

# MANA ARMS MAGAZINE

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.....Empowering Minds

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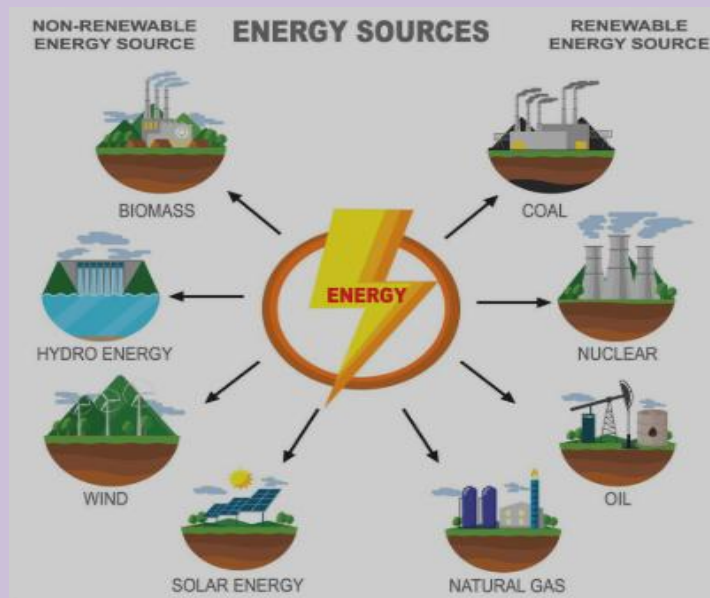
## CONTENTS

EDITORIAL BOARD .....	2
FACULTY ARTICLE .....	4
ALUMNI ARTICLE.....	6
STUDENT ARTICLE .....	9
MOTIVATIONAL QUOTE .....	13
SUCCESS TIP .....	13

## FACULTY ARTICLE



D.KHYATHIMAI



Non-renewable energy sources are resources that exist in finite quantities and cannot be replenished at a rate comparable to their consumption. They are commonly used to generate electricity and other forms of energy but are ultimately depleted over time. The main non-renewable energy sources include fossil fuels (coal, oil, and natural gas) and nuclear energy.

**Fossil Fuels:** Coal: A solid fossil fuel formed from ancient plant matter, used primarily for electricity generation.

**Oil (Petroleum):** A liquid fossil fuel formed from the remains of marine organisms, used for various applications like transportation fuel and plastics.

**Natural Gas:** A gaseous fossil fuel, primarily methane, often used for heating and electricity generation.

#### **Nuclear Energy:**

**Uranium:** A radioactive element that can be used to generate electricity through nuclear fission.

#### **Characteristics of Non-Renewable Energy Sources:**

**Finite Supply:** They are limited in quantity and cannot be replaced once depleted.

**Formation Over Long Periods:** Fossil fuels, in particular, take millions of years to form.

**Potential Environmental Impacts:** Burning fossil fuels releases greenhouse gases, contributing to climate change.

Nuclear energy also has environmental and safety concerns related to waste disposal and potential accidents.

**Dominant Role in Energy Consumption:** Fossil fuels currently supply a large portion of the world's energy needs.

**Importance of Understanding Non-Renewable Energy:**

**Resource Management:** Recognizing the finite nature of non-renewable resources is crucial for sustainable energy planning.

**Transition to Renewables:**

Understanding the limitations of non-renewable sources is essential for transitioning to renewable energy sources.

**Energy Security:**

Diversifying energy sources and reducing reliance on non-renewable resources can enhance energy security



K.S.N.MALLESWARA RAO  
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## ALUMNI ARTICLE

### Hoover Dam

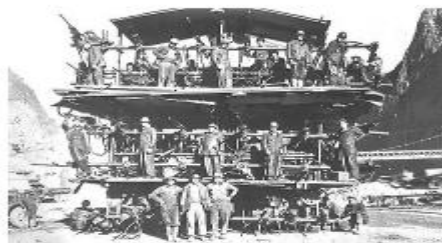
Hoover Dam is a concrete arch-gravity dam in the Black Canyon of the Colorado River, on the border between the U.S. states of Nevada and Arizona. Constructed between 1931 and 1936, during the Great Depression, it was dedicated on September 30, 1935, by President Franklin D. Roosevelt. Its construction was the result of a massive effort involving thousands of workers, and cost over 100 lives.

