

**GOVERNMENT OF INDIA
ATOMIC ENERGY
LOK SABHA**

STARRED QUESTION NO:701
ANSWERED ON:15.05.2002
AGREEMENT WITH US RESEARCH FACILITY
UMMAREDDY VENKATESWARLU

Will the Minister of ATOMIC ENERGY be pleased to state:

- (a) Whether the Government have concluded a long term research agreement with a US research facility called Brookhaven Laboratories;
- (b) if so the details thereof;
- (c) whether the agreement lays down special emphasis on developing all round safety at our nuclear plants;
- (d) if so, the details thereof;
- (e) whether as per the agreement any exchange of scientists between the research institutions of the two countries will be undertaken;
- (f) if so, the details thereof; and
- (g) the benefits to accrue to the country as a result of the agreement?

Answer

THE MINISTER OF STATE IN THE MINISTRY OF SMALL SCALE INDUSTRIES, MINISTER OF STATE IN THE MINIS PERSONNEL, PUBLIC GRIEVANCES AND PENSIONS, MINISTER OF STATE IN THE MINISTRY OF PLANNING AND M OF STATE IN THE DEPARTMENTS OF ATOMIC ENERGY AND SPACE(SHRIMATI VASUNDHARA RAJE)

(a) Yes, Sir.

(b) These agreements are essentially for research on Fundamental Science. Brookhaven National Laboratory in USA has set up a major basic research facility called Relativistic Heavy Ion Collider (RHIC). This is primarily meant for fundamental research to study what happens when two heavy nuclei (for example, two gold nuclei) collide with each other at extremely high energies (in case of gold, each nucleus has about 40 TeV [Tera electron Volt] energy) and to find out if a new phase of nuclear matter, called "quark-gluon plasma" (QGP), gets created and to look for signatures of QGP. Bhabha Atomic Research Centre (BARC) has been associated with this programme since 1994 under an Inter-laboratory Agreement with the Brookhaven National Laboratory (BNL). Under another Memorandum of Understanding, an Indian team coordinated by Variable Energy Cyclotron Centre (VECC), Kolkata will, in collaboration with the Solenoidal Tracker (STAR) team, carry out experiments at Brookhaven National Laboratory (BNL).

(c) No, Sir.

(d) Not applicable.

(e) Yes, Sir.

(f) The mutual exchange of scientific visits takes place as and when felt useful and necessary.

(g) The participation in these International collaboration programmes enables the Indian scientists to use the frontline accelerator facilities and advanced detector systems set up at the Brookhaven National Laboratory.

INDEX

S.NO. SUBJECT Page No.

1. Part - I Note for Supplementaries - 1
Main Points

2. Part-II Possible Supplementary Questions 1-3

with answers

3. Part-III Background Information 3-4
4. Part-IV Similar Questions raised by Prof. Ummareddy Venkateswarlu (TDP) in the Current Session 5
5. Part-V Background Technical Details on 6

the Relativistic Heavy Ion Collider (RHIC)

DEPARTMENT OF ATOMIC ENERGY

LOK SABHA STARRED QUESTION NO. 702 FOR ANSWER ON 15.05.2002 REGARDING AGREEMENT WITH US RESEARCH FACILITY BY PROF. UMMAREDDY VENKATESWARLU.

PART - I

THE MAIN POINTS BRINGING OUT THE THRUST OF THE QUESTION AND POSSIBLE REASONS WHY THE QUESTION BEEN ASKED

The thrust of the question seems to be about our collaboration with US research facilities, especially Brookhaven National Laboratory linking with all round safety of our nuclear power plants. It possibly tries to elicit if we have any collaboration with United States in the field of nuclear energy and nuclear safety in particular.

PART-II

POSSIBLE SUPPLEMENTARY QUESTIONS WITH ANSWERS

1. Q: Which are the Indian Institutions participating in these agreements?

A: An Inter-laboratory Collaborative Agreement was signed in May 1994 between Bhabha Atomic Research Centre (BARC) and Brookhaven National Laboratory (BNL) for the PHENIX (Pioneering Heavy Ion Nuclear Interaction Experiment) experiment. Also a Memorandum of Understanding has been signed by Variable Energy Cyclotron Centre (VECC), Kolkata on behalf of an Indian team to carry out experiments in collaboration with the Solenoidal Tracker (STAR) team at Brookhaven National Laboratory (BNL). The Indian team under the MOU includes Punjab University at Chandigarh, Rajasthan University at Jaipur, Jammu University at Jammu Institute of Physics (IOP) at Bhubaneswar and Indian Institute of Technology (IIT) at Mumbai. This fundamental research has significant implication on our understanding of the state of the universe immediately after the Big Bang.

2. Q: How long this agreement is going to be valid?

A: The collaborative agreement will be valid for as long as the experiments will be conducted.

3. Q: Will this agreement impinge on the security of our nation and any sensitive information will be passed on to any foreign country?

A: No. This agreement is in the area of research in fundamental science, which is mutually beneficial. Therefore, the security aspects are not involved. The scientific information exchanged under this agreement is confined to that available in public domain.

