

Land survey introduction

Gulshan Kumar
School of Fisheries

Introduction

- It involves determination of relative position of an object by measuring distances, directions and elevations.
- Simply stated, surveying involves the measurement of distances and angles.
- There are two fundamental purposes for measuring distances and angles. The first is to determine the relative positions of existing objects. The second is to lay out or mark the desired positions of new objects to be constructed.

- It is both an **art** and **science**.
- The practice of surveying is an art because it is dependent upon the skill, judgment, and experience of the surveyor.
- Surveying may also be considered an applied science because field and office procedures rely upon a systematic body of knowledge, related primarily to mathematics and physics.

- Surveying is based on the use of precise measuring instruments in the field and on systematic computational procedures in the office.
- The instruments may be traditional or electronic.
- The computations (primarily of position, direction, area, and volume) involve applications of geometry, trigonometry, and basic algebra.
- The traditional measuring instruments used in the field are the transit or theodolite (to measure angles), the level and level rod (to measure vertical distances or elevations), and the steel tape (to measure horizontal distances).

- **Principle of surveying**
- **Classification of surveying**

Defining horizontal and vertical direction

- The earth actually has the approximate shape of an oblate spheroid.
- But for our purposes, we can consider the earth to be a perfect sphere with a constant diameter.
- And we can consider that the surface of the sphere is represented by the average level of the ocean, or mean sea level.
- By definition, the curved surface of the sphere is termed a **level surface**. The direction of gravity is perpendicular or normal to this level surface at all points, and gravity is used as a **reference direction** for all surveying measurements.

