

CHAPTER: 1**INTRODUCTION****Agriculture:**

Agriculture is the cultivation of animals, plants, fungi, and other life forms for food, fiber, bio fuel, medicinal and other products used to sustain and enhance human life. Agriculture was the key development in the rise of sedentary human civilization, whereby farming of domesticated species created food surpluses that nurtured the development of civilization.

Agriculture is the main source of livelihood for over 80% of the rural poor in India. Although, it employs about 52% of the labor force, it contributes to only 14.4% of GDP (Gross Domestic Product) and 10.23% of all exports. Rural women, who constitute 30% of the agricultural work force, are amongst the least paid workers. Any effort of poverty reduction and economic development must address the problems being faced by the agricultural sector and turn the challenges into economic opportunities for the poor.

India achieved spectacular agricultural growth since 1966. The increase in food grain production from a meager 51 million tonnes in 1950 to about 245 million tonnes in 2011-12 is a remarkable achievement unparalleled in the history of world agriculture. Similar enhancement in production of milk, fish, oilseeds and fruit & vegetables has also been observed. Green, blue, yellow and white revolutions have been responsible for bringing in prosperity to the farming community. The cradle of the success, besides government policies and high receptivity of the farming community, has been the establishment of institutions of higher agricultural education. These institutions developed new breed of skilled human resource who were instrumental in not only generating new technologies but also in their assessment, refinement and dissemination to the farming community

Today, India ranks second worldwide in farm output. Agriculture and allied sectors like forestry and fisheries accounted for 13.7% of the GDP in 2013, about 50% of the total workforce. The economic contribution of agriculture to India's GDP is steadily declining with the country's broad-based economic growth. Still, agriculture is

demographically the broadest economic sector and plays a significant role in the overall socio-economic fabric of India.

Irrigation:

Irrigation in India refers to the supply of water from Indian rivers, tanks, wells, canals and other artificial projects for the purpose of cultivation and agricultural activities. In country such as India, 64% of cultivated land is dependent on monsoons. The economic significance of irrigation in India is namely, to reduce over dependence on monsoons, advanced agricultural productivity, bringing more land under cultivation, reducing instability in output levels, creation of job opportunities, electricity and transport facilities, control of floods and prevention of droughts.

Slow agricultural growth is a concern for policymakers as some two-thirds of India's people depend on rural employment for a living. Current agricultural practices are neither economically nor environmentally sustainable and India's yields for many agricultural commodities are low. "Poorly maintained irrigation systems" and almost universal lack of good extension services are among the factors responsible.

To overcome this **"poorly maintained irrigation systems"** difficulty, canals are constructed and pipelines will be produced for the agri-lands. To produce these pipeline ways, trenching has to be performed.

Irrigation is very necessary for cultivation of crops. Usually rivers are far from agri-lands, which creates difficulty to irrigate. To overcome this problem of irrigation, pipeline have been developed which connects river with agri-lands. In present days, it is been followed manually / with heavy machines, which results in high economic costs and time, thus the project **"THE PIPELINE TRENCHER"** comes into picture.

Trench:

A trench is a type of excavation or depression in the ground that is generally deeper than it is wide and narrow compared to its length.

Today life during the pipeline construction project was characterized by long hours, poor conditions, and limited entertainment compensated by excellent benefits and pay. Trenchers come in different sizes and may use different digging implements, depending on the required width and depth of the trench and the hardness of the surface to be cut. Trenchers must be handled with extreme care because they are very dangerous equipment.

Trencher:

A **trencher** is a piece of construction equipment used to dig trenches, especially for laying pipes or cables, for installing drainage, or in preparation for trench warfare. Trenchers may range in size from walk-behind models, to attachments for a skid loader or tractor, to very heavy tracked heavy equipment.