

**Summary Record of Discussion of the Fourteenth Meeting of Scientific Advisory Committee to the Cabinet (SAC-C) held on 1<sup>st</sup> April 2008, at Vigyan Bhawan Annexe, New Delhi.**

The fourteenth meeting of the Scientific Advisory Committee to the Cabinet (SAC-C) was held on 1<sup>st</sup> April 2008 under the Chairmanship of **Dr. R. Chidambaram**, Principal Scientific Adviser to the Government of India (PSA to GOI) and Chairman, SAC-C.

The agenda of the meeting and list of participants are at **Annexure-I** and **Annexure-II** respectively.

**M14A1      *Opening remarks by the Principal Scientific Adviser to the Government of India & Chairman, SAC-C.***

At the outset, the Chairman welcomed and introduced the members of the reconstituted Scientific Advisory Committee to the Cabinet (SAC-C). He also thanked the outgoing members for their invaluable contribution to the committee on a continuing basis. Thereafter, he invited members to deliberate on the agenda item “Enhancing quality of Science and Engineering Education including R&D through Private-Public Partnership”. He mentioned that the haemorrhage takes place after 10+2 when talented young people do not opt for science education and after B.Tech degree when engineering graduates do not opt for careers in applied research and technology development. To prevent this, a number of steps have been taken for implementation during the Eleventh Plan. In particular, he mentioned the INSPIRE programme (Innovation in Science Pursuit for Inspired Research) of DST. He also referred to the report brought out by O/o PSA to GOI namely *Attracting Young People to Careers in Science (Report No.: PSA/2005/3)* and the recommendations of the Steering Committee on Science and Technology for the formulation of Eleventh Five Year Plan (2007-2012) constituted by the Planning Commission under the Chairmanship of PSA to GOI. He also briefed

about a letter written about 3 years ago by Dr. J.J. Irani and himself to the industry and the academic institutes, wherein a proposal was made to the industry for sending some freshly recruited B.Tech or M.Tech graduates to do research with Professors whom the industry respects. During this period, they will get company salaries but will work on research and technology development. Over the next 4-5 years, the employee could evolve into someone useful for the company's products or process development. This has already been implemented by some companies.

***M14A2      Enhancing quality of Science and Engineering Education including R&D through Private-Public Partnership.***

During the discussion, members referred to the faculty shortage and difficulties in faculty recruitment. It was felt that some of the best brains do not want to take teaching as a profession because it just is not paying enough. Some institutes like IITs are fulfilling their faculty requirements by hiring persons returning from abroad. It was pointed out that while it will be very difficult to change the basic salary structures in the govt. system specifically to attract young talent, but certain steps can be taken to encourage them by giving facilities such as housing, providing quality education for their children, medical support etc. While housing on campus is a very attractive compensation, it would help the faculty if interest free loans for purchase of flats can be given. One novel scheme can be for enabling the institute to acquire a number of flats for faculty to stay in (near the campus) during their service time and later on permitting them to buy the flat at nominal cost. It was also advocated to allow more liberal consultancy to the faculty members. Those faculties, who are not able to engage in consultancy, a scheme akin to that of non-practising allowance may be evolved. In this context, it was informed that FICCI has been professing 'Buy-in' and 'Buy-out' concepts for consultancy for attracting and retaining young talent. In brief, this implies that the companies can select suitable talented young scientist from appropriate research/technical institutes or alternatively they can also sponsor professionals working in their companies for development of their

specialised skills under 'Buy-in and Buy-out' consultancy arrangements, respectively. Other incentives suggested were a liberal book allowance of about Rs. 50,000/- per year (as opposed to the current Rs. 4,000/-) and providing funds to them to attend at least one international conference during each of their of two years service block against existing 5-years service period.

