuclear weapons remaining on Ukrainian territory are 176 strategic missiles and strategic aviation ammunition. There are plans to eliminate them by the end of 1994, but Bizhan was doubtful that the dateline was plausible. He explained his doubts by pointing to the fact that many missiles were using liquid fuel and siphoning this fuel away was a lengthy, costly and environmentally hazardous process. Ukraine is unable to perform the operation itself and needs assistance from the West.

According to the deputy defence minister, the withdrawal of all tactical nuclear weapons, including those with the Black Sea Fleet, the fleet ceases to a be a strategic force.

Military Analyst Comments

LD1005174992 Moscow Radio Moscow World Service in English 1110 GMT 9 May 92

[Commentary by military analyst Vadim Solovyev]

[Text] A few days ago the last of the tactical nuclear weapons were removed from Ukraine to Russia. Military analyst Vadim Solovyev says:

The transfer was completed almost two months ahead of schedule so that all the tactical nuclear weapons under the Commonwealth command are now stationed in Russia. True, there were complications—Ukraine first made unilateral moves to interrupt the removal and then was surprised to hear the removal had been completed and attempted to disprove this. Nonetheless, the

removal of the tactical nuclear weapons from Ukraine, Byelarus and Kazakhstan has been completed well before the deadline of 1 July, and by the year of 2000 the weapons will be destroyed at special plants in the Russian Federation. Ukraine and other Commonwealth republics will be entitled to monitor the destruction. What about the strategic nuclear weapons? The Commonwealth heads of state have already decided their fate, and the command of the Commonwealth Armed Forces is already working to implement the decision. The deputy chief of staff of an agency under the command of the Commonwealth's Armed Forces, Vitaliy Yakovlev, says: Only strategic nuclear weapons have remained in Ukraine, Kazakhstan and Byelarus. The START treaty signed by the Soviet Union and the United States a year ago has a binding force on the three republics. Its provisions must be effected within seven years. The three republics have declared that strategic nuclear weapons will be removed from their territories by the end of 1994. So far, we are busy with paper work but sometime later this year the actual removal will be likely to start. No problems have been reported. We're working hand-in-hand. The deadlines must be specified though. It's obvious however that Ukraine and Kazakhstan are toying with the idea of attaining the nuclear status. Can they use the nuclear weapons stored on their territory against neighboring countries? Vitaliy Yakovlev comments: Legally speaking the Russian president is the only official who can push the nuclear button with consent from the heads of state of the other Commonwealth republics. Secondly, there's the technical angle—neither Ukraine nor Kazakhstan is technically capable of using the nuclear weapons of its own will. Their status can be compared to that of Turkey, which has American missiles on its territory; neither Turkish nor Ukrainian or Kazakh presidents are technically capable of pushing the nuclear button, even though strategic nuclear weapons are stationed in their republics. General Vitaliy Yakovlev of the command of the Commonwealth Armed Forces.

Kazakhstan on Prospects for Arms Control

LD1105191192 Moscow ITAR-TASS World Service in Russian 1110 GMT 11 May 92

[Report by KAZTAG correspondent Leyla Tulebayeva]

[Text] Alma-Ata, 11 May (TASS)—Kazakhstan Foreign Minister Tuleutay Suleymenov today met with an international delegation for control of arms exports, headed by Brian Donelly (Great Britain) [name as received].

In the course of the conversation, the prospects for global and complete liquidation of nuclear weapons were discussed, as well as the ecological aspects of the problem of their testing. The importance of internationalizing states' activities in reducing and destroying nuclear armaments was underlined.

Tuleutay Suleymenov pointed out that Kazakhstan had undertaken to rigorously observe the provisions of the Alma-Ata Declaration and of the agreement on joint measures regarding nuclear weapons of 21 December 1991. The republic's leaders are considering the possibility of signing the Nuclear Arms Non-Proliferation Treaty; the treaty banning nuclear weapons tests in the atmosphere, in space, and underwater; the convention banning military or other hostile use of agents against the natural environment; and other international documents.

Reports of Chemical Weapons in Karabakh Denied

PM1205143792 Moscow IZVESTIYA in Russian 9 May 92 Moscow Edition p 1

[Interview with Colonel V. Tarapat, CIS Joint Armed Forces General Staff specialist, by military journalist Ivan Sas; place and date not given: "Maybe Chemical Weapons Are Being Made in Transcaucasus"—first paragraph is IZVESTIYA introduction]

[Text] In the Karabakh conflict Armenia is using chemical weapons left behind by CIS troops—this report was carried in the mass media recently. Colonel V. Tarapat, specialist of the CIS Joint Armed Forces General Staff, comments on it at our request.

[Tarapat] I can say one thing: There have been and are no chemical weapons belonging to the CIS Joint Armed Forces in that region. A special memorandum with the United States was signed in 1989. We exchanged information on the sites where chemical weapons were located on the territory both of the former USSR and of the United States. It was declared at that time that absolutely all chemical weapons belonging to the Armed Forces were kept only at seven installations and exclusively on the territory of Russia and that there were no such weapons outside Russia.

[Sas] There are now frequent cases of attacks on weapons dumps and military units. Could chemical ammunition not have found its way like this from Russian territory to Karabakh?

[Tarapat] Such a possibility is also ruled out. No losses of chemical weapons belonging to the CIS Joint Armed Forces have been noted. All installations where chemical weapons are kept are under special control.

I believe that overt disinformation is taking place. As a specialist, I can see with my naked eye details which undermine confidence in it. It is reported, for example, that the city of Shusha was shelled with 122mm shells packed with cyanide. But we simply do not have such ammunition in our arsenal. Another time there was talk of 120mm shells packed with needle-like fragments impregnated with cyanide. A specialist will at once determine that the CIS Joint Armed Forces do not have ammunition of that caliber with such contents either.

