

**ORAL ANSWERS TO STARRED QUESTIONS AND
SUPPLEMENTARY QUESTIONS AND ANSWERS
THEREON**

GOVERNMENT OF INDIA
MINISTRY OF ROAD TRANSPORT AND HIGHWAYS
RAJYA SABHA
STARRED QUESTION NO. 166
ANSWERED ON- 07/08/2024

BIO-BITUMEN UTILISATION IN INDIAN ROAD INFRASTRUCTURE

166. SHRI K.R.N. RAJESHKUMAR :

Will the Minister of ROAD TRANSPORT AND HIGHWAYS be pleased to state:

- (a) whether Government is considering large-scale usage of bio-bitumen instead of fossil fuel-based bitumen for road construction in the country and if so, the details thereof;
- (b) whether Government has conducted any study to assess the long-term performance and durability of road and pavement construction based on bio-bitumen, and if so, the details thereof, if not, any study is proposed to be conducted in future;
- (c) The details of roads and other related constructions using bio-bitumen in the country, and measures taken by Government to increase the production of bio-bitumen?

ANSWER

THE MINISTER OF ROAD TRANSPORT AND HIGHWAYS
(SHRI NITIN JAIRAM GADKARI)

(a) to (c) A Statement is laid on the Table of the House.

STATEMENT REFERRED TO IN REPLY TO PARTS (a) TO (c) OF RAJYA SABHA
STARRED QUESTION NO. 166 TO BE ANSWERED ON 07/08/2024 ASKED BY SHRI
K.R.N. RAJESHKUMAR REGARDING '**BIO-BITUMEN UTILISATION IN INDIAN
ROAD INFRASTRUCTURE**'

(a) to (c) Ministry has sanctioned two (02) research projects, one each to IIT Roorkee, and Central Road Research Institute (CRRI) New Delhi in collaboration with Indian Institute of Petroleum (IIP) Dehradun to evaluate bio-bitumen in the laboratory and to assess the long-term performance of pavement constructed with bio-bitumen.

A test section has also been laid on Shamli-Muzaffarnagar Section of NH-709AD in November 2022 for performance monitoring for a period of three years to assess suitability of bio-bitumen in road construction. NHAI has also contemplated trial with bio-bitumen on Jorabat-Shillong section of NH-40. Envisaged benefits of bio-bitumen are reduction in bitumen import, reduced Green House Gas (GHG) emissions and opportunity for farmers/MSME to generate revenue and provide employment.

भारत सरकार
सड़क परिवहन और राजमार्ग मंत्रालय
राज्य सभा
तारांकित प्रश्न सं. *166
जिसका उत्तर 07.08.2024 को दिया जाना है
भारतीय सड़क अवसंरचना में जैव-बिटुमेन का उपयोग

*166. श्री के. आर. एन. राजेश कुमार:

क्या सड़क परिवहन और राजमार्ग मंत्री यह बताने की कृपा करेंगे कि:

- (क) क्या सरकार देश में सड़क निर्माण के लिए जीवाश्म ईंधन आधारित बिटुमेन के स्थान पर जैव-बिटुमेन के बड़े पैमाने पर उपयोग करने पर विचार कर रही है और यदि हां, तो तत्संबंधी ब्यौरा क्या है;
- (ख) क्या सरकार ने जैव-बिटुमेन पर आधारित सड़क और फुटपाथ निर्माण के दीर्घकालिक प्रदर्शन और मजबूती का आकलन करने के लिए कोई अध्ययन कराया है, और यदि हां, तो तत्संबंधी ब्यौरा क्या है और यदि नहीं, तो क्या भविष्य में कोई अध्ययन कराए जाने का प्रस्ताव है; और
- (ग) देश में जैव-बिटुमेन का उपयोग करके बनाई गई सड़कों और इससे संबंधित अन्य निर्माण कार्यों का ब्यौरा क्या है और जैव-बिटुमेन का उत्पादन बढ़ाने के लिए सरकार द्वारा क्या उपाय किए गए हैं?

