

## **RAJYA SABHA**

*Friday, the 27th April, 2012/7th Vaisakhe, 1934 (Saka)*

The House met at eleven of the Clock

MR. CHAIRMAN in the Chair.

### **ORAL ANSWERS TO QUESTIONS**

#### **Impact of Global Warming on Agriculture**

\*321. SHRI A. ELAVARASAN: Will the Minister of AGRICULTURE be pleased to state:

(a) whether Government is aware of the adverse impact of global warming on agricultural production in developing countries;

(b) if so, the details thereof;

(c) whether Indian Council of Agricultural Research (ICAR) has assessed the impact of global warming on agricultural sector of the country; and

(d) if so, the details thereof and the remedial measures taken by Government in this regard?

THE MINISTER OF STATE IN THE MINISTRY OF AGRICULTURE (SHRI HARISH RAWAT): (a) to (d) A Statement is laid on the Table of the House.

#### ***Statement***

(a) and (b) There are a number of reports by several organizations and authors about the possible impacts of climate change in general, and rise in temperature in particular, on global agriculture. Publications such as those by Inter-Governmental Panel on Climate Change (2007) and Universal Ecological Fund (2011) indicate such impacts on some crops in different regions of the world.

According to these reports, there will be 14% deficit in global wheat production, 11% in rice and 9% in maize by 2020. They also claim that there will be reduction of up to 50% in rainfed crops in some African countries during 2000-2020 period.

(c) Indian studies conducted under ICAR Network Project on Climate Change (NPCC), however, indicate that climate change may reduce yield of timely sown irrigated wheat by about 6% in 2020. When late and very late sown wheat is taken into consideration, the projected impact could reduce the yield by 18%, if no adaptation measures are followed. Similarly, this study projects 4-6% reduction in yield of rice and up to 18% in respect of irrigated *kharif* 'maize, and 2.5% in rainfed sorghum by the year 2020.

(d) As part of the National Action Plan for Climate Change, the Mission Document on National Mission for Sustainable Agriculture (NMSA) has been formulated jointly by Department of Agriculture and Cooperation and Department of Agricultural Research and Education, in active consultation with stakeholders including State Governments, and has been approved in principle by Prime Minister's Council on Climate Change for the XII Plan. A scheme 'National Initiative on Climate Resilient Agriculture (NICRA)' with an outlay of Rs. 350 crores for the period 2010-12 has been implemented by the Indian Council of Agricultural Research. The components of the scheme include: (i) strategic research on natural resources, major food crops, livestock, marine and freshwater fisheries for adaptation and mitigation; (ii) demonstration of available climate resilient practices on farmers' field in 100 most vulnerable districts of the country; (iii) strengthen research infrastructure and capacity building for climate change research; and (iv) sponsored research.

SHRI A. ELAVARASAN: Sir, my first supplementary question is: is there any Research and Development Project undertaken by the Indian Council of Agricultural Research to invent new crop varieties of various kinds, which should be resilient to climate change? If so, what is the total number of such new varieties invented till today by ICAR?

SHRI SHARAD PAWAR: Sir, the general expectation is, there will be some impact on wheat crop and for wheat we have instructed Indian Council for Agricultural Research, particularly, scientists and readers, from wheat side. They have developed four new varieties. One is HD 29-85, the second is HD 29-87, the third one is HD 30-47 and Golden Halna. These varieties are terminal heat solvent wheat varieties and we are observing, and I think we will definitely get good results.

SHRI A. ELAVARASAN: Sir, my second supplementary question is: is there any additional research project undertaken by the Ministry to upgrade the existing crop varieties, especially paddy and wheat, to enable those varieties resilient to excess drought and flood?

SHRI SHARAD PAWAR: It is not because of climate change or global warming. But ICAR and their scientists and readers are continuously working to develop new varieties. About the paddy, they have developed some variety which

will definitely be convenient for either flood or drought kind of situation. If we see the overall impact, generally, throughout India, internationally, there is a continuous talk. If there is a serious impact globally, there will be a serious impact on Indian agriculture also. It will affect the crop yield, but, for the last five years, if you see carefully, in the areas of wheat, rice, cotton and sugarcane, in all these areas, fortunately in India, production has not dropped; in fact, we are getting more production.

