

The background of the slide is a faded, sepia-toned map of Mongolia, showing its geographical outline and internal administrative boundaries. In the bottom-left corner, a yellow and white ruler is partially visible, indicating the scale of the map. The text is centered over the map.

# **Market Potential for Rare Earth Elements - Projects in Mongolia**

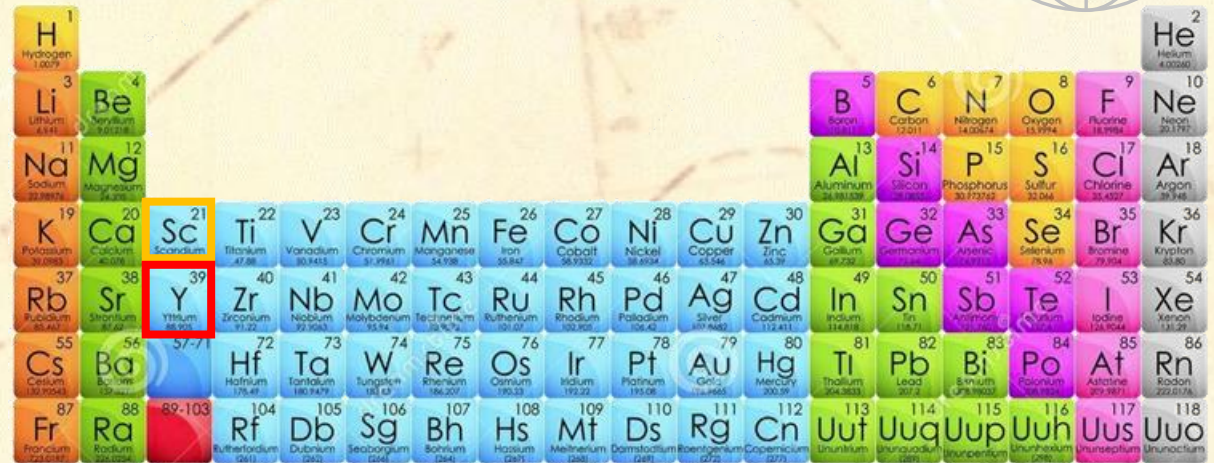
**presented by  
Dr. Rüdiger Schwarz**



# What are REE?



- 17 chemical elements of the 3<sup>rd</sup> column + the lanthanide series
- Are not rare (some are abundance as Copper)
- Important Minerals are
  - Bastnaesite
  - Monazite
  - Xenotime



Light Rare Earth Elements



Heavy Rare Earth Elements



# Application

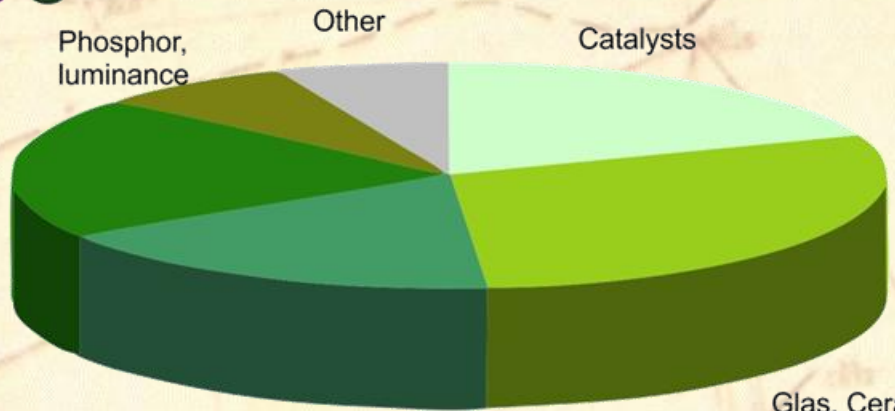
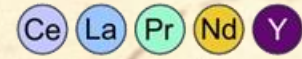


Low-energy bulbs  
LED  
LCD  
Plasma screens  
Laser



Water Treatment  
Pigments  
Fertilizer  
Nuclear technology  
Defence

Catalysts for cars  
Catalysts in refineries  
Catalysts for chemical processes  
Additive for diesel



