

कंजम्पशन कम हो अर ज्यादा दूरी कार तय कर सके, इस प्रकार की बातों को ले कर डिजाइन तैयार किया गया है। हिन्दुस्तान में 33 साल में कोई नया डिजाइन नहीं निकाला गया है, इसके बारे में। हवाओं की तरंगों से पैदा होने वाला गतिरोध कम से कम हो सके, इस प्रकार का डिजाइन बनाने का भी आपके यहां विचार जारी है ?

कारों के लिये ग्राप जो डिपोजिट लेते हैं उपभोक्ता या खरीदार से, उसका आधार क्या है और उस पर इंटरैस्ट भी क्या देते है ?

श्री राम प्यारे पानिका : हवाई बात हो रही है ।

श्री सत्य नारायण जटिया : हवाई बात नहीं हो रही है । जापान में हाल ही में इस तरह की कार डिवेलप हुई है । क्या उसकी जानकारी मंत्री महोदय को है ?

श्री नारायण दत्त तिवारी : विचार तरंग उन्होंने जो यहां प्रदर्शित की है ...

अध्यक्ष महोदय : विचार तरंगित किए हैं ।

श्री नारायण दत्त तिवारी : उसके लिए मैं उनका आभारी हूं। वायु तरंगों पर एयरो-डायनमिक्स जिस को कहते हैं, उसके आधार पर जो नया डिजाइन बना है, नई प्रणाली विकसित की गई है उसके आधार पर व अन्य नियमों पर हमारे यहां पूना में जो आटोमोटिव रिसर्च इंस्टीट्यूट है वह इस दिशा में रिसर्च कर रही है। अभी यह स्थिति हमारी नहीं है और आवश्यकता भी नहीं है कि जापान में या यू० ए० में जो बड़ी बड़ी कारें हैं या मध्यम कारें हैं, उनके आधार पर वैसी ही घोषणा हम यहां भी

करें। भारत की आवश्यकताओं के अनुरूप अपनी विशिष्ट पृष्ठभूमि के अनुरूप हमें गवेषणा करनी चाहिये। हमारी विचार तरंगें अपनी आवश्यकताओं और अपनी परिस्थितियों तक सीमित रहनी चाहिये।

श्री सत्य नारायण जटिया : डिपोजिट्स पर इंटरैस्ट के बारे में भी मैंने पूछा था।

श्री नारायण दत्त तिवारी : सामान्यतया सात परसेंट ब्याज दिया जाता है।

Development of Liquid Crystal Devices

*142. SHRI N.K. SHEJWALKAR : Will the PRIME MINISTER be pleased to state :

(a) whether Government have seen the report in Hindustan Times, dated June 5, 1983, regarding development of liquid crystal devices ;

(b) if so, whether Department of Electronics has not supported the licence application of Bharat Electronics Ltd. based on indigenous technology ;

(c) whether the Department of Electronics is aware of the work done by a Professor of Raman Research Institute in liquid crystal devices ; and

(d) if so, what has been Government's response to this Indian effort ?

THE MINISTER OF STATE IN THE DEPARTMENT OF SCIENCE AND TECHNOLOGY, ATOMIC ENERGY, SPACE, ELECTRONICS AND OCEAN DEVELOPMENT (SHRI SHIVRAJ V. PATIL) : (a) to (d) A statement is laid on the Table of the House.

Statement

(a) Yes, Sir.

(b) No, Sir. The industrial licence application for Liquid Crystal Displays made by BEL based on indigenous know-how has been re-cast by BEL as a result

of discussions with the Inter-Developmental Task Force on Electronic Components set up by DOE. This re-cast application is being supported.

(c) and (d) Yes, Sir. As far back as 1974 the DOE itself had promoted and financed an R and D project on Liquid Crystal Material by Prof. S. Chandra Shekhar at the Raman Research Institute, Bangalore. By 1980, this project resulted in the generation of production-worthy technology. That technology has since been transferred under the auspices of the DOE to a company in Madras for commercial production, and Liquid Crystal Material is being produced by that company since 1982. Thus, the DOE has been the agency responsible for successfully promoting, and financing the work of Prof. Chandra Shekhar on Liquid Crystal Material and getting the know-how so developed successfully commercialised by industry.