**डा. नजमा ए. हेपतुल्ला:** सर, हमारे देश में रबी और खरीफ की दो फसलें होती हैं और उनके लिए एक समय मुकर्रर होता है कि कब हमें sowing करनी है और कब harvesting करनी है। ग्लोबल वार्मिंग के कारण climate change हो रहा है और इस वजह से बारिश के मौसम भी बदल गए हैं। क्या सरकार sowing and harvesting के समय में कोई तब्दीली लाने की कोशिश करेगी?

**श्री शरद पंवार:** सर, जहां तक paddy की बात है, बारिश की शुरुआत होने के बाद paddy plantation के लिए कोई समस्या नहीं आती है। गेहूं की फसल के लिए ज्यादा समस्या आती है। इसमें समस्या यह आती है कि आज कल जिस season में हम sowing operation करते हैं, उसी सीजन में इसको करना चाहिए, लेकिन अगर बीच में कहीं तापमान में बदलाव आ गया, यानी तापमान बढ़ गया और खास तौर पर जब grain formulation की स्टेज हो, तब अगर तापमान पर कोई बुरा असर हो गया, तो इसकी जरूर कीमत चुकानी पड़ती है और इससे total production पर serious effect पड़ता है। चार साल पहले खास तौर पर वेस्टर्न यूपी, पंजाब और हरियाणा में एक बार ऐसा हुआ था, मगर आज अभी तक ऐसी स्थिति नहीं आई, क्योंकि wheat crop is an important crop for us. What requires winter, cold weather. So, unless and until there is a change in cold, I don't think we should follow that rule. But as on today जो समय तय किया गया है, अगर उस समय पर sowing operation हुआ, तो नुकसान नहीं है। जिस समय पर हम sowing operation करते हैं, अगर उसमें delay हुआ, तो इससे नुकसान होता है, मगर इस पर साइंटिस्ट्स का ध्यान है। हम observe कर रहे हैं और अभी तक के observations का जो रिजल्ट है, वह यह है कि sowing operation का जो period है, उसमें बदलाव लाने की आवश्यकता नहीं है। ऐसा निष्कर्ष उन्होंने निकाला है।

**SHRI P. RAJEEVE:** Sir, this February, an international conference on Agriculture and Climatic Change was conducted by the ICAR and a non-Governmental institute called National Council for Climatic Change and Sustainable Development and Public Leadership. In that conference, it was observed that knowledge and understanding of implication of climate change at the national level is inadequate and fragmentary. It was not seen in the reply of the hon. Minister. So, I would like to know, through you, from the hon. Minister as to what steps have been taken in terms of commissioning for studies to assess the impact of global warming on agriculture and what specific projects, in addition to one project which is mentioned in the reply, formulated by the Government to address this issue.

**SHRI SHARAD PAWAR:** Sir, it is already given in the reply itself that the Prime Minister's Council on Climate Change for the XII Plan, a scheme called

National Initiative on Climate Resilient Agriculture with an outlay of Rs. 350 crores for the period 2010-12 has been implemented.

We have also introduced another scheme. And, under this, practically, we have selected 100 most vulnerable districts in the country and we are working in these 100 vulnerable districts. As on today, there is a sort of fear or complex in the minds of many learned people that there would be a serious impact of climate change on Indian agriculture or global agriculture. Sir, after studying all the figures globally, there is only one country — Nigeria — where we have seen some impact of climate change on their productive chain production. But, in the rest of Africa also we have not seen, in Asia also we have not seen and in India also we have not seen. We have seen in India, as I said, about four years back, when question came about formulation of grain in wheat. For fifteen days there is a sort of heat wave and the wheat production was affected in India. But, that will happen at any time. If you study or observe it in the last three years, at least, we have not seen that type of a situation. But, still, this is an important issue. We have to work. We are not in a position to compromise on the issue of productivity and production and that is why it is our responsibility to continue with our research, keep close observation and see that if that type of a situation emerges then some viable alternative by way of crops or any other system has to be available in the country.

