

*The Buddha Smiles:
U.S. Peaceful Aid and the Indian Bomb (1978)*

A Summary

Roberta Wohlstetter¹

From Albert Wohlstetter, Victor Gilinsky, Robert Gillette and Roberta Wohlstetter, eds., *Nuclear Policies: Fuel without the Bomb*, Cambridge, MA: Ballinger Publishing Co., 1978, pp. 57-72. Courtesy of the Wohlstetter Estate. The unabridged version of this report is available from www.albertwohlstetter.com/writings/BuddhaSmiles.

THE PATH TO THE INDIAN NUCLEAR EXPLOSION

The Indians decided in 1956 to produce and separate plutonium long before they decided to make a nuclear explosive. So did the British, and so did the French. The Indians had separated plutonium in their Phoenix reprocessing plant by 1965, years before they had any power reactors in operation, and the decision to separate plutonium had no persuasive economic justification. It was tied to plans in the 1950s for developing an Indian breeder reactor that is still remote in the 1970s. However, India's plans to produce plutonium, with only a tenuous and vague relation to a realistic program of power production, were not very different from the vague expectations of the United States and the United Kingdom in the 1940s and the 1950s about the utility and even the necessity of plutonium in the production of electric power.

Whether or not Indian plutonium ever became important in the generation of electricity, the separated plutonium would carry India most of the way toward a nuclear explosive. The same would be true for any country acquiring substantial amounts of separated plutonium. Neither our export policy nor that of any other country had recognized this fact, or seriously tried to cope with its consequences, until President Ford's *Statement on Nuclear Policy* of October 28, 1976.

First Steps to a Bomb

It appears on the basis of public evidence that sometime in late 1964 Prime Minister Shastri had given Homi Bhabha, the director

of the Indian Atomic Energy Commission (IAEC), permission to reduce the critical time needed to make a nuclear explosive. Bhabha had stated some time before his death early in 1966 that India could make a bomb in eighteen months, and by the spring of 1966 some Indians were claiming it could be done in six months. Evidently Shastri's permission set in motion work on design of an explosive system and preparation for testing of the nonnuclear components. This preliminary activity would still leave open the question as to whether India would assemble a nuclear explosive, and also the question of whether, with the explosive at hand, India would choose to detonate it. Shastri's private relaxation of his public stance was motivated primarily by concern about China, and the decision to go ahead with military components was given greater impetus by the withdrawal of American military aid in the fall of 1965.²

Shrinking Critical Time Versus Preserving the Option

India illustrates that, with cumulating changes that shrink the critical time, only a minor event is needed to tip the decision in the timing for exploding a nuclear device: for example, a mere "tilt" toward Pakistan by the United States rather than a reversal of alliance, or a need for a distraction from transient domestic economic troubles such as a railroad strike. The basic decision to come close to making a bomb has to do with more fundamental, long-term interests.

One frequently talks of a given government trying to preserve the option to become a military nuclear power. But the phrase is misleading. A sovereign government cannot surrender such an option in perpetuity, even if it renounces the possibility with fewer qualifications than in the Nonproliferation Treaty (NPT). It can always change its mind and, starting from where it stands in nuclear technology, proceed to get weapons. The Indian case, however, illustrates the more important phenomenon, namely, that a government can, without overtly proclaiming that it is going to make bombs (and while it says and possibly even means the opposite), undertake a succession of programs that progressively reduce the amount of time needed to make nuclear explosives, when and if it decides on that course. This can be done consciously or unconsciously, with a fixed purpose of actually exploding a device or deferring that decision until later. But it is more than holding out the option. It involves steady progress toward a nuclear explosive.

The Indian program also illustrates the linkage of decisions among antagonists to get nuclear explosives, and also the fact that the linkage is not a mechanical phenomenon but is related to a network of competing national interests and domestic factions. The Chinese nuclear explosion in October 1964 followed the Sino-Indian conflict in 1962, which itself had been a flaring into the open of the rivalry between the two Asian powers previously smothered in the rhetoric of coexistence. The Chinese explosion generated a policy debate among Indian domestic factions that led more or less steadily to a nuclear explosion nearly ten years later. The beginnings of the nuclear explosive program were clearly visible for at least eight years. The Indian explosion in turn, following Pakistan's disasters in the 1971 war, may confirm Pakistan's decision to get nuclear explosives, "even if," as Prime Minister Bhutto said, "we have to eat grass."³ The consequences of both the Chinese and Indian explosions involved not only such direct links, but a more generalized lowering of the taboo.