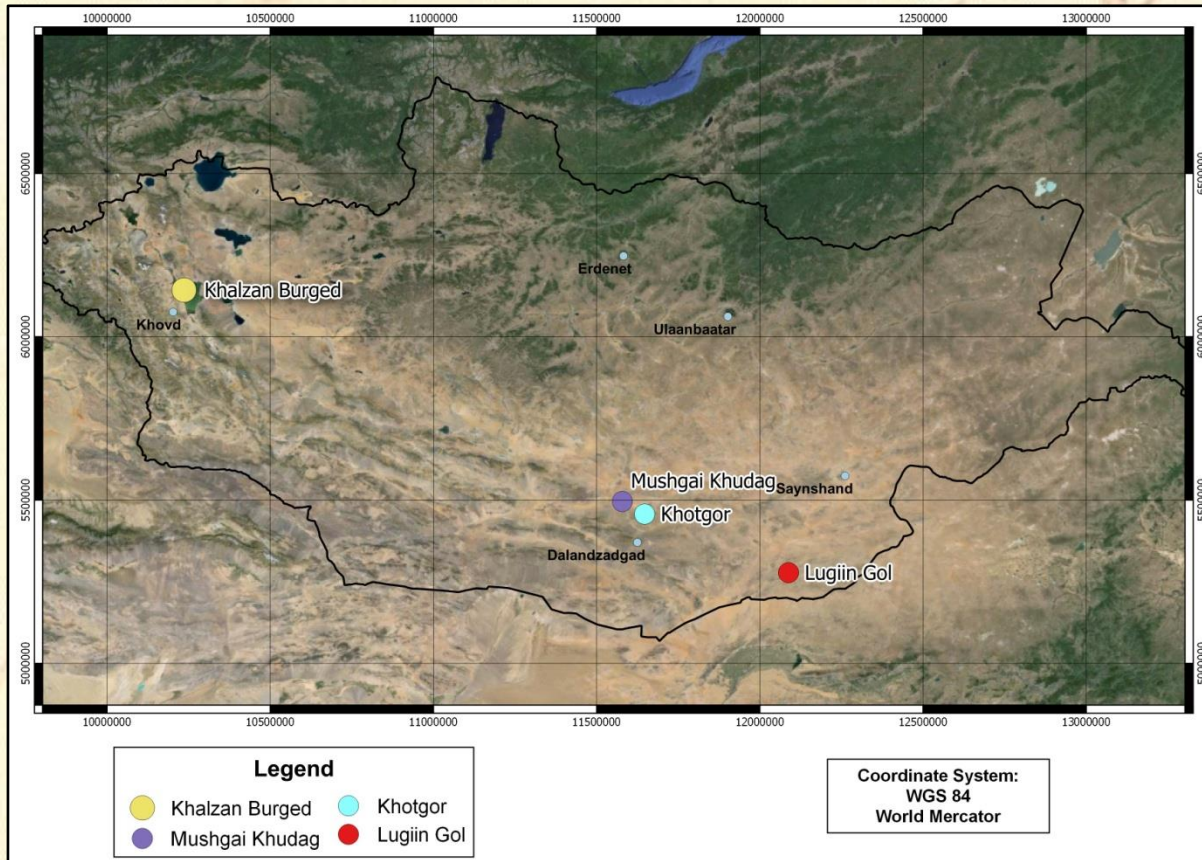
Engines and generators  
wind turbines  
electric vehicles  
hybrid vehicles  
Hard drive  
MRI scanner  
Speaker

Polishing agent  
Glas additives  
Stabilisers for ceramics  
UV adsorptions

Alloys for steel  
Super alloy  
Igniters  
NiMH batteries  
Fuel cell  
MRI scanner  
Speaker

Modified after Öko-Institut.e.V.





## 4 Main REE-Deposits

### 1. Mushgai Khudag:

1.36% REO → 463,617 t LREO

### 2. Khalzan Burged

0.6% REO → 300,000 t LREO

### 3. Khotgor

1.22% REO → 486,720 t LREO

### 4. Lugiin Gol

3.2% REO → 12,505 t LREO

Elsner, H et. al, 2011



**Thank you for your attention!**

**Questions?**

**Do not hesitate.**

## Reference

Öko-Institut e.V., 2011, Hintergrundpapier Seltene Erden

Elsner, H., Buchholz, P., Schmitz, M. & Altangerel, T., 2011. *Industrial Minerals and Selected Rare Earth Metals in Mongolia*, s.l.: Government of Mongolia.