

LBJ LIBRARY DOCUMENT WITHDRAWAL SHEET

<u>Doc #</u>	<u>DocType</u>	<u>Doc Info</u>	<u>Classification</u>	<u>Pages</u>	<u>Date</u>	<u>Restriction</u>
12	memo	Spurgeon Keeny to McGeorge Bundy	S/	2	5/8/65	A
15	memo	RWK [Komer] to Mac [Bundy] [sanitized 2000] (duplicate #75, NSF, CF, India, Vol. 3, box 128) <i>[Dup. #2, NSF, Files of Komer, "CHINA (CPR) - Nuclear Explosion/Capability..." Box 14]</i> <i>Dup. #178, Papers of Komer, Box 4, Chron July-Dec-64</i>	S	1	10/20/64	A
17	memo	RWK [Komer] to Mac [Bundy] <i>[Dup. #6, NSF, Files of Komer, "CHINA (CPR) - Nuclear Explosion/Capability..." Box 14]</i> <i>Dup. #265, Papers of Komer, Box 4, Chron July-Dec-64</i>	S	1	9/23/64	A
19a	letter	Acting Chairman, AEC to McGeorge Bundy	C	2	11/19/65	A
21	memo	Spurgeon Keeny to McGeorge Bundy	C	9	2/11/66	A
21d	letter	John G. Palfrey to McGeorge Bundy <i>open 3/29/19 per RAC</i>	PCI	2	1/66	A
23b	report	Possible Assurances	TS	11	2/9/66	A
24	memo	Adam Yarmolinsky to Chairman, JCS	TS	1	[1965]	A
25a	report	Working Paper, Enclosure A, Draft	TS/	16	1/10/66	A
26	memcon	with Arthur Barber, Col. Arlin Kehe, K.P. Jain	C	2	1/28/66	A

Collection Title National Security File, Files of Robert W. Komer

Folder Title "INDIA - Nuclear 1964-1965-March 1966"

Box Number 25

Restriction Codes

- (A) Closed by Executive Order 13292 governing access to national security information.
- (B) Closed by statute or by the agency which originated the document.
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5/11/2004

JC
Initials

LBJ LIBRARY DOCUMENT WITHDRAWAL SHEET

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27	airgram	A-650 from New Delhi	S	13	12/30/64	A
29b	report	India, Nuclear Proliferation, and the Shastri Visit open 3/26/14 per NLJ/RAC 12-357	PCI	39	12/30/65	A
32a	memo	Llewellyn Thompson to Members of the Com. on Nuclear Non-Proliferation [sanitized 2000] same sanitization 2/19/13 per NLJ/RAC 12-355	S	1	10/29/65	A
32b	report	The Indian Nuclear Problem open 7/8/17 per NLJ/RAC 12-356	S	17	10/29/65	A
35	airgram	A-372 from New Delhi	C	6	10/19/65	A
37	cable	deptel 495 to New Delhi	C	2	9/17/65	A
38	airgram	A-225 from New Delhi	PCI	2	8/26/65	A
40	airgram	A-197 from New Delhi	C	7	8/17/65	A
41a	draft	NSAM	S	2	8/10/65	A
42	memo	cover memo to Planning Group Members	S	1	8/3/65	A
42a	report	Policy Planning Council report	S	52	3/7/65	A

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44a	memo	Harold K. Johnson to Secretary of Defense	TS	2	5/14/65	A
46	cable	deptel 7130 to London	S	2	5/7/65	A
48	airgram	A-1101 from New Delhi	S	3	4/20/65	A
50a	letter	Myron Kratzer to Charles Johnson open 8/14/12	C	1	3/19/65	A
50b	letter	AEG to Homi J. Bhabhi open 8/14/12	PCI	6	[3/65]	A
50c	report	Principal Provisions open 8/14/12	PCI	2	[3/65]	A
50d	list	re facilities open 8/14/12	PCI	2	[3/65]	A
50e	chart	re facilities	PCI	1	5/15/63	A
51	airgram	A-964 from New Delhi	C	10	3/16/65	A
52	letter	Glenn Seaborg to the President	C/	3	3/3/65	A
53	cable	deptel 1763 to New Delhi	S	4	2/26/65	A

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Initials

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Page 4 of 5

<u>Doc #</u>	<u>DocType</u>	<u>Doc Info</u>	<u>Classification</u>	<u>Pages</u>	<u>Date</u>	<u>Restriction</u>
56	excerpt	from report to the President <i>open 3/29/19 per RAC</i>	S	1	2/9/65	A
57	excerpt	pages 3, 4 Current Intelligence Digest [sanitized 2001]	S	2	1/22/65	A
61	airgram	A-753 from New Delhi	C	13	1/19/65	A
62	cable	Intelligence Information Cable [exempted 2001]	S	2	1/19/65	A
65	memo	Adrian Fisher to Members of the Committee of Principals (duplicate of #18, NSF, Subject File, Box 13, Committee of Principals, Volume 1)	S	2	10/19/64	A
66	report	Minutes of 5th Meeting of Com. On Nuclear Weapons Capabilities	S	4	10/14/64	A
68	memo	Llewellyn Thompson to Members of the Committee on Nuclear Weapons <i>sanitized 9/17/07</i>	S	1	10/1/64	A
69	letter	Chester Bowles to McGeorge Bundy [sanitized FRUS, Vol. 25, #71] (duplicate of #176, NSF, CF, India, Volume 4, box 129)	TS	3	9/16/64	A

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5/11/2004

Jc
Initials

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70a	report	Discussion, part of INR-16, Hughes to Secretary [sanitized 2002] [duplicate #86a, NSF, CF, India, Vol. 2, box 128]	S	3	5/14/64	A
72	report	Notes on the Indian Nuclear Weapons Problem	C	8	[1964]	A
73	report	from 12th Pugwash Conference on Science and World Affairs <i>open 8/24/14 per NLJ/RAC 12-357</i>	PCI	7	1/27-2/11/64	A
74	excerpt	from an NIE	S	2	10/3/61	A
74a	report	from an NIE <i>open 3/29/19 per RAC</i>	S	9	[1961]	A

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5/11/2004

JC
Initials

OUTGOING TELEGRAM Department of State

09886

INDICATE: COLLECT
 CHARGE TO

~~SECRET~~

BUNDY-SMITH
BATOR
BELK
BOWMAN
CHASE
COOPER
JESSUP
JOHNSON
KELLY
KLEIN
KOMER
MOODY
REEDY
SAMBERS
SAYRE
THOMSON

58

JAN 21 7 27 PM '65

032

India nuclear

ACTION: Amconsul BOMBAY 425 PRIORITY
INFO: Amembassy NEW DELHI 1466

83
Origin
53
Info

LIMDIS

FOR PALFREY

FYI: On questions of cost and length of time necessary for Indians carry out nuclear explosion, raised in report Weisner left for you in Delhi, and for your background information only following are conclusions of US intelligence community this subject contained NIE 4-2-64, October 21, 1964:

1. Expenditures for a modest weapons program (up to testing first device) would total no more than \$30-40 million.
2. Given present facilities, believe India could produce and test first nuclear device one to three years after decision do so. End FYI.

As to general line to follow in your talks with Indian officials you should of course tailor conversation to guidance provided Deptel 1393 to Delhi, being repeated Bombay.

You may also, in your discretion, discuss generally Plowshare-type projects with Bhabha, bearing in mind limitations this area with which you fully familiar. ~~QUEST~~

Question assignment AEC rep in Bombay should not repeat not be discussed with Bhabha since not fully cleared within USG.

RUSK

GP-3.

End

DECLASSIFIED

Authority CIA 9-23-76; Date 8-11-76
By JCR/NARA, Date 5-5-04

Drafted by:
NEA:SOA:FJCrawford:dm 1/21/65

Telegraphic transmission and
classification approved by: NEA - Turner C. Cameron, Jr.

Clearances:

SCI - Mr. Trevithick
AEC - Mr. Hall (subs)
INR - Mrs. Tait
SOA - Mr. Schneider

G/PM - Mr. Garthoff (subs)
IO - Mr. Paul Jones (subs)
ACDA - Mr. DePalma (subs)

~~SECRET~~

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INCOMING TELEGRAM *Department of State*

6-5

SECRET

Action 00 RUEHCR
DE RUSBAE 788 21/0540Z
O 210525Z ZEA
Info **SS** FM AMEMBASSY NEWDELHI
TO SECSTATE WASHDC
STATE GRNC
BT
SECRET

India nuclear

155670

1965 JAN 21 AM 131

IMMEDIATE

- BUNDY-SMITH
- BATOR
- BELK
- BOWMAN
- CHASE
- COOPER
- JESSUP
- JOHNSON
- KEENE
- KLEIN
- KOMER
- MOODY
- REEDY
- SAUNDERS
- SAYRE
- THOMSON

IMMEDIATE 2054 JAN 21 11AM
MESSAGE TO SECRETARY FROM DR. WIESNER
PASS TO WHITE HOUSE

BEFORE LEAVING NEW DELHI WEDNESDAY EVENING FOR HOME I LEFT FOLLOWING REPORT FOR JOHN PALFREY, AEC, WHO WILL BE IN NEW DELHI ON THURSDAY. I HAVE ASKED TO HAVE IT SENT ON TO YOU IN THE THOUGHT IT MAY BE HELPFUL IN EVALUATING SITUATION HERE. REPORT IS AS FOLLOWS.

"THERE HAS BEEN A VERY CONSIDERABLE DEBATE HERE BOTH IN PUBLIC AND PRIVATE REGARDING THE POSSIBILITY AND DESIRABILITY CFN 2054 21 11

PAGE TWO RUSBAE 788 SECRET
OF MAKING AN INDIAN NUCLEAR WEAPON. THE MAIN MOTIVATION TO DATE IS POLITICAL, BUT THERE IS ALSO SOME DESIRE FOR A DETERRENT AGAINST CHINA AND SOME VAGUE FEELING THAT IF A NUCLEAR MINE FIELD MAKES SENSE IN EUROPE IT COULD BE USEFUL ON INDIA-CHINA BORDER.

THE ISSUE HERE WAS CONFUSED BY BHABHA'S QUOTATIONS FROM THE AEC REPORT ON PLOW SHARE PRESENTED AT GENEVA THAT GAVE A COST OF \$600,000 FOR A 2 MT EXPLOSION. THIS WAS GENERALLY INTERPRETED TO MEAN THAT INDIA COULD CARRY OUT A NUCLEAR EXPLOSION FOR SUCH A SUM. IN PARTICULAR THIS IS WHAT THE PRIMIN SEEMS TO HAVE BELIEVED AT ONE POINT. MANY SCIENTISTS HAVE COMPLAINED TO THE PRIMIN ABOUT THIS AND BHABHA HAS CLARIFIED THE POINT.

NONETHELESS I BELIEVE THAT HE IS STILL UNDERESTIMATING THE COST OF CARRYING OUT A NUCLEAR EXPLOSION. HE TOLD ME THAT HE COULD MAKE AND TEST A CRUDE NUCLEAR DEVICE FOR APPROXIMATELY TEN MILLION

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Authority FRS 64-48, n. 1.25 #85
By jc . NARA. Date 4.29.04

~~SECRET~~

-2- 2054, January 21, 11 a.m., from New Delhi

DOLLARS. INCIDENTALLY I THINK IT WOULD BE HELPFUL IF THE AEC COULD PROVIDE A COST ESTIMATE HAVING SOME SOLIDITY. THE ESTIMATE SHOULD BE BASED ON THE ASSUMPTION THAT THE INDIANS HAVE PLUTONIUM AVAILABLE BUT MUST DEVELOP EVERYTHING ELSE.

BHABHA IS STILL SAYING THAT IT WOULD BE POSSIBLE TO MAKE A NUCLEAR EXPLOSION IN 18 MONTHS. MANY OF THE SCIENTISTS OBJECT TO CFN \$600,000 2 18

PAGE THREE RUSBAE ~~SECRET~~

THIS OPTIMISTIC FIGURE AND AT LEAST TWO HAVE WRITTEN TO THE PRIMIN STATING THAT IT WAS TOO OPTIMISTIC. BHABHA APPARENTLY WANTS AUTHORITY AND RESOURCES TO MOVE FORWARD WITHOUT FINAL DECISION REGARDING ACTUAL EXPLOSION.

NO ONE HAS ESTIMATED WHAT A REAL WEAPON SYSTEM WOULD COST OR UNDERSTANDS WHAT WILL BE DONE WITH IT.

ON THE CONSTRUCTIVE SIDE THERE ARE SEVERAL POSSIBILITIES. BEST OF ALL WOULD BE TO SUPPORT THE INDIAN RESOLUTION, OR SOME VARIANT OF IT, IN THE UN. THE INDIAN RESOLUTION WOULD PUT THE INDIANS SQUARELY ON RECORD AGAINST ACQUISITION OF WEAPONS AND CERTAINLY WOULD BE A POWERFUL DETERRENT TO ANY BOMB MOVEMENT HERE.

OF A MORE LIMITED SCOPE ARE THE VARIOUS TECHNICAL THINGS THAT COULD BE DONE. I HAVE DISCUSSED THE POSSIBILITY OF A SMALL SATELLITE, PLOW SHARE EXPERIMENTS, TROPICAL WEATHER STUDIES, ASIAN-REGION GROUND WATER DEVELOPMENT, COLLABORATIVE RESEARCH ON THORIUM FUEL AND FAST REACTORS AND FURTHER COOPERATIVE ACTIVITIES ON TECHNICAL EDUCATION.

BHABHA IS ANXIOUS TO EXPLORE AVAILABILITY OF PLOWSHARE WITH YOU. HE IS INTERESTED IN THE POSSIBILITY OF MAKING HARBORS AND WATER RESERVOIRS. HE ALSO RAISED THE QUESTION OF THE EXCHANGE OF RADIOACTIVE SAMPLING DATA OBTAINED FROM CHINESE TESTS.

PAGE FOUR 788 ~~SECRET~~

IT WOULD HELP THE INDIANS POLITICALLY IF SOME TEST DATA COULD BE MADE AVAILABLE. I DON'T KNOW WHAT THE RESTRICTIONS

~~SECRET~~

~~SECRET~~

-3- 2054, January 21, 11 a.m., from New Delhi

WOULD BE BUT BELIEVE THAT SOME COULD BE GIVEN TO THEM QUICKLY WITHOUT ANY HARM. I MADE NO STATEMENT REGARDING THE POSSIBILITY BUT SAID THAT HE SHOULD EXPLORE THE MATTER WITH YOU AND I WOULD LOOK INTO IT AT HOME.

BHABHA IS ALSO INTERESTED IN TALKING ABOUT NUCLEAR DESALINIZATION. WE TOUCHED ON THIS BRIEFLY BUT WITHOUT REACHING ANY JUDGMENT REGARDING THE DESIRABILITY OF DOING ANYTHING AT THE PRESENT TIME.

I DID NOT EXPLORE THE QUESTION OF AN AEC REPRESENTATIVE IN BOMBAY." (END QUOTE)

END OF REPORT OF DR. WIESNER TO JOHN PALFREY GP-3 BOWLES
BT

NOTE: Advance copy to S/S-0 at 1:50 a.m., January 21.

Passed White House at 2:05 a.m., January 21.

Handled LIMDIS per SS/O.

SECRET

INCOMING TELEGRAM *Department of State*

60

- ~~BUNDY-SMITH~~
- ~~BATOR~~
- ~~BELK~~
- ~~BOWMAN~~
- ~~CHASE~~
- ~~COOPER~~
- ~~JESSUP~~
- ~~JOHNSON~~
- ~~KEENE~~
- ~~KEHN~~
- ~~KOMER~~
- ~~MOODY~~
- ~~REEDY~~
- ~~SAUNDERS~~
- ~~SAYRE~~
- ~~THOMSON~~

6-2-S

SECRET

Action 00 RUEHCR RUEHDT
 NEA DE RUSBAE 789 21/0625Z 0 1 5 7 0 4
 O P 210615Z ZEA
 Info FM AMEMBASSY NEWDELHI 1965 JAN 21 AM 4 13
 TO RUEHCR/SECSTATE WASHDC
 SS INFO RUEHDT/USUN NEWYORK I M M E D I A T E
 G STATE GRNC
 SP BT
 EUR S E C R E T
 IO ACTION IMMEDIATE DEPT (2055) INFO PRIORITY USUN 179 JAN 21 12NOON
 NSC PASS WHITE HOUSE FOR GILPATRIC: USUN FOR STEVENSON
 INR FOR SECRETARY
 CIA
 NSA
 DOD IN COURSE OF EXTREMELY BUSY WEEK DIVIDED BETWEEN DELHI AND BOMBAY,
 DAC DR. WIESNER HAS MET WITH PRIMIN, BHABHA, GENERAL CHAUDHURI,
 SCI L.K. JHA, RAO OF DEFENSE, TOP SCIENTISTS IN BOMBAY AND IN DEPTS
 AEC OF DEFENSE AND EDUCATION. THERE HAS BEEN DEEP APPRECIATION
 WHB FOR HIS PRESENCE HERE AT THIS TIME AND OBVIOUS RESPECT FOR
 HIS COMPETENCE AND JUDGMENT.
 RMR CFN 2055 179 21 12

PAGE TWO RUSBAE 789 S E C R E T
 THROUGH THESE DISCUSSIONS DR. WIESNER WAS ABLE TO IDENTIFY
SEVERAL PROMISING AREAS OF EXPANDED SCIENTIFIC COOPERATION WHICH
COULD SIGNIFICANTLY ENHANCE INDIA'S PRESTIGE AND CONFIDENCE IN
 PEACEFUL SCIENTIFIC DEVELOPMENT.

