

India's Foreign and Nuclear Policy between 1947 and 1964

1. INTRODUCTION

On July 16th, 1945 at 5:30 am the first atomic bomb in History was dropped on the desert of Alamogordo, the state of New Mexico - United States -. The objective was successfully accomplished and the United States were ready to drop the two other available bombs on Japan, the only country that still withstood the onslaught of the allies in World War II. In fact, since April the Japanese had been trying to negotiate surrender through its embassy in Moscow, and the United States made use of this information, since they had broken the Japanese diplomatic code. Despite that neither did the Soviets supply the United States with the information of the Japanese willingness for surrender, nor were the United States inclined to start a process of negotiation.

The Soviets expected to participate in the invasion. At the Yalta Conference in February, 1945 it had been agreed that three months after the German surrender, the Soviets would start a military offensive against Japan. At the Potsdam Declaration issued on July 26th, 1945, the unconditional surrender demanded for Japan, was its major hindrance. Since for the Japanese, the Emperor was sacred, his uncertain destiny was the soldier's driving force to remain at war, regardless the defeat. Several suggestions were put forward, nevertheless, the President, preferred to consider his Secretary of the State, James Byrnes's recommendation to keep the surrender requirement in the pers-

pective that the bomb would be ready and, therefore, could be used.. However, the stamped target was not Japan but the Soviet Union¹ .

On August 6th and 9th, the cities of Hiroshima and Nagasaki were respectively devastated by the North American atomic bombing. The Japanese surrender did not happen and behind-the-scenes negotiations were conducted. Meanwhile, modifications on the terms of the Potsdam Declaration were made and the Emperor retained his throne. This was made in time to hinder the Soviet offensive outbreak on the archipelago of Japan² .

The atomic bomb had changed the dynamics of the international relations. Due to the enormous military and economic power seized by the United States, by the end of World War II, the international system turned into a virtually unipolar system in the early postwar period. On August 20th, 1945, Stalin, through the State Defense Committee, appointed a special committee, headed by Lavrentii Beria, chief of the NKVD (the feared Soviet secret police), to manage the activities on the use of the uranium intra-atomic energy. On August 29th, 1949, the Soviet Union broke the American nuclear monopoly, triggering an arms race that led to the building of a nuclear arsenal, powerful enough to destroy life on Earth. Needless to say that in the years that followed the war, the superpowers actively worked on the building of their own arsenals. In 1947, England started its nuclear program. Conversely, Mao Tse-tung, who had stated in 1946 that the atomic bomb was a paper tiger, led China, in 1958 to serious disagreements with the Soviet Union, which refused to provide the necessary technology for the construction of the device. The nuclear arsenals and the capacity to construct the bomb started to determine the power status within the international system frame.

During the negotiations that led to the creation of the United Nations, India was still a British colony, yet developing the struggle for independence that would be achieved in August, 1947.

In the same year, the Truman Doctrine announced the Cold War and the international system became bipolar.

This paper intends to argue how the newly-independent India, through the leadership of its Prime Minister, Jawaharlal Nehru, was inserted in this context, keeping itself out of the bipolar option yet trying to lead external affairs – nonalignment – that aimed to guarantee the favorable conditions so that, in the future, it reached the super power status. During India leadership, Nehru formulated a foreign policy precept that defended the pacific solution of international affairs, the end of the imperialism, the end of the racism as well as social differences reduction among nations and the nuclear weapons elimination. However, in order to endow India with an energy infrastructure possible to develop an industrial- based economy, thus overcoming the delay constraint in relation to the West, Nehru developed an ambiguous nuclear policy. This ambiguity was characterized for defending the pacific character of the Indian nuclear program, and at the same time trying to keep the military option open, in case the government decided to work on it. For many times, Nehru stated that he was fully aware of the implications concerning the ownership of nuclear weapons and what it represented for the country within the international system.

This work is divided into two main parts. The first part is about Nehru's consistent strategy to turn India into a great power. We discuss the difficulties faced by the Indian administration towards the political consolidation of the new state and the relative questions concerning the possibility of fragmentation of the territory, threatened especially by the England's performance. At that moment, it was already clear that Nehru and the Indian elite put the country's interests above any idealistic perspective and that the use of the military force was an alternative to be used if the security and the India's interests were at stake. We analyzed the bases of the Indian foreign policy, its goals and the implementation of this politics in the internatio-

nal context, as well as its internationalist role and its attempt to act as a great power, despite the lack of means for such an attempt. We also study the conflicts with the United States that spotted in India position a hindrance to their hegemony, and for that reason made a military agreement with Pakistan. The political relations with the Soviet Union and China will also be object of further analysis.

At the end of this part, we focus on Nehru's strategy to consolidate India's long term objectives, in other words, the priority given to the scientific, industrial and technological development with emphasis on the nuclear program, as the path to promote the growth and empowerment of the country.

The second part of the work intends to analyze the evolution of the Indian nuclear program. It also focus on the issue that since before its political independence, there was already in the heart of the Indian ruling elite, the perception of the importance of what the atom power represented for India sovereignty and independence. In this analysis, we point out Nehru's determination in not allowing that his program could restore any form of relation that resembled the colonialism. For this reason, Indian diplomatic ability was of paramount importance to preserve the conditions that had left the military option open for the development of nuclear weapons program, if the government chose for it. Not only did the Indian government know how to take advantage of the opportunities of the international conjuncture in the 1950's, but it also introduced a nuclear infrastructure that would be possible, in the future, to develop the military option. It should be stressed that, when the international pressures on restriction of the nuclear arsenal increased, mainly after the Chinese explosion, in 1964, India had already made use of the basic industrial infrastructure to develop the military option.

In this part, we also analyze the evolution of the nuclear program in its civil or pacific aspects; the plans for qualification and training of scientists and technicians; the goals for the

nuclear energy production for the electric energy production; the options made by the government as well as their results; the adversities throughout the plans implementation and the overwhelmingly important international cooperation, especially with Canada.

At the end of the work, we evaluate, under the light of our research, the meaning of the Indian foreign policy and its nuclear program. We analyze the meaning of a non alignment politics and how the leading of this politics system set conditions for India to reach the goal of becoming a great power.

2. NEHRU'S STRATEGY TO MAKE INDIA A GREAT POWER

The consolidation of the State

A common problem to most of the countries freed from the European colonial domain was to define its territory and its political institutions. The difficulties experienced by India arose both from its social structure, and the imperialist inheritance. The political consolidation of the new State had to deal not only with the interests of the external powers but also with its implications for the external affairs.

India's independence took place in a parallel way to the Partition. It did not include the 562 princely states under British indirect government. Through persuasion and pacific negotiations, all – except for three states – it signed the Instrument of Access, which generated a number of difficulties and mistrusts between India and Britain. Junagadh, Jammu/Kashmir and Hyderabad opposed the integration. At first, the Congress Party advocated that the decision process was the people's responsibilities not the princes.

In Junagadh, a population outcry against the prince (who fled to Pakistan) promoted the union with India.

