logy of upgrading the low-grade bauxite to high-grade bauxite. We want both the lowgrade and highgrade bauxites available to be mixed and the full advantage should be taken.

SHRI JAGANNATH RAO: Sir, aluminium industry comes under the schedule of the Industrial Policy Resolution of 1956. That is why the private sector was allowed to set up industries. That is how Indalco etc. came up. Now that the BALCO has come into existence, may I know, whether the Government will think of not allowing the private sector any further to set up new units or to expand their existing units. May I know what is the policy of the Government in this regard?

SHRI CHANDRAJIT YADAV: I think it will not be advisable at this stage to do that when the private sectors are already in existence and are producing this. There are certain guidelines issued by Government and they have to function according to them Therefore, when we need this metal, it will not be correct to say at this stage that we will not allow their expansion and also to set up new units. As I have said earlier, now that BALCO has come into existence in the public sector in this area, we will take care of that.

Micro-Wave Network

*224. SHRI D. D. DESAI: Will the Minister of COMMUNICATIONS be pleased to state:

(a) whether the country will be covered by micro-wave communications network soon; and

(b) if so, whether the country is producing indigenously equipment for the micro-wave network?

THE DEPUTY MINISTER IN THE MINISTRY OF COMMUNICATIONS (SHRI JAGANNATH PAHADIA): (a) and (b). It has been planned to provide broad band telecommunication media such as Micro-wave Redio-relay system and/or coaxial cable system over the major trunk routes in the country.

Some types of micro-wave radio-relay systems are already in production in the Indian Telephone Industries at Bangalore. More types are being developed. Adequate capacity to meet the country's requirements is expected to be established soon.

SHRI D. D. DESAI. Sir, the communication system we have, particularly, we are referring to the telephones, requires much to be desired. Will the hon. Minister tell me, in that direction, whether it will be the Government's endeavour to see that the micro-wave stations, the repeater antennas, are set up in as many localities as possible and would he not consider that the present communication does not compare well even to the radio communication that we have or which we receive and will he not do something in that regard?

THE MINISTER OF COMMUNICATIONS (DR. SHANKER DAYAL SHARMA): So far as micro-wave system is concerned, we are trying to develop that. Last year, the micro-wave kilometreage was doubled—we have provided 8,600 k.m. and we are going to provide upto 20,000 K.M. The hon. Member, when he talked about the mechanisation, seems to be a little confused between long distance transmission and local switching. In local switching, mechanisation and electronics are being considered. Micro-wave is used for long distance transmission purposes. There again, micro-wave is not the only answer because in micro-wave, the capacity is limited. The countries are going with the micro-wave and co-axial cable at the same time. The possibilities in co-axial cable have gone up recently very much. We can carry many more channels and more safely through it. India like other countries in the world, has to have both micro-wave and co-axial Similarly, the terrain will determine whether the micro-wave will be more economical or co-axial will be cheaper. Naturally, where there are hills, micro-

wave becomes easier and cheaper. When we take a large number of channels in co-axial cables, they are dropped in the way. In that way they are more economical. So we have decided that we will try to develop both of them. We are going about long distance transmission in a big way because the return is good. The STD which we are able to bring in is also useful. We are using both micro-wave and co-axial, for long distance transmission also. We have developed the capacity so far as the micro-wave is concerned. We are also planning and we are almost ready with the solid state micro-wave.

SHRI D. D. DESAI: When I mentioned 'mechanical device', I meant the cross bar system which we are presently using. Will he phase it out and replace it by electronic exchanges or not? We have available in the country both the Electronics Corporation and the Electronics Department. Their assistance could be obtained in sensing, selecting and switching. When I mentioned about repeater antennae, this took into account the fact that micro-wave travels in the same way as light, that is in a straight line. and therefore, repeater antennae were considered necessary. I am only requesting the hon. Minister whether he would get rid of the present system and replace it by electronic exchanges coupled with micro-wave.

MR. SPEAKER: The question is too long and the answer will be even longer. You will have to explain your question, what you meant, what you did not mean. What is your question? You are explaining your earlier question. what you meant.

SHRI D. D. DESAI: I am saying this to make it easier for him to answer. The question is whether the present combination of mechanical and electrical devices would be replaced by electronic exchanges coupled with micro-wave.

MR. SPEAKER: I think you are giving information.

SHRI D. D. DESAI: What steps is he taking to eliminate the cross bar system?

MR. SPEAKER: There is no question in it. It is more an explanation. Shri Tiwary.

SHRI D. N. TIWARY: After the introduction of the micro-wave system, there are still complaints that at certain places the telephones are not working properly. May I know what improvements have been brought about on the old system after the introduction of this system, and if there are breakdowns or improper working, what steps are being taken to have it rectified?