The possibility that weapons manufactured on the spot have been used cannot be ruled out. There are chemical

production facilities in the Transcaucasus, and it is possible in principle to organize the production of certain potent toxic substances and to charge ammunition with them.

The information available, however, is clearly insufficient to draw unambiguous conclusions. For this you must familiarize yourself with the conclusion of specialists who have worked on the spot and with the materials of an investigation, from which it would be possible to extract data on the nature of the lesions. Unfortunately, we do not yet possess these materials.

Atomic Energy Minister on Nuclear Responsibility

Part I

PM1205133792 Moscow ROSSIYSKAYA GAZETA in Russian 7 May 92 First Edition p 5

[First part of article by Professor V. Mikhailov, Russian Federation minister for atomic energy: "Nuclear Weapons"]

[Excerpts] It is of course difficult to give a full account in a single article of all the complex and contradictory aspects of the military-political, socioeconomic, and scientific problems of nuclear weapons in our country in the world as it is today.

I have written an account of my thoughts about and approach to the field in which I have worked for over 30 years, including my presence for two or three months every year at nuclear tests, excluding the last three years when I was appointed deputy minister.

I am convinced of one thing: Despite the complex contradictions that exist in our society, nothing stops our desire to proceed along the road of progress. And on this road nuclear weapons will long continue to defend our right to freely choose this road which is worthy of our people. [passage omitted]

On 27 June 1954 the world's first nuclear electric power station, with a capacity of 5,000 kilowatts of electric power, came on line in the city of Obninsk near Moscow. Before this event the great discovery of our century—the energy within the nucleus of an atom—was associated in the minds of millions of people with military uses alone. Today nuclear electric power stations generate about 16 percent of the world's total electric power output. And this proportion is rising.

On the one hand nuclear power is the only electricity generator capable of supplying mankind with energy over a long period that does not contribute to the greenhouse effect and acid rain, while on the other hand nuclear power is by its very nature unsafe for man and his environment. The danger of global contamination of the environment by radioactivity could arise as the result of the destruction of nuclear reactors in any accident or conventional military conflict.

First Tests

[Passage omitted] During the difficult war and postwar years a new industry was established. What impelled the physicists, designers, and organizers to labor selflessly from early morning till late at night in order to set up the nuclear industry? Primarily, I think, it was on the one hand love for their motherland and genuine patriotism, and on the other the natural desire to display their intelligence and talent as men. It is precisely this combination of state and personal interests that forms, in my view, true common human values regardless of the age or the country. Today, unfortunately, these are often replaced by the pursuit of a "quick buck" at any price. [passage omitted]

Our tests at practically the same time as the U.S. ones were exceptionally significant in ensuring the national security of the Soviet Union and overall stability in the world. They completely destroyed the Americans' monopoly in the possession of nuclear weapons.

The development of atomic and hydrogen weapons marked a new stage in the history of mankind and brought to the fore a number of vitally important philosophical and world-view problems which society had not had to face before, thus raising the level of politicians' responsibility for the entire existence of life itself on our planet.

The fact that mankind had mastered the energy of nuclear reactions raised a number of multilayered and equivocal issues, but one extremely important result—mankind had crossed into a new historical era in terms of resolving military-political conflicts—this was indisputable. This is where the strength of perestroyka lay, in that it noted and clearly delineated in a timely fashion the main points of this new era in human development.

Professional nuclear scientists were and are perfectly aware of the responsibility they bear to society and to peoples for keeping the sky above our planet peaceful and for ruling out a repetition of the Hiroshima and Nagasaki tragedies.

In 1953 the USSR Ministry of Medium Machine Building was formed to direct this new sector of science and technology, and in 1989 this was transformed into the USSR Ministry of Atomic Power Engineering and Industry. From the very outset this sector was established on the basis of a scientific and technical potential with a powerful production base, that is to say it represented a new type of scientific and technical complex.

Signal of Hope

The nuclear weapons development process is inseparably linked with nuclear tests in the natural environment.

Nuclear test explosions are carried out in order to develop and improve nuclear weapons for the purposes of verifying theoretical calculations relating to the basic design of a nuclear device. The precision designs of

nuclear weapons also necessitate systematic checking of test specimens among weapons in storage.

From the very outset, however, nuclear testing of nuclear weapons had and continues to have a negative effect on many aspects of international life and the health and well-being of millions of people. Nuclear explosions, especially in the atmosphere and on the ground, whoever carries them out, have ultimately led to an increase in the total amount of radioactivity in our environment. The Soviet Union resolutely stood at the forefront of the forces that supported a ban on all kinds of nuclear weapons tests as a first step on the road to stopping the nuclear arms race and the road to a nuclear-free world. [passage omitted]

Further success in limiting nuclear tests depends entirely on the U.S. position on this issue, since provided there are no delays, all the preconditions exist to develop the success that has already been achieved, primarily as regards limiting the number of nuclear weapons tests that are conducted annually, including weapons with a TNT equivalent of up to 150 kilotonnes. The transition to a quantitative limitation of tests is a qualitatively new step which first and foremost requires a definition of the concept of the minimum TNT-equivalent threshold for a genuine nuclear explosion, bearing in mind the technical potential for verifying this, that is to say a definition of the term "nuclear explosion."

A mechanism for verifying the number of nuclear tests could be implemented on an extensive international basis—which is very important—by grouping national verification systems into international systems and by carrying out inspections at sites where explosions are carried out.

To this end I believe it is important that international agreement should be reached in the near future on criteria for safely carrying out underground nuclear explosions and on verifying the implementation of these criteria on nuclear test sites and beyond.