In Hyderabad, a mainly Hindu state, a Muslim prince (Nizam) firmly believed in the Indian military incapacity and, in

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his view of independence, was encouraged mainly by Britain and Pakistan. Part of the British press was anti India. Fanatical individuals, who held the State administration control, frightened the population and in collusion with Pakistan, would do raids to India and attack Indian trains that crossed the territory. Finally, India ordered its army to march on the region. With the support of most of the population, hostile to the absolutist prince, the troops quickly controlled the State.

In Kashmir, there were potentially explosive individuals: A population of Muslim, majority, a Hindu ruler and a radical movement for the democracy that had strong linking with Nehru and the Congress Party. When Pakistan realized that the result wouldn't be favorable it decided to invade Kashmir. When the Maharaja appealed for India help, India conditioned it to the acceptance of the Indian sovereignty. By means of the Maharaja's signature of the Instrument of Access India ordered its army to interfere and vacate the region. With the support of popular forces, the Indian army recovered most of the territory. Nevertheless, before the end of the military action, Nehru had gone to UN to formally accuse Pakistan for the aggression. Consistent with its past of hostility to Hindu nationalism, the United Kingdom favored Pakistan, in which was followed by the United States. The Soviet Union, which regarded India as "lackey" of the imperialism³, did not give support to it. Notwithstanding its military advantage, India accepted a resolution demanding a cease fire (August of 1948), but refused to yield to the Anglo-American pressure and hindered, through delay and non cooperation, the imposition of solutions that might put India territorial integrity at a stake.

Later, Nehru was bitterly criticized internally, for having gone to the U.N. and agreed to a plebiscite. However, while learning about the plebiscite conditions (the Pakistani withdrawal of Jammu and the Kashmir and the restoration of the administrative authority of Srinagar), that was never accomplished, Nehru withdrew and with the argument that there was an elect Cons-

tituent Assembly and that this had voted for the access to India, he regarded this decision as a substitute for the plebiscite. Later, the Kashmir participated in general elections in India, making the plebiscite issue irrelevant. India finally accepted the two nation-theories: Hindu and Muslim.

In 1949, the Constituent Assembly completed its works and presented the new Constitution of the country. Its basic features were: people sovereignty, civil government with parliamentary system, federal structure with considerable autonomy to the states and rejection of sectarian state. The option for such model opposed the estimated of the democratic theory and expressed Indian leadership deep faith in enabling people to elect their representatives. This theory assumed that a rich and educated population would constitute a prerequisite for a democratic system, although most of the Indian population, at that time, was composed of illiterates, living under appalling life conditions.

Regarding the delicate issue of the ethnics diversity in the Indian society, the Congress Party opted for an ethnic accommodation policy opposite to the assimilation or the exclusion. The multi-polar distribution of the ethnics prevented the problem of group domination over another, typical of a bipolar distribution, and the politics of accommodation conditioned the access to power to a political bargain or a coalition.

The Foreign Policy, 1947-1954

There is a general consensus in regarding Nehru as the Indian foreign policy mentor and, likewise, Gandhi as his disciple. In spite of not doing justice to the reach and content of its politics, its intellectual sophistication and broad implications, Nehru's foreign policy is commonly identified with a simple expression – the nonalignment.

For Nehru:

So far as all these evil forces of fascism, colonialism and racialism or the nuclear bomb and aggression and suppression are concer-

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ned, we stand most emphatically and unequivocally committed against them... We are unaligned only in relation to the cold war with its military pacts.⁴

India intended to be out of the two power blocs and decided which policy to follow, in the world-wide questions, taking India's interest as a priority, followed by the worth of the question. After decades of fights against the colonialism, India did not demonstrate intention to transfer its conduction to one of the superpower blocs' leader. This is the most basic aspect of Nehru's external policy:

Every nation places its own interests first in developing its foreign policy. Fortunately India's interests coincide with peaceful foreign policy and co-operation with all progressive nations. Inevitably India will be drawn closer to those countries which are friendly and cooperative to her.⁵

Between 1945 and 1947, the international system was essentially unipolar with the United States hegemony. Under these circumstances the highly conflicting seeds of the relationship between the two countries had been sown, shaping them as adversaries for a long time. The United States considered this challenge as being unacceptable for a hegemonic power that came after the British hegemony.

To assert an independent foreign policy meant to implicitly create the target and the space for a great power. If not at that moment, at least, in the future, when India had the means to act and to be acknowledged as such a power. Nehru was aware of India's limitations, although he believed that to become a satellite or a subordinated member of a bloc, under a superpower; meant to lose its own independence. For him,

What does independence consist of? It consists fundamentally and basically of foreign relations. That is the test of independence. All else is local autonomy. Once foreign relations go out of your hands into the charge of somebody else, to that extent and in that measure you are not independent.⁶

The goals of the Indian foreign policy had its roots and its impetus in the nationalistic movement that searched both the revitalization and the reconstruction of the ancient Indian civilization for a new modern and independent age. The movement had been genuinely of mass, and its organization and the achievement of independence had not been easy. The Indian nationalistic movement (as later the nonalignment) became a role model for other countries of Africa and Asia. The driving of the movement was truly nationalistic and for a considerable number of its leaders, prison was as a second home. Nehru, himself, spent ten years in jail, as well as many other fellows of fights. The movement for independence did not identify with any external ideology and had its own axiom - the Indian interest. After seizing power in 1946-47, Indian leadership was unwilling to accept that the independence, achieved in the climax of a more than six decade fight, should be changed for a new subordination of one of the superpowers.

The foreign policy of independence was a manifestation and a continuation of the nationalistic movement. The objective of this policy had been placed by the nationalistic movement. However, this objective could not have been sustainable if it hadn't had some similarity with its capabilities.

Indian leadership at the time of independence was aware of the industrial delay that hindered the development of military means necessary for a great power status, but believed that in fifteen years a revolutionary transformation would be possible. They were determined to initiate the process of industrialization as fast as possible and saw a considerable potential power in India. The territory and its population size posed a basic importance for the super power status and combined with industrialization, capable to supply the military capacities, it would catapult India to the group of the super powers.

During the temporary administration, Nehru, was aware of the country potential and its relation for the foreign policy conduction. Prasad supported that the idea of great powers was

not solely Nehru's beliefs. The Congress felt that it was the absence of the independence that deprived India of a permanent seat in the UN Security Council. In 1948, Nehru stated that "We are potentially a great nation and a big power."⁷

In 1954, Nehru would said:

Leaving these three big countries, the United States of America, the Soviet Union and China, aside for the moment, look at the world. There are much advanced, highly cultured countries. But if you peep into the future, and if nothing goes wrong – wars and the like – the obvious fourth country in the world is India. ⁸

Aiming to turn India into a great power, the determination to protect this goal from both internal and external forces subversions and the effort in building the means to assure it throughout the way were Nehru's great strategy crucial point in the world-wide scenario. In this perspective, the independent foreign policy emerges as the specific tool of a weak⁹, however substantial and potentially strong nation, to protect the range of its objective in the future. To line up itself as a superpower would mean to shorten the path for this objective. The target and the space for a future image of great power raised by an independent foreign policy appear not as an unintentional consequence of such policy, but as the objective itself.

