LEARNING OBJECTIVES

- Define a natural resource, give examples of natural resources and classify resources as natural or man-made.
- Classify natural resources as renewable or nonrenewable.
- Give examples of how human use natural resources to make synthetic products.
- Explain how natural resources are distributed on Earth.
- Explain the effects of uneven distribution of natural resources.

POWERPOINT OUTLINE

- Natural Resources
- Renewable vs. Nonrenewable Resources
- Man-Made Products
- Distribution of Natural Resources
- Effects of Uneven Distribution

NATURAL RESOURCES

- Natural resources are things, materials, substances and components found in the natural environment.
- Natural resources exist “naturally” or innately in the world. They are not the result of human manipulation or creation.

NATURAL RESOURCES

- Natural resources can be living or nonliving.
- Plants, animals, rocks and minerals are natural resources
- The sun, fossil fuels, soil, water and wind are natural resources as well



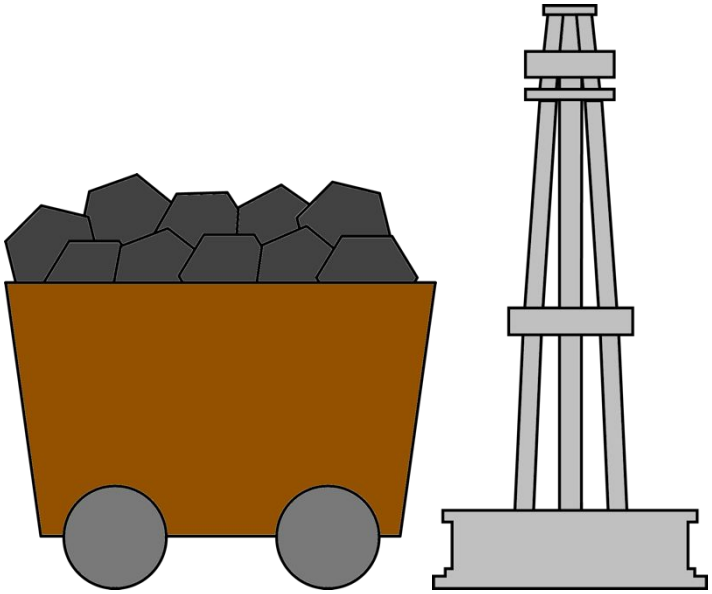

NATURAL RESOURCES

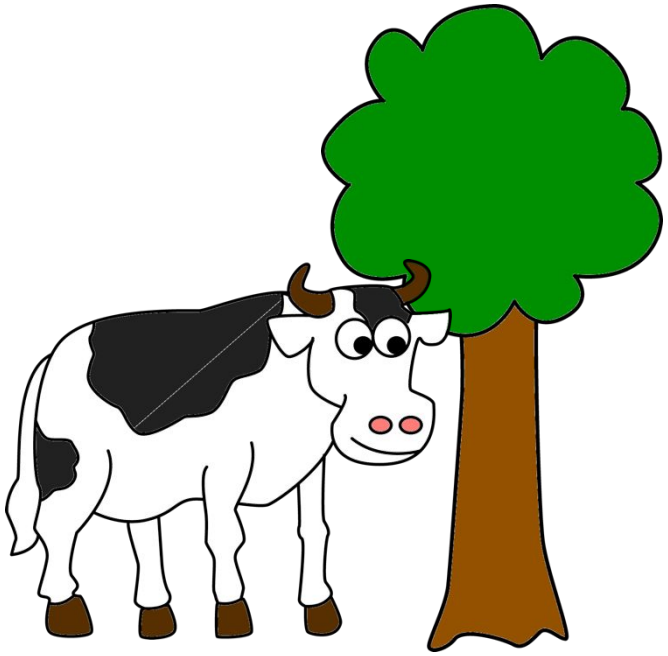
- We use natural resources for many things:
  - We use energy from natural resources for transportation, to generate electricity and to manufacture products.
  - We use natural resources for food. These resources – specifically plants and animals - provide energy that "fuels" our bodies.
  - We use natural resources to construct houses, buildings and roads.



NATURAL RESOURCES

- There are two kinds of natural resources:
  1. Renewable resources
  2. Nonrenewable resources



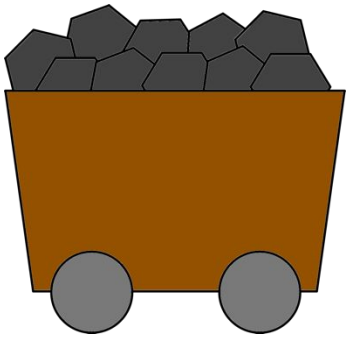
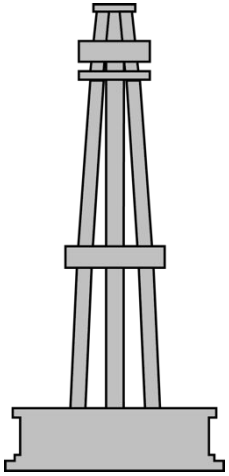
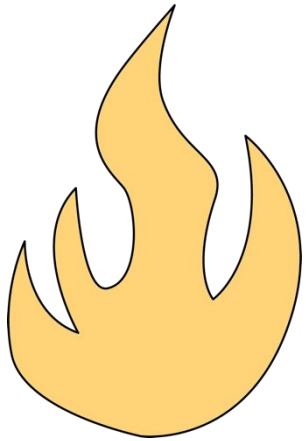
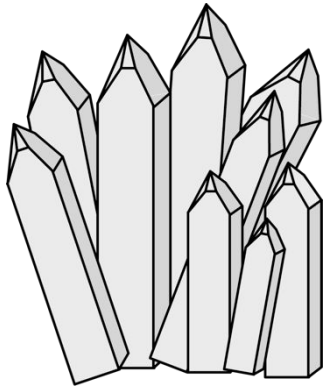
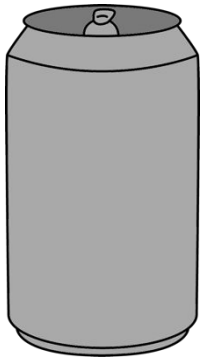


RENEWABLE RESOURCES

- Renewable resources can regenerate if they are living or replenished by biochemical cycles if they are nonliving.
- Theoretically, there is an “infinite” amount of renewable resources.
- Water, sunlight, plants, animals and wind are renewable resources.

