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Title: Discussion on the motion to consider Science and Engineering Research Board Bill, 2008 (Bill Passed).

THE MINISTER OF SCIENCE AND TECHNOLOGY AND MINISTER OF EARTH SCIENCES (SHRI KAPIL SIBAL): I beg to move*:

> "That the Bill to provide for the constitution of a Board for promoting basic research in Science and Engineering and to provide financial assistance to persons engaged in such research, academic institutions, research and development laboratories, industrial concerns and other agencies for such research and for matters connected therewith or incidental thereto, be taken into consideration."

MR. DEPUTY-SPEAKER: Motion moved:

> "That the Bill to provide for the constitution of a Board for promoting basic research in Science and Engineering and to provide financial assistance to persons engaged in such research, academic institutions, research and development laboratories, industrial concerns and other agencies for such research and for matters connected therewith or incidental thereto, be taken into consideration."

MR. DEPUTY-SPEAKER: Shri Bachi Singh Rawat.

...(*Interruptions*)

* Moved with the recommendation of the President

श्री बची सिंह रावत 'बचदा' (अल्मोड़ा) : माननीय उपाध्यक्ष महोदय, श्री कपिल सिब्बल द्वारा प्रस्तुत विज्ञान एवं इंजीनियरी अनुसंधान बोर्ड विधेयक, 2008 को मैं स्वागत और समर्थन करता हूं, लेकिन मैं इतना कहना चाहूंगा कि यह विलंब से उठाया गया एक सही कदम है। बहुत समय से इस बात की जरूरत महसूस की जा रही थी कि देश में बेसिक साइंस एवं इंजीनियरिंग की रिसर्च के लिए एक बोर्ड का गठन हो।...(व्यवधान)

उपाध्यक्ष महोदय : किसी को मुगालता न हो, इसलिए मैं बताना चाहूंगा कि आज कोई रिसेस नहीं होगा क्योंकि हमें दो बिल्स पास करने हैं।

श्री बची सिंह रावत 'बचदा' : महोदय, मैं अपनी बात को आगे बढ़ाते हुए कहना चाहूंगा कि पहले विज्ञान-प्रौद्योगिकी मंत्रालय के भीतर साइंस एंड इंजीनियरिंग काउंसिल के तहत ये सारी गतिविधियां होती थी, लेकिन इसका स्कोप बहुत सीमित था और उसके द्वारा बार-बार यह महसूस किया गया कि एक बोर्ड का गठन हो और उसमें बेसिक साइंस को प्रोत्साहन दिया जाए एवं आज का जो अन्तर्राष्ट्रीय परिदृश्य है, उसमें बेसिक साइंस और इंजीनियरिंग में रिसर्च बढ़ाने के लिए न केवल समन्वय का कार्य उसके माध्यम से हो, बल्कि आवश्यक फण्डिंग भी उसके माध्यम से की जा सके एवं इसके द्वारा एक नेटवर्क भी बनाया जा सके। इस दृष्टि से यह विधेयक बहुत संक्षिप्त होते हुए भी, कंक्रीट है। यह विधेयक जिन उद्देश्यों को लेकर लाया गया है, उसमें भी यह स्वीकार किया गया है। इस विधेयक के एसओआर के पैरा 2 में कहा गया है कि जहां भारत को ऐसी उत्कर्षपूर्व स्थिति प्राप्त करने के लिए विज्ञान और इंजीनियरी में बुनियादी अनुसंधान में अपनी शक्ति को बनाए रखने तथा उसमें वृद्धि करने की आवश्यकता है, वहीं विभिन्न कारणों से राष्ट्रों के बीच बुनियादी अनुसंधान में भारत की अपेक्षित स्थिति में गिरावट आई है और यदि देश को विकासशील ज्ञान आधारित अर्थव्यवस्था में पिछले कुछ समय से अपना स्थान और तीक्ष्णता बनाए रखनी है तो उन कारणों पर तत्काल ध्यान दिए जाने की आवश्यकता है।

महोदय, इस बात को स्वीकार करने में कोई हर्ज नहीं है कि वास्तव में जो बेसिक साइंस है, जब तक हम उस दिशा में नहीं बढ़ते हैं, बेसिक रिसर्च में जब तक उसके नतीजे अनुकूल नहीं आते, तब तक हम टेक्नोलॉजी के डेवलेपमेंट का जो लाभ प्राप्त करना चाहिए, वह प्राप्त नहीं कर सकते हैं। टेक्नोलॉजी के विकास के लिए

मंत्रालय के भीतर टेक्नोलॉजी डेवलेपमेंट बोर्ड अलग से काम करता है। उसका भी मुख्य उद्देश्य विभिन्न प्रयोगशालाओं, उद्योगों और शैक्षणिक संस्थाओं के सहयोग से यह काम करना है।[R11] चाहे साइंटिफिक रिसर्च हो या टेक्नोलॉजी का विकास हो, तीन संस्थाएं काम करती हैं। एक हमारे एजुकेशनल इंस्टीट्यूट्स हैं, यूनिवर्सिटीज़ हैं, एनआईटी है, आईआईटी है और अन्य राष्ट्रीय संस्थाएं हैं। इसके अलावा हमारे देश भर में फैली हुई राष्ट्रीय प्रयोगशालाएं हैं। वे विभिन्न विधाओं में कार्य करने वाली हैं। तीसरा जो फैक्टर है, जिससे इस टेक्नोलॉजी का लाभ प्राप्त होना है, वह है हमारे देश की अपनी इंडस्ट्री। इन तीनों का जब तक समावेश नहीं होता, तब तक अपेक्षित परिणाम प्राप्त करने में देश को थोड़ी कठिनाई का सामना करना पड़ता है। एकेडमिक इंस्टीट्यूशंस और नेशनल लैबोरेट्रीज मूल रूप से इनकी अधिकांश फंडिंग सरकार की ओर से होती है। चूंकि इंडस्ट्री अब पब्लिक सेक्टर में कम है, प्राइवेट सेक्टर में अधिक है। इसलिए हमें थोड़ा सा साइंस एंड टेक्नोलॉजी पालिसी, जिसे 1 जनवरी, 2003 को स्वीकार किया गया था, उसमें एक विषय का उल्लेख आया था कि हमें राष्ट्रीय स्तर पर भी साइंस टेक्नोलॉजी के विकास के लिए फंड बनाना चाहिए। उसमें देश के उद्योग का, उद्योगपतियों का योगदान होना चाहिए। मैं इस विधेयक में देख रहा था कि इंडस्ट्री का योगदान नहीं है। इतना जरूर है कि अदर सोर्स से योगदान आएगा। ठीक है कि अभी मंदी का दौर है, लेकिन बहुत लम्बे समय तक यह रहेगा, मैं नहीं मानता। देश के अंदर काफी सुधारात्मक उपाय भी हुए हैं और अंतर्राष्ट्रीय स्तर पर भी सुधार के उपाय हो रहे हैं। यह जो बूम का पीरियड आया था देश की इंडस्ट्री में, क्योंकि पिछले एक दशक में काफी बड़ी ग्रोथ उसके अंदर हुई थी। हम देखते हैं कि उद्योगपतियों का मुनाफा हजारों हजार करोड़ रुपए का हुआ था, टेक्नोलॉजी डवलपमेंट में या बेसिक रिसर्च के क्षेत्र में, जिसका लाभ आखिरकार घरेलू इंडस्ट्री को होने वाला है, उसका योगदान नगण्य है। मैं मंत्री जी का ध्यान आकृष्ट करते हुए कहना चाहता हूं कि इस दिशा में भी इंडस्ट्री को कैसे प्रेरित किया जाए, यह देखना चाहिए। हम देखते हैं कि समय-समय पर जब मंत्रालय की बैठकें होती हैं या सम्मेलन होते हैं, उसमें यह विषय आता है। तब यह विषय आता है कि उन्हें प्रेरित किया जाए और उनका भी अंशदान आना चाहिए।

मैं एक और उल्लेख करना चाहूंगा, वह भी समसामयिक है। देश में 11 और 13 मई, 1998 को हमारे वैज्ञानिकों ने परमाणु और हाइड्रोजन का सफल परीक्षण किया था, तब तत्कालीन प्रधान मंत्री श्री अटल बिहारी वाजपेयी ने 11 मई को राष्ट्रीय प्रौद्योगिकी दिवस के रूप में घोषित किया था। राष्ट्रीय विज्ञान दिवस तो पहले से ही था। प्रति वर्ष हमारे देश में 11 मई को राष्ट्रीय प्रौद्योगिकी दिवस बड़ी गम्भीरता से मनाया जाता है। इसमें मंत्रालय की ओर से काफी वृद्धि हुई है। यह हम लोगों ने शुरू किया था। मुझे संतोष है कि इसे मौजूदा सरकार ने और विशेष रूप से विज्ञान और प्रौद्योगिकी मंत्रालय ने आगे बढ़ाया और इस पर विशेष चिंता की। इससे टेक्नोलॉजी को डवलप करने के लिए राष्ट्रीय स्तर का इनीशिएटिव हमारे वैज्ञानिकों को मिला है। हमारे तत्कालीन प्रधान मंत्री अटल बिहारी वाजपेयी जी ने राष्ट्रीय परिप्रेक्ष्य में जो राष्ट्रीय उद्घोष थे, जय जवान-जय किसान, जिन्हें हमारे तत्कालीन प्रधान मंत्री स्वर्गीय लाल बहादुर शास्त्री जी ने एक राष्ट्रीय संकल्प के रूप में देश के सामने प्रस्तुत किया था, उसमें तीसरा आयाम जोड़ा था- जय विज्ञान। जय विज्ञान का उद्घोष वास्तव में देश को प्रेरणा देने के लिए और विज्ञान को मजबूती का आधार देने के लिए था। इस दृष्टि से जैसे हमारे एग्रीकल्चरल या मिनिस्टरी ऑफ डिफेंस के वित्त पोषण की बात भारत सरकार की ओर से होती है, तो साइंस एंड टेक्नोलॉजी का जो मंत्रालय है, अन्य रिलेटिड मिनिस्ट्रीज हैं, इन्हें भी इम्फेसिज़ देना होगा, अन्यथा हम बेसिक रिसर्च में पिछड़ सकते हैं या टेक्नोलॉजी डवलपमेंट में हमें अन्य देशों से पीछे रहना पड़ सकता है, जिसका खामियाजा हमें आयात करने के रूप में भुगतना पड़ता है और हम टेक्नोलॉजी का आयात करते हैं।[R12]