HE WAS ALSO SUBJECT TO SOME PERSISTENT AND POSITIVE QUESTIONING
 IN REGARD TO NUCLEAR WEAPONS DEVELOPMENT WHICH REFLECTED SOUL
 SEARCHING WHICH IS NOW GOING ON IN AND AROUND GOI. THESE
 QUESTIONS COVERED WIDE RANGE OF SUBJECTS INCLUDING COST AND TIMING
 REQUIRED FOR NUCLEAR EXPLOSION, DEVELOPMENT OF EFFECTIVE WEAPONS,
 DELIVERY SYSTEM, ETC.

AS MATTER STAND TODAY, TOP INDIAN LEADERS STILL APPEAR TO BE
 STRONGLY COMMITTED AGAINST PRODUCTION OF NUCLEAR WEAPONS.
INDEED SHASTRI FLATLY STATED THAT IF SUCH WEAPONS ARE EVER MADE IN
INDIA IT WILL NOT BE BY MINISTRY HEADED BY HIM. STRONG OPPOSITION
 TO INDIAN NUCLEAR BOMB WAS ALSO EXPRESSED BY MANY ARTICULATE
 INDIAN SCIENTISTS; EVEN BHABHA WENT OUT OF HIS WAY TO PROFESS
 HIS MODERATION ON THIS ISSUE.

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Authority State 8-11-76; EROA 9-30-76

By Jclra NARA, Date 5-5-01

SECRET

-2- 2055, JANUARY 21, NOON, FROM NEW DELHI

AT SAME TIME, IT IS CLEAR THAT INDIAN OFFICIALS AND SCIENTISTS WHO OPPOSE BOMB FEEL THEMSELVES TO BE ON DEFENSIVE RD IN NEED OF MORE PERSUASIVE ARGUMENTS TO DEFEND THEIR POSITION. IT IS ALSO CLEAR THAT PRESENT MODERATELY HOPEFUL SITUATION COULD BE ABRUPTLY

PAGE THREE RUSBAE 789 ~~SECRET~~
REVERSED BY NEGATIVE POLITICAL DEVELOPMENTS.

FOR INSTANCE COMBINATION OF DEVELOPMENTS THAT COULD CONCEIVABLY BRING ABOUT SUCH A SWITCH MIGHT CONSIST OF ANOTHER BOMB EXPLOSION BY CHINESE IN EARLY SPRING, FURTHER ADVERSE SHIFT IN DOMESTIC FOOD SITUATION, FAILURE OF INDIAN DELEGATES TO DEAL EFFECTIVELY WITH CHINESE AT ALGIERS AND FEELING THAT UK AND US HAVE NOT BEEN ADEQUATELY RESPONSIVE TO THEIR PRESENT DILEMMA.

DR. WIESNER WILL UNDOUBTEDLY EXPRESS HIS OWN VIEWS ON COURSE OF ACTION WHICH WE MIGHT FOLLOW DURING TALKS HE HOPES TO HAVE WITH SECRETARY AND OTHERS IN WASHINGTON EARLY NEXT WEEK. IN MEANTIME MY OWN ANALYSIS IS AS FOLLOWS:

1. WORLD HAS NOW ARRIVED AT CRITICAL WATERSHED IN REGARD TO DEVELOPMENT AND USE OF NUCLEAR WEAPONS. IF INDIA DECIDES FOR WHATEVER REASONS TO PROCEED WITH PRODUCTION OF BOMB, PROLIFERATION WILL SPREAD AND WITHIN FIVE OR SIX YEARS WE MAY BE FACED WITH DOZEN OR SO NUCLEAR POWERS, MOST OF THEM UNSOPHISTICATED IN THIS COMPLEX AREA AND SOME OF THEM POLITICALLY IRRESPONSIBLE. FROM STANDPOINT OF US SECURITY INTERESTS AND EVEN FROM THOSE OF USSR SUCH DEVELOPMENT WOULD BE UNMITIGATED DISASTER.

PAGE FOUR RUSBAE 789 ~~SECRET~~
2. INDIA AND THOSE OTHER NON-NUCLEAR POWERS WHICH ARE NOW IN POSITION TO MAKE BOMB CANNOT OVER PERIOD OF TIME BE DIVERTED FROM PRODUCING NUCLEAR WEAPONS BY MORAL EXHORTATIONS AND LECTURES FROM MEMBERS OF PRESENT NUCLEAR CLUB. THEREFORE CERTAIN AMOUNT OF GIVE AS WELL AS TAKE IS ESSENTIAL IF WE ARE TO COPE EFFECTIVELY WITH THIS CRITICAL SITUATION.

3. IN THIS CONTEXT IT IS CONCEIVABLE THAT UNDERSTANDINGS COULD BE REACHED THROUGH UN OR OTHERWISE THAT WOULD CONSTITUTE MAJOR POLITICAL BREAKTHROUGH. FOLLOWING POSSIBILITIES SUGGEST THEMSELVES:

A RESOLUTION CALLING ON ALL NON-NUCLEAR POWERS TO FOREGO PRODUCTION OF NUCLEAR WEAPONS.

SECRET

~~SECRET~~

-3- 2055, JANUARY 21, NOON, FROM NEW DELHI

B. AGREEMENT BY NUCLEAR POWERS THAT THEY WILL REFRAIN FROM ASSISTING NON-NUCLEAR POWERS IN PRODUCING OR ACQUIRING NUCLEAR WEAPONS GRADE MATERIAL EXCEPT FOR PEACEFUL USES UNDER INTERNATIONAL AGREEMENT AND WITH SUITABLE INSPECTION.

C. ACCEPTANCE BY USSR AND UK OF PRES JOHNSON'S PROPOSAL THAT THERE BE CUT-OFF ON FURTHER PRODUCTION OF BOTH NUCLEAR WEAPONS AND MISSILES, PLUS AGREEMENT WITH ACCEPTABLE INSPECTION PROVISIONS TO END UNDERGROUND TESTING. (I ASSUME FRANCE WOULD STAND ALOOF.)

D. ASSURANCE FROM NUCLEAR POWERS PERHAPS UNDER SOME UN ACTION THAT THEY WOULD BRING ALL NECESSARY FORCE,

PAGE FIVE RUSBAE 789 ~~SECRET~~

PRESSURE AND INFLUENCE ON ANY NUCLEAR POWER THAT EITHER USES OR THREATENS TO USE

NUCLEAR WEAPONS AGAINST A NEIGHBOR. ALTHOUGH IT WOULD BE IMPOSSIBLE AND PROBABLY UNWISE TO HANDLE THIS BY JOINT SOVIET-US DECLARATION, PARALLEL STATEMENTS BY US AND USSR HAVE BEEN MADE ON SIMILAR SUBJECTS IN PAST AND MIGHT PROVIDE USEFUL DEVICE IN THIS INSTANCE.

4. OBSTACLES TO DEVELOPMENT OF SUCH A BALANCE BOTH IN USSR AND US AS WELL AS IN SOME NON-NUCLEAR COUNTRIES ARE BOTH FORMIDABLE AND OBVIOUS. HOWEVER IT IS IN UN INTERESTS AND IN ACCORD WITH US RESPONSIBILITIES THAT WE MAKE IMAGINATIVE, DETERMINED, HONEST EFFORT NOW TO DEVELOP AFFIRMATIVE AN REALISTIC APPROACH AND THEN PRESS FOR COMMON ACTION WITH VIGOR AND WITHOUT DELAY.

MORE SPECIFICALLY I SUGGEST WE SEIZE ON PRESENT FAVORABLE MOOD HERE IN NEWDELHI TO DISCUSS POSSIBILITY OF SUCH AGREEMENT OR UNDERSTANDING WITH INDIANS AND ATTEMPT TO GUIDE THEM TOWARD APPROACH WHICH WE MIGHT FIND ACCEPTABLE.

EVEN IF OUR EFFORTS SHOULD FAIL, OUR POSITION BEFORE WORLD WILL BE GREATLY STRENGTHENED AND AT SAME TIME WE WILL PROVIDE SOME FURTHER DETERRENCE TO INDIANS FROM MOVING INTO NUCLEAR WEAPONS FIELD. AT BEST IT MIGHT PROVIDE BASIS FOR MAJOR HISTORIC POLITICAL BREAKTHROUGH WHICH WOULD BE TO EVERLASTING CREDIT OF NEW JOHNSON ADMINISTRATION. GP-3

BOWLES

NOTE: ADVANCE COPY TO S/S-O AT 4:20 A.M. JANUARY 21, 1965

PASSED WHITE HOUSE, 1/21/65 - 5:17 A.M.

~~SECRET~~

OUTGOING TELEGRAM Department of State

INDICATE: COLLECT
 CHARGE TO

- BUNDY SMITH
- BATOR
- DELK
- DOWNING
- CHASE
- COOPER
- JESSUP
- JOHNSON
- KELLEY
- KLEIN
- KOMER
- MOGDY
- REEDY
- SAUNDERS
- SAYRE
- THOMPSON

0 4 6 5 6

63

~~SECRET~~

86

Origin ACTION: Amembassy NEW DELHI
NEA INFO: Amembassy KARACHI
Info: Amembassy LONDON

1393 PRIORITY
737
4281

India nuclear

JAN 12 6 49 PM '65

SS
G
SP
L
BTF
EUR
FE
IO
P
IOP
NSC
INR
CIA
NSA
DOD
NIC
DAC
SCI
AID
E
AEC
NASA
WHB

101

We have had very useful series of talks here with Jerry Weisner and believe we have worked out good consensus on what he might do in Delhi.

Essentially we believe his mission should focus on two of our major objectives in our effort influence Indian nuclear policy. First of these is to help India demonstrate that its scientific and technological capabilities are at least equal to those of Chicoms. Weisner should probe in his talks on the political level for information regarding what GOI has in mind doing about its prestige problem. He may say that US is prepared to explore with India certain scientific projects which might have result of demonstrating Indian scientific prowess. He may broadly sketch out the following examples of projects on which we might assist: (1) plutonium recycling; (2) thorium recycling; (3) development of Trombay Regional Center for studying and training regarding peaceful uses of nuclear energy; (4) continued US cooperation at Odundug Rocket Range at Thumba and associated activities such as space technological laboratory at Thumba. FYI. At this time we do not envisage contributing to projects which would divert significant portion Indian resources from economic development. We are interested in eliciting

Indian ideas

Drafted by: NEA:SOA:DTSchneider:dmm 1/12/65
Telegraphic transmission and classification approved by: G - Ambassador Thompson

Clearances:
NEA - Mr. Talbot
G/PM - Mr. Garthoff (draft)
AID - Mr. Furst
SCI - Mr. Pollack (draft)
IO - MR. GARDNER
EUR - MR. SPIERS
AEC - Mr. Kratzer (substance)
ACDA - Mr. Freund
Mr. Hoffacker

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~~SECRET~~

5/5-

DECLASSIFIED

FORM 8-63 DS-322

JAN 13 1965

Authority: Stat 8-11-76; ERDA 9-30-76
By: jc/rjg, NARA, Date: 5504

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Indian ideas as to possible cooperative projects but wish avoid reacting to them in manner which might suggest tentative acceptance. End FYI.

We would hope you and Weisner at political level in Delhi will be able to clear way for more detailed exploration of such cooperation. This will enable Commissioner Palfrey to follow up with discussions of possible nuclear projects ~~which~~ while he is in India for inauguration Plutonium Separation Plant. We would then be in position to review possible fields for cooperation in Washington and make determination what US can do to assist.

We attach considerable importance Palfrey's attendance this ceremony. The Plutonium Separation Plant can have important peaceful uses and its construction is significant scientific achievement. Our ~~and~~ aim is to help Indians call international attention to its construction and try to do so in such a way as to commit Indians publicly to its peaceful use. Since inauguration will be attended by distinguished representatives many governments and international organizations, failure US attend would draw critical attention.

If you and Weisner find particular interest in Delhi in discussing cooperative space ventures, you might want to call on Arnold Frutkin for assistance in more detailed talks. He will be at Thumba seminar until January 16. Believe you might find it quite helpful to have talk with Frutkin about US activities at Thumba even if ~~we~~ Weisner talks do not require his presence Delhi. He would be available come to Delhi at your request (Deptel 1353).

Weisner's second objective should be to reinforce Indian decision stick to current nuclear policy by supporting your efforts draw Indian leaders into serious talks on dangers and implications of proliferation. We see no need elaborate in

this

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this message on possibilities in this area regarding which both you and Weisner are so well informed.

It was agreed here subject of Indian leadership in international efforts to get non-proliferation agreement should not be pursued in this brief visit. If Indians raise subject, you should limit comments to following line:

1. US, like India, places high priority on early conclusion workable non-proliferation agreement.
2. We understand India and other nations have been considering possible resolution for UNGA.
3. Effective non-proliferation agreement must leave room for adequate security arrangements for non-nuclear powers which have elected eschew atomic weapons. For example security of free non-nuclear European nations requires that there be adequate arrangements for their nuclear defense including some kind of allied nuclear force if Europeans desire it and can agree on acceptable arrangement. Such force would have as a major objective prevention of proliferation. Security of Free Asian nations requires that right of transit by nuclear powers be maintained.

4. Exact ~~working~~ wording of possible non-proliferation resolution and agreement is matter for experts to work out in context UNGA and ENDC; we hope we can work with interested countries at UNGA and ENDC to get world agreement on non-proliferation.

Security assurances is ~~another~~ another delicate subject. If raised by Indians you should not go beyond assurances of President's statement October 16 and speech October 18 and you should avoid discussing with Indians possibility parallel US-Soviet Union assurances. (Deptel 1349).

Weisner

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Weisner has agreed to come to Washington several days after his return. After we have digested your reports, talked to Weisner and learned the results of Palfrey's trip, we shall be in better position to decide next steps.

GP-3.

End

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PROCESSING NOTE:

#63 was used twice in numbering this folder. The second document with this number ("Preliminary Report on Visit of J.B. Wiesner and J.W. Joyce to India") was renumbered 63-1.

Jennifer Cuddeback
Archivist

May 6, 2004

63-1

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PRELIMINARY REPORT ON VISIT OF

J. B. WIESNER AND J. W. JOYCE TO INDIA*

January 14-20, 1965

India nuclear

Objectives

1. To explore possible joint actions that can be undertaken by the U.S. and India to extend and strengthen the image of India as the leader, among developing nations, of non-proliferation, and of the applications of science and technology, including peaceful uses of atomic energy, to the orderly solution of many of ~~the~~ problems facing the world today.

2. To explore and evaluate the current situation in India regarding the likelihood of their building and detonating a device to offset the Chinese Communist bomb.

Discussion

The factors that will shape GOI policies regarding such matters as non-proliferation and the support of scientific research and development are numerous and complex. Obviously, despite skillful and comprehensive briefings by Ambassador Bowles
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*Draft prepared by J.W.J. and reviewed by JB.W.

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and members of his staff, combined with discussions with a limited number of top Indian officials and scientists, time did not permit an exhaustive analysis of the situation. Certain conclusions can be drawn, nevertheless.

1. While the official GOI position is squarely in support of non-proliferation, there is a violent debate going on within the Congress Party, the government, and among leading Indian scientists as to how long this position can be held, and what the alternatives may be. These alternatives range from taking all necessary steps just short of building a bomb, to the actual construction of both a bomb and a delivery system.

Many Indian scientists are opposed to any of these alternatives, but both scientists and government leaders are well aware of the pressures that will build up in favor of one or more of these actions if the Chinese explode further devices. The current consensus is that it may be possible to contain these pressures if only one more Chicom event occurs, but probably not if a series of explosions takes place.