NONRENEWABLE RESOURCES

- Nonrenewable resources CANNOT be regenerated or replenished by natural processes.
- There is a finite amount of nonrenewable resources - once used up, they are forever gone.
- Fossil fuels (coal, oil and natural gas), minerals and metals are nonrenewable resources.

NONRENEWABLE RESOURCES

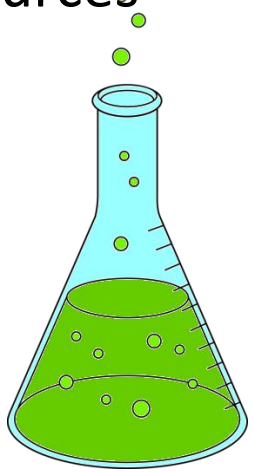
- Renewable resources can become nonrenewable resources if they are used up faster than they can be replenished.
- If the resource no longer exists, there is nothing to regenerate or be replenished.
- Example: If we cut down trees faster than we grow them, trees can become a nonrenewable resource because there are no trees to regenerate.

SYNTHETIC PRODUCTS

- Human use natural resources to make synthetic products.
- Synthetic products are man-made materials and substances.
- Synthetic products are artificial - they do NOT exist naturally in the environment.

SYNTHETIC PRODUCTS

- A synthetic product is made through chemical reactions.
- Natural resources are chemically changed or modified during chemical reactions to make synthetic products.
- Humans can chemically change or modify all kinds of natural resources to make synthetic products.
- We can make synthetic products from plants and animals as well as from metals, minerals and other natural resources found within Earth.



PLANT-BASED PRODUCTS

- Plant-based products are synthetic products made from plants.
  - Plants can be used to make food. Wheat, corn and sugar cane are plants. We use parts of these plants as ingredients to make food such as bread, chips and cookies.
  - Plants can be used to make medicine. Many medicines that treat pain, acne and infectious diseases are made from plant parts and plant oil.
  - Plants can be used to make lotions and cosmetics.

ANIMAL-BASED PRODUCTS

- Animal-based products are synthetic products made from animals.
  - Animals can be used to make clothing. We use fibers from animals, such as wool from sheep and cashmere from goats to make sweaters, coats and other items.
  - Animals can be used to make food. We use eggs from chickens and milk from cows as ingredients to make all sorts of food items.
  - Gelatin in a natural substance obtained from animals. Gelatin is used as a gelling agent in foods such ice cream and marshmallows. It can be used to make the shell of medical capsule in order to make swallowing pills easier.

PETROLEUM-BASED PRODUCTS

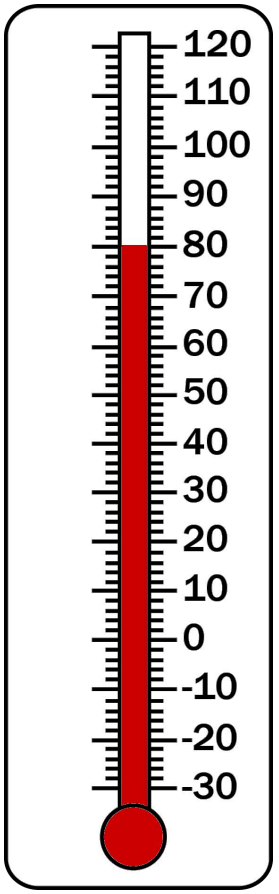
- Petroleum-based products are synthetic products made from petroleum or crude oil.
- Crude oil (simply called oil) is a fossil fuel. We use crude oil as a major source of energy. It is refined to make gasoline.
- We use crude oil to make many other synthetic products as well.
  - Crude oil is used to make different kinds of plastics, including PVC, vinyl and styrofoam.
  - Crude oil is used to make nylon and polyester, which are often used in clothing.
  - Crude oil is used to make lubricants, waxes and tar.

DISTRIBUTION OF RESOURCES

- Earth's natural resources are not distributed evenly across the planet.
- There are several factors that cause natural resources to be unevenly distributed. The three most important factors are:
  1. Climate
  2. Earth's History
  3. Geological Processes

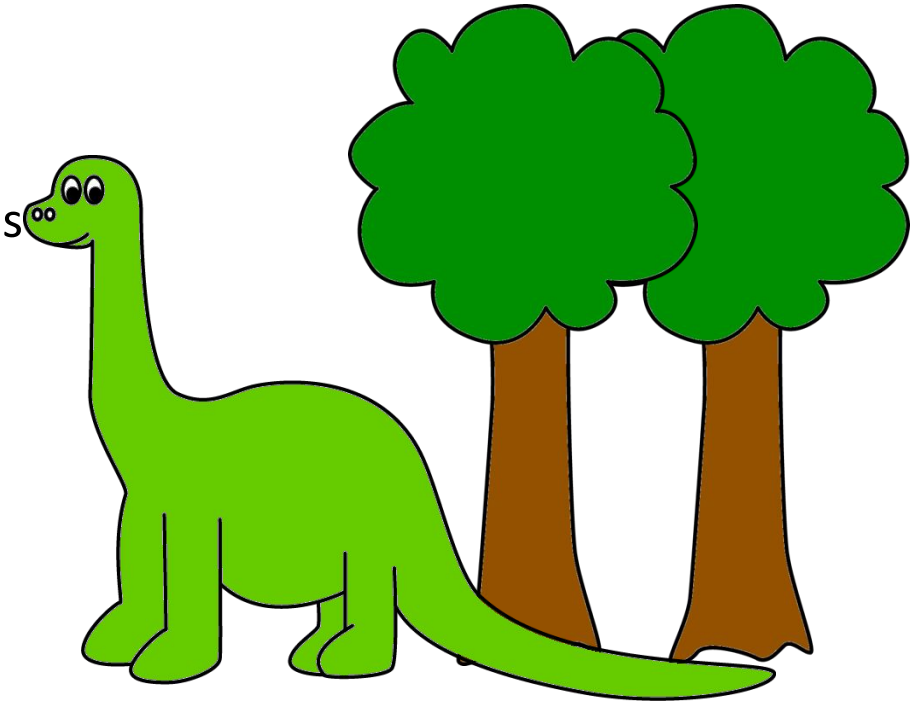
DISTRIBUTION OF RESOURCES

1. Climate
   - Plants and animals require certain environmental conditions to survive. Latitude, ocean currents, wind currents and other factors determine the temperature and precipitation (climate) of a region.
   - Plants and animals are found in regions where temperature is just right and there's enough precipitation to survive.