It can be considered that the Indian independent foreign policy was based on models of thought and behavior established during the fights for emancipation. The political positions of the Party Congress on the world-wide questions could be distinguished by the support to the nationalistic fights against the imperialism in Africa and Asia; for the opposition to Nazism and Fascism, mainly due to the racist ideology, and for the overriding impression caused by the development of the Soviet Union (political repression in this country was not neglected by party leaders).

The Party Congress position regarding foreign affairs was rooted in the experience against imperialism. Despite stronger

political forces, its leadership was not discouraged from his positions, which were deemed to be correct. And were strongly influenced by victory over the imperialism, which was achieved without material and violence. At this point, it was easy to be convinced by the power of ideas to influence both the masses and the elites.

The global activism brought serious consequences for India. The extreme attention given by the Indian leadership to these initiatives caused a dangerous recklessness with other important tasks of its responsibility, including, mainly, the relative questions to national security.

The change of the Foreign Policy, 1954-1964

In 1954, the international system pressures and the regional subsystem had forced India to dedicate more attention to the issues of its national security. Up to 1954, in the subcontinent, India could be considered as a power satisfied - *status quo power*.

In February of 1954, the United States decision to launch a massive military program of aid to Pakistan to modernize and to expand its Armed Forces meant an important development for the international politics in the subcontinent. The vice-president Nixon had a key role in the United States decision to define a program of military aid to Pakistan. India was the specific target of an American regional restriction policy that regarded Pakistan "as a counterforce to the confirmed India's neutralism of Jawaharlal Nehru's India."¹⁰ Nixon saw India as a rival in the influence on Asia and demanded a firm behavior, therefore "an early practical step in that direction would be to strengthen the friendlier nations in this orbit, beginning with Pakistan."¹¹

During Indian territorial consolidation process, the United States attempted to use Pakistan to hinder a regional power imbalance for India. The United States saw the Indian consolidation as a threat similar to Japan and, therefore started to

contemplate its restriction. The set of the weapons supplied to Pakistan was more appropriate for the plains of the subcontinent than for the mountainous areas of China or the Soviet Union, that were out of the reach of those weapons.

Nehru clearly realized this movement, and the United States decision in helping Pakistan placed for India the question of its military preparation. With the firm intention of avoiding misuse of funds aimed for the economic development program, Nehru tried to calm this pressure through diplomacy. Instead of acquiring armaments or entering into military alliances, he tried to establish close diplomatic relations with the Soviet Union and China, starting a period of friendship with both. In other words: Nehru tried to create a balance of power not through military means, but, rather, through politics.

Nehru always tried to keep a friendly approach with the Soviet Union. In 1955, the Soviet Union gave full support to the Indian position on the issue of Kashmir and since 1956, used or threatened to use the power of veto in the Security Council to hinder unfavorable resolutions to India in this concern. The Soviet Union became a firm support for the Indians who found themselves, at that point, in a very difficult position. Both were against colonialism and regarding the Portuguese domain on Goa, the Soviet Union supported India against the United States.

In 1954, China and India had signed a treaty in which India recognized the Chinese rights on the Tibet and both had agreed that their relations had to be conducted under the principles of the Panch Sheel. These principles were based on mutual respect for each other territorial integrity and sovereignty and; the non-aggression; the non-interference in each other's internal affairs; the equality and mutual benefit and the peaceful coexistence. In June of the same year, prime ministers of China and India agreed that these principles should be applied in their relations with other countries of Asia and other continents. Inspired in Buddhism five moral precepts, the principles had ser-

ved as base for the Bandung Conference, in 1955.

In 1959, the relations between China and India had started to deteriorate when there was a great revolt in Tibet and the Dalai Lama fled to India with thousands of refugees. India granted asylum to the Tibetan leader, but did not allow the formation of a government in the exile. In the same year, the Soviets signed with India a military agreement so as to send equipment and supplies for a road construction program in border areas. In 1960, the first shipments started to arrive and the construction of roads in areas disputed with China was set out. In 1962, the Soviet Union and India signed an agreement for construction, under license, of MIGs-21. China did not have a similar agreement.

On September 8th, 1962, a Chinese attack took place in Thagla Ridge which was regarded by the Indian government as a minor incident. Nehru was in London and after returning to India, he went to Columbus, on October 12th. A week later, Chinese troops launched a massive attack in Arunachal Pradesh. The Indian commander left without resisting and left the door opened for the Chinese. On October 20th, a Chinese attack took place in Galwan Valley, unleashing panic in India with the possibility of occupation of the Assam Plain.

Due to the Chinese advance, an undermined India, appealed for aid. The United States and Western powers quickly sent weapons. The United States had promised aerial protection for Indian cities. The Soviets showed understanding but nothing could they do, since they were involved in the crisis of the missiles and feared that an aid could break the Soviet bloc. After a fast advancement and many casualties from the Indian forces, the Chinese declared a unilateral fire cease, going to the borders which they considered genuine.

During the 1950's, India destined for the Defense, only 2% of the GNP. The decision was taken in rational bases so that it did not compromise the long-term economic development, but the price paid was too high. The Indian government neglected the

security of its borders and, after that, did not accept the aftermath of this recklessness. When the mistake was perceived, it was too late. The military lack of preparedness was blatant in all levels. Both Nehru and his minister of the Defense's antimilitary attitude took serious consequences to India military preparedness and in the high direction of the war¹².

The issue of the military setback against China was beyond the military preparedness for the conceptual approach of India for international subjects.

(...) this world is cruel. We had thought in terms of carrying the banner of peace everywhere, and we were betrayed. China has betrayed us: the world has betrayed us. Our efforts to follow the path of peace have been knocked on the head. We are forced to prepare for a defensive war, much against our will. ¹³

The defeat was a painful lesson. The leadership reputation was seriously jeopardized for such an ambitious country and yet unable to protect its borders. The international humiliation and the feeling of disloyalty followed Nehru's decision in preparing for the war. "There is no non-alignment vis-à-vis China; there is no Pansheel vis-à-vis China; that India's military preparations would continue."¹⁴

In summary: the North American supply of weapons for Pakistan and the Sino-Indian War represented a point of inflection in the Indian foreign policy. India had its national security threatened. The two events had important consequences for the Indians, mainly for the decision of keeping a balance between the objectives and the means.

The Strategy to strengthen Independence

A better understanding of Nehru's positions can be acquired through the examination of what it is defined as *Grand Strategy*.

(...) the full, package of domestic and international policies designed to increase national power and security. Grand Strategy can therefore include policies varying from military expenditures and

security alliances, to less frequently discussed policies, such as long term investment in domestic industrialization and foreign aid to nations with common security concerns.¹⁵

Nehru rendered vital the need, in the long term, of developing economic capacities that provided for the needs to guarantee both the security and the national power. Its great strategy aimed at this end through the planning and the emphasis in the economic self-sufficiency. The basic objective was not to raise the standards of living but to assure India political independence. The intention was to create a self-sufficient economy with full siderurgy and metallurgy, capable to produce industrial goods with emphasis in the development of the strategic sectors. The strategy for heavy industry had its roots in Nehru's views of the international system, which could not be changed by the action of the States, though, could only be enforced by them.