मैं पुनः एक भेद का जिक्र जरूर करना चाहूंगा कि जो टीडीबी है, टैक्नालॉजी डैवलेपमेंट बोर्ड, इसकी फंडिग का जो मुख्य स्रोत था वह विज्ञान उपकरण के विदेश से आयात पर सेस लगाने का था ताकि आयात हतोत्साहित हो और यहां एक फंड का क्रीएशन हो जाए और उस फंड से देश में तकनीक को विकसित करने के लिए हम फंडिंग कर सकें। चूंकि अब इसमें ऐसा कोई सेस का विषय नहीं है, इसलिए मैं इतना ही कहूंगा कि जो हमारी साइंस एंड टेक्नालॉजी पॉलिसी है उसमें एक संकल्प यह व्यक्त किया गया है कि देश में रिसर्च एंड डैवलेपमेंट पर देश की जीडीपी का 2 प्रतिशत व्यय किया जाए, ऐसा एक संकल्प 1 जनवरी 2003 को प्रस्तुत किया गया था। जब पहले आर एंड डी का जो खर्चा कुल जीडीपी का 0.7 प्रतिशत था वह बढ़कर 1.4 प्रतिशत तक गया था लेकिन इसमें और वृद्धि की आवश्यकता है।

13.13 hrs.

(Shri Giridhar Gamang in the Chair)

माननीय मंत्री जी से यह मांग जरूर रहेगी कि इसमें पूरा एक्सरसाइज करके भारत सरकार विज्ञान एंड प्रौद्योगिकी मंत्रालय को 2 प्रतिशत जीडीपी का निश्चित रूप से फंड प्रदान करे ताकि रिसर्च एंड डैवलेपमेंट की बढ़ोत्तरी हो सके और बढ़ोत्तरी होकर के हमारे देश का अंतर्राष्ट्रीय स्तर पर सबसे आगे का स्थान बने, ऐसी कोशिश हमारी होनी चाहिए।

एक सर्क डिवीजन(एस एंड ईआरसी) की बात आई थी कि सर्क की कई स्कीम हैं और उसमें एक फंड फॉर इंफ्रास्ट्रक्चर साइंस एंड टैक्नालॉजी(फिस्ट) का प्रोग्राम भी काफी लोकप्रिय हुआ था। उसके अलावा विभिन्न संस्थाओं द्वारा जो बेसिक रिसर्च में डिमांड आती थी वह सर्क के द्वारा ही मंजूर होती थी और वह विभाग के द्वारा ही संचालित होती थी। आज बोर्ड की मंशा यह है कि बोर्ड एटॉनोमस बॉडी के रूप में काम करेगा और मेरा सुझाव यह है कि अनेक रिसर्च की डिमांड्स ऐसी आती हैं जोकि कई अन्य मंत्रालयों में भी वही रिसर्च का काम होता है चाहे वह आईसीएमआर में है या आईसीएआर में है। पता चलता है कि डिपार्टमेंट ऑफ बायटेक्नालॉजी में भी वही काम उसी दिशा में चलता है। इसलिए डाटा बेस से यह देखा जाना चाहिए कि एक विषय पर ठीक तरह की फंडिंग हो जाए और एक विषय पर आगे बढ़ने के लिए हम काम कर सकें।

माननीय मंत्री जी जो बिल आज लेकर आये हैं, मैं समझता हूं कि पूरा सदन उसका समर्थन करते हुए अपनी बात कहेगा। मैं एक त्रुटि की ओर माननीय मंत्री जी का ध्यान दिलाना चाहता हूं। यह त्रुटि असल में ट्रांसलेशन करने में हुई है। हिंदी विधेयक में अध्याय दो के पैरा तीन में " बोर्ड का गठन और निगमन " के (च) अनुच्छेद में इसे अध्यक्ष दिखा दिया गया है। वित्त मंत्रालय, व्यय विभाग से संबंधित भारत सरकार का सचिव या उसका नामनिर्देशित पदेन - अध्यक्ष; लेकिन अध्यक्ष असल में साइंस एंड टैक्नालॉजी विभाग के भारत सरकार के सचिव, पदेन अध्यक्ष वह है लेकिन हिंदी अनुवाद में दो-दो अध्यक्ष मुद्रित किये गये हैं। अब यह संशोदन के माध्यम से इसे लाया जा सकता है। इसका संशोधन लाना चाहिए। अंग्रेजी में तो यह करेक्ट है। हिंदी में यह त्रुटि हुई है, इसलिए इसे और जगह भी देखा जाना चाहिए। ऐसा न हो कि इसमें अनेक त्रुटियां रहे और इसके कारण यह प्रभावित हो। माननीय मंत्री जी का स्टॉफ इसे देख लेगा और इसे संशोधित कर देंगे। इस अवसर पर यही निवेदन करते हुए कि बोर्ड का गठन अच्छे उद्देश्य के लिए किया गया है और बोर्ड का काम न केवल फंडिग तक ही रहे बल्कि कार्यक्रमों के समन्वयन करने तक तथा देश के अंदर विषयों को चिन्हित करना होना चाहिए। बहुत वाइड स्कोप इसका है। वास्तव में यह जो ताकत है, आने वाले समय में देश को मिले। नियमों की रचना मंत्रालय के द्वारा होगी तो नियमों में ऐसी व्यवस्था आनी चाहिए कि फंड का कही भी दुरूपयोग करने की स्थिति न रहे।[r13] इसमें फंड कहीं भी दुरुपयोग करने की स्थिति ही न रहे। बिल में प्रावधान किया गया है कि किसी ऑफिंस के लिए कोई व्यक्ति दंडनीय नहीं होगा यदि वह गुड फेथ में है। यह ठीक है लेकिन नियमों में अवश्य ही कड़ाई आनी चाहिए ताकि दुरुपयोग की स्थिति न आए और पर्याप्त फंड मिले।

सभापति जी मैं आपको धन्यवाद देते हुए अपनी बात समाप्त करता हूं।

SHRI S.K. KHARVENTHAN (PALANI): Thank you, Mr. Chairman, Sir. First of all, I would like to congratulate and thank our Senior Advocate and efficient Minister, hon. Kapil Sibal for bringing this Bill for development of science and technology in this country.

Actually our Government, under the able leadership of Madam Sonia ji, our hon. Prime Minister announced on 15th May, 2008 about this proposal for the constitution of the Science and Engineering Research Board. After the announcement, within 197 days, within six months, our hon. Minister was able to present this Bill for constitution of this Board. Once again, I would like to appreciate it.

Clause 3 of the Bill deals with constitution of the Board. This Board is a high-level, empowered body with necessary and financial autonomy chaired by the Secretary, Department of Science and Technology. The proposed Board aims to enhance the level of basic research, and provide for necessary autonomy, flexibility, speeding up the research and delivery of funds for the researchers. When we are discussing about science and technology, the 110 crore population of this country are very grateful and thankful to our first Prime Minister hon. Jawaharlal Nehru *ji* who started the programme of science and technology. For your information, we got freedom in the year 1947. In 1948, he engaged Homi J. Bhabha to start the atomic research. Then, our great leader late Shri Rajiv Gandhi gave very much importance to science and technology. It is because of the hard work of Shri Rajiv Gandhi that the Indian youths are working throughout the world in the field of information technology. In the same manner, whenever the Congress Government has been there at the Centre, this Government only concentrated in the development of science and technology. Development of science and technology only boosts the academia of this country and develops the youths to become number one in the world. This Bill that has been presented is also comparable to the other countries.

For your information, I would like to mention that Indian researchers accounted for only 2.16 per cent of world's publication of research in science and technology and China 2.62 per cent between 1993 and 2004. Between 1993 and 2004, 1.84 lakh research papers were written by Indians contributing to 1.91 per cent of world share taking the country to the 13th position. At this juncture, I would like to mention that research and development must be given more importance and sufficient money should be allocated for that purpose.