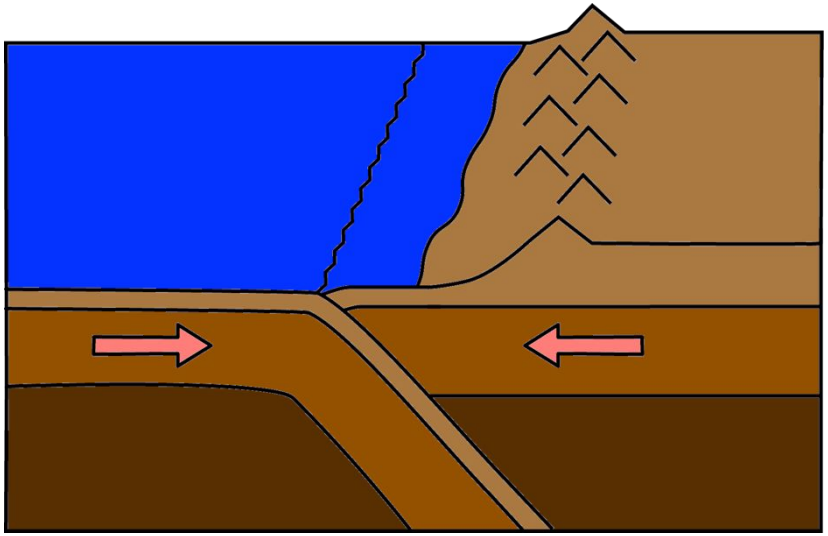
DISTRIBUTION OF RESOURCES

2. Earth's History
   - Some of Earth's resources, such as fossil fuels, formed from the remains of ancient plants and animals.
   - Where these plants and animals lived in the past determines where reserves of these resources are found today.



DISTRIBUTION OF RESOURCES

3. Geological Processes
   - Many metals and minerals are found where new crust is being formed and/or destroyed. This occurs at tectonic plate boundaries or where volcanic activity is taking place or took place in the past.



DISTRIBUTION OF RESOURCES

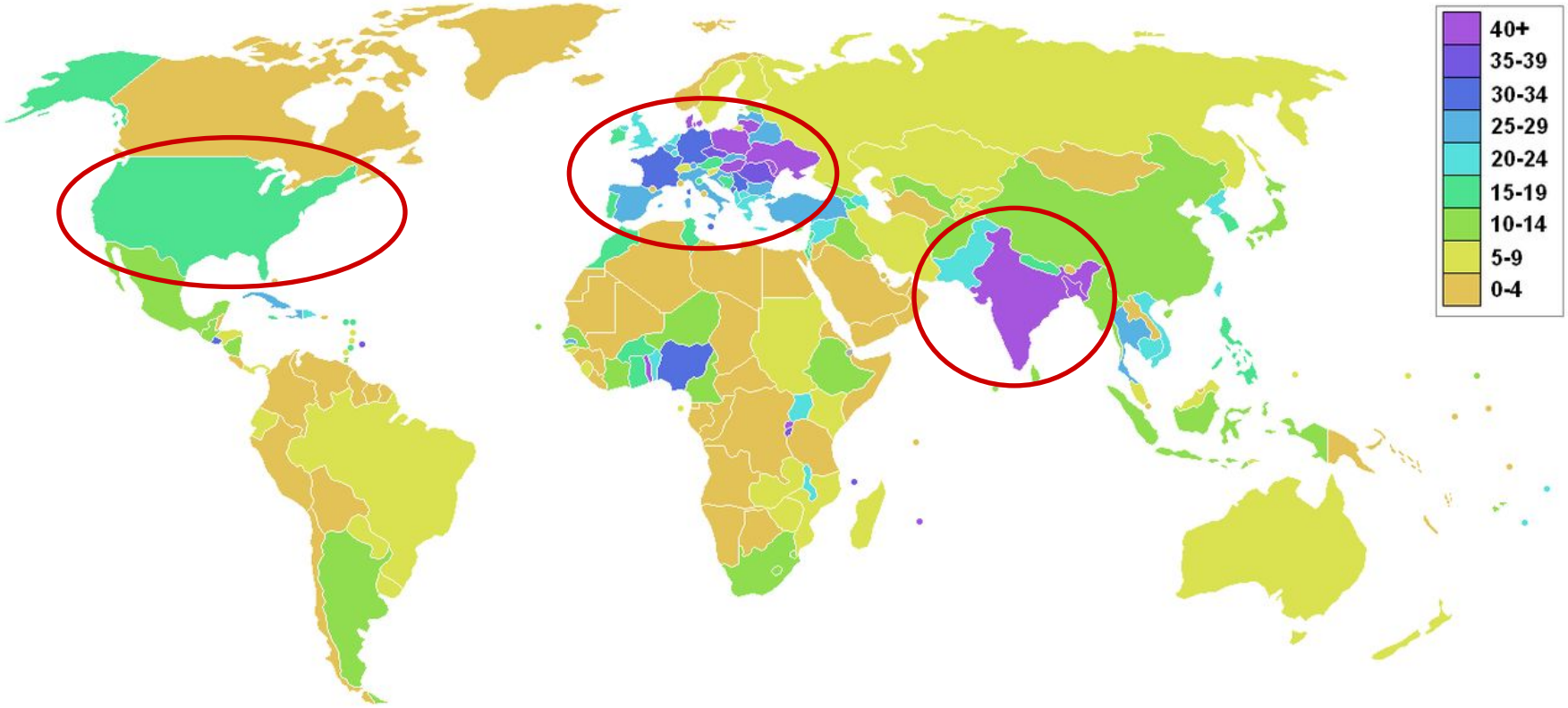
- Let's take a look at five important natural resources that are unevenly distributed on Earth:
  - Fertile Soil
  - Biodiversity
  - Fossil Fuels
  - Uranium
  - Metals & Minerals

FERTILE SOIL

- Humans depend on fertile soil for agricultural purposes. We use fertile soil to cultivate crops and animals.
- Fertile soil is most often found in temperate climates, where temperature is mild and precipitation is relatively high. Temperate climates are most often in mid-latitudes.
- Some regions at lower latitudes have ideal climates for fertile soil as well. Wind and ocean currents bring more moisture and appropriate temperatures for fertile soil.