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On the other hand, there is, we believe, a completely unrealistic appreciation among GOI officials and many of the scientists concerning time and cost estimates to achieve an Indian "bang", let alone an operational bomb. The Indian public is also unaware of the dimensions of the problem. These uncertainties stem, in some degree, from misunderstandings engendered by a recent speech by Dr. Bhabha, but the basic cause appears to be a lack of precise information as to the factors involved. Thus, cited figures of 18 months and costs up to \$10,000,000 for a "bang" are, we believe, far too low. Just how much higher they may be is difficult to estimate on the basis of our limited observations, but factors of 4 or 5 in costs and 2 or 3 in time appear more realistic.

In particular, leading Indian scientists themselves are badly split on the issue of non-proliferation. A number appear to have direct access to the Prime Minister and are providing him with their views and suggestions. Several feel that he has been seriously misled as to the realities of the situation, although Dr. Wiesner's talk with him does not support this observation. While most Indian scientists are firmly in favor of the present GOI course, some feel that if negotiations on non-proliferation fail, India must go the course of the bomb in order to protect her interests.

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2. While it is unlikely that any specific scientific accomplishment can directly offset the effects of the Chinese bomb, there are several areas in which U.S.-Indian cooperation is of interest to India, and which, if pursued, can help to reestablish Indian scientific prestige. These include:

A. Space projects of various kinds, ranging from greater activity in optical and radio tracking of other countries' satellites, to the launching from Indian soil by Indians of a satellite. For a relatively simple satellite, instrumented payloads can be constructed by Indian research groups. U.S. assistance would be needed for various components, such as guidance packages, boosters, etc. Additionally, Indians estimate that for \$25 million they could probably develop a ^{sounding} useful/rocket for work in the region up to 1,000 kilometers. Again, this estimate needs careful study to determine its validity.

B. The GOI is interested in assistance in the area of population control and family planning. Specifically, they would like to "borrow" some sixty qualified people to operate at a block* level in training Indians in the necessary techniques and procedures.

*A "block" is an area containing from 50 to 100 villages.

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- C. There is Indian interest in analyzing Tiros Weather Satellite pictures and data in connection with problems in tropical meteorology - particularly monsoon phenomena. More accurate long range weather forecasts can be of significant benefit in scheduling crops, since a large part of Indian agriculture still depends on natural rainfall, as opposed to irrigation.
- D. There is active interest in improving their educational system at all levels, with particular emphasis on science teaching. They want samples of materials developed in the U.S. for science curricula, and appropriate exchange visits of Indians and Americans.
- E. There is interest in applying "Plowshare" techniques to such problems as the construction of large water catchment areas, harbors, etc.
- F. There is interest in nuclear energy desalination-power complexes, particularly in areas where large quantities of brackish ground water are available.
- G. There is interest in a regional study of hydrological phenomena, including ground water and water-logging problems.

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Recommendations

It is recommended that the following actions be taken in connection with proposed scientific and technological projects.

1. Explore cooperative space possibilities including:
 - A. Additional optical and radio tracking facilities on Indian territory.
 - B. The availability of essential components presently lacking in India needed to make possible the launching of an Indian satellite.
 - C. Check Indian estimates of \$25 million for the development of scientific sounding rockets capable of carrying 100 kilogram payloads to altitudes of from 500 to 1,000 kilometers.
2. Provide population control experts to train Indians at block levels in the necessary techniques and procedures.
3. Investigate the possibilities of providing Tiros Weather Satellite data to Indians for their analysis in connection with tropical meteorology and particularly monsoon problems.

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4. Explore the possibility of further collaboration with the National Science Foundation and Educational Services, Incorporated, in order to provide personnel and materials and all scientific course content improvement work now going on in the U.S.
5. Explore with AEC "Plowshare" possibilities in connection with large water catchment areas and harbors.
6. Explore desalination possibilities, particularly in areas where large quantities of brackish ground water are availability.
7. Explore possible joint studies of hydrological phenomena including ground water and water-logging problems:
In order to be meaningful, these studies may have to be pursued on a regional basis which would include adjacent countries.

J. Wallace Joyce

Addendum Attached.

January 25, 1965

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ADDENDUM

The initiative for all scientific and technological projects came from the Indians. There were no commitments made or implied by Dr. Wiesner during the discussions.

The subjects plutonium recycling and thorium processing were not discussed in view of Mr. Palfrey's impending visit to India.

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OFFICE OF THE ASSISTANT SECRETARY OF DEFENSE

31 December 1964

MEMORANDUM FOR MR. KOMER
Room 372, Executive Office Bldg.

The attached paper represents Mr. Rowen's personal views on a possible approach to the Indian Proliferation problem and has no official status within the Department of Defense. He has asked to have your informal comments on this subject in about a week if that is possible.

If you have any questions regarding this while he is out of town please call me.

Howard R. Sharlach

Howard Sharlach
Policy Planning Staff
Ext. 55678 or 55819

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E.O. 13292, Sec. 3.4
By *jc*, NARA, Date *5-5-04*

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JAN 5 1965

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India nuclear

The Indian Nuclear Problem

I. The Present Situation Within India

India may be near the point of deciding on starting a nuclear weapons program. The pressures for a weapon are likely to be irresistible after the Chinese test their next device in the absence of some better alternative. China's attack on India two years ago greatly increased the Indian feeling of vulnerability and changed some of its views on the virtues of non-alignment (although US and USSR willingness to give military aid has enabled it to preserve a substantial measure of non-alignment as between these two powers). Now the Chinese bomb is rapidly modifying its anti-nuclear attitudes. Whether or not the decision to make the bomb will be taken, and when, will depend on the pace and scope of the Chinese program and on the relative cost and reliability of nuclear self defense versus external guarantees. The United States will need very soon to decide what alternative, if any, it is prepared to offer.

*with really
trust in
Indian nuclear
vs. Indian
nationalism*

II. Possible Indian Nuclear Programs and Their Costs

A. Alternative programs

The Indians have a range of possible nuclear programs they might attempt to carry out: 1) developing and testing one or a few single fission devices, solely to get a political effect, but then stopping; 2) going on to develop a crude, but droppable, weapon that could be delivered by existing aircraft (e.g., by Canberras-- against Tibet and Pakistan); 3) developing more efficient fission

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weapons; 4) getting aircraft or missiles with a long enough range to reach Chinese cities; 5) developing a thermo-nuclear weapon; 6) getting a secure, second strike force able to survive a Chinese nuclear attack and retaliate against a small number of Chinese cities; 7) getting a protected force designed to hit Chinese nuclear forces; 8) building a significant tactical nuclear capability; 9) building a system for acquiring, transmitting and evaluating information needed for decision and a protected capability to make and send responsible orders.

B. Pressure toward a big program

An Indian decision to proceed might be based on the belief that they could buy a nuclear program fairly cheaply. But there can be little doubt that if India decides to compete with China, it will be pushed toward a sophisticated and expensive program--depending in part on what the Chinese do. Although there is much uncertainty on the Chinese program, it seems clear that it will include fairly sophisticated nuclear weapons, plus a variety of missiles and aircraft up to at least medium range. For example, we are now aware of the existence of a Chinese ballistic missile submarine. As the scope of the Chinese program becomes more evident to India, it is most unlikely that it could stop short of a program roughly comparable in scale and expense to China's--again abstracting from the effect of outside guarantees.

What could India do? India now possesses all the basic facilities necessary to produce plutonium. It has three research reactors, one of which, the Canada-India Reactor (CIR), is capable of producing enough plutonium for about two devices a year in the 20 KT range.

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There are no effective controls over this reactor. India also has a plutonium separation plant able to process 30 tons of material annually and it has a plutonium metal plant under construction. It could produce and test a crude, low yield, plutonium device in two or three years after a decision to do so. By 1970, India might be able to produce about a dozen weapons.

C. The Costs

The essential point is that the cost of getting one or a few nuclear devices is small; the cost of a serious delivery capability is very great. For example, the cumulative total expenditures on India's nuclear programs to date from 1954 has been \$220 million of which \$63 million was allocated in the current fiscal year. Additional expenditures up to the testing of a first nuclear device might total only about \$40 million over the next three years.

A more ambitious program which included testing and production of about 100 fission weapons by 1975 and the obtaining of 50 longer-range aircraft than their Canberras which have a 900-mile radius (either by procurement abroad or through conversion of jet transports) would cost perhaps \$200 to \$400 million a year. This modest force would be vulnerable both on the ground and in the air--and this fact would become widely understood over time.

A more ambitious program that would attempt to meet the Chinese on their own terms would be much more costly and would have serious resource implications for India. This is particularly true since India (unlike France and Britain) is not only directly exposed to Chinese non-nuclear attack, it has recently been attacked. Therefore, a

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responsible Indian defense program should be accompanied with strong non-nuclear defenses. A partial measure of what India might be faced with is suggested by the cost of the French nuclear program-- which itself is deficient in many respects (notably in the extreme vulnerability of its present aircraft, probably also its second generation land-based missiles, and perhaps even more its rudimentary attention to the problems of warning and command and control). This inadequate program promises to cost France an average of about \$2 billion a year--a sum greater than the entire \$1.8 billion Indian defense budget.

On balance, an Indian national nuclear program would probably take up a large part of India's defense and national budget. If such a program were to be carried out, there would either have to be large-- and risky--reductions in Indian non-nuclear forces or a large increase in it's defense budgets at the expense of its economic development. And given the level of our economic aid to India, an Indian nuclear program would indirectly be at the expense of the US aid effort.

C. Reported Indian military views

An Indian military study is reported to have concluded that India cannot afford a nuclear program, and that even if it had these weapons, they would be useless because of the lack of delivery means against China. It also is reported as stating that the US, the UK, and probably the USSR, could be counted on to retaliate against China in the event of a Chinese nuclear attack on India. It concludes that India should seek an arrangement with the West involving the commitment of Western nuclear support. This arrangement would involve concentrating

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on a delivery capability and "know how" for the use of nuclear weapons.

This report does not, of course, provide a firm basis for assuming either an Indian Government rejection of the nuclear route or a willingness to depend on external defense. It does suggest, however, that some Indians are conscious that they face severe resource problems in adopting the nuclear course.

III. Consequences of an Indian Program

One consequence of an Indian program is that one more national state, India, could some day be able to attack the United States with nuclear weapons. In time, the Indians will gain access to rocket technology (perhaps through an earth satellite program) that would give them some delivery capability against us. As to the significance of this capability, little can be said beyond the observation that it would be imprudent to assert that this ability to threaten the US would never become relevant.

Secondly, one more national state would have the capacity for starting nuclear actions with a fair chance of spreading and involving the United States. Faced with this risk, we would be strongly inclined to limit our involvement with India or with countries likely to come into conflict with India. (Whether or not we could escape being significantly affected by events in South Asia by adopting a policy of "non-involvement" is a subject for further consideration below.) The UK and many other countries would probably also limit their involvement. India would probably find itself generally isolated.

Thirdly, it follows from the above that there would be a reduction in our power to influence events in South Asia and to some extent throughout the world.

Fourthly, India's economic development would suffer--and possibly at serious costs to the Indian social structure.

Fifthly, pressures for further proliferation in Asia would grow. Most notably in Pakistan. The Pakistanis would seek some type of guarantee or nuclear assistance from one or more nuclear powers. (A US guarantee would run counter to our desire not to be involved with a nuclearized India and China.) They certainly would also emphasize nuclear programs that would bring them closer to having their own nuclear weapons. Japan, less exposed to conventional attack than India, directly protected by the US, and still strongly anti-nuclear in outlook (although less so over time) is under less immediate pressure. But a succession of Chinese tests followed by an Indian decision to "go nuclear" may rapidly change Japanese attitudes. Indonesia, despite its low level of technical competency, has ambitions and would be spurred on by the Chinese and Indian examples. And evidence of serious Indonesian intent would undoubtedly lead the Australians to try to get nuclear help in some form from the UK and the US.

Sixthly, the effects would be felt more widely. Israel, Sweden, Germany, and other potential nuclear countries far from China and India would be affected by proliferation in Asia. A nuclear decision by India, following soon after China, would undoubtedly help to remove inhibitions to the development of these weapons--especially if it

appeared that the United States and the Soviet Union were unwilling or unable to prevent the spread.

IV. The Main Issues

Our basic problem is assessing the comparative risks of two alternative courses of action: (1) Accept Indian national nuclear weapons program. We would attempt to persuade India not to undertake such a program but we would not be prepared to make a major commitment to India to keep it from doing so. Specifically we would not be prepared to offer a guarantee of US retaliatory action in the event of a Chinese nuclear attack. (2) Try hard to avoid an Indian national program. We would be prepared to make major commitment, if necessary in order to keep India out of the nuclear business.

In thinking about these two courses of action we need not regard them as necessarily being of indefinite duration. Specifically, we shouldn't regard a nuclear commitment as necessarily meaning that the US would sign on to protect India forever. Rather, it should be thought of as course which is intended to offer India an alternative to a national nuclear program for some considerable period of time--measured in years but not necessarily decades. Our basic strategy should be to conduct ourselves in a way which would not "lock us in" permanently. One way, for example, of keeping from getting "permanently" committed is to avoid stationing of large numbers of US forces in India.

A. Related Issues

Associated with this basic issue are several others: Would even a US (and perhaps UK) nuclear guarantee be enough to keep the

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Indians from a nuclear decision? If adequate now, would they be concerned about its adequacy when China is able to launch a nuclear attack on the US? Would they feel that "non-alignment" required that the Soviet Union be associated with a guarantee? Would the Soviet Union make such a commitment? Would we prefer to have the Soviet Union included? Would a secret US commitment, which could be communicated in some form to the Chinese, but which would preserve the public Indian non-aligned image, be preferred by India? Would a US commitment have to provide for locally based US nuclear forces or Indian delivery of US nuclear weapons in order to be effective? Might the Indians come to ask for US nuclear weapons to be put in India under a "two key" arrangement? What additional demands might we receive for military assistance in return for a firm non-acquisition agreement? Would we have to make a similar guarantee to Pakistan? Could we and should we try to dissuade India by saying that if it gets nuclear weapons, we would be forced to provide nuclear assistance to Pakistan? How should our economic and military aid leverage be used as part of a larger effort to keep the Indians out of the nuclear business?

B. Would the Effects of a National Indian Nuclear Program be Isolated?

There are three reasons why this is not so. First, an Indian nuclear decision would not only affect nearby countries such as Pakistan and Japan but also more distant ones, such as Israel or Sweden or Germany. One reason is that the factions in these countries opposed to nuclear weapons could, until recently, point to the fact that only great

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powers or those with a great power heritage (UK) had weapons. But within a few years, France and China and now India will have joined the club. And this despite US opposition, the risks, and the costs. In short, the world may be near a basic change in attitudes on the inevitability of the spread of nuclear weapons. And the fact that yellow and brown men are making these most modern of weapons is not likely to lead white men to decide to abstain from making them.

Second, although the US cannot be said to have a major stake in India today in the sense that we do in Europe, we are continuing to make our greatest aid effort there and we could, in any event, hardly be indifferent to what happens in the world's second most populous country.

Third, we have now and presumably will want to continue to have a major stake in Japan and Australia. These two countries will be affected by what happens in India and between India and China.

V. Further Analysis

A. How the situation probably looks to the Indians

If the basic US choice lies between the risks of deeper involvement with India faced with a nuclear program, the basic Indian choice lies between the risks of depending basically on the external commitments versus the risks of the national nuclear route.

Some Indians seem to have an awareness of at least some of the unhappy consequences if India goes nuclear. And others undoubtedly underestimate these costs and overestimate the security benefits to be gained from going this route. However, if the Indian Government comes to feel that it has no alternative open to it to counter China's nuclear

capability there can be no doubt that the Government will choose the nuclear route. What external alternatives might be available?

B. The UK

The V bombers give the UK the option of offering India nuclear support. But it is unlikely to do so unless the US is also prepared to make a suitable offer. (Denis Healey's recent gambit called for all of the nuclear powers--including China--to offer a guarantee. This proposal can be expected to fall well short of India's needs.) Moreover, most Indians probably recognize that any significant degree of external support can only come from the US.

C. The Soviet Union

A Soviet offer of retaliation against China if India is attacked would very probably not be made at this time. Although the basic hostility between Russia and China and the harm done to Russian long-term interests from nuclear spread would seem to support such a guarantee being given to India, the Russians will probably judge the costs among the Communist parties to be too great. We should, however, encourage the Indians to go to Moscow and find this out for themselves.