उत्तर

सड़क परिवहन और राजमार्ग मंत्री
(श्री नितिन जयराम गडकरी)

- (क) से (ग) एक विवरण सदन के पटल पर रखा जाता है।

“भारतीय सड़क अवसंरचना में जैव-बिटुमेन का उपयोग” के संबंध में श्री के. आर. एन. राजेश कुमार द्वारा पूछे गए दिनांक 07.08.2024 के राज्य सभा तारांकित प्रश्न सं. *166 के भाग (क) से (ग) के उत्तर में उल्लिखित विवरण

(क) से (ग) मंत्रालय ने प्रयोगशाला में जैव-बिटुमेन का मूल्यांकन करने और जैव-बिटुमेन से निर्मित फुटपाथ के दीर्घकालिक प्रदर्शन का आकलन करने के लिए दो (02) अनुसंधान परियोजनाओं को स्वीकृति दी है, जो भारतीय पेट्रोलियम संस्थान (आईआईपी), देहरादून के सहयोग से एक आईआईटी, रुड़की के लिए और एक केंद्रीय सड़क अनुसंधान संस्थान (सीआरआरआई), नई दिल्ली के लिए है।

सड़क निर्माण में जैव-बिटुमेन की उपयुक्तता का आकलन करने के लिए तीन वर्ष की अवधि हेतु प्रदर्शन की निगरानी के लिए नवंबर 2022 में रारा-709एडी के शामली-मुजफ्फरनगर खंड पर एक परीक्षण (ट्रायल) खंड भी बनाया गया है। एनएचएआई ने रारा-40 के जोराबाट-शिलांग खंड पर जैव-बिटुमेन से अपेक्षित ट्रायल भी किया है। जैव-बिटुमेन के परिकल्पित लाभों में बिटुमेन के आयात में कमी, ग्रीन हाउस गैस (जीएचजी) उत्सर्जन में कमी और किसानों/एमएसएमई के लिए राजस्व अर्जित करने और रोजगार प्रदान करने का अवसर शामिल हैं।

SHRI K.R.N. RAJESHKUMAR: Thank you, hon. Chairman, Sir for allowing me to ask the supplementary question. I would like to ask whether the hon. Minister has any plan or consideration in future to introduce PLI (Production Linked Incentive) Scheme for bio-bitumen production?

SHRI NITIN JAIRAM GADKARI: Sir, we are the largest road network in the world. In 90 per cent of roads, we are using bituminous layer. Bituminous consumption in 2023-24 was 88 lakh tonne and in 2024-25, it is expected to be 100 lakh tonne. Now, 50 per cent of the bitumen is through imports and the annual import cost is around Rs.25,000 crore to Rs.30,000 crore. Sir, it is a great thing that today in our country, because of the leadership of Prime Minister Narendra Modi, our farmers are now not only *Annadata*, they are *urjadata*; not only *urjadata*, they are *bitumendata*; not only *bitumendata*, they are now *hawai engine data*. So, this is a drastic change in the policy of the Government. The bio-bitumen CRRI and Indian Institute of Petroleum, Dehradun had developed bio-bitumen from *parali*, that is rice straw. And, because of burning of *parali*, we are facing air pollution problem in Delhi. Sir, one tonne of *parali* is giving 30 per cent of bio-bitumen, 350 kg of biogas, and 350 kg of biochar. 35 per cent substitution, bio-bitumen into bitumen is successful. Now, The forest saving approximately comes to Rs.10,000 crores, and the patent is already submitted. The petroleum-based bitumen cost is Rs.50 per kg and bio-bitumen from biomass, that is, *parali*, comes to Rs.40 per kg. Sir, it is a good thing. There are two technologies available. Respected Shri Hardeep Singh Puri is not here, but I am giving special thanks to him and the Chairman of Indian Oil. They have a project in Panipat, making one lakh litre of ethanol per day from *parali*, rice straw. The second product is 150 ton of Bio-Bitumen per day and the third product is 88,000 ton per year bio-aviation fuel, sustainable aviation fuel. That is a great thing in the history of the world, and the project is completed. Sir, *parali* burning problem is creating pollution in the country. And now we have got 450 projects where we are converting *parali* into bio-CNG and the product we are getting is Lignin. My Department is going to issue a notification order by which we can use this Lignin in petroleum bitumen up to 35 per cent. We have 450 projects in Haryana, Punjab, and Western UP. They are converting their biomass *parali* into bio CNG and now getting the lignin and we are ready to purchase that. We are issuing the order. So, it is not only going to save our imports, but it is also going to resolve the problem of air pollution and, at the same time, it is useful for the farmers also. The other technology is developed by IIT, Roorkee. We have already experimented at Shamli Muzaffarnagar trial. The second trial is scheduled at Jorhat, but, because of the rainy season, after August, the work