Today the cessation of all nuclear tests is of key importance in preventing the development of third-generation nuclear weapons or so-called directed weapons, in stopping this evil jinn from progressing beyond the stage of scientific research to the stage of full-scale designs that will give a new twist to the nuclear arms race. These are weapons with qualitatively new parameters in terms of safety in peacetime and effectiveness and target strike reliability in wartime. On the one hand these weapons should be hundreds of times less dangerous than existing ones as regards overall radioactive contamination, and on the other they are able to hit strategic enemy targets both in space and on earth. It is precisely this aspect that is causing alarm, since some overly ardent hotheads could be tempted to use them in any local conflict. And it has not been ruled out that with the development of third-generation weapons there will be a move away from a policy of "deterrence" to one of "intimidation." In this connection it is worrying that second-generation nuclear weapons could be destroyed on treaty principles under the strictest international verification while the West, it seems, will achieve success in developing third-generation weapons.

Today nuclear weapons are primarily a means of maintaining overall political, military, and economic stability on our planet, regardless of whether the countries that possess them are confronting one another in any sphere.

The only alternative to nuclear equilibrium and a deterrence strategy is a regime of complete trust, complete openness, and a general and complete ban on nuclear weapons and the design of nuclear weapons. This is our goal.

We need to proceed toward this goal along all possible roads: Official and people's diplomacy, including the "green" movement, cultural and scientific exchanges, development of trade and joint enterprises, and so forth. At the same time we must strive to achieve international agreements regarding a step-by-step maximum possible reduction in the number of nuclear weapons. It is important to highlight those aspects that inherently encourage the emergence of mistrust or aggressiveness.

Unfortunately, until such time as all measures to eliminate nuclear weapons and thwart opportunities for designing them in any country in the world yield a noticeable result, our Commonwealth is obliged to maintain its defense sufficiency.

Together Into the Future

Together with a number of countries in the world we have an opportunity to strengthen the collective security system in the near future, bearing in mind the unique historical situation.

At the present time, in conditions of new mutual understanding and full-scale steps in matters of cooperation, there is in fact a colossal military machine in the world that poses a direct material threat, not just a hypothetical one. The degree and nature of external military threats is changing as time goes by, but at every stage the Commonwealth's security status should match the realities of the world as it exists.

However, unchallenged speeches regarding the complete cessation of nuclear tests in our country made by public figures on radio, on television, in the press, and from the rostrums of Supreme Soviets, as well as rallies and meetings of various social organizations, are molding public opinion on the need for further unilateral steps.

There is no doubt that most authors have the sincerest intentions of saving mankind from nuclear disaster. However, in recent years the center of gravity in the struggle for universal nuclear disarmament has abruptly shifted in our country in the direction of actual unilateral nuclear disarmament. After all, nuclear weapons today, bearing in mind all the consequences of using them, are

primarily a weapon of global politics. A chorus of social commentators is drowning out the voice of the professionals in an area where competence and carefulness are particularly important. The mass media are basically not letting specialist professionals have their say, and open slander, fabrications, and demagogic speeches often remain unanswered. Erroneous judgments masquerade as facts, and the effect of environmental factors unconnected with radiation is passed off as being due to the effect of radiation.

Incidentally, Soviet journalists did not attend the U.S. explosion in Nevada under the joint verification experiment, although they were officially invited to do so. A situation has been created in our country in which it is thought patriotic and progressive to express any criticism of Soviet nuclear weapons and test sites. And as always happens in cases such as these, a number of public figures are exploiting the situation to boost their own popularity, occasionally appearing in the role of stage managers of mass demonstrations.

We are all striving to put our own house in order, but not everything is going smoothly for us at the moment. There are many examples of this at every stage. Our house is not alone on the planet, we all live in a complex and dynamic world. In an age of nuclear and space technology, the space and time of this world have shrunk to the limit for each house.

There are still many areas of the world with an unstable political situation, extremism, and an aggressive atmosphere, including those directly on our borders. Certain "other countries" are working intensively to develop nuclear weapons. So a nuclear potential that was established when our country was going through hard times, and the maintenance of this potential at a modern scientific and technical level, is a guarantee of the stability of peace on our planet.

By cutting nuclear weapons we can retain immeasurably more resources for the needs of the national economy than we can by unilaterally banning nuclear tests—the foundations of the country's scientific, technical, and military potential—until such time as we achieve a universal ban on nuclear tests. It should be stressed that for all the importance of effecting unilateral disarmament measures, it is extremely important not to take the final step into the abyss, toward processes that are irreversible. It is far more difficult to prevent unique collectives of highly skilled professionals from slipping into decline than it is to destroy everything. Right now it is far simpler, given the extremely complex social and economic situation, to demand that our country take ever greater unilateral steps. Was it really any easier for us in the postwar years, when we were building up our nuclear industry? But today, frankly, a high level of civic courage is needed in order to retain, despite the situation that has developed with regard to our country's nuclear laboratories and test sites, a high degree of responsibility and patriotism, and not to yield to the temptation of short-term profit for the collectives of workers, engineers, and scientists when resolving issues to do with preserving nuclear potential at all stages of disarmament.

The transition to defense sufficiency is now closely linked with the reorientation of the entire Soviet military-industrial potential toward qualitative parameters in terms of weapons based on the achievements of modern science and technology.

Processes of bilateral disarmament, in which considerable successes were achieved during the perestroyka years, are logical in realizing the blueprint for reasonable sufficiency for the country's defense. In this process the first steps on the road to nuclear disarmament are particularly significant—the elimination of medium- and shorter-range missiles, i.e. the INF Treaty, and the Strategic Offensive Arms Reduction Treaty which has been signed (the START Treaty).

At the end of September 1991 and January 1992 Washington announced large-scale cuts in U.S. nuclear forces. I am convinced that these steps taken by U.S. President G. Bush will be supported by our people and our leadership, since they are in keeping with the essence of the policy of perestroyka. The reciprocal steps and counterproposals made by our country and Russian Federation President B.N. Yeltsin are a distillation of the efforts we made during the perestroyka years on the road to a new world. All this is the result of the new political thinking and the nuclear age.

