

†[श्री अब्दुलगनी : क्या वजीर साहब फर्मायेंगे कि पंजाब गवर्नमेंट ने अपने सूबे के जो बड़े बड़े आई०सी०एस० आफिसर्स हैं, फाइनेंसियल कमिशनर और चीफ सेक्रेटरी, उनकी कोई कमेटी इस बारे में जांच करने के लिए बनाई थी और उसके जो चेयरमैन हैं, उन्होंने किया रिकमेन्ड किया कि उनको री-इन्स्टेट कर दिया जाए ?]

श्री जयसुखलाल हाथी : जो उन्होंने बोर्ड बनाया उसमें जो मेम्बर साहिबान थे उनको ओपीनियन्स में कुछ मतभेद था, तो इसके लिए चीफ मिनिस्टर साहिब ने यहां होम मिनिस्ट्री को लिखा कि हम क्या करें। बात तो मुश्किल है, क्योंकि इक्वायरी आगे बढ़ सकती है या नहीं और री-इन्स्टेटमेंट का काम तो पंजाब गवर्नमेंट का है—सस्पेंशन आर्डर हमने इसलिए दिया कि उन्होंने एक इक्वायरी शुरू की और अभी तो जो इक्वायरी है वह ड्राप करनी है, तो री-इन्स्टेटमेंट का सवाल ही नहीं। तो इसलिए हमने सीचा कि सेंट्रल बिजिलेंस कमीशन को भेजें कि जो कुछ मैटीरियल है वह है और उसके बाद वह क्या इजवाइज दे सकते हैं।

**सीमेंट के सब्स्टीट्यूट के सम्बन्ध में**

**सी० एस० आई० आर० के अनुसन्धान**

184. श्री विमलकुमार मन्नालालजी

**चौरङिया :** क्या शिक्षा मंत्री यह बताने की कृपा करेंगे कि देश में सीमेंट की वर्तमान कमी को देखते हुये सीमेंट के सब्स्टीट्यूट की खोज करने के संबंध में वैज्ञानिक तथा औद्योगिक अनुसन्धान परिषद् द्वारा अब तक किये गये अनुसन्धान में क्या प्रगति हुई है ?

**†[C.S.I.R. RESEARCHES REGARDING A SUBSTITUTE FOR CEMENT]**

\*184. SHRI V. M. CHORDIA: Will the Minister of EDUCATION be pleased to state the progress made so far in the research conducted by the Council of Scientific and

Industrial Research in regard to finding out a substitute for cement in view of the pie-sent shortage of cement in the country?]

**शिक्षा मंत्री (श्री एम० सी० चागला) :**

सेन्ट्रल बिल्डिंग रिसर्च इंस्टीट्यूट, रुड़की और सेन्ट्रल रोड रिसर्च इंस्टीट्यूट, नई दिल्ली ने नीचे लिखी खोजें की हैं :

**सेन्ट्रल बिल्डिंग रिसर्च इंस्टीट्यूट, रुड़की—**‘ब्लास्ट फर्न सीमेंट’ से स्लैग सीमेंट तथा सुपर सल्फेट सीमेंट और 20 प्रतिशत पोझोलाना से पोझोलाना सीमेंट का उत्पादन।

**सेन्ट्रल रोड रिसर्च इंस्टीट्यूट, नई दिल्ली—**‘अभिसर्किय’ (रिएक्टिव) सुर्खी सीमेंट के इक्विवेलेंट के रूप में।

THE MINISTER OF EDUCATION (SHRI M. C. CHAGLA) : The Central Building Research Institute, Roorkee and the Central Road Research Institute, New Delhi have conducted the following researches :—

*Central Building Research Institute, Roorkee.*—Production of Slag Cement and Super-sulphated Cement from Blast Furnace Slag and Pozzolana cement with 20% Fly Ash.

*Central Road Research Institute, New Delhi.*—‘Reactive Surkhi’ as a substitute for cement.]

**श्री विमलकुमार मन्नालालजी चौरङिया :**

क्या श्रीमान यह बतलायेंगे कि ये जो सब्स्टीट्यूट्स निकाले गये हैं सब्स्टीट्यूट्स जनता में पापुलर हुए अथवा नहीं और अगर हुये तो अभी कहाँ कहाँ पर क्या किया गया इस दिशा में ?

SHRI M. C. CHAGLA : Well, Sir, as I have said, the results are very good and I expect that very good results will follow. The estimate is this. According to rough estimates, 60 per cent of the normal requirements of portland cement for ordinary and residential buildings and 40 per cent of portland cement requirements for multi-storeyed buildings could be replaced by line ‘Surkhi’ mortar.

**श्री विमलकुमार मन्नालालजी चौरीड्या :**  
क्या श्रीमान यह बतलायेंगे कि ये जो सस्सटी-  
ट्यूट्स निकाले गए इनका खर्चा क्या पड़ता है  
और अगर पोर्टलैंड सीमेंट में बजरी मिलाते हुये  
उपयोग में लाया गया तो क्या खर्चा पड़ता है,  
इसका अनुमान बैठाया या नहीं, सस्ता पड़ता  
है या नहीं ?

SHRI M. C. CHAGLA: The main aspect of this research is to save a great deal of foreign exchange. We are importing portland cement. We have not got all that we need. So, if we can find a substitute for Portland cement, which can be made out of our own indigenous materials, whatever be the aspect of expense, we save foreign exchange and, therefore, the research, to my mind, has a very important aspect. To that extent, they are doing some very fine work in that regard.