The Rhetoric of Peace and Economic Development

The rhetorical separation, as if in a dichotomy, of peaceful and military uses of nuclear energy, as well as the rhetorical identification of investments in civilian nuclear energy with economic development and catching up with the advanced countries, form a substantial part of the background of cumulative changes that made India's nuclear explosive program easier.

The identification of civilian nuclear energy with economic progress is sometimes made in self-consciously symbolic terms with no pretense at hard economic argument, but merely as an invocation to modernity. Nuclear technology, it is said, is the most important or most characteristic development of the present age—the "nuclear age." Therefore it becomes the essential component for catching up with the advanced countries, from which India and other less developed countries have only recently been liberated. Dr. Bhabha, the first director of India's nuclear energy program, argued steadily in this vein against the economic arguments of Francis Perrin, I. M. D. Little, and others. He was aided by the rhetoric of Atoms for Peace, and his early implementation of the Indian civilian nuclear program found strong support in the U.S. Agency for International Development (USAID) and the U.S. Atomic Energy Commission (USAEC) of the 1950s as part of a general and generous U.S. policy to aid Third World development.

The Rhetoric of Disarmament

The Indians also use the rhetoric of nuclear disarmament and “general and comprehensive” disarmament as ultimately justifying their production of nuclear bombs: (a) nuclear armament would put them in a powerful position to argue for nuclear disarmament (a standard argument by intending nuclear powers), and (b) the only alternative to India’s nuclear armament is unattainable, namely, the disarmament of the superpowers and of their own major antagonist China. Indian rhetoric here exploits the insincerities and the hopes expressed in the rhetoric of the weapons powers themselves. Off-the-record interviews at crucial periods make plain, however, that Indian officials would put no trust even in an agreement by China to disarm totally. No such promise to disarm will substitute for an Indian nuclear weapons program because, they say, there is no way of verifying the nonexistence of Chinese bombs in the vastness of China’s territory.

This is the reality underlying India’s part of the debate on Article VI of the Nonproliferation Treaty.

In spite of the long gestation period, when the Indians were plainly moving toward a nuclear explosive, U.S. experts both inside and outside the government have tended to take Indian arms control rhetoric at face value. One excellent student of proliferation (Harold Feiveson) reported in 1973, shortly before the explosion, on a consensus of U.S. experts that the Indians would not explode a nuclear device.

National Sovereignty in the Less Developed Countries

Frequently in arms control negotiations we think of countries like India as hostile to any surrender of sovereignty in an alliance, but as quite willing to accept limitations by a truly universal international authority. The Indians, as they prepared their nuclear program, were sedulous attendees at Pugwash conferences, as well as highly vocal participants in the Eighteen-Nation Disarmament Committee. However, it is apparent that India, like many other less developed countries, has been among the most jealous of surrendering any part of its sovereignty to an international inspectorate. It has fought against potential harassment by IAEA inspectors and used some of the indirectness

of the trilateral relationship to keep as much freedom of action as possible, and specifically freedom from restrictions imposed by suppliers. Its agreement on nuclear cooperation with the United States and the IAEA is unique in that safeguards apply only to the enriched uranium fuel supplied by the United States and not to equipment.

Ambiguities, Ambivalence, and Sanctions

The ambiguities of agreements on the Indian nuclear program are central to the problem. Did the Indians violate any agreement in literal terms? Even if they have not violated the exact terms of an agreement, or even if they can argue that they did not, did their actions represent a dangerous shrinking of critical time?

The U.S. government has made clear since 1966 that there is no distinction between a peaceful and a military explosive. But the Indians act as if the nonexclusive "and/or" were in fact a dichotomous "either military or peaceful, but not both." This poses problems for sanctions.