Sir, take for example Australia. In Australia there is 125 per cent deduction for eligible R&D expenses; plus 175 per cent deduction for eligible R&D expenditures exceeding a base amount of prior-year spending. Likewise, in China there is 150 per cent deduction for qualified R&D expenditure; in Japan there is a flat 8 to 12 per cent R&D tax credit; and additional 5 per cent of the R&D expenditure. In Korea there are tax holidays up to seven years are provided. In Singapore, there is 100 per cent deduction for expenses incurred on approved R&D project. In the UK, there is 125 per cent deduction for qualifying R&D expenses incurred by large companies. In the US, there is hundred per cent deduction or amortization over a 60-month period. In Canada, there is 20 per cent flat R&D tax credit. In France, there is 50 per cent R&D credit. In Ireland there is 20 per cent R&D tax credit for qualifying expenditure. In our country, our statistics reveal that R&D spending in India Inc. has been on the rise over the last few years. R&D expenditure, which is currently estimated at less than 1 per cent of GDP, is likely to grow to 2 per cent of GDP by 2010. So we are really taking steps for the development of R&D. The present Bill will certainly boost the science and technology amongst the youths of this county. I support and welcome this Bill.

I would only like to mention about clause 17 of the Bill alone where power of Central Government to supersede the Board is given.[r14]

I feel that this clause is not necessary. The constitution of the Board has been mentioned in clause 3 (2) & (3). Clause 3 (3) says: "The Board shall consist of the following persons: â€¦". All these persons mentioned here from (a) to (j) are the Central Government servants. So, there is no necessity to supersede the Board. So, this can be considered.

Sir, I welcome this Bill. I also appreciate and congratulate our senior hon. Minister, Shri Kapil Sibal for bringing this Bill.

SHRI RUPCHAND PAL (HOOGHLY): Sir, I welcome the Science and Engineering Research Board Bill. While supporting the Bill, I would like to mention two or three points.

We are lagging far behind many other countries of similar size. Prof. C.M. Rao, Advisor to the Prime Minister and an eminent scientist commented adversely about our research achievement *vis-Ã -vis* China's achievement. We are really

distressed to note that we are directionless. Now, if this Board can give a direction, then that is a welcome move.

Secondly, most of our research in general and basic research in particular is not country-specific. Sometimes our research guides are more guided by the Western needs and requirements. We do find that the outcome of the researches is serving the multinational companies and Western interests. But there are exceptions. We have glorious track records of ISRO, DRDO, National Physical Laboratory and CSIR. If we look into the number of patents that have been recorded and achieved during this period, when compared to China, the number of patents is too inadequate because the facilities available to innovations are very limited and there is a cumbersome process. Availability of fund, law, and all these things are standing in the way. So, my suggestion is that while this Bill will be looking for funding, administration and all these things, it must have enough autonomy to look into the areas of innovation so that they can be patented as early as possible and can have the competitive edge both globally and within the country.

What is happening is that junior scientists are the victims of the scientific bureaucracy. We have seen that in agriculture the junior scientists have been committing suicide, and we have seen this in ICAR and elsewhere also. They are completely disgusted with the scientific bureaucracy about the freedom required for innovations. Sometimes they require some money. The scientific bureaucracy says: "You have completed this one. Why do you require one year more." Such a bureaucratic approach to innovation is really coming in the way.

Sir, there is a very efficient Minister, and this Board is going to be there now. I still believe that this Board will do the needful in the given situation.

We do find that the R&D expenditure is comparatively too less not only in the General Budget but also in the other key areas, and it should be raised. Research and Development is a key area, and without that we cannot proceed any further in the knowledge economy.

I would like to make two more points. Research should be balanced. In some areas we are progressing very much. For example, in software we have done a lot but in hardware we are lagging behind. But there is a mismatch between software and hardware which is putting us behind many other countries. The Knowledge Commission has already made certain recommendations. The University Grants Commission has come up as to how to encourage the innovative mind from the junior level, from the school level. The National Science Council Museum, the Science Club and all others are encouraging the talents of the budding scientists. [H15]

There should be encouragement at the school level for innovation; there should be encouragement at the college level so that in future life, they can pursue their scientific hobby, which ultimately can turn out to do wonders in innovations.

Therefore, I would submit that this Board should not limit itself to the so-called researches alone. There should be researches in the non-formal sectors also. In the case of traditional knowledge, there have been works of excellent standards but they are being ignored, and ultimately it so happens that at some point of time, some vested interests just catch that knowledge and use them commercially. So, I would submit it again that the Board should not be limited to the formal structure, university structure, research at national laboratory and State laboratory structure or at the college level or at the higher education level only, but it should also try to extend it to the popular science level, where people are trying to encourage young buds, budding scientists at the science club level and at very many other levels.

There are one or two more points, after which I would conclude my speech. India has great potential not only because of the democratic dividend as has been mentioned here but India has also a large pool of knowledgeable people. Many of them, what is known as the brain drain, are going abroad. But in the recent situation of the financial turmoil, meltdown and also the chaos prevailing over there, as also because of the opportunities that are being available in our country, for example in the IT sector, very many excellent professionals are coming back to the country. But I would submit that this should not be limited to the IT sector alone. It should be extended to the pharmaceutical, bio-technology and even to the basic research field.

We know some names who are of excellent standards internationally. Given the right situation, the IITs very recently have been given the opportunity to fill their large number of vacancies by their Directors being requested to approach different parts of the world so that the visiting professors, the research fellows and others can be brought in our research system and in our educational system to strengthen our knowledge base and our pursuit for further knowledge in the pursuit of superiority in the areas of research and development.

I do not wish to take much time because my colleague may be coming and adding two-three points. I leave it there. I support this Bill.

श्री आलोक कुमार मेहता (समस्तीपुर): सभापति महोदय, आपने विज्ञान और इंजीनियरी अनुसंधान बोर्ड विधेयक, 2008 पर मुझे बोलने की अनुमति दी है, उसके लिये मैं आपका आभारी हूं।

इस देश में साईस एंड टैक्नौलौजी ऐसा क्षेत्र है जिसे टॉप प्रायरिटी नहीं दी गई है जिसका खमियाजा हम विगत कुछ वर्षों से भुगत रहे हैं क्योंकि आज टैक्नौलोजी की एडवांस आइटम्स हम विदेशों से आयात कर रहे हैं। इस आयात से हमारे देश को घाटा हो रहा है। अगर वर्षों पहले हम इसे अपना फोकस पाइंट रखते तो मैं समझता हूं कि दुनिया के कई देश भारत के आम आदमी की इनोवेटिव कैपेसिटी से वाकिफ हैं। इसी वजह से अमरीका और जापान जैसे देशों में भारत के वैज्ञानिक देखे जाते हैं। जहांगीर भाभा जैसे उदाहरण हमारे सामने हैं जिनका अटॉमिक एनर्जी के फील्ड में बड़ा योगदान रहा है। अमरीका में इनका कार्य ज्यादा चला। हम यह कहना चाहते हैं कि जो रिसर्च एंड डेवलपमेंट है, साईस एंड टैक्नौलोजी के क्षेत्र में इधर काफी बढ़ोतरी हुई है। हम उसके लिये बधाई देना चाहते हैं कि जो मून मिशन रहा है, उसमें हमारे वैज्ञानिकों ने सफलता पायी है, मैं इसके लिये माननीय मंत्री जी को बहुत बहुत बधाई देना चाहता हूं। उस क्षेत्र में मंत्री जी ने मील का पत्थर लगाने का काम किया है लेकिन रोबोटिक्स जैसे क्षेत्र में जो डेवलेपमेंट है, वे स्पेस रिसर्च कार्यों में ज्यादा उपयोगी हो सकते हैं, उसे ज्यादा बढ़ावा मिलना चाहिये।[s16] लेकिन रोबोटिक्स, ऑटोमेशन जैसे जो रिसर्च के आउटपुट हैं उनको आम जनता का रोजगार खत्म करने के कार्यों में नहीं लगाना चाहिए। इस बात की हमारी अनुशंसा होगी। हम यह कहना चाहते हैं कि जो इंजीनियरिंग एंड टैक्नोलॉजी है, जो बोर्ड बनाया जा रहा है उसका कान्स्टीट्यूशन कुछ इस तरह होना चाहिए जिससे हर क्षेत्र के जानकार लोग उसमें रहें और वे अपनी बातों को रख सकें, इनोवेटिव एनवॉयरमेंट पैदा हो सके ताकि प्रायरिटि लिस्ट तैयार हो सके कि किस क्षेत्र में रिसर्च वर्क ज्यादा जरूरी है। यह देश कृषि प्रधान देश बहुत लंबे समय से कहा जा रहा है, लेकिन कृषि क्षेत्र में पर्याप्त रिसर्च नहीं है। जैविक प्रौद्योगिकी के क्षेत्र में कुछ हद तक रिसर्च हुई भी हैं, उनमें प्राइवेट सेक्टर का कान्ट्रीब्यूशन हैं, लेकिन हमारा जो स्टेक है, उसमें कुछ भी कमी नहीं होनी चाहिए। हमारे बोर्ड में इस बात को प्राथमिकता के तौर पर देखा जाना चाहिए कि खाद्य प्रसंस्करण और कृषि के क्षेत्र में रिसर्च पर इंफोसिस करे। रोड टैक्नोलॉजी जो सौ साल पहले थी आज भी वही है। मैं नहीं समझता कि पूरी दुनिया में इस पर रिसर्च हो रहा है, नये-नये प्रोडक्ट आ रहे हैं और उन्हें मोर एफीसिएंट, चीपर तरह-तरह के एडीशंस दिये जा रहे हैं, लेकिन यहाँ पर जो टैक्नोलॉजी है वह बहुत लंबे समय से चल रही है। ऑप्शन उपलब्ध हैं, लेकिन फिर भी उसे एडॉप्ट नहीं किया जा रहा है, जो रिसर्च करने की जरूरत है वह तो नहीं ही हो रही है इसलिए इस क्षेत्र में भी ध्यान देने की आवश्यकता है। माननीय मंत्री जी से हम यह कहना चाहेंगे कि वैज्ञानिकों को भी प्रोत्साहन के कुछ पैकेज मिलने चाहिए। इसमें कुछ कमी हुई है और इसके कुछ आसार नजर आ रहे हैं क्योंकि ऐसे समाचार आ रहे हैं, और ऐसी सूचना मिली है कि रिसर्च इंस्टीट्यूशंस से साइंटिस्ट दूसरे क्षेत्रों में जॉब खोज रहे हैं। भारत में जिन जगहों पर जहाँ कहीं पर भी रिसर्च इंस्टीट्यूट हैं, उसका आउटपुट बहुत अच्छा है, लेकिन उसका विकेन्द्रीकरण, उसका जो उत्पाद है, जो रिसर्च आपने किया, वो अभी तक लेबोरेटरी के अंदर बंद है। आज कृषि के क्षेत्र में बहुत रिसर्च होने के बावजूद पुरानी पद्धति से गाँव, देहात में कृषि हो रही है। खाद्य प्रसंस्करण का भी बहुत अच्छा-खासा आयाम उसे नहीं मिला है, जिस क्षेत्र में बहुत ज्यादा प्रोटेंसी है। इन्हीं शब्दों के साथ हम माननीय मंत्री जी को इस बोर्ड बिल को लाने के लिए बहुत-बहुत धन्यवाद देना चाहते हैं और हम यह आशा करते हैं कि जो सुझाव हमने दिये हैं उन पर अमल किया जाएगा।