4. Q: Do we have similar agreements with other countries?

A: Yes. We have similar collaborative agreement with European Centre for Nuclear Research (CERN).

5. Q: Is US funding the visit of our scientists and research activities in India?

A: Under the agreement, the sending institution will meet the international travel cost and the receiving institution will provide accommodation and local expenses for the visiting scientists. The BNL provides compensation for each task so as to cover the

expenditure incurred by the Indian institution on the task. The amount is fixed for each task and based on the specifics of that task, as mutually agreed upon.

6. Q: Was there any impact on the agreement after the nuclear tests at Pokhran?

A: As the BNL is a Department of Energy (DOE) laboratory, the collaboration was partly affected because some DAE Institutions, including BARC, were on the Entities List of United States and visas for scientists were cleared only on case by case basis. However, the scientists from both sides are eager to move forward with the collaborative fundamental research.

7. Q: Could you elaborate on the areas of research under these agreements?

A: The collaboration under these agreements involves fundamental research in Science and Physical Science in particular. Specifically the experiments will explore whether nuclear matter undergoes a transition to a quark-gluon plasma phase at least for a brief period of time. Such a phase, physicists believe, existed within a few micro seconds of the big bang at the dawn of the universe. The information generated as a result of these experiments will be at the disposal of our scientists as a spin off from the collaboration.

8. Q: Which way India is contributing to these experiments?

A: India has supplied some parts for the Muon Tracking Detector which has been installed for the PHENIX experiment. Similarly for the STAR experiment, the Photon Multiplicity Detector will be provided by the Indian scientists. Our scientists are also developing software for analyzing the results of these experiments.

PART – III

BACKGROUND INFORMATION

There has not been any collaboration between India and United States in the field of nuclear energy. However, there has been dialogue between the two countries in the area of nuclear safety, which was discontinued after May 1998 Pokhran tests. During the visit to United States of the Prime Minister of India last year, the proposal to re-initiate the erstwhile dialogue on nuclear safety was discussed and it was further deliberated by the Chairman, Atomic Energy Commission during his recent visit to United States in February 2002.

The Inter-laboratory collaborative agreement of these kind are specifically for the research in the area of fundamental science and have no relation with nuclear energy.

BRIEF NOTE ON STRIKE IN HEAVY WATER PLANT, MANUGURU

- An incident of manhandling of Medical Officer in HWP, Manuguru(M) Hospital took place consequent on the death of a Group 'D' employee.
- Disciplinary proceedings were initiated against three employees involved in the incident. On conclusion of the disciplinary proceedings, the Disciplinary Authority i.e. General Manager, HWP(M) imposed the penalty of removal from service on Shri S.N. Reddy, Tradesman 'C' and General Secretary, HWP, Manuguru Employees' Association, and Shri K. Punnam, Helper 'B'. Shri David Raju, Tradesman 'C' has been imposed with the penalty of reduction of pay by three stages for a period of two years with cumulative effect.
- Consequent on serving the penalty order on Shri S.N. Reddy on the afternoon of 11.02.2002, Employees' Association and HWP (M) Scientific Assistants and Supervisory Staff Association went on lightening strike and served strike notice on 11.02.2002 under Industrial Dispute Act 1947 to go on indefinite strike commencing from 'C' shift on the same day.
- A number of circulars/appeals were issued by the General Manager, HWP (M)/Chief Executive, Heavy Water Board pointing out illegality of the strike; HWP being a public utility service unit and appealing to the employees to resume their normal duties immediately.
- The Representatives of the Associations had a meeting with the CE, HWB and other officers of HWB in Mumbai on 04.03.2002 and agreed to call off the strike and resume duties with immediate effect and requested that no further action may be taken against the members and their Associations. The Management assured that no action would be taken against the members of the Association except that the "principle of no work – no pay" would be applied against those who went on strike and the period of their absence from duty would be treated as "dies-non" without break in service.
- As far as the two employees, who were imposed with the penalty of "removal from service", the Appellate Authority on consideration of the Appeals submitted reduced their penalty of removal from service to Compulsory retirement vide order dated 20.02.2002. The

third employee had not made any appeal.

- The strike has since been called off from 04.03.2002 'B' shift.

'A' Shift: 0600 – 1400 hrs '

B' Shift: 1400 – 2200 hrs

'C' Shift: 2200–0600 hrs.

Proposal for Collaboration Between AERB and USNRC

- In 1998 the Atomic Energy Regulatory Board of (AERB) India and the United States Nuclear Regulatory Commission (USNRC) ha agreed to exchange information and cooperation in the area of nuclear safety.

- This programme covered the following three projects:

- o Emergency Operation Procedures

- o Fire Safety

- o Design Issues:

- a) Ageing management

- b) Leak before break methodology

- The cooperation through the execution of these projects will be of mutual benefit to the two countries which are both advanced in this field. The cooperation would entail bilateral exchange of information between the two regulatory authorities and would not involve supervisory role for either side in the other's country.

- The exchange was discontinued by the US side in May 1998 subsequent to the Pokhran tests.

- During the visit of Indian PM to US last year, these issues were discussed and further deliberated with the USNRC Chairman during the visit of Chairman, AEC to US in February 2002.