SHRI V.P. SINGH BADNORE: Sir, my question is: In the 20th Century, the global climate change and the temperatures rose only by 0.6 degrees. In the 21st Century, there is escalation. Is it a fact that the impact is going to be so much on the Indian conditions that the Himalayan Glaciers are going to be diminished and that is going to impact the Ganga delta basin and the water table is going to be receding as well? And, is that going to affect us? It is because there are two things. The first one is water supply and irrigation and the other is temperature. Now, you have talked about only one and not the other. So, how do you assess both things, because that is what is going to affect? The studies say that this is going to affect the whole pattern of agriculture. This has not really been addressed and we have not thought about it also.

We have also not given thought to new patterns. Even farmers today feel that they are not getting what they used to get earlier, and the pattern is changing very, very fast.

SHRI SHARAD PAWAR: In fact, experts' reports are very confusing. Some reports say that there would be more rain, there would be greater availability of water, which might even affect the crops, and there would be more floods. Now, if there is more rainfall, it would not be for the whole season; it might be there only for a limited period, and that will affect the crop and the availability of water. So, that was one of the observations. But then, we had also gathered some information from 100 vulnerable districts in the country. In each district, we selected certain Blocks; in

those Blocks, we randomly selected certain villages, and in those villages, again, we selected certain groups of farmers. We collected information from them and from their fields. By and large, we haven't come across that kind of a situation so far.

Now, as far as the question of availability of water is concerned, I must accept that there is too much pressure on our water resources in the country. The percentage of water-lifting from the soil is very high. Wastage of water is also a serious concern, and that is why we have been facing problems. The solution for that is an effective water conservation programme and an effective management of water resources. These are the two most important things. We have constant dialogues with State Governments. Even through NREGA, our thrust is to give more weightage to such programmes. We do expect that there will be good results.

MR. CHAIRMAN: Question 322.

**पश्चिम रेलवे के अन्तर्गत आमान परिवर्तन किया जाना**

**\*श्री थावर चन्द गहलोत:** क्या रेल मंत्री यह बताने की कृपा करेंगे कि:

(क) रेलवे ने पश्चिम रेलवे के अन्तर्गत आने वाले किन-किन रेल मार्गों के आमान परिवर्तन की स्वीकृति प्रदान की है और उक्त स्वीकृति किस-किस परख को दी गई है;

(ख) उपरोक्त स्वीकृतियों की तुलना में किन-किन रेलमार्गों का कितना-कितना आमान परिवर्तन कर दिया गया है; और

(ग) रतलाम जंक्शन से इंदौर, माऊ, खंडवा रेल लाइन के आमान परिवर्तन के कार्य को कब तक पूरा कर लिया जाएगा?

**रेल मंत्रालय में राज्य मंत्री (श्री भरतसिंह सोलंकी):** (क) से (ग) पश्चिम रेलवे के अंतर्गत आमान परिवर्तन की 10 परियोजनाएं स्वीकृत की गई थी, जिनमें से 4 परियोजनाएं अर्थात् भरुच-समनी-दाहेज (62.36 किमी.), प्रतापनगर-छोटाउदयपुर (99.27 किमी.), अंकलेश्वर-राजपीपला (62.89 किमी.) और पीपावाव और सुरेन्द्रनगर-धगधरा (419.48 किमी.), तक विस्तार सहित सुरेन्द्रनगर-भावनगर-ढोला-ढासा-महुआ को पूरा कर लिया गया है और शेष 6 परियोजनाएं प्रगति के विभिन्न चरणों में हैं। चालू परियोजनाओं का परियोजना-वार विवरण और उनका स्वीकृति/बजट में शामिल करने का वर्ष नीचे दिया गया है:

क्र.सं.	परियोजना का नाम	स्वीकृति/बजट में शामिल करने का वर्ष
1.	रतलाम-महोव-खंडवा-अकोला (472.64 किमी.)	2008-09
2.	अहमदाबाद-हिम्मतनगर-उदयपुर (299.20 किमी.) और मोदसा-समलाजी के बीच नई लाइन (22.53 किमी.)	2008-09
3.	वयोर तक विस्तार (24.65 किमी.) सहित भुज-नलिया (101.35 किमी.)	2008-09
4.	राजकोट-वेरावल, सापुर-सराडिया के लिए नए मैटिरियल मौडिफिकेशन सहित 1994-95 वांसजलिया से जेतलसर तक और वेरावल से सोमनाथ तक नई लाइन और सोमनाथ-कोडीनर (365.54 किमी.)	