इन्हीं शब्दों के साथ मैं इस बिल का समर्थन करता हूँ।

SHRI BRAJA KISHORE TRIPATHY (PURI): Mr. Chairman, Sir, I rise to support this Science and Engineering Research Board Bill that has been tabled by the hon. Minister.

It intends to provide for the constitution of a Board for promoting basic research in Science and Engineering and to provide financial assistance to persons engaged in such research, academic institutions, research and development laboratories, industrial concerns and other agencies for such research and for matters connected therewith or incidental thereto.

After a long period, the Government is intending to introduce such a Board to enhance our scientific capability in the country. It is in line with the USA's National Science Foundation. The country needs to effectively respond to this reality in order to Pbe a competitive player in the knowledge era. The country also requires to enhance the level of basic research because of rapid changes in the advanced basic science research at the global level with increasing competition everyday.

It is also necessary to develop a coordinated mechanism for skill development. Now, the country lacks such coordination. Of course, science and developmental research works are being done in different departments. There is no coordination. The Ministry of Human Resources Development, the Ministry of Science and Technology, the Ministry of Commerce and so many other Ministries in the Government are looking after the research and development in their particular areas.[m17]

But, absolutely there is no coordination among the Ministries themselves. Now it is required that there should be a

mechanism for coordination between all the Ministries and there should also be a coordination between the Departments. That is very much necessary.

It is also said that the Government will spend Rs. 1,000 crore initially to create a corpus fund of Rs. 3,000 crore within this Eleventh Five-Year Plan period which may increase to Rs. 15,000 crore subsequently. But, the fact remains that what our research and development spend as a percentage of GDP is low and lacklustre. Also, the Technology Policy Statement of 2003 is quite outdated and riddled with much generalities. Now the world has changed. We must amend all these Acts. Otherwise, we cannot get scope for the development of science and technology. It is required.

The expenditure for research and development is currently estimated at less than one per cent of GDP in our country. We are spending less than one per cent of the GDP whereas the other developed countries are spending much more. It is also needed that we should have more thrust and spend more money so that we can expand this research and development work.

Now with the changing of the global scenario, a patent system has developed. Previously there was no such system. The intellectual property rights have now come up. Previously our *Rishis* and the *Munis* were giving many things; but they were not requiring anything in return. But in everything now we can trade and commerce. So, our entire intellectual property things have also become trading commodities. With this changing scenario of the world, on the intellectual property rights the Government estimated that within the Eleventh Five-Year Plan the number of applications for patents will be 72,000. The Government estimated that the applications will be to the tune of 72,000 by 2011-2012, that is the end of Eleventh Five-Year Plan.

What is your mechanism? From my personal experience I know that the scientists are running from pillar to post in this regard. After giving their application they are paying a lot of money. In spite of that the research assistance, examiners are not available. The instruments just to scrutinise the papers, the data collection etc. are not available. All these things are lacking today because the Commerce Ministry is doing all these things. They do not have these equipment and they are to be aware of the new type of work that they are engaged with this patent law and other things. The Ministry of Commerce has lack of knowledge to scrutinise all these things. In our country we are not getting good research assistance for examination.

Some hon. Member has said that because of the brain drain, a good number of scientists and young boys are going outside to get better remuneration. They are not getting better remuneration here. A good package is also required to be given just to get good scientists.

Take the case of corporate houses. We are giving so many concessions to these corporate houses. But what are they doing? Are they spending money on research? Even in the public sector it is required. They must spend a certain amount. There should be a law to ask them just to spend certain amount, certain percentage of their investment in research and development. They are not doing that thing. In the case of those corporate houses that are not spending money, there should be a law that they should provide funds to this corpus fund so that we can have good amount of funds to be spent for development of science and technology. [k18]

Also, it requires to attract the corporate houses. We must give them tax concessions. Other countries are providing it. Countries like US and Japan are spending a good amount of money on research and development. So far as tax concessions are concerned, they are giving good amount of tax concessions. In our country, we are not spending to that extent. That is also required to be done. We should also spend more on research and development and give tax concessions. In Australia, 125 per cent tax concession is given in regard to eligible research and development expenditure. Japan is providing 8 per cent to 12 per cent as tax credit. Korea is providing tax holidays. Singapore is allowing one hundred per cent deduction for expenses incurred in the approved research and development. The UK is providing 125 per cent deduction for qualifying research and development expenses. The US is also giving 100 per cent deduction or amortisation over a 60-month period. They are giving so many types of incentives in different developed and developing countries. So, we must also give some tax concession so that corporate houses are attracted to spend more money on research and development. The Government should go in for such policies.

So far as defence expenditure is concerned, we are giving good money to them. We, the Parliament, are never miser to give money for defence sector. Our countrymen are also never miser in regard to spending of money in the field of defence. We are spending a good amount of money in DRDO for research work, but the result is not to the expected extent.

I am just telling that there is no monitoring system. CSIR is there and so many Departments and Ministries are there which are conducting research and development. There should be some coordination between them also. So far as the aspect of

technology is concerned, DRDO is mostly provided funds to improve technology. There should be some steps taken to develop technology also.

Hon. Minister has introduced this Bill. I am supporting this Bill on behalf of my party.

SHRI PRABODH PANDA (MIDNAPORE): Sir, I rise to support this Bill which has been brought here and placed before the House by the hon. Minister. While supporting this Bill, I want to know certain things from the hon. Minister. We have the Department of Science and Technology till today. This Department is functioning under the advice of Scientific and Engineering Research Council. So, what is the problem? Why does the Ministry think that this should be changed and a special board is required for more research work, particularly the science and engineering research works? It is needless to say that I do support the idea that in order to achieve higher levels of excellence in international competitive basic research, more emphasis should be given to research and development and some more mechanisms should be evolved. They are going to establish Science and Engineering Research Board. It is there, but the point should be clear.

Secondly, it is an apprehension that this Board would be confined to the engineering, and to the research work only in the field of information technology. [SS19] The agriculture sector should be included in it. Nowadays, more emphasis is required on research in the agriculture sector. Our country can advance more and more if some innovative measures are evolved in the agriculture sector.

How will coordination between the different IITs and other engineering sectors be made? How will this Board function comprising of the respective engineering institutions? This aspect is not yet clear from this Bill, and I think that the Minister will explain it to us.

The last point that I would like to mention is about the allocation. It is understood from the financial memorandum that an amount of Rs. 200 crore has been allotted for the year 2008-2009. I think that this is not sufficient and adequate. This is not adequate for this Board. What is there in the budgetary allocation for the year 2008-2009? What was the idea so far as the Eleventh Plan is concerned? I think that everything should be clear, and I believe that the Minister would explain all these issues during the course of his reply.

It is a fact that the largest number of scientists and science workers are in our country. The largest number of science graduates are in our country, and I think that it is the largest in the world. How will they be involved in this research work? How will the young science workers be involved in all this work? All these ideas should be taken into account. I think that our Minister -- who is capable enough and efficient enough -- will think over it and ponder over it.

