Role of Natural Resources in influencing economic growth

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Introduction

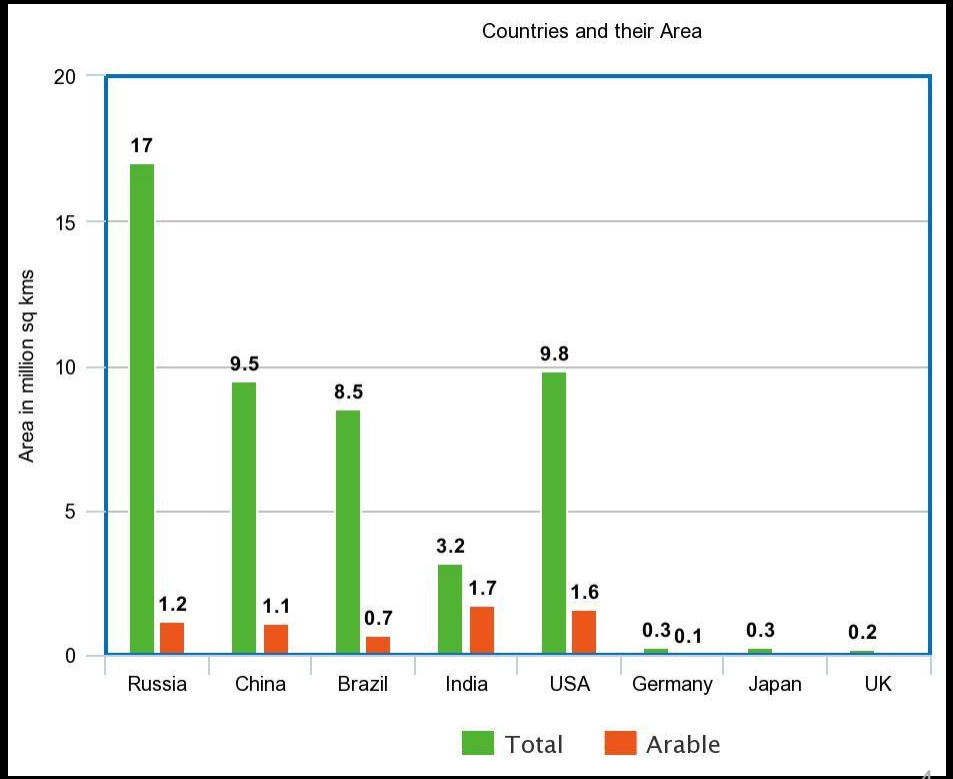
- Economic growth is measured by increase in the country's GDP(Gross domestic product) which is the value added and a quantitative measure of a country's economic activity.
- Key factors deciding economic growth are HR(Human Resources, NR(Natural Resources) and TR(Technological resources).
- Land resource is most important NR considering livelihood of people depends on Agriculture.

Does only size matters?

- Russia is the largest country despite most of the Russia's population lives on the western Russian plain.(7.5% productive land)
- Only 12.6% of China's total land can be cultivated.
- Therefore, principle factor affecting the development of an economy is the land.

Land: An essential natural resource

- Arable land: Land capable of being ploughed
- India uses around 52% of land in agriculture.Russia only 7%
- Developing countries - Use land for their economic development.
- Developed countries- service oriented Land is constrained and uses efficient technology .
- USA uses 16% land, Japan 11% ,UK 25%



- Developed Nations -The regions facing a shortage of arable land in the future include some of the most developed and populous nations in the world.
- Developing Nations- Nations with the greatest potential for arable land cultivation are predominantly located in the developing world.

Reasons for arable land scarcity

- FAO, nearly two billion hectares (22% of arable) worldwide has been degraded since the 1950s.
- Variety of climatic, environmental and human factors which have an effect on available arable land resources.
- Terracing, harmful pesticides,industrial waste,urban encroachment,government policies and Deforestation.