In this regard, when the two largest nuclear powers agree to reduce their nuclear arsenals, the nonproliferation of nuclear weapons should become the main factor on the road to a nuclear-free world. Within the framework of the 1968 Treaty on the Nonproliferation of Nuclear Weapons, the agreements reached in 1974 and 1984, and the 1987 Convention on the Physical Protection of Nuclear Materials, it would be advisable to formulate national measures for controlling relevant deliveries and technologies in the reformed Commonwealth while keeping the Russian nuclear weapons complex intact as a national asset belonging to the people for the purpose of tackling these aspects of military-political problems as well. Russia should become the only nuclear power and the legal successor to the former Union. One nuclear power, like it was before, and not two or three—this fulfills the aspirations of those who are fighting for a nuclear-free world.

Part II

PM1205134292 Moscow ROSSIYSKAYA GAZETA in Russian 8 May 92 First Edition p 4

[Second and final part of article by Professor V. Mikhaylov, Russian Federation minister for atomic energy: "Nuclear Weapons"]

[Text] In 1946 a national laboratory was created, the so-called Laboratory No. 2, for the development of nuclear weapons, and the talented engineer General

P.M. Zernov was appointed its first director. Now that laboratory, the All-Union Scientific Research Institute of Experimental Physics, is located on the border of Nizhniy Novgorod Oblast and the Mordovian Republic, and is basically a city with a population of 100,000.

Our second national nuclear weapons development "laboratory" was created on the shores of Lake Sinara in Chelyabinsk Oblast in 1955, and its first director was the important engineer D.Ye. Vasilyev. The city and the institute—the All-Union Scientific Research Institute of Technical Physics—were created simultaneously.

In a relatively short space of time these institutes grew into major scientific centers.

These are basically major science and production centers where science, design, and production form a single, indissolubly linked cycle and where unique experimental, computer, and production facilities have been created. The activity of these institutes played a decisive part in ensuring the nuclear weapons equilibrium between the USSR and the United States, and in recent years also as regards test verification measures at bilateral talks. These institutes' potential makes it possible to tackle major scientific and technical problems attendant on nuclear disarmament processes in the context of the need to ensure defense sufficiency at each stage of disarmament.

The proportion of scientific research and developments at the institutes in spheres without a military application totals around 25 percent, and is showing a tendency to increase. Some of these developments are already being widely applied in the national economy.

Strict Regime

The country's best specialists were selected for work in these institutes. I will say frankly that life in these cities was difficult, because of the strict regime of access for friends and relatives. We all accepted this, because the work was important. The defense of the Motherland's borders was always regarded as one of our people's glorious traditions! But today these mighty heroes have difficulty buying rationed matches, salt, and all the other things that are essential to basic survival. One in five institute workers is in a waiting line for housing. The average wage at these institutes in 1991 was around 450 rubles [R] a month, and for one worker in seven it was less than R250 a month, which is below the minimum living wage. The 90 percent increase in pay from January 1992 does not solve the problem of existence for them, in the context of free prices. If you take into account the particularly difficult working conditions, often involving a risk to life, and the difficulties of everyday life in closed cities, you can imagine these people's desperation, their heartfelt cries. In January of this year a meeting took place in the Kremlin between leading scientists and Russian President Boris Nikolayevich Yeltsin. We were waiting for such a meeting throughout the perestroyka years. In this complex and difficult time for Russia B.N. Yeltsin gave us a whole working day. There was a thorough discussion of all aspects of the nuclear weapons complex. I was very pleased with this meeting and the concern shown for our workers.

The creation of nuclear weapons requires the participation of major scientists. A major scientist is not going to work in a closed city unless suitable conditions are created for his life and work. And young people today will not go and work in such conditions. For instance, today the average age of engineering and technical staffers at the All-Union Scientific Research Institute of Experimental Physics is 44, and the average age for the institute as a whole is 42.

It must be particularly noted that the prototype weapons that are developed and manufactured for dispatch to the nuclear testing range are naturally a source of danger. It is therefore extremely important to restrict access to closed cities for people not involved in this work.

In recent years the situation regarding developing, improving, and maintaining the combat capability of nuclear weapons has become considerably more difficult in our country. Finance and material and technical provision for the work of weapons institutes have deteriorated sharply, to such an extent as to call into question the possibility of further work on nuclear weapons in the country, including work to increase their safety. The development of experimental, testing, and production facilities has virtually stopped, virtually no funds are being allocated for replacing obsolete equipment, and housing construction has been cut back considerably

Thus the national laboratories' real expenditure on research and development in 1991 was 40 percent down on the 1990 figure, both by virtue of the reduction in financing and by virtue of the increased cost of materials and subassemblies and the maintenance of the social sphere. Although 1992 has come, the question of finance for this year has yet to be resolved. The most highly qualified and energetic scientific staffers, designers, and workers have been forced to stop work in the weapons area and move to cooperatives or small enterprises, thereby losing their scientific and professional potential.

In this situation Russian President B.N. Yeltsin's visit to Arzamas-16 in late March was extremely important. This was the first time in the entire history of this national nuclear center that the country's leader had visited our nuclear specialists. There was a thorough and businesslike discussion on preserving the sector's scientific and technical potential in the context of the conversion of military production.

Today the country's nuclear weapons complex, which includes nuclear fuel production plants, nuclear munitions manufacturing plants, and scientific research institutes, employs more than 100,000 people, and more than half a million people live in cities which are closed in terms of their security and secrecy conditions. This entire complex is located in Russia. The enterprises' fixed capital, built up over 45 years, totals something like R4 billion. Deterioration as of today is more than 50

percent. According to our estimates, the similar complex under the Department of Energy in the United States has fixed capital worth more than $15 billion, with a work force of a fairly similar size. In the next 20-25 years the Americans intend to renew their nuclear missile complex, making provision for substantial financing (up to one-third of total expenditure) to safeguard the employees' health and protect the environment. One of the U.S. Administration's basic goals is the qualitative improvement and modernization of the nuclear weapons complex as the basis of military-strategic potential, in order to successfully fulfill the strategic defense initiative (SDI) program and create a new generation of nuclear weapons.