DR SHANKER DAYAL SHARMA: As I pointed out in the beginning, there seems to be confusion between two different processes. There is local switching and there is long distance transmission. These are two different processes altogether. Micro-wave is used for long distance transmission. So far as long distance transmission is concerned, micro-wave is functioning fine. We have to increase the number of channels. For micro-wave, we have repeater stations with tower and antennae for repeating micro-wave signals from one to another. On wide band micro-wave systems, we provide 1800 telephone channels to each radio bearer channel. We add more radio channels on any route depending on the circuit requirements.

As regards the other trouble that you are talking about, regarding local switching, if the hon. Speaker permits, I can explain.

MR. SPEAKER: No more.

श्री राम सहाय पांडे : मैं भी स्विचिंग के बारे में ही पूछना चाहता हूं।

अध्यक्ष महोदय : आप माइक्रो-वेव के बारे में पूछिये, स्विचिंग, क्रासबार, को-एक्सियल के बारे में नहीं।

श्री राम सहाय पांडे : लेकिन इसका इस नवम्बर से सम्बन्ध है।

अध्यक्ष महोदय : यह सवाल माइक्रो-वेव के नेट-वर्क का है, स्विचिंग का नहीं है।

श्री राम सहाय पांडे : श्री शंकर दयाल शर्मा जब से इस विभाग के मंत्री बने हैं, टेलीफोन के काम में बड़ी उन्नति हुई है, माइक्रो-वेव और न जाने क्या क्या चीजें उन्होंने शुरू कर दी हैं। लेकिन डाक्टर साहब के लिये कुछ मुसीबतें भी पैदा हो गई हैं, हमारे टेलीफ़ोन्ज के बिल बहुत बढ़ गये हैं...

अध्यक्ष महोदय : आप बिल की बात को छोड़िये, माइक्रो-वेव के बारे में पूछिये।

श्री राम सहाय पांडे : माइक्रो-वेव के माध्यम से टेलीफोन का जो प्रावधान किया जा रहा है—उसका नेट-वर्क देहातों में क्या है ?

अध्यक्ष महोदय : देहातों के बारे में बता दें अगर आपका कोई माइक्रो-वेव नेटवर्क है।

डा० शंकर दयाल शर्मा : माइक्रो-वेव नेटवर्क तो वहां यूजफुल रहता है जहां बहुत चैनल्ज की जरूरत होती है। यू एच एफ, अल्ट्रा हाई फ्रिक्वेंसी साठ चैनल्ज की जहां जरूरत होगी वहा तक चला जाएगा। देहातों में तब जाएगा जब वहां इनकी आवश्यकता होगी।

Developing a New Cholera Vaccine at Cholera Research Centre, Calcutta

*225. SHRI P. GANGADEB: Will the Minister of HEALTH AND FAMILY PLANNING be pleased to state:

(a) whether a new cholera vaccine has been developed at the Cholra Research Centre, Calcutat;

(b) if so, whether the vaccine was tested on people in Calcutta; and

(c) if so, the outcome thereof?

THE DEPUTY MINISTER IN THE MINISTRY OF HEALTH AND FAMILY PLANNING (SHRI A. K. M. ISHAQUE): (a) and (b). Yes, Sir.

(c) The vaccine has offered 90-100 per cent protection to children in the age group 1—4 years. It has given 62—77 per cent protection to all age groups above 1 year.

SHRI P. GANGADEB: In view of the fact that the previous cholera vaccine used to give partial immunity for only six months, we request the hon. Minister to clear our doubts whether the new vaccine has got any advantage over the previous one in giving immunity of a longer duration or giving absolute immunity from this dreaded disease? What is the latest research in regard to this matter?

SHRI A. K. M. ISHAQUE: It is definitely an improvement on the last one. So far as protection is concerned, in the age group 1—4 years it gives 100 per cent protection and in other groups it gives protection upto 77 per cent. In that respect it is definitely an improvement upon the previous one. Secondly, so far as the duration is concerned, by its nature it is presumed to be giving protection for a certain period: the one now under consideration has a period of 380 days and on that account also it is an improvement on the last one.

SHRI P. GANGADEB: What are the other researches that are going on to give fuller protection to the persons vaccinated and also for producing some type of oral vaccine so that people can accept it rather easily.

SHRI A. K. M. ISHAQUE: I think a very useful drug has been manufactured in the country, that is known as corosol and it has brought about a revolution in this respect. It can be taken orally. But health education and personal hygiene is the best method of protecting people.

DR. KAILAS: May I know from the hon. Minister whether this vaccine is