Availability of arable land

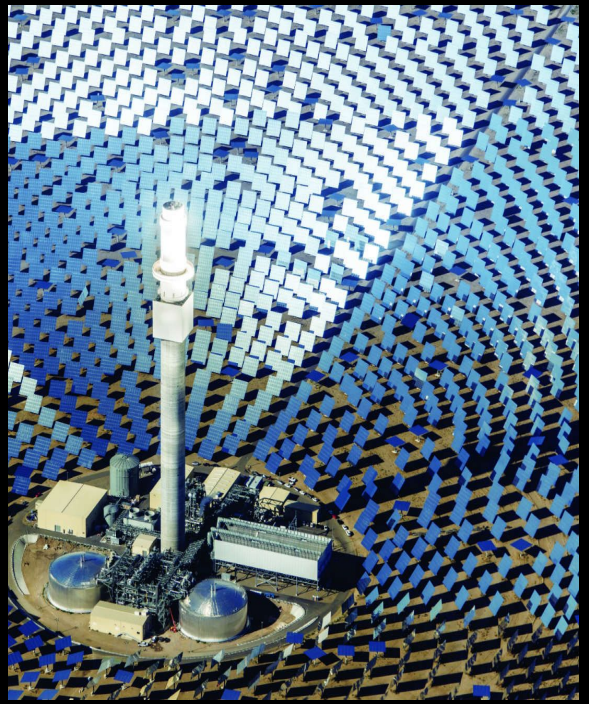
- By 2050 the world will have a total of nine billion mouths to feed, which represents an increase of around 40 per cent on current levels.
- To meet growing demand in the future the availability of arable land will be a major factor.
- Ensure that these resources are not exploited, but rather developed to the benefit of both the individual country and the world.

How about the Sun, now?

Let’s use it!
But how?

Power Tower in Barstow, California

- total capacity of 900 MW
- power 375,000 Californian homes



- 33% of total energy by renewable resources by 2020
- U.S. solar workforce increased 168% in 7 yrs

Kamuthi Solar Power Station, India

- area of 2,500 acres(10 km^2)
- 648 MWp
- 11 MW of capacity per day

- $160 billion plan for solar energy expansion

...Solar Energy

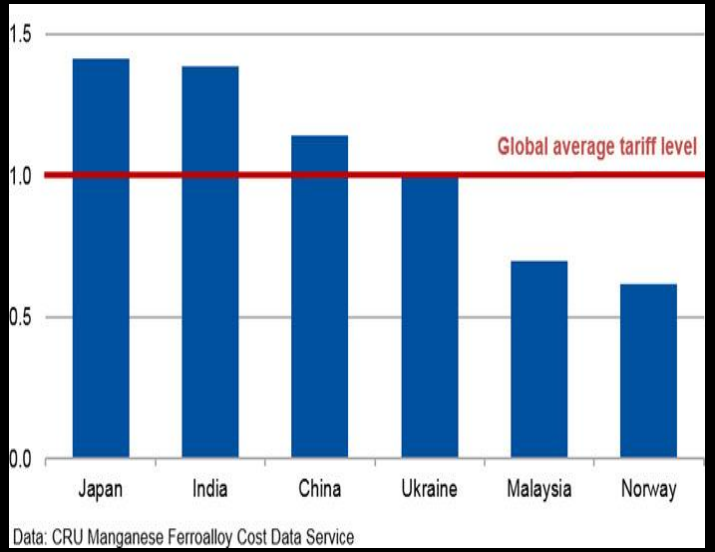
Minerals and Ores

Minerals

- Relatively more scarce during the decade of the 1970s - a reversal of the trend found for the preceding 100 years
- "Derived" demand - only interested in a finished product
- Value of output been estimated at the extraction state
  - Mineral processing, smelting, and refining – instead considered part of the manufacturing sector
- Dr. V.E. McKelvey gave the generalized expression: $L = f(R, E, I, P, CUL)$
  - L: the standard of living, R: natural resource use, E: energy use, I: an index for human ingenuity, P: population, CUL indicates the specific culture and traditions of the society
- India’s Mineral reserve:
  - Coal (fourth-largest reserves in the world)
  - Iron ore, Manganese, Mica, Bauxite, Titanium ore, Chromite
  - Natural gas, Diamonds, Petroleum, Limestone and Thorium (world's largest along Kerala's shores)
  - Oil reserves meet 25% of the country's demand

Uniqueness of Mineral Economics

- Occurrence, Uncertainty of Reserves and Discoveries, Huge increase in the capital cost, Depletion, Exhaustion, and Costs of Mining, Scrap Return, Environmental Requirements
- USA
- Saudi Arabia /Middle East-Petroleum (3rd globally), Gold, Phosphate
- India
  - 11% of industrial GDP and approx 25% of total GDP
  - Tribal area - rich in NR
- China
  - Coal & Oil - 70% energy production
  - Iron ore, precious/rare metals



Steel Production

World prices of minerals, ores and metals have soared to record levels, a trend that began in 2002 with unprecedented demand from China. In 2006 alone, global prices of all minerals skyrocketed up 48%.