is going to start. Now, everything is proven and I feel that it is achievable that we can use parali, in place of burning parali, and we will get biochar. So, the organic carbon is like oxygen to the human being, particularly in agriculture. I get 88 ton of sugarcane in one acre, it is only because of adding organic carbon. We are getting biochar from that as a byproduct and we can use it as a fertilizer in agriculture which is going to increase the agricultural productivity. Sir, it is a win-win situation. It is the dream of the Prime Minister to make India as a carbon neutral economy before 2070. And for that, this is going to be a great thing. Already, I am giving thanks to the hon. member for initiating this issue.

And NHAI has taken a lot of eco-friendly decisions to protect the ecology and environment. We are using fly ash. We are using 86 kilometre of bamboo crash barriers. We are using plastic, rubber, waste into bitumen, we are using steel slag. A lot of things are going on and it is a great thing for the country where we want to work and help, particularly, the farmers, and I am very much confident about it that the new experiment, which Indian oil has successfully done in Panipat, -- within five years, the day will come where our aviation industry will use 20 percent of bio-aviation fuel, sustainable aviation fuel -- that is going to start from parali, and the farmer will get the rate of Rs. 2,500 per ton for parali.

MR. CHAIRMAN: Second supplementary, Shri K.R.N. Rajesh Kumar.

SHRI K.R.N. RAJESH KUMAR: Sir, the sanctioned amount of Rs. 657.53 crores allocated to Tamil Nadu under the annual Plan 2023-24 is considered to be insufficient. Whether the sanctioned amount to Tamil Nadu can be increased to around Rs. 2,000 crores without any reduction for the current financial year?

SHRI NITIN JAIRAM GADKARI: We do not have any problem. There is no sanctioned limit to annual plan. I will make the inquiry. My Secretary has already taken a decision that there will be no limit. I am not giving Rs. 2,000 crores, but, I am ready to give you Rs. 5,000 crores. My only request to you is, send me the proposal with the land acquisition, utility shifting, and environment forest clearance. I will assure here in the House that there is no sanction limit. Whatever NHAI officials are there in your State, you send all the proposals to me by completing the procedure, particularly land acquisition, environment and forest clearance, and utility shifting. I will sanction the money and I want to declare that there is no limit for any annual plan. And I will take action against the officer who has said this because that is not a correct approach.

That is against the policy of the Ministry. So, we will take action and we will support you. There is no problem about it.

श्रीमती रंजीत रंजन: सभापति जी, मैं आपके माध्यम से, मंत्री जी से कुछ पूछना चाहती हूँ और एक रिक्वेस्ट करना चाहती हूँ। यह बहुत संवेदशील मुद्दा है। चूँकि आप सड़क परिवहन और राजमार्ग मंत्री हैं और ईको-फ्रेंडली काम करने की बात कर रहे हैं, तो आपसे रिक्वेस्ट है कि आप प्लीज इसका संज्ञान लें, जिसके बारे में मैंने अभी जीरो ओवर में भी कहा था। जो चारधाम योजना बन रही है, उसमें आपका 100 किलोमीटर का स्ट्रेच बचा हुआ है। भागीरथी और गंगोत्री, उत्तरकाशी का जो ईको-सेंसिटिव जोन है, प्लीज आपसे उसका संज्ञान लेने की रिक्वेस्ट है। अगर आप उसका 10 से 12 मीटर का चौड़ीकरण न भी करें, तब भी रास्ते का आवागमन चलेगा। यही एक ऐसा स्ट्रेच है, जहाँ पर गंगा अपने प्राकृतिक रूप में बहती है। वह हमारी राष्ट्रीय गंगा है। इसे लेकर बीआरओ ने आपको, डिफेंस मिनिस्ट्री को, एनवायरनमेंट मिनिस्ट्री को काफी * किया है। मैं आपसे सिर्फ इतनी उम्मीद करती हूँ कि क्या आप इस नेचुरल ईको सेंसिटिव जोन को बचाने के लिए इसका संज्ञान लेंगे? थैंक यू, सर।