Precisely because Indian behavior did not overtly and plainly violate the letter of agreements as the Indians chose to construe them, the decision to impose sanctions was vulnerable to arguments that the sanctions imposed costs not only on the Indians but on the United States as well. U.S. suppliers were heavily involved, following the spirit of the original open-handed Atoms for Peace program and later of Article IV of the Nonproliferation Treaty, which promised "the fullest possible exchange" to help civilian nuclear energy programs. (Even though Article IV was directed especially at parties to the Nonproliferation Treaty, it also stipulated "due consideration for the needs of the developing areas of the world." And though the rights and duties under Article IV are limited by the obligation in Article I, "not *in any way* to assist non-nuclear weapons states to manufacture or otherwise acquire . . . nuclear explosive devices," many nonnuclear weapons states in this context conveniently forget Article I and the fact that this is a nonproliferation treaty, not a nuclear development treaty.) The machinery of grant aid and concessionary loans was nowhere more utilized than in the Indian case. In its agreement with India the United States also undertook various obligations to send enriched uranium for reloads frequently enough to keep the reactors operating, and to provide continuing technical assistance. These are contingent, of course, upon India's fulfilling

its own obligations. However, if India does not do so, and if the United States stops assistance, it does so at some domestic cost to American business. At the very least American business will be smaller than if we take a relaxed view of the customer's obligation to eschew nuclear activities with a potential for military application.

Besides American business, there might also be objections from members of the relevant congressional committees and the media, who would feel, after the so-called Pakistani tilt, that the U.S. government was picking on India. Other factors also reinforce the reluctance to impose sanctions: some members of the U.S. bureaucracy think that the Indians were right; some were involved in negotiating the original agreements with all their ambiguities; and some, as always, find it pleasanter to distribute rewards rather than punishments and dislike being cast in the role of "heavy," perhaps especially with respect to a less developed country that seems intermittently to be on the brink of famine, and find the specter of responsibility for bringing on such a famine hard to live with. For example, a breakdown in electric power might decrease fertilizer production, which in turn might affect the crops in Gujarat.

Although the United States had and continues to have considerable leverage in the continuing Indian need for help from General Electric when India runs into trouble with operating the boiling-water reactors at Tarapur, and in the Indian need for slightly enriched uranium, heavy water, and other supplies, it is easy to understand why we have been reluctant to use the leverage.

U.S. Ambivalence

There is in any case an ambivalence in U.S. policy. We have been against proliferation in general, but not necessarily in particular. Nonproliferation is only one of a number of foreign policy goals, and those who stress it excessively tend to be regarded as fanatics, "one-issue men." If in fact the occasions for application of sanctions are blurred by ambiguity, and the effectiveness of the sanctions themselves seems weakened because we no longer hold a monopoly on the services we might threaten to withhold, and because our influence over other suppliers is limited, policy is likely to be affected by a feeling of the inevitability of the spread. From there it is a short step to reviving the comforting doctrines,

popular especially in the late Fifties, that the spread would not be so bad anyway. If we do not actually enjoy it, we might at least relax.

Our own ambivalence and that of other supplier countries and the implicit rivalries among them make for a failure to press for very clear bilateral understanding as to what is proscribed. Canadian and U.S. temporizing in the mid-1960s illustrates this point. Unilateral understandings, no matter how explicitly transmitted, are no substitute. Trudeau's plain talk to Indira Gandhi is one example. Mrs. Gandhi was not talking—and not listening either. Canada's recent decision to stop aid on the RAPP II reactor has finally drawn a clear line between safe and dangerous activities. Its actions clearly say that a nuclear explosive is not exclusively peaceful.

The U.S. intelligence function is weakened by the fact that it is not very clear about what should be looked for (a violation? a legitimate activity that is "unsafe"?) and whether there is much point in looking for it, for there may be no clear policy to do something with the information and no urgent need expressed in advance. May 18, 1974, marks a failure to clarify our policy on response more than a failure of intelligence.

Nuclear Versus Conventional Forces

The Indian program proceeded slowly over a very extended period under a nominal cover, but with many obvious indications that India intended at least to explode a device and get a few primitive weapons. Partly because of this manner of proceeding, the Indians are a long way from having a serious nuclear capability against their major adversary, China. Moreover, they suffer from many geographical strategic asymmetries for this purpose. It is conceivable that they may proceed with a missile program at the same stately pace. On the other hand, they do have sizable ambitions in the world strategic environment (the title of their defense journal is *India in the World Strategic Environment*). Though extremely poor on a per capita basis, the country is large enough to have a gross national product that can support a substantial military program, and possibly in the future a much more extensive military program than a simple last-resort capability usable only in response to an overwhelming conventional attack and with little hope of surviving nuclear attack. It might even go for a blue-water navy.

