SHRI PILOO MODS'; If you want to read it, please read it.

MR. CHAIRMAN: In any case, it is removed. Question No. 363.

SHRI PILOO MODY: In that case, I want to put it on record that it is removed without any rule.

*362-A. *[The questioner (Shri Ram Bhagat Paswan) was absent for ans wer vide cols.* 29—36 *infra*.....]

Product of single-cell-protein from petroleum

<1>*363 SHRI SHRIDHAR WASU-DEO DHABE:t

DR. BHAI MAHAVIR;

Will the PRIME MINISTER be pleased to state:

(a) whether it is a fact that the project on developing a process for production of single-cell-protein from petroleum is still continuing at the Indian Institute of Petroleum;

(b) if so, what is the rationale of continuing it when most other countries have already dropped it in view of the high price of petroleum;

(c) whether it is a fact that the expert panel to whom the project report was presented admitted that there was no justiftca'ion in trying to use single-cell-protein as animal feed; and

(d) whether Government propose to close down the project?

THE MINISTER OF STATK TN THE DEPARTMENTS OP SCIENCE AND TECHNOLOGY ELECTRONICS AND ENVIRONMENT AND OCEAN DE-VELOPMENT (SHRI CHANDRA PRATAP NARAIN SINGH): (a) Yes, Sir. In addition to n-Paraffins from petroleum, the work on this - plant has been extended to u~e other feedstocks also.

@Previously starred question 223, transferrd from the 26th July, 1982.

iThe question was actually asked on the floor of the House by Shri Shridhar Wasudeo Dhabe.

(b) It is not a fact that most countries have dropped the process. Several countries, are putting up large commercial plants for single-cell protein from petroleum.

(c) No, Sir. In fact, the Panel has strongly recommended stepping up the work on single-cell protein and er-tablishment of a bigger proving plant.

(d) Does not arise.

SHRI" SHRIDHAR WASUDEO DHABE; Sir, the development of this process for production of single-cell-protein, which is an animal feed, was started in the Indian Institute of Petroleum with foreign collaboration when the prices of petroleum were very cheap. But now the prices of crude oil have gone up 20-fold, from the time when this work was started in many countries. In these coun'.ries the price of soyabean was high. That is why it was started in France, Italy, Britain and Japan also. Now, as the prices have gone up, is it not a fact that these countries have stopped making research and are using it as an animal feed?

SHRI CHANRA PRATAP NARAIN SINGH: Sir, the hon. Member has stated that the prices of petroleum crude have gone up and hence research and development in this very important field should be slackened. I am not willing to agree with his suggestion for the simple reason that there are various companies in the world today that are going in for much larger plants. For the information of this august House, I will name a couple of plants that have come up all over the world which are very very large compared to the private projec+s that were initially started in the sixties when, as he stated, the potr<yHim crude was cheaper. In Italy, a mo 000 TPA nlam has been put up. Messrs Imperial Chemical Company had started a 1000 TPA pilot plant and are now putting up a commercial plant of 60.000 TPA and it is marketed under the name of Protein, which, I am sure, the hon. Member has heard. A consortium of some German

.companies has put up a 100,000 TPA plant In the East European countries today the investment is for a plant of 300,000 TPA. A 60-000 TPA plant hag been set up in Bucharest (Romania). (DAI) Nippon of Japan has also gone in for another large plant. Czechoslovakia has put up a 1000 TPA pilot plant. China is going in for a very big plant at Shanghai AMOCO the USA produces about 15 million pounds of SCP per year under the name of Torotin I would like to add that soyabean, which has , a higher protein value, naturally is a good feed-stock as an additional nutrient, i.e. protein. But this particular technology is not limited only to crude oil but also extends to molasses and things like cassava, tapioca. This has to be taken up and research has to be continued in India for the simple reason that the protein content of our diet in India is poor and hence R&D activity would help hi the nutritional value of food for our teeming millions.

SHRI SHRIDHAR WASUDEO DHABE: Mr. Chairman, Sir, my second supplementary. *(Interruptions)*

MR. CHAIRMAN: There are others before you.

SHRI SHRIDHAR WASUDEO DHABE; My second supplementary is this. When this process of production of single-cell protein from crude oil was started in our country, the seeds were costlier, but now when the prices of crude oil are going so high and we have to import it, will it not be profitable to have cultivation of soyabean and oilseeds more for the animal feeds than continuing this costly affairs of having a protein cell based on crude oil? And also by how much has the pricegone up?

SHRI CHANDRA PATAP NARATN SINGH; Sir, the project was started some time in the sixties and a sum of Rs. 15 lakhs has been spent towards research of this project in the Gujarat Refinery. Another team of scientists looked into the issue and they have Tecommended that simultaneously we must also carry out a single-cell project from molasses and they have requested for two additional fermenters which will soon be placed. Sir, the hon. Member has raised a point which, I think, should be clarified. Why should soyabean not be the only means of additional protein in India? Soyabean lobby in the United States has to a large extent managed to control various companies in the U.S.A. in regard to this project. But, Sir, as you know, in India, the nutritional value of our food is very poor and we must keep open all avenues of discovering protein for the millions that we have to feed.