Regarding competitive grants for projects, members suggested that provisions for consumables, contingencies, travel etc should be made more liberal and sanctioned as a lumpsum for the duration of the project and not on a yearly (lapsable) basis. Often it takes several months each year to process the sanction and release of funds. Then only a few months remain for spending the money. Consequently, funds often lapse or are spent inappropriately. It was, therefore, suggested that a provision for automatic carry over of unspent balance from year to year be introduced with some checks.

As regards encouraging young talented students, it was noted that Govt. of India provides the educational loans to the students for higher education upto Rs. 2 lakhs without security. There is a need to enhance this limit to 5.0 lakhs.

A need was pointed out to encourage linking of Indian Universities to leading R&D institutions in their proximity. Here, scientists from national laboratories will share their facilities with university researchers and will also teach part-time both under-graduate and post- graduates so that they become aware of the good science being done there. A model, here, may be the recently set-up DAE-Mumbai University Center of Excellence for research in Nuclear Physics.

It was pointed out by members that much attention is not paid for optimising the utilisation of postdoctoral fellows in India. In the West and in China, the postdoctoral fellows play the main role in spearheading research activity in new frontiers keeping under their wing the pre doctoral students. To rectify the situation, following measures were suggested:

- a) Treat postdoc students as faculty with the pay scale and other benefits as for Central University Senior Lecturers.
- b) Excellent postdocs should be recognized by some suitable awards.
- c) In appointments to faculty positions, no bias should be shown between the postdoctoral research done in India and abroad.
- d) To ameliorate the difficulties of couple married young scientists, special efforts be made to locate them at the same place during their postdoc work and later on absorption in regular positions.

The scientific community in India, as indeed the society itself, is highly hierarchical. Persons in positions such as Directors of major institutions, Director Generals, Government Secretaries, Presidents of Academics etc, receive disproportionately higher public recognition and visibility than other distinguished scientists. This sends a wrong message to young people. The perks and other support facilities provided to distinguished scientists are also much lower than those accorded to persons in position. Conscious efforts need to be made to change the situation.

Considerable disparities exist in service conditions among substantially comparable institutions. The same is true about the availability of assured research funds. These anomalies need to be carefully examined. Perhaps, the anomaly is most strikingly evident in the age of retirement. In some institutions the age of retirement, in practice, is 70 years whereas in some other institute it is 60 years. In fact, the very concept of retirement needs to be revisited. To utilize the talent and experience of active retired persons, more schemes like INSA's Honorary Scientist programme for its fellows need to be introduced.

There is also a need of a system of evaluation of performance of faculty by the students to constantly improve upon the quality of teaching.

Members pointed out that the infrastructure at educational institutions in the North-Eastern Region is inadequate. A need for liberal funding mechanism for S&T education in the region was suggested. The Govt. may also consider establishing one National Institute of Science (NIS) and one Indian Institute of Science Education and Research (IISER) in the region. Private-Public partnership may be promoted to create scientific excellence in areas such as Bio-resource Development and Hydroelectric Generation (these being the strengths of the region for industrialisation and economic development of the region).

It was informed that Tata Group has initiated the 'comeback programs' for young women professionals. The Government may think of starting a similar program for women scientists who are compelled to drop research activity due to maternity or rearing the family. Under the comeback program, suitable incentives including enhanced salary based on their past experience and due seniority is given by TATA group to the women scientists who rejoin after compelled dropping research activity in their mid career. Under this scheme, a warm up period of atleast a year is also given to make them feel at home in their comeback to a demanding position to make the come backs easier. Creche facility has also been initiated under this programme.

Ministry of Human Resource Development has made a provision of Rs. 2000 crores for various educational schemes during the Eleventh Plan.

Secretary, DST stated that the issues raised by the members are important and requested the members to send a note defining the mechanism for remedial action to be taken by the concerned government departments.

Remaining agenda items could not be taken up due to paucity of time and will be taken up subsequently. The meeting ended with a vote of thanks to the chair.