The Indian conventional forces have been considerably strengthened. The military in the mid-Sixties plainly regarded nuclear weapons as a rival to such conventional expansion and therefore did not support it. But as such conflicts frequently are resolved, the military got its conventional expansion and the Foreign Office and the Atomic Energy Department got their nuclear explosives, with consequent increasing military support for the nuclear program. An expanded military nuclear program might in the future get wide general support.

Nonalignment and Joint and Individual Guarantees

The Indians continued to maintain a nonaligned stance in the mid-Sixties long after the conflict with China and regional antagonisms had transformed the meaning of nonalignment. Nonetheless, it made them reluctant to try to get an unequivocal unilateral guarantee from the United States, which might appear to line them up with the United States. They actively sought a joint guarantee from the Soviet Union and the United States, even though some high officials recognized that such guarantees among potential adversaries are worth considerably less than alliance guarantees. In the end the Nonproliferation Treaty was followed by an extremely weak statement of guarantee by the weapons states that they would take "appropriate action" according to the decision of the U.N. Security Council. When the treaty was passed in the Security Council, India as well as France abstained, though it was the end point of a sequence of actions seeking a guarantee in which India had played a leading role.

POLICY IMPLICATIONS OF THE INDIAN-CANADIAN- U.S. EXPERIENCE IN NUCLEAR COOPERATION

This case history has implications (a) for decisions on future U.S. cooperation with India itself and these are of course the policy choices most directly illuminated; and (b) for the choice of policies for stopping the spread of nuclear weapons to other countries as well as India, and this more general application of the U.S.-Indian experience is perhaps even more important.⁴

Some causal connection naturally exists between the policy we adopt toward India in the future and the influence we can exercise on other countries. Our policy toward India sends a message to other countries that may be more persuasive than declaratory

statements about the rewards and penalties for actions that might violate the letter or spirit of our antiproliferation policy. But even apart from this direct effect of our Indian policy on our policies elsewhere, it is apparent that the sequence of events leading up to the Indian explosion in May 1974 had a widespread and immediately recognized significance as a major challenge to policies that had been directed at transferring nuclear technology for peaceful uses only while discouraging or preventing its military application. In the four years since the Indian explosion international awareness of this challenge has deepened. It has not, as some expected, dissipated. In fact, in spite of all that has been written about the Indian nuclear program, the implications of its history are not yet widely understood. Yet they are directly relevant for much of the current debate on nuclear export policy.

Stopping Drifting Governments vs. Stopping Governments That Are Committed from the Start

It is frequently argued today that there is no point in constraining exports of plutonium separation plants or uranium enrichment facilities or even in limiting exports of plutonium or highly enriched uranium themselves. There is no point, and it may even be bad, the argument runs, because almost any country committed to getting nuclear weapons can get them by itself, for example by designing and building a production reactor.⁵ After such a facility (say, a simplified version of the Brookhaven Graphite Research Reactor taking four or five years to build and using natural uranium) is fully operational, it will produce plutonium in the spent fuel that might yield material for one or two bombs a year.⁶ Such a country could also design and build a reprocessing facility for extracting plutonium from the irradiated fuel rods.⁷ If we do not export facilities for producing such highly concentrated fissile materials or the materials themselves to such countries that are intent on getting nuclear weapons, we will compel them, it is said, to do it on their own. It would be better for the United States to supply these under safeguards.

This line of reasoning, which is sometimes buttressed by a reference to the Indian example, has many weaknesses. In fact, an examination of the Indian experience reveals a key flaw in the argument. It is essential to consider not merely governments that have made up their minds to get nuclear weapons and to get them perhaps at any cost. That list is likely to be very small indeed

at the present time, as it has been in the past. More important is the much larger list of governments that at any given time have not made up their minds at all, or that have not even seriously considered a nuclear weapons program, or that have considered it and quite sincerely rejected it.