The politics of science and technology, during Nehru's administration, was very ambitious. Its priority was the national independence and comprised several aspects. Firstly, there was a strategy of massive import of foreign technology for construction under license and/or contribution, in order to gain a precious time. Secondly, there was the creation of institutions for research and development in specific areas, where the local generation of technology was considered essential, as the sectors of high technology and sensitive technologies, especially of nuclear energy, defense and similar equipment. These were areas in which other countries would not allow exports or if they happened, they would be carried out in such conditions that would compromise the sovereignty of India that was supposed to be in conditions to lead its own research and development. Therefore, it was necessary the creation of a quality structure for science laboratories in the public sector. Last but not least, investments in education for qualification of specialized labour had been made to lead the research.

There was a huge increase in expenses for implementation

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of the SAT (Science-and-technology) politics and the main beneficiary was the Department of Atomic Energy with 33% of the total destined for all the agencies. Taken together, at the end of Nehru's age, the defense and the nuclear sector represented, approximately, half of all the expenditures for research and development.

According to Nehru:

Nevertheless, there is a special importance for science in a country which is not to be wholly dependent on other countries, and which has to build some capacity for self-growth, self-reliance. We are developing that, I believe, in this country. We have to develop that spirit in other ways, too, in industry and technology, so that we may not be merely dependent on others.¹⁶

Finally, we should point out an innovative and unique aspect of Indian strategy among the developing countries: the acquisition of means with potential for use in defense that repaid its cost through civil ends. It was the same with the nuclear and, later, with the space research.

3. THE INDIAN NUCLEAR POLICY

The formation of a Nuclear State – 1948

The most prominent defender of the Indian nuclear program was Homi Bhabha. From a wealthy background, he was awarded a PhD in Physics from Cambridge, in 1935 and taught in the Indian Institute of Science in Bangalore during World War II.

In 1944, Bhabha wrote Sir Dorabji Tata Trust a letter, obtaining the resources to create the Tata Institute of Fundamental Research, opened in 1945. Bhabha defined, in this letter, the objectives of his project, as follows:

(...) to build up in the course of time a School of Physics comparable to the best anywhere. It is absolutely in the interests of India to have a vigorous school of research in fundamental physics, for such a school forms the spearhead of research, not only in the less ad-

vanced branches of physics but also in the problems of immediate practical application to industry. If much of the applied research done in India today is disappointing and of very inferior quality, it is entirely due to the absence of a sufficient number of outstanding pure research workers who could set the standards of good research. Moreover, when nuclear energy has been successfully applied for power production, in say a couple of decades from now, India will not have to look abroad for its experts but will find them ready at home.¹⁷

In 1948, before the Constituent Assembly, Prime Minister Nehru proposed the Atomic Energy Act to create the Atomic Energy Commission, and establish the legal structure for its operation. Created in August, the Atomic Energy Commission was under Nehru's personal supervision, being led by Bhabha, who always defended that the AEC would have to operate in an independent way, without any governmental control. In the Assembly discussions the essential ambiguity of the nuclear Indian program proved evident. There was an emblematic debate between Nehru and Krishnamurthy Rao, the only critic of the Act: Nehru, when questioned about the secrecy being restricted in Great Britain only to the projects with military ends, claimed not to know how to distinguish between the pacific and military ends. The bill passed with minor amendments. Nehru assured the pacific intentions but recognized the military potential of the new project led by Bhabha.

The point I should like the House to consider is this, that if we are to remain abreast in the world as a nation which keeps ahead of things, we must develop this atomic energy quite apart from war. Indeed I think we must develop it for peaceful purposes... Of course, if we are compelled as a nation to use it for other purposes, possibly no pious sentiments of any of us will stop the nation from using it that way. But I do hope that our outlook in regard to this atomic energy is going to be a peaceful one for the development of human life and happiness and not to one of war and hatred.¹⁸

The nuclear program did not suffer from lack of money that had increased in the rate of 30% percent a year, on the first decade and 15%, on the second.

Nuclear Relations with the United States

Since the beginning of the Indian nuclear program, it had a friction with the international effort led by the United States to control the technology and nuclear materials.

In 1946, The Baruch Plan was interpreted by India as a colonial strategy of the United States.

On December 8th, 1953, President Eisenhower initiated before the UN General Assembly the program Atoms for Peace.

On May 10th, 1954, before the Lok Sabha¹⁹, Nehru delivered a vigorous speech expressing total reaction to the North American proposal. In this speech, Nehru affirmed that it was imperative to control and, eventually, eliminate nuclear weapons, but he recognized the real impossibility to do so, since he couldn't see UN able to take control and moreover, an international control could resemble the colonialism. Nehru took the defense of the countries that needed to increase the production of electric energy to boost its development. This was a time when the nuclear energy was considered as a viable, cheap and almost inexhaustible alternative. Nehru argued that an international control was unacceptable and doubted that an international agency was capable to escape from the control of the great powers. In his conclusion, he affirmed that India should concentrate on the development of the science and nuclear industry and that the Indian Parliament should support the plans for the expansion of activities related to the nuclear energy.

In U.S.A., an intra-governmental debate on the IAEA objectives of creation was taking place. The central question was: was it advisable to avoid the diversion of nuclear pacific programs for military aims or to prevent new countries to develop the capacity of producing nuclear weapons? In the middle of the 50's, the concerns towards a strict control of proliferation had been surpassed by the necessity to expand the market for the nuclear technology, to preserve the North American capacity to expand their own arsenal and to resist the pressures for a

nuclear disarmament. The U.S. Atomic Energy Commission argued that countries with an incipient nuclear program, as France, could reject a too restrictive approach and that a rigorous control in order to prevent any development of nuclear weapons could provoke demands of reciprocal inspections in the U.S.A. This approach received support from the Pentagon and in February, 1956, the Secretary of State Dulles stated: "It would be difficult for nations to forego permanently their right to make nuclear weapons while the U.S., USSR, and U.K. continued to make them."²⁰

With a policy of effective nuclear cooperation for pacific ends prevailing on a strict non-proliferation, the United States, the United Kingdom and Canada had contributed significantly for the development of the talent, the determination and the Indian nuclear technology. In 1955, U.S. started to train foreign scientists and engineers and started to declassify thousand of reports and documents on methods of plutonium reprocessing. Indian nuclear specialists had access to a vast technical literature that was available about projects and nuclear operations' research. Between 1955 and 1974, India sent 1104 scientists and engineers to Argonne Laboratory School of Nuclear Science and Engineering, in Illinois.

Later, when the United States and other countries decided that the prevention of the nuclear proliferation was a high priority, India already had the capacity to produce nuclear weapons.

The External Cooperation, 1949-1955

The external cooperation had a vital importance for India's nuclear development. The AEC promoted a high level interchange with scientists and foreign institutions. This interchange had as objective the access to the technology necessary to construct a nuclear industry. The official position of the Indian government was that its nuclear politics had only pacific intentions, without military ends. This position allowed the growth of

an internal support to the foreign policy and renewed the confidence of foreign governments on the use of the specialized technical assistance that was being supplied.