श्री सभापति: माननीय मंत्री जी, आपको जवाब से पहले थैंक यू दिया है।

श्री नितिन जयराम गडकरी: सभापति महोदय, यह भागीरथी एनवायरनमेंट के प्वाइंट ऑफ व्यू से सेंसिटिव जोन है। इसे लेकर सुप्रीम कोर्ट में मामला था। Mr. Sikchi इसके सुप्रीम कोर्ट में जज हैं। उनकी अध्यक्षता में मीटिंग हुई। कल मेरे ऑफिस में उत्तराखंड के हमारे राज्य मंत्री और चार सांसद, उनकी भी मीटिंग हुई है। अभी चारधाम का 150 किलोमीटर का काम बाकी है, बाकी काम पूरा हो गया है। प्रॉब्लम यह है कि इसे दस मीटर रखना है या कम रखना है। It is very important from the strategic point of view since it is going up to China border. सर, अब मैं इससे ज्यादा बोल नहीं सकता हूँ। जब चाइना के साथ बॉर्डर पर जाएंगे, तो हमारे रंगाड़े जाएंगे, ट्रक्स जाएंगे, तो यह मिनिमम 10 मीटर तो है। एक बात इन्होंने बताई, जो मेरे ध्यान में इससे पहले लगातार अध्ययन करने पर भी नहीं आई थी कि हम लोग बनने तक -- यहाँ बार-बार लैंडस्लाइड्स हुई हैं, अभी भी हुई है, इसलिए इसकी इम्पोर्टेंस को ध्यान में रखते हुए, हमने तीन सूचनाएं दी हैं। हमने जो डीपीआर बनाया था, वह स्विट्ज़रलैंड के कंसल्टेशन से बनाया था, क्योंकि यह हिमालय बड़ा fragile terrain है। सर, हम अब यह काम करेंगे कि इसमें जहाँ पहले आवश्यकता होगी, वहाँ वायाडक्ट डालकर, उसे पहाड़ से दूर ले जाने की कोशिश करेंगे। सेकंड, कंक्रीट से ऐसे कवर करेंगे, ताकि लैंडस्लाइड न हो, यह ऑप्शन हमने देखा है, तो हम यह करेंगे। तीसरा, अगर दो-चार हजार करोड़ ज्यादा लगेंगे, तो भी हम टनल बनाएंगे और इस भागीरथी के ईको-सेंसिटिव जोन की पूरी रक्षा करेंगे। अगर इसके बीच में पेड़ आएंगे, तो हमने ऑलरेडी यह तय किया है -- अभी हमने तीन मीटर के 3.76 करोड़ पेड़ लगाए हैं और करीब 78 हजार लाइव ट्रांसप्लांट किया है।...(व्यवधान)... मैं आपको विश्वास दिलाता हूँ कि कोई पेड़ काटेंगे नहीं, पर

* Expunged as ordered by the Chair.

माननीय सदस्य मेरी एक बात को समझ लें कि यह चाइना बॉर्डर को जाने वाला रोड है, यहाँ कम से कम मशीनरी लेकर ट्रक्स जाएंगे, रंगाड़े जाएंगे, तो यह भी एक सेंसिटिव बात है। इकोलॉजी और एनवायरनमेंट को भी प्रोटेक्ट करेंगे, नेशनल इंटरेस्ट को भी प्रोटेक्ट करेंगे और जो तीर्थाटन करने जा रहे हैं, उनकी भी सुविधा देखकर, इकोलॉजी एंड एनवायरनमेंट को प्रोटेक्ट करके वे-आउट निकालेंगे।

SHRI MAHARAJA SANAJAOBA LEISHEMBA: Sir, my supplementary question pertains to my State Manipur. The ongoing construction works along the two National Highways i.e., NH-2 (Imphal-Dimapur Road) and the NH-37 (Imphal-Jiribam Road) are very slow. And, the present condition of the two National Highways is pathetically bad. What steps will be taken up by the Ministry to expedite the ongoing construction work and improve the two National Highways at the earliest?