Manganese Ore

Mica Ore

Thorium

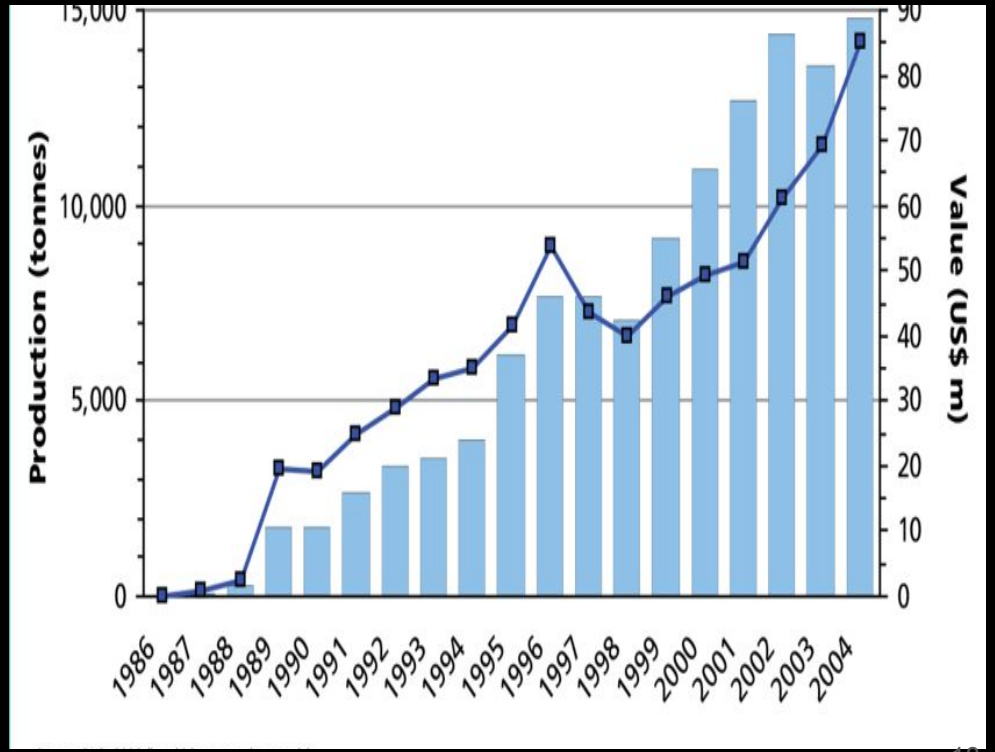
Bauxite Ore

Limestone

Titanium Ore

Oceans: Increasing powerhouse of world economy

- More than 90% of the trade, in the current, is carried out using sea routes
- Fisheries and aquaculture is an important contributor to many national economies across Asia and the Pacific region
- Not only just the trade from the fisheries but employment to the local people and aquacultural farmers has lead to an elevation in the economic growth



The Blue Economy

- Unlike other national resources, oceans pave the path for the ever increasing industry of tourism and recreation.
- Offshore mineral extraction contributes to a huge percentage of a country's economy and trade scales.
- Apart from trade, oceans build an economy out of civilian transportation(non trade) from one port(domestic or international) to another.
- Employment to nearly 6 million people in the fisheries sector.

