No. 14/29/2010-Metal IV  
Government of India  
Ministry of Mines

New Delhi, the 1st July, 2011

To

Sub: Minutes of the 41st meeting of the Standing Scientific Advisory Group [SSAG] meeting held on 07.06.2011 under the Chairmanship of Secretary (Mines).

I am directed to forwarding herewith minutes of the SSAG meeting held on 07.06.2011 under the Chairmanship of Secretary (Mines) in his Chamber at Room No. 320, “A” Wing, Shastri Bhawan, New Delhi for information and further necessary action.

(R.K. Malhotra)  
Director  
Telefax 23383958

To

All members as per list attached.

Copy for information also to:-

(i) PPS to Secy (M)
(ii) Sr.PPS to Addl. Secy (M)
(iii) PS to JS(M)
(iv) PS to JS&FA
(v) Dir.(T)

(R.K. Malhotra)  
Director
MINUTES OF THE 41ST STANDING SCIENTIFIC ADVISORY GROUP (SSAG) MEETING HELD ON 7TH JUNE, 2011 IN ALUMINIUM ROOM, MINISTRY OF MINES SHASTRI BHAVAN, NEW DELHI

The 41st meeting of the Standing Scientific Advisory Group (SSAG) held on 7th June, 2011 under the Chairmanship of Shri S. Vijay Kumar, Secretary, Ministry of Mines. The list of participants is given at Annexure - I

2. The Chairman welcomed the participants to the 41st SSAG meeting and observed that the presentation by the project proponents may be kept brief and to the point as the PERC must have already considered the matter in depth. Shri Sundeep Kumar Nayak, Joint Secretary informed that the participants that 7th PERC which met on 07-03-2011 & 16-03-2011 had recommended 12 new project proposals of various S&T organizations. He further informed that PERC had also considered two ongoing project proposals of Indian Institute of Science Bangalore and one project proposal of NML, Jamshedpur who have sought extension in time. The project proponents were requested to make brief presentation before the Committee so as to enable it to take a view in the matter.

3. Before start of the presentation, AS(M) made an observation that applied research with the idea of eventual industrial utility should be an important criteria for accepting projects. JS&FA observed that our endeavour should be to focus on new research projects having relevance to the mandate of the Ministry preferably those projects where industry has also agreed to make contribution of project cost as it is indicative of projects’ relevance to the industry. Of course, issues of intellectual property in such cases would have to be properly addressed.

4. It was agreed that the following issues also should be kept in view by the Committee while considering various project proposals:-
   (i) List of Capital equipments funded fully or partially from SSAG grants in the past should be made available so as to enable a considered decision on the best use of the equipment.
   (ii) Past performance of the institution in respect of project funded earlier by SSAG to be taken into account before funding the next proposal from the same institution.
   (iii) Quantum of grant subject to availability of funds and total number of projects cleared for funding in this SSAG

5. The minutes of 40th SSAG meeting held on 28th April, 2010 were confirmed after which the agenda for the meeting was taken up.
Agenda Item 1

(1) *Assessment of air pollutant and Aerosol Dispersion in and around coalmines in India through modeling and satellite observations – IIT Delhi.*

Prof. Promila Goyal of Centre for Atmospheric Sciences, IIT, Delhi made presentation for taking up the project proposal at HCL’s Malanjkhand Mines. It was observed by the Secretary (Mines) that the project proposal earlier given by her pertains to coal mines and the presentation was being made for different mines. It was clarified by Prof. Goyal that the project proposal has been revised as per observations of the PERC and revised project proposal had been circulated to the members of the SSAG today. It was observed that the proposal may be considered in the next SSAG meeting.