SHRI SHRIDHAR WASUDEO DHABE: Sir, my question was about the increase in the cost, comparing when you started producing it in 1969 and the single-cell production of protein today. What is the percentage of rise in the cost? That was the main question. Otherwise, it would be a costly affair.

MR. CHAIRMAN: Percentage rise in cost.

SHRI CHANDRA PRATAP NARAIN SINGH: The percentage rise, at present as we are not in commercial production, is difficult to evaluate. As I have said, we are having the R&D on a pilot project. We are in commercial production.

DR. BHAI MAHAVTl: Is it not a fact, Sir, that the project was started because of our collaboration with the Institute France Petrol, TFP, which is the French counterpart of the Institute of Petroleum? And they have given it up since then because of the 20 times increase in the petrol prices. He has talked of protein from molasses and soyabeans. The question is about single cell protein from petroleum. We started it in collaboration with the French Institute. They have given it up. Then it began in Japan in 1961. I do not think Japan is continuing with it. But his information is that other countries are doing i!t, maybe. Axe

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we surplus in oil to such an extent that we need to find out other avenues for utilising our petroleum? If I am correctly informed, Sir, we are not going to be self-sufficient in oil in the foreseeable future. So, if* protein is required, a country like ours will be better advised to find informal agricultural produce rather than from petroleum. I would like to know if he is so sure that this research is worthwhile particularly when our funds for research also are very limited and the KVTC does not have sufficient funds to do research in the gobar gas plants? For that reason do we not need to economise on projects like this?

SHRI CHANDRA PRATAP NARAIN SINGH: Sir, I have already mentioned earlier that various countries are now uDgrading and going in for larger, commercial plants for the manufacture of this single cell protein from petroleum. Regarding petroleum, I am sure the hon. Member is aware that at present we are not in commercial production. It is a research and development activity which is being seriously looked into by various countries all over the world.

He mentioned about agricultural protein. I mentioned earlier, Sir, that land is limited. Today, maybe We can produce the requisite protein, but for the future we have to think of R&D. I am sure the hon. Member will appreciate that research in science is not for today. Maybe, ten years hence when we have enough oil and the land usage cannot produce enough protein, thus this kind of research we cannot lag behind.

PROF. (MRS) ASTMA CHATTER-JEE: Mr. Chairman, Sir, I am aware of this project. When this project Was initiated in collaboration with the French organisation, at that time, I was a member of the Scientific Advisory Committee of the LIP.

Now, the difficulty that the scientists are facing in the IIP is that there are some micro-organisms in petroleum which quickly decompose the single cell protein, and actually they had been trying to devise a suitable method so that this decomposition could be prevented. Twenty years practically have passed away. My question in thi$_s$ connection is: What is the total protein content in 100 litres of petrol? That is the first question. And secondly I think it would be worthwhile to study the cracking of petroleum. The scientists, in LIP. can undertake this project because this will lead to the production of many valuable chemicals that can feed the industries So, I would like to ask these two questions, (1) whether this is being studied or not and (2) what is the total content of the single protein in 100 litres of petroleum and whether they have solved this micro-organisms problem. Because I am no longer there, I do not know what is the actual progress that has been made in this area during these past two decades.

MR. CHAIRMAN: You are face to face with an expert now.

SHRI CHANDRA PRATAP NARAIN SINGH: Sir, the hon. Member is quite correct in what he has stated. At *ha$_t$ stage, there were cer-ain problems being faced by the scientists at LIP. But, Sir, as the technology today is far more advanced, we have gained enough experience, and the problem that she stated is not one of the factors hampering this particular process. Regarding the content of protein, it is low-grade protein and I think the percentage today is between 51 and 56 of protein. Now, Sir, that is not very low. As I have stated earlier, this being a research and development project with the limitations of land and with our off-shore drilling and more petroleum being available to India, we should continue our R&D project of thi3 kind because in fu^{f}ure it may be a very very viable enterprise.

MR. CHAIRMAN: What about the other part—the damage done by-micro-organisms?

SHRI CHANDRA PRATAP NARAIN SINGH: It is not really micro-organism; it is hydro-carbons.

MR. CHAIRMAN: She is a scientist. What do you say, Mrs. Chatterjee?

PROF. (MRS.) ASIMA CHATTER JEE: I say that in petroleum there are certain micro-organisms which create problems for the scientists as these micro-organisms decompose the proteins and the yield drops consider ably. /

SHRI ARVIND GANESH KUL-KARNI: Leave it, Sir.

MR. CHAIRMAN: I want the answer.

SHRI ARVIND GANESH KUL-KARNI: Ignorance is bliss always.

MR. CHAIRMAN: It is a co-operative efforts between the Chair and the hon. Member.