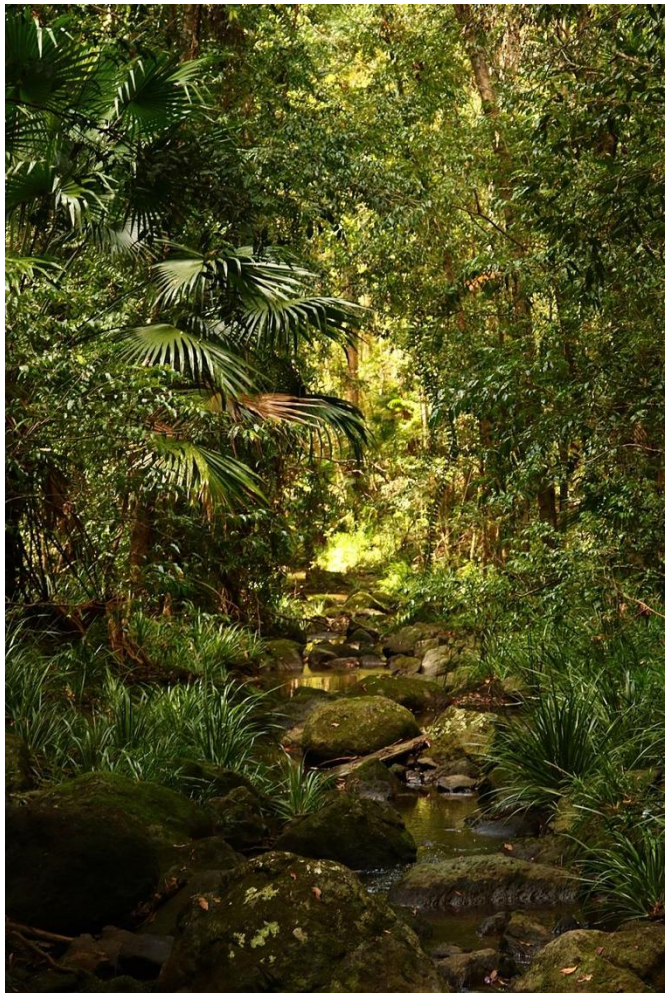
FERTILE SOIL

- The most fertile soil on Earth is found in the United States, Europe, India and China.



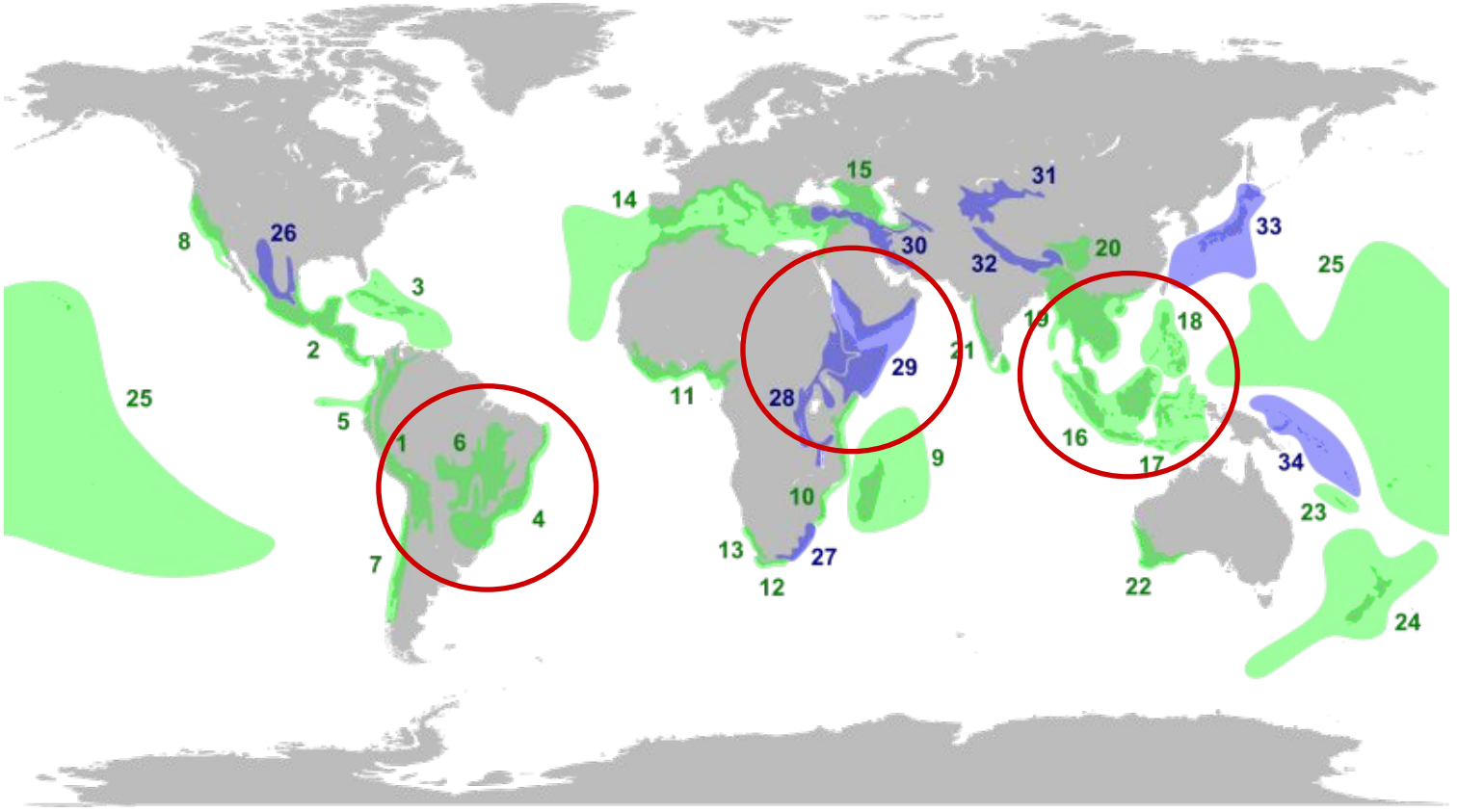
BIODIVERSITY

- Biodiversity is the diversity of life.
- Biodiversity is one of Earth's greatest resources because:
  - It maintains equilibrium or balance in ecosystems.
  - It is a source of new medications. Many medicines are derived from plants and animals.
  - It promotes (improves) water and soil quality.
- Biodiversity is richest (greatest) in the tropical rainforests. We call these regions biodiversity hotspots.