SHRI N.K. SHEJWALKAR : First of all, I want to know when actually the first application was made by the BEL, because in the answer it has been stated that it has been now re-drafted? Was the discussion held only after the news item was published in the Press? Is it a fact? When actually the discussion took place, that is after 5th June or before that? In 1974, actually the development was made with the help of this Department. Prof. Chandra Shekhar was actually helped. Is the government aware that now he has the technology which is world-wide famous? A monograph has been published on the request of the Cambridge University. He has been offered FRS

What has actually been done in furtherance of his advancement or rather research work regarding liquid crystal after 1974? I am afraid, nothing has been done after 1974. It is only known in the Raman Research Institute that he has been successful in getting this distinction in the whole of the world. What is the agreement existing today for the supply of module wherein this liquid crystal technology is used because the price is Rs. 140. at the moment? The

watches which we make by using this technology are being sold at Rs. 500 or more. Is it not a fact that actually BEL had made a prototype watch and probably one prototype which was submitted to Shri C.P.N. Singh. But they could not make one prototype. For that it is understood that an agreement for importing crystals from Hitachi, Japan, has been entered into. Is it a fact and if so how long will this agreement continue?

PROF. N.G. RANGA : Is there any question being asked now?

PROF. MADHU DANDAVATE : The Minister must have forgotten the question?

MR. SPEAKER : Mr. Shejwalkar is trying to fish out the question.

SHRI RATANSINH RAJDA : I do not know whether the watch is working now or not.

DR. SUBRAMANIAM SWAMY : Liquid crystals must be water-proof also.

SHRI N.K. SHEJWALKAR : Lastly, I want to know whether because the D.O.E. is interested in having imports from Hitachi they have made certain visits also to Japan. I am sorry that we are not encouraging indigenous technology. We can make crystals here, some liquid crystals for display are being made by some small companies also. Why should we import the material for these modules from Japan?

MR. SPEAKER : Thank you.

SHRI N.E. SHEJWALKAR : Thank you for allowing me, Sir.

SHRI SHIVRAJ V. PATIL : The application by R.E.L. was made on 28-3-1983.

PROF. MADHU DANDAVATE : Can you reproduce the question, for our information?

SHRI SHIVRAJ V. PATIL : The hon. Member wants to know what for and why we imported.

DR. SUBRAMANIAM SWAMY : Is it the Gregorian Calendar or liquid once ?

SHRI SHIVRAJ V. PATIL : In 1974 the project was started. In 1980 the technology was generated. Production also was started in 1980. That technology was handed over to M/s. Dudaform and M/s. Dudaform have produced 900 grammes of liquid crystal material and 500 grammes have been given to B.E.L. This will make it clear that this technology was initially financed by D.O.E. When it became available it was handed over to the manufacturing agencies and now we are manufacturing liquid crystal material and we are using it in our industry.

On the question of B.E.L.'s application for import of these things, it seems that there was some misunderstanding. The application was made for importing the material which was already available in our country. The liquid crystal material manufactured by Dr. Chandrashekhar is available in the country but in their application they wanted to import that material from outside. And that is why the application could not be granted. Therefore, the D.O.E. wanted a discussion with B.E.L. to find out as to why they were wanting to import the material when it was available in our country as it was being manufactured indigenously.

Now, after that misunderstanding was cleared, there is no difficulty in giving permission to B.E.L. to get certain other materials which they want. There are three other kinds of materials. One is coated plates. They say that they do not have the instrument to manufacture these plates. For that permission can be given. But for other things which are available permission need not be given. D.O.E. has not asked PDEL to import the material. What is allowed to them is the importation of the instrument to manufacture the material and the technology, not the material. And so, the em-

phasis is on indigenous development of the material which goes into the module and the instrument which manufactures it.

SHRI N.K. SHEJWALKAR : What about imports from Hitachi ?

SHRI SHIVRAJ V. PATIL : The PDEL i.e. Punjab Corporation is importing not the material but the instruments to manufacture the material. They are importing the technology to manufacture the material, which is not available in our country. So, here it is not the importation of the material but importation of the instruments.

SHRI N.K. SHEJWALKAR : I have not been able to understand as to why the nodules for watches are being imported from Hitachi even today. Is there any such agreement with them ? How many visits have your officers made to Hitachi, Japan ?

SHRI SHIVRAJ V. PATIL : I have made it amply clear that what is imported is not the raw material, parts of the watch but the machine and the technology.

SHRI C.P.N. SINGH : Since my name has been mentioned, I must make it clear that the watch costing about Rs. 250/- which was presented to me fortunately, was too flashy for me. So, I gave it to my son. But unfortunately it has not worked after the 15th day of its presentation.

Power projects of Tamil Nadu awaiting approval of Planning Commission

*143. **SHRI ERA MOHAN :** Will the Minister of PLANNING be pleased to lay a statement showing:

(a) whether Government of Tamil Nadu have proposed any perspective plan for setting up Thermal and Hydel projects to avert the recurring crises of power shortage leading to loss of industrial production worth several hundred of crores