

THE MINISTER OF STATE IN THE DEPARTMENT OF ATOMIC ENERGY (DR. JITENDRA SINGH): (a) There are a total of 17 Rare Earth Elements in Nature. These are: Cerium, Lanthanum, Praeseodymium, and Neodymium (4, which are commonly referred to as “lighter rare earth elements”); and Scandium, Yttrium, Gadolinium, Samarium, Europium, Promethium, Terbium, Ytterbium, Erbium, Holmium, Lutetium, Dysprosium, and Thulium (13, referred to as ‘heavier rare earth elements’). Monazite is the only commercial mineral source of extraction and production of rare earths in India. Countries such as China, USA and Indonesia which are major rare earths producing countries now, produce Rare Earths from mineral sources such as bastnaesite, xenotime, and ion-absorption clay. While production of rare earths from Monazite, which is the only source of rare earths in India, yields materials such as Uranium and Thorium (which are radioactive) in the process of separation of Rare Earths, the mineral sources for Rare Earths in China, USA, and Indonesia, *i.e.* bastnaesite, xenotime and ion-absorption clay are non radioactive. These minerals are not available in India in commercially exploitable quantities. Further, since separation of Rare Earths from Monazite (which is abundantly available in certain coastal areas of India) yields Uranium and Thorium which are “prescribed substances” under the Atomic Energy Act, 1962, only the Department of Atomic Energy PSU, Indian Rare Earths Limited (IREL) has been entrusted with the responsibility of production of Rare Earths in the country through processing of Monazite. The details of production of Rare Earths by IREL over the past three years (Qty in metric tons) are as follows:

Type of Rare Earth	2012-13	2013-14	2014-15	Total for 3 Years
Lanthanum Compounds	65.662	0.438	16.723	82.823
Other Rare Earth Compounds*	0.000	0.000	17.479	17.479
TOTAL	65.662	0.438	34.202	100.302

* Other Rare Earth Compounds include (i) Cerium Compounds – 8.447 tons (ii) Samarium Compounds – 9.032 tons

(b) and (c) There was no export of Rare Earth Elements by IREL, the only domestic producer of Rare Earths using Indian mineral resources over the last three years.

Production and export of Rare Earth Elements

1229. SHRI AVINASH PANDE: Will the Minister of ATOMIC ENERGY be pleased to state :

(a) the progress of agreements for cooperation between India and Japan in the production and export of Rare Earth Elements from India; and

(b) the action taken pursuant to these agreements and the current status thereof?

THE MINISTER OF STATE IN THE DEPARTMENT OF ATOMIC ENERGY (DR. JITENDRA SINGH): (a) A Memorandum has been signed between the Department of Atomic Energy (DAE) and Ministry of Economy, Trade and Industry (METI) of Japan on Co-operation in the field of Rare Earth on 16.11.2012.

(b) The Department of Atomic Energy (DAE), Govt. of India had constituted a Committee on 14th December, 2012 to (i) fix the modalities of the proposed sale purchase agreement between Indian Rare Earths Limited (IREL) and Toyota Tsusho Corporation (TTC) including off-take quantity (ii) fix formula for pricing at which IREL should sell Mixed Rare Earths Chloride to TTC (iii) fixing the terms of proposed JV, percentage of share allotment to IREL and its pricing and (iv) finalise comprehensive details of technology sharing including details of complete technology to be shared and time frame for such sharing. IREL and TTC have jointly finalized the price of mixed rare earth Chloride (subject to approval of the Cabinet Committee on Security) for supply to TTC's plant at Vizag from IREL's plant at Odisha. IREL has set up a 10,000 tons per annum (TPA) Monazite Processing Plant (MoPP) at its unit in OSCOM, Odisha to produce about 26 TPA of Nuclear Grade Ammonium Di-Uranate (NGADU). 11,000 tpa of Mixed Rare Earth Chloride (MRECL) can be produced by processing of 10,000 tpa of monazite. IREL has retrofitted its facilities at RED, Aluva, Kerala to process about 5,000 tpa of MRECL and to produce separated high pure rare earths. Further, IREL has entered into a MoU with Bhabha Atomic Research Centre (BARC), Defence Metallurgical Research Laboratory (DMRL) and International Advanced Research Centre for Powder Metallurgy and New Materials (ARCI) for developing technology to produce Rare Earth (RE) metals/magnets. Technology for production of RE based magnets is available with DMRL. Initial trials were successful in making RE permanent magnets using DMRL technology and RE metals produced using BARC technology from separated RE oxide made in IREL's plant at RED, Aluva.

Initiation of Power Projects

1230. DR. V. MAITREYAN: Will the Minister of ATOMIC ENERGY be pleased to state :

(a) whether the Nuclear Power Corporation of India Limited (NPCIL) or Union Government has initiated Power projects to produce more green energy in the country;

(b) if so, the details thereof and the amount allocated so far in the last three years, project-wise;