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**Fourteenth Meeting of the Scientific Advisory Committee  
to the Cabinet (SAC-C)**

**Date** : 1<sup>st</sup> April 2008  
**Time** : 10.30 A.M.  
**Venue** : Committee Room 'A', Vigyan Bhawan  
Annexe, New Delhi A

**AGENDA**

- M14A1** Opening remarks by the Principal Scientific Adviser to the Government of India & Chairman, SAC-C.
- M14A2** Enhancing quality of Science and Engineering Education including R&D through Private-Public Partnership.
- M14A3** Revitalizing R&D on Natural Disasters and their Management including Relevance to Climate Change Threat.
- M14A4** Implementation of the proposal of the Working Group on Cross Disciplinary Technology Areas as finalized in the Eleventh Plan Project Proposal.
- M14A5** Exploring possibilities for semiconductor industries in India.
- M14A6** Any other item with the permission of the Chair.
- M14A7** Concluding remarks by the Chair

**Annexure-II**

**List of participants of the Fourteenth Meeting of Scientific Advisory Committee to Cabinet (SAC-C) held on 1<sup>st</sup> October 2008, at Vigyan Bhawan, New Delhi**

<b>Sr. No.</b>	<b>Name, Designation and Organization</b>	<b>Status</b>
1.	Dr. R. Chidambaram, Principal Scientific Adviser to the Government of India, Vigyan Bhawan Annexe, Maulana Azad Road, New Delhi – 110011	Chairman
2.	Dr. M.S. Ananth, Director, Indian Institute of Technology Madras, I.I.T. Post Office, Chennai – 600036.	Member
3.	Dr. Padmanabhan Balaram, Director, Indian Institute of Science, Bangalore – 560 012.	Member
4.	Dr. Mustansir Barma, Director, Tata Institute of Fundamental Research (TIFR), Homi Bhabha Road, Navy Nagar, Colaba, Mumbai – 400005.	Member
5.	Sh. Subodh Bhargava, Industrialist, A-15/1, DLF City, Phase I, Gurgaon – 122001	Member
6.	Dr. S. Banerjee, Director, Bhabha Atomic Research Centre (BARC), Trombay, Mumbai – 400085	Member
7.	Dr. Rohini M. Godbole, Centre for High Energy Physics, Indian Institute of Science, Bangalore – 560 012	Member
8.	Dr. N.G. Hegde, President, Baif Development Research Foundation, Dr. Manibhai Desai Nagar, Warje, Pune – 411058.	Member
9.	Dr. Jamshed J. Irani, Director, Tata Sons Limited Bombay House, 24 Homi Modi Street Fort, Mumbai-400001.	Member
10.	Prof. S.K. Joshi, Vikram Sarabhai Professor & Honorary Emeritus Scientist # 252, National Physical Laboratory, Dr. K.S. Krishnan Marg, New Delhi – 110 012.	Member
11.	Dr. Debashis Mukherjee, Director, Indian Association for Cultivation of Sciences, 2A & 2B, Raja S.C. Mullick Road, Kolkata - 700032.	Member
12.	Dr. Deepak Pental, Vice-chancellor, University of Delhi, Delhi – 110007.	Member
13.	Dr. Baldev Raj, Distinguished Scientist & Director, Indira Gandhi Centre for Atomic Research, Kalpakkam – 603102, Tamil Nadu.	Member
14.	Prof. Vijayalakshmi Ravindranath, Director, National Brain Research Centre, NH - 8, Nainwal Mode, Manesar, Gurgaon – 122050 (Haryana).	Member
15.	Dr. Panjab Singh, Vice-Chancellor, Banaras Hindu University, Varanasi – 221005.	Member
16.	Dr. V. Sumantran, Scientific Consultant, Office of the Principal Scientific Adviser to the Government of India, Door 7/1, Valli Ammai Aachi Road, Kotturpuram, Chennai – 600 085.	Member
17.	Dr. V. K. Swaraswat, Distinguished Scientist & Chief Controller R&D (MSS), Defence Research and Development Organization, Ministry of Defence, Room No. 503, 5th Floor, DRDO Bhawan, New Delhi – 110011.	Member
18.	Dr. S. Sivaram, Director, National Chemical Laboratory (NCL), Dr. Homi Bhabha Road, Pune – 411008.	Member
19.	Prof. Pramod Tandon, Vice Chancellor, Northeastern Hill University, Shillong – 793022.	Member
20.	Dr. Juzer Vasi, Deputy Director, Indian Institute of Technology, Bombay, Powai, Mumbai – 400076	Member
21.	Dr. Samir K. Brahmachari, Secretary, DSIR & DG, CSIR, Anusandhan Bhawan, Rafi Marg, New Delhi – 110 001.	Member