Bills passed by Congress during its construction referred to it as Hoover Dam (after President Herbert Hoover), but the Roosevelt administration named it Boulder Dam. In 1947, Congress restored the name Hoover Dam. Since about 1900, the Black Canyon and nearby Boulder Canyon had been investigated for their potential to support a dam that would control floods, provide irrigation water, and produce hydroelectric power.

In 1928, Congress authorized the project. The winning bid to build the dam was submitted by a consortium named Six Companies, Inc., which began construction in early 1931. Such a large concrete structure had never been built before, and some of the techniques used were unproven. The torrid summer weather and lack of facilities near the site also presented difficulties.

Nevertheless, Six Companies turned the dam over to the federal government on March 1, 1936, more than two years ahead of schedule. Hoover Dam impounds Lake Mead and is located near Boulder City, Nevada, a municipality originally constructed for workers on the construction project, about 30 mi (48 km) southeast of Las Vegas, Nevada.

The dam's generators provide power for public and private utilities in Nevada, Arizona, and California. Hoover Dam is a major tourist attraction, with 7 million tourists a year. [7] The heavily traveled U.S. Route 93 (US 93) ran along the dam's crest until October 2010, when the Hoover Dam Bypass opened.



Workers on a "Jumbo Rig"; used for drilling the Hoover Dam's tunnels

Soon after the dam was authorized, increasing numbers of unemployed people converged on southern Nevada. Las Vegas, then a small city of some 5,000, saw between 10,000 and 20,000 unemployed descend on it.

A government camp was established for surveyors and other personnel near the dam site; this soon became surrounded by a squatters' camp. Known as McKeeversville, the camp was home to men hoping for work on the project, together with their families. Another camp, on the flats along the Colorado River, was officially called Williamsville, but was known to its inhabitants as "Ragtown".

When construction began, Six Companies hired large numbers of workers, with more than 3,000 on the payroll by 1932 and with employment peaking at 5,251 in July 1934. "Mongolian" (Chinese) labor was prevented by the construction contract, while the number of black people employed by Six Companies never exceeded thirty, mostly lowest-pay-scale laborers in a segregated crew, who were issued separate water buckets.

As part of the contract, Six Companies, Inc. was to build Boulder City to house the workers. The original timetable called for Boulder City to be built before the dam project began, but President Hoover ordered work on the dam to begin in March 1931 rather than in October. The company built bunkhouses, attached to the canyon wall, to house 480 single men at what became known as River Camp.

Workers with families were left to provide their own accommodations until Boulder City could be completed, and many lived in Ragtown. The site of Hoover Dam endures extremely hot weather, and the summer of 1931 was especially torrid, with the daytime high averaging 119.9 °F (48.8 °C). Sixteen workers and other riverbank residents died of heat prostration between June 25 and July 26, 1931.

### **Environmental impact**

The changes in water flow and use caused by Hoover Dam's construction and operation have had a large impact on the Colorado River Delta. The construction of the dam has been implicated in causing the decline of this estuarine ecosystem. For six years after the construction of the dam, while Lake Mead filled, virtually no water reached the mouth of the river. The delta's estuary, which once had a freshwater-saltwater mixing zone stretching 40 miles (64 km) south of the river's mouth, was turned into an inverse estuary where the level of salinity was higher close to the river's mouth.

The Colorado River had experienced natural flooding before the construction of the Hoover Dam. The dam eliminated the natural flooding, threatening many species adapted to

the flooding, including both plants and animals. The construction of the dam devastated the populations of native fish in the river downstream from the dam.