In these conditions, naturally, nuclear weapons should remain the basis of national security for our country and for the world in general. As of today I am convinced that the basis of world stability and of the nature of economic relations is mutual understanding between Russia and the United States.

Serious efforts are now being made by the world community aimed at halting militarization processes and eventually designed to demilitarize the world community, but the world we live in today is entirely a militarized world.

In 1990 we drew up an outline plan for the development and modernization of enterprises engaged in the development, testing, and production of nuclear munitions until the year 2010. The total expenditure of capital investments on this modernization program amounts to some R0.7 billion a year. In the conditions of a real reduction in nuclear arms, this outline plan devotes particular attention to radically reequipping institutes and plants in the light of the increasing conversion of military production. Enterprises' fixed capital is not now in line with modern technical and ecological requirements, or with the new concepts of safety in the production, storage, and transportation of nuclear materials. This 20-year program envisages, in particular, the following items of expenditure: R3 billion on personnel safety enhancement, environmental protection, and the burial of radioactive waste; R3 billion on the development of enterprises' computer capacities, where there is a colossal lag in relation to the United States; R2 billion on the renewal of experimental and diagnostic facilities; R1 billion on the mothballing of existing reactors for the production of plutonium and tritium; and R1 billion on the creation of facilities for stockpiling active nuclear materials obtained from the dismantling and destruction of nuclear munitions.

The fulfillment of this program will make it possible to react flexibly to trends in the world community in the sphere of nuclear disarmament, and will increase the technological level of conversion operations.

We have stopped the production of weapons-grade uranium. By the year 2000 all 13 industrial reactors for the production of new plutonium will be eliminated (today four plutonium production reactors are in operation, and by 1996 only two will be in operation).

The outline plan for modernization makes provision for budget financing of the modernization and development of enterprises allowing for an increase in conversion operations to 60 percent by the year 2000, including ecological recovery of territories, the creation of fiber-optic equipment for television and communications, the development of radioisotope and nuclear medicine, the creation of highly durable tools and high-precision machine tools for the processing of complex structures, the creation of new compound materials, the production of mobile laboratories for ecological analyses of the environment, the production of promising high-purity materials, and so forth. In a number of spheres, associations have already been set up on the basis of science and production facilities, and I think the formation of joint-stock companies is on the agenda.

Today, an average of some 30 percent of the science and production capacities of the nuclear weapons complex are already working for the national economy, of which some 5 percent is directly involved in consumer goods production. It is planned to double consumer goods production by 1995. It is planned to produce the scarcest, high-tech goods, such as digital video and audio recorders, laser disc players and discs, microwave ovens, electronic security locks, and many other goods in high demand. Centralized state investments are also needed in this sphere. Centralized coordination of conversion operations in the nuclear weapons complex is one of the main conditions for ensuring the nonproliferation of technologies developed in the complex—a very sensitive and crucial state problem. Attracting foreign investments will also do much to determine the success of this conversion program and the time scale for its implementation.

The current costs of maintaining the nuclear weapons complex have cost us R10 a year for every one of our compatriots. R10 each a year!—that is the price of our independence and our dignity. Every one of us has given less than R1 a month to maintain the country's nuclear potential.

I think it is necessary today not only to materially support this sector, the country's pride, but also to ensure social protection of their work and life. The benefit derived from these collectives for all spheres of the country's activity, both for defense and for the national economy, will surpass all expectations. Thanks to the high skills and selfless labor of scientists, designers, and workers, thanks to efficient organization of labor and high labor and technological discipline, these collectives have achieved scientific and technical results up to the best world standards. It is state support for such complexes today and the thrifty utilization of the enterprises' scientific potential and fixed capital that will ensure the country's scientific and technical progress in future.

And in our age, without scientific and technical progress there is no future for the country or the people!

The Planet's Safety

Today, while officially acknowledging that nuclear war will lead to catastrophe and that it must not happen, the United States, in its new doctrine of "deterrence," attaches great significance to improving its nuclear arsenal.

It must be observed that the West has not yet officially renounced the right to the first nuclear strike, and is continuing to improve its nuclear forces, exploiting its advantages in technology and in attaching priority to developments relating to nuclear warheads for strategic offensive weapons, including missile complexes with individually targeted warheads accurate to within 100 meters and with the potential to destroy highly protected targets.

The doctrine of defense sufficiency and our international commitments on reducing the nuclear arsenal and non-first-use of nuclear weapons affect the composition [sostav] of nuclear weapons and require qualitative improvements.

The research physicists have always devoted particular attention to questions of the safety of nuclear weapons in production, storage, and handling, first and foremost through the development of physical designs for the structure of nuclear weapons which rule out in principle the possibility of a nuclear explosion in any unauthorized circumstances.

Enhancing safety is today the priority objective of the nuclear weapons program. Technical achievements make it possible to carry out major improvements as regards the safety of weapons from the moment of their creation.

Since the consequences of an accident or the deliberate theft of nuclear weapons are extremely dangerous both politically and physically, all measures have always been taken to protect them against the possibility of an unauthorized nuclear explosion or the dangerous dispersal of radioactive substances.

However, "How safe is safe?" and "What compromise should be reached from the viewpoint of military characteristics and the further enhancement of safety?"—these are highly complex questions where nuclear weapons are concerned. The safety problem has always been dealt with on the basis of military-political doctrine. Today the world is changing, and the main aspects are shifting in the direction of safety.

It is necessary to stress the exceptional complexity of the problem of the safety of nuclear weapons complexes and the need for analysis using three-dimensional models, with the closest possible approximations to a nuclear explosion.