I do support this particular Bill, but I think that all the points that have been raised here will be clearly explained to us by the Minister. With these words, I support this Bill.

श्री शैलेन्द्र कुमार (चायल) : माननीय सभापति महोदय, मैं विज्ञान और इंजीनियरिंग अनुसंधान बोर्ड विधेयक, 2008 के समर्थन में बोलने के लिए खड़ा हुआ हूं। माननीय श्री कपिल सिब्बल साहब इस विषय में बहुत ही योग्य एवं अनुभवी मंत्री के रूप में हमारे समक्ष आए हैं। जहां तक वरिष्ठ अधिवक्ता के रूप में, वैज्ञानिक और इंजीनियरिंग में जब कभी हम आपके विचार सुनते हैं तो बड़ा अच्छा लगता है कि आपको अनुभव है।

इस विधेयक में देखा गया है कि अध्यक्ष के अलावा योजना आयोग और तमाम अन्य संस्थाओं के लोगों को इसमें पदेन सदस्य के रूप में रखा गया है। मैं चाहूंगा कि जो हमारा वैज्ञानिक अंतरिक्ष नासा है, उसे भी इसमें अगर पदेन सदस्य के रूप में सम्मिलित कर लें तो बहुत अच्छा होगा। पूरे देश में, चाहे वे आईटी कालेज हों या आईआईटी के वरिष्ठ कालेज हों, उनमें से भी लें तो उनके अच्छे सुझाव एवं विचार हमारे बीच में आ सकते हैं और समय-समय पर आने वाली जो समस्याएं एवं दिक्कतें हैं या तमाम इस तरीके से इंजीनियरिंग या अनुसंधान से जुड़े हुए सवाल हैं, वे हल हो सकें।

अभी हमारे बहुत से सम्मानीय सदस्यों ने बड़े विस्तार से इस विषय में अपनी बातें रखी हैं। मैं इसमें इतना ही कहना चाहूंगा कि हमारे यहां के जो इंजीनियर्स हैं या तमाम वैज्ञानिक हैं, क्या कारण है कि वे एक विभाग से दूसरे विभाग में जाते रहते हैं। वे केवल इसलिए एक विभाग से दूसरे विभाग में जाते हैं, क्योंकि उनकी जो प्रतिभा है, उसके मुताबिक उन्हें मानदेय या वेतन नहीं मिलता, इस कारण वे एक विभाग से दूसरे विभाग में आते-जाते रहते हैं। [s20]

यहां तक कि बहुत से ऐसे प्रतिभाशाली इंजीनियर्स हैं, जो विदेश भी गए हैं। मुझे बेहद खुशी इस बात की है कि पब्लिक एकाउंट्स कमेटी के मैम्बर होने के नाते जब हम लोग इसरो में गए, तो हम लोगों ने वहां देखा कि जो चन्द्र यान भेजा गया, वह वहां के छोटे-छोटे पढ़ाई करने, सीखने वाले इंजीनीयरों ने बनाया था। वहां के जो डायरेक्टर और प्रिंसीपल वैज्ञानिक ने हमें बताया कि हमारे यहां के जो छोटे-छोटे इंजीनियर्स हैं, जो अध्ययन कर रहे हैं, जो सीख रहे हैं, उन लोगों की अपनी तकनीक, अपनी सूझबूझ और अपनी प्रतिभा के अनुसार उन्होंने चन्द्र यान का निर्माण किया। यह देश के और हमारे लिए बहुत ही गौरव की बात है कि जो हमारे छोटे-छोटे और अच्छे-अच्छे वैज्ञानिक हैं, उन लोगों ने अपनी योग्यता के अनुसार चन्द्र यान बनाया और अंतरिक्ष में भेजा।

महोदय, मैं कहना चाहता हूं कि विज्ञान और शोध कार्य को बढ़ावा देने के लिए जो बोर्ड आप बना रहे हैं, उनमें अपने यहां के जो अच्छे वैज्ञानिक हैं, उनके लिए उपयुक्त होगा कि देश के अच्छे अनुसंधान केन्द्रों में उन्हें अच्छी से अच्छी सुविधाएं और सहूलियतें प्रदान करने के लिए ज्यादा से ज्यादा आर्थिक मदद दी जाए। इससे इंजीनियरिंग क्षेत्र का अनुसंधान हो या किसी भी क्षेत्र का अनुसंधान हो, हमारे देश की प्रतिभाओं को अच्छे कार्य करने के अवसर मिलेंगे। इससे वे भी आगे बढ़ेंगे और देश को भी विकास के रास्ते पर ले जाएंगे।

इन्हीं बातों के साथ, मैं इस विधेयक का पुरजोर समर्थन करते हुए अपनी बात समाप्त करता हूं।

सभापति महोदय : आपका धन्यवाद।

मेरा निवेदन है कि माननीय सदस्य केवल दो-दो मिनट में अपनी बात समाप्त करें, तो अच्छा रहेगा।

SHRI BIKRAM KESHARI DEO (KALAHANDI): At the outset, I support the Bill completely because it is a good Bill and it will promote further research and development in various fields where India could become a global hub. That is why, this Bill has been introduced and it intends to form a Board. A corpus of Rs. 200 crore is being allocated for the same. In the Eleventh Plan, they will spend about Rs. 3,000 crore, as assured by the Government.

In the Statement of Objects and Reasons, it has been stated, "There are indicative successes in the areas of Information and Communication Technology, Biotechnology and Drugs and Pharmaceutical sectors." I would like to point out here that there are no indicative successes in agriculture where the Finance Minister has gone on record saying that the food production in the country had stagnated completely. This shows that there has been lack of research and development in the field of agriculture and, that is why, the food production has stagnated. In future, there could be a food shortage which is being seen today in other parts of the world, like in Africa, Europe and other parts of the world. Food security is a primary component. We have to strengthen our agriculture and a lot of research and development has to be done in this field.

I am sorry to say that there is lack of coordination between the Department of Agriculture and the Department of Science and Technology. It could be seen in the field. The major objective of the first agricultural policy which was introduced in the country was to transfer the technology from lab to land. But I do not see much of that technology getting transferred from the lab to the land. I come from a region known as KBK. I have seen the transformation that has happened after the Green Revolution, thanks to our farmers and research foundations, like Dr. Swaminathan Foundation and Vandana Shiva Foundation, which are doing yeomen service. They are doing it on their own, and they should be given enough Government support for enhancing their activities so that the benefits reach the poorest of the poor in the country.

A lot of infrastructure projects are coming up, a lot of industries are coming up, but the impact they have on the environment and ecology is quite devastating. We have to do a lot of research and development in this field so that our environment, forests and wildlife are preserved. This is also lacking to a great extent. If you take the tiger population, for example, and compare China and India, the tiger population increased manifold in China, but it is coming down in India. What is the reason for this? It is because of environment is getting destroyed and also the number of animals available as prey to tigers is getting decreased. A lot of research has to be done in this respect also to make the tigers survive, and also more number of animals should be made available in the sanctuaries. [r21]

Regarding mining sector, I would give one incident of bauxite mining where alumina or aluminium products are produced. When the bauxite is mined, a red earth comes out which is completely useless. Not a blade of grass grows with it. If this red earth goes into the reservoir or into a river, it is consumed by human beings or any grain produced by this water will lead to Alzheimer disease, which was prevalent in Pune aluminium factory and hence, bauxite mining have to be stopped. If the bauxite aluminium players want to really explore the resources though it would create unemployment, though it will create a lot of work in the backward areas and get a lot of revenue for the country, at the same time, we have to see that the corporate social responsibilities have to be properly done to mitigate the sufferings of the local people and to maintain food security in the region.

We have got a lot of areas where we are developing in communications and Internet, bio-technology and the pharmaceutical sector have also made some headway. Till today, the Doha round of talks which we had, we have never had any emphatical success. Today, life-saving drug is very expensive. A poor man cannot afford it. So, the National Human

Rights Mission which is supposed to be taking up beautifully, is not being taken up. It is not taking up properly in my State from where I come from, Kalahandi constituency. We have to organise mega health camps to help health services.

This Bill is a very good Bill. Though belated, I congratulate the hon. Minister who has got this idea of creation of this Board. I hope there would be transparency in the funding also, to various individuals, organisations and people who are active in the research and development in various sectors. So, this would also be applicable for infrastructure development, forest and environment, mining sector, etc. which should come to the fore. Thank you, Mr. Chairman, Sir, for giving me the time.

PROF. BASUDEB BARMAN (MATHURAPUR): Mr. Chairman, Sir, thank you for giving me this opportunity. I shall not take much time and shall try not to repeat what my colleagues have already put forward. I understand that this Bill has not been gone through or rather considered by the relevent Consultative or Standing Committee. I would just point out some technical oints and then some general points but I shall not take much time.

In Clause 3 of this Bill, sub-clause 3 and the last three clauses, `h' to `j', the Bill has provided for inclusion of members from academic institutions and others. I would only suggest whether it is possible to take it now. It is 'not more than three' members for `h'. Likewise in `i' and `j'. I think, the language could or should have been at least three members. Otherwise, the balance would not be there. We have in our country a large number of universities, including IITs. So, only three members and that `not more than three' means it may be one or it may be two, or may be zero. So, I would request the hon. Minister, in due course to have `not more than' to be substituted by `at least'. Now, that is probably the printing mistake in clause 5 of the same Section - the qualifications and experience, term of officeâ€¦. specified in clauses (f) to (h). Now, `f" means Secretary to the Government of India, `g' means Secretary to the Government of India, etc. It should be `h' to `j' in lieu of what has been given here.