Four species of fish native to the Colorado River, the Bonytail chub, Colorado pikeminnow, Humpback chub, and Razorback sucker, are listed as endangered



Hoover Dam panoramic view from the Arizona side showing the penstock towers, the Nevada-side spillway entrance and the Mike O'Callaghan – Pat Tillman Memorial Bridge, also known as the Hoover Dam Bypass

## Recognition

Hoover Dam was recognized as a National Historic Civil Engineering Landmark in 1984. It was listed on the National Register of Historic Places in 1981 and was designated a National Historic Landmark in 1985, cited for its engineering innovations.



## STUDENT ARTICLE

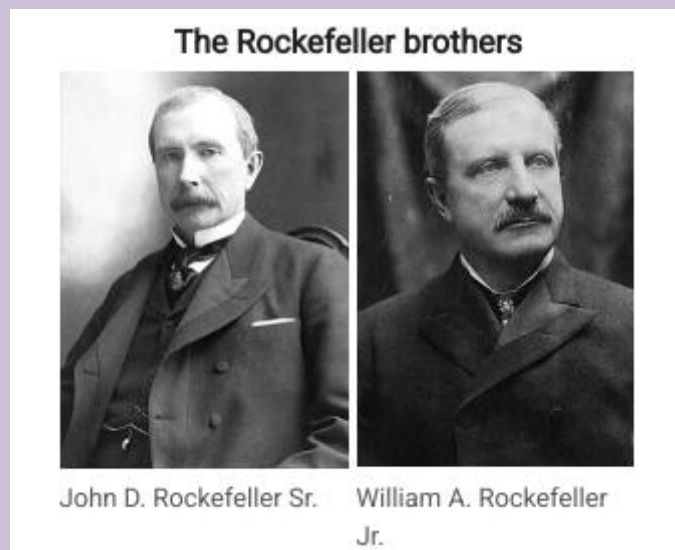
### ROCKEFELLER



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The Rockefeller family is an American industrial, political, and banking family that owns one of the world's largest fortunes. The fortune was made in the American petroleum industry during the late 19th and early 20th centuries by brothers John D. Rockefeller and William A. Rockefeller Jr., primarily through Standard Oil (the predecessor of ExxonMobil and Chevron Corporation). The family had a long association with, and control of, Chase Manhattan Bank. By 1987, the Rockefellers were considered one of the most powerful families in American history.

The Rockefellers originated in Rhineland in Germany and family members moved to the Americas in the early 18th century, while through Eliza Davison, with family roots in Middlesex County, New Jersey, John D. Rockefeller and William A. Rockefeller Jr. and their descendants are also of ScotsIrish ancestry.



The Rockefeller family traces their origin to the now abandoned German village Rockenfeld in the early 17th century. The American family branch is descended from Johann Peter Rockefeller (1681- 1763), who migrated from the Rhineland to Philadelphia in the Province of Pennsylvania around 1723.

In the US, he became a plantation owner and landholder in Somerville, and Amwell, New Jersey. One of the first members of the Rockefeller family in New York was businessman William A. Rockefeller Sr., who was born to a Protestant family in Granger, New York. He had six children with his first wife Eliza Davison, a daughter of a Scots-Irish farmer, the most prominent of which were oil tycoons John D. Rockefeller and William A.

Rockefeller Jr., the co-founders of Standard Oil. John D. Rockefeller (known as "Senior", as opposed to his son John D. Rockefeller Jr., known as "Junior") was a devout Northern Baptist, and he supported many church-based institutions. While the Rockefeller family are mostly Baptists, some of the Rockefellers were Episcopalians.