A nuclear warhead itself is a complex, I would say unique, technical device combining modern electronic devices and generators, nuclear-active materials, and conventional explosives. The operation of these devices is synchronized to 100-millionth parts of a second in an automated system according to control commands. Naturally, the service life of such devices is limited, as with any other highly complex electronic equipment.

In the process of designing nuclear weapons, it is necessary to deal with their real three-dimensional geometry. As of today the potential for high-speed operation of our latest supercomputers does not allow us sufficiently accurately to describe all the development processes of hydrodynamic and neutral processes.

And then, in the context of a nuclear explosion, it is necessary to deal with a substance at temperatures on the order of a hundred million degrees and at pressures of hundreds of millions of atmospheres, and with the transfer of heat and neutrons within the substance in a geometry that is changing at ultra-high speed, on a time scale on the order of one billionth of a second, against the background of a variable-speed fission chain reaction.

Our potential for going over from a two-dimensional to a three-dimensional model is today tens of times less than what is available in the U.S. national nuclear laboratories. However, even three-dimensional models do not to a sufficient extent describe all the sensitive aspects of the kinetics of detonation of conventional explosives and the chain reaction of nuclear fission and fusion.

The considerably smaller financial potential, the great laggardness of our laboratory and computer facilities—all this was made up for by the resourcefulness of our scientists and designers, and, most important, by a number of nuclear tests approximately equal to that of the Americans—this being the only way to obtain experimental information on the physical processes that take place in the extreme conditions of a nuclear explosion.

Nuclear tests are an integral part of scientific research, experimental, and design work. It must be noted that the United States, where the Nevada test range is managed by the Department of Energy, spends some $500 million on nuclear tests annually, which is 10 times higher than our spending.

In the USSR underground nuclear tests were conducted at two Defense Ministry test ranges: the Semipalatinsk range and the Northern range (the Novaya Zemlya islands).

Since 1949 a total of 467 nuclear weapon tests have been conducted at the Semipalatinsk range, of which 343 were underground, and at the Northern range, beginning in 1955, there have been 132 nuclear weapon tests, 42 of them underground.

In recent years the atmosphere surrounding the activity of nuclear test ranges has deteriorated sharply. The

perestroyka processes in our country led to an improvement in the military-political atmosphere in the world and determined the paramountcy of panhuman values. The antinuclear movement is growing among the world public.

However, persistent demands for the unilateral cessation of tests led to an unpredictable and unstable atmosphere in connection with our nuclear tests and a steep reduction in the nuclear test program in the last six years, which has brought the nuclear weapons complex to the point where irreversible degenerative processes could begin. The physical processes taking place in a nuclear explosion cannot be simulated in laboratory conditions, and nuclear tests of nuclear weapons remain the only way to test their viability, reliability, and safety.

In this situation, guided by the objectives and principles of the ratified Treaty on the Limitation of Underground Nuclear Weapon Tests, I consider it possible to limit our underground nuclear weapon tests to only the minimum number necessary. Of course, in order to provide guarantees against unexpected political or technical events affecting the country's defense potential, it is necessary to enshrine in an international or bilateral agreement the annual minimum number of nuclear weapon tests.

Let me remind you that in 1990 the United States conducted nine tests, France six, and China two. Our country conducted one test, at the Northern range.

In 1991 the United States conducted eight nuclear tests at the Nevada test range, and France conducted six tests in the Pacific. Again, our test ranges are silent! And they will be silent until the end of 1992, if the Americans do not follow the example of our unilateral moratorium. In effect our test ranges will have been silent for two years in succession—1991 and 1992.

Following our example, in April France declared a moratorium on nuclear tests until the end of 1992. The United States has the last word, and the whole world awaits this step.

On Test Ranges and Tests

The problem of nuclear tests has such an important bearing on the scientific aspects that it is difficult not to raise them in broader terms.

The geographical location and geological structure of the Novaya Zemlya islands, unlike the region of the Semipalatinsk range, are such as to ensure the complete safety of the population of regions close to the range territory—safety from both the radiation effects and the seismic effects of underground nuclear tests with a yield of up to 150 kilotonnes. The peculiarities of the geological formation of the Novaya Zemlya archipelago, in view of its aseismic nature and absence of ground water, create the conditions for the complete containment of the products of the nuclear explosion within the underground reaches of the archipelago.

The distance of the range's test sites from the nearest cities, Amderma, Naryan-Mar, Vorkuta, Murmansk, and Arkhangelsk, is 250, 400, 500, 900, and 1,000 km respectively, whereas the city of Semipalatinsk is 90 km from the Kazakhstan range, while the nearest settlement to it, Komsomolskiy, with its population of 10,000, is 40 km away, that is, within the heightened risk zone of the Semipalatinsk range. Let me remind you that although the Nevada test range in the United States is 130 km from the major city of Las Vegas, with a population of a million during the summer vacation period, the actual distance to the test site is some 200 km.

Undoubtedly, during air and surface tests damage was done to the health of the population around the test range. People who suffered as a result of the surface and air nuclear tests of 1949-1962, irrespective of their present domicile, should be on an equal footing with the victims of the Chernobyl disaster as regards benefits.

There are now certain sectors of the surface area of the test ranges which were contaminated in the course of surface and air nuclear explosions, and access to these territories should be restricted.

The switch to underground nuclear tests was an important step both in improving the ecological situation and in reducing the number of tests annually.

It is important that underground nuclear tests, given sufficient depth of emplacement of the nuclear device and durable hermetic sealing of the emplacement of the device in the ground, and given appropriate meteorological conditions at the moment of the explosion and for two or three days after it and compliance with many other organizational and technical safety measures, can minimize the ecological damage on the territory of the nuclear test range and cause virtually no harm to the inhabitants and territory of the country outside the test range. The territory of a nuclear test range usually consists of something like a few thousand square kilometers.

