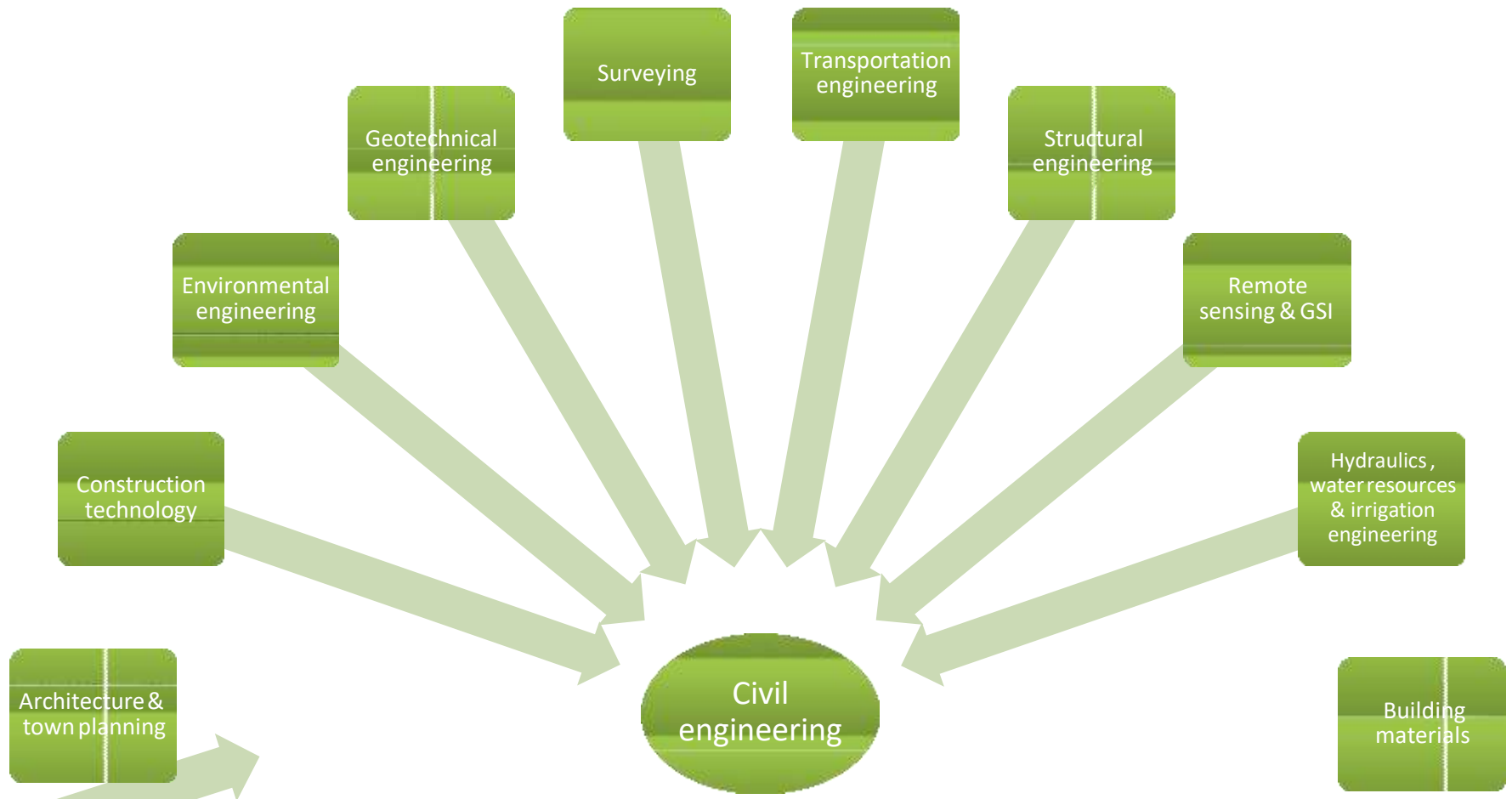


**Understanding the
importance of civil
engineering in
shaping and
impacting the world.**

What is civil engineering?