That larger list is the one that policy must principally address: the countries that can drift toward a military capability without any intention of arriving at it, and yet that may adopt a civilian program that ultimately places them within days of acquiring material for nuclear explosives. The Indian experience illuminates that process of drifting toward a bomb. Canadian and U.S. help—transfers of facilities, equipment and material, advisory scientific and engineering services, training of Indian personnel, financial subsidies and loans—formed a major ingredient of the Indian program that was shortening critical time to make an explosive. And this help was given before and after the Indians revealed a strong interest in nuclear explosives. It continued after the time when Indian officials were formally and informally issuing statements that the Indian nuclear program had shortened the time remaining before they could get an explosive, and while the time announced was growing shorter and shorter.

During this period both the United States and Canada made public announcements indicating that “exclusively peaceful applications” excluded by definition explosives of any kind, and the Canadians made many private reminders of this point. However, in advance of the actual Indian explosion, neither Canada nor the United States insisted that the Indians themselves publicly agree with them, and still less did either government demand that India eschew forms of nuclear research and nuclear electric power activity that would provide them with stocks of plutonium or simple compounds of it, and thus bring them closer to a nuclear explosive. Nor did the United States or Canada ever explicitly say that stocking plutonium was illegitimate.

Canada waited until after the explosion to insist on India’s disavowal of a nuclear explosive program, and it was only in 1976 that both governments indicated that civilian activities involving stocks of plutonium might themselves have to be banned. The latter course of action finally faces up to the question of stopping a drift toward the bomb by countries not yet committed.

Current Pure Intentions Are Not Enough

A point closely related to the preceding one is also clearly confirmed by the Indian experience: The fact that a government receiving nuclear transfers has the purest of motives at the time of receipt, that it intends to use this aid solely for purposes of advancing civilian electric power, and that it abhors nuclear weapons, offers no assurance that it will not change its mind, and provides no warrant therefore for favored treatment in granting aid which will shorten the time to make an explosive. Because such aid makes it technically easier and cheaper to get nuclear weapons and means that the progress toward nuclear weapons can be more ambiguous, or concealed, and politically less risky, it also facilitates a change in intention responding to new external or internal pressures. Only a policy that restricts the forms of nuclear energy (in research or in production of nuclear power) to those that exclude national control of highly concentrated fissile material can deal with future intentions to make nuclear weapons and make it less likely that present good intentions will change.

This particular lesson is relevant today to the situation of several countries (Japan, Sweden, West Germany) whose current intentions are on all the evidence exemplary, but whose programs of nuclear cooperation with us and other suppliers involve an accumulation of plutonium and highly enriched uranium.

"Safeguards" are Necessary but Not Sufficient

Bilateral and international safeguard systems are essentially arrangements for accounting and inspection. They are intended to deter bomb manufacture by assuring early warning and permitting timely counteraction.⁸ The Indians resisted safeguards with very substantial, though partial success. Some of their facilities are not or will not be safeguarded at all, even though they involve technology that is at least directly descended from some Canadian and U.S. imports: for example, the heavy-water reactors under construction at Madras. Other facilities given them by Canada and materials given them by the United States, though restricted to peaceful uses, were unsafeguarded: so CIRUS and the U.S. heavy water used in it. Nonetheless even if this unfortunate laxity had been avoided, safeguards would not have been effective in fulfilling the purpose of providing timely warning, if the Indians had been permitted to separate plutonium,

to fabricate it into mixed plutonium and uranium oxide fuel and in the course of these activities, to stock significant quantities of plutonium or simple compounds of it under their control for use either in electric power or research. To prevent the sudden manufacture of a nuclear explosive without warning requires not only safeguards on essentially all research and power facilities that could contribute substantially to the eventual accumulation of fissile material, but restrictions on the accumulation itself.

The mixed plutonium and uranium oxide fuel requirements implied by such extensive nuclear electric power programs as those of Japan, Spain, and many other countries that do not have nuclear weapons today are very large, and the plutonium or simple compounds of it (such as mixed plutonium and oxide fuel) are very quickly usable in an explosive. Any attempt therefore to limit the working stocks of such plutonium under national control to an amount that would be strategically insignificant is bound to be unacceptable. Such restrictions would make these countries much more dependent and their reactor operations much more liable to interruption than they are presently or would be with slightly enriched uranium fuel.