In 1952, the plans for application of the nuclear energy started to take a more structuralized form. The government increased the responsibilities of the Atomic Energy Commission, announcing its plans for the four following years: the intention to construct an medium-sized reactor; the nuclear minerals prospect increase; the creation of a medical and health division inside the Atomic Energy Commission; a pilot plant for extraction uranium from copper tailings and low-grade uranium ore; the construction of a plant for the uranium and thorium residues processing and the construction of a plant for uranium enrichment .

At this point, the construction of a nuclear reactor was beyond the Indian capacity. Probably, two decades would go by until the Indians dominated the whole necessary technology to project and to construct a nuclear reactor. However, there were countries with capacity that could be interested in sharing their technology with India. This pragmatic perspective contrasted with the self-confident behavior that characterized the state and the Indian elites; nevertheless its utility was evident. It was possible to skip steps and, due to the Atomic Energy Act restrictions, present to the internal public the negotiated reactor as a local project.

In 1955, physicist and director of the UK Atomic Energy Research Establishment, Sir John Cockroft, offered the construction of a research reactor of the swimming pool type, using as combustible the U-235 that would be supplied by the British. Bhabha immediately accepted the offer and answered:

We would gladly consider this possibility... I would like to know how much enriched uranium it would be possible to make available, and the terms and conditions including time schedules under which it could be made available. The time element is very important, since we would like to undertake such reactor if it could be set up in a very short time, so we have something to work with while our other plans mature. ²¹

The details of the agreement were concluded in five months with the promise that the AEC would see in favorable way the purchase, in the near future, of a British reactor. The research reactor, Apsara, attained criticality in August of 1956 and was presented in the Indian media as a reactor constructed by India, with local know-how and expertise. The English also promised a second reactor - Zerlina - of zero energy, to be used in the development of new reactors designs.

In 1953, when the United States launched the program "Atoms for Peace" they proposed the realization of an international conference on the peaceful use of the nuclear energy. The neutral Geneva was chosen for the place of the meeting and its president came from a non aligned country - Homi Bhabha. The event contributed for the spread of endless essential information for the nuclear energy production increase.

Canada took advantage of the occasion to enter in the international nuclear market. Some months before the conference, the Canadians had decided that the most appropriate way to make the conference an event that was beyond the rhetoric and scientific exchanges would be offering India one of its research reactors "NRX". The minister of the Foreign Affairs of Canada believed that the publicity that would follow the accomplishment of this gesture in the Conference of Geneva would help to create an international market for the atomic energy. A market, that Canada considered itself to be well located to explore²². The interest of Canada was such that, when the question of the plutonium destination produced by the reactor was raised, the under-secretary of the minister of the Foreign Affairs of Canada, Jules Leger, affirmed: "this [problem] presumably could be surmounted especially if we assume that one way or another a country like India will acquire a reactor from some source (friendly or otherwise) and will be producing this material."²³

In the conference, W.B. Lewis, vice-president of the Atomic Energy of Canada Limited, convinced Bhabha that the Canadi-

an offer was the best and that the 40MW NRX was fully adequate for the Indian purposes. In September of 1955, the agreement was signed. The reactor called CIRUS (Canadian-Indian Reactor, U.S.), started to be constructed towards the end of 1956, attaining criticality in July of 1960 and in October 1963 was being fully operated.

Alleging that there were other options, India was uncompromising in the demand that the reactors product was electricity or material by-products, should entirely belong to India. This explains the Indians haste in producing as fast as possible the rods that would contain the used nuclear fuel in the reactor, strengthening the argument on the ownership of the plutonium that would be produced there, since some of the inputs would be from local origin. The negotiators decided that the agreement should be mute regarding the fuel clauses to prevent the creation of a precedent. The minimal existing safeguards had not been legalized in the official treaty, but in a secret attachment. The Indians obtained the safeguard surveillance of the fuel registers and its supplies were never written in the agreement which became public. The CIRUS, according to its project, was capable not only to produce a great amount of plutonium, but also to remove it without the need of turning it off. However, for the production of the Pu-239, the isotope used in the production of weapons, was necessary that this was removed with some frequency, since the delay makes the production of the Pu-240 and Pu-242, undesirable for military ends. Thus, the Indian ownership on the reactor by-products allowed the withdrawal of the Pu-239, with the necessary frequency without arousing suspicion on its purposes.

The expansion of the Indian nuclear plans, and the resistance to international controls, 1954–1958

In the Conference on the Development of the Atomic Energy for Peaceful Purposes, in Delhi, in November of 1954, Bhabha announced the plans for the Indian nuclear development. The

program that was formally adopted by the Indian government in 1958 was composed of three stages. Initially, it predicted the construction of a natural uranium reactor (with Canadian technology) for nuclear energy production for the energy generation of electric energy. This reactor would have the plutonium as by-product. The second phase set the goal to construct reactors to use the recycled plutonium with thorium (ore that India had in abundance), having as by-product the uranium-233. This was a key element for the third stage, in which India intended to construct a breeder reactor, whose fuel would be composed of uranium-233 and thorium. The burning of this fuel could produce more uranium-233 than, what would be consumed in the fission. Thus, due to the abundant Indian thorium reserves, an unlimited fuel supplies would be created.

Bhabha defense for the nuclear energy was based on two assumptions. The first one established a relation of casualty between the national consumption of electric energy *per capita* and its level of economic development as well as a fast increase of electric energy production that would lead to a fast economic development. The other affirmed that the hydroelectric resources and Indian conventional fuels were insufficient to allow that a similar standard of living like that of the United States was reached. For these reasons, Bhabha argued that the nuclear energy was the only possibility to raise the Indian population standard of living and especially assured that it was possible to obtain electricity from powers reactors at competitive costs with the energy derived from conventional sources, the coal. From not detailed analyzes, he affirmed that it was possible to build the necessary reactors at a lower cost different from the ones that were being projected and constructed in the United Kingdom.

The plutonium was the central question for Bhabha, who used to see it as a necessary alternative for the Indian scarcity of uranium reserves. The element would be produced in a first stage of the program and then used as combustible in the se-

cond stage, resulting in the production of the U-233 which would provide an inexhaustible source with fuel for the breeder reactors of the third stage. To initiate the program, it was necessary that India mastered the nuclear reactors technology.

India's ambitious nuclear plan collided with the international effort led by the United States to establish tight safeguards for the acquisition and the use of fuels and other sensitive technologies in the nuclear field. Bhabha played a decisive role in the successful effort of India to weaken the scope of safeguards. In September of 1956, at the debates for statutes of the International Atomic Energy Agency approval, he stated "We consider it to be the inalienable right of States to produce and hold the fissionable material required for the peaceful power programmes".²⁴ Bhabha's proposal won. The IAEA final statute guaranteed to the projects with International Agency aid that sensitive materials produced could be stored in their own countries, with the commitment of not being misapplied for military use, which would be considered a violation of the safeguard agreement. According to Bhabha, the statute reviewed guaranteed that the fissionable material

(...) produced in Agency-aided projects in a country should be at the disposal of that country, which should have the right to decide whether it wished to go ahead with particular use of that fissionable material or not (...). In this way we ensured that the Agency would not be given powers which would enable it to interfere in the economic development and the economic life of the States concerned.²⁵

In 1958, while reactor CIRUS was being constructed, Bhabha decided to built in Trombay a plant to extract the plutonium from the combustible spent on the reactor. The construction of this plant, called Phoenix, started in 1961 and was based on a reprocessing technique called Purex (plutonium-uranium extraction) developed by the United States and internationally available by the program Atoms for Peace. A North American company, Vitro, was hired to carry out the plant project. Later, Indian engineers made modifications in the initial

project. This plant, which would be ready in June of 1964, had the capacity to absorb 30 metric tons of radiated fuel per year.