Now, on page 3 of this Bill, under sub-clause 7, clause 3 of the Bill – No act or proceedings of the Board shall be invalidated merely by reason ofâ€¦..[r22]

14.00 hrs.[p23]

I am very unhappy to have these words under clause (b) of this sub-section – 'any defect in the appointment'. This word 'defect' is not suitable; it can be made as 'error'. Similarly in the next clause, it is said 'any irregularity in the procedure'. 'Irregularity' is a very strong word. Here also, I may say that this may be substituted by 'error' or 'unintended error'. This may be considered.

Coming to section 5, sub-section (2), it is said that 'the Oversight Committee shall consist of the following persons – a scientist of eminence, â€¦'. I would suggest that it can be substituted by 'Indian eminent scientist of international repute'. This will probably be suitable.

In the next clause it is said 'Secretary to the Government of India in the Department of Science and Technology, *ex-officio* – Vice-Chairperson.' When we come to Section 3 (a), it is said that the Secretary to the Government of India in the Department of Science and Technology would be the Chairman of the Board. So, if the Chairman of the Board is the Vice-Chairperson of the Oversight Committee, I do not think this is compatible. This may be given thought to. The Chairman of the Board cannot be the Vice-Chairman of the Oversight Committee.

Section 8 talks about application. Here I would like to know whether the following could be provided under the rules – such applications may be or shall be received at least twice in a calendar year. Similarly, the Board shall meet at least twice a year or as frequently as may be required. This may be provided under the rules, but this may be taken note of. Similarly the Oversight Committee shall meet at least twice a year or as frequently as may be required.

These are certain things that I wanted to point out. Lastly, in the Statement of Objects and Reasons, it is said that the Science and Engineering Research Board shall serve as a premier multi-disciplinary research funding agency for planning, promoting and funding basic research. 'Planning' mentioned here is very important, while others are okay. The planning must take into account as to how this Board shall be monitoring the funding made by UGC, AICTE, CSIR and other funding agencies for research. Otherwise, there may be duplication or multiplication of research programmes which we do not want. We want the public money or the Government money should be utilized properly. So, the planning should be done in such a fashion that there is no duplication or multiplication.

There is one more point about corporate houses. One of my hon. Fellow members has pointed out this issue. I would very humbly suggest that during planning or during the making of the rules, whether the Government may consider asking our corporate houses to spend at least 2-3 per cent of their turnover to research and development? In some advanced countries, this goes up to 5-6-7 per cent. I only suggest that the Government may make such a provision in the rules that 2-3 per cent of the annual turnover of the corporate houses may be spent on R&D.

Thank you and I support the Bill.

DR. PRASANNA KUMAR PATASANI (BHUBANESWAR): Sir, I am supporting this Bill, submitted by the very knowledgeable Minister Shri Kapil Sibal.

He is exploring his profound knowledge by constituting the Board, particularly relating to herbs or drugs. Through the window of science, we can perceive the horizon which is eternal. Orissa is an herbal oriented State which is a leading State for the whole of globe. [p24]

You might be knowing about the Elbera herb. This herb originates in the soil of Orissa but is being sold at thousand times its price in America. We are being taxed and they are taking away the poor man's money. Likewise Tulsi and Neem originate from Orissa. After the constitution of the Board the innovative ideas of our scientists and scholars should be recokened with. Through you, I would like to request the hon. Minister to explore this field to save the humanity through our holy traditional masters who have invented it.

Prior to Madam Curie inventing drug for cure of cancer, the cure was mentioned in our book 'Ramayana'. When Ravana was suffering, Dhanantri the great vaidya of that time advised him of a cure. He said that there was a bird with golden wings roaming in the air and descending to the seat of holy order. If that bird's dung or stool is eaten, it can be useful in curing even cancer. There is ample scope of eating that dung from the golden sand readily available at Kailash Mansarovar. The vaidya told them to collect this dung and apply it on the wound so that this can be cured easily. In my poetry I often say: "You cannot get a bad tree in your life and you cannot get a good man in your life". Wherever you go in the whole world सब पेड़ों के औषधीय गुण होते हैं, जैसे AIDS can be cured by the herbs.

The AIDS originated in South Africa. A mad man co-habited with a diseased Chimpanzee and from that animal, the disease came to the human body. This ghastly disease can be cured through Dharambrahma herbs, the famous neem which is available in Orissa. One can enchant the holy *mantra* sitting beneath the Dharambrahma tree. Make a hole in that tree and pour in that just 100 gms. of half boiled rice, उड़ीया में अरूआ चावल कहा जाता है and then pack it. Enchant the holy *mantra* sitting beneath that tree. After 21 days, it will turn into a cream. Divide that cream into 21 parts and have one part every day. Every day chant the following mantra:

उग्रम बीरम महाविष्णुं, जुड़ंतम सर्वत्र मुखम्

निश्रहम् भीषणम भद्रम, मृत्युर, मृत्युं नमामयहम्।

I can give you very good evidence of this. You can depute the research scholars there. So, the cure is hidden inside our own herb.

I would request, through you, Sir, that our agricultural university should be converted into a Research University and there should be a herbal university in our State. The Ayurvedic college may also be converted into the Ayurvedic Research University.

SHRI SURESH PRABHAKAR PRABHU (RAJAPUR): Sir, we always claim that India has the largest pool of science and technological professionals. If you go by the quality of research that is produced by the Indians, I think we should not be claiming that we are in the top league of science and technological breakthrough that takes place in the world. If you go by the number of patents that Indians have registered globally, I think we do not even stand in the top 20. Therefore, it is a long overdue need to have a focused attention on research and development in India.

When we talk of research and development, normally we focus on 'D' than 'R'. We talk about research and development as a common package but what we really try to do is to re-invent the wheels. When we talk about the drugs and pharmaceutical companies, for a long time they were doing the reverse engineering. Now, lately we are developing our own molecule and our own drug delivery system. That is the new breakthrough that the Indian science and technology is trying to achieve in the modern time. This was the long felt need to have a focused attention on this and, therefore, I welcome this Bill being brought in by a lawyer, who has turned into a science and technology man and who has been trying to do a lot in the field of science and technology. So, I welcome the initiative that he has taken.[R25]

I would like to offer some suggestions. First of all, I do not know why the Minister like all other Ministers including me when I was one, are obsessed with keeping the Secretaries to the Government as members of any Board that is created. We actually do not stop at the Secretary to the Government level but we actually also try to take on Board the retired Secretaries to the Government of India. So, there is an Employment Guarantee Programme that we all as a collective body has started to ensure that a bureaucrat while in service will be accommodated on the Board and when they retire – also they will not be tired of getting on the Board – we ensure that they are there. Look at the composition of Science and Technology Board. It consists of Secretary to Government of India, Department of Science and Technology, Member-Secretary, Planning Commission, Secretary to the Government, Department of Bio-Technology, Secretary to the Government, Department of Science and Industrial Research, Secretary, Health Sciences and many others. My request to the Minister is if you really want to develop science and technology, why do you not keep these positions open to the best science and technology persons irrespective of whether he is in the Government or not? I am not saying that all of them may not be eminent scientists. I know Dr. Mashelkar who used to be the Secretary of CSIR and he is one of the top scientists and so are many others. There are really competent scientists in the Government. So, I have no doubt that they should be taken on Board. My point is why are you confining only to the Secretaries to the Government. So, my request to the Minister is that you please keep it open and try to take best science and technology talent on this Board and try to do it.

The second issue is that there is a very good model that is available in the US which is called the National Science Foundation. The National Science Foundation tries to promote research anywhere in the country. They try to give grants to such organisations and such individuals who actually are coming up with good ideas. So, that is something which you should also try to do and thereby you should try to outreach a programme whereby you can actually try to promote science and technology innovations anywhere in the country.

The third issue relating to this is that you have mentioned three sciences, namely, pharmaceuticals, bio-technology and information technology. But you have not mentioned nano-technology. There are several cutting-edge technologies which are now emerging like nano-technology which I think you should try to focus. But most importantly what I was trying to say is that why do you not mention renewable technological development programme which will not fall into any of these categories. It is the most important issue on which now India is going to be working on. Mr. Dinsha Patel may not be happy because oil and gas may not get this type of importance. But we need renewable technology and we want solar technology and we want oceanic energy technology which is one of your responsibilities. So, we should try to focus on this. When you have mentioned a number of Secretaries, you have not mentioned this Department at all. So, why do you not please ensure that it is also included?

The other issue which is very important is the issue of incubation. When you talk about research and development, many ideas are stillborn and do not see the light of the day only because we do not get them properly funded at the initial stage. There is not enough support which comes in to help them to come up to the laboratory level leave apart commercial scale of exploitation. So, I would request the Minister to give special focus on incubation of new ideas not even yet reached the stage of even concept. So, we should try to promote that.

14.14 hrs.