(2) *Characterization of Indian Lean grade magnesite ore and improvement of its high temperature refractory properties with or without beneficiation – Central Glass & Ceramic Research Institute, Kolkata.*

Based on the presentation made, the Committee found this project useful. Further on the query on commercialization potential and industry that will be interested, it was clarified to the members that M/s Burn Standard will be able to implement the process once successful. It was further submitted by the project proponent that M/s Burn Standard have agreed to fund this project up to 10% of the cost. The committee decided to recommend the project by restricting the grant from the Ministry of Mines to Rs. 35 lakh over a period of 3 years as against projected cost of Rs 82.67 lakhs, as follows:-

<table>
<thead>
<tr>
<th>Year</th>
<th>Capital Cost</th>
<th>Recurring Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
<td>Rs.14.222</td>
<td></td>
</tr>
<tr>
<td>II</td>
<td>Rs.10.000</td>
<td></td>
</tr>
<tr>
<td>II</td>
<td>Rs.9.788</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>Rs. 35.000</td>
<td></td>
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(3) *Geo-exploration for strategic ilmenite and associated mineral deposits through surveys at Kalbadevi Coastal Zone, Maharashtra - Central Institute of Mining and Fuel Research Dhanbad (Revised).*

On the basis of the presentation, the Committee found that the project is more on the lines of survey and prospecting. Ground Penetration Radar (GPR) with GIS data together with surface and sub surface placer sampling together with spatial modeling is the suggested methodology. Given that this work has already been adequately funded by CSIR earlier, and in view of limited funds available with SSAG for this year, this proposal cannot be accepted in this form.
(4) Novel Approach to recover individual valuable heavy minerals from pyroboleferrous beach and dune sand deposits - IMMT, Bhubaneswar
Total Cost: Rs 26.52 lakhs and duration: 3 Years

The project to recover individual valuable heavy minerals from pyroboleferrous beach and dune sand deposits is an extension of the already sanctioned project on beach sands being executed by IMMT and IMMT has 2 other SSAG approved projects – the proposal was therefore not accepted for the present.

(5) Extraction and preparation of value added material from mineral waste: Revised Title based on PERC recommendations: Synthesis of Magnetite from Iron ore tailings and blue dust - IMMT, Bhubaneswar
Total Cost: Rs 33.42 lakhs and duration: 3 years

The project on synthesis of magnetite from tailings and blue dust is specifically for utilization in coal cleaning circuits to be used as heavy media separators. Accordingly, the committee felt that the proposal should be posed to Ministry of Coal.

(6) Mineral Systematics and pre-concentration of PGE values from Low grade chrome ores of Boula Mines, Orissa - IMMT, Bhubaneswar
Total Cost: Rs 93,62,840/- and duration: 3 years

The Committee felt that PGE is of importance as it is the only project of its kind in India. GSI has ascertained the availability of these deposits and it is necessary to do beneficiation studies to obtain prima facie feasibility for further exploration. The proposal was accordingly approved as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Capital cost</th>
<th>Recurring Cost</th>
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<tbody>
<tr>
<td>I</td>
<td>Rs.10,00 lakh</td>
<td>Rs. 39,31,160 lakh</td>
</tr>
<tr>
<td>II</td>
<td></td>
<td>Rs. 33,56,160 lakh</td>
</tr>
<tr>
<td>III</td>
<td></td>
<td>Rs. 20,75,520 lakh</td>
</tr>
<tr>
<td>Total</td>
<td>Rs.10,00 lakh</td>
<td>Rs. 83,62,840 lakh</td>
</tr>
</tbody>
</table>

(7) A pilot Study on Health Status of Mine Workers and Nearby Population around iron ore mines. (revised) - NIMH, Nagpur
Total Cost: Rs 44.96 lakhs and duration: 2 years

The Committee found the project useful as it envisages study of the effect of mining on the health of the workers as well as the local population in the area. It was felt such study would be useful in taking preventive measures and would be good for environmental protection also. The Committee felt that since the project
seeks to study health status of mine workers and local population nearby iron ore mines, the Ministry of Steel may also be taken on board. This interface is important both from project implementation strategy as well as for utilization of results and outcome of the project. It was also observed that any co-funding from mining companies can become detrimental to the veracity of the results which may bring the study itself under cloud. Therefore, it is approved that it may be entirely funded under SSAG, as follows:

<table>
<thead>
<tr>
<th>Year</th>
<th>Capital cost</th>
<th>Recurring Cost</th>
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<tbody>
<tr>
<td>I</td>
<td>Rs.20.00 lakh</td>
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<td>II</td>
<td>Rs.1.5 lakh</td>
<td>Rs.11.73 lakh</td>
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<tr>
<td>Total</td>
<td>Rs.21.50 lakh</td>
<td>Rs. 23.46 lakh</td>
</tr>
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(8) Joint Gravity and Magnetic Survey for delineation of possible chromite deposits around sukinda thrust zone in Orissa - IIT, Kharagpur
Total Cost : Rs 60.5 lakhs and duration : 3 Years

It was observed by SSAG that this proposal requires further review with respect to (i) originality and (ii) utility of the results. It was also felt that it is more in the survey and exploration domain and GSI might already be equipped to undertake such a study. The proposal was not accepted.

(9) Investigation into the applicability of surface miner for Eco-friendly mining of hard minerals and overburden rocks - IIT Kharagpur
Total Cost : Rs 88.80 Lakhs and duration : 3 years

The members observed that IIT Kharagpur has an ongoing study project with NALCO and the results show that 30% blasting and 70% surface mining was required. Secondly, this project is more on the lines of data creation and feasibility study for utilization of surface miner equipments for hard minerals and it would be of use primarily to the seller of the equipments and therefore it is appropriate that those companies who are direct beneficiaries of this project proposal should fund such an exercise.

(10) Production of Alumina from Nepheline syenite, a non bauxite raw material - IMMT, Bhubaneswar
Total Cost: Rs. 82 lakhs and Duration: 3 years

The Committee found that the production of Alumina from Nepheline syenite, a non bauxite source is futuristic and cannot be prioritized for immediate future needs. While it is appreciated that it is important to consider flow sheet development of non bauxitic deposits, given the large bauxite deposits in India,
this alternative has to get a low priority and the proposal was not accepted.

(11) Agglomeration of Iron Ore Dust fines with waste calcia and fly ash dust fines available in Karnataka Region - Dayanand Sagar College of Engg, Bangalore
Total Cost Rs. 11.83 lakhs and duration 2 years

The project involves lab study with students in BE and ME level on ore dressing agglomeration studies. Two table top equipments, namely a high temperature lab furnace and a pellatizer have been requested. Though the members felt that project outlay is very small, since it was not an applied research project for take up by industry, the SSAG did not approve the project.

(12) Development of Multilayered materials for melting, liquid metal handling and casting under high pressure and loads - NFTDC, Hyderabad.
Total Cost: Rs. 87.48 and Duration: 3 years

The presentation made to the SSAG was that this project is innovative and envisages technology development for direct die casting of high temperature metals and alloys based on copper, Ni and SS. This is the state of art development that is under active consideration across the world for cost reduction via innovations in process technology. The project proposal envisages an end to end technology development covering process development, equipment modification and systems engineering and product development. The project also underlines the need for utilization of existing indigenous vertical die casting equipments by their appropriate redesign and modification with multilayered materials which are cost effective. The SSAG accordingly approved the proposal as follows:-

<table>
<thead>
<tr>
<th>Year</th>
<th>Capital cost</th>
<th>Recurring Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>I</td>
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<td>Rs. 5.16 lakh</td>
</tr>
<tr>
<td>II</td>
<td>Rs.20.00 lakh</td>
<td>Rs.5.66 lakh</td>
</tr>
<tr>
<td>III</td>
<td></td>
<td>Rs.5.66 lakh</td>
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<tr>
<td>Total</td>
<td>Rs.71.00 lakh</td>
<td>Rs. 16.48 lakh</td>
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Agenda Item 2 relating to ongoing projects for additional grant and extension of the project

2.1 Microstructural Characterization of Aluminium alloy billets cast in a linear electromagnetic stirrer - IISc Bangalore

It was submitted that one of the equipments that was required to execute the project has been shortlisted for purchase and it is to be commissioned in the near future. In view of the above, the project will require an extension by one year.
requiring extra grant to the extent of cost of manpower head to the tune of Rs. 3.5 lakh. The Committee decided to accept the request in view of the justification given in the proposal.