SHRI NITIN JAIRAM GADKARI: Hon. Chairman, Sir, works have already been awarded. But, we are facing very crucial law and order problem in the State of Manipur. The people are not allowing the contractors to work. I have a special meeting with your hon. Chief Minister and your officers. We are really facing a lot of problems. There are some places, because of law and order situation, where there is a lot of crucial and sensitive problem. With the co-operation of the hon. Member of Parliament from Manipur, the Chief Minister and the State administration, let us resolve the issue and allow contractors to work. And, before that, we will take preventive measures how we can maintain the road. But, one thing where I need your co-operation is how we can implement the contract, because contractors are facing big losses and we are facing the problem of compensation. So, with your co-operation and also the co-operation of State administration, we will resolve the issue. Please co-operate with us. We are very much committed to complete this project.

MR. CHAIRMAN: Now, supplementary no. 5; Shri Jose K. Mani.

SHRI JOSE K. MANI: Sir, decades ago, the Kerala State Government had tried out the rubberized road. It has been found that the efficiency is good, the durability is good, and they are long-lasting also. Probably, it is much better than the BMBC. Now, all the farmers are facing a huge crisis because of the fall in price. In spite of the huge demand, the tyre manufacturers are not ready to support them. But I would like to know from the Government of India whether the rubberized road can be included as a major raw material for building up national highways.

MR. CHAIRMAN: The hon. Minister.

SHRI NITIN JAIRAM GADKARI: Sir, we have already decided to use waste rubber into the bitumin. The problem is that the rubber from the first source, the cost is very high. So I discussed it with Bhupendra Yadavji because there was a ban on import of rubber tyre, waste tyre. So it is to be considered by the Government. And, we are converting the waste tyre in powder form and, then, we are adding that into it. Sir, I will just tell you what the decisions taken by the Ministry are. We have already used 500 lakh metric tonnes of fly ash. As for waste plastic, it is 2,834 kilometers, rubberized bitumen, it is 85,000 metric tonne; polymer modified bitumin, it is, 50,538 metric tonne; steel slag, it is 25.50 lakh metric tonne; soil stabilizer, it is 1,776 metric tonne; silica fume, it is 1,231 metric tonne, ground granulated blast furnace slag in cement, it is 9.70 lakh metric tonne; geo composite, geo synthesis, 85 lakhs square kilometres; recycled asphalt pavement, 584 kilometers; fibre- reinforced concrete -- it is an important technology, which we have just received from Malaysia, and it is going to save our cost -- it is 27.40 kilometers; fibre in Pavement Quality Concrete, it is 359 kilometers; coir fibre, which is equally important for Kerala, it is 4.48 kilometers; cement- treated base and sub-base, 2,465 kilometers; micro-surfacing, 595 kilometers; slope stabilization using geogrid, 190 kilometers and rainwater harvesting system, 12,081 numbers. We have constructed 1,000 lakes for water conservation. I have received nine D-litts. Out of nine, five D-litts are only for agriculture science and water conservation, and this is the subject which is very much touching to my heart. So we are already very eco-friendly. And, before 2070, to realise the dream of the Prime Minister to make India carbon neutral, we are on the way. Unfortunately, one of the bad things which is in my Ministry is, my Ministry is responsible for 40 per cent of air pollution. And, here, we are now going for ethanol, methanol, bio-diesel, bio-LNG, bio-CNG, electric, etc. Today I am coming to the Parliament by 100 per cent bio-ethanol car, Innova, Toyota; we have hydrogen car. Now because of this fossil fuel, -- 16 lakh crores of import -- we are facing problems of pollution. Our farmers will generate all the futuristic fuels for the country, from hydrogen to ethanol, and we will reduce the pollution. That is our interest, Sir.

MR. CHAIRMAN: I hope your D-litts get into double digit quite soon. Now, Question No. 167, Shri Digvijaya Singh.

SHRI DIGVIJAYA SINGH: Sir, I am grateful to you that this is the first question which has appeared in the first five. Thank you, Sir.

MR. CHAIRMAN: You should be grateful to the mechanism of balloting.

SHRI DIGVIJAYA SINGH: Sir, I am grateful to you.

MR. CHAIRMAN: Question No.167.