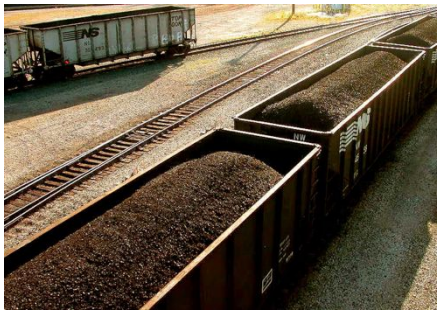
BIODIVERSITY

- The richest biodiversity is found in South America, Africa and Southeast Asia.



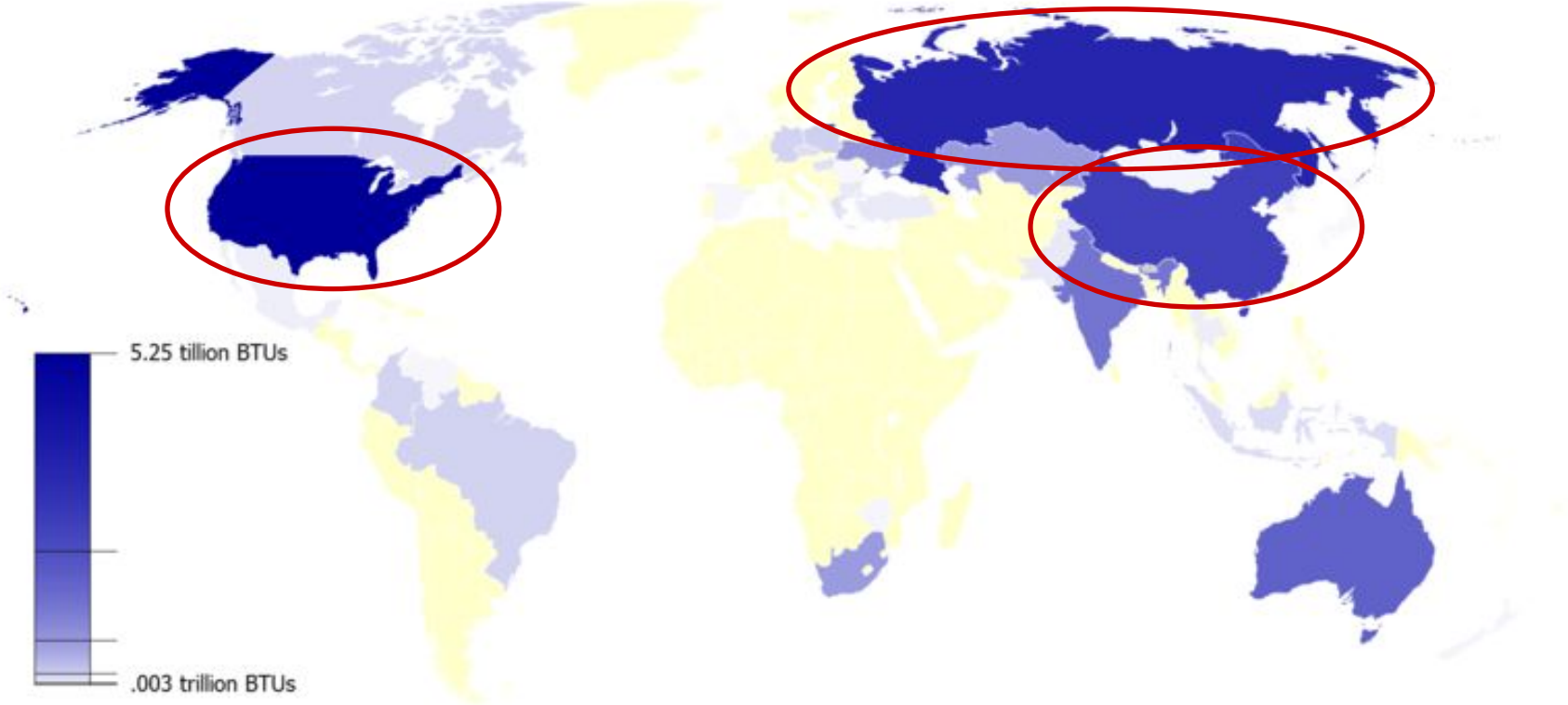
FOSSIL FUELS

- Fossil fuels are major source of energy.
- There are 3 major fossil fuels: coal, oil and natural gas.
- Fossil fuels are found deep within Earth. They accumulate in large pools or reserves.
- The organisms that lived long ago determine where reserves of fossil fuels are found.
  - Coal reserves are found where ancient swamps used to be located on Earth.
  - Oil reserves are found where the remains of marine organisms were buried.
  - Natural gas reserves are often found near oil reserves.