(Mr. Deputy-Speaker *in the Chair*)

The other point is that there is a fantastic organization which is working in areas of finding out new research and development ideas emanating from rural areas. It is something which is done by a Professor of Indian Institute of Management, Ahmedabad, Mr. Gupta. I think this is something wherein small and little ideas which are coming from rural areas are being fostered. I would request Mr. Kapil Sibal to be the foster father of so many such good ideas that come into play and make sure that they finally see the light of the day. So, I wish you all the best and I hope you will be able to take all these ideas on board.

THE MINISTER OF SCIENCE AND TECHNOLOGY AND MINISTER OF EARTH SCIENCES (SHRI KAPIL SIBAL): Sir, thank you very much. First of all, I must thank all the distinguished Members of this House who have participated in the discussion on this Bill and I have listened with rapt attention not only to their comments, but also to their very valuable suggestions.

Sir, before I deal with some of those suggestions I just want to give them a background and genesis in the context of some of the questions that have been raised as to why at all it has been necessary for us to set up a Board and why we did not continue with the old framework of the SERC which was the body dealing with the funding mechanism in the Ministry.

Sir, I wish to state at the outset that any nation which needs to move forward and be competitive in the global economy needs to invest and promote basic research. It should really be a matter of national policy. Of course, this has both technological and economic implications. Promoting basic research is like investing long-term in education. There is an over-all strategy for national development. It requires a long-term policy framework. It also requires institutional stability and this must be done through a consensus. If we look at any of the advanced countries in the world, we will find that most of their basic research funding is vested in autonomous institutions. As you know, funding must be provided by the Government as far as basic research is concerned. Private enterpreneurs are not going to invest in basic research. Source of funding has to be in Government. But how the funding is to be disbursed? If it continues to remain in Government, it gets involved in bureaucratic procedures. If you look at the pattern in the world, that in countries like the United States of America there is the National Science Foundation – there is also a National Institute of Health which funds all health research. You have five funding institutions in the United Kingdom. You have two funding institutions in Canada. But they are all autonomous. But unfortunately what is happening in India is that the funding mechanism is in the Ministry itself and the implementation of funding procedures are in the Ministry and so because they are in the Ministry, they are all subject to bureaucratic controls and so you will have to have the SAFC or the NEFC and the whole procedure takes two to three years. So, the result is that when proposals come for research they cannot be looked into and by the time there is a three years delay the whole purpose of research is gone.

I have tried hard to break away from these bureaucratic controls. So, the reasons you ask as to why we have set up a Board is for this. We do not want to be bogged down by those bureaucratic procedures which do not enable the funding to be done as quickly and as efficiently as possible, which is the need of the hour, when we are in the midst of a global competitive economy. Therefore, at the heart of this Bill is to break away from these bureaucratic controls which the hon. Prime Minister himself has been saying `de-bureaucrate-science', break away from the bureaucracy and set up a funding mechanism which is autonomous and independent, exactly on the lines of the National Science Foundation. The National Science Foundation also does this. The money goes to the Ministry and the Ministry sends money to the Board and then the Board decides independently as to who to give funding to and who not to give funding to and in multifarious areas of research. There is no limit to it. You can fund private industries here; you can fund laboratories; you can fund research institutions; you can fund individuals, whoever you like. But that must be under the overall control of an autonomous body. [R26]

Now, my dear colleague, Shri Suresh Prabhu, has raised a point as to why we have Secretaries to the Government of India. I want to give you just one background. The Department of Science and Technology is one of the funding mechanisms. There are several others. For example, the Department of Biotechnology funds itself independent of the Department of Science and Technology; the CSIR funds itself independent of the Department of Science and Technology, the Department of Health Research, the Ministry of Earth Sciences etc. There are several multifarious funding agencies. All that we have done is that the Department of Science and Technology, which provides about 50 per cent of all extramural research in this country, the Department's funding mechanism, not any other department's has been given to an autonomous institution. Why is it that we have got other Secretaries in it? It is because this is not a scientific organisation which is going to look into research. This is an organisation which is going to oversee the funding mechanism. You have the Department of Biotechnology represented in it and that is not the only department. There are also other departments which are also represented there. You have the Department of Health Research representative, you have the Earth Sciences represented there. It is because when funding is done, each of those Secretaries knows his own internal programme so that there is no duplication. Indeed, they would be dovetailing into those programmes. When the Secretary of the Department of Earth Sciences knows that a particular R&D mechanism is going on and this Board wants to spend money, then he knows to either dovetail into it or do another aspect of it. In fact, we have purposely put in the various Secretaries so that there should be no duplication and where there is synergy required, there should be excellence. So there is a rationale for putting it. That is what I just wanted to mention.

Some hon. Members mentioned `why do you not have a fund'. This is precisely why we are setting up this Board so that we do have a fund and the funding mechanism is here. There is also what we call an Oversight Committee which has been set up in terms of Section 5 because we just do not want that this funding mechanism should be deciding independently

without any oversight.

So, there is a real reason as to why we have set up an Oversight Committee and this Oversight Committee is going to be chaired by a scientist of eminence and international repute. We do not want to limit it to only scientists from India. Why not a scientist of international repute who is knowledgeable about certain aspects of research that we will benefit from? There is no harm in that. There can be Indians abroad also who are scientists of international repute. Why should we bar them from being the Chairman of such an institution? In fact, this is a very salutary provision because apart from functioning in an autonomous body, we also do not want that there should be no mechanism to oversee it. So we have set up an Oversight Committee which will include the Presidents of the National Academies of Science, the Indian Academy of Science and the National Academy of Engineering. Of course, the Vice Chairperson of it will be the Department of Science and Technology because he is involved in the funding mechanism.

So when a question is to be answered, he is sitting in the Oversight Committee so that they can ask him those questions and he can well answer them. In fact, we have thought very carefully about all these mechanisms to ensure (i) there is no duplication; (ii) there is autonomy; (iii) that any area of research can well be looked into. The whole purpose, I think is really a five-fold purpose as to why we have decided to introduce this Bill – (a) to develop and coordinate research among all major science funding agencies, which I have already mentioned; (b) to increase operational efficiency of extramural research funding and project implementation, (c) to develop strategic plans for promotion of Science, Technology and Innovation; (d) partner with similar foundations overseas for collaborative research; and (e) enhance investments in basic research by accepting donations from other sources recoveries made of the amounts granted by the Board and any income from investments made by the Board.

Sir, there is an aspect that I think that we all should note. Recently there was a debate on national security in the context of the horrendous act of terrorism committed against the people throughout the country and recently in Mumbai.[a27]

Suddenly, we realised that it is important for us to modernise our policing mechanisms, to empower them so that they can meet the challenge of terrorism head on by having the latest technologies and latest weaponry apart from developing appropriate human resource. What modernisation is to national security, science and technology is to economic growth. We have not, as a nation, realised so far that unless we invest in science and technology, unless we invest in R&D, we are not going to be able to compete with the countries who are far ahead of us and whose economic growth patterns are far ahead of us. Unless this country realises this, I am afraid, we are not going to be able to meet the challenges of the 21st century.

Several hon. Members have rightly said that there is not enough investment in R&D in this country. They are absolutely right. Our investment in R&D as a percentage of our GDP is 0.8 per cent. But, Sir, even of that 0.8 per cent, 0.7 per cent is from the public sector, that is, from the Government. And, 0.1 per cent is from the private sector. In other words, the private sector is not at all contributing to R&D in this country. This is a matter of concern to us. Wherever the private sector is contributing, it is because of the fact that there is economic growth in that sector. For example, in the Information Technology Sector where the private sector is contributing, it is because there is growth in that area. In the Biotechnology sector where the private sector is contributing, it is because there is growth in that area. So, first you need the economy to grow. As the economy grows, the private sector will be investing more and more into R&D. But in the absence of the private sector investment, it is absolutely incumbent and a national commitment that we must continue to invest in R&D. Otherwise, we will not be able to do the kind of things that we need to do if we want to be competitive in the rest of the world.

I will give you a small example. The number of Ph.Ds produced in this country today is less than 5000. About 15 years ago, China and we were on the same level. But today China produces 40,000 Ph.Ds and we remain at the paltry figure. What is the reason? It is because we do not invest in institutions. We do not invest in institutions of excellence. We got bogged down in politics. I must beseech the hon. Members of this House that just as you have got together yesterday and spoken in one voice to combat the scourge of terrorism, for national security, you must all get together and speak in one voice to ensure that the enormous talent that is available in this country is used to take the country forward for us to be competitive in the 21st century. If we do not do that in one voice, I am afraid, we would have done a great injustice to this country.

This is just one step forward. It is a very inadequate step, according to me. I think we need momentous changes in our whole environment in science and technology, changes in which we should not look at investments in science and technology in the context of what return will they will give you. It is the economic sense in which we look at everything. Please remember when great inventions were made in the world, nobody talked of returns. Science is built on failures, not on successes. It is when you fail that you try harder to invent. So, when the economists ask you saying we gave you this

much money but what have you produced, it is the wrong mindset, the wrong question. We need to ask the right question and do the right thing. I am afraid, over the years, we, as a nation, have not been able to develop this particular mindset.[R28]

Now I will quickly deal with some of the issues that hon. Members have raised and I will try and finish as quickly as possible because I know that there is another Bill that is to be considered.