From the very beginning of underground tests all measures were taken to ensure that virtually no radioactive products came to the surface. The technology for containing radioactive products was constantly improved, and, for instance, during the joint experiment with the United States in 1988 the participants in the experiment and journalists were able to be present at the epicenter of a 150-kilotonne explosion 45 minutes later, at the Semipalatinsk range.

The radiation safety of underground nuclear tests involves a range of technical and organizational measures to prevent accident situations or limit their consequences and prevent the population from receiving radiation doses higher than the international norms. The general algorithms of operations to prepare for a specific underground explosion at a test range in our country are analogous to those in America, as we discovered in the joint verification experiment.

In the context of the distrust of the world public and our own public toward the nuclear industry, I consider it necessary to formulate procedures for international or bilateral verification of safety in conducting underground nuclear explosions. The necessary preconditions exist in this sphere for the conclusion of an agreement or treaty on the criteria and procedures for their verification in conducting underground nuclear explosions.

In view of the above, I consider it necessary, within the framework of the CIS, to assign [zatverdit] legislatively to Kazakhstan and Russia in the Treaty Between the USSR and the United States on the Limitation of Underground Nuclear Weapon Tests, signed in Moscow in 1974, and in the protocol to it signed in Washington in 1990:

—the ending of nuclear weapon tests at the Semipalatinsk range in Kazakhstan, which has borne the brunt of nuclear tests since 1949;

—in order to ensure the sufficient defense of our country and to guarantee against unexpected political or technical events affecting the military balance: not only the preservation, but also the modernization of specific facilities at the Northern range in order to ensure verification of tests on the site of the implementation of nuclear explosions in accordance with the ratified 1974 treaty and the 1990 protocol to it.

In view of the need to maintain the country's defense sufficiency, it is proposed to conduct up to two to four [do 2-4] underground nuclear weapon tests at that range in subsequent years. Formerly we carried out an average of two underground tests a year at that range in the period 1964-1990, and in some years there were up to three or four underground nuclear tests.

Thus it is a question of reducing our test program by a factor of four, that is, from an average of 15 tests a year at the country's two ranges, to four tests. This reduction in tests, in the light of enhanced safety requirements, will make it possible to formulate new approaches both to conducting the tests themselves and to increasing the effectiveness of diagnostics of physical processes ensuing in an underground nuclear explosion.

Incidentally, you may hear it said today that the idea of continuing tests is upheld by those who earn big money and receive substantial benefits as a result. Don't believe it! This is said by people whose aim in life is not the service of the Fatherland, but political capital, money, and privileges. For the nuclear weapon testers there has always been only one privilege—that of being in the front ranks in curbing the nuclear elements.

Warhead Developers Adopt Anti-Nuclear Appeal

LD1005201392 Moscow Mayak Radio Network in Russian 0800 GMT 9 May 92

[Text] The conference of the Union of Developers of Nuclear Warheads, which took place in Chelyabinsk-70, has adopted an appeal to the citizens of Byelarus, Kazkahstan, and Ukraine.

It says, in part:

Our country, the former USSR, has paid with thousands of lives for almost half a century's work on nuclear weapons, and no one, except us, developers of nuclear warheads, can imagine the full extent of the danger that threatens when incompetent people are allowed access to the nuclear arsenal.

The hope that invited foreign specialists will be able to resolve all the problems seems naive.

The nuclear scientists recall that the Chernobyl tragedy occurred mainly because of the lack of supervision by specialists.

They appealed to the citizens of Byelarus, Kazakhstan, and Ukraine to come out against these states becoming nuclear powers.

The scientists hope that their voice and the opinion of specialists will be heard by the parliaments and governments of these republics.

Foundation Suggests Public Destruction of Warheads

PM1205153392 Moscow IZVESTIYA in Russian 8 May 92 Morning Edition p 8

[Report by Sergey Leskov: "The Show Featuring A Nuclear Bomb Can Only Be Seen Here"]

[Text] At its latest session the Legasov Foundation put forward an initiative suggesting the public destruction of a nuclear warhead and dismantling of nuclear bombs in Russia. According to the organizers of the coming attraction, it would be a way of acquiring some of the currency required for the destruction of hundreds of nuclear warheads, which the Russian treasury is having difficulty finding by other means at the moment.

The international Legasov Foundation was set up some months ago to promote ideas geared to safe ways of developing civilization. But it is an exaggeration to call the foundation international, since its only members are investors from the CIS. The foundation does not have a big name either. Hopes of fame rest with the political clout of the foundation's leaders—A. Bessmertnykh, former USSR foreign minister, and A. Protsenko, former deputy minister of the union Ministry of Medium Machine Building. The planned action, for which there is not even the remotest precedent, has by no means an insignificant part to play....

According to information obtained by IZVESTIYA, the show proposal is currently under discussion at a number of Russian Supreme Soviet commissions and at the General Staff. The main question, which military department specialists were brought in to tackle, is that of maintaining secrecy during a public demonstration. It will not be difficult for an experienced observer to be able to determine the tactical and technical specifications of our nuclear weapons from the geometry of the missiles and even of the warheads. On the other hand, if you bring dismantled pieces of nuclear weapons to the show the event will cease to have any value.

But those behind the nuclear spectacle hope to resolve all the problems. The final scenario has not yet been confirmed, but the plan is that it should be held at the beginning of August in a big city, preferably Moscow. R. Gudimov, one of those behind the show, said that the destruction process would involve dividing the nuclear warhead into small parts using special equipment. The radioactive elements emit alpha particles, so spectators will have to be protected from dangerous radiation. If the military give their permission, the warhead will be brought to the inspection area, together with the missile. Otherwise a model will have to do. It is possible that a special amphitheater will need to be built in an open space for a large number of spectators. The stadiums that are presently available will scarcely do for the planned spectacle, since the military hardware will render the turf unfit for use.