In 1964, Phoenix and CIRUS would provide India with plutonium with the necessary quality for the manufacturing of a nuclear weapon.

The ambiguity of the Indian intentions, 1957-1960

An explanation for the international non questioning of Bhabha politics, regarding the plutonium, would lie on the pacific intention intensely defended by Nehru. He revealed his horror to the nuclear weapons and the international dynamics that fed the arms race, with the hope that India would not have to build nuclear weapons. Until the end of the 50's, Nehru, thanks to his prestige, charisma and political power, could speak for India. Thus, the observers associated Nehru to India when he stated, on January 20th, 1957, "whatever the circumstances, we shall never use this atomic energy for evil purposes."²⁶ . On July 24th, 1957, Nehru, on his way to addressing the Lok Shaba to narrate the plans for the Department of Atomic Energy, affirmed that: "[t]he fact remains that if one has these fissionable materials and if one has the resources, then one can make a bomb, unless the world will be wise enough to come to some decision to stop the production of such bombs."²⁷

Many of Nehru's statements regarding the nuclear program could be interpreted as an unmistakable promise so as not to develop nuclear weapons. In fact, since 1955, Bhabha and Nehru, directly or indirectly, invoked the capacity and the possible intention to build nuclear explosives and several statements confirmed the awareness of both on the value of the option of being able to build and own nuclear weapons. In 1955, according to the French nuclear scientist, Bertrand Goldschmidt, Bhabha advised Nehru that India should make a unilateral public waiver of the "bomb", in which Nehru answered that "they should discuss it again on the day when India was ready to produce one."²⁸

INDIA'S FOREIGN AND NUCLEAR POLICY BETWEEN 1947 AND 1964

In January of 1958, Nehru explained how India would deal with the possibility of nuclear weapons positioning in Pakistan or any other country of Asia:

We have the technical know-how for manufacturing the atom bomb. We can do it in three or four years if we divert sufficient resources in that direction. But, we have given the world an assurance that we shall never do so. We shall never use our knowledge of nuclear science for purposes of war. ²⁹

If Nehru's and Bhabha's public allusion on the capacity to produce nuclear weapons were reserved and reticent, both expressed a clear ambivalence during a conversation with General Kenneth D. Nichols. Chairman of the board of the Westinghouse International Atomic Power Company, with seat in Geneva³⁰, intended to persuade the Indian government that North American light water reactors were superior to the British gas cooled. In a meeting with Nehru and Bhabha, Nichols tried to explain the advantages of the Westinghouse project and, after forty and five minutes of explanation, Nehru told Bhabha that the North American reactors should be included in the competition that would choose the winning project. Nichols remembered that at certain moment of the meeting Nehru turned to Bhabha and asked:

Can you develop an atomic bomb?" Bhabha assured him that he could and in reply to Nehru's next question about time, he estimated that he would need about a year to do it. I was really astounded to be hearing these questions from the one I thought to be one of the world's most peace-loving leaders. He then asked me if I agreed with Bhabha, and I replied that I knew of no reason why Bhabha could not do it. He had men who were as qualified or more qualified than our young scientists were fifteen years earlier. He concluded by saying to Bhabha, "Well, don't do it until I tell you to. ³¹

The implantation of the nuclear program, 1960-1962

During 1960-62, the dualism of the Indian program, associated to the contribution of the capital and the foreign technology, prevailed. In August of 1960, Nehru announced in the Lok Sabha that India was going to build its first plant for nuclear

energy production for electric energy generation in Tarapur and that the construction of the plutonium separation plant would be kept in Trombay. This plant was financed and supplied by the United States, under regime of safeguards.

In Canada, Bhabha signed an agreement for the construction of a natural Uranium factory in Rajasthan, RAPS - I (Rajasthan Power Station, Unit I), also under the regime of safeguards.

In 1961, Bhabha had to face, for the first time, press critics to the expenses and the extremely optimistical perspectives of his plans. In this occasion, Nehru and Bhabha, in a subtle and indirect form, invoked the military potential of the nuclear program. On January 9th, 1961, in the National Development Council, Nehru affirmed that - "we are approaching a stage when it is possible for us ...to make atomic weapons".³² Five days later, he announced that the third research reactor - Zerlina attained criticality and if India wanted, it could, within two or three years, build nuclear weapons, and added that "absolutely under no circumstance, shall we do so".³³

In September of 1962, a review in the Atomic Energy Act increased the level of secrecy and governmental control on all the activities related with the nuclear energy. For Abraham, only questions related to the national security could justify the level of centralization and control established by the text of the Act, to limit the information dissemination on India nuclear activities. The text of the Act established for the first time, of the legal point of view, a strict relation between the interests of the State and the national security. India was leaving its moral scruples behind regarding the nuclear weapons and starting to act like all the others *nuclear states*.

The Indian position was to morally condemn the existence of nuclear weapons and its vertical proliferation by the great powers. If the appeal for the disarmament failed, India would start having the fundamental argument to develop its own nuclear capacity.

China's impact and the pressures for Nuclear Option, 1962-1964

The first demands for nuclear weapons in India came out in the period of 1962-64. The Government policy, at least the one expressed in public, was so far, reject the military option and encourage the civil use with peaceful purposes. Until 1962, this policy had generalized support, although, from this date on, the consensus broke.

The military defeat of 1962 and in Lok Sabha³⁴, the rumors in 1963 about an imminent Chinese nuclear test aroused the first debates about nuclear weapons building in India. After the October 1964 test, the demands increased and became hard to be controlled. The Congress Party members were for the nuclear weapons development.

This was comprehensible to Bhatia, taking into consideration that after the 1962 defeat and the government refusal of developing nuclear weapons, the party gained the reputation of being unable to bear the country's security necessities. Another analytic perspective, which came out among the party members, was that if India were not able to develop a nuclear arsenal, it would give China the political leadership role in the south and southeast of Asia. In this period, a heated debate was aroused in the Congress Party. Three benefits were seen as resultants of the nuclear weapons possessing: the strengthening of defense against China; the national moral valorization and the Indian leadership restoration in the south of Asia³⁵. During November and December 1964, a lot of important debates about nuclear issues happened in Lok Sabha. The Congress Party and the Swatantra were undecided; Jan Sangh and Praja defended the country's nuclearization and the communist party was against.