D. How much assurance would India want?

At this time we do not have a very good idea of the price of keeping the Indians out of the nuclear business (quite apart from whether we should pay it). For one thing, Indian attitudes are in flux. This means that it is most important that we stay close to the Indians and follow the trend of their thinking. It also means that

it would be a mistake for us to decide--in ignorance--what US action might be sufficient or insufficient. Specifically, although it would not be surprising to learn that the Indians would demand US delivery system technology and training in nuclear weapons use as part of the price of not starting a nuclear program, the fact is that we don't know. We need to develop a series of possible US actions, of increasing cost to us, decide how far we are prepared to go, and try them out on the Indian Government.

If any combination of external commitments can avert an Indian nuclear program, it will probably have to be in two parts: one part a public, non-aligned "facade" with as much international justification as possible; the other part, a private, tighter, agreement with the US.

E. The Indian desires for a "spectacular!"

The Chinese test has led to a desire both in Japan and India for a comparable technical event on their part. One suggestion has been that participation in an earth satellite project would be a suitable counter--and that the US might help. This has the disadvantage that it builds up a technology which is both directly relevant to nuclear delivery and expensive to achieve alone. US offer to launch an Indian satellite might, however, be a useful move. A much less appropriate suggestion is assistance in a "peaceful" nuclear explosion program for civil purpose. Nothing could more rapidly dispel the inhibitions in India to nuclear weapons than the acceptance by the government and public that these devices are "peaceful". Under no circumstances should the US support such a concept.

F. U. S. Aid Leverage

It would be quite plausible for the US to object to an Indian nuclear program on the grounds (a) that it would greatly damage the Indian economy, (b) the US was underwriting the growth of this economy with its aid effort and we were not prepared to see these aid funds wasted on an India needlessly devoting its scarce resources on nuclear systems, and (c) that the US was prepared to offer India a better alternative.

G. Preferred US strategy

Basically, the US should seek to develop a position which a) will defer an Indian nuclear weapons decision for a considerable period of time, and b) not leave the US with a "permanent commitment" (i.e., one along the lines of our commitment to Europe's defense, a commitment which includes--a large military presence as an integral part) to India's defense. This strategy might provide for certain public multilateral commitments along with private, firmer arrangements (which might be made public later); it should provide for US nuclear retaliation by US forces as presently deployed with possible change in deployment later. We would stress the high costs of a nuclear program, our reluctance to continue to provide India large quantities of economic aid if it were to go the nuclear route, and the position this would put Pakistan in (including the Pakistani incentive to acquire nuclears).

As a fall back position, we should be prepared to earmark selected nuclear equipped forces for movement to India and also to deploy limited forces to the Indian Ocean area, or even to India itself if this would help.

As a final fall back position, we should be prepared to offer India a "two key" arrangement with Indian delivery systems and US weapons in return for a solid non-acquisition commitment by India.

SECRET

67
October 8, 1964

Spurgeon,

As you predicted, I find myself in full agreement on preferred course of action. In fact, I'd see as additional strong arguments that: (a) getting India to lay off would ease our Pak problems; (b) if India wastes money on nuclear weapons capability, we'd be indirectly subsidising it through our aid (and total burden on us likely to be greater).

I'm more dubious, however, about implication of Recommendation on pp. 8-9 that we consider a dramatic "peaceful uses" program. No harm in looking at this option, but I see real risk that we'd merely be building up eventual Indian capability should India decide to go nuclear later. Moreover, the cost might be high.

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E.O. 13292, Sec. 3.4
NSC Memo, 1/30/95, State Guidelines
By je, NARA, Date 5-5-04


R. W. Komer

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UNITED STATES DEPARTMENT OF STATE
WASHINGTON

October 1, 1964

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LIMITED DISTRIBUTION

MEMORANDUM

FOR : Members of the Committee on Nuclear Weapons

SUBJECT : Next Meeting of the Committee

Turner Cameron

Enclosed is the report of the subcommittee which, under the chairmanship of Mr. Turner Cameron, NEA/State, has studied alternative courses of policy to deal with the problem of nuclear weapons proliferation in respect to India.

I propose that we meet in my conference room on October 9 at 10:00 a.m. to consider this report.

L E Thompson
Llewellyn E. Thompson
Acting Deputy Under Secretary

Attachment:

Report on the Indian Problem -
Proposed Course of Action

Distribution To:

ACDA - Mr. Fisher
ACDA - Dr. Scoville
White House - Mr. Keeny
Defense - Mr. Barber
JCS - Gen. Powers
AEC - Mr. Labowitz

USIA - Mr. Sorenson

EUR - Mr. Spiers
S/P - Mr. Owen
NEA - Mr. Talbot
INR - Mr. Spain

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SCI - Mr. Pardee
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Declassified at 12 year intervals:

1964

SANITIZED

Authority NLJ-032-025-3-10
By lg/dm NARA, Date 8-23-07

September 29, 1964

68a

Subject: The Indian Nuclear Problem: Proposed Course of Action

DISCUSSION

The new Shastri government and the various initiatives on nuclear matters which will figure in the UNGA give us an opportunity to approach the Indians on the full range of matters relating to nonproliferation. A review of Indian policy concerning nuclear matters is undoubtedly on Prime Minister Shastri's agenda. The recent restatement in a number of forums of the classic Indian position on this question suggests that the problem is very much on the minds of Indian leaders (Appendix 1). Several of these statements, particularly the Prime Minister's to Parliament on September 14, 1964, highlight in a somewhat sharper fashion than before India's increasing capability to produce nuclear weapons if it should decide to do so. If we are to use this opportunity to see that the Indians take fully into account our thoughts on these questions as they make a full review of their policy on nuclear matters, the following factors indicate that we should move in the near future, probably before the end of the year.

1. Political Factors: During the past year or so the political climate in India has changed in such a way as to make it more likely than before that the GOI will take a very serious look at the possibility of its undertaking a nuclear weapon development program (See Appendix 2).

a. The Indians know that it will be only a question of time before the Chinese Communists detonate a nuclear device.

b. The present

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OCT 8 1964

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b. The present Indian Government cannot afford to be caught napping by such a development with adverse political consequences similar to those which resulted from Indian lack of preparedness in the face of the Chinese attack in 1962.

c. Although still influenced by Gandhian principles of nonviolence and following a nonaligned foreign policy, the present Indian leaders are more pragmatic, concentrating more on Indian national interests and less on India's world image than the late Prime Minister Nehru. On this prestige issue, Indian nationalism could be expected to weigh very strongly with Indian leaders.

d. During the past two years the Indians have shown that they want to develop the capability of producing themselves the full range of military equipment needed to meet their defense requirements.

e. On the other hand, in its public posture the Indian Government continues to emphasize its peaceful use's program and its opposition to the spread of nuclear weapons. However, our experience indicates that the Indians are quite capable of taking a private position which can be very different from their public position.

2. Economic Factors: The development of a capability to produce a limited number of crude devices would not require a significant additional diversion of resources from already planned economic or military expenditures (See Appendix 3).

a. Including expenditures authorized for the current year,

India

India has already devoted \$220 million for nuclear development since 1954. The rate of expenditure has been increasing.

b. An expenditure of an additional \$30-40 million over a three-year period would probably be enough for the production of a crude, low-yield, plutonium device. (This sum would be negligible in terms of over-all Indian defense expenditures but the development of a nuclear weapons system would be quite another matter.)

3. Technological Factors: The estimate of the intelligence community is that India can produce a crude nuclear device within one to three years after the political decision has been made to do so. Prime Minister Shastri has recently said that India could develop the necessary know-how in one year if the decision were made to do so.

a. The Indians have already taken the first decision in the series which could make possible the production of nuclear weapons, i.e., to have available, on demand, unsafeguarded weapons grade plutonium, or at the least the capacity to produce it. The plutonium separation plant at Trombay began operations in May 1964.

b. The next in this series of steps, i.e., to begin weapons research and development, could take place at any time, if, in fact, it is not already under way.

c. Canberras now in the Indian Air Force inventory provide a crude delivery system.

d. On the

d. On the other hand, India's ability to achieve a meaningful nuclear deterrent is clearly limited. It would be capable of producing only one to two low-yield weapons a year from unsafeguarded plutonium, at least until the end of the present decade. Unless it is able to acquire advanced aircraft to increase its delivery capacity, the range of its Canberras restricts their usefulness for this purpose. It is, therefore, unlikely that India could have more than a token nuclear capability and a limited delivery system before the 1970's.

COURSE OF ACTION

Alternatives Considered

The Working Group has considered the following alternative courses of action (See Appendix 5):

1. To assist India to develop a nuclear weapons capability;
2. To be prepared to impose economic and other sanctions in an effort to prevent India from going the nuclear weapons route;
3. To reinforce India's stated policy of confining its nuclear development to peaceful purposes; and
4. To do nothing on a bilateral basis to influence Indian policy on nuclear matters.

We eliminated 1 and 4 above because on balance we considered it to be in the U.S. national interest that India confine its nuclear capability to peaceful purposes and we believe we should do what we can to achieve this end. The reasoning behind this conclusion is

summarized

summarized in Appendix 5. We eliminated 2 above because of the importance to us of maintaining the U.S.-Indian relationship even if India goes the nuclear weapons route.

We recommend number 3 because we believe such an approach could be a marginal factor in tipping the balance of an Indian review of its nuclear policy in the direction of peaceful uses. Even if we try this course and India decides to go the nuclear route, the basic U.S.-Indian relationship which we consider important to U.S. global interests will remain largely intact and provide a basis for trying to work towards controls over the use of nuclear weapons in the South Asian area.

The recommended course of action takes into account the present uncertainty concerning India's future intentions in nuclear matters. It contemplates a phased approach, beginning with a broad, bilateral exploration of the problem with consideration of more specific arrangements only as it becomes more certain what arrangements would be both necessary and useful. The recommended action would take place against the background of continuing efforts to achieve international arrangements designed to inhibit the further proliferation of national nuclear weapons capabilities. These efforts will support the approaches directly addressed to the Indian problem. We assume that the U.S., after a Chinese Communist nuclear test, will substantially step up its program designed to provide reassurance to all states in the region and that such a program will also support our continuing efforts to deal

deal with the Indian problem. (The nature of a program following a Chinese nuclear detonation is under study by an interdepartmental task group.)

Recommendations

There follows a more detailed account of the recommendations of the Working Group:

1. High-level Consultations with Indian Leaders. We should undertake a series of carefully planned, confidential U.S. consultations with high-level Indian Government leaders in the near future, probably before the end of the year.

Purposes

- a. To share with selected Indian leaders our thoughts on the problems and dangers of nuclear proliferation and possible international action designed to prevent it.
- b. To probe India's intentions, keeping in mind that we wish to minimize any increased bargaining leverage in India's dealings with the U.S.
- c. To open a channel which will provide us continuing information about Indian capabilities for, and attitudes towards, the production of nuclear weapons so that we will be in a better position to try to meet their concerns or to deal with the consequences of their actions.
- d. To lay the basis for a continuing relationship designed to support the following objectives: (1) to reinforce Indian
leaders

leaders in their present policy of abjuring the development of nuclear weapons; (2) to enhance the prospect that India would accept international arrangements bearing on nonproliferation of nuclear weapons.

e. To make it necessary for India's leaders to face up to the following considerations bearing on any decision to test a nuclear device by:

(1) Contrasting the threat to India from a Chinese Communist nuclear weapons program with the larger dangers to all of the further proliferation of national nuclear weapons capabilities (for example, an Indian test could encourage others to go the nuclear weapons route);

(2) Questioning the value to India of a limited number of nuclear weapons and making it clear that the economic consequences of an ambitious nuclear weapons effort would hinder the attainment by India of its larger developmental and social objectives; and

(3) Demonstrating that from the standpoint of its security interests, India's best course lies in proceeding with strengthening of its conventional capabilities while relying in the nuclear field on the deterrent effect of a close relationship between India and the major nuclear powers. / P

Tactics

Tactics

a. The first approach should be made privately to Prime Minister Shastri by a special high-level Presidential emissary who would be prepared to return to India for further meetings as the dialogue developed.

b. The Ambassador would play an active role in these conversations and keep the matter in play between the visits of the special emissary.

c. A sine qua non of these consultations is that we deal with India as an equal partner in a mutual endeavor.

d. To enhance the mutuality of this endeavor and increase its value to India, we should be prepared: (1) to provide India with such information concerning Communist China's military capabilities (conventional and nuclear) as would not compromise U.S. sources; and (2) to speak frankly concerning our over-all approach to the problem of proliferation, including the role of the MLF as a means of preventing proliferation of national capabilities.

e. We should seek to make directly meaningful to India such measures as may be undertaken by the U.S. on a broader basis following a Chinese Communist nuclear test, for example, an increased U.S. nuclear presence in Asia and the Pacific.

2. Develop An Alternative to Non-peaceful Use of Nuclear Capacity.

We should proceed promptly with an urgent study within the U.S.

Government

Government of the feasibility and desirability of offering to cooperate with India in developing one or more dramatic projects in the peaceful uses of atomic energy and other advanced technology which would capture the imagination of Indians and Afro-Asians and conclusively demonstrate the advanced progress of Indian science. This study should be designed to give us a basis for substantive talks with the Indians.

*do this
Monday*

a. We should be prepared to discuss the full range of possibilities within the context of sharing information on scientific advances in peaceful uses.

b. To illustrate what we have in mind, we might suggest to India that U.S. and Indian scientists work together in an endeavor to find a break-through for the peaceful use of plutonium, such as a plutonium-thorium cycle for the production of electric power. India could contribute some of its plutonium for this purpose.

c. Another illustrative field for cooperation would be in space science.

d. A third illustration might be a program for peaceful use of nuclear explosives in India. We recognize, however, that such a program might give rise to difficult technical and political problems.

e. We would

e. We would have to be prepared to contribute our share of the cost of any agreed project over and above our current commitments for aid to India.

3. Intensify Efforts to Build Restraining International Climate.

We should intensify our efforts to build an international climate which would restrain India and other nations from producing nuclear weapons. With respect to India's interest in obtaining a nonproliferation agreement, we should seek to direct its efforts in a direction consistent with our national interests.

a. We should consult with India in the preparation of the positions we propose to take on nuclear matters in the UNGA and the ENDC.

b. We should explain to the Indians our case for the MLF.

4. Consultations With Certain Other Governments. We should engage in a series of consultations with other selected governments to develop ways of sharing the responsibility for diverting the Indians from the nuclear weapons route.

a. The U.K. and Canada. The purpose here would be to keep these Governments informed of our planned course of action and of Indian reactions to our approaches. In addition, we would hope to tap new sources of information about Indian intentions and the state of Indian technological development. Moreover, these Governments should be consulted if we get to the stage in our talks where assurances to India enter the picture.

b. Yugoslavia

b. Yugoslavia and Japan. These countries should be considered as potential sources of independent influence on India.

c. The Soviet Union. Any approaches to the Soviet Union should, at a minimum, be delayed until we have gotten engaged in talks with the Indians. It may not be desirable to bring the Soviets in at all, but we should keep this possibility under review. (See 5 below.)

d. Pakistan. As our efforts with India develop, we will need to work out an appropriate approach to Pakistan in order to ensure that its future nuclear program also excludes weapons and, more importantly, that it is not inspired by growing U.S.-Indian cooperation on nuclear matters to irresponsible actions on its own.

5. Assurances to India. We should strengthen our effort to reinforce Indian leaders in their present policy of abjuring the development of nuclear weapons by assuring them privately and confidentially of our support if they are attacked by Communist China and possibly, indicating we would have no objection to their seeking similar assurances from the Soviet Union. By confining our public assurances to the general language applicable to all Asian states which we plan to use some time after the Chinese Communists explode a nuclear device and by applying these assurances specifically to India only on a confidential basis, we would hope to avoid impinging upon Indian nonalignment. Of course, if the Soviet Union later proves willing to give public assurances to India, we would probably wish to make ours public also.

a. U.S. Assurances. We should privately and confidentially assure India at a high level that:

(1) The U.S. will continue to be ready to assist India to preserve its independence against Communist Chinese

aggression

aggression and pressure whatever China's progress with nuclear weaponry may be.

(2) The U.S. will continue to have the ability to respond in a flexible manner to any possible Chinese Communist aggression against India.

(3) If Communist China should be so foolish as to use nuclear weapons against India, it could expect a prompt U.S. response.

(4) In order to deter such use, the U.S., at some appropriate time after Chinese Communist explosion of a nuclear device, intends to issue unilaterally a public statement regarding its response to Chinese Communist use of nuclear weapons against another Asian state. This statement will not refer specifically to any free Asian nation and so need not impinge on Indian nonalignment.