Shri Bachi Singh Rawat talked about boosting basic research and this is exactly what we are trying to do. He said that we must celebrate 'Technology Day' which we do every year. The 11th of May is the 'Technology Day' that we celebrate.

We are trying very hard to increase our investment in R&D as a percentage of GDP from 0.8 per cent to 2 per cent. Hopefully that should be done by the end of the 11th Plan. This is something that we wish to do.

The hon. Member mentioned that there is a lacuna in the Hindi version of this Bill. I have taken note of that. At the time when the Bill will be actually finalised, that lacuna will be taken care of and I thank the hon. Member for pointing that out to me.

Sir, some hon. Members talked about tax concessions and eligibility. I might mention that there are already tax concessions available. For example, in the biotechnology sector you have a tax concession. You have a weightage deduction of 150 per cent in the biotechnology sector. The R&D Divisions in many private companies are being separated from the other divisions so that they can take benefit of the 150 per cent weightage deduction that is given. The IT sector has enormous concessions both in terms of excise and tax and we are aware of that. So, as far as tax concessions and incentives are concerned, it has nothing to do with this Bill, but the Government has done reasonably well in extending those benefits to various sectors of the economy.

Shri Rupchand Pal talked about the fact that our research is directionless. Well, I am not satisfied personally as a Minister with the extent to which we should have done, but I do believe that in the last few years we have tried to give research some direction and indeed we tried to incentivise the entire scientific community.

Sir, there have been some comments about the fact that the patents produced in this country are far too inadequate. That is absolutely right and the reason is very simple. If you look at any major economy of the world, the number of people doing R&D for a million population is anywhere between 3,000 and 4,000 and in some of the Scandinavian countries it is about 6,000 to 7000 per million population. In India that figure is 156. So, how do you match a developed country where the number of people doing R&D is 6,000 or 7,000 per million population when in our country the number of people doing R&D per million population is 156? How do you expect the scientists to deliver? You cannot expect them to deliver.

The only way out is to build more educational institutions, the only way out is to have an inclusive economy, the only way out is to expand your education system, the only way out is to have more teachers, more training and the only way out is to set up enough educational institutions and see that there is no dearth of seats so that you don't get into the political argument that there are not enough seats and therefore do this, do that or do the other. Unless we, as a nation, rise to do that we cannot march forward. The only way out is to have the private sector come in because the Government cannot do that on its own. The Government neither has the finance nor the ability to set up thousands of institutions which are required by the people of this country. But again we get bogged down by a political debate.

Sir, I beseech this House that when you are talking about technology and when you are talking about education, please do not bring politics into it because this country must move forward and it must be one of the greatest countries of the 21st Century as we move along. That has to be done and that has to be a national commitment.

Shri Rupchand Pal talked about software and hardware. Why is it that we did not develop in hardware? The reason is simple. It is that ever since 1974 when the first Pokhran nuclear explosion took place, we had no access to any technology and especially in the 1990s when the guidelines of the NSG have been developed. China, luckily, got access to every technology that it wanted from the United States of America.[R29]

I have studied the subject at great depth. The result was that the Indian mind, which did not have access to these hardware technologies, ultimately had to depend on the computer before him to produce an information technology revolution in this country.

SHRI RUPCHAND PAL (HOOGHLY): Mr. Deputy-Speaker, Sir, perhaps, in his obsession with certain other things, he is speaking about hardware when he should have spoken about the nuclear technology.

SHRI KAPIL SIBAL: I am not talking about nuclear technology; I am talking about hardware because, Sir, if you do not mind every super computer has a dual use.

SHRI RUPCHAND PAL : It is a different issue.

SHRI KAPIL SIBAL: It is not a different issue. If you want to do science, you need computational science. It is because, computational machinery gives you speed; it allows you do to research at one-tenth of the speed which you would otherwise do. I do not want to enter into an argument. I am not yielding. What I am trying to tell you is that the machinery which is put to dual use was not given to us at any given point of time. Luckily that is now over; luckily we will get access to those technologies and we will continue our efforts and be a hardware power as well.

Tripathy *ji* rightly mentioned about the low investment in R&D in this country and about the patent applications. I want to mention to him that this investment is going to be increased and that we are doing our best to take it forward.

I have answered most of the questions of Panda *ji* as to why the Board has been constituted. There is another mention about as to why we should not include the IITs and the engineering institutions. We are not including any of these institutions here. This is only a funding mechanism and we have moved it away from the Department of Science and Technology into an autonomous mould, not within the Ministry. So, this funding mechanism will fund, can fund the IITs also, can fund the engineering institutions also. It is not barred from funding any institution whether private or public. Therefore, there is no need to bring those institutions into the system because that in fact will overburden the system without any efficiency.

Shailendra *ji* talked about NASA and how we to bring NASA into it. That is not necessary because again NASA is not part of this. There is a separate Ministry. There is a separate funding mechanism. There are separate programmes. We do not want to duplicate those programmes within the Ministry of Science and Technology. So that is not necessary either.

Prabodh *ji* mentioned about food production, food stagnation. I think these are very valid points but this is again a funding mechanism which existed in the Department of Science and Technology. This mechanism can also be used to fund agriculture. It is not a problem at all. We can in fact collaborate with ICAR in their funding mechanisms. As far as food production is concerned, I just want to place on record that the kind of production of food-grains that we have had this year is a record. There has never been this kind of food production, 232 million tonnes if I am not wrong. It has never happened before.

SHRI RUPCHAND PAL : But what about the hunger index?

SHRI KAPIL SIBAL: Am I saying that because of that food production it has solved the problems of agriculture in India or it has solved the problems of poverty or it has solved the problems of hunger? No. Somebody mentioned that we have accepted that food production has stagnated. I am only answering that question. It has not stagnated. We have set a record of food production in this country.

As far as tiger population is concerned, it has really nothing to do with the mechanism that I have set up.

Some points have been raised by Basudeb Barman *ji* about clause 3 and clause 5. I would just like to mention that he is right about clause 5. It should not be from (f) to (h) but it should be from (h) to (j). I will make sure that it is corrected. I thank the hon. Member for pointing that out to us.

Some of the other suggestions I do not think are entirely valid because those were purposely put into this Act, but this particular suggestion is taken well and we will do the needful.

Then, of course, Suresh Prabhu *ji* talked about the Employment Guarantee Programme of the Secretaries. I have explained that this is really not an Employment Guarantee scheme because I have given you the rationale as to why we have put the Secretaries here. But, of course, as far as the employment guarantees are concerned, that is in existence both in politics and elsewhere.[r30]

That is a part of life. Everybody wants some kind of employment guarantee.

Sir, I believe that I have really dealt with most of the questions raised by the hon. Members. ...(*Interruptions*)

SHRI SURESH PRABHAKAR PRABHU (RAJAPUR): What about renewable energy? ...(*Interruptions*)

SHRI KAPIL SIBAL: Again that is a separate Ministry. It is not as if – it is a very important point – this money mechanism will not collaborate with the other Ministry. ...(*Interruptions*) Yes, of course, they will do technology. This funding

mechanism does not bar any area to be researched for the purposes of R&D. Therefore, we are not going to inhibit any kind of research. ...(*Interruptions*)

जब सब लोगों ने सवाल किए, चर्चा की और यदि मैं जवाब नहीं दूंगा तो लोग सोचेंगे कि मैंने बिना जवाब दिये...(व्यवधान) मैं आपके सवालों का जवाब नहीं दे पाया। इसलिए मैंने आपका वक्त लिया। मैं आप सब लोगों का आभारी हूं कि आपने मुझे वक्त दिया, जिससे मुझे जवाब देने का मौका मिला और मैंने आज जो बात कही है, मुझे विश्वास है कि आने वाले दिनों में आप लोग मेरे साथ उठकर एक आवाज में इसी सदन में कहोगे कि साइंस एंड टैक्नोलोजी को आगे बढ़ाओ और उसे पूरी तरीके से सरकार का समर्थन होना चाहिए, ज्यादा पैसा मिलना चाहिए और हमारे देश में जो वैज्ञानिक हैं, जिन्होंने इस देश को आगे बढ़ाया है, उन्हें आपको एम्पावर करना चाहिए। इन्हीं शब्दों के साथ मैं आपका शुक्रगुजार हूं कि आपने मुझे अपनी बात रखने का मौका दिया।

MR. DEPUTY-SPEAKER: The question is:

> "That the Bill to provide for the constitution of a Board for promoting basic research in Science and Engineering and to provide financial assistance to persons engaged in such research, academic institutions, research and development laboratories, industrial concerns and other agencies for such research and for matters connected therewith or incidental thereto, be taken into consideration."

The motion was adopted.

MR. DEPUTY-SPEAKER: The House shall now take up clause by clause consideration of the Bill.

The question is:

"That clauses 2 to 22 stand part of the Bill."

The motion was adopted.

Clauses 2 to 22 were added to the Bill.

Clause 1, the Enacting Formula and the Long Title were added to the Bill.

MR. DEPUTY-SPEAKER: Now, the hon. Minister may move that the Bill be passed.

SHRI KAPIL SIBAL: I beg to move:

"That the Bill be passed."

MR. DEPUTY-SPEAKER: The question is:

"That the Bill be passed."

The motion was adopted.

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