Fresh low enriched uranium stocks under national control are more likely to be susceptible to limitations satisfying both the user's desire for adequate working stocks and the international community's desire to keep stocks of highly concentrated fissionable material out of the hands of non-weapon states. It is also true that international control and also close, even continuous inspection of spent uranium fuel would intrude less into the essential operation of reactors.

Policy Toward Countries That Make Nuclear Explosives in Spite of an Agreement to Restrict Nuclear Activities to Peaceful Uses Only

The Indians used a facility given by Canada and some U.S. heavy water to make and test a nuclear explosive. They did this in both cases under a peaceful uses-only agreement, and the U.S. State Department makes clear that our agreements had always intended to exclude such a development.⁹ Nonetheless we are faced with the fact that, whatever our or their good intentions, they have produced at least one nuclear explosive. What should be our course of action?

On one side it can be argued that the damage is done. India has carried through the program, and we might just as well, as

in the case of the French, acknowledge the fact and treat India as a full-fledged member of the club, along with the preceding five members. Or we might reduce our embarrassment somewhat by accepting India's distinction between peaceful and military explosives and, to preserve the fiction, provide them, so to speak, with only an associate membership in the club. If we do not do so, India can go ahead with its own program, having advanced so far, and moreover, as a potential supplier of nuclear technology, India could proceed to help other countries to follow in its footsteps with a nuclear explosive program. There is no point simply in punishing India, and encouraging it to be irresponsible.

On the other hand, such arguments, though tempting, have disturbing implications for future aspirants to nuclear weapons. For what it will suggest to them is that we will oppose their getting nuclear weapons and even threaten dire consequences if they do, but should they be successful in ignoring our opposition and our threats, we will never execute the threats, and never impose any sanctions, but only reward them with membership or associate membership in the club. If in addition we permit civilian activities that bring countries close to manufacture of nuclear explosives in any case, then the interval of unpleasant opposition from us before we reward them will be gratefully short. The truth is that we oversimplify when we say that "the damage is done" as soon as a country explodes a nuclear device. Much more damage will be done if we do nothing to make the country regret its action. This is especially true if there has been a violation of the sense of an agreement. But even for those few countries that have never disavowed an interest in nuclear bombs, we should make clear in advance that in case they do, success will not be met by a welcoming committee. It will cost them something.

Policy Towards Countries That Do Not Disavow Intentions to Make Nuclear Explosives, "Peaceful" or Otherwise

There are about a half-dozen countries of importance that have refused to ratify the NPT or to make a separate statement that they will forgo even "peaceful" nuclear explosives (India, Pakistan, Argentina, Brazil, Israel, Egypt). The Indian case illustrates the dangers of continuing nuclear cooperation with such countries and remaining content with unilateral statements to the effect that such nuclear cooperation is premised on the recipient's not making nuclear explosives at all or at least not making them with

the aid furnished in a specific U.S. nuclear agreement. I believe that U.S. policy should refuse nuclear cooperation unless these countries give up nuclear explosives altogether, and not just nuclear explosives made using our help. This means no slightly enriched uranium, no heavy water, no reactor sales, no advisory services, no nuclear transfers of any sort.

A Policy for Both India and Pakistan

Indian military concern centered primarily on China rather than Pakistan, and in fact as distinct from rhetoric, not at all on a threat from the two superpowers. Indian arguments in international forums about superpower disarmament were in good part a way of justifying India's own armament and nuclear explosive program. The Indians were interested in help from the superpowers against China, and superpower disarmament was rather irrelevant or inconsistent with that goal. Although they have made constant reference to the evils of vertical proliferation from the mid-Sixties on, the evidence suggests that this was merely a debating point. It is, moreover, doubtful that substantial superpower disarmament would in general influence a country not to undertake a nuclear weapons program, if it is concerned about nuclear threats from other sources.