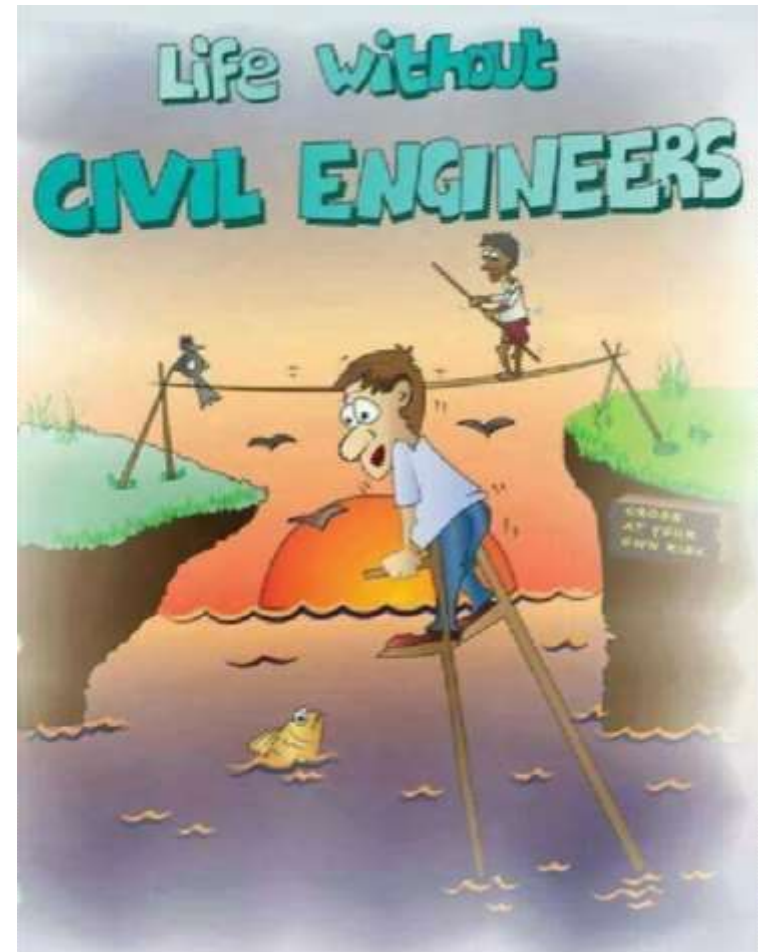
- Civil engineering is a professional engineering discipline that deals with the design, construction, and maintenance of the physical and naturally built environment, including public works such as roads, bridges, canals, dams, airports, sewerage systems, pipelines, structural components of buildings, and railways.
- Civil engineering is traditionally broken into a number of sub-disciplines.
- It is considered the second-oldest engineering discipline after military engineering.
- Civil engineering takes place in the public sector from municipal through to national governments, and in the private sector from individual homeowners through to international companies.
- Began 4000 BC and 2000 BC (during Ancient Egypt , Mesopotamia , Indus valley Civilisations).

Disciplines of civil engineering



IMAGINE A WORLD WITHOUT CIVIL ENGINEERS !!!

- *Without civil engineering, there would be neither cities nor landscapes to view. We would have never enjoyed viewing tallest skyscrapers like the Shanghai Tower in China, the World Trade Center and Empire State building in New York, the Dream Dubai Marina .These tallest buildings have been constructed and engineered to fulfill a purpose over the years.*
- *World without dams, canals , bridges ??*
- *If there were no hydraulic engineers, then we have not been able to channelize water for human use with the design and construction of dams, canals and bridges. With the application of fluid mechanics principles, hydraulic civil engineers plan and execute the proper collection, storage, control, transportation, regulation, measurement and usage of water*



How civil engineers shape our world

❖ Civil engineering is an important branch as through construction and infrastructure a nation can be called as developed or non developed.

❖ It is so vital , that for Every Stream Engineering to start , Civil Engineering provides the Structure under which it is installed and the infrastructure through which it becomes applicable.

❖ Civil engineering plays critical role in increasing the health and quality of life , From developing better water supplies, municipal sewer systems, wastewater treatment plants to the design of buildings to protect us from natural hazards and provide health care, to improved agriculture through water resource development and distribution projects to rapid and dramatic changes in transportation systems.

❖ Civil engineers are responsible for looking after the fire control systems and installing quick fire exit points in the buildings they design. This will help in minimizing the loss of life during fire accidents.

❖ The structures that civil engineers design and build define the culture of a society and help to keep pace with a constantly changing world.

Wonders of civil engineering

1. Golden Gate Bridge



The bridge was the longest suspension cable bridge back in 1937 when it was opened up. The bridge connects Marion County to the northern tip of San Francisco. It has a total span length of 1.7 miles. The bridge sports 6 lanes and a width of 90 feet. The tallest point on the bridge is about 746 feet tall.

2. Channel Tunnel



It is also known as Chunnel and is an underground tunnel that is 32 miles long. It connects United Kingdom with northern France. It enjoys being the longest length of tunnel that is submerged in sea. The deepest point is 246 ft. deep. The tunnel can cater to high-speed passenger trains, Roll on/Roll off vehicle transport trains and freight trains.