**श्री विमलकुमार मन्नालालजी चौरीड्या :**  
हमारे यहां यह बहुत सारा रिसर्च हो गया  
मगर जब तक मूल्य के आधार पर वह सुविधा-  
जनक और लाभदायक नहीं बैठता इससे कोई  
सहायता नहीं होती, फारेन एक्सचेंज के  
प्रॉब्लम के बावजूद भी अभी तक जो  
रिसर्च किया गया उसमें प्राइव्जन में  
क्या लगेगा इसका भी अनुमान निकाला  
या नहीं ?

SHRI M. C. CHAGLA: I would like to have notice. I have not got those figures to say whether it will be cheaper or more expensive.

PROF. B. N. PRASAD: Is the hon. Minister aware that such attempts were made even before and it was given out that such cements were manufactured but in course of time they were not found to be of desirable quality? I would like to know if the strength of this newly developed material has been tested by scientists and, if so, what is their decision regarding its strength compared to that of cement.

SHRI M. C. CHAGLA: The view of the scientists is that this new material Pozzolana—its strength will be as good as the

strength of Portland cement. Only recently, I may tell my hon. friend, a symposium was arranged in New Delhi which I inaugurated and I had the pleasure of studying something about it, and I was very pleased to find that we can use our own lime, our own indigenous material, and produce this new clay Pozzolana, which will take the place of Portland cement.

SHRI BIREN ROY: The hon. Minister has stated that we have to use only indigenous material for this, but Portland cement is made from indigenous material and we have a lot of that produced. So why do we go in for other things?

SHRI M. C. CHAGLA: I am informed that this is not enough. That is my information.

SHRI SITARAM JAIPURIA: In view of the fact that the research that is being undertaken will take a long time before it is put into commercial practice, may I know from the hon. Minister whether the programme of putting more cement factories will continue as it is? May I know what is the intention?

SHRI M. C. CHAGLA: That is more for my hon. friend, the Minister of Industry, to answer. My concern is to see that as far as possible we carry on with our own indigenous material and do not have to import things from outside.

SHRI M. M. DHARIA: I do not exactly remember but the hon. Minister of Industry had stated somewhere that India would be in a position to produce enough cement for the country. If that is true, may I know whether there is any co-ordination between the Ministry of Industry and the Ministry of Education?

SHRI M. C. CHAGLA: We have a representative of the C.S.I.R. on the Industrial Committee and we constantly tell industry what researches we are making and to what extent industry can make use of them.

SHRI I. K. GUJRAL: The hon. Minister has said that as a result of researches they

have found what they have chosen to call Pozzolana which in reality is nothing but lime, mortar and surkhi. May I ask if he is aware of the fact that lime, mortar and surkhi were known in this country and were being used in this country ever since construction was conceived of, of the \ Purana Quila type? So what is the research element involved in it?

SHRI M. C. CHAGLA: Unfortunately, I we have forgotten the fact that our forefathers built wonderful buildings without cement and steel. We seem to think today that no building can be put up without cement and steel, and I have been telling educationists and others: "Why cannot you i put up school buildings and other buildings without cement and steel? I do not know for how long our cement and steel buildings would exist."

Sum P. C. MITRA: I am told that 40 per cent of cement could be substituted with lime and surkhi, and my friend put that question also. What was the necessity of sending this matter for research? It is a known practice, age-old practice of using lime and surkhi in building houses.

SHRI M. C. CHAGLA: What is now discovered is not surkhi but what is called Reactive Surkhi; and the Reactive Surkhi which is evolved by the Central Road Research Institute is a greatly improved form of the ordinary bazar surkhi available in the market.

DR. SHRIMATI PHULRENU GUIIA: May I know what action Government has taken on the result of the research on cement done by the Calcutta University under the research grant of the C.S.I.R. a few years ago?

SHRI M. C. CHAGLA: I would like to have notice. That does not arise out of this question.

SHRI G. RAMACHANDRAN: The Minister made a Very brave statemant about the plaster other than cement used in building great structures in the past. But does he realise that his Ministry and the fellow-Ministries in the States are the

biggest sinners in this connection in insisting on cement and steel for patterns of buildings which they would approve?

SHRI M. C. CHAGLA: I plead guilty to the charge, but I am trying to change that.

MR. CHAIRMAN: That will do. There is such a rich diversity of interest on everything—better pay for teachers, cement, steel, sugar, everything. We have done only five questions up till now. Next question.

#### **PETROCHEMICAL COMPLEX NEAR THE KOYALI REFINERY**

♦185. SHRI BABUBHAI M. CHINAI: Will the Minister of PETROLEUM AND CHEMICALS be pleased to state:

(a) the estimated capital outlay on the petrochemical complex proposed to be set up around Koyali Refinery near Baroda; and

(b) what steps have been taken so far in setting up the complex?

THE MINISTER OF STATE IN THE MINISTRY OF PETROLEUM AND CHEMICALS (SHRI O. V. ALAGESAN) : (a) The capital outlay on the Complex is estimated to be more than Rs. 50 crores.

(b) Negotiations are currently in progress with two groups of foreign firms for securing technical and financial participation in various schemes connected with the Complex.

SHRI BABUBHAI M. CHINAI: May I know what are the products which will be produced by this Complex?

SHRI O. V. ALAGESAN: There is a long list. I will give it.

Aromatics.—Benzene and Toluene,

e,

Ortho & Para Xylene, Cyclo hexane.

Fibre intermediate.—Caprolactum.

Naphtha cracker complex.—Olefine plant (Naphtha cracker). Polyethylene, Vinyl Chloride, PVC, Vinyl acetate, Styrene, Polystyrene, Acrylonitrine, Propylene tetramer, etc. ...

SHRI BABUBHAI M. CHINAI : May I know whether, out of the Rs. 50 crores