During the debates, it was stated that it would be easy and cheap to build nuclear weapons in India and the parliament members were based on two statements made by Bhabha. On October 16, 1964, in London, Bhabha said in an interview, that

the Indian scientists could build a bomb in 18 months if the government wished so. On October 24, Bhabha, in a radio station, discussing about the nuclear disarmament, said:

A ten kiloton explosion, i.e. one equivalent to 10,000 tons of TNT, would cost \$350,000 ... – that is an explosion of the same order of magnitude as the Hiroshima bomb - while a two megaton explosion, i.e. one equivalent to two million tons of TNT would cost \$600,000 (...). These expenditures are small when compared with the military budgets of many countries. We may therefore, well have to reckon with a number of countries possessing nuclear weapons within the next five or ten years, unless some important and tangible steps are taken towards disarmament. ³⁶

In New Delhi's tense political atmosphere, these declarations provided the nuclear weapons' defenders the necessary munitions for their arguments.

In the beginning, the government position in relation to the demands for nuclearization, after the Chinese test, was reaffirm its commitment with the peaceful use of nuclear energy and the nuclear disarmament. However, from November 27 on, a change in the position of the Prime Minister Shastri was noticed (Nehru died on May, 1964). On this day, during a debate in Lok Sabha, Shastri declared he was against the nuclear weapons development but he was for the development of a nuclear science with peaceful benefits. He was for the development of nuclear explosives in order to open tunnels, canals, to remove mountains and the like. That was the first time the Indian government publicly ventured the possibility of developing nuclear explosives for industrial purpose. The technology required to these explosives is very similar to the one used for nuclear weapons³⁷.

On January 8, 1965, in the Congress Party Annual Conference in Durgapur, a change happened in the Indian government's approach. In his speech, Shastri stated: "I cannot say anything about the future, but our present policy is not to manufacture the atom bomb, but to develop nuclear energy for constructive purposes." ³⁸

INDIA'S FOREIGN AND NUCLEAR POLICY BETWEEN 1947 AND 1964

According to Bhatia, when Shastri suggested that the Indian scientists could develop PNE, he showed his willingness in allowing the development of nuclear technology, and if necessary, the scientists would also be able to produce nuclear weapons in a short period of time. The change in Shastri's attitude could be understood as a reasonable suitability to the political pressures for nuclear weapons. Although the Congress party political representation in the Parliament were enough to resist these pressures, many of them came from the own party, mainly from the Parliamentary rolls, therefore, the need felt by the government in changing the approach about the matter. Many party members' requests were sent to the Prime Minister defending the nuclear weapons development. These requests were based on the variation of two basic themes: the need of defense and the increase of the country's international reputation. Any of the requests mentioned the need of recovering the party's reputation that had been severely affected for the last years, but there was an obvious feeling that something should be done due to the 1967 general elections. Evidences of the Congress party electoral decline were already seen since 1963 when the party was defeated three times running in supplementary elections. In the same year, Nehru's personal reputation loss was felt, when for the first time, a coalition of opposition political parties directed a motion of mistrust to the government.

The restrictive factors to the nuclearization, 1964

Shastri's willingness to consider the nuclear explosives' development could represent an end to the specter of nuclear possibilities and it could also mean the possible decision to quickly start a building program of 30 to 50 pointed warheads of plutonium against a nuclear and hostile China.

A nuclear weapons' program needed two technological processes: the development of pointed arches and the development of proper vehicles to their launch. Canberra's medium extent bomber were able to reach Pakistan but not able to rea-

ch a target beyond a thousand miles distant, considering that, in China, few industrial or civil targets were this far. Any military plan of nuclear development would have to develop a way to overcome these distances and hit the main targets in China. Meanwhile, the Chinese bombers, that were placed in meridional Tibet, were able to hit a wide range of targets in India.

In 1964, the Indian scientists, theoretically, had the materials and the ability to develop the nuclear explosives, but until 1970, the available plutonium and the chances of getting them were not enough for the production of 15 to 25 pointed warheads. At that time, there wasn't any possibility to implant a uranium enrichment plant. There were no immediate possibilities, or even in medium term, to obtain the long distance vehicles to launch a nuclear weapon. From this defense point of view, the use of nuclear energy to produce nuclear weapons couldn't still succeed for a long time.

Another aspect to be taken into consideration was about the costs to build warheads and launcher systems. A study provided by the UN, mentioned by the Institute for Defense Studies and Analyses from New Delhi, estimated that 30 to 50 jet bombers, 50 medium range missiles, and 100 plutonium warheads would cost, at least, a billion and seven hundred million dollars if spent in a ten-year-period³⁹. That was a very high cost for a poor country like India.

Two other factors prevented Shastri from including India in a nuclear weapons program, even if it were a long term one: the relationship commitment between India and other Afro-Asian countries and the depreciation of trust in Indian external politics⁴⁰.

The Indian Government had to consider how a decision for the nuclear weapons would affect the regional and international stability. It was extremely probable that Pakistan would begin a program of nuclear weapons or, at least, reinforce its conventional arsenal widely. An armaments' race in

the subcontinent would foster a political and military instability in the region.

Eventually, there were indications that in 1964-65, both North Americans and Sovietics would discourage any Indian attempt to implement a program of nuclear weapons⁴¹. At that time, the negotiations to a nuclear non-proliferation treaty were being initiated with two super potentials' support. However, there was the risk that both could reduce the economic help or impose economic sanctions. Shastri was aware of the super potentials' concerns regarding the possibilities of a nuclear weapons' program in India. In Lok Sabha, on December 14, 1964, Dr. Sarojni Mahishi asked Shastri if the United Kingdom and the United States had shown any concern regarding an Indian decision of not producing atomic weapons, and he replied: "In fact it is otherwise."⁴²

4. FINAL CONSIDERATIONS

It is worth, at this moment, to broach a recurrent question when Nehru's external politics is analyzed. It has to do with discussing if this leader had a realistic or idealistic approach on the international relations. We can consider that, during the first years of his long administration, Nehru's approach on the foreign affairs was close to what is considered Idealism. UN's arbitration, because of the first war with the Pakistan, may represent the best example of this phase. At that moment, the Indian domain was complete, and the whole of Jammu and Kashmir's region could be under Indian domain. Nevertheless, before the action was complete, Nehru took the problem to United Nations, which intervened for Pakistan. Later, Nehru was bitterly criticized for this attitude, but when he realized that the UN was an organism subject to the pressures and the interests of the great powers, he acted in a realistically. He hindered the application of the resolutions taken, kept the military domain

in the areas under Indian control and refused to implement the United Nations decisions.

The North American politics to regionally contain India through the Pakistan military forces, the Chinese expansion that led to the humiliation of 1962 and the nuclear explosion of 1964 forced India to abandon, at least in part, its pacifist rhetoric and to increase the percentage of its GNP with expenses for the conventional defense. The internal crisis generated by these events pressured the Indian government to act somehow closer to what was traditionally considered as a realistic politics.

However, Nehru's attitudes define his position in a very clear way. Above anything else, lies the interest of India, which must prevail. If the idealistic rhetoric is adjusted to reach specific objectives, it must be used. Indeed, we can interpret Nehru's foreign affairs position from that angle. There was a medium and long-term Nation project and there were not enough resources to finance that project. The alternative was, based on the *soft power*, and on the pacifist diplomacy, to guarantee to India the resources and the time necessary to implement the modernization programs of the country. The nonaligned posture was of crucial importance to guarantee the space so that, in the future, India can have the role of great power. The alignment to one of the blocs would close the doors for this intention.