3. Eurotunnel



This is an amazing sample of the Modern Engineering, this tunnel start from England and End in France. Interest thing is that this is in water. The length of this tunnel is 31 miles and 23 of which is in the sea.

4. Palm Islands



Here is another great example of the Modern Engineering's success, these islands are the worlds biggest artificial islands in Dubai, United Arab Emirates. There are 1500 villas in it and all are on the artificial beaches. The islands are the Palm jumeirah , the Palm Jebel Ali and the Palm deira .

5. Burj Khalifa

As the tallest structure in the world, standing at 829.8 meters, Burj Khalifa in Dubai was designed as the centrepiece for a new development called Downtown Dubai. The building was named in honour of the ruler of Dubai and president of the United States Arab Emirates. It was designed by Skidmore, Owings and Merrill (SOM), and the design is inspired by the patterns and structures in Islamic architecture. The structure cost \$1.5 billion to build



6. Brooklyn Bridge



The Brooklyn Bridge is one of the oldest bridges in the United States, and it's both a suspension and cable-stayed bridge. Completed in 1883, it connects the boroughs of Manhattan and Brooklyn by spanning the East River. The bridge was initially designed by German engineer, John August Roebling, but due to his death, he was replaced by his son, Washington Roebling who took charge of the project. It cost \$15.5 million to build. Since it opened, it has become a historic icon of New York City, and was designated a historic landmark in 1964.

Civil engineers who changed the world with their work

❑ **John Smeaton** – Often regarded as the father of civil engineering, Smeaton made huge contributions to the Industrial Revolution. Born in Leeds, he was the first to proclaim himself a 'civil engineer'. He was involved in work on windmills and waterwheels but is perhaps best known for his work studying the correlation between pressure and velocity for objects moving in the air.

❑ **Squire Whipple** – No. We haven't made that name up. Born in Massachusetts Whipple designed and then built a 300 ton capacity weigh lock scale for the Erie Canal. He also built several bridges for the New York and Erie railroad. His designs were used in numerous bridges and became the standard design for Erie Canal crossings

❑ **Benjamin Wright** – Described as the father of *American* civil engineering, Wright served as the chief engineer to the construction of the Erie Canal and Chesapeake and Ohio Canal. He eventually had contracts for construction efforts involving 6,000 men and 700 horses.

❑ **Isambard Kingdom Brunel** – One of the most famous civil engineers ever, Brunel was versatile. He designed tunnels, railways, ships and bridges and was named the 2nd greatest Briton back in 2002 (beat to the number 1 spot by Churchill.)

His most famous works were the tunnels, bridges and viaducts he designed for the Great Western Railway. He designed ships too, the most famous of which were the Great Western and the Great Britain.

❑ **Gustave Eiffel** - Frenchman Alexander Gustave Eiffel, born 1832 in Dijon, is now best known for the 986-foot tower that bears his name. The tower, which was intended to be temporary, is just one of Eiffel's achievements. During his career, he was better known for innovative **ironwork bridges**, railway stations, and cast iron, which he researched in great depth. His career included projects in locales as distant as Egypt and Chile, where he designed an all-metal prefabricated church for on-site assembly. His biggest project before "le tour" was the observatory at Nice, completed 1886.

❑ **Thomas Telford** - Scotsman Thomas Telford, born 1757 in the borderland with England, was known in his day as the "Colossus of Roads." So prolific was he in developing the civil infrastructure of his native Scotland and, ultimately, Britain as a whole, that his labors helped lay the foundations for the Industrial Revolution. Apprenticed to a stonemason at 14, he worked throughout Edinburgh and London before becoming Surveyor of Public Works in Shropshire.

Through Telford's work on various castles, churches, and prisons, he became established as an architect. His first of 40 major bridge projects around Shropshire was designed in 1790. By 1793, he was developing the Ellesmere Canal, an ambitious project to link the ironworks of Wrexham with Chester via Shropshire. He invented multiple new techniques for the project, and was soon developing the road networks that cemented his legacy. In later years, he served as first president of the Institution of Civil Engineers.

Some famous Indian civil engineers

1. E Sreedharan (The metro man)

The man who has revolutionized the way Delhites commute every day, E Sreedharan has emerged as the country's first choice for the next Railway Minister. He's the backbone on which the rests the success of the Delhi Metro Rail Corporation. In his personal life, he's a simple man and a resident of Ponnani in Kerala.



2 . Sir Mokshagundam Visvesvaraya



Sir MV was recognized for engineering the Krishna Raja Sagara Dam located in Mysore. Also, he was one of the Chief designing engineers for bringing up a system for flood protection in Hyderabad.

