

1) Best out of waste using civil engineering.

Waste material has been defined as any type of material by product of human and industrial activity that has no lasting value. The re-use of waste materials is an essential step in creating a sustainable future, and research into the re-use of different byproducts has often led to new materials that provide superior service or greater economy than those traditionally used. Marginal soils, including loose sands, soft clays, and organics are not adequate materials for construction projects. These marginal soils do not possess valuable physical properties for construction applications. The current methods for remediation of these weak soils such as stone columns, vibro-compaction, etc. are typically expensive. Stabilization of soil with adding these waste materials are new & cheaper method of utilization. There are many method of waste management but recycling of them is one of the best methods of utilizing the waste material.

2) Smart villages - integration of ict to existing rural Infrastructure.

Information and communications technologies (ICTs) have proved its vast potential for the benefit of mankind in various fields. Information and communications technologies (ICTs) are often used to assure the right to an education and learning, and have a potential to serve developing needs . The various researchers have recognized the potential of ICTs for rural development and it may play key role for the fast and sustainable development of rural India in coming years. Information Technology (IT) can make a difference in a developing country only, if it is designed in close collaboration with its users .

3) Green buildings & zero energy buildings

Green Building refers to a structure and using a process that is environmentally responsible and resource efficient throughout a building's lifecycle. Since buildings consume nearly 50% of World's Total Energy, Green Buildings, on the other hand, consume minimum amount of energy with the use of energy efficient materials. Hence, location of green buildings in the close proximity would create a green zone and providing much healthier environment with minimum heat island effect.

4) Pollutant removal from ground water by coagulation process

High concentrations of arsenic in groundwater have caused extraordinary medical issues the whole way across the world. In this, diverse strategies of arsenic evacuation have been considered by utilizing some cross breed materials, for example, Activated (charcoal) furthermore with Ferric Chloride, Coarse Calcite alongside Ferric Sulphate(hydrous) and Portland Cement. These cross breed materials were set up by solgel and co-precipitation strategy.

5).Solar powered irrigation system

The main goal of this project is to develop an irrigation system in the field of agriculture by using solar energy and it has many advantages. The system is an automatic irrigation system where the irrigation pump is operated from solar energy. It becomes tedious to manually operate the irrigation system and keep monitoring the water level of the soil. Hence the system uses solar power by using photo-voltaic cells instead of commercial electricity.

6) Risk analysis of a Infrastructure/construction project.

Software is a unique tool that can be used for project planning , control, monitoring and reporting. It is useful for all engineers who are in the field of project management. It is backed by Oracle, which in turn provides unlimited data storage and fast access to the data. The combination of the two makes it a brilliant software that can be recommended to all project managers and planners. Also its multidisciplinary functionality makes it perfect for all trades.

7) Earthquake treatment design & advanced control devices

1. How to reduce vibrations in the structure
2. How to increase serviceability of structure by minimum use of materials like steel etc.
3. Use of prestressing in earthquake resisting structures
4. Use of rubber in earthquake resisting structures
5. Use of precast members in earthquake

8) Passive solar energy buildings

Passive solar design is a green concept which is aimed to utilize the maximum solar energy in the form of heat to maintain interior thermal comfort throughout the sun's daily and annual cycles, thereby the reducing the dependence of energy consuming mechanical and electrical systems of heating and cooling. The windows, walls and floors of the homes are designed to collect the solar heat from the sun in winter and reject it in the summer.