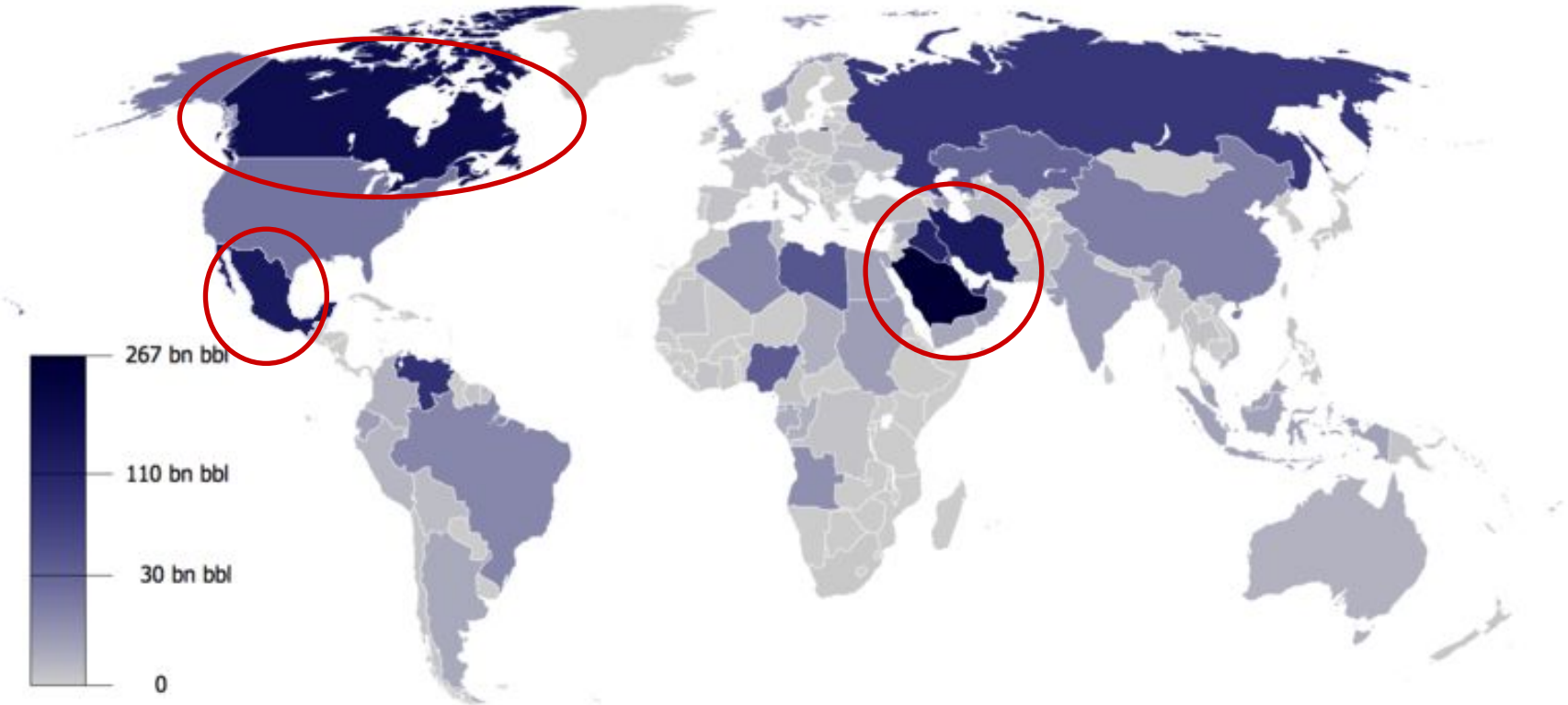
FOSSIL FUELS

- The largest coal reserves are found in the United States. Russia and China have large coal reserves as well.



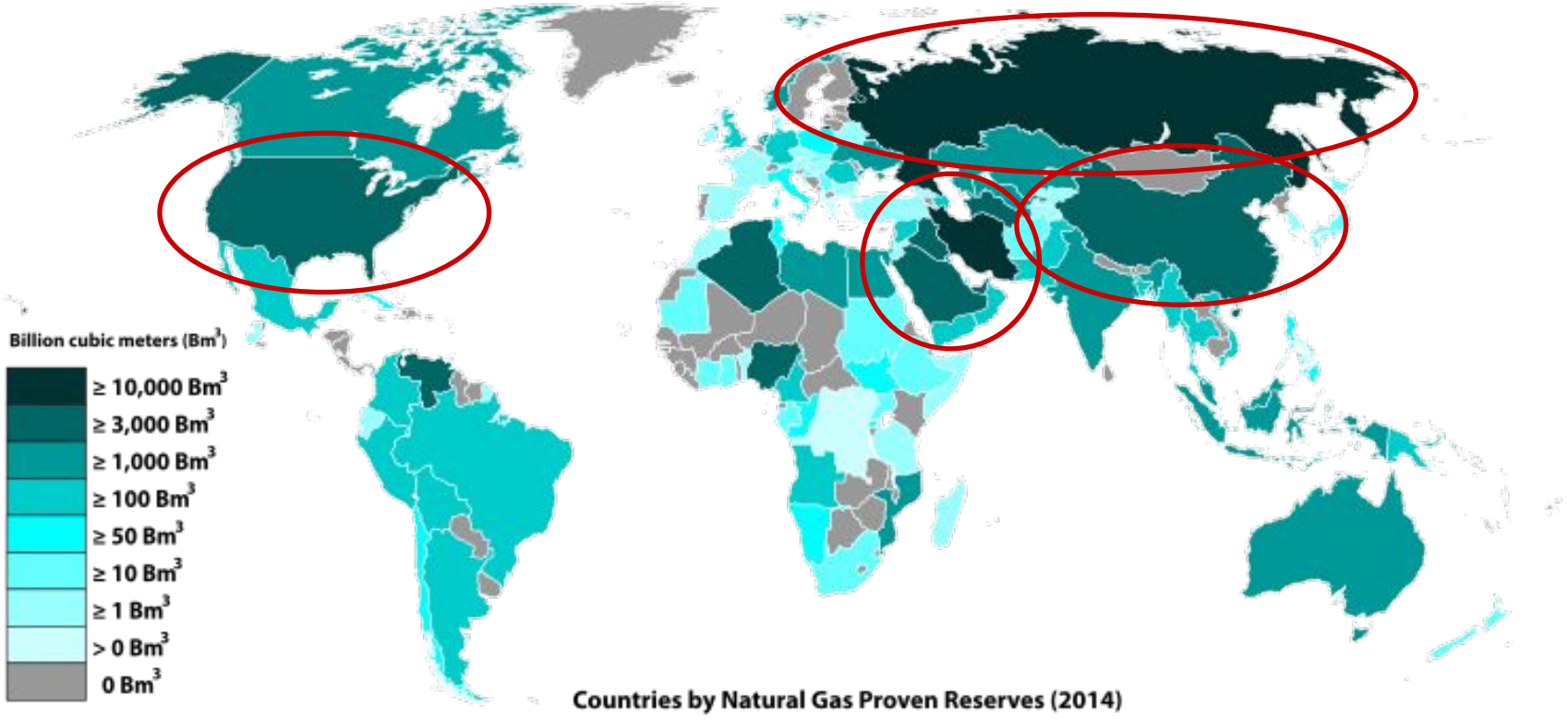
FOSSIL FUELS

- The largest oil reserves are found in the Middle East. Large oil reserves are also found in Canada, Mexico and Russia.