(5) While the U.S. is prepared to use its nuclear power when essential, it is also prepared to assist India in meeting non-nuclear aggression from Communist China by non-nuclear means. The existence of a Chinese Communist nuclear weapons capability will have no effect upon our willingness or capacity to do so.

b. Soviet Assurances. We should weigh the advisability of our discussing with the Indians the question of similar or parallel assurances from the Soviet Union. This should be based on an assessment of:

(1) The

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- (1) The probable Indian reading of such a suggestion.
- (2) The conditions under which the Soviets would be most likely to provide assurances to India.
- (3) The form of various possible Soviet proposals for assurances and how they might affect U.S. interests both in India and on the world scene.
- (4) The effect of a Soviet assurance, in addition to one from the U.S., on Indian nuclear plans.

The course of action recommended by the Working Group is designed to be followed prior to the detonation of a nuclear device by the Chinese Communists. The Working Group believes that by following this course the U.S. could have some marginal influence on the outcome of an Indian review of its nuclear policy. In any case, the cost to U.S.-Indian relations of pursuing this course would probably not be too great. Once the Chinese Communists have detonated a device, we believe a new look at this course of action would be in order.

Attachments:

- Appendix 1 - Key Statements by Government of India Officials on Nuclear Weapons Policy.
- Appendix 2 - Political Factors Related to Indian Nuclear Weapons Policy.
- Appendix 3 - Economic Factors. (NOFORN)
- Appendix 4 - Technological Factors. (NOFORN)
- Appendix 5 - The Indian Nuclear Problem: Alternative Course of Action.

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APPENDIX 1 - Key Statements by Government of India Officials on Nuclear Weapons Policy

September 22, 1964 Prime Minister Shastri. Statement to Rajya Sabha.

"I want to make it absolutely clear that India does not think in terms of manufacturing nuclear weapons", and that India's nuclear program is for "peaceful purposes" only.

September 16, 1964 Foreign Secretary M. J. Desai. Conversation with our DCM.

"Desai described as "personal elaboration" R. K. Nehru's comment to Foster on September 4, 1964. Desai asserted that the GOI position on the manufacture of nuclear weapons is as publicly stated, noting that India's social, economic and even security interests would not be served by the production of such weapons. In view of Communist China's great lead in this field, it would be suicidal for India to contemplate using nuclear weapons.

September 14, 1964 Prime Minister Shastri. Answer to a question in Parliament.

Shastri said plutonium was being produced in India and that the general principles for manufacturing an atom bomb are well known, "but we have not acquired detailed know-how as we have not worked towards this end. It would take about a year to develop detailed know-how if decision to do so were taken."

August 31, 1964 Prime Minister Shastri. Message to the Third UN Conference on the Peaceful Use of Atomic Energy.

"India believes today, as it has always believed, that atomic energy should only be used for peaceful purposes and for the welfare of humanity and has resolved to use it only in this manner as far as its own efforts are concerned."

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August 31, 1964

Spokesman of Ministry of External Affairs. Statement to the press in New Delhi.

The spokesman described as "preposterous" the Pakistan Government's allegation that India was preparing to produce atomic bombs. He added that the views of the Government of India on the question of nuclear energy and on the question of nuclear tests and nuclear weapons were too well known to everyone to need reiteration.

August 24-Sept. 15,
1964

Mr. R. K. Nehru, Indian Representative, at the ENDC(Geneva).

In a statement at a plenary meeting on August 27, Nehru said: "Although we are making rapid progress in the field of nuclear science and technology, the Government of India has taken a firm decision that in no circumstances will our nuclear capabilities be used for non-peaceful purposes. We have no intention of producing or acquiring nuclear weapons, irrespective of any action that any other country may take." In a statement at a plenary on September 1, Nehru repeated that India would employ atomic power only for peaceful purposes. In a private conversation with Mr. William C. Foster on September 4, Nehru said his statement of August 27, 1964 reflected the position of the Government of India "now"; he added that the Indian position might change if the Chinese Communists exploded a nuclear device. On September 15, he reiterated, at a plenary, total Indian opposition to the manufacture or use of nuclear weapons.

March 1964

Defense Minister Y. B. Chavan. Answer to a question during a parliamentary debate on the budget for the Ministry of Defense, concerning the Government's policy with regard to producing "conventional nuclear weapons."

"No experiments are being done on that and it is not the policy of the Government to do it."

October 15, 1963

Mrs. V. L. Pandit, Indian delegate. Statement at the First Committee during the Eighteenth Session of the UN General Assembly.

"As a counterproposal to the Treaty, the Chinese People's Government have proposed a meeting of the

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Heads of States to consider the immediate destruction of all nuclear weapons and their means of delivery. If nuclear weapons were to be destroyed without a simultaneous reduction in conventional forces, it would leave China as the mightiest military power on earth. In our reply to the Chinese proposal suggesting a conference of Heads of States for this purpose, we drew their attention to this fact."

March 25, 1963

Prime Minister Nehru. Statement made during debate on budget demands of the Atomic Energy Department in Lok Sabha.

"From a practical point of view, apart from the ethical and moral aspects which are important, it is right that we should adhere to our decision not to use atomic energy for producing nuclear weapons."

December 23, 1962

President Radhakrishnan. Surat, Golden Jubilee Celebration of the Sarvajanic Education Society.

"India is not lagging behind any country in scientific advance. Even in matters of scientific development, the possibility of making atomic bombs is not beyond our reach. Eighty percent of the ground for developing the atomic science has already been traversed by us but we are not producing a bomb because it is not the government's policy to produce one. We do not want to use atomic energy for destructive purposes."

May 10, 1962

Mrs. Lakshmi N. Menon, Minister of State in the Ministry of External Affairs.

"The Permanent Representative of India to the United Nations informed the Secretary General in the end of March 1962 of India's declared intention of not manufacturing or accepting nuclear weapons and expressing willingness to enter into any general agreement or specific undertaking in this regard. ...So far as the Government of India is concerned, they have repeatedly declared that they have no intention of manufacturing themselves or accepting nuclear weapons on their territory. The conviction and policy of the Government of India stand unchanged in this matter..."

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- November 29, 1961 Statement by Mr. Chakravarty, Indian representative, before the First Committee of the UN General Assembly.
- "So far as my country is concerned, we have repeatedly said that we are not going to use nuclear power except for peaceful purposes, and we would like all countries to do the same."
- September 17, 1961 Prime Minister Nehru. Press Conference, New Delhi.
- "We are opposed to atomic bombs, hydrogen bombs, and all that breed. That is not an empty statement for us to make because before very long we will be in a position--we have the competence and the equipment--to make them. Yet, we have said we will not go that way at all. If we had tried hard enough we might have made them. We are probably apart from the three big countries, among two or three others which are so advanced in this matter--maybe one or two countries in Europe and one or two in Asia. We have deliberately said we will not make them."
- February 2, 1961 Dr. H. J. Bhabha, Chairman of the Indian Atomic Energy Commission. Press conference in New Delhi.
- Bhabha said India's program for the development of atomic energy had reached a stage where it could produce atomic weapons within two years of the time it decided to do so. However, India's policy, declared so often, was to develop atomic energy exclusively for peaceful purposes.
- January 14, 1961 Prime Minister Nehru. Address before National Development Council.
- Nehru said that since India was approaching a stage when it was possible for it to make nuclear weapons, there was a slight apprehension in some quarters that it might produce such weapons. Nehru said that he wanted to make it clear that under no circumstances would India make such weapons "whatever might happen."
- December 15, 1959 Dr. H. J. Bhabha. Meeting of the Informal Consultative Committee of the Indian Parliament.

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Stating that India could now manufacture atomic weapons if it wanted to, Bhabha quoted from a statement by the Prime Minister that India would use atomic energy only for peaceful and constructive purposes, to emphasize the policy of the Government not to manufacture atomic weapons.

November 16, 1959

Statement by Mr. Pathak before the First Committee of the General Assembly.

"...I might refer to the study by a group of American scientists which has already been quoted here, in which a dozen countries including India are listed as potential nuclear powers. So far as my country is concerned, however, we have made it clear that our efforts in the field of atomic energy are devoted entirely to peaceful ends.

February 3, 1958

Prime Minister Nehru, at Bombay.

"...When this center [Atomic Energy Establishment at Trombay] was established, I made it clear to the world that we are not interested in manufacturing atom or hydrogen bombs. We will never use them, come what may. This assurance still stands. We can never be dishonest about this utterance."

January 30, 1958

Prime Minister Nehru. Speech to public meeting at Ramlila Grounds, Delhi.

"India has made considerable progress in the field of atomic energy and we might be in a position to manufacture an atom bomb in two or four years. Instead of asking others for an atom bomb, we say: "we will not make it (atom bomb) and we will not use it."

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POLITICAL FACTORS RELATED TO INDIAN
NUCLEAR WEAPONS POLICY

A. Conditions Under Which Current Policy Formulated

1. India's position against undertaking a nuclear weapons program has been maintained by the GOI for a long time and is the product of security considerations and political leadership of the past.

2. Conditions affecting Indian security have changed greatly since the Chinese became an active military threat to India. Prior to that time, India sought security not primarily through military strength, but through maintaining friendly relations with the Communist bloc, including the Communist Chinese. Furthermore, India had not seriously contemplated the possibility that Communist China would try for a nuclear weapons capability. It is uncertain whether the GOI has fully taken this change into account in its recent statements regarding nuclear policy.

3. The Indian policy was largely formulated by Nehru who dominated Indian foreign policy. Under Nehru, India's nuclear policy remained unchanged both because of his command of foreign policy and because no immediate military need, on the basis of which it could have been challenged, was apparent.

B. Possible Review of This Policy

1. While these changes have no so far caused a significant shift in India's public position on nuclear weaponry, it seems doubtful that India's new government, which has been beset with domestic problems since its inception, has had a chance for a careful restudy of its policy.

2. It is

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2. It is likely that the new government will have to make such a careful restudy in the near future. In the meantime, its scientists seem to have kept the door open for a decision either way.

C. Importance of Political Considerations in Any Restudy

1. In any such decision, political considerations will weigh heavily, much more so than they did when Nehru formulated the Indian position and maintained it thereafter. One reason for this is that the new Shastri government is much more subject to the political pressures of the day than its predecessor under Nehru. To stay in power it must reach out for support and be on the popular side of national issues to a much greater extent than the Nehru government.

2. India's Chinese policy and its national defense policy (so far considered only in terms of conventional weapons), have been controversial political issues for some time. As a matter of government policy, India has for some time been trying to increase its military self-sufficiency so that it can meet threats to its security with a minimum of dependence on outside military power. There is widespread political pressure behind this policy and some dissatisfaction that India's efforts to produce its own weapons are not proceeding rapidly enough. Also, for a long time there has been much political pressure from both within the Congress Party and from opposition parties for a firmer Chinese policy.

3. Chinese

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3. Chinese Communist explosion of a nuclear device, or full Indian realization that China is about to do so, is likely, therefore, to make India's nuclear policy a controversial issue of domestic politics. Furthermore, the widespread knowledge which now exists in India that India has the capacity to explode a nuclear device, and do so in a relatively short time, will make political pressures to abandon India's current policy much more difficult to resist.

4. The principal opposition to the Congress Party come from rightist nationalist elements in a variety of opposition parties all over India. It seems quite likely that these parties would make effective use of the issue of Indian nuclear policy should the Indian Government reaffirm its current public position despite Chinese explosion of a device. They might be joined by vocal nationalist elements of the right within the Congress Party and possibly also by "super-patriots" of the left.

5. Barring a resurgence of Gandhism, a new Indian government, struggling with political issues close to home (food, Kashmir, refugees) may therefore be tempted to lead a nationalistic campaign for development of a nuclear weapons capability rather than add the political liability of continued nuclear forbearance to its list of problems.

6. Indians frequently seem to be more interested in declarations of policy and superficial indications that it is being carried out than in actual implementation. Therefore, a declaration that India had decided to go for nuclear weapons and the explosion of a device might well satisfy

Indian political

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Indian political requirements, enabling the Government to proceed much more slowly with the development of an actual weapons capability.

Because of this the GOI might decide to explode a device despite conclusive evidence regarding the lack of military utility and great expense of the type of weapon and delivery system which India could build.

7. If India's relations with Pakistan remain strained, a widespread public desire to demonstrate Indian superiority to Pakistan is likely to contribute to political pressures for a change in Indian nuclear policy. Senior government officials are likely, however, to recognize the new problems in Indo-Pakistan relations which explosion of an Indian nuclear device is likely to cause.

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APPENDIX 3 - Economic Factors

1. Cost of Nuclear Program to Date. India's identifiable allocation for nuclear development in the current fiscal year is about \$63 million. This sum includes \$41.6 million for capital outlay, \$20.8 million for research, and about \$0.6 million for operating and miscellaneous expenses. Including the appropriation for the present year, India's expenditures on its nuclear energy program since its inception in 1954 will have totaled about \$220 million. The pace of expenditure has been accelerating, permitting a rapid buildup of the facilities and staff at the Atomic Energy Establishment at Trombay, the country's chief nuclear center, and of India's nuclear power program. Actual outlay in the first four years of the Third Five-Year Plan (i.e., 1961-65) will be well over double the outlay for nuclear activities under the entire Second Five-Year Plan. The above figures pertain to expenditures under the budget of the Department of Atomic Energy; they do not include any additional sums that might have been hidden in the budget of other agencies, such as the Ministry of Defense.

2. Relation of Nuclear Program to Total Government Outlay. Despite its rising trend, Indian expenditure on nuclear activities--including the increasing proportion for the generation of electric power for commercial consumption--still represents a minor proportion of the total national budget. The appropriation for the current fiscal year is about one per cent of the total budget. By comparison, the defense budget for the current year is \$1.8 billion, equivalent to 28% of the total budget or more than 28 times the size of the atomic energy budget. In broader terms, the atomic energy appropriation for this year amounts to roughly 0.1 $\frac{1}{2}$ % of India's GNP. The foreign exchange component of the outlay for atomic energy is not identifiable. It is known that Dr. Bhabha, Secretary of the Department of Atomic Energy and Chairman of the Indian Atomic Energy Commission, has been exceptionally persuasive--or at least was during the administration of Mr. Nehru--in obtaining official approval for foreign as well as domestic expenditures for atomic energy. The drain on India's very tight foreign exchange holdings has been minimized by an official Canadian grant (for the Canada-India Reactor) and the promise of substantial US and Canadian loans (for the Tarapur and Ranapratapsagar reactors).

3. Burden of Weapons Development Program. India is so far advanced in its nuclear energy program, devoted at least avowedly to peaceful uses only, that it could undertake the production of a crude, low-yield plutonium weapon at relatively slight additional cost--estimated at \$30-40 million. This cost would cover weapons research and development, high explosive component fabrication, and testing of components and devices. These costs could be spread over a period of several years. The increment of perhaps

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\$10 million a year for the weapons program would presumably contain only a limited obligation in foreign exchange. This addition, together with necessary recruitment or transfer of scientific personnel for the military effort, could be absorbed under the regular atomic energy program without significant dislocation. If the increment for nuclear weapons development were tacked onto the Indian defense budget, it would hardly be noticeable. (India's Five-Year Defense Plan for 1964-69 foresees a total outlay of over \$10 billion, including \$1.4 billion in foreign exchange. Preliminary development estimates of the Fourth Five-Year Plan, for 1966-71, call for a total expenditure of about \$42 billion, with a foreign exchange component of \$6.7 billion.)

A decision to test a device underground, if India wished to conduct a test but desired to avoid violating the treaty ban on atmospheric testing and especially to reveal its military effort in this field, would add to the technical and engineering problems (and hence the cost) of the development and testing process. However, the additional cost would not be enough to deter India, if it desired to test a device under these circumstances.

4. Cost of Nuclear Weapons Delivery System. To develop a meaningful nuclear deterrent to Communist China, given the distance and nature of Chinese targets, India would have to procure heavier bombers than the Canberras now in its inventory, and/or medium range ballistic missiles. (See Appendix IV.) For the foreseeable future, such procurement would have to be from external sources.

The Soviet medium bomber "Badger" has been produced at a cost of about \$3.4 million per aircraft, but has been sold to non-Bloc countries for approximately \$1.5 million per unit. The production cost of the roughly comparable American B-47 has averaged just under \$2 million, the price rising above that average according to the complexity of the electronic fittings. If the USSR or the US were willing to sell such planes, India might perhaps acquire a fleet of twenty Badger/B-47 aircraft for a capital outlay of \$30-40 million. The estimated operational and maintenance costs would be about \$500,000 annually for each plane, or \$10 million for twenty planes.