The Indian experience confirms that countries that by choice or circumstance stand outside alliance systems are particularly liable to decide to make nuclear explosives, if it is easy for them to do so and if the international environment changes adversely. The Indians' cautious attempts to get nuclear guarantees jointly or separately from the United States and the Soviet Union yielded nothing very substantial, and U.S. conventional military assistance was withdrawn just about the time that Indian concern about the Chinese nuclear explosive program was most acute. A policy to discourage nuclear proliferation has to deal with legitimate or perceived military challenges, both direct and indirect, to the countries concerned.

The new administration in India has begun with a rejection of nuclear weapons and an expression of doubt about the usefulness of "peaceful" nuclear explosives for India. Morarji Desai seems likely to be skeptical of the sort of technocratic idyll that has animated the nuclear energy program in India in general and that in particular might give some shred of plausibility to such dubious gadgetry as Plowshare.¹⁰ The nuclear bureaucracy in

India has been most closely linked with the Congress Party, with Nehru and with Mrs. Gandhi. This is a particularly opportune time, then, to induce a revision in Indian thinking and to move it away from nuclear explosives.

However, there are obstacles other than the Indian nuclear bureaucracy. First of all, our own nuclear industry and bureaucracy fostered many of the Indian positions on nuclear energy and rationalized them for the American Congress. A change in policy in India presupposes a very clear-cut change in American policy at the working level, as well as at the top. Second, India has some legitimate defense concerns, and insofar as it has any continuing worry about a Chinese nuclear threat, it may require some sort of assurance of help. For the United States to provide this assurance may be hard to manage. Third, India nonetheless has an interest in seeing to it that Pakistan, an irredentist power with respect to parts of India, and an adversary with whom India has been engaged several times in the short history of Indian independence, does not itself get nuclear weapons. There is no doubt that Pakistan has been powerfully moved to get nuclear explosives by India's own explosive program, and that Pakistan's desire to improve its conventional forces is motivated mainly by its adversary relation with India.

All of this suggests that it is essential to try to use a formal abandonment of India's nuclear explosive program as a lever to get a similar commitment from Pakistan about nuclear explosives, and vice versa. And in a similar way, it is important to try to arrange for the simultaneous abandonment by Pakistan of its plans for a reprocessing plant and for the abandonment or indefinite deferral by India of its plans to reprocess spent fuel.

We should assure India of nuclear material equivalent in amount to that which it might derive from reprocessing spent fuel. This equivalent would be in the form of natural or slightly enriched uranium. We should also offer to take back India's spent uranium fuel, and to lease rather than sell slightly enriched uranium fuel rods in the future.

The plutonium content of the spent fuel has an uncertain value that will depend on the relative costs of deriving fissile material from spent fuel, compared to the costs of freshly mined uranium. It may have a negative value. We should offer India, if it likes, an equity interest in any use of its spent fuel to extract fissile material. That is, if in the future it is profitable to extract plutonium from spent fuel, we should give India a credit for the positive value

of the plutonium as an offset for the cost of the slightly enriched uranium which we supply as a substitute. If this risky venture of reprocessing is nevertheless undertaken and there are losses, India, with an equity stake, would have a debit to add to the price of slightly enriched uranium. India should not be obliged to take the equity risk in reprocessing, but making it clear that India has the opportunity will make it clear also that it is highly uncertain that plutonium embodied in spent fuel has a positive value.

If India does not explicitly disavow a nuclear explosive program, and if it does not accept full fuel-cycle safeguards, the United States should stop nuclear cooperation with India.

If India does disavow nuclear explosives and accepts full fuel-cycle safeguards, we should supply it with slightly enriched uranium and heavy water only if it also agrees not to accumulate plutonium or highly enriched uranium, and not to maintain facilities that could quickly provide stockpiles of such highly concentrated fissile material. A more restricted immediate policy initiative would ask India to defer any further contracting into a program yielding stocks of highly concentrated fissile material, while we negotiate with it to provide equitable less dangerous substitutes for the highly concentrated fissile material or the facilities yielding it.

ENDNOTES - Roberta Wohlstetter - The Buddha Smiles

1. I want to thank Professor Albert Wohlstetter, as well as several participants in the seminar where this paper was first presented, in particular, Professor Robert Bacher of the California Institute of Technology, Professor Leo Rose of the University of California at Berkeley, and Professor Stanley Wolpert of the University of California at Los Angeles.