FOSSIL FUELS

- The largest natural gas reserves are found in Russia. Large natural gas reserves are also found in the Middle East, the United States and China.



URANIUM

- Uranium is a naturally radioactive metal. It is found in Earth's crust.
- Uranium is important to nuclear power. Uranium atoms are split apart (in a process called fission). This releases huge amounts of thermal energy. This energy is captured and used to produce electricity.

URANIUM

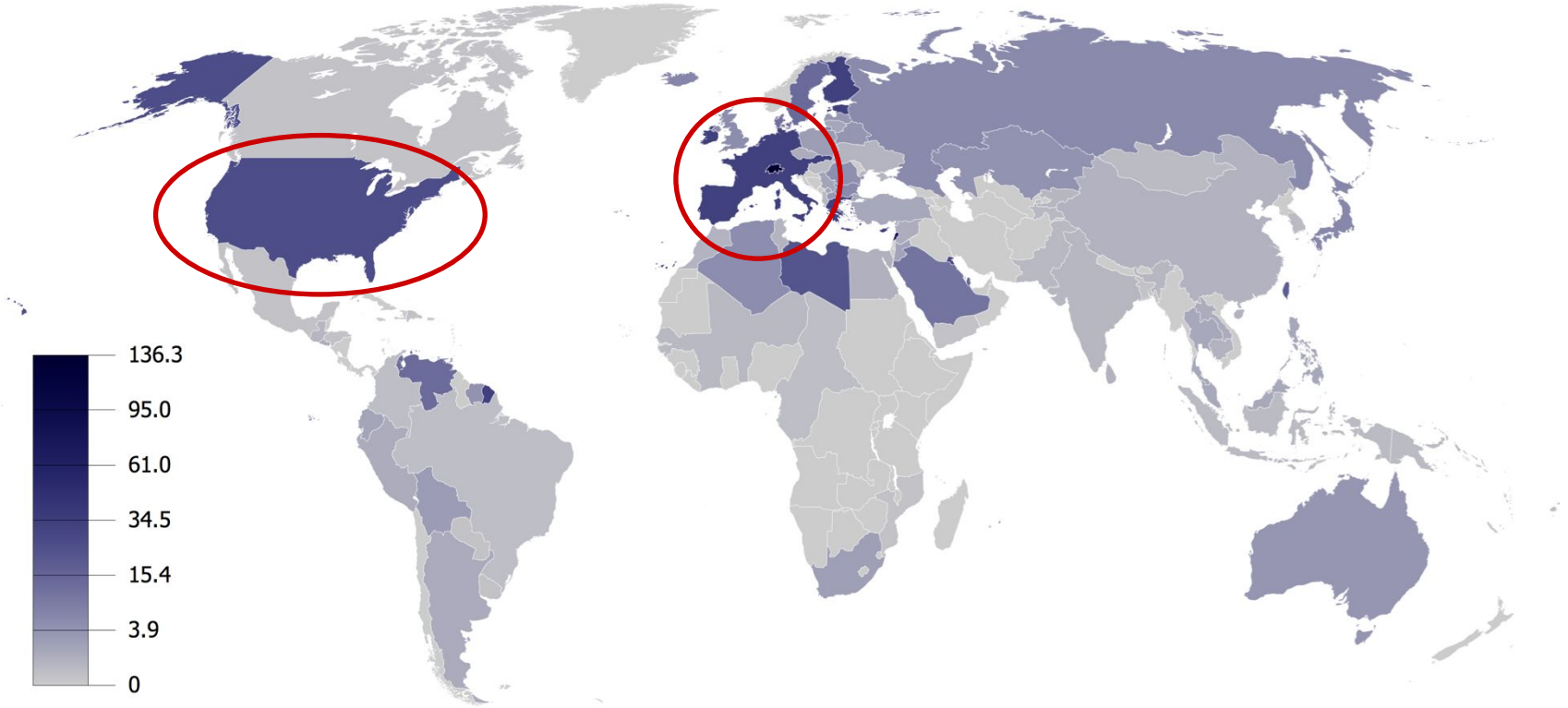
- The largest uranium reserves are found in Australia. Large reserves are also found in Kazakhstan, Russia and Canada.

METALS & MINERALS

- Most of Earth' metals and minerals are found near plate boundaries or faults.
- Gold and diamonds are two of the most desired substances on Earth.
  - Gold is a precious metal most often found near faults and inactive volcanoes.
  - Diamonds are minerals. They are often found near ancient volcanoes, specifically in old volcanic pipes that carried magma from inside Earth to Earth's surface.