The production cost of the heavier Soviet Bison/US B-52 is \$11-12 million per aircraft, to which an annual operating cost of approximately \$1 million should be added. Possession of such aircraft would permit India to strike anywhere in Communist China. If India were able to procure bombers of this type--neither the USSR nor the US has thus far supplied such planes to other countries--it might have to pay perhaps \$8 million per unit; a fleet of twenty Bisons/B-52's would then cost about \$160 million, plus \$20 million a year to operate.

If it were able to obtain Soviet/US approval for the supply of medium/heavy bombers, India would almost certainly look to long-term assistance for the financing. Assuming that no financial assistance were available and the bombers were purchased outright, their initial cost probably could be spread over, say, four years. Thus the cost of the Badger/B-47 fleet of 20 aircraft would amount to \$10 million a year capital outlay plus \$10 million operational expenses, or \$20 million a year; the comparable cost of twenty Bisons/B-52's would be \$40 million a year plus \$20 million operational costs, or \$60 million a year. Such an additional burden would constitute a further strain on India's already limited resources, but in the light of its present plans for defense and economic expenditure (3. above) it appears that the cost of procuring a modest medium/heavy bomber capability would be well within India's financial possibilities.

The cost of a limited missile-delivery capability would probably be less than that noted above for a fleet of 20 bombers, although the technological problems for India would be greater. In any event, it is at least doubtful that potential suppliers would be prepared to sell nuclear-capable missiles to India in the foreseeable future.

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APPENDIX 4 - TECHNOLOGICAL FACTORS

India now possessed all the basic facilities necessary to produce plutonium. Although its research and nuclear power programs are not large, they are well advanced. Domestic uranium ore reserves are adequate for all presently projected needs, and a uranium ore processing mill at Jaduguda is scheduled for completion in 1965. Until its mining operations are expanded sufficiently to meet its needs, India will probably continue to be able to import uranium, some of which may not be adequately safeguarded. The country plans to build at least three sizable nuclear power reactors in the next four to eight years, and already has in operation three research reactors. One of the latter - the Canada-India Reactor (CIR) - is capable of producing annually enough plutonium for one or two weapons in the 20 KT range. There are no safeguards on either the uranium or the heavy water now used in this reactor to hinder the Indians from embarking on a weapons program. India also has uranium metal and fuel element fabrication plants, and a heavy water plant.

In addition, India now has a plutonium separation plant which was completed in the first half of 1964. The size of this plant (30 tons of reactor fuel per year) appears excessive in relation to the present needs of India's peaceful nuclear program, but would be essential for the production of plutonium for weapons. Other than India, the only nations possessing plutonium separation plants - other than pilot facilities - are the four present nuclear powers,

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By *Jcl*. NARA. Date 5-5-04

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and probably Communist China. The Canadian JIC (487/3-64) notes that "with the completion of the plutonium separation plant, it will now be possible for India to realize the full potential of the CIR for plutonium production (12-15 kg per year)...."

Fuel rods from the CIR were reliably reported as being removed during a recent eight-months period at an accelerated rate which optimizes the production of weapons-grade plutonium. The Indians have indicated that they want the plutonium for research on plutonium-fueled fast breeder reactors which they hope can be developed in the future. India's extensive thorium reserves constitute a logical basis for this attitude, but the use of plutonium as fuel in large power reactors involves major unsolved technical problems and is probably a decade or more beyond present Indian capabilities. Although the accelerated schedule of rod removal from the CIR could have been motivated, in part at least, by the requirement to have some irradiated fuel ready for processing by the time the plutonium separation plant was completed, a continuation of this schedule during the remainder of 1964 would provide a strong indicator that production of weapons-grade plutonium was now the primary purpose of the CIR.

The design of the projected Rajasthan reactor is not optimum either for plutonium production alone or for dual-purpose plutonium and electrical power production. It is, nevertheless, better suited for both of these purposes than a reactor fueled with enriched uranium

such

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such as the U.S.-aided power plant under construction at Tarapur. India could eventually fabricate cores for the Rajasthan reactor from its own uranium sources. The same Canadian JIC study noted above states that when the Rajasthan reactor is operational (about 1968/69), "it could produce up to 250 kg of weapons-grade plutonium a year," and that "this would be sufficient for the fabrication of at least 15-25 low-yield plutonium implosion devices per year." Canada retains access and inspection rights to the Rajasthan reactor.

In sum, the technical evidence suggests that India is now in a position to proceed with a nuclear weapons research and development program at minimum cost and delay. It could produce and test a first nuclear device in one to three years after a decision to do so. India signed the 1963 partial test ban treaty, but it has areas where underground testing would present no great difficulties. A weapon deliverable by the Indian Air Force's Canberra light bombers could probably be produced in about two years after the first test. Until near the end of this decade, India will be able to produce fissionable material only from the CIR reactor so that the number of weapons in the 20 KT range which could be produced by 1970 would be on the order of five to ten. At the end of the decade, however, should the safeguards be removed or evaded when the Rajasthan reactor is in operation, this total could be rapidly augmented to achieve a militarily significant stockpile of plutonium bombs.

Delivery Systems

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Delivery Systems

The Indian Air Force at present has approximately 1,500 aircraft of which the main combat elements are some 61 Canberra Mk 58 light bombers and 500 fighters. Only the Canberras have even the minimum range (combat radius about 1,300 nm) and weight-carrying ability to function as nuclear weapons carriers against China. The IAF's 14 B-24 bombers are of World War II vintage unsuitable for nuclear weapons delivery. Moreover, the IAF has no jet transports. The civilian government-owned line, Air India, owns seven Boeing 707's (range about 6,800 nm) with another on order for 1965. The domestic carrier, Indian Airlines Corporation, has several Caravelle jets (range about 1,600 nm). Both the Boeings and the Caravelles theoretically could be reconfigured to carry nuclear bombs.

To reach major targets in Communist China with feasible bomb loads, India would need medium or long-range bombers such as the B-47/Badger or the B-52/Bison. With combat radius of over 1,800 nm, medium bombers could enable India to hit a sizable number of important Chinese Communist targets. If India could acquire a fleet of 20 B-52/Bison aircraft, it would be able to strike targets anywhere in Communist China (the Bison has a combat radius of 2,700 - 3,000 nm; that of the B-52 is upwards of 3,500 nm).

At present India has no known surface-to-surface missile development, production and/or procurement program, either in being or planned,

which

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which would provide a medium or long-range delivery capability for nuclear warheads. As part of its upper atmosphere research program, the Indian Ministry of Defense has authorized a program of data collection by means of sounding rockets. The Indians have sought Canadian assistance in training and manufacture of rocket motors, telemetry systems, range instrumentation, payload instrumentation, and similar areas which would be of great value in the development of solid-propellant ballistic missile delivery systems. In view of its present capabilities, however, it is estimated that India would require a decade or more to develop missiles capable of reaching deep inside China. If India could purchase IRBM's or ICBM's, it probably could acquire a missile capability at somewhat less cost than that listed above for a bomber capability, but the willingness of the major countries to sell such weapons to India is at least doubtful for the foreseeable future. Thus the potential for an Indian delivery system up to the end of the decade is almost certainly limited to aircraft, although it is possible that missile research and development could be initiated during this period.

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SECRET - LIMIT DISTRIBUTIONTHE INDIAN NUCLEAR PROBLEM:
ALTERNATIVE COURSES OF ACTION

The Working Group on the Indian nuclear problem examined a range of alternative courses of action before deciding to recommend the approach set forth in its report to the Committee on Nuclear Weapons. These alternatives were evaluated in light of the potential consequences of an Indian nuclear weapons program and the effectiveness and consequences of each of the courses of action on our relations with India and with other states. The principal considerations, as the Working Group sees them, are summarized below:

1. Potential consequences of an Indian nuclear weapons programa. On the positive side:

(1) Within the region, the possible adverse political and psychological effects of a Chinese Communist nuclear weapons program would tend to be diffused. Communist China would not be the only Asian nation in the nuclear weapons field, and an Asian coloration would be added to the Free World's nuclear capabilities.

(2) India's over-all political and psychological position would be strengthened in relation to Communist China and its possession of nuclear weapons might deter the Chinese from a nuclear attack.

(3) The Shastri Government's internal position would be strengthened.

(4) Some of the stigma now attaching to nuclear weapons would be reduced.

b. On theSECRET
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By Jelip. NARA. Date 5-5-04

b. On the negative side:

(1) Pakistani-Indian relations would sharply deteriorate, and Pakistan would strike out in all directions to compensate.

(2) Within India, the now limited opinion for a more active policy along the Sino-Indian border would be reinforced.

(3) Should India go beyond a token nuclear weapons effort and seek an effective capability through its own efforts, the economic impact could adversely affect development objectives.

(4) The search for an improved delivery system at the lowest cost might lead India into a closer relationship with the Soviet Union unless the U.S. were prepared to make such a system available.

(5) It would become considerably more difficult to hold the line against still further proliferation of nuclear weapons elsewhere.

c. Net evaluation:

(1) On balance, we believe it would best serve the interests of the U.S. if India were to stick to its present policy of refraining from seeking to produce nuclear weapons. For the most part, what we have identified as "positive" elements of the picture could be sought through other, less potentially disruptive means. On the other hand, the "negative" consequences of an Indian nuclear weapons program would present difficulties we would do well to avoid.

(2) We cannot now predict the course that would be followed by a nuclear-armed, perhaps increasingly nationalistic India, but it would be unwise to assume that the emergence of such an India

would necessarily

would necessarily serve our own purposes. Nor can we forecast with exactitude the long-term effects of an Indian nuclear weapons program on other countries. However, it is clear that should other countries conclude that their national interests would be served by the acquisition of nuclear weapons, the Indian example would serve as additional "justification" for such a decision. Beyond this, a reversal of India's stated position against acquiring nuclear weapons could be viewed by some as confirming the inevitability of proliferation and the impossibility of preventing it.

(3) If, however, we see risks to us in India's following the nuclear weapons route, we also see limits to what the U.S. can usefully do. In the case of some of the courses of action considered below, the "cure" could prove worse than the "disease."

2. Alternative courses of action: effectiveness and consequences

a. To assist an Indian nuclear weapons program

(1) The purpose of this course of action, which would go beyond verbal assurances or assurances in the form of a U.S. nuclear presence in the area, would obviously not be to prevent any Indian effort in the nuclear weapons field but to seek to exert maximum control over it. Direct assistance to an Indian nuclear weapons program would, however, mean a basic reversal of U.S. policy on non-proliferation and would require a virtually complete reformulation of our approach to arms control and disarmament.

(2) Even

(2) Even if the U.S. were prepared to face these difficulties and India wished to go nuclear, we do not believe India would be prepared to pay the price in terms of the loss of its nonaligned status, in terms of the reduction of national prestige that would result from accepting our help (in contrast with doing the job alone), or in terms of losing control. The Indians would probably not feel the same way about accepting assistance from us in the delivery vehicle area unless such vehicles were available only under the terms of a military alliance. However, unless an alliance were involved, such a transaction would probably not buy us the degree of control we would like to have over a nuclear weapons program that would remain essentially India's own effort. At a future time, it may be necessary to consider the question of support in the delivery vehicle area, without what India would regard as an entangling alliance, but our purpose then would probably be to strengthen our general relationship with India rather than to find a sure way of controlling India's use of the weapons she had produced.

b. To be prepared to impose economic and other sanctions in an effort to prevent India from going the nuclear weapons route

(1) This course of action would, illustratively, involve making future economic and/or military aid to India contingent on a commitment by the latter to stick to its present policy of not seeking nuclear weapons. Particularly if other powers (especially the USSR) adopted a similar position, such a course might stave off an

off an Indian nuclear weapons program indefinitely. Even without a solid front supporting us, our adoption of such an approach would make an Indian decision to explode a nuclear device a painful one.

(2) But the adoption of such a course of action would also be extremely painful from the standpoint of our subsequent relations with India. If our threat of sanctions kept the Indians from exploding a device, our success in this limited area would come at the cost of a relationship in the economic, military and political fields, built up slowly during the last ten years, which has given us an important role in building India as a bulwark against communist expansion in Asia. In the likely case that the Soviet Union would refuse to join in such a course, our policy would throw India open to much greater Soviet influence. Furthermore, if the Indians elected to go ahead and explode a device, the impact of our sanctions on India's political stability, economic development and military strength would be disastrous and clearly contrary to U.S. interests in Asia.

In any event, adoption of such a course of action would clearly be premature since India's real nuclear intentions are still uncertain.

c. To seek to reinforce India's stated policy of confining its nuclear program to peaceful purposes

(1) The course of action which would, in our view, come closest to meeting the needs of the present situation is set forth in the

body of

body of our report to the Committee on Nuclear Weapons. This approach would go beyond placing sole reliance on the outcome of the present international discourse on non-proliferation. While providing latitude for varying degrees of argumentation and persuasion, the approach would stop short of economic sanctions or deep involvement in an Indian nuclear weapons program.

(2) The recommended approach, if implemented at an early date, should provide an opportunity to influence India's initial decision. We do not maintain that by such a measured approach the U.S. would be able to dissuade India from testing a nuclear device should the Indians consider it vital to their national interest to do so. However, even if we were unsuccessful in this respect, we might be able to construct a basis from which we could exert some influence over subsequent steps in an Indian nuclear weapons program as economic factors exerted greater pressure on India's decision-making process. Having made an effort to influence India not to seek nuclear weapons, we would, perhaps, be in a better position to maintain some influence over Pakistan than if we made no effort at all. And, in a broader sense, we would have acted in a manner consistent with our arms control objectives and with the understanding that other countries (nuclear and non-nuclear alike) now have of those objectives.

d. To do

d. To do nothing on a bilateral basis to influence Indian policy on nuclear matters

(1) Under this course of action, we would continue or, if possible, intensify present efforts to deal internationally with the problem of the proliferation of nuclear weapons. We would rely on the pressure of world opinion and such specific arrangements as may become possible (such as a comprehensive nuclear test ban and/or non-proliferation agreement) to deter an Indian decision to acquire nuclear weapons. We would not take the matter up directly with India except in the context of such broader approaches. We would, of course, maintain our existing safeguards on our assistance for peaceful purposes.

(2) If we could be relatively certain that India would, in fact, decide not to go the nuclear weapons route, the foregoing approach would offer the least costly way of dealing with the Indian case. No strain would be imposed on our relations with India. The Indian decision would be of its own making, and India could expect less by way of compensating action (such as assurances). But we are by no means certain what decision India will make. Accordingly, although this course of action is low in cost, it would entail a relatively high risk of failure and would lay no groundwork for our subsequent relations with India should India go nuclear.

This document consists of 3 pages. No. 2 of 4 copies. Series A.

New Delhi, India,
September 16, 1964.

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*August 22
7-26-64/37*

*Jawahar
Khan*

Dear Mac:

I believe we are faced with an important question of tactics in regard to the handling of questions involving nuclear power here in India.

It has been our view that while the development of Chinese nuclear weapons is an ominous development it can with skilled handling be made to serve our political purposes here in India.

With this in mind I have discussed with Shastri, TTK, Chavan and Desai in the last several months, the possibility that the Chinese may be able to develop not only a crude nuclear bomb but also intermediate range missiles with nuclear war-heads. In developing this possibility I referred vaguely to information about a testing installation in West China which has come to us from and other sources.

I have pointed out that when and if these weapons are fully developed, India will find herself faced with the choice of three courses of action.

(1) India could take a position similar to that which we took regarding Cuba, i.e. an ultimatum to the Chinese to remove such installations from Tibet or to see them blown up by the Indian Air-force. This involves obvious risks in brinkmanship.

Mr. McGeorge Bundy,
Special Assistant to the President,
The White House,
Washington, D.C.

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SEP 22 1964

Authority FRUS 64-68, vol. 25, #71
By jc NARA, Date 5-5-04

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(2) India could proceed to develop her own nuclear deterrent capacity. This, I suggested, would not only run contrary to India's clear commitment in the United Nations and elsewhere, but it would also be a losing game both technologically and financially. While the Chinese could reach the major northern Indian cities with relatively few shortrange missiles, the Indians would require many more weapons of greater range and precision to reach comparable targets in China. Clearly it would make no sense for a country facing India's vast economic problems and financial difficulties to embark on a program of this nature.

(3) India could reach a quiet understanding with the United States under which we would undertake to provide India with the same type of nuclear umbrella that has enabled Japan, the Scandinavian countries and other nations to maintain an effective defense at a reasonable cost.