What actual benefit could the spectacle bring? The agreement on the reduction of nuclear armaments presupposes the destruction of warheads, which will create an unprecedented quantity of radioactive materials—around 100 tonnes of plutonium and 500 tonnes of highly enriched uranium. The processing and burial of these materials will require the use of high-technology methods, the solution of the safety problem, and vast expenditure to the tune of hundreds of millions of dollars. If you recall that we were given no more than $10 million even for orbital excursions by foreign cosmonauts, then one can assume that the planned event is not going to cause the Russian treasury to overflow. In the opinion of Academician N. Ponomarev-Stepnoy, it is far more realistic to fall in with the U.S. decision to provide Russia with $400 million for the destruction of nuclear warheads. For our part, we have only to estimate the cost of the technical measures. But things are not moving along as smoothly as they may be when organizing a concert.

What do the specialists think about the coming attraction? The physicists from Arzamas-16, who know their handiwork better than anyone else, doubt whether it will be possible to observe secrecy during the public destruction. N. Ponomarev-Stepnoy described the show featuring the most awesome weapon as "daft." Another Kurchatov Nuclear Research Institute leader did not even believe my question: "What nonsense."

No, it is true. People are going to Europe to talk with foreigners. Well, foreigners will be interested to attend a nuclear circus....

Risks, Problems With Dismantling Discussed

PM0705161092 Moscow NEW TIMES in English No. 14, Apr 92 p 31

[Article by Gennadiy Novikov, head of the Safety-Improvement Laboratory at the Russian Ministry of Atomic Energy: "Put Down Zero, Carry What?"]

[Text] A world free of nuclear weapons, and any weapons ideally, belongs to the enticing ideas of humankind's radiant future which prove to be no more real than a pipe dream.

In fact, the world will always have at least non-military weapons and implements which can be turned into tools of aggression: like high explosives routinely used to fragment rock, or guns fired to disperse hail-bringing clouds, or commercial lasers.

Soviet and later Russia's leaders announced several cuts in the country's nuclear arsenal. However, to reduce it may prove almost as costly as to increase.

According to the press, the USSR had 30,000 nuclear charges. Recently I came across a figure of 35,000. Mikhail Gorbachev suggested to reduce this arsenal to the level of 5,000 warheads. Boris Yeltsin went even further and announced reduction of the offensive weapons to the level of 2,000-2,500 nuclear charges. Let's see how feasible this is.

First of all, let's look into the matter of the country's industrial capacity for dismantling nuclear weapons. No official data about it has been published, yet it isn't impossible to make your own calculations. If the nuclear inventory lists 30,000 items with a service life of 10-15 years each, then 2,000-3,000 nuclear charges have to be decommissioned and dismantled each year. The same number of charges is to be produced for a replacement. The industry can handle this task.

It would take us at least six years to disassemble 30,000 nuclear charges at a rate of 5,000 pieces a year. And we are going to face new problems here too: for example, if 2,500 nuclear charges are to be disassembled annually and the same number of new ones are to be produced, this will mean that only some of the components and materials are to be scrapped, and some others (primarily the fissionable materials like uranium and plutonium) are to be recycled and reused in new charges.

If the number of the disassembled charges doubles and the number of the newly produced ones dwindles almost to naught, the quantity of components to be destroyed doubles as well. This means that the fissionable materials will become unwanted for reuse. This, in turn, creates the problem of reusing the materials, including the

biologically dangerous radioactive plutonium. The task of destruction and recirculation will require a whole new industry.

Transportation of 5,000 pieces of nuclear weapons from bases to industrial plants annually poses another problem. It will require 100 trains (each carrying about 50 nuclear charges) a year. Each train will travel 3-5 days. This means that for several years there will be a number of nuclear-carrying trains travelling daily along this country's railways. This possibility is rather discomforting, considering the rate of railway accidents.

Hurried withdrawal of nukes from bases around the CIS to Russia also involves certain risk. Russia's traditional "powder kegs" will become overcrowded with nukes, increasing potential threat to the environment, particularly considering that Russia's bases are in dire need of reconstruction.

But any ill-considered political decisions can be avoided if we embark on cooperation with foreign (primarily U.S.) experts, for which we are already prepared. Russia can follow the U.S. suit and announce stepping up safety of the preserved nukes as well as ones under elimination as a national priority. Then the carrying out of this task of national importance will be promoted by corresponding state, legal, financial, organizational and technological support, including development and adoption of the single safety criteria for all the CIS countries. All technologies and procedures involved will be coordinated and improved to meet the safety criteria. This primarily concerns storage and transportation of nuclear charges, reclamation of fissionable materials, production of new types of nuclear weapons, and modernization of old ones. It will also pertain to national and international systems for spotting and reacting to breakdowns.

Conversion of the military industry into peaceful production is a current and widely discussed topic. Reduction of nuclear arsenals and increasing their safety is going to become one of the main directions of that conversion for the next 10-15 years. Perhaps it would be wise to engage Russia's nuclear experts with the problem rather than to find new jobs for them.

Theft of Radioactive Material From Russia Reported

LD1105223192 Moscow ITAR-TASS World Service in Russian 1049 GMT 11 May 92

[By ITAR-TASS correspondent Vladimir Khodiy]

[Text] Irkutsk, 11 May (ITAR-TASS)—The festive days brought worries to the workers of the Irkutsk "Radon" specialized enterprise, to the oblast's civil defense center, to the militia, and to other services. A consignment of instruments containing sources of radioactivity was stolen by unknown persons a few days ago from the unguarded store of a teaching aids shop. Thirty-eight small containers disappeared, each containing four plates filled with plutonium and other radioactive elements in amounts that are small but unsafe for human health. Just under 100 plates have been recovered so far, quite a few of them heavily scratched and damaged.

It has been announced through the local mass media that those handing in the plates will be exempt from all punishment. Moreover, a reward was promised for information on the whereabouts of these dangerous sources of contamination.

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