With this in mind we interpret the ambiguity of the India nuclear program. A retrospective analysis of the Indian nuclear program, during Nehru's administration, points out its ambiguous character. The nuclear technology control would guarantee, according to the belief at that time, full and cheap energy to stimulate the economic development. The developed technology would place Indian Science in the same level of the great powers. However, the nuclear infrastructure, freed from international safeguards, would make it possible for India to practice the military option, if the contingencies of the powers politics demanded. India's uncompromising defense to keep the

control on by-products of the nuclear reactions occurred in the interior of its reactors, meant both the willingness to affirm India sovereignty towards the great powers, some of them with imperialist past, and preserve the military option with the ownership of these by-products among which, the Pu-239, that was vital for the nuclear weapons production.

We can not affirm that the Indian option for natural Uranium reactors and moderate with heavy water could mean a prior decision to have access to the plutonium with military ends. Bhabha's energy plans were based on the use of thorium, element that India had in abundance, different from the Uranium. Nevertheless, the technology for the industrial application of this alternative was still purely theoretician. The other fissile element used in nuclear explosives was the U-235, an isotope extremely rare with difficult and pricey Uranium separation from the natural one. At this time, the only proven method to carry out the physical separation was a gaseous diffusion that required a technological infrastructure that India was far from possessing. However, the Pu-239 chemical separation from the radiated fuel of the reactor was a simpler and feasible industrial process. We can conclude that, if Bhabha's intention was to produce energy from Uranium natural plant for later use the resultant plutonium, in association with thorium, for production of energy in fast breeder reactors and thus to generate more plutonium of what was used initially, in the expression of Perkovich, quixotic, the use of the plutonium extracted from Uranium natural reactors and free of International safeguards was perfectly viable for a military option, if India so desired.

Since its independence, India incessantly searched the access to the nuclear technology. Due to Nehru's internationalist and explicitly pacifist posture, the Indians obtained facilities in this technology, which allowed the access to a vast theoretical knowledge; the qualification and the nuclear training of thousand of technicians and engineers; and, mainly, the implantation of an industrial infrastructure that made possible the pro-

duction of fissile material (Pu-239) and the reprocessing operations of this element, extracted from the reactor CIRUS bars fuel, that was supplied by Canada. The most important thing is that all these plants were free of any external control, making possible the use of this material for the nuclear bombs production. From 1962 to 1964 (year of Nehru' death), India congregated the essential conditions to develop a nuclear program with military ends. This position can just be reached because of the skillful politics led by Nehru and its immediate assessor, Homi Bhabha. The first Indian nuclear detonation occurred in May of 1974, was accomplished using as explosive the plutonium extracted from the CIRUS reactor and reprocessed in the Phoenix unit.

The 1950's witnessed an unprecedented race for nuclear weapons, with the powers frantically increasing their arsenals. The dissemination of the pacific use of the nuclear energy was a way to repay the expenses made by the capitalist powers in the construction of their nuclear arsenal, since it was accomplished under international control. As a result, it led to attempts to set norms of control to the dissemination of the pacific use and to hinder the proliferation of the military capacity. Nonetheless, the economic interests had been stronger and the concerns with the controls on the produced materials in the reactors remained weak.

It is reasonable to assume that both Nehru and Bhabha's political legacy lies in this aspect. Driven by a genuine wish to modernize and strengthen India, they knew how to take advantage of the opportunities of the international conjuncture. They managed to provide India with a nuclear infrastructure that allowed reaching in long-term the technological self-sufficiency and endowed the country in middle-term with the capacity to produce its own atomic bombs.

Traduzido por Aline Moreira

NOTES

¹ Mee, (2007), p. 27.

² Alperovitz , (1996), p. 418.

³ Nayar; Paul, (2003), p.136.

⁴ Dutt, apud Chandra, B. (2000, p. 150)

⁵ Nehru, apud Nayar; Paul, (2003, pp.124-125).

⁶ Nehru, (1961, p. 240).

⁷ Nayar; Paul op. cit. p. 134.

⁸ Nehru, apud Nayar; Paul, op. cit., p. 135

⁹ Nayar; Paul, op. cit., pp.134-135.

¹⁰ Toledano, apud Nayar; Paul, op. cit. p. 146.

¹¹ Reid, apud Nayar; Paul, op. cit., p. 146.

¹² Nayar; Paul, op. cit. p. 149.

¹³ Nehru, apud Nayar ; Paul, op. cit., p.150.

¹⁴ Hindustan Times apud Kapur, (1994, p.28).

¹⁵ Christensen, apud Nayar ; Paul, op. cit., p. 117.

¹⁶ Nehru, apud Nayar; Paul, op. cit. p.155.

¹⁷ Bhatia, (1979, p. 73).

¹⁸ Constituent Assembly Debates, apud Bhatia, op. cit., p. 84.

¹⁹ The 1950 Indian Constitution follows a federal system with powers divided between the central and state governments. Effective power is lodged in the lower house or Lok Sabha.

²⁰ State Department, apud Perkovich, op. cit., p.30.

²¹ Apud Abraham, op. cit., p. 84.

²² Canadian nuclear research development begins in the 1940s with its involvement in the Anglo-American effort to construct the atomic bomb. Later, the Canadians conducted their own research into the construction of a nuclear reactor for the production of electricity and into the use of heavy water to moderate the reactor. The most important characteristic of the Canadian nuclear programme is that it was aimed only at producing electricity and not at building a nuclear arsenal.

²³ Bothwell, apud Abraham, op. cit., p. 90.

²⁴ Jain, apud Perkovich, op. cit., p.28.

²⁵ Jain, apud Perkovich, op. cit., pp. 28-29.

²⁶ Mirchandani, apud Perkovich, op. cit., p. 34.

²⁷ Lok Sabha Debates, apud Perkovich, op. cit., p. 34.

²⁸ Goldschmidt, apud Perkovich, op. cit., p. 35.

²⁹ Mirchandani, apud Perkovich, op. cit., p. 35.

³⁰ Perkovich, op. cit., p. 36.

³¹ Nichols, apud Perkovich, op. cit., p. 36.

³² Beaton; Maddox, apud Perkovich, op. cit., p. 38.

³³ Mirchandani, apud Perkovich, op. cit. p. 38.

³⁴ The five main political parties represented in the Lok Sabha of 1962-67 were the follows: The Congress Party had 356 seats; the Communist Party had 29 seats; the Swatantra Party had 18 seats; the Jan Sangh had 18 seats; the Praja Socialist Party had 12 seats. The remaining 59 seats were shared between a scattering of independents and regional parties including the Akali Dal from Punjab and the Davindra Munnetra Kazgham from Madras. Bhatia, op. cit. p. 107.

³⁵ Bhatia, op. cit., p. 110.

³⁵ TIRF Collection, apud Bhatia, op. cit., p. 114.

³⁷ Bhatia, op. cit., pp. 120-123.

³⁸ Hindustan Times, apud Bhatia, op. cit., p. 121.

³⁹ Bhatia, op. cit., pp. 128-129.

⁴⁰ Bhatia, op. cit., p. 129.

⁴¹ Bhatia, op. cit., p. 129.

⁴² Lok Sabha Debates, apud Bhatia, op. cit., p. 130.