I believe that these three or four discussions have done much to make some Indian leaders think in broader terms about questions of nuclear defense. If carried somewhat further I believe they might also provide an arresting influence on India's plans to build up a major supersonic airforce which clearly has no relevance to India's air defense via-a-vis the potential threat from China.

Against this background I recently sent a message to John McCone suggesting that his briefing team which met here last weekend with the GOI be authorized to discuss Chinese nuclear installations and potentialities and the ultimate need for further information on their development. John took a rather dim view of this on the ground that if India becomes too aware of this possibility she may move into the development of nuclear weapons herself.

This impresses me as miscalculation. The more opportunity we have to talk to the Indians about this situation the more likely we are to persuade them that the nuclear deterrent that could

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provide a real threat to Chinese cities was beyond their capacity and that the ultimate solution may be some kind of understanding with us.

The question I may add goes beyond this particular point.

If we fail to come clean the Indians will eventually discover through their own sources (and very possibly from the Russians) precisely what the Chinese have been doing. At that point we will appear in their eyes either to have been inept in our own intelligence work or to have withheld vital information from them.

I will be grateful if you will think about this complex problem, discuss it with John and also whoever you may feel should be involved and then give me your considered views.

Warmest regards,

Sincerely,

Chester Bowles

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DEPARTMENT OF STATE
THE DIRECTOR OF INTELLIGENCE AND RESEARCH

~~BUNDY-SMITH~~
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Research Memorandum
INR-16, May 14, 1964

~~ROBBESTAL~~
~~LEESUP~~
~~JOHNSON~~
~~KEENE~~
~~KLEIN~~
~~KOMER~~
~~MOODY~~
~~REEDY~~
~~SAUNDERS~~
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To : The Secretary
Through : S/S
From : INR - Thomas L. Hughes
Subject : Indian Nuclear Weapons Development

W. J. ...

With the recent Indian announcement of the start-up of their plutonium separation plant at Trombay, attention again is focused on Indian capabilities to manufacture nuclear weapons and, equally, on their intentions. This subject was discussed in INR's Intelligence Note of 24 February 1964. The present memorandum, designed to supplement the earlier IN, grows out of a recent review of the evidence currently available to us.

ABSTRACT

There is an intelligence report that the core of the Canadian-Indian Reactor (CIR) at Trombay is being changed every six months. This six month cycle is unusually short for a research reactor of the CIR type. While training or some other technical reason may explain this short cycle, it is appropriate for production of weapons-grade plutonium.

There are no technical requirements in the Indian nuclear energy program that would demand a plutonium separation plant. They will not have a power reactor using plutonium for fuel for some years. Small quantities of plutonium for research can be obtained from a variety of sources at modest cost. Processing power reactor fuel rods for recovery and re-use of uranium is also not a current Indian problem since their first power reactor at Tarapur will use a US safeguarded uranium core that will probably be reprocessed in the US.

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By JCL/WJ NARA. Date 5-6-04

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The Indians are now in a position to begin nuclear weapons development if they choose to do so. We have no evidence, however, of a weapons research and development program and would expect to see some if the program existed. It may be that in the series of decisions involved in such a weapons program, the Indians have deliberately taken the first -- to have available, on demand, unsafeguarded weapons grade plutonium, or at the least, the capacity to produce it. The next decision, to begin weapons R & D could conceivably be taken at any time. While this would involve a major political decision, the political environment in India for undertaking nuclear weapons development appears to be more favorable now than it was a year ago.

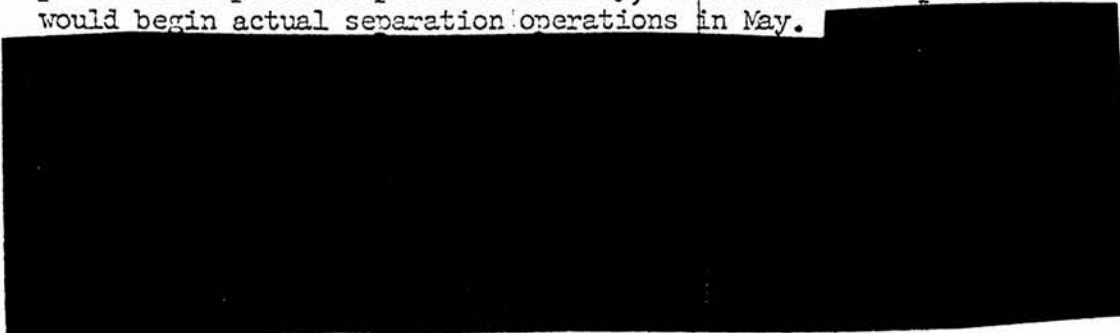
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Discussion

Early this year the Indian director of project Phoenix, the plutonium separation plant at Trombay, stated that the plant would begin actual separation operations in May.



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The separation plant itself is, in terms of the Indian nuclear energy program, an uneconomic investment. There are no clear-cut technical reasons, flowing out of India's currently planned nuclear power program, that would make a chemical separation plant essential. The Indians have no known requirements for plutonium in the quantities that the plant can produce, either as fuel for use in power reactors or for scientific research. Nor is there any reason to believe that they may be interested in using the fission products that would come out of the separation plant for radiological warfare purposes. Small quantities of plutonium for research purposes are readily available from a variety of sources at very modest cost; plutonium-burning reactors that would make desirable a domestic source of plutonium are well into the future, for India certainly not before the end of the decade.

While reprocessing of power reactor fuel rods for subsequent re-use of the uranium is standard practice, this is not a problem the Indians will have to face for some years. The US-Indian Tarapur power reactor, for example, will use a US supplied core of enriched uranium; its reprocessing therefore will undoubtedly be handled by the US, not India. Few countries have found it economic to build separation plants for this purpose, preferring to have the work done by the US, UK, France or the Soviet Union under bilateral agreements. In fact, India is the only non-weapons power with such a facility, if one exempts the multilateral European separation plant, Eurochemie, in Belgium and possibly also the Chinese Communists.

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The motivation for India's constructing a separations plant may have been largely nationalistic in origin. Certainly it is in keeping with Indian dislike and suspicion of foreign controls and safeguards. In addition, it provides a prestige item at fairly small cost -- roughly \$7.5 million. However, if India intended to develop nuclear weapons, then the construction of a plutonium separation plant would be a necessary capital investment.

It must be emphasized that we have no direct evidence that the Indians currently have a weapons program. India's Draft Defense Plan includes around \$300 million equivalent for research and development over a five-year period, but no weapons laboratory has been identified and we have seen no Indian scientists doing the kind of research in instrumentation, electronics and nucleonics that would be necessary for weapons development. We would expect to see some evidence of such work through publication by the Indian scientists engaged in it. One might also anticipate Indian scientists' interest in weapons-related subjects expressed by them to western colleagues at international scientific gatherings or, for that matter, greater attendance by Indians at certain of these gatherings. No such indications have yet become apparent.

On balance, therefore, it seems unlikely that the Indians have yet decided to begin weapons development. At the same time, everything the Indians have done so far would be compatible with a weapons program if at some future date it appeared desirable to start one. This is probably no accident. One might fairly say that the first deliberate decision in the series leading to a nuclear weapon has already been taken; to have available, on demand, unsafeguarded weapons-grade plutonium or, at the least, the capacity to produce it. The next, to begin weapons R & D, could conceivably be taken at any time.

Nehru and other top leaders of the Government of India continue to state publicly that India will not attempt to develop atomic weapons. These protestations have come with less frequency and with a decreasing ring of conviction since India's defeat at the hands of the Chinese in the fall of 1962. Although India welcomed last year's nuclear test ban treaty, it did not de-emphasize or retrench its nuclear energy program.

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Moreover, the Indians have manifested a continuing determination to achieve as quickly as possible the capability to produce their own military hardware, including such advanced weapons as tanks and supersonic planes. In sum, the political environment for undertaking nuclear weapons development in India appears to be more favorable now than it was a year ago.

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Intelligence Note

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To : The Secretary
 Through : S/S
 From : INR - George C. Denney Jr. *A.C.D.L.*
 Subject : Possible Indian Nuclear Weapons Development

India

New information has recently come to hand on the Indian reactor and plutonium separation facilities which suggests that within four to six months India will be able and may intend to produce weapons-grade plutonium free of any safeguards. While we have no other evidence that they are starting a nuclear weapons program, they are now in a position to put together a crude device within one to three years of the start up of their plutonium facility, scheduled for May of this year.

While the psychological and political barriers to a weapons program remain strong in India, the Chinese threat makes somewhat less easy any confident assumptions on this score. We think it unlikely that the Indians would test a weapon barring further changes in its internal political or international position -- for example a Chinese communist nuclear test or good evidence of Chicom intent to test. On the other hand, there might be some attractiveness to the Indians in a vigorous weapons research program stopping short of an actual test. Mounting a test, if it seemed politic to do so, could be quickly arranged if a device were at hand, and if preparation

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 By jc NARA, Date 5-4-04

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of a test site had gone forward during the weapon development period. It should be noted that the high capital cost of the fissionable materials component of a nuclear weapon has now been met.

Discussion. India has established a fairly advanced nuclear energy program which has been publicly described as being confined to nuclear research, the exploitation of basic nuclear raw materials, and the development of nuclear power. In addition to two small research reactors, India has a 40 MW(thermal) research reactor -- the so-called Canada India Reactor (CIR) -- which is capable of producing sufficient quantities of plutonium for one or two weapons a year. This reactor, which went critical in mid-1960, is no longer under safeguards, since Canadian fuel has been replaced with domestic uranium and U.S-supplied heavy water was sold outright without controls. The Director of the Indian plutonium separation facility has stated that the CIR fuel load is changed approximately every six months. This is an exceptionally short period for normal research reactor operation. At the design power level of 40 MW(thermal), which has only been reached in the last few months of operation, this recharging cycle would result in plutonium of weapons grade, rather than the usual research reactor products.

The plutonium separation plant at Trombay is scheduled to start test operations this month, and will begin separation of its first active load from the CIR reactor in mid-May. Its capacity is such

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that an entire CIR fuel loading could be processed in about one month.

India has more than adequate fuel supplies to operate the CIR for the production of weapon-grade plutonium. In addition, the domestic production of uranium is being increased and the uranium metal plant and fuel element fabrication facility are being expanded.

The first nuclear power station, Tarapur, being constructed with U. S. assistance, will not contribute to an Indian nuclear weapon capability. Its large plutonium production will be entirely under US safeguards. Two more power reactors are presently planned. The extent to which they will add to Indian weapons potential will depend entirely on safeguard arrangements.

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H. J. Bhabha

THE IMPLICATIONS OF A WIDER DISPERSAL
OF MILITARY POWER FOR WORLD SECURITY
AND THE PROBLEM OF SAFEGUARDS

1. The purpose of this paper is to stimulate discussion by presenting a simple minded consideration of what are very complicated problems. The implications for world security of a wider dispersal of military power will be discussed on the basis of certain simple assumptions. It is of some importance to know to what extent these assumptions are generally correct and to what extent they are over-simplifications which lead to erroneous conclusions.

2. As is well known, nuclear weapons coupled with an adequate delivery system can enable a State to acquire the capacity to destroy more or less totally the cities, industry, and all important targets in another State. It is then largely irrelevant whether the State so attacked has greater destructive power at its command. With the help of nuclear weapons, therefore, a State can acquire what we may call a position of absolute deterrence even against another having a many times greater destructive power under its control. While conventional weapons may in certain situations enable a State to deter a stronger aggressor, this is always on the basis of making an aggression so costly as not to be worthwhile. Conventional weapons can at best enable a country to acquire a position of relative deterrence against a stronger neighbour.

3. Conventional military strength depends in the first instance on the industrial strength of a country or group, and on its population. This statement requires some modification to allow for the capacity of different political systems to mobilize their populations, but it is doubtful whether this factor can change the order of magnitude of the result.

4. Thus, a country with a huge population, such as China, must always present a threat to its smaller neighbours, a threat they can only meet either by collective security or by recourse to nuclear weapons to redress the imbalance in size. Collective security implies an adequate dispersal of conventional military power sufficient to remove the military preponderance of any single country or group. In this sense a wider dispersal of conventional military power may be thought to lead to greater security, but we know all too well from the experience of the pre-atomic age that wars and aggression are not thereby eliminated. If, therefore, any State is to be asked to renounce a possible dependence

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NARA, Date 03-17-2014

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on nuclear weapons to redress the balance of power against a larger and more powerful State not having nuclear weapons, such as China, its security must be guaranteed by both the major nuclear powers. We shall come back to this point again later.

5. We take up now a consideration of the effect of a wider dispersal of atomic weapons. It is again convenient to divide this discussion into what may happen in short periods of time, say within the next ten years, and secondly what may happen in longer periods.

6. Nuclear power stations with an electrical output of 200, 250 and 300 megawatts per reactor are under construction and much larger sizes are being planned. These correspond to thermal outputs of from 700 to over 1000 megawatts per reactor. A 300 megawatt electrical power station operating at 80% load factor would yield about 180 kgs. of plutonium per annum, which is enough for the production of some 20 atomic bombs a year. This compares favourably with the production which Britain must have had well after she became accepted as a nuclear power. Thus, it seems quite within the capacity of a number of countries to produce nuclear weapons in this measure within the next 5 or 10 years. Moreover, the expenditure involved in doing so would be small compared with the military budgets of many small industrialized countries.

7. The question we have to consider is what effect such a spread of nuclear weapons would have during the next decade. This question cannot be answered without considering the means of delivery. The effectiveness of the delivery system depends on the strength of the country against whom it is proposed to deploy a nuclear weapon, and its defensive capabilities. It would not, for example, be difficult to deliver an atomic weapon against a country not possessing a modern air-force and ground-to-air missiles. On the other hand, the delivery of a nuclear weapon by such a country against either of the two major powers would seem to be virtually ruled out.

8. Even assuming that one of the industrially developed countries of Western Europe could build an arsenal of nuclear weapons and the means to deliver them, it is quite clear that the size of this arsenal would in fact be very much smaller than that possessed at present by either of the two major powers. The effects of geography would moreover weigh heavily against such a small European country, for it would present a much easier and more concentrated target. That such a country would venture a first strike, whatever the provocation, seems highly improbable; and it seems equally unlikely that it would be able to retaliate on receiving

a first strike from one of the two major powers. It seems, therefore, probably correct to conclude that no third country is likely to acquire within the next ten years or so a nuclear force and the means of delivery sufficient to give it a position of absolute or even relative deterrence against either of the two major nuclear powers.

9. As has been said earlier, the question of delivery against another country becomes easier, the less industrially developed that country and the less modern its air defence. If two countries, one possessing nuclear weapons and the other without them were to be permitted to fight out a war by themselves without any intervention by third parties, the possession of nuclear weapons might perhaps be decisive. One has to consider, however, whether such a situation is ever likely to arise, and whether either or both of the major nuclear powers could look on passively on a war between two countries in which nuclear weapons are used by either, or their use threatened. If the country using nuclear weapons were aligned with one of the two major nuclear powers and the nuclear weapons were used with the knowledge or approval of that major power, the use of a nuclear weapon would have much the same effect as if it had been used by the major power concerned. The spread of nuclear weapons does not in this case present us with a new problem. If, on the other hand, nuclear weapons were used by a country without the knowledge, or against the wish of both the major nuclear powers, it seems clear that it would be in the interests of both nuclear powers to stop the spread of their use. It is not unlikely that in such an event the two major powers would combine to take action against the country which had threatened to use or used nuclear weapons and to stop their further use.

10. An allied question which one should consider is whether a third country possessing nuclear weapons could in a certain situation use them with the object of bringing in on its side the full nuclear capability of one of the two major powers, or whether an atomic bomb from some unidentified source exploded on a military target or city of one of the two major powers could catalyse a nuclear war. The answer to this question appears to be in the negative; for a major nuclear power could conclude from a fairly straightforward argument that such action would not be in the interest of the other major power, since the gains, if any, would be relatively small and the risk of devastation to itself very great. We seem, therefore, led to the conclusion that the chances of a third country catalysing a nuclear war between the two major powers by a deliberate use of its nuclear weapons is remote.

11. To summarize, we appear to be led to the conclusions that the spread of nuclear weapons during the next ten years or so will not place any country possessing them in the position of having a deterrent force against either of the two major powers, that the use of such weapons by a third country would not catalyse a nuclear war between the two major powers, and finally that the use of nuclear weapons against any other country would probably lead to a joint action by the two major powers to stop its further use.