### Legacy



A trademark of the dynasty over its 140-plus years has been the remarkable unity it has maintained, despite major divisions that developed in the late 1970s, and unlike other wealthy families such as the Du Ponts and the Mellons. A primary reason has been the lifelong efforts of "Junior" to not only cleanse the name from the disgrace stemming from the ruthless practices of Standard Oil but his tireless efforts to forge family unity even as he allowed his five sons to operate independently. This was partly achieved by regular brothers and family meetings, but it was also because of the high value placed on family unity by first Nelson and John III, and later especially with David.

Regarding achievements, in 1972, on the 100th anniversary of the founding of Andrew Carnegie's philanthropy, the Carnegie Corporation, which has had a long association with the family and its institutions, released a public statement on the influence of the family on not just philanthropy but encompassing a much wider field. Summing up a predominant view among the international philanthropic world, albeit one poorly grasped by the public, one sentence of this statement read: "The contributions of the Rockefeller family are staggering in their extraordinary range and in the scope of their contribution to humankind."

John D. Rockefeller gave away US\$540 million over his lifetime (in dollar terms of that time), and became the greatest lay benefactor of medicine in history. His son, Junior, also gave away over \$537 million over his lifetime, bringing the total philanthropy of just two generations of the family to over \$1 billion from 1860 to 1960.

Added to this, The New York Times declared in a report in November 2006 that David Rockefeller's total charitable benefactions amount to about \$900 million over his lifetime. The combined personal and social connections of the various family members are vast, both in the United States and throughout the world, including the most powerful politicians, royalty, public figures, and chief businessmen. Figures through Standard Oil alone have included Henry Flagler and Henry H. Rogers. Contemporary figures include Henry Kissinger, Richard Parsons (chairman and CEO of Time Warner), C. Fred Bergsten, Peter G. Peterson (Senior Chairman of the Blackstone Group), and Paul Volcker.

In 1991, the family was presented with the Honor Award from the National Building Museum for four generations worth of preserving and creating some of the U.S.'s most important buildings and places. David accepted the award on the family's behalf. The ceremony coincided with an exhibition on the family's contributions to the built environment, including John Sr.'s preservation efforts for the Hudson River Palisades, the restoration of Williamsburg, Virginia, construction of Rockefeller Center, and Governor Nelson's efforts to construct low- and middle-income housing in New York state.

The Rockefeller name is imprinted in numerous places throughout the United States, including within New York City, but also in Cleveland, where the family originates: Rockefeller Center - A landmark 19-building 22-acre (89,000 m<sup>2</sup>) complex in Midtown Manhattan established by Junior: Older section constructed from 1930 to 1939;

Newer section constructed during the 1960s-1970s;

Rockefeller Apartments - An apartment building in Midtown Manhattan Rockefeller University - Renamed in 1965, this is the distinguished Nobel prize-winning graduate/postgraduate medical school (formerly the Rockefeller Institute for Medical Research, established by Senior in 1901);

Rockefeller Foundation - Founded in 1913, this is the famous philanthropic organization set up by Senior and Junior;

Rockefeller Brothers Fund - Founded in 1940 by the third-generation's five sons and one daughter of Junior;

Rockefeller Family Fund - Founded in 1967 by members of the family's fourth-generation;

Rockefeller Group - A private family-run real estate development company based in New York that originally owned, constructed and managed Rockefeller Center, it is now wholly owned by Mitsubishi Estate Co. Ltd;

Rockefeller Philanthropy Advisors - is a 501(c)(3) nonprofit organization that advises donors in their philanthropic endeavours throughout the world;

Rockefeller Research Laboratories Building - A major research centre into cancer that was established in 1986 and named after Laurance, this is located at the Memorial Sloan-Kettering Cancer Center;

Rockefeller Center - Home of the International Student Services office and department of philosophy, politics and law at the State University of New York at Binghamton.

## MOTIVATIONAL QUOTE



## SUCCESS TIP





.....Empowering Minds

# SRI VASAVI INSTITUTE OF ENGINEERING & TECHNOLOGY(A)

.....*Department of Mechanical Engineering*.....

2023-24 VOL-30