22	Dr. P.S. Goel, Secretary, Department of Earth Sciences, Ministry of Earth Sciences, Block No. 12, CGO Complex, Lodhi Road, New Delhi – 110003	Member
23	Dr. T. Ramasami, Secretary, Department of Science & Technology, Technology Bhawan, New Mehrauli Road, New Delhi – 110 016.	Member
24	Prof. M. Vijyan, President, Indian National Science Academy, 2, Bahadur Shah Zafar Marg, New Delhi –110 002.	Member
25	Dr. P.S. Goel, President, Indian National Academy of Engineering, Ministry of Earth Sciences, Mahasagar Bhawan, block-12, CGO complex, Lodhi Road, New Delhi 110003	Member
26	Dr. Ashok Mishra, President, National Academy of Sciences (Allahabad), National Academy of Sciences, India, 5, Lajpatrai Road, New Katra, Allahabad - 211 002.	Member
27	Dr. S.K. Sikka, Scientific Secretary, Office of the Principal Scientific Adviser to Government of India, Vigyan Bhavan Annexe, Maulana Azad Road, New Delhi – 110011	Member-Secretary
28	Ms. Meena Gupta, Secretary, Ministry of Environment and Forests, Paryavaran Bhavan, CGO Complex, Lodhi Road, New Delhi – 110003.	Invitee
29	Sh. R.P. Agrawal, Secretary, Ministry of Human Resource Development (Higher Education), Shastri Bhawan, New Delhi – 110001.	Invitee
30	Sh. K.V.S.S. Prasad Rao, Chairman, National Technical Research Organization, J-16, Hauz Khas, Aurobindo Marg, New Delhi – 110016.	Invitee
31	Sh. D.S. Rawat, Secretary General, Associated Chambers of Commerce & Industry (ASSOCHAM), 1, Community Centre, Zamrudpur, Kailash Colony, New Delhi – 110 048.	Invitee
32.	Lt. Gen. S.S. Mehta, Director General, Confederation of Indian Industry (CII), The Mantosh Sondhi Centre, 23, Institutional Area, Lodhi Road, New Delhi – 110003.	Invitee
33	Sh. Amit Mitra, Secretary General, Federation of Indian Chambers of Commerce & Industry (FICCI), Federation House, Tansen Marg, New Delhi – 110001.	Invitee
34	Sh. S. Chatterjee, Adviser, Office of the Principal Scientific Adviser to Government of India, Vigyan Bhavan Annexe, Maulana Azad Road, New Delhi – 110011	Invitee
35	Dr. R.P. Gupta, Scientist, Office of the Principal Scientific Adviser to Government of India, Vigyan Bhavan Annexe, Maulana Azad Road, New Delhi – 110011	Invitee
36	Sh. Neeraj Sinha, Scientist, Office of the Principal Scientific Adviser to Government of India, Vigyan Bhavan Annexe, Maulana Azad Road, New Delhi – 110011	Invitee
37	Dr. Ketaki Bapat, Scientist, Office of the Principal Scientific Adviser to Government of India, Vigyan Bhavan Annexe, Maulana Azad Road, New Delhi – 110011	Invitee