12. The position would, however, be entirely different, if countries were free several decades from now, as at present, to develop nuclear weapons on their own. At least a few countries would then be in a position of having a deterrent nuclear force against any other. The situation would be a very complicated one, and it seems not unlikely that it would be much less stable than at present. It would appear, therefore, to be in the interests of everyone to see that nuclear weapons are abolished within a period of a decade or so before a third country has the time to develop into a major nuclear power.

13. Let us now examine the systems for preventing the spread of nuclear weapons during the next few years. The only official system which exists at present is that adopted in principle by the International Atomic Energy Agency in its Charter and put into practice by it to the extent that it can. The basic aim of the system is to ensure that no assistance given by the Agency for developing the peaceful uses of atomic energy can be used to further a military purpose. Since everything in this world can be used both for good or ill, the objective is in principle impossible of attainment. For example, any knowledge of operating a reactor for peaceful purposes can be employed later for operating a reactor for military purposes. These difficulties immediately pose a practical problem as to the extent to which the Agency's safeguards system should be carried in order to achieve its objective. It is clear that restraints on the liberty of persons trained in the operation, designing and buildings of reactors or chemical plants is not likely to be accepted. Indeed, all spread of knowledge of nuclear technology carries with it the potential of its use for military purposes. In practice, therefore, the Agency's safeguard system has perforce to be more modest in its aims.

14. Another weakness of the system is that it can be applied only to a country which seeks help from the Agency, or from any Member State of the Agency which follows the same policy. The nation seeking help for peaceful atomic development is hardly likely to be able to undertake military developments on its own, and the more any State has to depend

on external assistance for pushing forward its programmes for the peaceful uses of nuclear energy, the less it is likely to be able to use nuclear energy for military purposes. The system, therefore, operates most effectively on those who are least capable and not at all upon those able to progress by themselves. The contribution of such a system to promoting world security is, therefore, very doubtful.

15. On the other hand, it is easy to see that in certain circumstances aid given by the Agency with its full safeguards system in operation could help in accelerating a military programme. Let us assume that the country receiving aid receives from the Agency heavy water or fissile material for a reactor for peaceful purposes. If the country concerned already has heavy water or fissile material, the loan of the Agency's heavy water or fissile material to that extent liberates the country's own materials for use in military programmes. The effect of the operation of the Agency's safeguards system is always such as to widen the gap between the developed and underdeveloped countries, and it can be argued that such a result is not in the interest of the world as a whole and does not really promote world security.

16. The most that can be said for the Agency's safeguards system is that it has a delaying effect on the spread of nuclear weapons, but it achieves this, as pointed out, at the expense of widening the gap between the less and more developed countries.

17. It is now clear that atomic energy will play an increasing role in electric power generation in the world, and it is already competitive in many high cost fuel areas, including many areas in the industrially under-developed countries. Neither uranium mines nor plants for the fabrication of fuel elements nor reactors are in themselves a military danger. They do not promote any military purpose unless they are coupled with plants for the extraction of plutonium or gaseous diffusion plants and facilities for the fabrication of fissile material into weapons. The last mentioned facilities are purely of a military nature. On the other hand, chemical plants for the extraction of plutonium and the gaseous extraction plants for the separation of uranium-235 may both be required for the peaceful uses of atomic energy. It is these plants which are, therefore, to be safeguarded to ensure that the materials produced in them are not used for military purposes. It is clear that if all plants for the extraction of plutonium and all gaseous diffusion plants were under international safeguards, the dangers of the military use of atomic energy would be largely eliminated. The key to the

Safeguards problem is, therefore, the safeguarding of such plants and not the imposition of safeguards on mines, fuel fabrication facilities and atomic power stations.

18. Safeguards on chemical separation and gaseous diffusion plants must also be conceived in a practical way. It seems unlikely that they can be safeguarded in such a way that not even small amounts of fissile materials can be smuggled away, enough to make, let us say, an atomic weapon or two over the period of a year or so. Our earliest discussion appears to show that such a small production, even if it were to take place clandestinely, does not really endanger world security. It must be remembered that the position today is quite different from what it was when the first two atomic bombs were dropped at the end of World War II. At that time, no other nuclear weapons were in existence. Today the explosive power in nuclear weapons is in several hundreds of thousands of megatons. If and when disarmament is achieved, and in order to meet any threat which may arise from the small remaining possibility of a clandestine diversion of small amounts of fissile material into the fabrication of weapons, it may be necessary to keep a certain minimum nuclear force in existence under international or bilateral control.

19. It appears possible to devise a system dependent only on the control for inspection of all chemical separation plants and isotopic separation plants for uranium-235, which will prevent any group or country from making weapons clandestinely in sufficiently large amounts to make their rational use an advantage to their user. It may never be possible to prevent countries from making clandestinely a very small number of nuclear weapons, so small that their use would only be a catastrophe for the country using them. When we arrive at such a system, the world will have reached a stage corresponding to the state of affairs in a well organized society in which the rule of law prevails. The system is not such as to prevent a madman, for example, from murdering another citizen however important. It nevertheless makes such incidents rare enough to allow most people to live in a world of reasonable security and free from fear. In a world where there is a widespread use of atomic energy, and in which atomic weapons have been known, it may never be possible to achieve more than this. It may never be possible to completely prevent the irrational use of an atomic weapon against a town with all the horrors that this may entail, but one could certainly assure that such an event becomes extremely unlikely, and that the chance of a widespread atomic catastrophe with the destruction of a large number of cities and disaster on a world scale is completely eliminated.

20. In short, to quote a sentence from my Presidential Address to the 1955 Geneva Conference on the Peaceful Uses of Atomic Energy: "A widespread atomic power industry in the world will necessitate an international society (that is a society of states) in which the major states have agreed to maintain peace." The U.S.A. and U.S.S.R., if they agreed, could jointly maintain peace and stop a proliferation of nuclear weapons during the next ten or fifteen years, reaching in that period their own nuclear disarmament, except for an agreed residual force. If this is not achieved in this period, the situation may well go outside their control and the world become a much more unstable and dangerous place.

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SURVEY OF INDIAN NUCLEAR ENERGY PROGRAM

The Indian nuclear energy program is carried out by the Atomic Energy Commission (AEC) established in 1958 under the Department of Atomic Energy (DAE), an autonomous body responsible to the Prime Minister. Dr. Homi J. Bhabha is both the Chairman of the AEC and the Secretary of the DAE, and has complete control over the Indian nuclear energy program.

The primary effort of the AEC to date has been the establishment of an Atomic Energy Establishment (AEE) at Trombay, near Bombay. The AEE consists of various research laboratories for physics, chemistry, metallurgy, and biology; a nuclear science training school; a plant for the production of uranium metal and thorium; and a fuel element fabrication facility. The principal research equipment of the AEE are:

- (1) the 1 MW swimming pool reactor (APSARA), which has been in operation since August 1956;
- (2) the 40 MW Canada-India Reactor (CIR), an NRX-type research reactor which went critical on 10 July 1960; and
- (3) the zero-energy critical assembly (ZERLINA), which went into operation on 14 January 1961.

The development of the Indian nuclear energy program has been limited by the shortage of trained personnel, the stringent financial support, and the lack of a supporting industrial base. The AEC has

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taken steps to alleviate these limitations by establishing training programs and sending scientists and technicians to other countries for training; by asking for foreign credit assistance; and by purchasing foreign equipment.

The development of the nuclear energy program has been completely dependent upon assistance received from other countries. To date, India has received French assistance in the development of the monazite and beryl deposits, fuel for APSARA from the UK, research quantities of heavy water from Norway, Canadian fuel for and aid in the construction of the CIR, and heavy water for the CIR and Zerlina from the US. India has also considered collaboration in the field of nuclear energy with other countries. With Denmark, Egypt, Poland, and Yugoslavia, this collaboration is limited to the exchange of information and the possibility of providing training. Negotiations on an agreement with the USSR for cooperation in the field of nuclear energy were started in February 1960. On 2 February 1961, Dr. Bhabha stated that an agreement with the Soviet Union was expected to be signed in the next few months. The collaboration would cover the construction and operation of nuclear power stations based on natural uranium as well as breeder stations and the mining and production of uranium. India has also discussed assistance in its power program with the UK, US, France, and West Germany.

India considers the prospect of nuclear power as a major factor in the future development of the country, and Dr. Bhabha has presented

a general long-range nuclear power program that envisages three stages. The first stage is the construction of natural-uranium-fueled reactors for the dual purpose of producing electric power and plutonium. The plutonium produced would then be used in the second stage as fuel in plutonium-thorium converter reactors which would produce uranium-233 as well as power. The third stage would then use the uranium-233 with thorium in breeder reactors. No time-schedule for this program has been announced.

The first stage of the Indian nuclear power program is still unsettled and is completely dependent on foreign assistance, particularly credit. The third Five Year Plan (1961-66) authorizes the construction of a nuclear power plant near Ahmedbad to be put into operation by mid-1965. On 10 October 1960, the AEC requested world-wide bids for this plant, to be located at Tarapore, near Ahmedabad, which will consist of two Calder-Hall-type reactors having a total installed electric power capacity of 300 MW (electric). While the specifications call for natural-uranium fuel, bids for the construction of other types of reactors will be accepted at the bidder's own cost and risk. The extent of credit assistance and "safeguards" requirements will probably be the determining factors in the selection of the bids for this project. The US and UK will require safeguards for the peaceful uses of the installation. Although India has previously concluded agreements which contained safeguard provisions, India is now firmly opposed to them and has insisted that the nuclear power station must be constructed without safeguards.

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While the bids for the Tarapore project were originally expected to be opened on 31 May 1961, the deadline for submitting bids was extended to 31 August 1961. Seven bids were received from the US (3), UK (2), France (1), and Canada (1) and they will be studied for at least several months before any decision is made. Since contractual negotiations usually take a considerable period of time, it is unlikely that the power station will be in operation by the expected time of mid-1965. Consideration has been given to the construction of several other nuclear power stations, including a US type using enriched uranium. In January 1961, the Planning Commission of the Five Year Plan provisionally approved the inclusion of a 150 MW natural-uranium-fueled nuclear power station for the Delhi-Punjab area as a possible alternative to a 150 MW conventional thermal station now included in the third Five Year Plan. This approval is subject to the condition that the cost of the nuclear power plant not be substantially in excess of that of the conventional station.

The greatest asset to its program is India's wealth in raw materials essential to a nuclear energy effort. India possesses probably the largest reserve of monazite, the principal source of thorium, in the world, and also has large reserves of uranium, beryllium, and zirconium ores. While India has initiated a program for the exploitation of these reserves, the nuclear energy program is dependent upon other countries for the supply of most of the necessary materials.

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Two companies have been established to supply some of the necessary raw materials. Indian Rare Earths Ltd. was set up in 1951 with the assistance of Societe de Produits Chimiques des Terres Rares (France), and the Always Plant for treating monazite sand for the extraction of rare earth compounds and crude thorium hydroxide came into operation in mid-1952. The crude thorium cake is shipped to Trombay where the company operates the AEC's plant for the production of thorium nitrate and uranium concentrate. The other company, Travancore Minerals, Ltd., was established in 1956 and started its operations in May 1957. The primary product of the company is ilmenite, but rutile, zircon, and monazite are also produced. The U.S. and U.K. are the principal purchasers of the ilmenite produced.

An extensive exploration program has been carried out in India to find economically exploitable deposits of uranium. A number of ore bodies have been surveyed and exploratory mining and development work has been started in several areas. An ore-dressing pilot plant for the production of U_3O_8 was built at Ghatsila, Bihar, and began operation in 1958. This plant is capable of treating 100 to 150 tons of the Indian Copper Corporation's tailings per day and is also equipped to handle other ores. Thus far, although changes in the process have been made, the treatment of the copper tailings has not been satisfactory from an economic point of view.

A small plant for the production of thorium and by-product uranium concentrate went into operation at the Trombay site in August 1955, and

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a plant for the production of uranium metal began operation in January 1959. This plant produced one 42-kilogram ingot of uranium metal per month in January and February 1959, but by early September 1959, 106 ingots had been produced. The plant was reported to be capable of producing from 35 to 100 tons of uranium metal annually, depending upon whether it is operated on a standard work week or on an overtime basis. The 1959-60 Annual Report of the AEC states that the plant was being changed to produce 85-kilogram ingots. It has been reported that India purchased uranium compounds from Belgium and France in order to make more metal.

The fuel element fabrication facilities are adequate to produce the fuel rods for the CIR, and half of the rods used in the first loading of the CIR are Indian. The AEC produced the fuel for ZERLINA as well as for the CIR, and Dr. Bhabha has stated that the AEC plans to produce the fuel for the two reactors of the Tarapore nuclear power station. The APSARA reactor is fueled with about 6 kilograms of enriched uranium provided by the U.K. under the terms of the Anglo-Indian agreement signed in December 1955.

The AEC has had a continuing interest in the possibility of using beryllium in its nuclear energy program. In mid-1951, an agreement was concluded between France and India for studying the use of beryllium in nuclear energy. The agreement consisted of two stages of cooperation-- the second stage depending upon completion of the first. The first stage involved France assistance in the development of India's beryl deposits,

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and metallurgical research and the production of beryllium metal to be done in France using Indian raw material and financed by India. The second stage consisted of French assistance in building a beryllium-moderated reactor in India if experiments conducted in the first stage were successful. While India is still doing some research on beryllium metallurgy, there is no information on the French experiments or the second stage of cooperation.

India is one of the world's principal producers of beryl ore, and in 1954 a U.S. company and Pechiney (France) were being considered by the AEC for the construction of a plant to produce beryllium oxide. References to a beryllium oxide plant were made in various Annual Reports, even to the extent that it would have a capacity of 15 tons of beryllium per year. The 1958-59 Annual Report stated that the project had been deferred due to the shortage of foreign exchange, and the 1959-60 Annual Report made no mention of the project.

Consideration was also being given to the possibility of developing a process for the production of nuclear pure graphite from petroleum coke and coal tar pitch during the period of the 1957-58 Annual Report, but both the 1958-59 and 1959-60 Annual Reports state that the question of setting up a plant to produce graphite for the reactor program was being considered.

It is known that small quantities of heavy water were purchased from Norway for use in connection with a 4 Mev (deuteron) cyclotron at the Institute of Nuclear Physics, Calcutta. In addition, Norsk-Hydro

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(Norway) had received an order for 6,000 kg of heavy water from India prior to late 1954. This order was given a low priority by the Norwegians and delivery was not expected until about mid-1959. There is no information whether this order was ever shipped or not. The U.S. sold and shipped 21 tons of heavy water to India for use in the CIR, and has leased an additional 15 tons to be used in ZERLINA.

The AEC has initiated a project for the production of 14 tons of heavy water annually in connection with a fertilizer plant being built at Mangal. The heavy water plant, which is being built by Gesellschaft für Lindes Eismaschinen AG, Munich, was originally expected to be in operation in 1960, but is not expected to be completed until late 1961.

The AEC has established a laboratory-scale plutonium separation facility at Trombay, and small quantities of plutonium have been produced. Preliminary construction has been started for a plutonium separation plant with an expected capacity to handle 35-100 tons of irradiated fuel per year. While planned completion date is 1963, it is unlikely that the plant will be in operation until 1964-65. While APSARA and ZERLINA are capable of producing only small, research quantities of plutonium, the CIR could produce a significant amount of plutonium if it is operated for such production. In addition, should the nuclear power reactors be provided by a country which does not require safeguards, a considerable amount of weapon-grade plutonium could be produced.

There is no information that India has taken steps toward the planning, design, or construction of facilities to produce significant

quantities of uranium-235, and there is no evidence that any actual work has been done on the production of uranium-233.

The Indian Government, and particularly Prime Minister Nehru, have continually denounced the production and use of nuclear weapons and have advanced numerous proposals for "banning the bomb". Several statements have been made on India's capability to produce nuclear weapons, but have reiterated that they had no intention of doing so. On 31 January 1958, press reports quoted Prime Minister Nehru as stating that India would have the ability to manufacture atomic bombs in two to four years, but he added that India would not make them. Dr. Bhabha made headlines on 16 December 1959 by reportedly telling Parliament's informal Consultative Committee that India had the capability of manufacturing atomic weapons. Bhabha was reported to have emphasized that, "we can now manufacture A-bombs and atomic weapons if we mean to." However, he quoted from an earlier statement of the Prime Minister's that India would use atomic energy only for peaceful and constructive purposes. However, on 2 February 1960, in reply to a question from the press as to how long it would take for India to make nuclear weapons, if she so wished, Dr. Bhabha replied, "About two years, I suppose."