2. For expansion and documentation of these points, see Chapter 5, "From Civilian Power to Military Power," in *The Buddha Smiles: Absent-Minded Peaceful Aid and the Indian Bomb*, Monograph E-3, Los Angeles: Pan Heuristics, April 1977, available from [www.albertwohlstetter.com/writings/Buddha Smiles](http://www.albertwohlstetter.com/writings/Buddha%20Smiles).

3. A statement by Bhutto in 1965 when he was Foreign Minister quoted by Patrick Keatley, *The Guardian* (London), March 11, 1966.

4. I draw here on Albert Wohlstetter, *The Spread of Nuclear Bombs: Predictions, Premises, Policies*, Monograph E-1, Los Angeles: Pan Heuristics, November 1976, revised 1977.

5. See for example the views of Peter Hermes, State Secretary of the Foreign Ministry, West Germany, and Hans-Hilger Haunschild, State Secretary of the Research and Technology Ministry, as summarized in *Nucleonics Week*, February 10, 1977, p. 9:

Bonn hopes that Washington will see the [Brazil-German] deal in a different light after a more detailed study of its safeguards, which as German government officials are quick to emphasize, go beyond those of the non-proliferation treaty. German philosophy is that *a country really wanting the nuclear bomb will get it anyway*. The Bonn belief is that it is better to extend cooperation at a time when it is still possible to persuade the recipient country to accept international controls rather than turn down the threshold country's request for technology, letting it reach its nuclear goals through its own development work, without IAEA inspections. As it is, "the [German-supplied] Brazilian nuclear facilities will be fully subject to IAEA controls."

See also C. Starr, W. Haefele, and E. Zebroski, draft paper on "Nuclear Power and Weapons Proliferation," March 1976; E. Zebroski, contribution to panel on "U.S. Nuclear Policy and International Security," California Seminar on Arms Control and Foreign Policy, December 7, 1976; and a 58-page Westinghouse study cited by *Nucleonics Week*, March 31, 1977, as showing that there are "multiple avenues" other than by way of LWR plutonium that can be followed by a "*determined non-nuclear weapons state*" (italics added).

6. John Lamarsh, "Construction of Plutonium-Producing Reactors by Small and/or Developing Nations," April 30, 1976, reproduced by the Library of Congress, Congressional Research Service, June 4, 1976.

7. John Lamarsh, "On the Extraction of Plutonium from

Reactor Fuel by Small and/or Developing Nations," July 19, 1976, reproduced by the Library of Congress, Congressional Research Service, October 14, 1976.

8. *Laws and Regulations Governing Nuclear Exports and Domestic and International Nuclear Safeguards*, Message from the President of the United States, May 6, 1975, Washington, DC: U.S. Government Printing Office, 1975, p. 35; General Alfred Starbird, Assistant Administrator for National Security, Energy Research and Development Agency, "Statement before the Senate Committee on Government Operations," January 29, 1976, in *Hearing on S-1439: The Export Reorganization Act 1975*, Washington, DC: U.S. GPO, 1976, p. 408; International Atomic Energy Agency, INFCIRC/153 (1971); B. Sanders and R. Rometsch, "Safeguards against Use of Nuclear Materials for Weapons," *Nuclear Engineering International*, September 1975, p. 683; and Chapter 3 of Albert Wohlstetter *et al.*, *Moving Toward Life in a Nuclear Armed Crowd?* report to the Arms Control and Disarmament Agency, Los Angeles: Pan Heuristics, April 1976, p. 72.

9. Robert J. McCloskey, U.S. Senate Committee on Government Operations, *Hearings on S-1439*, p. 811.

10. Morarji Desai has been on record for some time against nuclear weapons for India. He is quoted as saying, "We can drive out any aggressor even without the bomb." He adds: "If China were to throw an atomic bomb on the Indian border, she would create an impenetrable barrier for herself." See Hari Ram Gupta, *India-Pakistan War 1965*, Vol. 2, Delhi, India: Hariyana Prakashan, p. 100.

In his first public press conference since his election as Prime Minister he also expressed doubt as to whether a nuclear explosive program would be useful for India and advised returning to "cottage industry." See Morarji Desai, quoted by *Newsweek*, April 4, 1977, p. 36.