PROF. (MRS.) ASIMA CHATTER-JEE: The micro-organisms decompose the protein and that is why the protein content was very poor and that is the reason why it could not be commercialised. That is one of the main reasons for making us think whether it would have any economic importance at all.

SHRI CHANDRA PRATAP NARAIN SINGH: As I answered earlier, the hon. Member was correct about the problem at the stage that she was involved in this particular experimnetation that was carried on. That problem now is not as it was at the stage that the hon. Member has stated.

DR. BHAI MAHAVTR: Has it been overcome? (Interruptions)

DR. M.M.S. SIDDHU: I would like to know from the hon Minister whether the organisms found in petroleum products do eat away the single-cell, protein with the result that the production is poor.

SHRI CHANDRA PRATAP NARAIN SINGH: Sir, the hon. Member has talked about organisms eating away the protein from the single cell produced from petroleum. To that the answer is "No, Sir".

MR. CHAIRMAN: I think we should feel very happy and satis fied. .. *(Interruptions)* Yes, another doctor now—Dr. Najma Heptulla.

DR. (SHRIMATI) NAJMA HEP-TULLA: A lot of discussion is being done about the single-cell protein from petroleum. Now, time and again we are discussing in this very House alternative sources of energy because oil is becoming scarce. In this situation, as other Members have also pointed out, is it worthwhile to continue spending money on this single-cell protein project? At what stage of the crude oil is this single-cell protein produced? Secondly, what is the nutrition value in comparison to the animal protein which is available now? Ours is an agricultural country and we are not short of land now at least, and we have more animal and fish proteins which, in my opinion, are better than vegetable protein and crude oil protein. I woujd like to know what his opinion is about this.

SHRI CHANDRA PRATAP NARAIN SINGH: Sir, the hon. Member seems to have forgotten the large number of vegetarians in this country. There are many who would no[1] eat animal protein. *(Interrwp*-We are trying to produce more protein for cattle and poultry thereby producing more eggs, more milk and more meat. But for human consumption. a[1] this stage, as I said the world over this is the position. The protein content in, soyabean and agricultural produce is higher. But this is a very futuristic development.

MR. CHAIRMAN: Now we hope that protein is stronger.

Question Hour ig over.

WRITTEN ANSWERS TO QUESTIONS

स्कूलों और कालेजो में अनुसूचित जातियों और अनुसूचित जनजातियों के सदस्यों को वजीफे की दरे

@*362-क. **श्री राम भगत पासवान :** क्या गृह मन्त्री यह बताने की कृपा करेंगे कि :

(क) देश के विभिन्न स्कूलों और कालेजों में हरिजनों तथा अनुसूचित जातियों और अनुसूचित जनजातियों के सदस्यों को 1948 में प्रतिमास जो वजीफा दिया जा रहा था और इस समय जो वजीफा दिया जा रहा है दोनों की दरों में कितना अन्तर है ;

(ख) क्या यह सच है कि वजीफे की दरों में हुई वृद्धि, मूल्यों में वृद्धि की दरों के अनुरूप नहीं है ; और

(ग) क्या सरकार अनुसूचित जातियों और अनुसूचित जनजातियों के छात्रों को देय वजीफे की दर में तदनुरूप वृद्धि करने का विचार रखती है ?

गृह मंत्रालय में राज्य मंत्री (श्री निहार रंजन लस्कर) : (क) से (ग) विवरण सभा पटल पर रखा जाता है। देश के विभिन्न स्कूलों तथा कालेजों में मैट्रिकोत्तर स्तरों पर अध्ययन कर रहे अनुसूचित जाति तथा अनुसूचित जनजाति छात्रों को आर्थिक सहायता प्रदान करने के उद्देश्य से अनुसूचित जातियों तथा अनुसूचित जनजातियों को मैट्रिक स्तर छात्रवृत्तियों की भारत सरकार की योजना वर्ष 1944-45 में शुरू की गई थी ताकि वे अपनी शिक्षा जारी रख सकें। इन छात्रवृत्तियों की दरों को 1974-75 में नियमित बनाया गया था। चिकित्सा और इंजीनियरिंग पाठ्यक्रमों के लिए आवश्यक अधिक खर्च पर विचार करते हुए इन दो छात्रवृत्तियों की दरें 1-1-1978 से पुनः निर्धारित की गई थीं। रहन सहन के बढ़ते हुए लागत और अन्य बातों को ध्यान में रखते हुए सभी पाठ्यक्रमों के लिए दरों में 1981 में पुनः संशोधन किया गया था। छात्रवृत्तियों की पात्रता के लिए माता पिता/अभिभावकों/वार्डों की आय सीमा को भी संशोधित किया गया था। ये दोनों संशोधन 1-7-1981 से लागू हैं। अनुलग्नक I में 1948 की दरें और अनुलग्नक II में 1-7-1981 से लागू संशोधित दरें 1974-75 की कोष्ठ में दी गई संशोधित दरों के साथ दिखाई गई हैं।

©Previously starred question 383, transferred from the ffth August, 1982.