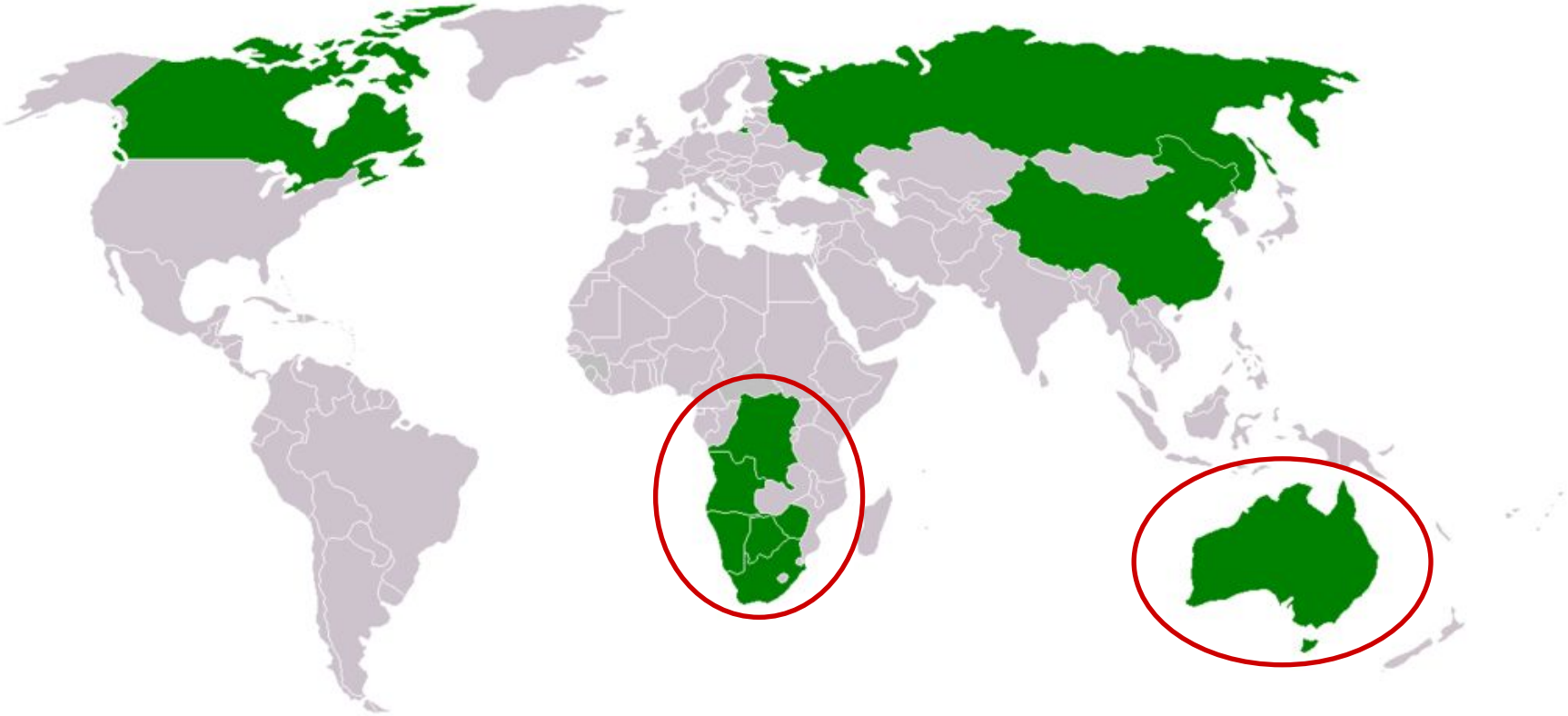
GOLD

- The largest gold deposits are found in the United States and Europe (specifically Germany).



DIAMONDS

- The largest diamond deposits are found in Australia and Africa (specifically South Africa).



UNEVEN DISTRIBUTION EFFECTS

- There are consequences to uneven distribution of resources:
  - Human Settlement
  - Jobs
  - Trade
  - Conflict & War
  - Wealth & Quality of Life




UNEVEN DISTRIBUTION EFFECTS

- People tend to settle in regions that have resources they need to survive. Most important to survival is water and fertile land, which is used for cultivating crops and animals.
- Humans thrive in temperate climates with relatively mild conditions and high precipitation. This explains why countries with the high populations are in North America, Europe and Asia.

UNEVEN DISTRIBUTION EFFECTS

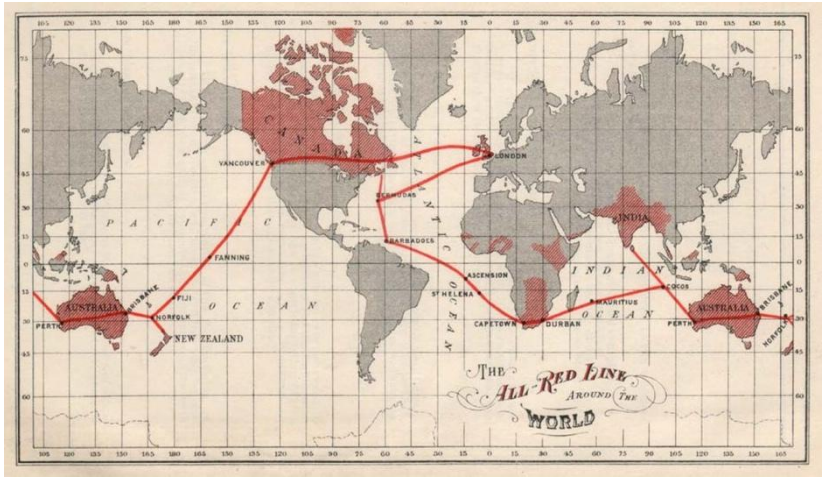
- The economic activities of a country often depend on the resources in that country. In other words, people tend to have jobs that involve harvesting or using the resources abundant in that country.
- Countries abundant in fossil fuels will have more jobs related to oil and gas production or coal mining. Countries with fertile land will have more jobs related to farming and ranching.

UNEVEN DISTRIBUTION EFFECTS

- If a country does not have certain natural resources, the country can trade with other countries that have those resources in order to obtain what it wants or needs.
- The country can exchange resources it has for the resources it needs.

UNEVEN DISTRIBUTION EFFECTS

- Countries sometimes fight with each other over control of resource-rich regions. Countries have fought with each other over gold, diamonds and fertile land. More recently, countries have fought over regions rich in oil.
- Imperialism during the 1800s and early 1900s was in part due to an increased demand for natural resources. With imperialism, larger and stronger countries would take over and exploit smaller and weaker countries for natural resources.



The British Empire, 1902

UNEVEN DISTRIBUTION EFFECTS

- The wealth of a country and the quality of life of people that live in that country are determined by the country's economic activities.
- Economic activities often depend on the abundance of natural resources in that country. Therefore, wealth of a country and quality of life often depend on the abundance of natural resources in that country.
- More specifically, quality of life and wealth depend on what resources a country has and what the country does with them.

UNEVEN DISTRIBUTION EFFECTS

- The abundance of natural resources is not the only factor that determines whether a country is prosperous.
- Many wealthy countries rely on manufacturing products and technology to make up for lack of resources.
- Example: Japan has limited resources but manufactures highly desired products, such as cars and electronics. Japan trades these products and in return, obtains resources it needs and great wealth.

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