2.2 Study of Die filling of semi solid billets - IISc Bangalore

The extension of project completion date up to January 2012 sought for obtaining DST portion of grant was accepted and extension given without any additional funding.

2.3 Pilot Scale Smelting and pre feasibility studies on Nickel - NML Jamshedpur

In this case, another 6 months extension of the project was sought from 1st May, 2011 to 31st October, 2011 without additional funds on grounds of non-receipt of DST part of the grant. It was observed by the Committee that it may be ascertained whether DST part of the grant has now been released before they consider grant of extension as requested.
Annexure-I

1. Secretary, Deptt. Of Science and Technology, Technology Bhawan, New Mehrauli Road, New Delhi-110016.
2. Director General, Geological survey of India, 27, Jawaharlal Nehru Road, Kolkata-7000 19.
4. Advisor (Minerals), Planning Commission, Govt. of India, New Delhi.
5. Prof. D.Acharya, Director, IIT, Kharagpur.
6. Dr. T.Kumar, Director, Indian School of Mines University, Barwa Road, Dhanbad-826004.
7. The Director, Defence Metallurgical Research Laboratory, P.O. Kanchan Bagh, Hyderabad.
8. The Director (Material Group), Bhabha Atomic Research Centre, Trombe, Mumbai-450 085.
9. The Chairman & MD, National Aluminium Company Limited, NALCO Bhawan, P-2, Nayapalli, Bhubaneswar-751007.
10. The Director, Regional Research Laboratory, Near Habibganj Naka, Bhopal.
11. The Director, National Institute of Rock Mechanics, Kolar, Karnataka.
12. Dr. Amalendu Sinha, Director, Central Institute of Mining & Fuel Research, Dhanbad, Jharkhand.
14. Dr. K. Balasubrahmanian, Director, Non-Ferrous Material & Technology Development Centre, Kanchan Bagh, Hyderabad.
16. Prof. Pramila Goyal, Professor, Centre for Atmospheric Sciences, Indian Institute of Technology, Hauz Khas, New Delhi-110016.
17. Dr. Arup Ghosh, Scientist ‘F’, Central Glass & Ceramic Research Institute, 196, Raja S.C. Mullick Road, Kolkata-700 032.
18. Dr. V J Loveson, Scientist & Head, Beach Placer Mining Department, Central Institute of Mining & Fuel Research (CSIR), Dhanbad 826001.
19. Dr. C.Eswaraiah, Scientist, Mineral Processing Department, Institute of Minerals and Materials Technology, Council of Scientific & Industrial Research (CSIR), Bhubaneswar, Orissa.
20. Dr. R.Sakthivel, Scientist, Gr. IV(4), Institute of Minerals and Materials Technology, Bhubaneswar-751013.
22. Dr. Prahalad Kumar Sishodiya, Director, National Institute of Miners’ Health, JNARDDC Campus, Opp. Wadi Police Station, Amravati Road, Wadi, Nagpur-440023.
23. Dr. William Kumar Mohanty, Associate Professor, Department of Geology and Geophysics, Indian Institute of Technology, Kharagpur-721302.
24. Dr. Kaushik Dey, Principal Investigator, Indian Institute of Technology, Kharagpur-721392.
25. Dr. B.K. Mohapatra, Principal Investigator, Institute of Minerals and Materials Technology, Bhubaneswar-751013.
26. Dr. Pranab Das, Principal Investigator, Deptt. Of Chemical Engineering, Dayananda Sagar College of Engineering, Kamaraswamy Layout, Bangalore-78.
27. Dr. Sarika Mishra, NFTDC, Hyderabad.
28. Dr. Pradip Dutta, Professor, Department of Mechanical Engg., Indian Institute of Science, Bangalore-560012.
29. Dr. S.D. Singh, Principal Investigator, National Metallurgical Laboratory, Council of Scientific & Industrial Research, Jamshedpur-831007.
30. Dr. Pinaki Sengupta, Deputy Director, Head, Materials Science Division, North East Institute of Science & Technology (Formerly Regional Research Laboratory), Jorhat-785 006.