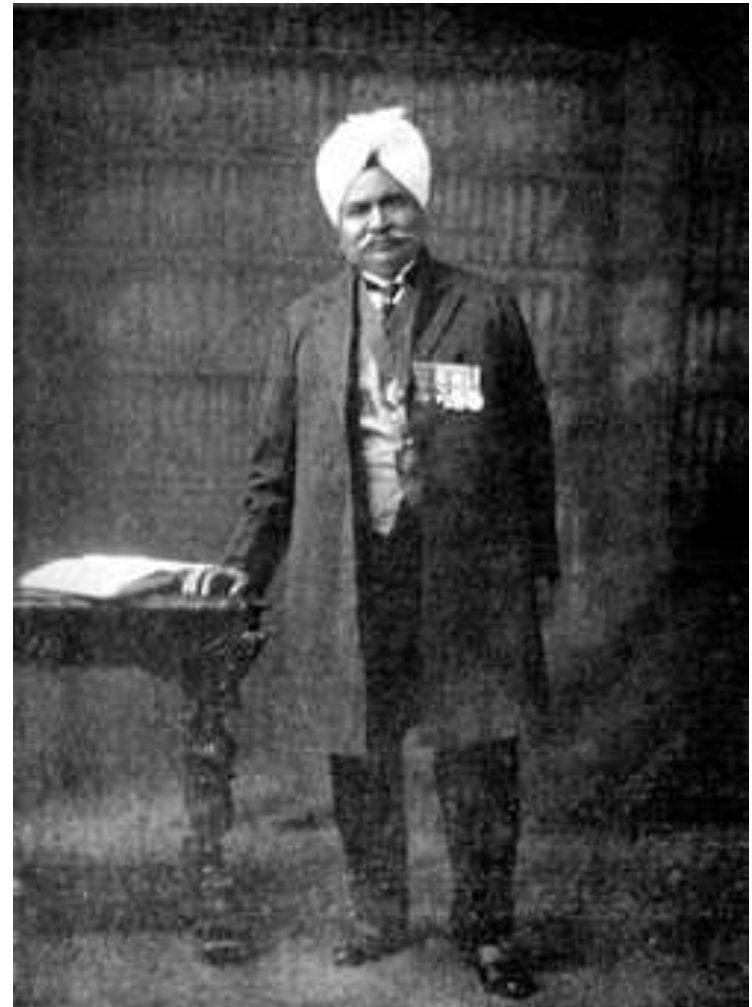
He created automatic sluice gate which was later reused for tiger dam in Madhya Pradesh. He was conferred with india's highest civilian award Bharat ratna in 1955 for his contributions towards engineering.

3. Sir Ganga Ram

Rai Bahadur Sir Ganga Ram CIE MVO was an Indian civil engineer and architect. His extensive contributions to the urban fabric of Lahore, in modern Pakistan, have earned him the nickname “father of modern Lahore.”

He designed and built General post office Lahore, Lahore Museum, Aitchison College, Mayo School of Arts (now the National College of Arts), Ganga Ram Hospital, Lahore 1921, Lady Mclagan Girls High School, the chemistry department of the Government College University, the Albert Victor wing of Mayo hospital.

He also constructed Model Town and Gulberg town, once the best localities of Lahore, the powerhouse at Renala Khurd as well as the railway track between Pathankot and Amritsar.



4. Rachpal Singh Gill

Er. **Rachpal Singh Gill** was a Sikh Indian civil engineer responsible for key engineering projects such as the Bhakra Nangal hydro power complex, Ranjit Sagar Dam, Pong Dam , and the thermal power plants at Bathinda as well as Roopnagar.

5. Kanwar sen

Kanwar Sen was an eminent civil engineer from Rajasthan state in India. He was the Chief Engineer in the Bikaner state who came up with idea of Rajasthan canal. He successfully implemented Ganga canal project too. He was considered a doyen of irrigation engineering of his time..He graduated as a civil engineer from Thomason College of Civil Engineering, Roorkee (now, IIT Roorkee) in the year 1927 with honours. He was awarded Padma Bhushan in 1956. He has written a book called -Reminiscences of an engineer. He was chairman of Central Water and Power Commission, Ministry of Irrigation and Power, Government of India. Kanwar sain and Karpov (1967) presented enveloping curves for Indian rivers.

6. Ali Nawaz Jung Bahadur

again an irrigation engineer who was responsible for some of the most notable irrigation works and dams in the princely state of Hyderabad.

THANK YOU