Future of Ocean Economy

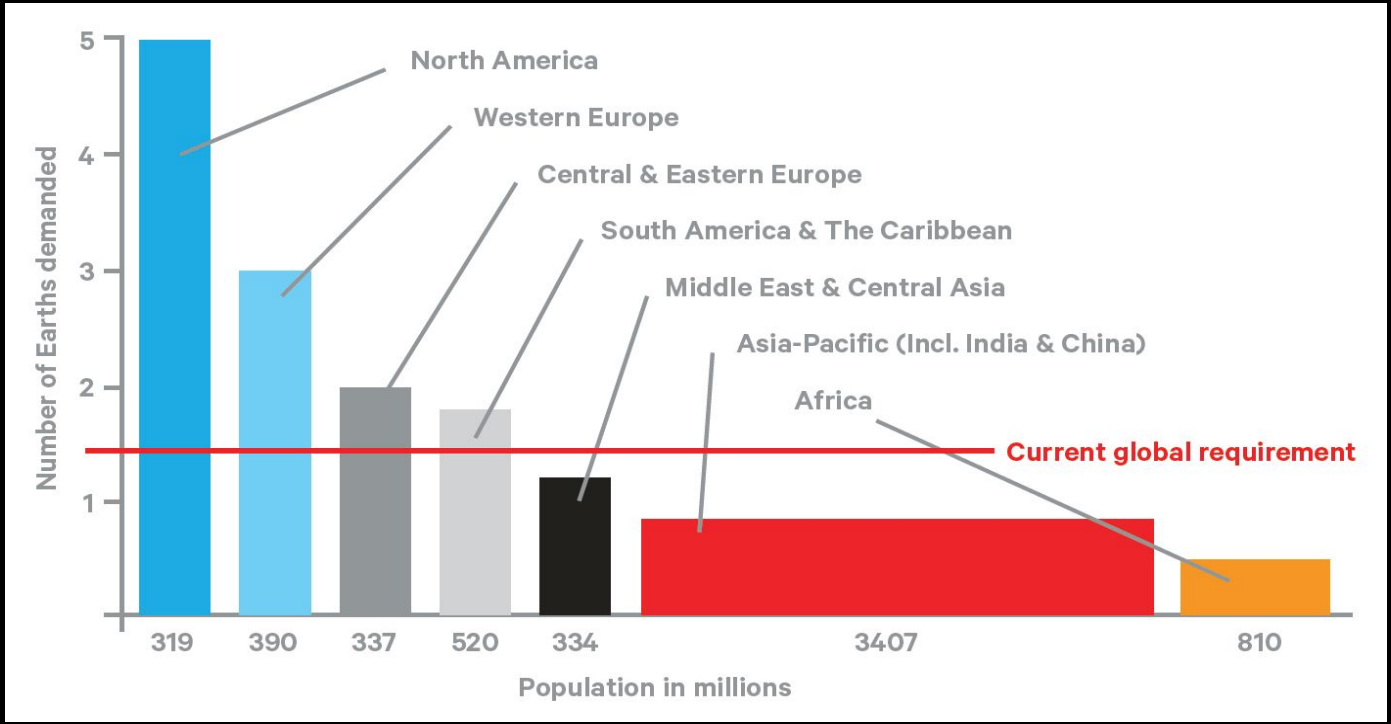
- Great source of energy to support the future of the mankind

- Science, technology and innovation, combinedly are put to use to unravel more possibilities out of oceans as a resource

- Scientific and technological work is going on in different sectors of ocean economy for example, marine robotics and autonomous vehicles, offshore oil and gas production.

Conclusion

- For economic growth, the existence of natural resources in abundance is essential
- A country which is deficient in natural resources will not be in a position to develop rapidly
- As pointed out by Lewis, “Other things being equal, men can make better use of rich resources than they can of poor,”



Global Resources and Energy Use - Global Crisis Now

What can be done?

- Land : Efficient utilization of land. It does not depend on the size but how effectively we use what we have.
- Solar Energy : Using solar panels instead of electricity and solar powered vehicles to save fuel.
- Minerals and Ores : Efficiently using the mineral resources.
- Oceans : Using water transport for trade and tourism, exploiting minerals present in the sea

How can we contribute?

- **Construction and housing**
- **Transport and mobility**
- **Agriculture and food**
- **Heavy industry and energy**
- **Technology**

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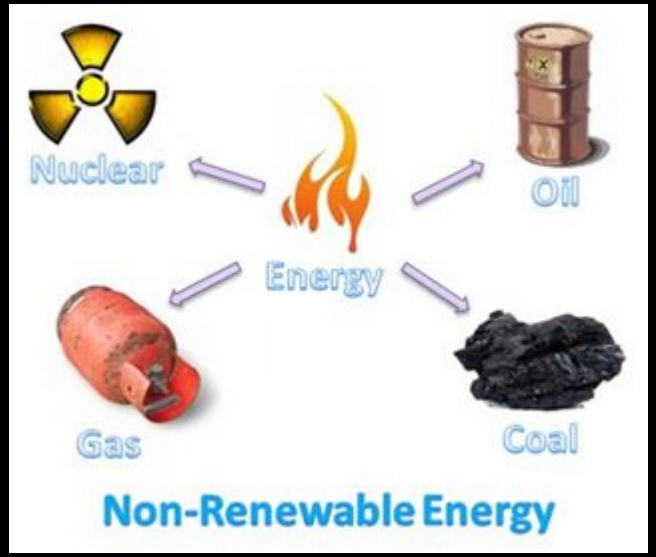

“If you do not pitch in to save us today, world will be in the worst place tomorrow.”