

## FLOW IRRIGATION CH-04

The irrigation system in which the water flows under gravity from the source to the agricultural lands known as flow irrigation. The flow irrigation involves..

- (a) The construction of weir or barrage across a river (known as diversion head works)
- (b) The construction of dam across a river valley (To form a storage reservoir)
- (c) The excavation of canal system (Network of canal to cover the command area)

Types of canals :-

1. Based on purpose :- Based on the purpose of

service, the canal area designated as

- (a) Irrigation canal
- (b) Navigation canal
- (c) power canal
- (d) feeder canal.

(a) Irrigation canal :- The canal which is constructed to carry water from the source to the agricultural land for the purpose of irrigation is known as irrigation canal such as Bhakra canal, Rajasthan canal, etc.

(b) Navigation Canal :- The canal which is constructed for the purpose of in land navigation is known as navigation canal. This type of canal is also utilised for irrigation such as Ganga-Brahmaputra navigation cum irrigation canal.

(c) Power canal :- The canal which is constructed to supply water with very high force to the purpose of moving turbine to generate electric power is known as power canal or hydel canal such as Nangal Hydel canal.

(d) Feeder canal :- The canal which is constructed to feed another canal or river for the purpose of irrigation or navigation is known as feeder canal such as Farakka barrage feeder canal.

2. Based on Nature of supply :-

Based on the nature of supply, the canals are designated as (a) Inundation (b) perennial canal.

(a) Inundation canal :- The canal which is excavated from the banks of the inundation river to carry water to the agricultural land in rainy season only when the river flows to its full capacity is known as inundation canal. No. regulator is provided at the head of such canal. The flow of water through the canal depends on the fluctuation of water.

The discharge capacity of the ~~canals~~ branch canal is smaller than that of the main canal. This discharge varies from 5 to 10 cumec.

c. Distributory channel :- The distributory channels are taken from the branch canals to supply water to different sections. The discharge capacity of these channel varies from 0.25 to 3 cumec. Again these are designated as major distributory and minor distributory according to their function in the total network.

d. Field channels :- These channel are taken from the outlets of the distributory channels by the cultivators to supply water to their own land. These channels are maintained by the cultivators.

4. Based on Alignment :- Depending upon the alignment the canal are designated as

(a) Ridge or watershed canal

(b) contour canal.

(c) side slope canal.

through the canal. When the water level falls below the bed level of the canal. The flow of water through the canal.

(b) Perennial canal :- The canal which can supply water to the agricultural land throughout the year is known as perennial canal. This type of canal is taken from the up stream side of the diversion head works (weir or barrage) or from the storage reservoirs with regulator at the head of the canal.

3. Based on Discharge :- According to discharge capacity, the canal are designated as

(a) Main canal (b) branch canal

(c) Distributory ~~channels~~ channels (d) field channel.

a. Main canals :- The large canal which is taken directly from the diversion head work or from storage reservoir to supply water to the network of other small canal is known as main canal. The irrigation water is not directly supplied to the field from the main canal. The water is taken to field through the branch canal, distributory channel and field channel. So the main canal is the backbone of the canal system.

b. Branch canals :- The branch canal are taken from either side of the main canal at suitable point so that the whole command area can be covered by the network.

(a) Ridge or watershed canal :- The canal which is aligned along the ridge line (watershed line) is known as ridge canal or watershed canal. The advantage of this type of canal is that it can irrigate the areas on both sides. Again there is no possibility of crossing any natural drainage and hence no cross-drainage work is necessary.

(b) Contour canal :- The canal which is aligned approximately parallel to the contour line is known as contour canal. This canal can irrigate the areas on one side only. This canal may cross-natural drainage and hence cross-drainage work are necessary.

(c) Side stop canal :- The canal which is aligned approximately at right angle to the contour line is known as side stop canal. It can irrigate the areas on one side only. Again it does not cross-drainage work are not necessary.